Reference Guide to Electronic Commerce in South Asia

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The New Century Group

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This Executive Guide presents a summary of research findings into an area of current and vital interest to executive decision makers. It provides key pointers for decision makers who require:

- A snapshot of current trends
- A summary of the most recent research
- A guide to some of the leading information technology suppliers

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- Electronic Banking
- Electronic Government
- Enterprise Application Solutions
- Internet & Intranet
- IT Customer Services & Support
- IT Operational Services

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The New Century Group is providing an understanding of opportunities, insight into emerging markets and answers to pressing questions. We help our customers to understand, anticipate and address opportunities.

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See back cover for details of INPUT and
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Reference Guide to Electronic Commerce in South Asia

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Electronic Commerce & Payments

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Introduction

Electronic Commerce is changing the way business is conducted, not only in North America and Europe, but in Asia as well. Yet, most executives in South Asia lack the understanding of electronic commerce that they need to address either the challenges or opportunities that electronic commerce will bring to their organizations.

This *Reference Guide to Electronic Commerce in South Asia* provides an understanding of the current state of electronic commerce in South Asia and the implications to senior management. It provides an evaluation of electronic commerce and examines the implications for senior executives in South Asia.

The New Century Group and INPUT conducted a survey of 300 large and medium sized organizations, involving 50 interviews with senior executives in each of six key South Asian countries: India, Indonesia, Malaysia, Philippines, Singapore and Thailand. This *Reference Guide* summarizes the major findings of this survey, and offers detailed profiles of best-of-breed providers of electronic commerce solutions and services providers. These are the firms that we recommend as the first point of contact for any South Asian organization planning to implement electronic commerce.

Table of Contents

List of Exhibits

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1

Executive Summary

Intense business competition, technology, changes in the marketplace, and pressure from customers and suppliers are driving businesses to overhaul the way that they have been doing business, and driving the interest in electronic commerce.

Vendors, manufacturers, distributors and suppliers are looking to electronic commerce to help them create new revenue streams, open new markets and retain current clients. They are specifically expecting to see benefits of lower operating cost, competitive advantage, global reach, and customer management. They are looking to it as a necessary aspect of doing business in the future.

South Asia is significantly behind North America and Europe in the adoption and use of Electronic Commerce (EC). Poor telecommunications infrastructure and the low penetration of information technology (IT) among Asian consumers are two factors behind this. This study found that another factor is a pervasive wait-and-see attitude among many businesses in South Asia.

However, executives should realize that electronic commerce will soon become mandatory and that companies which are not equipped for electronic commerce will be at a competitive disadvantage. This will come much sooner than expected for most executives in South Asia. Businesses will expect their trading partners to use electronic commerce, just as they now expect them to use a fax.

Businesses can start using electronic commerce for information distribution and then graduate to offer a broader range of services. Companies need to track the interests of both customers and business partners to ensure that they do not fall behind.

Increasingly, businesses in South Asia must embrace the Internet and electronic commerce or face the great risk of losing their customers to new and traditional competitors that are operating on the web.

What is Electronic Commerce?

Electronic commerce is the use of IT systems to carry out the inter-organizational business processes of buying and selling goods and services. Put simply, it is a means of transacting business electronically, and in many cases, over the Internet. It involves a composite of technologies, processes and business strategies that foster the instant exchange of information within and between organizations, buyers and sellers. Included in this definition of Electronic Commerce are the traditional "older" technologies of Electronic Data Interchange (EDI) and e-mail, and the "newer" Internet Commerce (IC), Extranet, and Web capabilities.

- EDI is the direct, application-to-application transmission of business documents, primarily to trading partners. It is the cornerstone of business-to-business E-Commerce for many organizations. It operates via the transmission of paperless, computer-readable business documents electronically between trading partners and business systems.

- Internet Commerce involves the use of the Internet or World Wide Web for "value" transactions and electronic commerce services. It addresses the needs of both business-to-business and business-to-consumer transactions.

- When a company shares its Intranet with its suppliers and customers, they have in essence created an Extranet (typically a business-to-business network operating over the Internet).

For some companies, electronic commerce is nothing more than financial transactions that use information technology.

Electronic commerce extends the value chain beyond the corporate boundaries and encompasses the full supply chain / product life cycle / sales cycle. It includes the use of information technology for EDI, customer and product databases, electronic funds transfers, value-added networks, interactive voice-response customer service systems, sales and marketing on the internet, electronic catalogs, and basically anything simultaneously involving technology and business or commerce.

Historically, E-Commerce has been divided into two categories:

- **Business-to-Business (B-to-B)**, involving electronic business transactions between businesses. This typically involves transactions between trading partners.

- **Business-to-Consumer (B-to-C)**, involving electronic business transactions between a business and an individual consumer.

In addition to businesses and individual consumers, governments are becoming a key player in electronic commerce. Governments, and their citizens, are also beginning to benefit from the speed, lower cost and efficiency of providing information and conducting transactions electronically.

Government-to-Business electronic commerce, involving electronic transactions between government and businesses, is helping both government and business reduce costs and improve efficiency. Many also see electronic transactions with government as a means of reducing corruption and bribery.

Given the advantages of transacting business with government electronically, those countries that lag in this area will find themselves at a disadvantage in attracting investment and capital.

Government-to-Citizen electronic commerce involves electronic transactions between government and citizens. Already, citizens in Singapore can file tax returns electronically. As the use of personal computers and the Internet becomes more pervasive across South Asia, governments will need to allow citizens to deal with government ministries and departments electronically.

Business-to-Business

Business-to-business electronic commerce has been successfully used for a number of years. Yet it still has many of the characteristics of an emerging market. This is because:

- It is moving from only the largest companies to small and medium sized firms.

- Its acceptance rate is different throughout the world, with fragmented markets in Europe and Asia being significantly behind the U.S. in acceptance.

- The Internet has created a whole new way of implementing electronic commerce.

- Users will expect their business partners to use electronic commerce, just as they (now) expect them to use a fax and have a web site.

- Electronic commerce is far more than payment systems. In fact, in the users' opinions, payment is not the most important part of electronic commerce. There are many opportunities for new applications.

The value of business-to-business electronic commerce to the user is:

- Greater accuracy

- Faster order processing

- Lower procurement and operational costs

- Better coordination among sales, manufacturing and purchasing

- Sellers become preferred suppliers when they offer electronic commerce

- Purchasers become preferred business partners when they use electronic commerce

- The Internet becomes an additional channel for sales, marketing and public relations activities.

Business-to-Consumer

Business-to-consumer electronic commerce is just beginning to emerge as a significant market. It is not as far advanced as business-to-business electronic commerce, which has been successfully using EDI for a number of years. This is because:

- The real growth of business-to-consumer electronic commerce is based upon the Internet and the graphics oriented broadband World Wide Web portion of the Internet.

- Only during the last year or two has the security problem been successfully addressed.

- While business-to-business electronic commerce is driven by purchasers who can insist upon the use of electronic commerce, business-to-consumer electronic commerce depends upon the interest of often fickle consumers.

- Business-to-consumer electronic commerce is far more than credit card transactions. It includes electronic catalogs, support and order status information.

The value of business-to-consumer electronic commerce for the business includes:

- It extends the geographical reach of the business.

- It allows businesses to serve their customers seven days a week and 24 hours a day.

- It is built around the Internet, which is an exciting new phenomenon for consumers.

- The consumer does most of the work involved in entering and checking orders, thus saving the business time and money.

- Consumer accounts are already on the computer and thus they are easier to track for marketing purposes.

Electronic Commerce is an Enterprise Issue, Not Just an IT Issue

Businesses today are faced with more competitive pressures than ever. They are under unrelenting pressure to reduce costs, yet balance this with the need to remain responsive to customers and suppliers. Now more than ever before, businesses are faced with the challenge of having to address the question - "am I a business that is easy to do business with?"

This pressure, combined with the significant growth in e-commerce, has driven businesses to recognize the need to automate and coordinate the flow of information between front-end and back-end areas of the business.

Most savvy organizations are integrating their existing enterprise applications with electronic commerce transaction capabilities in order to:

- fully leverage their current investment in existing business systems

- manage the flow of business transactions internally and externally across their customer and supply chain

- become more "customer centric"

- become what has been identified as the "next generation enterprise" -- one that relates to its customers, suppliers, and partners via electronic means

Integrating electronic commerce transactions with enterprise wide functions allows businesses to expand operating efficiencies beyond the enterprise. Organizations are now expecting this integration to not only help them "extend the enterprise", but to be the "price of entry" -- the strategic weapon in the arsenal of those enterprises seeking to gain a competitive advantage in a global economy that demands efficiency and rapid adjustment to market changes.

Electronic commerce is changing the way that businesses do business. It is changing the way that an enterprise interacts with its customers, its trading partners and its own staff. As a result, electronic commerce needs to be viewed as an enterprise-wide initiative rather than simply an IT initiative. Enterprises today need to re-engineer themselves and their processes around electronic commerce in a similar fashion to the way that many enterprises have been re-engineering themselves around Enterprise Resource Planning (ERP) in recent years.

Supply Chain Management and Customer Relationship Management are two electronic commerce related initiatives that have been moving to the forefront of many corporate agendas. Current, disparate initiatives -- Supply Chain Management, Customer Relationship Management and Electronic Commerce -- must be integrated and approached holistically.

If enterprises are to achieve competitive advantage, these strategic initiatives must enable efficient process exchange among one another and be driven by common business objectives that are grounded in a thorough understanding of customer expectations.

At the heart of each of these initiatives must be the interests of the customers. While there has been much discussion on how to define and evaluate customers, the most critical considerations are for companies to understand the decision criteria, decision-making processes and the exceptions of their customers.

What Does Electronic Commerce Mean to Businesses in South Asia?

Electronic commerce is growing in South Asia at exponential rates, fueled by the explosive growth in the use of the Internet and email by individuals and businesses alike. Already, most large and medium sized businesses in South Asia are involved in electronic commerce -- although some do not realize it yet -- with most of the rest already making plans for E-Commerce.

The results, already being realized to some degree, will be significant improvements in business efficiencies and productivity.

However, this study found that a lack of awareness and perceptions threaten to hinder the development of e-commerce in South Asia.

Some feel that electronic commerce is not relevant to their business; some feel that they should wait a few years before looking seriously at electronic commerce. In fact, E-Commerce is already starting to have an impact on almost every business in South Asia, and will soon impact the rest. Those that wait, or ignore E-Commerce altogether, will lose out.

Increasingly, businesses need to be able to conduct transactions electronically, by one means or another. E-commerce is about transacting business electronically and not just about Internet storefronts or Web-based sales. In the mid-1980s, few businesses had a fax machine installed; by the late-1980s few businesses were without one. Similarly, E-Commerce represents a group of business tools that almost every enterprise will need to use and leverage if it is to compete effectively.

Electronic commerce is becoming an essential component of doing business much faster than most perceive. To avoid being left behind or at a significant disadvantage, executives should now be developing e-commerce action plans, or implementing those plans.

The impact of electronic commerce on businesses and organizations in South Asia will vary, depending on the processes, technologies and industries involved.

In industries where the product or service is largely digital, such as banking, advertising, publishing, travel and entertainment, E-Commerce will restructure the entire industry. E-Commerce will enable new forms of products and services, and new ways of delivery.

In industries that are consumer focused, such as retail, healthcare, telecommunications and some areas of manufacturing, vendors will take advantage of E-Commerce to sell direct to the consumer. E-Commerce will impact the structure of product offerings and how they are delivered.

In other industries providing support services to business, such as logistics, transportation and some government services, the impact of E-Commerce will be on marketing, selling and customer service.

Electronic Commerce in South Asia

Electronic commerce activity is already extensive and pervasive in South Asia, and will be even more so over the next 12 months. However, most South Asian businesses seem unaware that they are already involved in e-commerce.

Exhibit I

Is Your Organization Currently Using Electronic Commerce?
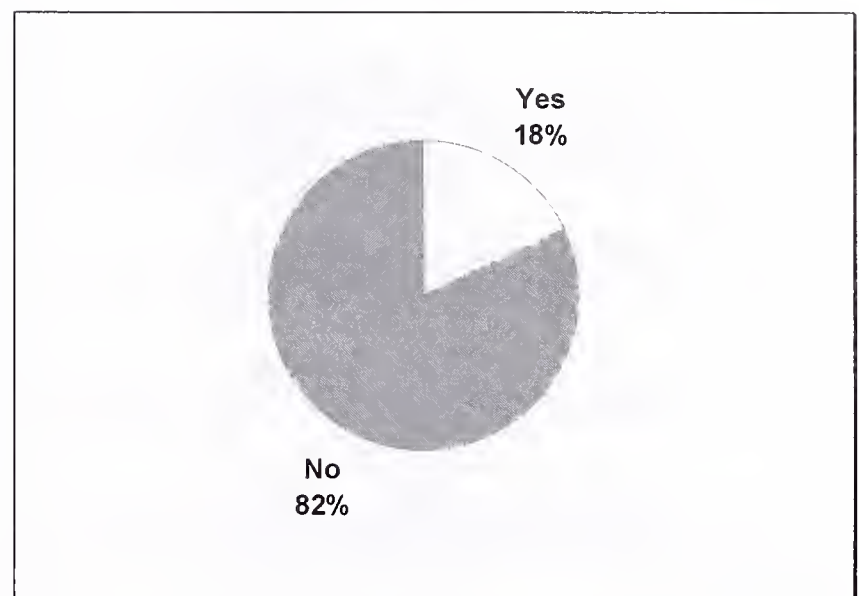
Sample: 300 organizations   Source: The New Century Group

The 300 South Asian organizations interviewed for this study were asked whether they are currently using electronic commerce. As shown in Exhibit I, only 18% answered "Yes". By country, the percentage was highest in Singapore (28%) and lowest in India (10%), with Indonesia, Malaysia, Philippines and Thailand all about the same (16% to 18%).

Most specifically noted that, although they were in the early stages of implementing E-Commerce, they felt they were already enjoying significant competitive advantages.

The benefits from E-Commerce cited by these firms were extensive, including improved efficiency, lower costs, less human error, reduced paperwork, increased revenues, customer service, better customer management and improved customer relations.

As shown in Exhibit II, this study found that the most important benefits to South Asian organizations are in the areas of improved customer service and responsiveness. For those that have implemented E-Commerce, these have also been the areas where businesses have seen the most satisfactory results.

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5

Exhibit II

Benefits to South Asian Organizations from Electronic Commerce

Benefit	Satisfaction	Importance
Improved customer service	4.1	4.3
Able to introduce new products quicker	4.2	4.1
Better transaction accuracy	4.1	4.2
Better transaction security	3.8	4.1
Lower costs	3.6	4.1
Reduced order to deliver time	3.6	4.1
Better able to manage business	3.8	3.9
Able to do Business on the Internet	3.5	3.7
Customers prefer electronic transactions	3.7	3.4

Sample: 300 organizations   *Source: The New Century Group*

Exhibit III

Does Your Organization Have a Web Site?

No, planning beyond 3 years 4%
No, planning in 2-3 years 15%
No, planning next year 10%
No, planning this year 10%
Yes 61%

Sample: 300 organizations   *Source: The New Century Group*

While 61% currently have a web site, and even larger percentage (65%) are using the Internet for internal electronic transactions. 47% are using the Internet for external electronic transactions.

At present, information distribution is the leading application for e-commerce in South Asia, with a web site usually being the delivery vehicle. Of course, distributing information is one of the simplest of the various E-Commerce applications. It is much easier to set up a web site to distribute information than to process payments. Nevertheless, information distribution is an important application and in fact was the primary application in the early "brochureware" business web sites.

For many, E-Commerce is seen as a strategic business initiative rather than an IT initiative and managed accordingly. While two-thirds of the e-commerce users surveyed rely on their IT/MIS department to manage their E-Commerce activity, a third do not (see Exhibit IV). In India, the Philippines and Indonesia, businesses are more inclined to let their IT/MIS department manage E-Commerce. In Singapore, Malaysia and Thailand, they are more inclined to give responsibility to customer services, sales & marketing, a special taskforce or senior management.
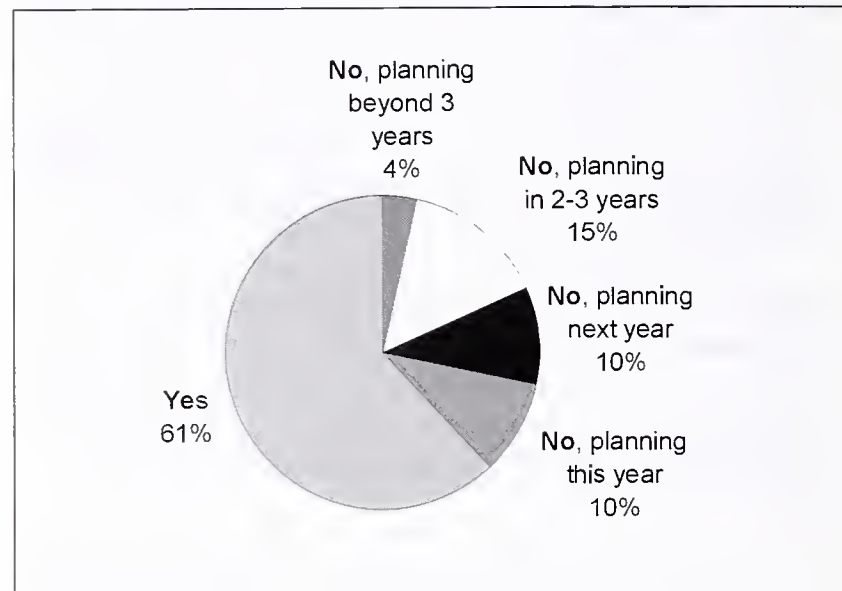
To date, it appears that customer demand for the ability to do business electronically or over the Internet has not been a key factor driving the growth in E-Commerce in South Asia. Instead, it has been the promise of improved responsiveness and efficiency that has been luring businesses to E-Commerce. It has not been the push of customer demand but the pull of lower costs and improved profitability that has generated the strongest interest in electronic commerce.

However, this is beginning to change. As doing business electronically becomes the norm rather than the exception, consumers and trading partners alike will begin to expect, and then demand, the convenience of dealing electronically.

While only 18% of those surveyed said that they had implemented electronic commerce, closer inspection reveals that most are actually involved in E-Commerce to some degree already. For example, nearly two-thirds of the South Asian organizations surveyed already have a web site and a further 20% plan to have a web site in place by the end of next year (see Exhibit III).

Exhibit IV

Who Manages Electronic Commerce in Your Organization?
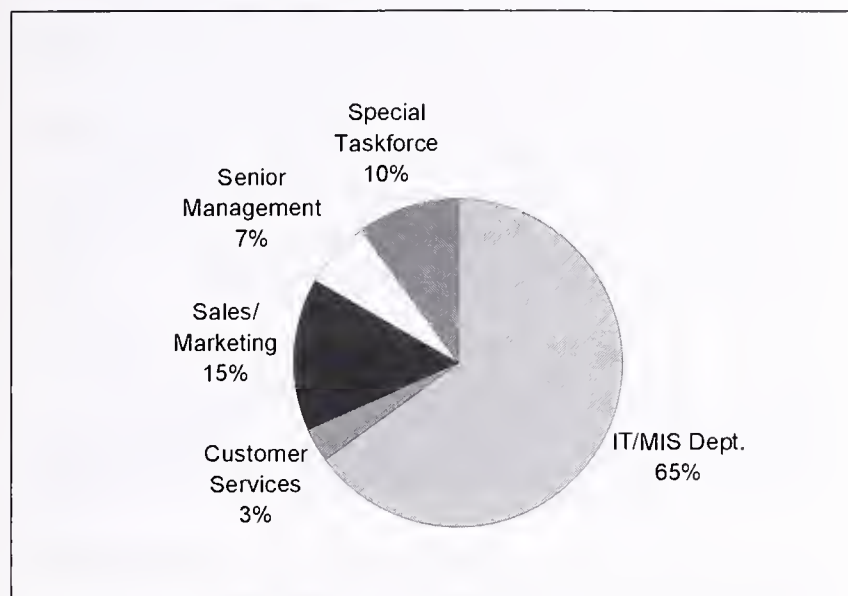
Sample: 53 EC Users   Source: The New Century Group

Important Role of Government

Government currently plays an important role in e-commerce in South Asia, and most businesses desperately want their governments to play an even bigger role. In fact, the most widespread complaint among the South Asian executives surveyed was that their governments are not doing enough to facilitate and support electronic commerce.

The organizations surveyed were asked whether they currently provide data to government electronically. As shown in Exhibit V, in most countries only about one third of the organizations surveyed answered "Yes". The exception was Singapore, where more than two-thirds answered "Yes".

In fact, even the low level of electronic transaction activity with governments shown in Exhibit V is somewhat overstated, since this usually involves only one or two government departments. In some cases, data must be provided on diskette.

Exhibit V

Does Your Organization Provide Data to Government Electronically?
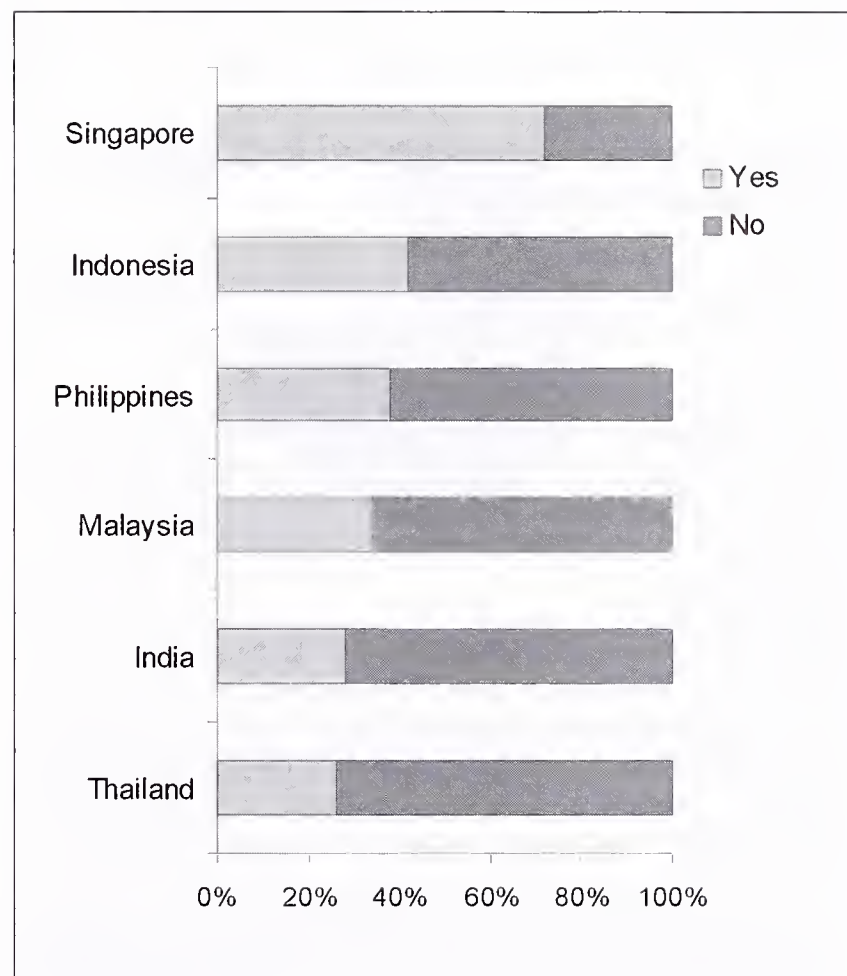
Sample: 50 organizations in each country
Source: The New Century Group

Almost all of the businesses surveyed that are currently unable to provide data to their respective governments electronically expressed a strong desire for this capability. Those that currently provide data electronically would like to see that capability improved and expanded. Businesses in South Asia want to be able to provide data to government electronically.

Being able to provide data and handle transactions with government electronically was seen by most executives interviewed as offering significant benefits. These include reductions in time and cost, fewer errors, quicker processing and turn-around and improved efficiency. Many also noted the sentiment that dealing with the government electronically dramatically reduces bribery and corruption.

In addition to meeting the needs of its citizens, the government itself stands to benefit from the improved efficiency and lower costs of electronic transactions.

Government participation and support is important, if not essential, to the growth and development of electronic commerce in South Asia. This study found that South Asian businesses are looking to their governments to step up to this role.

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7

Not only do governments need to facilitate E-Commerce by making it easier to deal with government departments electronically, but they also need to ensure that the required legislative and regulatory environment is in place to support E-Commerce.

Opportunities for Financial Institutions and Manufacturing

While government tends to be trailing in electronic commerce in South Asia, banking and manufacturing have been at the forefront of its development.

Banks and financial institutions stand to benefit enormously from e-commerce, and many in South Asia are already reaping the benefits. These include dramatically reduced transaction costs, improved customer service and loyalty, and better customer information.

Banks and financial institutions in the vanguard of E-Commerce are also reaping benefits from helping businesses handle payments and financial transactions in an E-Commerce environment. Banks offering such capabilities and services are gaining customers, at the expense of those that are not.

Banks are not only important beneficiaries of E-Commerce activity, but are also important enablers. Banks are important to general trade and commerce, and even more important to electronic commerce.

While the executives interviewed for this study were critical of government for not doing enough to further E-Commerce, in every country there were also criticisms of banks. Many felt that banks are not doing enough to promote electronic commerce and to promote standards. They felt that banks should be doing more to set the pace and standards in E-Commerce.

In all the countries there were also complaints that the brokerage industry has been slow to take advantage of E-Commerce. Based on the comments expressed in this survey, those banks, brokerage firms and financial institutions that are slow to offer electronic and Internet commerce capabilities to their customers will be at a significant competitive disadvantage.

Manufacturing companies are also taking a leading role in electronic commerce in South Asia.

Conducting business over the Internet has become one of the principal issues for all types of companies and is becoming critical for the manufacturing sector as it continues to drive out expense from operations.

Studies conducted by INPUT predict that half the manufacturing companies in the U.S. and Europe will be using the Internet for business transactions by the year 2000. By that time, approximately one third of their transactions by value will be via the Internet. This has important implications for South Asia for two reasons. First, most manufacturers rely heavily on the European and American markets, either directly or indirectly. As a result, Asian suppliers will also need to be able to work with their trading partners in an E-Commerce environment. Second, this wave that is sweeping over Europe and America will inevitably reach Asia. Businesses in South Asia need to begin preparing now, and also to learn from both the successes and mistakes made elsewhere.

Manufacturing firms need to be clear about setting realistic goals for electronic commerce. There is a danger that too much is expected from electronic commerce initiatives with consequent disappointment and demoralization.

Three objectives for electronic commerce stand out as being of significant importance to users:

- Customer Service Improvement
- Improved Responsiveness
- Cost Reductions

Businesses want to achieve better customer service levels through use of Internet technology for interaction with customers.

They want to use Web sites to garner feedback and comments from their customers.

The imperative in the manufacturing sector today is to reduce costs in the face of fierce global competition and over-capacity. One particularly important area for cost reduction is in the supply chain.

Taking expense out of the supply chain will be a continuing challenge for the manufacturing sector into the foreseeable future. Electronic commerce can help in meeting that challenge.

Taking Advantage of Electronic Commerce

Realizing the strategic importance of electronic commerce, what is the next step that a business in South Asia should take? What can be learned from the experiences of other businesses in South Asia?

The ways that organizations in South Asia are implementing electronic commerce are as varied as the ways they are using electronic commerce. The most important advice to be gained from what others have done or are doing is that each business and organization must develop a plan that suits their unique needs.

Each organization needs to assess both the opportunities and challenges of electronic commerce to them, and then take steps to address the challenges and take advantage of the opportunities.

Most businesses in South Asia are taking a cautious and careful approach to implementing E-Commerce. As shown in Exhibit VI, about half of the organizations surveyed are looking at implementing E-Commerce on a step-by-step basis, or have already taken that approach. They are implementing E-Commerce on a department-by-department basis or a process-by-process basis, rather than trying to implement it across the enterprise all at once.

There are merits to each approach, depending on the situation. The point worth noting is that many businesses want to test the waters before jumping in.

Exhibit VI

E-Commerce Implementation Approach
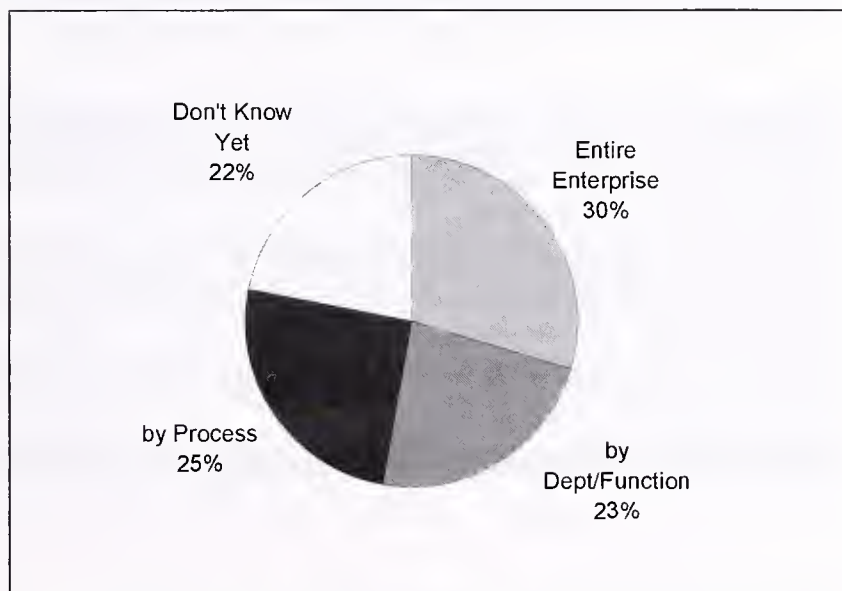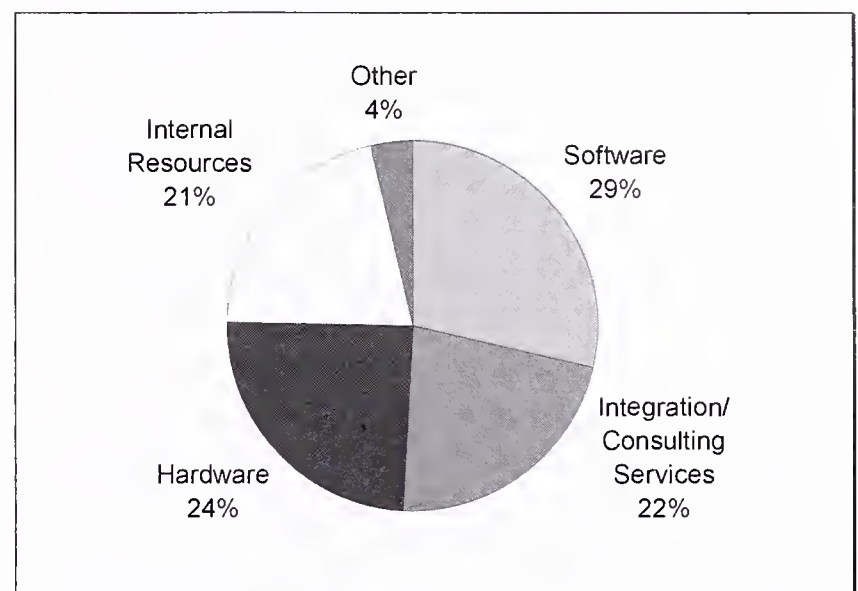

Sample: 300 organizations   Source: The New Century Group

The implementation of electronic commerce involves more than installing hardware and applications. It involves the integration of business strategy, processes, applications, people and technology. This is highlighted by the spending patterns, or planned spending patterns, of those implementing E-Commerce (see Exhibit VII).

South Asian organizations are spending as much on internal and external resources to plan, develop and implement E-Commerce as they are on software and hardware. In many cases, these organizations are not taking full advantage of external resources to make the implementation process easier and cheaper. For example, outsourcing can significantly reduce up-front expenditures in many cases. As another example, some organizations are trying to develop their own E-Commerce applications instead of purchasing existing applications.

Exhibit VII

Breakdown of E-Commerce Implementation Expenditures

Sample: 300 organizations   Source: The New Century Group

How should a business start using electronic commerce in a safe and efficient manner? Safe means that the company's electronic commerce system is protected from internal and external security violations. This survey found that security is a key concern for those that have not yet implemented E-Commerce. In many cases, this is the key factor holding them back. However, this has not been a significant issue for those that have implemented E-Commerce. In fact, many have even seen improvements in security as a result of implementing E-Commerce (see Exhibit II).

Efficiency means that businesses take advantage of available skills, competencies and experiences. Companies must not overreach themselves and take on the more complex aspects of electronic commerce before they are ready. To avoid these problems, businesses should take advantage of external help from consultants, software vendors, systems integrators, carriers and Internet Services Providers (ISPs) instead of trying to develop entirely unique in-house solutions.

South Asian executives need to be aware that:

- Businesses need to begin developing and implementing E-Commerce now.

- Businesses need to bring in the necessary skills and expertise, as the implementation of E-Commerce requires skills and expertise that most organizations lack internally.

- Businesses need to take a holistic approach to E-Commerce, integrating e-commerce into their overall business strategy and processes.

Act Now

South Asian businesses need to act now if they are not going to be left behind. At the very least, companies should begin dialoguing with E-Commerce services and solutions providers so as to better understand the benefits, costs and resources of implementing electronic commerce.

Companies in most industries need to begin offering electronic commerce channels to their customers or risk losing market share. All companies must have electronic commerce systems in place in order to retain existing customers and to gain access to new markets.

Businesses can start using electronic commerce for information distribution and then graduate to offer the full range of services. Companies need to track their customers' interests in electronic commerce very carefully to ensure that they do not fall behind their customers' desire to use electronic commerce as a means to purchase goods and services.

Businesses must embrace the Internet and electronic commerce or face the great risk of losing their customers to new and traditional competitors that are operating on the web.

Executives need to realize that electronic commerce will soon become mandatory, just as it has already in North America. In South Asia, companies who are not equipped for business-to-business electronic commerce will be at a competitive disadvantage.

Users within a business must have access to the Internet and a well managed web site to serve as an interface between customers and business partners.

Leading edge companies are finding that doing business on the Internet can be very successful. It is very important that the site be kept up-to-date even if an outside firm must be hired for the task.

Bring In Expertise

Successful electronic commerce requires businesses to carefully consider their business relationships, processes and strategies to effectively identify the relevant type of technologies and applications.

Many organizations are making the mistake of relying primarily on internal resources for E-Commerce implementation or to develop E-Commerce applications. As was shown in Exhibit VII, internal resources represent about a fifth of overall E-Commerce implementation costs. Businesses should leverage already available third-party applications and resources to reduce costs.

Too many South Asian businesses are struggling to implement E-Commerce on their own. The results are

usually higher costs, inefficiency and a less-than-effective use of E-Commerce. Small and medium sized companies in particular are not taking advantage of the benefits, including lower costs through economies of scale, offered by outsourcing E-Commerce needs.

The organizations surveyed were asked to rate their internal resources in areas important to effective E-Commerce applications. Organizations across South Asia rated their internal development capabilities as being "Low" or "Very Low" in these key areas (see Exhibit VIII).

Significantly, or perhaps sadly, it was the organizations that are building or implementing electronic commerce on their own that gave some of the lowest ratings on their in-house E-Commerce development capabilities.

Exhibit VIII

Rating of Internal Development Capabilities in Key Areas of E-Commerce Implementation

Capability	Rating
Application and network security	Low
Development of user interfaces	Low
Integrating technology with business processes	Low
HTML/Java/XML programming	Very Low
Internet applications development	Very Low
Graphics design	Very Low
Internet application architecture development	Very Low
Interfacing legacy systems with E-Commerce Applications	Very Low

Sample: 300 organizations   *Source: The New Century Group*

Electronic commerce is important to a business because the future of the company can be at stake. Implementing E-Commerce is complex because it involves integrating systems, applications and technology with processes, strategies, business relationships. As a result of both the importance and complexity of electronic commerce, the skills, experience and expertise that only professional service providers can offer is usually required.

Integrate E-Commerce Into Your Business

Electronic commerce will redefine how business is done in South Asia, changing entire industries and bringing greater competitive intensity, new entrants and challenges to existing value propositions.

Most executives in South Asia currently underestimate both the impact of E-Commerce to their organization and the speed at which changes are already taking place.

Implementation of E-Commerce needs to include change management, re-engineering business processes and changes to the business culture. It needs to involve:

- An understanding of electronic commerce, examining the immediate and long term implications for your organization;

- A careful look at both the challenges and opportunities for your organization arising from those implications;

- Developing an E-Commerce action plan that includes both long-term strategies and short-term tactics for your organization; and

- Implementing E-Commerce across the enterprise, building on an open, standards-based, scalable and robust platform.

Profiles

Detailed Profiles of Key Electronic Commerce Solutions Providers in South Asia

INDEX TO ELECTRONIC COMMERCE SOLUTION PROVIDERS

Advanced Manufacturing Online

Contact Information

Singapore Office

287 Beach Road #03-00, Singapore, 199551

Telephone: (65) 290 5100
Fax: (65) 299 2078

Frank Ng
Business Development Manager
Email: info@amoweb.com

Malaysia Office

14-6 Jalan USJ9/5T, Subang Business Center,
47620 UEP, Subang Jaya, Selangor, Malaysia

Telephone: (60-3) 724 1951
Fax: (60-3) 724 6530

Soon Koi Voon
Deputy General Manager'
Email: soonkv@amoweb.com

Thailand Office

59/387-388 Moo 4, Sukhapiban 3 Road,
Sapansung, Bangkok, 10240

Phone: (66-2) 728 0200
Fax: (66-2) 728 0210

Chew Camon Mak
Country Manager
Email: ccmak@amoweb.com

www.amoweb.com

Company Background

Advanced Manufacturing Online (AMO) was incorporated in December 1995. AMO's mission is to build the most competitive dynamic supply chain management tools for the high tech manufacturing industry. AMO pioneered the delivery of functional E-Commerce services with the launch of ECnet – The Global Supply Web, the first Internet based Supply Chain Management system targeted at the high tech manufacturing industry. AMO has also developed and launched the world's first business-to-business E-Commerce payment system for Network for Electronic Transfers (NETS).

After extensive Beta testing with Sony and Matsushita, ECnet went live 1 February 1998 supporting multi-national corporations, including Sony and Matsushita. AMO then integrated logistics services with DHL and FedEx to provide seamless logistics tracking for ECnet customers. ECnet now supports integrated Express, Air and Ocean logistics services.

The company has been awarded Pioneer Status and an Innovation Development Grant by the Economic Development Board of Singapore, and enjoys support from the Singapore National Computer Board. Last year, AMO also became the first Netscape E-Commerce System Integrator in Asia. AMO has selected Sun Microsystems to provide world-class hardware support to ECnet and Oracle for robust database integration.

AMO received a US$7.5 million investment from 3i plc, to expand technological services and has recently closed additional funding of US$20 million to fuel expansion into the US and European markets. Shareholders include SilkRoute Holdings Pte Ltd and AsiaTech Ventures.

Who Should Adopt E-Commerce?

Any company in business should be looking to use some form of Electronic Commerce. It is the reality of doing business in the modern age. Business analysts predict that over US$300 Billion worth of trade will be conducted electronically by the year 2001.

AMO is connecting industrial companies using real solutions to support their Supply Chain Management needs. They can now increase sales, reduce cost and improve efficiency and flexibility of the supply chain. ECnet solutions are customized on a case-by-case basis. There is simply no model for a single "cure-all" Electronic Commerce solution, as the solutions need to be as unique as each business' business model.

How to Adopt E-Commerce?

The first step in adopting any business solution is to examine all aspects of the proposed change to business practices. All too often a "simple" solution is anything but simple – it could cause conflicts and inefficiencies that only become obvious when the solution is viewed as part of the larger picture of the business! No company should be forced into using a specific product or technology. Any solution used should fit the company's business rules.

Next a look at long-term growth patterns is needed. How will this solution grow with the company? Will it become obsolete if the MIS department deploys a new internal system? Will upgrades to the software have to be paid for? How simple is the solution to modify in the event of unpredictable growth?

Critically important is the functionality of the system. Does the solution have full Internet capability? Can it support all the messages and functions of the business? A limited function solution that uses proprietary software means that companies will be forced to perform maintenance, upgrade and change again at a later date. AMO can ensure organizations do not fall into this potential pitfall. You should never need to buy a software license or special hardware to do E-Commerce.

Finally companies need to look at the return on investment. What can the solution really offer the company on a daily basis?

All of these questions and many more need to be considered when adopting E-Commerce. AMO's supply chain professionals will help organizations understand their needs and propose a customized solution. Organizations need the E-Commerce system that will work best for your company – settle for nothing less.

E-Commerce Products and Services

AMO is a pioneer in providing functional, "Just-in-Time" Electronic Commerce solutions for Industrial business across Asia and beyond. With a staff of experienced supply chain professionals from around the region and the highest caliber Internet engineers AMO is uniquely qualified to assist companies in determining their Internet Commerce strategy. They can assist companies to maximize sales and operational potential to achieve fully enabled Supply Chain Management while reaping the cost benefits of adopting Electronic Commerce.

ECnet

ECnet – The Global Supply Web- was developed by AMO to facilitate supply management for the global high technology manufacturing industry. It provides seamless Internet-based business dynamic supply chain solutions for manufacturers and their trading partners. It utilizes thin client technology that serves as the conduit and facilitator for information flow between a manufacturer, its suppliers, third party logistics providers and financial institutions resulting in just-in-time capability. ECnet – The Global Supply Web integrates all of the manufacturer's supply management needs into a single environment that

operates in a continuous cycle, providing it with 24/7 service and support.

ECnet: Enabling Trade

With the advent of Internet Secure Messaging (ISM) – the process of sending secure encrypted messages across the Internet in EDI compatible formats – Supply Chain Management has evolved where flexible messaging across the Internet is the core component to a comprehensive dynamic supply chain solution.

Utilizing a thin-client server-intensive solution AMO can enable organizations with greater flexibility in dealing with both customers and suppliers. AMO provides the required customized solution on a case-by-case basis, allowing organizations to deploy the solution it needs.

Messages at the speed of light: The core of ECnet's service is the secure transmission of business documents from one party to another across the Internet. This type of service replaces a traditional EDI VAN while adding the open messaging functionality of Internet technology. By using ECnet a company saves thousands by not requiring proprietary software packages and leased telecommunication lines. By using 128-bit encryption across the Internet companies have the quality of a VAN with none of the costing drawbacks or other issues. This technology is called Internet Secure Messaging, and enables true dynamic supply chains.

Building the Global Supply Web: ECnet is user friendly and convenient. A business document (such as a PO) is created by an internal legacy system. The purchasing department logs onto ECnet under its account. The encrypted message is then uploaded into the ECnet servers via the Internet. When the server receives the message, e-mails are sent announcing the generation of the message – one to the sender, the other to the supplier. The supplier, upon notification that a message is waiting, logs onto the ECnet system and can then retrieve the document either by viewing and printing a copy, or downloading a soft copy in an excel or other predetermined format. By enabling this technology to function in a one to many atmosphere, ECnet transforms a typical Supply Chain into a dynamic Supply Web – where information on all transactions is available and traceable 24/7.

Once the message is viewed, and e-mail message is sent confirming the supplier received the information. Depending on the relationship of the business partners, ECnet may automatically inform freight forwarders, etc. These value add services are available to suit specific business rules. The end result is a service that far surpasses traditional EDI

VANS in ease of use and cost while providing security and confidentiality – a true Global Supply Web.

ECnet.com: End-to-End E-Commerce

Next generation E-Commerce: Electronic Commerce does not begin and end with sending messages. True Integrated Supply Chain Management needs to address all interactions between you and your business partners-from creating new trading relationships to payment for ordered and shipped goods.

No matter how complex the goal of any E-Commerce solution or system is to make the connection between the organization and all of its current and potential trading partners as smoothly as possible – while remaining as efficient as possible. The best system is the one that is nearly invisible. In the end it is trading partners an organization wants to communicate with…..not the E-Commerce service provider. End to end results are more important than any gimmicks.

What solution is best for a company? The best solution for a company is the one that allows it to conduct its current business more efficiently and at lower cost. By reducing the cost of attracting new customers, delivering products more efficiently and reducing inventory costs profits will increase. If a company is sending messages to many suppliers across the globe, messaging might be important. If a company is trying to reach out and develop new suppliers a listing in the Sourcing Area would help. If a company wants to try to generate new sales it can consider an online store, or if budget is key a web site describing who the company is and what it does gives a company low cost world wide advertising.

Some options include:

Messaging: Sending business documents to trading partners across the Internet via Internet Secure Messaging.

Payment: Invoicing and payment via 128-bit encryption through the NETS consortium of banks.

Web Hosting: Creation of a corporate web site, introducing the company and products via the most cost-efficient advertising medium in the world.

Online Stores/Catalogs: This allows companies to post its products on the web for sale. Prices can be determined on a customer-by-customer basis, where preferred customers can be given preferred pricing structures. This can support distributors as well as the general public.

Sourcing: A system for searching online, requesting quotes or tender online giving a fast response and

cost comparison capability from a wider range of suppliers.

Auctions: A system for placing excess inventory into a community anonymously, and for that inventory to be bid upon and acquired by manufacturers whose normal suppliers fall short on orders.

Custom Solutions

Advanced Manufacturing Online is proud to offer a series of comprehensive and compatible technologies for implementing E-Commerce solutions within the Industrial sector across the globe. If it enhances the E-Commerce capability of the Manufacturing industry, AMO has worked on it. Past projects have included: Online SPC controls; connecting manufacturers and banks in an online payment system; integrating logistics tracking systems to the back-end, and many others. In the manufacturing industry, AMO has the solution or service a company needs to connect its supply chain, transforming it into a "just-in-time" Supply Web.

Some solutions developed by AMO:

- A complete bill presentment and payment system for Singapore NETS banking consortium.

- Deployment of ECnet, the world's first complete Electronic Commerce Solution from procurement to messaging to logistics to payment. Multinational corporations have been using ECnet since January 1998 to cut the costs of doing business across Asia.

- Custom on-line and real-time Statistical Process Control (SPC), enabling buyer and supplier to check process live on the Internet, with data flowing directly from the production line.

Not all companies need the same solution. The supply chain professionals at AMO realize this and will help an organization develop the system that is right for its business, right now. These can range from a simple web-based catalog system for open sourcing or sales to connecting hundreds or thousands of suppliers across the globe electronically. All AMO solutions are scaleable and open-ended allowing them to expand with the company. This gives companies the flexibility to adopt E-Commerce in stages – easing the transition to complete Integrated Supply Chain Management.

Key Competitive Advantages

Looking at long-term growth patterns is particularly critical. AMO has a list of critical advantages that no other commercial E-Commerce entity has yet to match

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E-mail: info@input.com or   sales@input.com

17

in Asia or the North American Market. Some of AMO's advantages include:

- **Dedication to a vertical market segment:** AMO is focused on the manufacturing industry, connecting manufactures to their trading partners. By focusing on high volume manufacturing, AMO is able to provide expertise and focus for manufacturers that other providers cannot match. AMO's staff, manufacturing industry experts coupled with the highest caliber Internet engineers, have successfully developed and translated the latest trends in manufacturing into efficient E-Commerce practices. By devoting the strength of the entire development team into the manufacturing industry, AMO is capable of providing the highest quality services to their customers. AMO services the Manufacturing community – 100% of their efforts are dedicated to enhancing the manufacturing supply chain.

- **Plug and Play Technology:** AMO solutions are proven robust and reliable. Multinational companies are using ECnet – The Global Supply Web for mission critical 24 x 7 support. AMO's solutions are customizable and viable from the first day of implementation. Customers do not need to purchase a license, seat, package, manual or ISDN line. ECnet service is all-inclusive. By combining world-class software and the best hardware, AMO is capable of providing a solution to a client at a fraction of the cost it would take them to develop it themselves.

- **Hosted Service Model:** ECnet is a service. As such, it may expand, change focus, or contract depending on the manufacturer's need as they arise. By using the hosted out-source service model for E-Commerce solutions, companies need not spend millions in the IT investment to take advantage of the latest technologies. The outsource service model pioneered by AMO in Singapore and Malaysia is very successful in both Asian and North American markets.

- **Success in Market Segment:** The final arbiter in any business is the success and acceptance in its market. Thus far, AMO's success in capturing the leaders in the manufacturing industry speaks for itself. These arrangements are not limited to local plants or facilities, many AMO projects are approved or initiated at the regional or even global IPO office level.

Business Partners

In order to provide the highest possible service, AMO works with many of the leaders in today's technology. Their partnerships to date include:

- Sun: ECnet operates on Sun-servers for the ultimate 24x7 reliability. AMO also works with Sun technology and equipment on many turnkey solutions for their customers.

- Netscape: As one of the first E-Commerce partners of Netscape in the Asian Region, AMO has had many successful implementations of the Netscape E-Commerce service tools in turnkey solutions and ECnet.

- Oracle: Using the latest Oracle database technologies, ECnet is capable of the flexibility needed in today's business environment. Also in Beta with 8i, AMO has partnered with Oracle to provide cutting edge solutions and services to the manufacturing industry.

Reference Customers

Customer	Industry	Solutions Provided
Asia Matsushita	Consumer Manufacturing	ECnet-
NatSteel	Contract Manufacturing	ECnet-
Sony	Consumer Manufacturing	ECnet -
NETS	Banking	Custom created online business-to-business payment system to support Singapore based manufacturing companies.

Camtech Asia IT & T

Contact Information

Camtech Asia IT & T
Cyberstation 11 B, Putra Infoport,
Universiti Putra Malaysia,
Jalan Puchong,
43400 UPM Serdang,
Selangor
Telephone: (60-3) 916 0183
Fax: (60-3) 916 0182

Mr. Chris Hill
Regional Manager
email: chill@camtech.com.my

www.ecommerce.camtech.com.au

Company History

Established in 1983, originally as part of the infrastructure of a center of excellence - The University of Adelaide, Camtech met and exceeded the challenge of that demanding environment to grow into an independent commercial venture.

Now a mature, stable company with a sound financial base, Camtech is forging a reputation as one of Australia's premier Information Technology and Telecommunications companies. In 1997 the company acquired another leading IT organization in South Australia, Communica Systems. By early 1999 the company had over 100 staff and annual revenue of A$16m.

In 1998, Camtech sold its highly successful ISP business to OzEmail in order to focus on the development and deployment of its Electronic Commerce products and services.

Camtech's technical expertise encompasses many years collective experience supported by a very high level of formal qualifications and commitment to the ongoing training of its technical staff.

The company name Camtech is a contraction of Campus Technologies which reflects both their fundamental commitment to maintaining their position at the leading edge of Information Technology and the company's status as a 100% owned venture company of The University of Adelaide.

Camtech's Mission

Camtech provide IT&T products and services broadly focused on Internet and Electronic Commerce technologies, to meet specific customer needs for success of their business.

Their customers are medium to large organizations in Australasia and increasingly South East Asia.

Their people are innovative, responsive and highly skilled to enhance the company's credible record of quality and commercial success.

They will deploy their company's range of capabilities to meet new demands for IT&T solutions by customers. Their success in meeting their specific needs will reaffirm them as a dominant and respected company in their market.

Their commercial success, integrity and reputation for innovative and creative work, variety and autonomy of work available to their employees will attract the interest of talented people seeking to join their company.

Their deep partnership culture will ensure that they team with the world's best and add value to both their business and theirs.

There is no limit to their success as they seize opportunities to grow their business with support from their shareholders.

Company Background

Their principal business activities focus on the technical areas of Internet technologies, Electronic Commerce, system security, system integration, Internet application development, open systems solutions and sales and support of key best-of-breed products, horizontal solutions, network administration and professional training.

These activities are organized divisionally as follows:

- Consulting and Support Services
- Electronic Commerce Products
- Internet Services
- Training Services
- Computer Systems and Network
- Products

E-Commerce Products / Applications

Camtech is leveraging its 10 years experience in the Internet, the close association with The University of Adelaide Department of Computer Science (a world recognized center of excellence) and its considerable experience with security systems to produce world class Electronic Commerce products early in the market cycle.

Camtech has become a leading developer of niche products to facilitate Electronic Commerce deployment. These products are marketed throughout Australasia and globally by industry leaders in Electronic Commerce.

Camtech Electronic Commerce

The first product to market from Camtech's Electronic Commerce group is Camtech E-Commerce Payment Gateway, a highly secure, real time payment gateway product for processing credit card transactions.

Standards Based

Camtech E-Commerce Payment Gateway has been designed and developed in Australia using international protocols and enciphering technologies. Its utilization of the ISO 8583 banking protocol ensures that Camtech E-Commerce Payment Gateway is able to be implemented in any banking network throughout the world. (ISO 8583 is the international banking networks default interbank communication method.)

Camtech E-Commerce Payment Gateway can be simply configured to any localized variant of the ISO 8583 protocol and installed in a cost effective and efficient manner.

Real Time Processing

Camtech E-Commerce Payment Gateway has the ability to process credit card transactions in real time. The gateway functions similarly to a standard eftpos terminal in a retail store providing all standard transaction types including pre-authorization, credit approval, reversals and reporting as standard features. Like eftpos, Camtech E-Commerce Payment Gateway processes transactions in real time passing the card details directly into the banking network and immediately receiving a response code which is returned to the merchant. This process on average takes between 6 and 16 seconds.

Although real time processing is an important differentiator for the Camtech E-Commerce Payment Gateway product, it is also able to process transactions in batch mode and via call centers providing considerable diversity to meet the needs of merchants.

Military Strength Security

Camtech E-Commerce Payment Gateway uses military strength enciphering and digital certificates to provide unparalleled levels of transaction security. Enciphering of transaction information is performed using 1024 bit RSA (symmetric) algorithms for the entire transaction process, from the client web browser through to the payment gateway.

The private keys used to decipher the transaction information are only available to the payment gateway provider which means that merchants are unable to access sensitive consumer information. On the physical security side Camtech E-Commerce Payment Gateway uses multiple independent firewalls to ensure that neither the web server nor the gateway are compromised.

Authentication

Camtech E-Commerce Payment Gateway uses digital certificates from a central certificate authority to provide authentication for both merchant and consumer. All merchants are authenticated via a digital certificate prior to any transaction being accepted by the payment gateway. Consumers are validated in a similar way with digital certificates originally sent to the consumers web browser through the use of a Java wallet by the Camtech E-Commerce Payment Gateway.

Camtech E-Commerce Payment Gateway offers merchants and banks a first class solution to deploy today using SSL or Java wallet technology whilst also providing a fully SET (secure electronic transaction) compliant solution ready for the future wide deployment of this technology. (The fully SET compliant product will be released in the third quarter of 1999).

Open Systems

Unlike many of its competitors, Camtech has developed the Electronic Commerce product based on open systems platforms. This includes a Java based implementation on an open systems client server architecture. This means that the merchants using Camtech's E-Commerce Payment Gateway solution have a choice of:

- Banks or financial institution
- Web server platform
- ISP / web hosting provider

Training Services

In collaboration with The University of Adelaide's Centre for Computer Systems and Software Engineering, Camtech provides an extensive range of customized training and professional development short courses. On an annual basis, over 400 courses are delivered in Australia and S.E. Asia.

Their offices in Perth and Kuala Lumpur are also fully equipped to provide a range of UNIX based training and they maintain a *travelling* classroom of UNIX workstations to deliver training wherever it is required.

Strategic Positioning

World Class Technology

These innovative features have combined to make Camtech E-Commerce Payment Gateway a truly world leading payment gateway product, as evidenced by a 60% market share of merchants in the Australian market within 6 months of products released. The product offers merchants a fast, efficient and cost effective method of conducting transactions on the Internet.

Cost Effective Solutions

Camtech E-Commerce Payment Gateway enables organizations to provide better customer service and increase their profit margins through greater efficiency. Camtech has a successful channel program that provides Commerce Service Providers, ISP web developers and financial institutions with a value-added service to their existing customer base.

Case Studies

Greengrocer

Greengrocer.com.au provides households and offices in Sydney, Australia with home delivery of quality fruit and vegetables. The produce is purchased freshly each morning at the Sydney markets by an experienced buyer. The company which began operating in 1997, now has over 3,000 customers on their database.

Greengrocer.com.au approached Camtech in late 1997 to provide a cost effective and secure solution to performing Internet transactions in real-time. Due to Camtech's ability to reach these requirements Greengrocer.com.au has been operating successfully, providing better customer service and increasing profit margins dramatically through greater efficiency.

Orders are received over the Internet using a Microsoft NT SiteServer developed front end, and payment is received via Credit Card. The Credit Card Details are forwarded onto the appropriate financial institution using the Camtech E-Commerce Merchant Server Solution and The Camtech E-Commerce Payment Gateway. The Credit Card transactions are processed in real-time and the consumer is notified of either an approved or declined transaction immediately after bank authorization has occurred.

The Commonwealth Bank of Australia

The Commonwealth Bank of Australia (CBA), is Australia's largest merchant bank with over 35% of the merchant market. The CBA in late 1997 embarked on a project to provide its merchants with a highly secured Internet payment solution.

Camtech, as the leading provider of payment solutions to banking institutions in Australia was approached by CBA to develop an interface to the bank for processing Internet transactions in real time.

The CBA's business and marketing requirements of Camtech were for:

- A highly secure Internet payment solution
- On line real time transaction engine
- Fast and reliable transactions processing
- Comprehensive auditing and reporting systems
- ISO 8583 Interface and connectivity to host systems
- CBA branded solution for its merchants

The Camtech solution provides the bank with a completely secure system capable of processing multiple types of transactions. The Camtech E-Commerce Payment Gateway was configured to communicate to the CBA banking network and is capable of not only processing Internet transactions but also future debit card transactions. All Electronic Commerce transactions passed through Camtech's E-Commerce Payment Gateway are processed using 1024 Bit RSA and 56 Bit Triple DES encryption. This high level of security met the CBA business case and enabled CBA to offer a solution direct to its merchants. The solution provides a complete end to end secure payment method that enables CBA to be confident that its merchants are secure from the hazards of Internet commerce. The CBA has a dedicated EC sales unit promoting the solution to its existing and potential merchant base.

Standards Australia

Standards Australia is an independent not-for-profit-organization whose primary role is to prepare Australian Standards through an open process of consultation and consensus in which all interested parties are required to participate. It is recognized by the Commonwealth Government as the principle and leading standards body in Australia.

Standards Australia approached Camtech in July 1998, expressing interest in providing their customers with the option of online purchasing using credit card facilities. A key issue in E-Commerce enabling the Standards Australia site was providing convenience and speed thus allowing a decrease in handling fees.

The Standards Australia business and marketing requirements of Camtech were for:

- On line real time transaction processing
- Fast and reliable transaction engine
- Flexibility of implementation and integration

Standards Australia Online shopping service provides a search facility for their On-line catalogue of over 6,500 documents. Clicking on the order button makes purchasing selections. Selected documents can be purchased in hard copy or downloaded as electronic documents in Adobe Acrobat PDF format.

Through the use of the Camtech E-Commerce Payment System, Standards Australia are performing increasing transactions in real-time with details being encrypted using world class security methods.

Transport SA – Online Motor Vehicle Registration and Licensing (South Australian Government)

The South Australian State Government has long had an initiative to reduce overheads and increase customer service through the use of technology. Part of that initiative has been to utilise the Internet to reduce customer waiting periods and increase convenience.

The first venture into the Internet medium was to establish a pilot site in association with Transport SA. Transport SA is responsible for processing all motor vehicle registrations and renewals. The process of registering a motor vehicle at a Transport SA branch has always been a challenge and has generally taken a considerable amount of the customers time.

To improve customer service and reduce registration renewal overheads, registration and licensing of Transport SA developed a web site to provide renewal of car registrations through the Internet. A key

consideration in this web site was the security by the transaction process.

Registration and Licensing chose Camtech to provide the transaction processing system because of its high level of security, flexibility, functionality and competitive pricing. In association with EDS and Transport SA, Camtech integrated its Merchant Server solution using SSL+Java Wallet to provide a complete end-to-end secure payment engine for the Registration and Licensing web site. The Website uses internal developed web pages connecting to an online Oracle database for instantaneous consumer registration.

Through the use of the Camtech payment solution, transactions are processed in real time through to the National Australia Bank utilizing high levels of encryption (128 bit IDEA) and offering various transaction functionality.

This solution has allowed Transport SA to deliver online services to the motoring public of South Australia in a secured manner while addressing the issues of increasing revenue through prompt payment, cost effective service delivery, and cost reduction in delivering.

CSA

Contact Information

Corporate Office

CSA Holdings Ltd
221 Henderson Road #08-01
Henderson Building
Singapore 159557

Telephone: (65) 276 9788
Fax: (65) 271 5198

http://www.csah.com

Singapore

CSA Automated Pte Ltd
221 Henderson Road #07-01
Henderson Building
Singapore 159557

Telephone: (65) 278 9566
Fax: (65) 272 2029

Philip Lim
Manager, Internet Business Unit
Email: philiplim@csah.com

http://ibu.csah.com

Malaysia

Computer Systems Advisers (M) Bhd
Wisma CSA, Jalan Bersatu Section 13
46200 Petaling Jaya Selangor Darul Ehsan
Malaysia

Telephone: (60-3) 758 7878
Fax: (60-3) 758 6888

http://www.csam.com.my

Hong Kong

Automated Systems (HK) Ltd
15/F., Topsail Plaza, No. 11 On Sum Street
Shatin
Hong Kong

Telephone: (852) 2601 6998
Fax: (852) 2601 6936

http://www.asl.com.hk

Automated Systems (PRC) Ltd
15/F., Topsail Plaza, No. 11 On Sum Street
Shatin
Hong Kong

Telephone: (852) 2608 3620
Fax: (852) 2698 4505

http://www.asl.com.hk

Company Background

CSA is a leading systems integrator of open systems distributed computing architecture in the region. CSA IBU partners with leading system manufacturers and software companies to integrate and deliver the optimal solutions for clients. As a major systems integrator, CSA IBU is able to provide professional consultancy and services for customers of all major industries to design, install and commission systems, software and networks.

CSA's Internet Business Unit

CSA's Internet Business Unit (IBU) was founded in 1996 under CSA Automated Pte Ltd. CSA IBU believes that an organization's business will be fundamentally changed by Web technology and it considers its mission is to enable enterprises for Internet business and commerce. The coming change is evident everywhere, from the creation of new business models in the emerging virtual marketspace to the reinvention of business processes to capitalize on the Web's unique abilities to facilitate information exchange and enable transactions. The Web is changing the very nature of business interaction with customers, partners, employees – and increasing intimacy to unprecedented levels.

CSA IBU helps companies to understand the transformations that Web technology is bringing about, and to make the right choices and build the right solutions to serve their businesses, both today and in the future.

CSA's IBU team of professionals enables enterprises to perform Business-to-Business transactions securely over the Net as well as enabling new portal services for enterprises to extend their businesses. CSA IBU provides Internet solutions designed to help move the customer's business to the next level: leveraging the Internet to achieve real business results. The combined skills of CSA IBU's technology and strategy help customers develop actionable E-Business strategies and solutions that lead to business growth, operations excellence and technical agility.

CSA IBU also provides systems integration services for Electronic Commerce solutions. These include consulting, architecture design, deployment and development services. CSA IBU builds front-end and back-end Electronic Commerce solutions that use standard web technologies and components-based architecture to offer a total solution for e-business.

Offering a Complete E-Business Solutions Framework

As shown in the Exhibit below, CSA IBU offers an Electronic Business Portal Framework consisting of

- Content Management,

- Enterprise Information Portal / Knowledge Management,

- Business Process Web Enabling, and

- Payment and E-Commerce Transaction Management

built on an Infrastructure and Security Framework. CSA's Internet Business Professional Services then serve to bring these altogether into a complete solutions package.

Complete E-Business Solutions Framework

CSA Internet Business Professional Services Consulting, Design, Development and Deployment			
Content Management	**Knowledge Management**	**Business Portal**	**Electronic Commerce**
Catalog, Personalization Profiling Syndication Ad Management	Enterprise Knowledge/ Information Portal	Business Process Web Applications	Internet Payment, Transaction Management
Internet Systems Infrastructure Systems, Firewalls, Networks, Remote Access, Internet Connectivity, VPN, Secure Authentication			

CSA
Internet Business Unit

Infrastructure and Security Framework

CSA's leading edge products, combined with value-added services, provide a complete range of solutions for Internet connectivity and deployment. With a secure business network, enterprises can enhance customer support, sales, services or inter-office and business communication.

With the need for information security in enterprises, CSA IBU provides a suite of security solutions to protect an organization's networked assets. The security solutions range from perimeter defense and Intranet firewalls, extranet services, high-availability, pro-active monitoring services, proxy and authentication to application security integration like Smart Card, PKI, encryption and Biometrics.

Most corporations today have disparate systems, multiple platforms, and numerous functional applications. Add to these the plethora of emerging Internet applications and standards, and the complexity of application selection and integration with existing systems increases by an order of magnitude.

CSA IBU addresses clients' needs for flexible Internet solution architectures that enable integration with disparate systems. CSA IBU has developed frameworks that provide an architected approach to application development, enabling rapid components-based development.

The driving force behind these architectures is their client's ultimate business solution, rather than the availability of any given software application. Instead of forcing a particular technology onto a company's business goals, CSA IBU's Internet solution architectures first define the association among a company's business objects and then build integrated, fully scalable, strategy-focused solutions based on those associations. This enables data supporting email newsletter publishing, for example, to be associated with new customer data as part of an overarching Customer Care solution.

CSA IBU's Internet solution architectures provide a framework for quickly integrated best-in-class third-party applications. CSA IBU also allows their clients to leverage existing systems and Web tools, expanding their functionality and increasing their efficiency. CSA IBU's architecture incorporate a core set of Web technologies needed for a range of e-business solutions, including security, personalization, content management, catalogs, commerce transactions, community, and information access.

CSA IBU's breadth and depth of experience in each of these areas allows them to deliver best-of-class applications – individually or in tandem – that respond most effectively with an organization's business specific requirements.

Content Management

Content management solutions offered by CSA IBU include:

Channel-to-Market Internet Commerce: an industrial-strength catalog solution for online

enterprise marketing that enables enterprises to create intuitive, personalized online catalogs with ease of browsing and ordering. This solution offers personalized catalogs that allow information to be tailored for individuals, adaptive navigation that allows quick and easy location of products, full design control that provides for creative and unique branding, and it is commerce-ready so that orders can be taken on-line.

Internet Relationship Management: providing a foundation layer to key customer's on-line experience and business drivers to time-to-market and automating the process of providing quality of information.

Business-to-Business Trading Network: packaging and distributing content to enable market reach.

Online Precision Marketing: enabling enterprises to leverage data to effectively understand, target, deliver and engage online customers. CSA IBU offers a leading technology solution for the management, targeting, delivery and reporting of Internet advertising.

Knowledge Management

The CSA IBU's Enterprise Information Portal / Knowledge Management solution enables the sharing of information to create knowledge and equip knowledge workers with a single front-end to search multiple distributed data sources.

The Knowledge Network Solution leverages on the power of the Web to allow users to conduct single, unified searches across multiple and different information sources including Web, file, mail, notes or database servers. It significantly reduces the search time to retrieve relevant information, reducing user training with an easy and intuitive interface for all data repositories. It does not require new security add-ons as it leverages on existing network security, avoiding redundancy of data and administrative work. Time, cost and information are better utilized, thus achieving better competition against rivals.

Business Process Web Enabling

Leveraging Java technology and Application Server, CSA IBU can help enterprises develop and deploy E-business applications. They offer an authorized Java Center leveraging Java technology and tools to web enable back-end legacy applications.

Solutions can also be developed on component-based methodology and a common, flexible Internet solution architecture.

Payment and E-Commerce Transaction Management

CSA IBU offers Internet payment integration and transaction management, as well as complete, simple and affordable online business-to-consumer E-Commerce solutions.

Internet Payment Integration is offered through secure SSL encryption and web server modules for credit card, cash card and NETS payments over the Internet.

Transaction Management is offered through a complete order management solution with buyer authentication, payment, order processing, fulfillment, buyer self-service and customer service. This enterprise E-Commerce application provides full integration with internal legacy systems, such as enterprise applications and databases.

Professional Services that Enable Enterprises for E-Business

CSA has vast experience in systems integration and software development projects. With its worldwide presence, CSA has been able to provide total solutions to cater to the growing needs of its customers.

CSA IBU provides Internet solutions designed to help move a customer's business to the next level: leveraging the Internet to achieve real business results.

CSA IBU offers a team of professionals offering E-Business services such as Consultancy, Project Management, Development, Integration and Deployment in the following areas:

Electronic Commerce: Based on their solutions in Business-to-Business Supply Chain and Business-to-Consumer Marketplace, CSA IBU integrates Electronic Commerce products from its Alliance Partners that specialize in Internet Relationship Management, Content Management, Personalization, Profiling Transaction Management and Legacy Systems Integration.

Web Application Solutions Deployment: CSA IBU leverages the Internet, Java and Application Server to provide software application solutions in the areas of Electronic Information System, Supply-Chain Management, Web-enabled Back-end Applications and Multi-tier Web Business Applications.

Enterprise Information Portal Deployment: CSA IBU professional services consultancy provides the design, programming and data sources integration to

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25

build the knowledge map that creates the knowledge community within the customer enterprise.

Security Consulting and Implementation: CSA IBU provides complete security consulting and implementation services to build a security infrastructure and framework for customers to conduct electronic business and commerce securely using the Internet.

CSA IBU's breadth and depth of experience in providing professional services allows them to deliver best-in-class applications -- individually or in tandem -- that respond most effectively to customers' specific business requirements.

CSA's E-Business Consultancy Services

More companies are facing the prospect that continual developments in technology will leave them on the wrong side of a growing chasm that separates success from failure.

CSA IBU helps a business re-examine its strategies in light of the rapid changes in both markets and technology, serving as a knowledgeable and experienced partner. CSA IBU helps an organization define an integrated business and IT strategy that will position them for success in the digital economy.

Their team of Sales and IT Consultants focus on developing an actionable strategy that both allows a business to take advantage of immediate opportunities, and also helps them move toward their long-term vision.

Among the questions that are answered during the meetings with their E-business Consultancy Team are, *"What can my business do with the Internet?"* and *then "What do I do next?"* CSA IBU provide organizations with an insight into how the marketplace peers and competitors are adopting Web technology and the potential impact of the Web within their own organization on processes ranging from marketing and brand-building to product distribution.

CSA IBU then helps the organization further define its e-business goals by prioritizing the many possible initiatives they may be considering, and to define the system requirements that will support the implementation of a complete solution. CSA IBU provide the groundwork for a business to move ahead with thoughtful urgency, based on a well-defined road map.

Case Studies

A Swiss Bank

IBU was engaged by a Swiss bank -- a leading global bank -- to deploy a multi-tiered Internet security infrastructure. This deployment involved consulting services, implementation of different firewall systems and different encryption systems, implementation of a whole array of Proxy Servers, and the implementation of a LDAP-based Directory Server.

A Singapore Bank

One of the largest banks in Singapore engaged CSA IBU to deploy a multi-tiered Internet security infrastructure, again involving different firewall systems.

Schools

CSA IBU was engaged by Singapore's Ministry of Education and the National Computer Board as the only vendor to deploy the Internet security infrastructure for an ATM high-bandwidth network for all three schools involved in the pilot phase of Singapore's S-ONE project. IBU has successfully tested all multi-media applications under the S-ONE platform working with the Internet security infrastructure that IBU have deployed, via the ATM high-bandwidth network.

Government

CSA IBU successfully implemented a secure data transfer system over the Internet for a Singapore government authority. The system is used for submission of highly sensitive data via the Internet.

Large Corporation

IBU is currently being engaged as a systems integrator for one of the biggest corporations in Singapore to develop a new system module as well as porting and downsizing existing applications using Java and Internet technologies. They have already successfully completed a few modules and the project is proceeding smoothly.

Ticketing Agency

IBU implemented a well-known "Business to Consumer" E-Commerce application for a ticketing agency. The solution, named Credit-Online server allows customers to pay for the booked tickets using a credit card number with an Internet browser. Using SSL encryption, the credit card information is encrypted before reaching the bank for settlement.

FICS

Contact Information
FICS
6 Temasek Boulevard,
Suntec Tower Four, #21-04/05
Singapore 038986

Telephone: (65) 333 8138
Fax: (65) 333 8136

Elizabeth Goh
Regional Sales & Marketing Director
Email: sales.sg@ficsgrp.com

www.ficsgrp.com

Company Background
FICS was founded in 1989 by Michel Akkermans, current CEO and Chairman of the company's Board of Directors. Over ten years, FICS has grown exponentially, to become one of the world's leading software companies in the field of regulatory financial reporting and remote electronic banking. In May 1999, FICS announced its intention to join forces with Edify (Nasdaq: EDFY) and Security First Technologies (Nasdaq: SONE) by the end of 1999.

As early as 1989 FICS had launched DOS-based Corporate electronic banking projects, and this was followed a couple of years later by Windows-based versions. Again FICS leadership credentials were witnessed when in 1992 it introduced its first home banking project and in 1995 its Internet Banking Architecture, both for the retail and corporate banking environments.

The company today employs over 700 people, spread across 12 locations in 10 countries: Belgium, Luxembourg, the Netherlands, France, the United Kingdom, Spain, Portugal, the United States, Australia and Singapore. More than 30 staff are presently deployed in the South Asia region. The company's Worldwide Headquarters is in Zaventem (Brussels), Belgium. In 1998, the company's revenues exceeded US$58 million, with approximately 10 percent of this figure being derived from the South Asia region. This proportion is expected to steadily increase over the next few years. FICS' client base includes over 600 financial institutions in 28 countries.

Overiew of Products Offered
FICS concentrates on two core activities: Electronic Services Delivery (ESD) and Financial Reporting Systems (FRS).

The company's ESD products provide electronic banking solutions for Windows-based and Internet banking, smart card-related software, media phone solutions and servers. FICS's ESD activities are based on a number of customer-end client and bank-end server applications. These offer end-to-end functionality for account reporting, cash management, payments, custody, trade finance and netting. These products are applicable to multiple client segments, from corporate, through small and medium-sized enterprises, to retail customers and high net worth individuals.

All ESD products use a modular approach. Clients choose from a comprehensive selection of standard FICS components. These embrace both the customer side interface – the front end software – and the information tools needed to support this software – the middle and back office servers. The company fine-tunes these standard products to deliver a customized solution, meeting clients' specific needs and integrating with their existing IT architecture. FICS products provide their clients' customers with a convenient, secure and compelling way to access financial services.

Their FRS products aid financial institutions in addressing their financial reporting needs. They act as the reporting interface between the bank, its external regulators, accounting staff, and management members. In the past decade, FICS has built a global leadership position in the area of regulatory reporting systems. Their FICS-ABACUS product is currently used by over 600 financial institutions to make reports to a central bank, regulatory agency or similar authority.

FRS products bring numerous benefits to bear on their customers' business, from improving information flows and guaranteeing regulatory compliance, to saving costs and freeing up the time of valued administrative staff. FICS' policy is to offer banks a total reporting solution. They integrate FICS-ABACUS, their core reporting product, with leading own and third-party products for data management. The result is a reporting package that provides reporting functionality from a to z. From regulatory and risk measurement, through consolidation and data warehousing, to managerial decision support.

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27

FICS - Electronic Services Delivery Server

The center of FICS' financial electronic commerce universe...

For every online interface or remote banking system that banks provide to their customers, there needs to be a little something at the other end of the line. Something to handle customer's transactions, requests for information, email, etc. Something to process customer messages in a timely and effective way. Something to link with the transaction processing systems already used to service the branch, ATM or phone banking network. Something to enable staff to conduct security checks, accounting controls....or simply to check a customer's password. And something that permanently ensures that there is no misinterpretation of data, no loss of information, and no technological hitches.

Working within a client-server network, **the FICS – ESD Server is that little something**. Offering a range of plug-and-play components, it supports the automated handling of customer-end software (client-server, browser based, touch tone telephones, SMS messaging, etc.), and supplies all the back office integration features needed. From feeding essential instructions to the back office, through secured links to the customer's software, to extracting transaction and balance information from systems for delivery to customers.

The FICS – ESD component-based server can work on either an IBM-AIX, Sun Solaris, Windows NT environments and HP platforms. The FICS – ESD Server has been used in numerous electronic banking applications around the world. It is characterized by an ability to connect to numerous front-end mechanisms, and to both FICS' electronic banking products and a bank's existing IT infrastructure. Its worldwide applicability is made possible through its multi-currency, multi-lingual and multi-bank features, not to mention its compatibility with industry standard messaging protocols, such as S.W.I.F.T., BAI, Gold, OFX and EDIFACT.

FICS – Corporate Internet Banking

Concerns over access, costs, and time-to-market, compounded by the technical difficulties of maintaining extended proprietary products and networks, led FICS in 1995 to begin investigating the Internet as a way of breaking down barriers to corporate electronic banking. Since then the Internet has undergone a metamorphosis. No longer a read-only environment, it is now an interactive place to do business. And FICS latest product is at the leading edge of developments.

Launched in 1997, FICS – Corporate Internet Banking (FICS – CIB) is FICS' latest generation remote banking product. Developed in Java, and using CORBA-driven, D-COM- ready distributed object computing, FICS – CIB provides a powerful way to reach the growing number of business customers that use the Internet.

FICS – CIB is a customizable and innovative browser-based product for corporate cash management. Working together with the FICS – ESD Server, or another server, it provides a bank's business clients (large corporations, small businesses, high net worth individuals) with broad-ranging banking functionality for transaction initiation, balance and transaction reporting, customer messaging, custody and trade finance within a browser environment. Based on Java and CORBA objects, and leveraging FICS' many years experience in developing Windows-based corporate banking products, FICS – CIB is designed to integrate flexibly with corporate intranets, and to support distributed computing on multiple platforms. The product is available in numerous configurations ('thin', 'fat' and 'hybrid' clients), is multi-lingual, multi-currency and complies with multiple messaging protocols. The product holds the SWIFTReady Gold label.

FICS – Retail Internet Banking

Customers are becoming increasingly sophisticated and knowledgeable about the use of PCs, the Internet and online services. As a result they expect more sophistication from their banks as well.

With FICS – Retail Internet Banking, banks are now in a position to harness the power of the Internet and use it to grow their home and small office business. The infrastructure has been in place for more than a decade, and the hardware is part of day-to-day lives. Most importantly, many customers already use it for a variety of daily tasks; sending e-mail, checking the weather forecast, reading the headlines, planning a vacation, buying and ordering products direct. For retail banking, it is the logical way forward.

Internet banking improves the quality of service that is delivered to customers, a key factor influencing customer loyalty. Whether at home or abroad, all of their core banking needs are at their fingertips 24 hours a day. Features include seeing an up-to-the-minute account status, transferring money between personal accounts, making payments to a third-party account, international payments via S.W.I.F.T, salary payments, reloading an electronic purse, sending

e-mail messages or instructions to the central office, requesting information and ordering paper statements. FICS – Retail Internet Banking has been designed as a user-friendly and comprehensive solution for home and small business banking. Developed in 100% Java, it integrates leading edge FICS technology with the Internet structures already in place. It is totally customizable to meet company and specific market needs. Customers will receive the quality banking experience they have come to expect from the bank, direct from their favorite armchair or desktop.

FICS security – Destroy all fears

FICS is a leading world authority in Internet security. FICS Internet banking security modules surpass international standards such as the Secure Sockets Layer (SSL – 128 bit encryption) by using the FICS Secure Sockets Channel to provide a massive 168-bits bulk encryption on data transferred over public networks. The FICS Secure Sockets Channel also incorporates other complex features to ensure absolute security online, such as local generation of keys, dual authentication (both by the server and client), transaction authentication, and code signing.

On top of all that, FICS – Retail Internet Banking systems support a range of proprietary security mechanisms and tokens including smart cards, digital certificates and crypto-calculators. FICS – Retail Internet Banking also enable extensive audit facilities to determine when, how, and by whom, each transaction was created or modified.

Case Study

National Australia Bank

FICS – Retail Internet Banking (FICS – RIB)

National Australia Bank – the largest financial institution in Australia and part of the National Australia Bank group, one of the world's largest financial services groups – has launched a FICS-developed retail Internet banking solution. The product is the first banking product on the Australian market to leverage the full capabilities of the Java language. Based on FICS' standard product, FICS – RIB, the project is a 24 carat example of how FICS software developed for international use can be adapted and fine-tuned for the idiosyncrasies of the local market.

Standard FICS functionality, with an Australian twist

National Australia Bank began working with FICS at the end of 1997. Their decision followed a worldwide

search for a secure medium for offering Internet-based banking services to its customers. The bank chose two FICS products as the underlying architecture for the project; on the bank's side, the FICS – Electronic Services Delivery Server, handles transaction processing and links to the existing back-office systems; on the customer's side, the bank chose a customized version of the standard FICS – RIB product. Customization and 'Australianization' of the standard product was handled by FICS Australia. These customizations include BPAY payments (the national standard for electronic bill payments launched in 1997) and Australian accounting standards. Direct Payroll payments and Import of Direct Entry files conforming to the ACPA (Australian Payments Clearing Association) standard will be added in the future.

The new product offers a number of advanced functions to the bank's customers:

- The ability to purchase a term deposit
- Support for reporting the last 100 transactions; the ability to sort transactions into an order determined by each individual customer
- E-mail transmission and receipt
- Activation of same day and future dated payments including BPAY
- Periodic payments and inter-bank transfers
- Import / Export to other local PC applications.

Java: the long-term solution

National Australia Bank's product is the first Internet banking product on the Australian market to be developed in the Java programming language. The FICS – RIB product on which it is based is written in Java. As such, it can be run on any computer with latest generation Internet browser software.

"When it came to developing our international Internet banking offering, Java offered many benefits over a simple HTML-based solution," explains Herve Couturier, Head of Marketing and Business Development at FICS in Brussels. *"For example, local storage of processing functions mean that a bank's customers only need to download essential data from the bank's server. And as Java offers Object Oriented development – i.e. the possibility to scale, upgrade and re-use components – new functions can be integrated in an incremental way."*

The National Australia Bank product can thus evolve to include extended functionality in the future. Possibilities include the recharging of and interfacing with electronic purses, as this option is already available within the FICS – RIB offering.

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29

Strong Security

One of National Australia Bank's priorities in choosing a developer for their Internet banking product was to guarantee security. FICS' solution provides 168 bit 3DES channel encryption, as opposed to just 128 bit SSL technology. The Australian Standard data encryption system is also used. The solution provides client and server authentication with 1024 bit RSA, maintains data integrity via the SHA1 (Secure Hash Algorithm) algorithm, and provides for non-repudiation through the signing of Java applets. National Australia Bank also chose to implement the use of a digital certificate stored on the client's hard drive. This is another first on the Australian market, and adds to the matrix of security solutions within the FICS –-RIB product.

Another security feature of the National Australia Bank project is the use of 'floating keypads': these are windows containing numbers which appear on the screen. The customer clicks on the numbers to enter his/her password. These avoid the need for customers to use their keyboard to enter a password. Floating keypads are an effective way of avoiding a 'trojan horse' attack where a virus is downloaded off the Internet is programmed to 'sniff' all the keystrokes on the local computer, and send the information to a third-party. The third party is thus able to find a password entered through the keyboard by checking what the virus has 'sniffed'.

Behind the scenes: the FICS – ESD Server and the Secure Gateway Interface

Links to the bank's back-office processing systems, and the interface with bank staff, is achieved through the FICS – ESD Server which for Internet banking products integrates an added component, the Secure Gateway Interface. The Secure Gateway Interface performs the dual authentication with the client, handling encryption and the linkage to the FICS – ESD Server. It supports the use of the system by high volumes of users by serializing the calls made to the server, thus ensuring that the server receives a steady stream of calls, rather than any surges. This traffic regulation guards against bottlenecks, improves performance, and guarantees the scalability of the solution should the market demand it.

The FICS – ESD Server, running under the AIX platform, acts as the interface to the bank's back office. It features an administration module, enabling the operator to conduct customer administration (audit trails, password management, user creation, etc.), and automated transaction processing functions. For the National Australia Bank product, enhancements were made to the system to enable seamless linkage to local Australian messaging standards, such as BPAY. The server is also able to store information on a

temporary basis; for example, if a customer makes a future payment, it retains information about the transaction until the due date of the payment before sending it to the bank's back office.

Bank Central Asia

Innovation in Indonesia

Jakarta-based Bank Central Asia (BCA), one of Indonesia's largest banks, has chosen to implement a Windows-based corporate banking solution for its business customers. The system will integrate with the bank's satellite-enabled intranet network, which currently links the front offices of its 765 branches in Indonesia and overseas.

"Our previous online Electronic banking offering was restricted to a select group of customers in and around Jakarta," says Iman Sentosa, spokesperson for the BCA. *"The new FICS – Corporate Banking for Windows system will give us nationwide coverage across all the main islands in Indonesia."*

The system is the first banking product to utilize BCA's internal telecommunications network, which establishes connections between branches via satellite. In future, customers will be able to make a dial-up modem connection from their desktop PC to their local branch. BCA will then make a real-time link to its central banking server in Jakarta. This way, the bank's customers do not need to make expensive long distance calls.

The system is based around an Asian version of FICS standard business banking solution. Customizations for BCA include adding bank branding and translation of the interface into the country's official language, Bahasa Indonesia.

"BCA's customers are scattered across the many islands that make up the country. These long distances make on-line banking an extremely attractive option," says Elizabeth Goh, Sales and Marketing Manager at FICS Group Asia. *"Meanwhile, FICS – Corporate Banking for Windows offers the user-friendliness that customers require."*

The underlying server support is provided by the FICS – ESD Server, another standard FICS Group product. This manages the connection to BCA's existing IT infrastructure, and will incorporate features for ensuring security and non-repudiation of transactions. The server is able to support a range of front-end solutions, including retail banking, telephone banking and Internet banking. The bank therefore has a wide range of options for extending its electronic strategy in the future.

Intershop Communications

Contact Information

Intershop Communications
600 Townsend St. Top Floor West,
San Francisco, CA 94103

Telephone: 1 (415) 229 0097
Fax: 1 (415) 229 0555

Ian O'Rourke
Asia Sales Manager
email: i.orourke@intershop.com

Yoko Nakagawa
International Business Development Manager
email: y.nakagawa@intershop.com

www.intershop.com

Company Background

Intershop Communications is a global leader in providing rapidly deployable and scalable E-Commerce applications with customers and partners in Asia Pacific, Europe, Latin America and North America. Today, Intershop Communications has the largest installation base of E-Commerce stores, with 20,000+ live stores deployed worldwide.

Founded in 1992, the company moved its worldwide headquarters to San Francisco in 1996 to be closer to the technology-rich Silicon Valley. Today, Intershop has offices in the US, Canada, Germany, UK, France, Sweden, Australia and Brazil.

Intershop has a complete portfolio of products to provide small merchants all the way up to enterprise level customers with rapidly deployable and scalable E-Commerce solutions. With over 450 employees and offices in 15 major cities worldwide, Intershop has global presence and is a world leader in the telco/ISP/CSP E-Commerce hosting space. In 1998 Intershop Communications recorded revenues of US$20.4 million.

Intershop E-Commerce Product Brief History

In 1996, Intershop Online was launched – the world's first packaged E-Commerce solution. In 1997,

Intershop Mall, the E-Commerce hosting solution was introduced and sold to major ISPs & telcos, including Deutsche Telecom, AOL UK, and Telecom New Zealand.

1998 brought the launch of Intershop 3, which includes the Hosting Edition, Enterprise Edition, ePages and Merchant Edition. The release brought Intershop some major new customers, including Chunghwa Telecom, Bell Canada, Bell South, PSINet, France Telecom, and Swisscom.

Recent Business Developments

In 1999, Intershop product lines were further improved and extended via the launching of SAP R/3 cartridges, payment cartridges for Cybercash, Verifone, WorldPay CurrencyPay, Automatic Transaction Service, Open Market Transact, logistic cartridges and foreign language packs.

Their customer base was further developed in hosting – National Computer Systems Pte, ERANet, Times of India, BCE Emergis, and in enterprises – HP, Bosch, Baxter, Mercedes, Nat West and Silicon Graphics.

In April 1999, Intershop announced the opening of its New York office, which was the result of an acquisition of Internet systems integrator and former Intershop partner, Fountainhead Management. A key integration and professional service partner since 1997, Fountainhead Management had developed an outstanding reputation for delivering sophisticated business-to-business E-Commerce solutions to major enterprise customers, including America Online, the American Dental Association, Canon USA, the Museum of Modern Art, Simon & Schuster, and Japan Airlines. Intershop's New York office will focus on delivering powerful and rapidly deployable E-Commerce software solutions for the mid-tier enterprise market.

E-Commerce Solutions

Intershop Communications is one of the world's leading providers of E-Commerce software, offering both standard and custom tools for developing complete business-to-business and business-to-consumer solutions. Many of the world's largest telecommunications companies, commerce service providers and major corporations have chosen Intershop as their enterprise E-Commerce platform.

Product portfolio

Intershop ePages – Mass deployment marketplace hosting solution for inexpensive, entry-level E-Commerce stores, with readily available storefront

templates and limited customization. Designed for large ISPs, portal sites and on-line communities.

Intershop 3 Hosting Edition – Proven high-performance E-Commerce hosting with virtually unlimited site, product, and transaction capabilities. Sold as a multi-store license package.

Intershop 3 Merchant Edition – A full-feature one-store license with the capability to add functions and increase data capacity as business requirements grow.

Intershop 3 Enterprise – A customizable development framework for the high-performance and ERP integration needs of large Enterprise businesses, with open database development license.

Intershop 3 Developer Edition – Design complete demonstration stores offline at no up-front cost using the Intershop E-Commerce applications.

Intershop Cartridges – Additions that extend Intershop 3's functionality so organizations can integrate emerging E-Commerce technologies, capabilities, and features, such as payment, languages, accelerated searching, logistics, etc.

Intershop Developer Kit (IDK) – A tool set for Java developers to design software that connects with Intershop 3. It allows communication with Intershop standard database.

Intershop is a full-featured, deployable, scalable and upgradable E-Commerce solution that has been proven to deliver ROI. It provides a complete E-Commerce solution that enables businesses to showcase their products, make sales, and manage their business processes. This high performance solution also helps to build customer loyalty to the site. In 1998 alone, Intershop had more than 5,500 new customers sign up for their E-Commerce solution, which was more than their leading competitors combined (according to IDC). Today, Intershop has more than 20,000 live stores deployed and running around the world.

Key Features & Benefits

- Scalable to virtually any size/type of business: handles an unlimited number of products and variations; catalog categories and subcategories; and transactions (all limited only by hardware).

  Benefits to customers: low risk, low initial investment, low cost in scaling up, natural upgrade path, quick scalability guarantees time to market.

- Easily-adapted choice of storefront templates for "instant" store building; easily customizable for

unlimited design options; supports advanced multimedia tools (such as audio and video).

  Benefits to customers: quick deployment with available templates, flexibility to do customization.

- Smooth integration with EDI, ERP systems such as SAP, and other inventory/resource database management systems.

  Benefits to customers: reduce implementation cost, improve ROI.

- Supports most standard payment options and provides payment APIs for integration with proprietary systems; also calculates taxes and shipping.

  Benefits to customers: readily deployable, complete end-to-end solution, time to market, user convenience.

- Full back office functionality builds customer and sales statistics and reports, prints invoices and packing/shipping orders, tracks inventory and reorders depleted stock.

  Benefits to customers: readily deployable, cost reduction in inventory & logistic management, remote management of all functions.

- Comes with a choice of the most powerful databases, the Sybase Adaptive Server II (used by New York Stock Exchange and FedEx) or Oracle 8. Existing database information is easily imported using the data import wizard and ODBC.

  Benefits to customers: high reliability, fast & tight integration with database, quick and easy data transport, unlimited expandability.

- Hybrid HTML allows choice of dynamic or static store pages for maximum performance.

  Benefits to customers: speed of store browsing, speed of transaction.

- Manage the store locally or from a remote site via any web browser.

  Benefits to customers: ease of management, reduce management fee for hosting providers, no geographic limitations.

- Distributed load balancing means Intershop can meet high traffic demand by running different tiers of the software on different CPUs (if needed).

  Benefits to customers: provides end-users with high speed transactions; provides High Availability (HA) E-Commerce platform.

- Adaptable to foreign languages and multiple currencies.

Benefits to customers: able to expand to a global market.

Customers can try E-Commerce with low initial investment by renting Intershop ePages stores from hosting providers for less than $100 per month. As the company's E-Commerce grows, they can upgrade to Intershop Hosting edition stores, a hosting solution with more customization features, without having to invest in hardware, IT support and maintenance, etc. The customer can also choose to have their own server using Intershop Merchant edition, provided they already have a server or are willing to invest in a server and IT infrastructure.

Intershop Enterprise edition is a natural upgrade for companies that require much more customization and require open structure to integrate with legacy systems. It is commonly used to integrate or E-Commerce enable ERP systems. Throughout the upgrade path, customers can build upon their existing E-Commerce solution and add on new features without completely wasting their previous investment in E-Commerce.

Intershop offers the Cartridge family of products to extend the functionality of its core technology, allowing Intershop customers to tap into the full range of capabilities produced from emerging E-Commerce technologies. Some of the examples are:

1. **Payment cartridges:**

- Cartridge for CyberCash MCK 3.2, V1.0 connects a storefront to the CyberCash payment services.

- Cartridge for Verifone vPOS 4.0 SET, Version 1.0 allows Intershop Site Administrators to integrate VeriFone vPOS SET into Intershop stores.

2. **Order management and Logistics cartridges:**

- Cartridge for SAP R/3 allows Enterprises to apply Intershop's front-end to SAP R/3 order and product management systems.

- Cartridge for TanData Progistics, V1.0 provides a link from Intershop to TanData Progistics to permit dynamic calculation of shipping costs.

3. **Languages cartridges:**

- Spanish, Chinese, Korean.

4. **Independent Software Vendor (ISV) Program**

Intershop currently has over 60 ISVs partners with a variety of solutions to enhance functionality. These partners include companies such as Netperception for enhanced one-to-one marketing, Opensite for auctions, etc.

Key Intershop South Asia partners:

- **Singapore & Malaysia:**
  RFC Distribution (S) Pte Ltd
  Contact: Louis Chin, louis818@digitek.com.sg

- **India:**
  Tata Infotech
  Contact: Ramesh Gopalakrishnan,
  ramesh.gopalakrishnan@tatainfotech.com

- **Thailand:**
  CDGM /Logic ISI
  Contact: Sermsak Danchithrong,
  sermsak.d@cdg.co.th

- **Philippines:**
  HPS Software
  Contact: Stan Yap, stan@mail.pilnet.com

The roles of these key partners include reselling, systems integration, product training, and co-marketing.

Intershop also works closely with strategic partners such as Sun Microsystems, Compaq, HP to provide E-Commerce bundled solutions.

Strategic Positioning

Intershop's main competitive differentiators in E-Commerce are considered:

- More E-Commerce live stores deployed than anyone else (Wall Street Journal, March 4, 1999)

- One of the most deployable, scalable, and upgradable solutions that has clearly demonstrated ROI

- They are a pure E-Commerce company, with 5+ years' successful experience in E-Commerce

- Smooth integration with ERP systems, legacy systems, and supports all hardware platforms.

Case Study

Bosch

Anti-lock brakes, fuel injection systems, car stereos, household appliances, cell phones, lawn mowers, electric power tools and navigation systems are but a few examples of Bosch products. The company employs 189,000 and racked up worldwide sales of $50.3 billion in 1998. Of the overall revenue, nearly $2.5 billion were posted by the famous power tools division, which successfully uses E-Commerce technology by Intershop to streamline order management and serve the reseller channel.

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33

E-Commerce saves margins

More than 10 years ago, this division started the battle against eroding margins and began to trim the fat from the retail channel. They dropped distributors in favor of selling directly to authorized dealers who placed their orders by telephone, fax or BTX. On the other end, however, Bosch's inside sales force spent more than a third of their time entering order data manually into the existing mainframe system, painstakingly verifying and clarifying order items.

The emergence of the Internet and E-Commerce technology prompted Bosch to think about a permanently available order system for the power tool dealers. Taking advantage of Intershop's open architecture and flexibility, Bosch became a marquee enterprise customer with unique demands for tight integration with mainframe systems.

Integration with heterogeneous server environments

"The challenges for Bosch's IT vendors are our heterogeneous server systems that require a high level of technical expertise to be integrated with E-Commerce," explains Jens Bockholt, manager of E-Commerce projects for Bosch's internal IT organization. *"Bosch also runs long-standing legacy systems that are not exchanged every other year. Currently, we have all modules of SAP R/2 in operation and will migrate to R/3 in 1999."*

Benefits of a 3270 terminal emulation

IDIS-Extranet, Bosch's first implementation of E-Commerce for the German electric power tools division, is based on the Intershop corporate technology framework. Dealers are given access to the IDIS information through a web based graphic user interface. The web application does not access the database directly, which helped avoid costly re-programming of internal logics that have been implemented in the mainframe system over the years.

"At this time Bosch uses business-to-business E-Commerce to sell new products to authorized resellers," said Uwe Böhm, Internet project manager at Bosch's electric power tools division. *"But we are also working on solutions to integrate our dealer networks with reseller databases, shopping carts, online catalogs, e-mails and online invoicing."* Böhm expressed satisfaction with the benefits that his organization realized with E-Commerce, such as; 24/7 availability of the system; reduction of personnel cost for data entry; improved accuracy of order data; more efficient order processing; availability check for ordered products in real time; check shipment status; display of alternative products and special sales promotions; a user-friendly graphic interface.

Bosch dealers log on to order

"Under the new system, our inside sales force is more sales and marketing oriented instead of spending a third of their valuable time with administrative chores and data entry," Böhm pointed out. *"The result is a clear improvement of customer satisfaction."* Böhm mentions e-information, another important benefit based on the graphic and multimedia capabilities Intershop's solution. *"Now we can make available the latest product information and technical drawings to our resellers, which saves postage and printing cost."*

Already 10 percent of Germany's 7000 eligible power tool resellers use the online order system. Motivated by the measurable success, Bosch introduced a similar system to bring it online in other European nations, albeit with different legacy systems ranging from AS 400 to Unix-based R/2.

"Intershop's service has gone beyond the usual design and development," IT manager Bockholt said. *"Their flexible attitude and solid, open technology platform allowed us to fine-tune our ideas mid-way through the development process."*

More E-Commerce solutions follow suit

Blaupunkt, the high-end car stereo division of Bosch, was inspired by the success of the electric power tools E-Commerce application and decided to implement a similar order system. *"Blaupunkt is a great example for Intershop's flexibility,"* said Bockholt. *"About 80 percent of the power tools solution re-surfaced in the car stereo order system, which resulted in a very short development time."* In the first months of the system's availability, more than 330 Blaupunkt dealers, took advantage of the Internet to retrieve product information and to place orders. Joining the German stores and using a very similar design was Bosch's Hong Kong subsidiary, who operates an online store in English and Chinese, offering home appliances to the public.

Bosch is hooked on Intershop

Intershop is working on more E-Commerce implementations at Bosch. Next up is an intranet solution that will be used to purchase office materials from hundreds of different vendors, thus reducing the cost of order and the time of delivery. The order system for electric power tools will also go online in other geographies soon.

"We are in good hands at Intershop," stated Böhm, Bosch's Internet project manager. *"We appreciate the extra mile the company is going for us, delivering solutions that are future-oriented and fit with our way of doing business."*

National Computer Systems

Contact Information

National Computer Systems Pte Ltd
75 Science Park Drive
#01-01/04 Cintech II Building
Singapore 118255

Tel: (65) 778 9966
Fax: (65) 778 4376

Poh Mui Hoon
General Manager
Internet Commerce Group
muihoon@ncs.com.sg

Irene Hwa
Programme Manager (Marketing)
Internet Commerce Group
alhwa@ncs.com.sg

NCSI (India) Pvt Ltd
1201-04 Prestige Meridian 1
29, Mahatma Gandhi Road
Bangalore 560001
India

Tel: (91-80) 509 8050
Fax: (91-80) 509 8051

joydeep@ncs.com.sg

NCSI (HK) Limited
Suite 6708, Central Plaza
18 Harbour Road
Wanchai
Hong Kong, SAR

Tel: (852) 2877 1368
Fax: (852) 2877 2862

lkleong@ncs.com.sg

NCS Information Technology (Suzhou) Company Ltd
#04-01/02 Block 1A
Singa Plaza
North Jinji Hu Road
Suzhou Industrial Park
Suzhou 215021
Jiangsu Province
China

Tel: (86-512) 761 4545
Fax: (86-512) 761 5603

qbgan@ncs.com.sg

http://www.ncs.com.sg

Company Background

National Computer Systems Pte Ltd (NCS) was born out of the biggest computerization project in Singapore - the Civil Service Computerization Program (CSCP). As the main provider of information technology (IT) services to the CSCP for the past 17 years, NCS has built up experience and skills unmatched in range and quality by any other computer company in Singapore. Its 1,900 IT professionals are amongst the largest pool of IT expertise in the region.

With solid, wide-ranging IT and management expertise -- from a simple LAN implementation to developing a nation-wide infrastructure -- no project is too large or too small for NCS. They have demonstrated their capabilities in such diverse areas as personnel, education, construction, healthcare, transportation and taxation. Many of their systems have also earned international recognition and awards. In a nutshell, they provide the full spectrum of IT services and products to organizations, and assist them in realizing higher levels of productivity and service, competitive advantage and returns on investment through the strategic exploitation of IT.

While the initial focus of NCS was on Singapore's government sector, it has been aggressively expanding beyond Singapore and into the private sector. It has been especially focused on the area of Internet commerce in the retail, banking and finance, and the manufacturing industries. For example, NCS is actively providing one-stop e-commerce outsourcing services to Hong Kong's banking industry. It has also set up offices in China, India and Hong Kong.

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35

Electronic Commerce Solutions

NCS offers a complete and comprehensive suite of services in the area of Internet Commerce, from end-to-end systems integration to value-added network services.

NCS is fully qualified and has considerable experience in implementing the various aspects of E-Commerce solutions, having successfully delivered projects involving intranet and extranet applications, electronic payment systems, supply chain management, business re-engineering processes and back-end integration with existing legacy systems.

A highly skilled and talented team of professionals who have extensive experience in Internet technology and E-Commerce provide the services. Their very versatile Professional Services Unit (PSU) comprises consultants, engineers, developers and designers of diverse education and work backgrounds who have contributed to the success of the wide range of NCS projects spanning consultancy to web site design to systems integration.

Major E-Commerce projects undertaken by NCS over the past two years include solutions for Internet Banking (Overseas Union Bank), the Virtual Post Office (Singapore Post), and the integrated Land Information Services (INLIS) system, which was jointly launched by NCS and the Ministry of Law. INLIS delivers digital maps and land information to online users paying with the CashCard, or a Netrust-ready smartcard linked to a GIRO account.

In addition to the PSU, NCS comprises business groups under its various Internet Commerce value services, namely Commerce InterChange, Consumer Connect and Media Hub.

NCS have invested in a comprehensive Internet infrastructure that enables them to provide their customers with one-stop, end-to-end E-Commerce solutions. These include connectivity to payment facilities, such as for the CashCard and credit card, Financial Electronic Data Interchange (FEDI), and fulfillment services for hard and soft goods. To date, NCS are possibly the only vendor in the region to offer a complete range of business-to-business and business-to-consumer outsourcing services.

Bringing Business and Business Together – E Procurement Portal

NCS *MarketSite* is a comprehensive, integrated suite of e-procurement solutions that dynamically links buying and supplying organisations into real-time trading communities. The solution helps companies to significantly reduce operational costs and increase efficiency by automating the entire indirect goods and services supply chain.

The solution comprises COMMERCE ONE BUYSITE, an intranet application that automates the internal procurement process from requisition, approval to order and NCS *MarketSite*, a B-B marketplace portal that automates buyers' interactions with their suppliers, including purchase order transmissions, status checks and payments.

The *MarketSite* provides an efficient and effective way for buyers and suppliers to meet online. Suppliers' catalogue content is aggregated into one unified catalogue to enable transactional capabilities between trading partners. NCS will grow and manage the supplier content and integrate suppliers into *MarketSite*.

The NCS *MarketSite* will be interconnected to the *MarketSite* hosted by COMMERCE ONE in the United States to leverage on the total mass of suppliers and buyers from both regions. This creates an opportunity for both buyers and suppliers to reach out to an unprecedented set of global trading partners.

NCS *MarketSite* is uniquely positioned to become the leading full service e-procurement portal in Asia. By partnering with COMMERCE ONE in the US, NCS *MarketSite* offers traders unlimited opportunities to participate in the global trading community.

* NCS Marketsite is a temporary 'working' name chosen to represent NCS' e-procurement service. The full service will be available in the fourth quarter 1999.

Bringing Business and Business Together - Commerce InterChange

Commerce Interchange, NCS' well-established business-to-business commerce infrastructure, help their clients achieve efficiencies in the form of faster processing and reduced human errors, which result in increased competitiveness.

Commerce InterChange comprises a suite of E-Commerce services designed to facilitate business transactions in the supply chain, and within specialised business communities. By automating the supply chain, business documents such as purchase order, order response, delivery schedule and invoice can be exchanged more quickly and efficiently. Companies will have greater control over inventory levels while distributors can easily access current stock levels.

Commerce InterChange takes the complexities of e-commerce out from the customer. By connecting the back-end system to the Commerce InterChange framework, the customer will not have a need to administer an electronic commerce system and still be E-Commerce enabled. Further, electronic information received from trading partners can be specially formatted for input into the designated back-end

system. The use of web-browser for electronic trading is also supported in Commerce InterChange.

To enhance communication, Commerce InterChange can also provide an alert mechanism for inbound electronic business information – either through fax, email, or paging. Commerce Interchange empowers organisations to be on top of their business transactions.

Some E-Commerce solutions they have completed in this area include the development of a supply and distribution network to manage electronic trading for Singapore Airlines (see Case Study), a customer support network for global semi-conductor company ST Microelectronics, and electronic supplier networks for NTUC Fairprice, Watson's and Diethelm.

Bringing Business and Consumers Together – Consumer Connect

NCS' Consumer Connect service is a complete suite of E-Commerce outsourcing services that seamlessly connects businesses to consumers in the world wide web. NCS' clients are able to establish storefronts quickly, without heavy up-front investments in computer infrastructure and staffing costs. In addition, their clients benefit from the hassle free set-up that NCS provide with efficient support services such as online marketing, multi-currency settlements and fraud protection.

Consumer Connect offers Web merchants and digital content publishers an innovative and easy way to create a new transaction-based revenue channel. It has the existing infrastructure, data centres, hardware and connection network established and ready for use.

Experienced consultants from NCS are able to advise, design and implement entire electronic commerce operations, from front-end concept to back-end operations. Their consultants also possess unmatched expertise in systems integration, operations and management of data centre operations.

Consumer Connect has many independent modules allowing companies to select those most suitable for their business needs. Consumer Connect's comprehensive E-Commerce outsourcing service provides:

- EzPay – Payment Processing

- EzCommerce – Storefront Management

- EzFulfill – Fulfillment Services

- EzProtect – Security Services

- EzPromo – Online Marketing

- EzCurrency – Multi-currency capability

- EzDigi – Digital Goods Distributions Services

Amongst NCS' business-to-consumer E-Commerce projects are successful solutions for service and retail establishments such as the Royal Crowne Plaza Hotel, Times Publishing Ltd and home-grown Mustafa Centre. (see Case Study)

Media Hub: Providing the Right Connecti,on

For companies planning to establish a presence on the Net, the NCS Media Hub makes the right connection. NCS offer a full range of virtual hosting, messaging and server co-location packages on their Media Hub for business operations that require high-performance connectivity, reliable security, daily back-up and 24-hour help desk support to meet their growing needs.

Media Hub's Singapore ONE virtual hosting and co-location services provide the most cost-effective means of offering multimedia online applications and services on the nationwide broadband network.

Maintaining a 24 hours x 365 days online operation is very demanding. Outsourcing to Media Hub lets businesses judiciously deploy resources for core business functions. In short, the Media Hub is a one-stop facility.

Case Studies

Mustafa

Mohamed Mustafa and Samsuddin Co Pte Ltd is a successful department store providing a wide variety of goods and services in Singapore. The business developed a web site to provide information on their growing catalogue of products and services. An obvious next step was to look at how they could sell these products online. The business also needed a complete and reliable solution that could effectively take orders and collect payment over the Internet.

NCS Consumer Connect met all of the retailer's requirements. NCS has an established relationship with a Singapore bank to provide payment processing. This has provided Mustafa Online a hassle-free electronic commerce solution which is low in investment and can also be implemented almost immediately.

Providing a secure online solution to the retail giant has allowed its customers to make purchases from anywhere, around the world.

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37

Singapore Airlines (SIA)

At the SIA Supplies Centre in Loyang Way, more than 3,000 items are stored at the central warehouse before being distributed to SIA offices in Singapore and about 70 cities worldwide. The items range from uniforms and fabrics, to stationery and in-flight items. Managing the supply and distribution network is a logistical challenge, one that Commerce InterChange is well positioned to meet.

Conventional EDI requires investments in expensive computer hardware and customized software. Commerce InterChange, on the other hand, requires users to have only a Web browser and an Internet dial-up account with any local ISP. The Web-based EDI solution allows electronic trading to be done with business partners anywhere in the world where there is Internet access.

Electronic transactions will become increasingly important as businesses operate in a more high-tech and "intelligent" environment, said Steven Soh, Senior Manager, SIA Commercial Supplies Department.

"Electronic trading through Commerce InterChange has let us be more efficient and productive in our daily operations", said Soh. "We are now able to reach a network of local and overseas suppliers almost instantaneously. The cost of communicating with them is also lower."

Cost Savings

By going electronic, the Centre can cut down on paper work and avoid the hassle of losing documents, he said. There are also substantial savings in terms of paper and manpower, he added, estimating that the SIA Supplies Centre will enjoy cost savings of about 14 percent with full implementation of the system.

The transmission of information over the system is also secure and the integrity of the information is assured, he added.

The SIA Supplies Centre ran a pilot project using Commerce InterChange to connect to a number of its local and overseas suppliers. The trial was undertaken in two phases over a four-month period.

During the first phase, SIA introduced electronic purchase orders and order responses with its suppliers. Delivery or dispatch advice and invoices from suppliers were also done through the system during the second phase.

Feedback from 15 suppliers who were involved in the trial was encouraging. "With E-Commerce, invoices can be processed faster and this means the suppliers can be paid earlier," said Soh.

Software for the system was developed by a team of engineers from Commerce InterChange who also managed various aspects of the system implementation, including security, audit procedures, workflow and integration.

Commerce InterChange provides integrated Business Messaging and E-Commerce solutions on a highly secure and reliable backbone. In the electronic office, business is conducted via different communication tools such as electronic mail, E-Commerce, EDI, fax and telex. It may also include access to network groupware services, on-line product databases, directories and www sites.

The Commerce InterChange team supporting the SIA project also conducts seminars covering the technical and commercial aspects of implementation, training programmes and consultancy, and provides helpdesk support to suppliers who are using the system to trade with SIA.

"This service will benefit companies which lack the skills and infrastructure to participate in EDI-based business transactions. Commerce InterChange helps companies to centrally manage these transactions and eliminates the need to administer a complicated EDI system at their end," said Lim Foong, the Program Manager for Commerce InterChange.

Oracle

Contact Information

Mr. David Yuen
Regional Director, ISEC South Asia
Email: dyuen@sg.oracle.com
Telephone: (65) 431-1567
Fax: (65) 333-8806

Mr. Chak Lee Meng
Regional Senior Manager, ISEC South Asia
Email: lmchak@sg.oracle.com
Telephone: (65) 431-1572
Fax: (65) 333-8806

Singapore

Mr. Frank Koo
Business Director, ISEC South Asia (Singapore)
Email: fkoo@sg.oracle.com
Telephone: (65) 434 7576
Fax: (65) 339 6006

India

Mr. Dipankar Sanyal
Business Director, ISEC South Asia (India)
Email: dsanyal@in.oracle.com
Telephone: (91-11) 372 0570

Malaysia

Mr. KK Wong
Business Manager, ISEC South Asia (Malaysia)
Email: kkwong@sg.oracle.com
Telephone: (65) 431 1564
Fax: (65) 333 8806

Philippines

Mr. Joel Garcia
Business Manager, ISEC South Asia (Philippines)
Email: jgarcia@ph.oracle.com
Telephone: (63-912) 800 2300

Thailand, Vietnam, Pakistan

Mr. Marrut Wungsoontorn,
Business Manager
ISEC South Asia (Indo China and Pakistan)
Email: mwungsoo@th.oracle.com
Telephone: (66-2) 632 9400 (x8117)
Fax: (66-2) 632 9001

Indonesia

Mr Dimitar Iordanov
Business Manager, ISEC South Asia (Indonesia)
Email: diiordan@sg.oracle.com
Telephone: (65) 431 1603
Fax: (65) 333 8806

www.oracle.com

Company Background

Oracle Corp. (Nasdaq: ORCL) is the world's second largest software company and leading supplier of solutions for Internet-enabled information management. With annual revenues exceeding US$8.3 billion, the company offers its database, tools and application products, along with related consulting, education, and support services, in more than 145 countries around the world.

Headquartered in Redwood Shores, California, Oracle is the first software company to implement the Internet computing model for developing and deploying enterprise software across its entire product line: databases and relational servers, application development and decision support tools, and enterprise business applications. Oracle is one of the few companies capable of implementing end-to-end enterprise IT infrastructure and applications solutions on a global scale.

The Internet Computing Age

The Internet Computing age has ushered in a new competitive era where business opportunities are discovered and exploited more quickly than ever before. To thrive in this new environment, businesses are challenged to deploy information solutions that are both powerful and flexible - two characteristics which have traditionally been competing objectives.

In response to these new information technology requirements, a new era of enterprise computing is emerging - the era of Internet computing. Leveraging the simplicity and cost effectiveness of the Internet, Internet computing provides organizations the ability to shift operational and management emphasis from expensive, client-centric models and focus instead on high-impact, flexible applications accessible via any web browser in a server-centric environment.

A server-centric architecture places new demands on the database server. As "thin" software clients move applications off the desktop, the database server has to support increasingly complex applications. And since the ease of deploying thin software clients allows more users to access the system, the database server

also must support significantly higher usage. Oracle8i, the latest version of Oracle's industry leading database, is the database for Internet Computing. Oracle8i is the most complete and comprehensive platform for building, deploying and managing Internet applications. It simplifies the development of applications, simplifies the management of Internet content and simplifies the deployment of applications. Oracle8i provides the lowest cost platform for developing and deploying applications on the Internet.

The Internet and eCommerce

The Internet and eCommerce are not about new technology. They are about a new way of doing business. The Internet changes everything. Business structures. Business processes. Economic models. Organizations must change – the way they work, communicate, share knowledge, and deliver value.

Most important are those business processes that determine how they serve customers, interact with suppliers, reach out to new markets and measure performance. Oracle is one of the leaders in harnessing Internet technology for e-business innovation. At Oracle, e-business is about addressing and solving critical business issues - focusing on enhancing existing goals of market expansion, increasing efficiencies, and customer retention to new levels.

E-business enables organizations to focus on managing customer relationships more effectively - reaching out to more customers, interconnecting value chains, engaging business partners in deeper collaboration, using information to drive innovation, and improving the overall quality of experience. With e-business, the end result is faster time to market, lowered operational costs, and increased profits. Oracle is the e-business engine that enables companies to run smarter and faster than ever before.

In simple terms, the web-enabled business brings together all the components of an organization's value chain - the people they sell to, the companies they buy from, and the employees that make the company great. Oracle not only brings together the Buy Side, Sell Side and Inside, but also supplies the most scaleable, reliable, highest-performing platform on which to run your business.

E-Commerce Solutions and Services

Oracle is the only solution provider to offer a comprehensive suite of enterprise applications to run your e-business, a platform to build e-business

applications, and professional services that can help you formulate your e-business strategy and that can help you design, customize, or implement the e-business applications you need.

- Oracle Applications: Oracle Applications are a comprehensive suite of applications that support e-business and extend across your customer interface, your manufacturing and supply chain, your financial management and business intelligence systems, and your corporate business processes.

- Oracle Platform: Oracle Applications are built using Oracle's Internet platform, which simplifies how you develop, deploy, and manage e-business applications. Oracle's platform also provides you with the reliability, availability, scalability, and security you need to run your e-business on the Internet.

- Oracle Services: Oracle offers a trained, worldwide professional services organization that can help you formulate your e-business strategy, and design and customize the e-business applications you need. Oracle also offers Business OnLine, a service through which Oracle hosts your e-business applications; the result is lower total cost of ownership and simplified management.

Oracle provides you a comprehensive suite of applications to run your e-business including:

- Oracle Customer Relationship Management Applications (Oracle CRM – Oracle Sales, Marketing, Service, Call Centers and Electronic Commerce) that enable you to attract, retain, and satisfy customers and offer them personalized products and services

- Oracle Supply Chain, Manufacturing and Strategic Procurement (Oracle Supply Chain Management, SCM – Customer Lifecycle, Supply Chain Planning, Mix-Mode Manufacturing and Strategic Procurement) applications that allow you to deliver the right products and services to customers in the shortest possible time

- Self-Service Applications to automate your corporate business processes to reduce cost and improve efficiencies

- Oracle Strategic Enterprise Management (Oracle SEM – Oracle Activa for ABC/ABM, Balanced ScoreCard) and Financial Applications to manage your business globally

Oracle is the only software provider in the industry that offers such a comprehensive solution transforming your e-business all the way from its customer interface, streamlining its internal processes, supply

chain and service delivery systems, and providing you with the business intelligence you need to make better business decisions to compete.

Oracle does offer a comprehensive solution to help customers conduct e-commerce:

- To Buy Products over the Internet: Oracle offers a strategic procurement solution (Oracle Strategic Procurement) specifically focused at allowing companies to consolidate purchasing and managing suppliers strategically using the Internet.

- To Sell Products over the internet: Oracle offers Internet commerce server (Oracle iStore) that provides an electronic store with a number of capabilities such as catalog management, shopping cart facilities, tax calculation, online service and others to allow companies to sell products over the Web.

- To Bill and Pay for Products over the Internet: Oracle offers a Bill Presentment product (Oracle Internet Bill and Pay) that allows companies to consolidate customer billing and to accept payments for products over the Internet.

Additionally, Oracle's platform is being widely used to develop custom web sites and electronic storefronts to conduct e-commerce today.

Internet Enabling JumpStart

Internet Enabling JumpStart is a product and service offering for customers interested in Internet enabling their existing database systems and applications. The key objective is to Internet enable the database systems and applications in minimal time and at minimal cost; hence carrying the existing Oracle customers to a new era of Internet and e-commerce. The JumpStart solution brings together the best of Oracle products, Oracle consulting services, training and support to quickly and cost effectively bring the businesses to Internet to conduct online transactions.

Benefits

- Reduced application maintenance costs
- Reduced hardware requirements
- Universal accessibility - from anywhere and any time
- Easier client access via a portable web browser

Oracle Customer Relationship Management - Electronic Commerce - Oracle iStore

The rate of change for businesses worldwide continues to accelerate - markets are evolving, product lifecycles are shrinking and new competitors are appearing every day. Businesses are relying on their strategic systems to help them respond by improving the flow of information throughout the enterprise and beyond to suppliers, partners and customers. Enabling the creation of a networked society, Oracle delivers next generation solutions for the Internet Business - Oracle iStore is a Sell Side E-Commerce solution which provides a web-based channel for unassisted selling of products direct to consumers.

Benefits

- 360-Degree view of all customer interactions: Integration of front office and back office (ERP) systems seamlessly, providing timely access to customer information and a product for managing all aspects of customer relations, from marketing to sales (web-base) to service.

- Best-of-breed EC solution: Oracle iStore provides best of breed technology from Oracle and leading EC solution providers e.g. Net Perceptions, NetGravity, Vignette, Verifone, Cybercash, etc.

- Extends the sales channel & increases customer reach

- Improves customer care & increases customer retention

- Lower cost of sales

- Achieve faster time to market

Oracle Customer Relationship Management - Electronic Commerce - Oracle Internet Bill & Pay

Oracle's Internet Bill & Pay is a standards-based electronic bill presentment and payment solution that enables companies to present bills and related documents, and receive payments online. It also enables banks, service providers, and portals to consolidate bills from multiple billers and act as a single online access point for consumers. Oracle's Internet Bill & Pay will significantly reduce the costs of traditional paper-based billing operations while generating additional revenue for companies through up selling, cross-selling and advertising. In addition, this software solution will allow companies to enhance and retain better control of customer relationships.

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41

Benefits

- Reduce cost: According to a recent survey from McKinsey Consulting, online billing offers substantial cost reductions due to eliminated paper processing and postage, reduced payment float and automatic reconciliation

- Manage and extend customer relationships: With Oracle's iB&P there is a new way to manage existing customer relationships. It gives customers 24-hour access to their billing data and allows billers to create unique value-added services, thereby improving the relationship with their customers.

- Create new revenue opportunities: Oracle's iB&P enables the billers to own the "real estate" of the screen a customer sees to view bills and make payments. Billers can benefit from advertising revenue and their ability to cross-sell related products and services.

Oracle Supply Chain Management - Oracle Strategic Procurement

Oracle's Strategic Procurement solution helps companies to acquire goods and services at the lowest total cost by automating the entire purchasing lifecycle from planning to procurement to payment. Oracle provides a world-class solution that helps companies to lower procurement costs with complete purchasing activity analysis, 100% procure-to-pay process automation, and full support for both production and non-production procurement.

Benefits

- Integrated end-to-end procurement solution: Supports all types of purchases within one integrated system and covers the full procurement lifecycle

- Reduced procurement costs, both direct and indirect

- Improved supplier performance: Oracle provides the tools to determine which suppliers are consistently delivering the best quality, on time and at the lowest cost.

- Optimized purchasing: Global procurement analysis provides buyers with historical and trend data to enable better decision making.

- Automated procurement processes: Using workflow-driven procurement, business policies are easily defined and implemented to streamline the entire procure-to-pay process.

Strategic Positioning

- Oracle covers the entire spectrum of solutions— from the front end to the back end--delivering the Internet platform, products, partners, and professional services needed to bring an e-commerce venture to market.

- Nearly 70 percent of the Internet's top e-commerce sites use Oracle technology to run their successful Internet ventures. From Amazon.com to Yahoo! and Excite, just to name a few, the most popular Web sites use Oracle.

Oracle e-business solutions enable an organization to create and support new business models. Companies can focus on managing customer relationships more effectively, reaching out to more customers, interconnecting value chains, engaging business partners in deeper collaboration, using information to drive innovation, and improving the overall quality of experience. The end result of Oracle e-business solutions is faster time to market, lowered operational costs, and increased profits.

Reference Customers

Customer	Industry	Solutions Provided	Project Details
Singapore Power, Singapore	Utility and Energy	Oracle Internet Bill and Pay	Singapore Power will provide electronic presentment and payment of its power, water and gas bill for the Singapore consumer and business customers
iOne.Net, Singapore	Media	Oracle iStore	iOne.Net will provide B2C and B2B services through iOne Kiosks and Internet
Bank of Philippines Island, Philippines	Financial	Oracle Internet Bill and Pay	BPI will provide electronic bill presentment and payment services to its customers
Asian Sources	Media	Oracle Internet Platform	Asian Sources supports over 7,000 Asian advertisers, promoting their products to world markets. They provide importers with critical information about Asian-made products and their suppliers.

Progress Software

Contact Information

Progress Software Corporation
No. 1 International Business Park #03-11
The Synergy
Singapore 609917

Telephone: (65) 563 1500
Fax: (65) 563 1511

Mr. Toh Kok Leong
Managing Director, South Asia
tkl@singapore.progress.com

South Asia Distributors

JK TECHNOSOFT
A-2 Shopping Complex
Masjid Moth, Greater Kailash-II
New Delhi - 110 048
India

Mr Babu Abraham
Telephone: (91-11) 646 4858, 621 9079, 646 9050
Fax: (91-11) 621 5658
babu@jktech.com

P.T. PROGRAMA REKA PIRANTI
Plaza Hayam Wuruk, 12th Floor
Jalan Hayam Wuruk 108
Jakarta 11160
Indonesia

Mr Edhi Purnomo
Telephone: (62-21) 601 2458
Fax: (62-21) 601 2459
edhiprp@cbn.net.id

PSM TECHNOLOGY SDN BHD
Level 8 & 9, Uptown 1,
5, Jalan SS 21/58
Damansara Uptown
47400 Petaling Jaya,
Selangor Darul Ehsan
Malaysia

Mr Voon Seng Keong
Telephone: (60-3) 717 1513, 712 1105
Fax: (60-3) 717 3381, 717 2339
voon@psm.patimas.com

FIRST TECHNOLOGIES PHILS., INC
Ground Floor, MJL Building
1175 Pasong Tamo Street
Makati, Metro Manila
Philippines

Mr Johnny Barias
Telephone: (63-2) 890 7333
Fax: (63-2) 890 7327
jbarias@iname.com

PSP (THAILAND) CO., LTD.
16th Floor, SM Tower
979 Phaholyothin Road
Phyathai, Bangkok 10400
Thailand

Mr Pramote Ukkeedech
Tel: (66-2) 298 0255
Fax: (66-2) 298 0256
pmukd@ksc15.th.com

www.progress.com

Company Background

Progress Software Corporation (NASDAQ: PRGS) is a global supplier of software products and services for developing, deploying and managing business solutions across all computing and network environments. Their products, which are installed in over 60% of the Fortune 100 companies, include application servers, databases, development tools and application management products for Internet/Web, extranet and intranet applications.

Their customers operate in 100 countries, are supported by more than 1,200 employees worldwide, and deploy annually over $1.5 billion in Progress Software-based applications built by more than 2,000 independent software vendors (ISVs).

Their product lines encompass application servers, relational database management systems, application development tools, and network, system and application management tools. These products simplify and accelerate the development, deployment and management of software across distributed Internet/Web, client/server and host/terminal computing environments.

Their Progress product line is an integrated, component-based visual development environment for building and deploying multi-tier, enterprise-class business applications. Their Progress Apptivity product line enables the development and deployment

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43

of distributed, multi-tier Java business applications. Their Internet Software Quality (ISQ) product line enhances information system availability and performance by monitoring, measuring and managing Internet devices, networks, systems and applications.

Extending Your Business to the Web

Progress Apptivity Version 3 from Progress Software helps you meet the challenges and reap the rewards that come from successfully extending your business to the Web. Apptivity 3 ensures that you reach more partners, employees, and clients faster, better and smarter.

Apptivity 3 provides the capabilities to let you create applications that dynamically integrate and manage data from diverse business systems, including databases, enterprise and custom applications, and legacy systems.

In a single, integrated environment, Apptivity 3 provides the Enterprise Application Server and RAD tools you need to quickly develop and deploy your business applications on your intranet, extranet, or the Internet.

Apptivity is the industry's most complete development and deployment environment. Apptivity tightly integrates:

- An application server that is open, standards-based, and highly scalable.

- A productive component-based, visual development environment.

- A powerful component framework for building distributed business applications.

In this single, integrated environment, you can quickly build, test and debug graphically rich, highly interactive business applications for server and client tiers. Equally important, you can deploy your applications quickly, reliably and securely across multiple platforms in an Internet, intranet or extranet setting.

Easy Deployment, Enhanced Performance, Lower Costs

Apptivity maintains business logic on a central server, providing numerous benefits for application deployment. Applications can be deployed faster, and with lower maintenance costs, since you install and maintain software at one location.

Its multi-threaded server architecture provides a secure and scalable foundation for Apptivity solutions. With automatic, failover protection and load balancing, applications scale farther without the need to modify code.

Apptivity's visual, component-based development environment makes it easy for client/server and C++ developers to build Web-based applications with little additional training.

Fully Integrated Development and Deployment Platform

The Apptivity system is built around the 100% Java-based Apptivity Application Server. It connects to clients, data sources, and business applications and generates Web pages that adapt to any client or platform. Sensing and supporting different versions of browsers and Java virtual machines is what allows Apptivity to generate the right version of HTML, DHTML, XML and JavaScript, and to make user interaction more dynamic and interactive.

Debugging Distributed Applications

Progress Software's ProtoSpeed is a distributed object debugger that enables developers to debug distributed applications on the Internet, intranet or extranet, using the product's Network Event Manager technology.

Developers using Microsoft Visual Basic or Visual J++ can debug protocol interactions between components written in any language. They also can debug distributed Java components running in the Microsoft and Java virtual machine with or without using source code.

ProtoSpeed's debugging features also can be used throughout the development and deployment of an application.

Written in Java, ProtoSpeed supports all major Internet protocols, including HTTP, File Transfer Protocol, SMTP, Post Office Protocol3 and Internet Messaging Access Protocol.

Total Data Management Solutions that Scale with Your Needs

Today's complex, enterprise computing environments demand a more scalable, high-performance, and open relational database management system (RDBMS) that can run on multiple operating platforms, scale easily to match changing requirements, support

mission-critical transactional processing, and provide open interfaces for integration.

The Progress RDBMS products are high-performance relational databases that can scale from a single-user Windows 95 system to massive symmetric multiprocessing (SMP) and ccNUMA systems, supporting thousands of concurrent users. In addition to offering the lowest cost of ownership and unparalleled scalability, the Progress RDBMS products offer high availability, absolute reliability, unmatched performance, and excellent platform portability. With full support for ANSI SQL-92 Entry Level specification, Progress RDBMS products integrate with enterprise applications, tools, and numerous third-party data management systems.

Three Progress RDBMS products -- the Progress Enterprise RDBMS, the Progress Workgroup RDBMS, and the Progress Personal RDBMS -- let you choose a solution that satisfies your business objectives. You pay for what you need today, and, as your requirements grow, you can upgrade to a more robust solution without a single change in your program code. Your staff doesn't lose productivity while learning a new system and you can continue to access the same expert, reliable service and proven technology, from an industry leader.

Key Differentiators

With a sole focus on solving the application development, deployment and management issues faced by organizations worldwide, Progress Software is uniquely positioned to provide hardworking, scalable solutions. Progress solutions embrace a company's need to solve real business problems, chief among them the need to compete in a volatile, global, technology-driven economy. Succeeding in this environment requires applications that are built and deployed within an architecture that is as flexible as the market demands of each organization.

Applications built with Progress technology are functional, scalable, easy-to-deploy and cost effective to maintain.

The success of Progress Software in providing application development and deployment solutions is due to providing products that are:

- "Future Proof"
- Cost effective
- Reliable
- Scalable
- Portable

Reasons why Progress Apptivity is the industry's most complete development and deployment environment include:

- Database centric
- Offers fast development and deployment
- Open
- Scalable
- Offers exceptional performance

Case Study

Yahoo!

In just four years, Yahoo! became the largest guide to the Internet in terms of advertising and user reach. And because Yahoo! is one of the leading destinations for consumer and business Internet users, it is also one of the most recognized brands associated with the Internet.

The challenge ahead for Yahoo! continues to be how to support both growth and profitability. To keep up with its growing business, Yahoo! implemented technology from Progress Software to build an intranet application to support its automated advertising sales process. Since advertising is one of Yahoo!'s main revenue streams, streamlining the sales process is a top priority.

"Progress' Apptivity technology is the critical part of this mission-critical application," said Doug Smith, Technical Yahoo! at Yahoo! Inc. "It gives us the capability to take full advantage of the thousands of revenue opportunities generated by Yahoo!'s popularity with users and advertisers."

Recognizing the need to grow as the Web population grows, Yahoo! is constantly evaluating leading and innovative solutions to meet and exceed the demands placed on its internal systems.

"As the advertising orders continued to grow, we knew that we would need to upgrade our systems and find new solutions that would scale and streamline the order-entry process to keep up with the growth we were seeing," noted Smith.

With Java as a foundation, Smith was looking for both performance and a company committed to business-critical applications. "We chose Progress Software because of their willingness to work together in developing the solution, rather than the traditional vendor/customer relationship," said Smith. "And we were also impressed with the technology," he added. "Apptivity's robustness, scalability and its database

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45

connectivity gives us a solution that performs now and as we grow."

In the area of deployment, Apptivity also impressed Yahoo!, providing the company with a comprehensive package of integrated tools and object-based technology that helped Yahoo!'s internal team implement a new order entry system in just three months. "Apptivity provides us with all kinds of innovative controls that we can select from," said Smith. "With its visual environment and development wizards, Apptivity lets us focus on solution capabilities rather than how the technology works."

Chicago Mercantile Exchange

The recipe for success at the Chicago Mercantile Exchange is to combine popular futures with quality Internet technology. The result -- using Progress Apptivity, a scalable application server with integrated development tools for building and deploying business applications -- is an Internet-based trading system that gives buyers and sellers throughout the world a real-time environment for futures transactions.

The Chicago Mercantile Exchange (CME), one of the world's largest futures and options financial market, provides fund managers and commodities customers with an investment forum for pricing and trading four types of futures and options products: agricultural commodities, foreign currencies, interest rates and stock indexes. On its trading floors in downtown Chicago, buyers and sellers meet in "the pit" to trade futures contracts and options on futures through the traditional process of "open outcry." At the end of the day, when the pits close, trading continues virtually around the clock on the CME's pioneering GLOBEX2 - the next generation of the world's first after-hours electronic trading system.

In 1997, more than 200 million contracts changed hands through the CME, with an underlying value of $181.5 trillion. Electronic-based trading in 1997-- using GLOBEX2 --also increased more than 115 percent over 1996 levels, accounting for 4.6 million orders. With the continuing growth opportunity in trading volume and the globalization of the CME's customer base, the CME decided to implement an Internet-based trade order system built on Progress Apptivity.

To better serve its worldwide customer base and to ensure accurate and secure trading, the CME developed the Internet Order Routing (IOR) system for use by its member firms. A mission-critical application built on Apptivity, the IOR system allows CME members and member firms to enter and send trade orders to the trading pits or through the GLOBEX2 system via a secured extranet with real-time feedback. The order entry system of a participating member firm

lets any customer with a Web browser submit an order and get a receipt acknowledgement immediately. Decreasing the dependency on dedicated lines and dedicated terminals to enter orders for submission to the Exchange floors gives the CME another channel for accepting and processing orders. Speedier access to trading also translates into quicker order "fills".

"By increasing accessibility from anywhere in the world, Internet Order Routing can increase the volume of orders that go through the Exchange," says David J. Dugan, Senior Vice President, Systems Development for the Chicago Mercantile Exchange. "IOR provides our member firms with a new tool for increasing their revenues and margins, which is both a qualitative and quantitative return on our technology investment."

Apptivity provided the foundation and flexibility for this IOR application letting each CME member clearing firm adapt it and put their own brand on the application to meet their unique business needs.

The IOR application has also improved the accuracy of orders compared to the conventional system of phone-based orders, says Dugan. One of the problems in the futures industry is manual input, or human error, throughout the order process. An electronic-based ordering system has only one point of potential error - the initial order entry. Once the accuracy of an order is verified, the accuracy of the information is maintained throughout the multi-step process.

Dugan looks at the IOR application in terms of business opportunity impact. "We've moved into a whole new world of trading," says Dugan. "IOR has brought the simplicity of Java and the accessibility of the Internet to futures trading, and we've done this using the speed, accuracy and timeliness of electronic ordering."

Sterling Commerce

Contact Information

Sterling Commerce
6 Temasek Boulevard, #32-01
Suntec Tower Four,
Singapore 038986

Telephone: (65) 549 5227
Fax: (65) 333 8269

Tan Siew San
Marketing Manager, Asia
Email: tan_siewsan@stercomm.com

www.sterlingcommerce.com

Company Background

Sterling Commerce, Inc. (NYSE:SE) is one of the world's leading providers of end-to-end E-Commerce solutions based on Internet technology. Their mission is to help companies capitalize on the extraordinary opportunities for growth and profitability brought about by the Internet and supporting technologies.

Sterling Commerce has been providing E-Commerce solutions for 25 years, and has 2,500 employees, 37 office locations and more than 40 distributors worldwide. Today, over 45,000 companies (including 482 of the FORTUNE 500 companies and 99 of the top 100 US banks) rely on Sterling Commerce for E-Commerce solutions. In 1998 the company recorded revenues of more than $490 million.

Product Families

- **GENTRAN** business process integration software automates the flow of internal and external business transactions, enabling companies to integrate their business systems within commerce communities.

- **CONNECT** products and services provide the software infrastructure for moving and managing information inside and outside the enterprise.

- **COMMERCE** solutions provide commerce community and extranet management services to help companies build, manage, and service their global commerce business communities.

- **EC Managed Services** offers a full range of E-Commerce outsourcing services, consulting solutions, implementation services and education.

- The **VECTOR** family provides banking application software and services for the automation of check flow and other financial transactions. Their electronic banking solutions have become industry standards (used in 99 of the 100 largest US banks and in leading banks throughout the world).

Solution Offerings

Sterling Commerce E-Commerce solutions squarely address the most important issues faced by companies when they make the transition to an Internet-driven economy: How to build and manage global commerce communities, how to better integrate their business processes, and how to achieve greater competitiveness through new sales channels, improved productivity and enhanced responsiveness to customers.

Sterling Commerce recently announced a comprehensive strategy designed to help Global 5000 companies and their commerce partners fully exploit the Internet to extend and expand their electronic business communities and systems.

Recognized as one of the leading worldwide providers of E-Commerce solutions for business, Sterling Commerce detailed its roadmap for solving the most significant business issues facing companies today by outlining five strategic initiatives: Business Process Integration, E-Commerce Infrastructure, Extranet Management Services, Community Management, and Outsourcing. These new initiatives rely on solutions from the company's COMMERCE, CONNECT and GENTRAN product families and are complemented with a broad range of managed services.

Business Process Integration (BPI)

Today's IT environments are far from homogenous. New enterprise application implementations typically require integration with existing applications, while supply chain integration and new E-Commerce initiatives are driving companies to extend their applications and processes to suppliers, customers, banks, governments and transportation companies. At the same time, market-leading organizations with established EDI programs are seeking new ways to leverage existing E-Commerce investments to support application integration requirements.

Sterling Commerce's new initiative on BPI addresses the integration of distributed business processes through the electronic exchange and management of information within and between enterprises.

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47

Capitalizing on Internet technologies and XML standards, Sterling Commerce is delivering a portfolio of products and services that effectively bridge the gap between Enterprise Application Integration (EAI), Web Integration and Electronic Data Interchange (EDI) to provide a consistent framework for BPI.

- **Web Integration via GENTRAN Web Suite**
  GENTRAN Web Suite provides a complete spectrum of integration capabilities to extend electronic commerce throughout your trading community and your enterprise via the Web. By partnering with webMethods and Cyclone Software, Sterling Commerce recently added two powerful new components to GENTRAN Web Suite for Windows NT.

- **Enterprise Application Integration (EAI)**
  Enterprise Application Integration solutions bring business benefits to corporations by integrating disparate business processes within their enterprise and across the value chain. The new Sterling Commerce EAI solution is based on a flexible E-commerce broker that bundles the award-winning Prospero® software from Oberon.

- **Electronic Data Interchange (EDI)**
  EDI is the traditional method of automating information flow between companies. Whether you need a simple desktop translator or a commercial-grade any-to-any message manager, Sterling Commerce solutions are unsurpassed for power, flexibility and ease-of-use.

E-Commerce Infrastructure

As companies use the Internet to extend their commerce communities, they discover a growing number of applications that must work together and ever-increasing volumes of critical information to be moved and managed. Sterling Commerce provides a robust, secure, and flexible infrastructure for managing E-commerce information flow.

- **Data Exchange for the Internet**
  Data Exchange for the Internet solutions offer a solid and secure foundation for E-commerce information transport.

- **Advanced File Transfer**
  Advanced file transfer solutions provide the infrastructure to move and manage business information between multiple applications within an enterprise and externally among business communities.

- **Extranet Systems Management**
  Extranet systems management solutions provide capabilities such as software distribution, asset and configuration management and content

distribution. These capabilities enable companies to monitor the integrity and availability of applications and data files both inside and outside the corporate firewall.

- **Remote Systems Management**
  Sterling Commerce's remote systems management solutions use technologies that optimize remote communications and allow you to:

  - Distribute, install and update software
  - Track hardware and software inventory
  - Deliver and manage content
  - Back up essential files

Extranet Management Services

Companies are struggling to gain the knowledge, technology and resources needed to establish and support extranet communities. Sterling Commerce's Extranet Management Services solution is the industry's most comprehensive framework for building, managing and servicing extranets for Global 5000 enterprises, their commerce communities and industry organizations. The full continum of offerings include web-centric applications, commerce policy management, extranet hosting, extranet commerce platform, extranet systems management, information exchange and security and access control. Sterling Commerce currently serves more than 70 extranet communities of Global 5000 companies.

Extranets involving large-scale commerce partner relationships and mission critical business processes require a complete E-Commerce platform and support environment. When combined with the fact that not every business partner will adopt similar technologies, commercial policies or standards, Sterling Commerce Extranet Management Services become increasingly important.

Community Management Services

Community management is the set of processes involved in building, managing and servicing supplier and customer E-Commerce communities. The Sterling Commerce strategy focuses on organizations seeking to rapidly expand and enhance relationships with their commerce partners, resulting in improved business collaboration and customer service.

The Internet offers companies the opportunity to open themselves up to tens of thousands of commerce partners around the world. Sterling Commerce will leverage for the Internet market its core expertise in building commerce communities along all aspects of the value chain, including suppliers, customers, banks, governments and transportation companies. With an established track record of understanding the complexity of varying business processes and global

commerce partnerships, Sterling Commerce is well-positioned to play a leadership role in helping Global 5000 companies grow rapidly-evolving E-Commerce relationships with their business partners.

Its commerce community management framework includes three key components – build, manage and service:

- **Build**
  Building commerce communities goes a step beyond the application or business processes to include recruiting business partners, assessing their readiness for E-Commerce, and providing them with the enabling software to allow them to exchange information effectively and seamlessly with others in the E-community.

- **Manage**
  Ensures the efficient flow of business-critical information across the commerce community.

- **Service**
  Provides the necessary E-Commerce support and expertise within and across the commerce community. It encompasses web-based and help desk support, training, ongoing consulting and education.

Outsourcing

Sterling Commerce offers a range of outsourcing options on a global basis, unparalleled in the E-Commerce arena today, to help companies with limited staff or expertise. Options range from outsourcing of complete E-Commerce initiatives to the selective outsourcing of specific E-Commerce programs or functions. Outsourcing enables an organization to focus on core competencies while improving performance and integration across all operations via E-Commerce.

What to Outsource

Clients can customize outsourcing solutions by selecting services that meet their E-Commerce goals and business requirements.

- **Strategic Planning & E-Commerce Expansion**
  Helps organizations create or expand E-Commerce programs by leveraging Sterling Commerce expertise in analyzing business processes for maximum return on E-Commerce investment, as well as developing execution and integration plans. This service includes essential community management services required to build electronic relationships with business partners.

- **Infrastructure Management**
  Focuses on improving and maintaining E-Commerce infrastructures. This service includes

setting up and maintaining E-Commerce software, including communications. It also comprises integration of E-Commerce with ERP and legacy systems and the management of change as programs and business systems evolve.

- **Day-to-Day Operations**
  Encompasses the ongoing management of day-to-day E-Commerce operations, including Enterprise Application Integration, Web Integration and EDI. Specific services include implementation, security administration, monitoring, reporting and troubleshooting. Sterling Commerce also provides help desk services and maintenance of relationships with vendors, customers and other E-Commerce communities.

How to Outsource

Once customers decide on the level of outsourcing required, Sterling Commerce offers several ways to outsource those operations. Clients may combine options to create a custom solution:

- **On-site:** All hardware and software remains at the customer site where Sterling Commerce provides the E-Commerce experts to manage it.

- **Remote:** E-Commerce hardware and software is housed at the customer site. After the initial implementation or migration, the actual management and operations are performed from a Sterling Commerce outsourcing site.

- **Centralized:** The entire E-Commerce infrastructure, including technology and most staff, reside at a Sterling Commerce outsourcing facility and they manage the overall process.

Customer References

Sterling Commerce has over 45,000 customers worldwide, of which includes 482 of the FORTUNE 500 as well as 99 of the top 100 U.S. banks. A snapshot of this list reveals industry leaders such as Walmart, Amazon.com, Buy.com, 3M, Compaq, Walt Disney, Intel, HP, Johnson & Johnson, Proctor & Gamble, Federal Express and UPS.

Similarly, Sterling Commerce has also an impressive base in Singapore, which comprises key players such as Cold Storage, Watson's, PSC, Compaq, HP, Weboffice, Keppel Logistics, Commerce Exchange, all the locally owned banks as well as key foreign banks such as Citibank, Chase and Standard Chartered Bank.

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49

Sun Microsystems

Contact Information

Sun Microsystems Pte Ltd
1 Magazine Road, #07-01/13
Central Mall, Singapore 059567

Telephone: (65) 438 1888
Fax: (65) 438 7646

Gary Leonard Koh
Director, E-Commerce
Computer Systems, Asia South
gkoh@singapore.sun.com

Gan Boon San
Strategic Business Manager, Ecommerce
Computer Systems, Asia South
bsgan@singapore.sun.com

www.sun.com.sg

Company Background

Since its inception in 1982, a singular vision, "The Network Is The Computer," has propelled Sun Microsystems, Inc. (NASDAQ: SUNW) to its position as a leading provider of high quality hardware, software and services for establishing enterprise-wide Intranets and expanding the power of the Internet. With more than $11 billion in annual revenues, Sun can be found in more than 150 countries and on the World Wide Web at http://www.sun.com.

From day one, all Sun's systems included a network interface and all their employees were using electronic mail. That was 16 years ago. Since then, Sun has established a track record of innovation and leadership that stretches from the protocols that propel the Internet to their widely adopted Java technology -- used in everything from smart cards to supercomputers.

Sun provides thought leadership and breakthroughs that change the way people work and the way companies do business. If you're looking for ways to do more with less, ways to create new revenue streams, ways to break away from the pack -- then you should talk to Sun.

Services

Sun's electronic commerce solutions integrate elements from four major areas:

- Scalable, High Performance Platforms
- Security
- Java and Java Commerce
- Partner Programs and Professional Services

Scalable, High Performance Platforms

Sun offers a complete high performance, scalable line of servers, the Netra and Ultra Enterprise families, from small workgroups all the way up to the enterprise level, all running Solaris, the industry's leading 64-bit operating system. With Java, the platform extends even further, from smartcards to supercomputers, that support transactions from single users up to thousands of users.

Security

Security is a fine balance. Too many restrictions impede information flow to the users who need it, while not enough security means the network can be compromised. Each business must assess their unique security needs and develop the best architecture and policies to put the right security tools in the hands of those who need them. Sun's security architecture, products and partners provide the most comprehensive security solution while maintaining the greatest flexibility. Sun also has the people, processes and know-how to help businesses meet their security goals.

Java and Java Commerce

Java has created a revolution in application development and is setting a new standard in cross-platform compatibility. Its 'Write Once, Run Anywhere' capability streamlines software development and delivery, saves valuable time and money, and reduces product development cycles dramatically. Unlike competitive programming environments that tie developers to a single platform, Java unites many platforms with a common language, opening up new markets and new opportunities for software vendors and users alike. Java is also enabling a whole new generation of devices for electronic commerce. Electronic commerce solutions providers can now use Java to enable businesses and consumers to take advantage of the Internet to securely perform transactions with small, efficient, platform-independent applications.

Java Commerce provides a complete infrastructure for Internet-based electronic commerce. Developers of financial server applications are faced with a multitude of competing standards, protocols and payment types. Java Commerce provides an open platform that can support all standards and payment protocols running concurrently in the same environment. Any developer who wishes to create support for a specific technology can do so easily, and with the confidence that, because they are using Java, their implementation will run everywhere, including browsers, e.g., Netscape Navigator and Microsoft Internet Explorer, hand-held devices and transactional servers. Of equal importance, Java Commerce provides developers with tools that greatly reduce cost, effort and time in implementing new solutions.

Sun's scalable platform, complete set of security solutions, Java, and Java Commerce join together to form the most scalable, secure, interactive platform for developing and deploying electronic commerce solutions.

'Best of Breed' Partner Programs and Professional Services

Sun also works closely with more than 300 electronic commerce software solutions providers to deliver and tune 'best-of-breed' electronic commerce products for the Sun platform. These products offer a wide range of functionality to address all requirements for a commerce-enabled enterprise, including Internet commerce/merchant software, billing and payment systems, security, Internet EDI, search and navigation, profiling and usage analysis, information push, content/website creation and management, and document management and workflow. In many cases, these solutions providers have formed alliances with each other and with leading systems integrators to enable users to easily identify and implement an effective electronic commerce solution, built on Sun, for their particular industry need.

Sun's Electronic Commerce Framework

A total electronic commerce environment usually consists of several software solutions in co-operation -- no one vendor offers a full end-to-end solution. Sun's strategy is to provide a robust, open and highly scalable networking platform, and to work closely with the 'best of breed' solutions providers in key areas such as:

- Commercial Transaction/Merchant Software
- Billing Systems
- Electronic Data Interchange (EDI)
- Internet Advertising

- Internet Payment Systems
- Security Solutions
- Web Middleware/Enterprise Development Tools
- Document Management
- Workflow

Industry-Specific Capabilities

Sun is especially strong in providing solutions to the following selected industries:

- Education and Research
- Government
- Finance
- Manufacturing
- Telecommunications

For more information on Sun's industry-specific expertise and capabilities, you can visit Sun's web site.

Market Positioning

Sun is recognized for its success in providing enterprise computing solutions in mission-critical environments. Sun builds on this success and expertise to provide 'best of breed' electronic commerce solutions. Electronic commerce solutions entail extending the Network Computing environment to include customers and business partners. The Internet provides the basic networking infrastructure to facilitate the extension of the enterprise to conduct electronic commerce. Sun's strategy for providing electronic commerce solutions in this rapidly changing environment is:

- To provide a full line of scalable secure solutions, including: hardware, software, and services, supporting implementations ranging from smart cards to supercomputers.

- To develop open standards, which enables customers to depend on Sun solutions to meet emerging business needs.

- To continue to lead the industry in innovation.

- To build strong relationships with 'best of breed' software vendors and system integrators for electronic commerce.

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51

Future Strategy

As a solutions provider, Sun will continue building strong alliances with innovative vendors, including technology exchange and coalition marketing/sales.

The basic foundation for electronic commerce implementation is 'Network Computing'. Sun is fully committed to Network Computing and will continue to be so for years to come. Sun will continue to be the technology leader that provides the fabric for E-Commerce.

Case Studies

E*TRADE

As the nation's most visited online investing web site, E*TRADE offers individual investors the convenience and control of automated stock, bond, options and mutual fund order placement at low commission rates. In addition, E*TRADE has a suite of value-added products and services that can be personalized, including portfolio tracking, real-time stock quotes, Smart Alerts, market commentary and analysis, news, investor community areas and other information services.

E*TRADE and Sun Microsystems recently announced the opening of a major E*TRADE technology and customer service center outside of Atlanta, USA.

The center will be one of E*TRADE's primary fault tolerant, fully redundant hubs for serving more than 1 million investor accounts throughout the world.

"The opening of our new technology and service center was a significant endeavor for E*TRADE and its key vendors, and it represents another critical step toward building an infrastructure capable of handling the growth in on-line investing in mainstream America," said Debra Chrapaty, president and chief operating officer of E*TRADE Technologies, the company's technology division. "We are absolutely committed to enhancing our Stateless Architecture and product-service mix to position E*TRADE for the new millennium."

Although on-line investing has grown exponentially the last several years, it is far from the saturation point. Indeed, some leading industry analysts expect on-line investing to increase nearly fourfold -- from 40 billion to 140 billion trades per year -- by 2002.

"This is a highly advanced, multi-tiered architecture that's been specifically designed to take full advantage of the outstanding scalability, reliability, flexibility and security offered by Sun's Solaris Operating

Environment," said Rob Hall, vice president, financial services, Sun Microsystems. "By using network computing to put investment and market intelligence in the hands of its customers, E*TRADE has turned this industry on its ear. It's great to see E*TRADE, like many of our customers in online investing, turning to our platform as a conduit for this kind of change."

Cabletron

Based in Rochester, N.H., Cabletron Systems is a leading supplier of high-performance computer networking products and advanced network and systems management software. In 1997, the company posted revenues of $1.4 billion and currently employs over 6,300 people worldwide. Approximately 80 of the top 100 Fortune 500 companies, including financial institutions, federal agencies, industrial, manufacturing, and healthcare companies, use Cabletron products.

In the spring of 1998, Cabletron launched an aggressive E-commerce initiative aimed at strengthening its relationships with customers, partners and suppliers. Through a dramatic redesign of its business-to-business website, Cabletron and its customers are realizing vast improvements. Customers, partners and resellers now can configure, price and purchase complex networking packages, with thousands of potential variations, by accessing the CabletronCommerce website. Built on a foundation of Sun Enterprise servers, Cabletron's website has saved the company millions of dollars, reduced customer response time from days to minutes, and increased sales. "We chose Sun because their products had the capacity to immediately do what we needed, while providing a secure path for future growth," said Joel Whitman, director of electronic commerce at Cabletron.

Background

Prior to the roll out of CabletronCommerce, the process for configuring and pricing systems was largely manual. For complex orders, a sales representative or consultant could take days to walk through multiple steps, each involving various decisions with the customer, to configure and price the order correctly. "We wanted to improve customer satisfaction throughout the sales cycle, while decreasing costs," said Whitman. Seeing that the Web was enabling a new era of electronic commerce, Cabletron met with many of its major customers in early 1997 and discussed ways to improve their inter-business processes. From these meetings emerged a top priority to enable a series of Web-based tools that would simplify and speed the process of product configuration, pricing and ordering.

Building a Quote

To move into a purchase transaction, customers submit the parts list generated by the configurator to the online QuoteBuilder application which pulls pricing and inventory information from Cabletron's SAP system. The QuoteBuilder then generates a quote based on the customer's contract terms with Cabletron. "Our customers can create a quote based on public e-price or their contract price, or choose to route their request directly to a reseller. This flexibility is unique," Whitman said. Many companies simply publish a price list offering the same price to all customers. For Cabletron customers without a contract, public pricing is available.

The customer can then elect to purchase immediately, and if the items are in stock, the order may ship the same day. Alternatively, the customer can electronically submit their order to a sales representative for further discussion, save it for later review, or route the purchase information within the customer's company if further approval is needed.

Results

By enabling customers to easily access configuration information, Cabletron has improved selling efficiencies and increased customer satisfaction. The website will save the company an estimated US$20 to $30 million dollars annually and has eliminated the cycle of attempted but incomplete communication. Telephone tag, incorrect quotes, improperly transcribed sales orders are decreased by a margin of 85-90% for Cabletron-Commerce users.

CabletronCommerce has dramatically improved the time it takes to submit an order for customers who configure systems online and download the necessary support software from the website. "What used to take two weeks now takes just moments," Whitman said.

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53

Sun-Netscape Alliance

Contact Information

SNA Asia South
7 Temasek Boulevard, #18-01,
Suntec Tower One,
Singapore 038987

Telephone: (65) 337 0988
Fax: (65) 337 4688

Kriss Channe
Marketing Director
Email: kriss@netscape.com

www.netscape.com

Company Background

Netscape Communications was formed in 1994 providing Internet browsers, intranet software servers for information publishing, messaging, directory, workflow, calendaring, and security.

Since 1997, Netscape has added to its product range a full line of packaged E-Commerce applications for Internet commerce exchange, procurement, business-to-business & business-to-consumer selling, Internet billing and 3-tier architecture application servers for custom mission-critical Internet applications.

The Sun–Netscape Alliance

Two industry pioneers in enterprise computing, Internet software, and professional services – Sun Microsystems and Netscape Communications, now a subsidiary of America Online, - have formed the Sun-Netscape Alliance to provide open, multi-platform software solutions to accelerate the proliferation of Electronic Commerce. The Sun-Netscape Alliance will lead the industry by helping companies .Com their enterprise to become E-Commerce ready, integrate their supply chains to optimize trading efficiencies in the community and rapidly acquire new customers to discover new wealth in the Net Economy.

This partnership begins with an unrivalled installed base of Electronic Commerce applications and open infrastructure software products. The Alliance offers a new class of software designed for Internet-grade performance that is hardened by companies whose

business centers on the Internet, like Citibank, E-Trade, Cisco Systems and hundreds of others.

E-Commerce Solutions

Current **Sun-Netscape Alliance** offerings fall in four categories:

Packaged E-Commerce applications allow information and processes to link across multiple enterprises and to integrate smoothly with existing investments. This suite of new-breed E-Commerce applications uniquely supports complex business-to-business and business-to-consumer transactions, including information exchange, corporate procurement over the Internet, online selling, customer information services, and Internet bill presentment and payment.

E-Commerce Ready infrastructure products feature the scalability, reliability, and performance necessary to accommodate Internet traffic. Seamless integration with existing systems allows an enterprise to easily deploy new applications. Built-in flexibility enables rapid response to make the best of shifts in markets and to leverage future opportunities. Products include application delivery, messaging and collaboration, remote access, directory and security, development and testing, and administration.

Custom Netcenter is a product and service combination that takes the best channels of Netscape's portal and builds that into a customized portal for companies or communities to attract and retain customers. Netcenter can cater to a variety of implementations from consumer portals, to business, to industry and to intranet portals.

Enterprise services benefit from the broad Internet experience, deep understanding of business goals and issues, and high level of technical expertise at both Sun and Netscape. A collaborative consulting approach ensures an open interchange of ideas with in-house IT staff, business process owners, and other outside consultants. Assistance ranges from planning, custom development, and deployment to support and training.

The Sun-Netscape Alliance is dedicated to supporting current customers with current products. They will leverage the proven track records of the companies that virtually created the 'DNA' of the web into a joint future - and continue to help business keep pace with the explosive growth and evolving challenges of the Net Economy.

The Net Economy

The Net Economy means creating, managing, and leveraging technology in entirely new ways. The winners have discovered how to drive new revenue streams by offering their core businesses as applications and services on the Net. By providing direct, personalized communications to their customers, partners, and suppliers, enterprises are able to enhance customer loyalty, more quickly incorporate product improvements, reduce costs, and speed time to market.

The Customer is at the Center of the Net Economy:
Driving the Net Economy is intense competition to reach and retain new customers – in cost-effective ways. Today's winners are anticipating - and often exceeding – each customer's expectations through direct and immediate interaction over the Internet. Through personalization, enterprises are delivering unique experiences that result in increased customer satisfaction and loyalty. By using the Net to augment existing distribution and selling channels, they are lowering customer acquisition costs and increasing the yield of every marketing dollar.

Customer Relationships: The Critical Difference. The demands of the Net Economy require speed and agility, giving rise to a new breed of Internet applications - customer relationship management (CRM) solutions - that blend compelling content with fast and efficient transactions to help companies acquire, serve, and retain ever-growing numbers of customers. Netscape CRM solutions offer a services-ready infrastructure and a set of packaged commerce applications that tightly integrate with existing customer information systems. With these solutions, enterprises can empower their customers to interact more directly with the company and deliver personalized products and services that build customer trust and loyalty.

CRM and the Supply Chain. CRM enables a company to foster strong relationships with customers, but managing the supply chain is equally important. It enables companies to build new efficiencies into the complex network of suppliers and trading partners on which the company depends for product components, services, and distribution. Netscape provides comprehensive supplier relationship management solutions that complement the CRM applications and are rapidly deployable. The packaged Netscape commerce applications support the entire spectrum of external trading relationships, leverage existing investments in business systems and infrastructure, and address the unique requirements of each working relationship - without the expense of software development and maintenance. The result is an efficient and integrated supplier-relationship network

that allows companies to deliver the competitively priced, high-quality goods and services today's customers are demanding.

Vertical Market Competencies

Netscape is considered particularly strong in the following vertical markets:

- Telcommunications and ISPs
- Service Providers (EDI VANs and other hosted services)
- Government
- Banking & Finance
- Healthcare
- Oil & Petrochemical
- Transportation
- Manufacturing

Strategic Positioning

It is considered that Netscape's four key competitive differentiators in the E-Commerce market are:

1. End-to-end offering: .Com the enterprise with scalable, easy to manage infrastructure software; conduct E-Commerce with packaged applications; and discover new wealth in the Net Economy through Portals

2. Packaged applications for business-to-business and business-to-consumer to speed time to market

3. Multi-platform strategy

4. 1,000s of proven customers world-wide and the number 1 vendor according to IDC

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55

Case Studies

Cable & Wireless HKT

"Our application supports 200,000 of our most important commercial customers and was developed and deployed in less than three months. The bottom line is that Netscape Application Server enables us to deliver higher levels of service to our customers, cost-effectively." Riyaz Moorani, group manager for Internet and intranet applications, Cable & Wireless HKT

Cable & Wireless HKT Maintaining Lead, Improving Customer Service, Yet Cutting Costs

Executive Summary

Industry: Telecommunications

Business Challenge: To protect market share with expanded and improved services, while reducing customer-service costs.

Solution: Creation of an innovative, online customer care and billing application.

Solution Features: Customers can review their accounts online. A searchable online phone directory and WEBFax, an Internet-based fax service, are part of the program. The service is available 24 hours a day, 7 days a week.

Business Benefits: Increased loyalty of residential and corporate customers. The number of calls to the customer service center has dropped almost 30 percent.

Cable & Wireless realized a return on investment within four months of deployment.

Until mid-1995, Hongkong Telecom (HkT) had an exclusive franchise to provide local phone service in Hong Kong. In 1995, the exclusive phone service franchise expired and six competitors quickly entered the market. With annual sales of over US$32 billion in 1997, HkT had 3.5 million phone lines to support. It had also become the largest Internet service provider (ISP) in Hong Kong, with more than 100,000 subscribers.

Business Challenge

HkT needed to protect market share with expanded and improved services while reducing customer-service costs. With new competition entering the marketplace, it was important to focus on customer loyalty and overall responsiveness to customer inquiries. To address these requirements, HkT built an innovative customer care and billing application, using Netscape Application Server.

New Competition Requires Superior Customer Service

With more than one telephone line for every two people, Hong Kong has a proportionally large number of customers. Before deploying the new application, 1500 specialists in the HkT customer care center answered telephone inquiries regarding service, billing plans, and customer loyalty rewards. According to the company, 30 percent of those calls were billing-related, primarily basic questions about current balances and payment receipts. To cut costs and respond more quickly to customers, HkT needed to reduce the overall number of calls, especially for such simple inquiries.

The other service that was time-consuming and expensive was the process of printing and mailing monthly bills to corporate customers. Some bills were as long as 1000 pages, so HkT had to send them in boxes. A less expensive, more efficient method of delivery was essential, especially for high-volume customers. Also, like most telecommunications companies, HkT had legacy considerations. Integration with its IDMS database on an IBM mainframe and the RDB database on a DEC VAX was critical to the success of any solution.

Solving the Challenge

Netscape Solution - Paper Statements Converted to Customizable Online Reports

To help distinguish the company from competitors by offering more-advanced services, HkT developed and deployed the number one partner program customer service and billing application. Written in Java, the program provides customers with customized, convenient, and cost-effective services.

With the help of its jointly owned subsidiary, OMNES, HkT reviewed several alternatives and selected Netscape Application Server and Netscape Application Builder, an additional component for developers, for designing, launching, and managing the number one partner program application. Application Server met requirements for the program because its three-tier architecture and application partitioning functionality deliver high performance and scalability and easily integrate legacy applications into a web application. It also builds a foundation that includes state and session management, database access, transaction management, and result-set caching - all based on open standards.

Better Service for Customers, Lower Costs for the Company

Riyaz Moorani, group manager for Internet and intranet applications at HkT, sums up the benefits this way: *"Our application supports 200,000 of our most important commercial customers and was developed and deployed in less than three months. The bottom line is that Netscape Application Server enables us to deliver higher levels of service to our customers, cost-effectively."*

The web-based service allows customers to review their accounts online. It includes all the information that was in printed bills, but customers can now sort calls according to date, destination, telephone number, or cost. Results appear onscreen dynamically, with different views based on the type of account, corporate or residential. WEBFax, an Internet-based fax service, and a searchable online phone directory are also part of the number one partner program. The service is available 24 hours a day, 7 days a week, so customers can review bills, order new phone products and services, and review their customer loyalty points and trade them for promotional items or services whenever they choose. Because the number one partner program offers customers quick and easy access to such a broad range of services online, HkT saves valuable customer-service resources. Call center specialists are now able to respond more quickly and effectively to customers who have complex questions.

As Internet users look for additional, value-added services, HkT expects number one partner program services to help attract new customers to its ISP business. The program offers subscribers a single-vendor solution for telephone and Internet access needs and gives them more convenient account management features.

Because the customer base continues to grow rapidly, the number one partner program application had to be robust enough to support simultaneous access by at least 6000 users. With the advanced application partitioning and dynamic load balancing utilities built into Application Server, HkT can easily add application servers to support thousands more customers.

Greater Customer Loyalty Maintains Market Lead

The number one partner program application enables HkT to increase the loyalty of its residential and corporate customers and reduce the cost of running the customer-service center. By making services and information available online, the number of calls to the center has dropped almost 30 percent, enabling HkT to realize a return on investment within four months of deployment.

The architecture of Application Server helps ensure transaction integrity so that transactions can be completed successfully and accurately. Because the application is based on open Internet standards and the software and hardware are extensible and scalable, HkT can continue to react quickly to the constantly changing business environment in the telecommunications industry. This helps it stay ahead of the competition, regardless of how many new companies try to capture its lead.

Solution Summary

- Netscape Software Application Server
- Application Builder
- Hardware PCs running Windows NT 4.0 with Dell Premium Pro
- Third-Party Software: None

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57

Profiles

Detailed Profiles of Electronic Commerce Services Providers in India

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59

Camtech Asia IT & T

Contact Information

Camtech Asia IT & T
Cyberstation 11 B, Putra Infoport,
Universiti Putra Malaysia,
Jalan Puchong,
43400 UPM Serdang,
Selangor
Telephone: (60-3) 916 0183
Fax: (60-3) 916 0182

Mr. Chris Hill
Regional Manager
email: chill@camtech.com.my

www.ecommerce.camtech.com.au

Company History

Established in 1983, originally as part of the infrastructure of a center of excellence - The University of Adelaide, Camtech met and exceeded the challenge of that demanding environment to grow into an independent commercial venture.

Now a mature, stable company with a sound financial base, Camtech is forging a reputation as one of Australia's premier Information Technology and Telecommunications companies. In 1997 the company acquired another leading IT organization in South Australia, Communica Systems. By early 1999 the company had over 100 staff and annual revenue of A$16m.

In 1998, Camtech sold its highly successful ISP business to OzEmail in order to focus on the development and deployment of its Electronic Commerce products and services.

Camtech's technical expertise encompasses many years collective experience supported by a very high level of formal qualifications and commitment to the ongoing training of its technical staff.

The company name Camtech is a contraction of Campus Technologies which reflects both their fundamental commitment to maintaining their position at the leading edge of Information Technology and the company's status as a 100% owned venture company of The University of Adelaide.

Company Background

Their principal business activities focus on the technical areas of Internet technologies, Electronic Commerce, system security, system integration, Internet application development, open systems solutions and sales and support of key best-of-breed products, horizontal solutions, network administration and professional training.

These activities are organized divisionally as follows:

- Consulting and Support Services
- Electronic Commerce Products
- Internet Services
- Training Services
- Computer Systems and Network
- Products

E-Commerce Services & Activities

Camtech is leveraging its 10 years experience in the Internet, the close association with The University of Adelaide Department of Computer Science (a world recognized center of excellence) and its considerable experience with security systems to produce world class Electronic Commerce products early in the market cycle.

Camtech has become a leading developer of niche products to facilitate Electronic Commerce deployment. These products are marketed throughout Australasia and globally by industry leaders in Electronic Commerce.

Camtech Electronic Commerce

The first product to market from Camtech's Electronic Commerce group is Camtech E-Commerce Payment Gateway, a highly secure, real time payment gateway product for processing credit card transactions.

- **Standards Based**

Camtech E-Commerce Payment Gateway has been designed and developed in Australia using international protocols and enciphering technologies.

Camtech E-Commerce Payment Gateway can be simply configured to any localized variant of the ISO 8583 protocol (ISO 8583 is the international banking networks default interbank communication method) and installed in a cost effective and efficient manner.

- **Real Time Processing**

Camtech E-Commerce Payment Gateway has the ability to process credit card transactions in real time.

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61

The gateway functions similarly to a standard eftpos terminal in a retail store providing all standard transaction types including pre-authorization, credit approval, reversals and reporting as standard features.

Although real time processing is an important differentiator for the Camtech E-Commerce Payment Gateway product, it is also able to process transactions in batch mode and via call centers providing considerable diversity to meet the needs of merchants.

- **Military Strength Security**

Camtech E-Commerce Payment Gateway uses military strength enciphering and digital certificates to provide unparalleled levels of transaction security. Enciphering of transaction information is performed using 1024 bit RSA (symmetric) algorithms for the entire transaction process, from the client web browser through to the payment gateway.

On the physical security side Camtech E-Commerce Payment Gateway uses multiple independent firewalls to ensure that neither the web server nor the gateway are compromised.

- **Authentication**

Camtech E-Commerce Payment Gateway uses digital certificates from a central certificate authority to provide authentication for both merchant and consumer. All merchants are authenticated via a digital certificate prior to any transaction being accepted by the payment gateway. Consumers are validated in a similar way.

- **Open Systems**

Unlike many of its competitors, Camtech has developed the Electronic Commerce product based on open systems platforms. This includes a Java based implementation on an open systems client server architecture.

Case Studies

Greengrocer

Greengrocer.com.au provides households and offices in Sydney, Australia with home delivery of quality fruit and vegetables. The produce is purchased freshly each morning at the Sydney markets by an experienced buyer. The company which began operating in 1997, now has over 3,000 customers on their database.

Greengrocer.com.au approached Camtech in late 1997 to provide a cost effective and secure solution to performing Internet transactions in real-time. Due to

Camtech's ability to reach these requirements Greengrocer.com.au has been operating successfully, providing better customer service and increasing profit margins dramatically through greater efficiency.

Orders are received over the Internet using a Microsoft NT SiteServer developed front end, and payment is received via Credit Card. The Credit Card Details are forwarded onto the appropriate financial institution using the Camtech E-Commerce Merchant Server Solution and The Camtech E-Commerce Payment Gateway. The Credit Card transactions are processed in real-time and the consumer is notified of either an approved or declined transaction immediately after bank authorisation has occurred.

The Commonwealth Bank of Australia

The Commonwealth Bank of Australia (CBA), is Australia's largest merchant bank with over 35% of the merchant market. The CBA in late 1997 embarked on a project to provide its merchants with a highly secured Internet payment solution.

Camtech, as the leading provider of payment solutions to banking institutions in Australia was approached by CBA to develop an interface to the bank for processing Internet transactions in real time.

The CBA's business and marketing requirements of Camtech were for:

- A highly secure Internet payment solution
- On line real time transaction engine
- Fast and reliable transactions processing
- Comprehensive auditing and reporting systems
- ISO 8583 Interface and connectivity to host systems
- CBA branded solution for its merchants

The Camtech solution provides the bank with a completely secure system capable of processing multiple types of transactions. The Camtech E-Commerce Payment Gateway was configured to communicate to the CBA banking network and is capable of not only processing Internet transactions but also future debit card transactions. All Electronic Commerce transactions passed through Camtech's E-Commerce Payment Gateway are processed using 1024 Bit RSA and 56 Bit Triple DES encryption. This high level of security met the CBA business case and enabled CBA to offer a solution direct to its merchants. The solution provides a complete end to end secure payment method that enables CBA to be confident that its merchants are secure from the hazards of Internet commerce. The CBA has a dedicated EC sales unit promoting the solution to its existing and potential merchant base.

Planetasia.com Ltd

Contact Information

Planetasia.com Ltd.
Microland Gardens,
777, 3rd Cross, 18th Main,
Koramangala 6,
Bangalore 560 095

Telephone: (91-80) 552 1451, 552 2254
Fax: (91-80) 553 8415

Samir Kumar
Vice President - Marketing
Email: samirk@planetasiacom

www.planetasia.com

Company Background

Planetasia.com, part of the Microland Group, is among the first Indian Internet Business Solutions companies to aggressively pitch the Web as a business tool. In their two years of operations, Planetasia.com has expanded their offerings to include services in E-Commerce, Intranets/Extranets, Websites, Audience Development Services and a range of Hosting Services. Among their impressive list of credentials is the leading edge work done for a large number of India's Top 100 corporations.

Planetasia.com now houses over 80 professionals and has a base of over 65 customers in India for whom they have implemented innovative Web solutions. Having built a strong presence in the Indian market, Planetasia.com is now expanding internationally and robust growth is predicted for this year. To fund this ambitious growth, Planetasia.com has recently received venture capital funding from Chase Capital.

E-Commerce Services & Activities

Planetasia.com defines Electronic Commerce as a platform for **Complete Relationship Management,** not just a one-time transaction. It is the exchange of information and services, the creation of an open market-space that allows spontaneous interaction among members of a value chain.

Planetasia.com partners with clients to offer solutions in the areas of E-Commerce Strategy Consulting; Security Strategy and Implementation; Online Retailing; Web-based payments and payment mechanisms; and Online Financial Portfolio management and Securities trading.

E-Commerce Strategy Consulting. Planetasia.com's Business Strategy Consultants help companies map and evaluate E-Commerce opportunities, understand the various business and technological options available and create a business case for investing in E-Commerce, along with an implementation roadmap.

Security Strategy Consulting and implementation. Planetasia.com helps companies understand security issues and ensure that they never make trade-offs between exploiting E-Commerce and the security of the business. Their consultants;

- Analyze business systems, identify the required applications and infrastructure

- Identify possible security weaknesses in the system and how they can be addressed

- Define access, authentication and authorization rule bases

- Design data integrity and privacy mechanisms

- Recommend monitoring and management techniques to be adopted

- Provide technology comparisons and recommendations.

Online Retail. Online Retail is a booming area in E-Commerce today. Planetasia.com builds solutions that are tightly integrated with the business plan; capable of handling financial transactions; flexible and scalable in architecture; rich in functionality; easy to maintain and update and based on market tested technology.

Web-based Payment Systems. Enabling visitors to complete transactions by paying online is critical – standards and technologies are still emerging in this area, concerns about security and fraud are high, and there are several options available. Planetasia.com helps companies evaluate, implement and monitor such payment solutions.

Online Financial Portfolio Management and Securities trading. Another hot category in E-Commerce today is Online Securities trading. Planetasia.com helps design and implement secure, robust and scalable solutions that offer personalized advice to investors, track and manage their portfolio and its performance; receive real time information; buy and sell securities online and link securely to different mission-critical transaction systems at the back-end.

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63

Related Services

Hosting Services. Planetasia.com's hosting service is driven by the philosophy that Customer Service is paramount – a full range of services is offered, from hosting static Websites to dynamic, application driven, mission critical sites. Each package has its own set of service level guarantees and pricing.

Audience Development Services. These services aim to *attract, retain,* and *understand* relevant traffic. They help attract traffic through a mix of Search-Engine Optimization and comprehensive online advertising services; retain traffic by implementing online community features; advising on update procedures and frequencies; understand traffic, usage habits and patterns with sophisticated, customizable reports.

Strategic Positioning

Planetasia.com invests resources in understanding business better, identifying business benefits and mapping technology onto processes that will yield maximum returns. Their consultants work with companies to build a long-term Web Strategy and roadmap, and to implement this strategy.

- **Planetasia.com understand E-Commerce**. Planetasia.com approaches E-Commerce with a combination of strengths, which allows them to address problems and opportunities that would never be resolved from a purely technological or a design standpoint. Issues that could trip customers up include tax laws, banking laws, customer returns and fulfillment issues. Planetasia.com is an ideal E-Commerce partner – with an understanding of all these as well as a strong combination of skills: in Business, Technology and Design.

- **Focus**. Planetasia.com has one line of business, and one range of services – everything is focused around the Internet. Further testimony to this maniacal focus is their New Media Research Laboratory – a facility set up with the sole purpose of understanding and implementing tomorrow's Web technologies today.

Solutions that Planetasia.com have implemented/are currently implementing include:
India's first Personal Investment Portal: Slated to launch in mid 1999, this offers real-time, personalized information to investors, as well as a variety of portfolio management tools online. The next phase of the service will feature integration with bank accounts that will allow the user to trade in real time and transfer required funds using their bank accounts.

Security Consulting: Undertaken for a leading Indian private bank planning to offer Internet Banking Services to its clients. The study involved a detailed examination of the application environment – including the Network, Computer and Application Infrastructure, evolving and designing measures required to secure these; and studying technologies and technological options. The final study forms the basis of the bank's security policy for the Internet Banking Operations.

An Online Retail store for a supermarket chain: One of India's largest supermarket chains plans to allow customers to buy groceries and provisions online, with eventual integration with the back-end legacy systems for online inventory, order and financial management.

Case Study

The Credit Rating Information Services of India Ltd. (CRISIL)

CRISIL is India's leading provider of Credit Ratings and Company/Industry Research. CRISIL commissioned Planetasia.com for setting up an online Information Marketplace on Indian Business at www.crisil.com.

CRISIL had been delivering information products to its clients using email, CD-ROMs etc. They saw the Internet as a crucial opportunity – to get in early when the competition was debating the merits/demerits of the Internet as a business weapon, build strong relationships with customers worldwide, and thus become THE online source for information about Indian businesses. This site is a critical and integral part of CRISIL's longer-term strategy – to dominate the field of information on Indian business.

The site allows users access to CRISIL's various products – including rating reports and research reports – by company, sector, industry etc. Users can register to download sample reports, while paid users (corporate subscribers or individuals subscribing offline) can access all reports, and track their usage and the amount debited against their subscription. The next phase will offer information from multiple external sources, business newsfeeds and allow users with USD credit cards to subscribe online.

Encouraged by the site's success, CRISIL has put all their existing products online and are creating new products to be sold exclusively online, to maintain the lead built up in this niche. CRISIL saw value in Planetasia.com's multi-disciplinary approach – combining design, technology and business understanding – a single partner to enable everything needed to implement a successful E-Commerce enterprise.

PricewaterhouseCoopers

Contact Information

Pricewaterhouse Coopers Ltd
SaltLake Technology Centre,
Plot Y-14, Block EP, Sector V,
Saltlake, Calcutta 700091

Telephone: (91-33) 357 3384 up to 3390
Fax: (91-33) 357 3394

Prithwis Mukerjee
Executive Director
Email: prithwis.mukerjee@in.pwcglobal.com

www.pwcglobal.com

Company Background

Drawing on the talents of more than 140,000 people in 152 countries, PricewaterhouseCoopers, formed by the merger of Price Waterhouse and Coopers & Lybrand, provides a full range of business advisory services to leading global, national and local companies and to public institutions. These services include audit, accounting and tax advice; management, information technology and human resources consulting; financial advisory services, business recovery, project finance and litigation support, business process outsourcing, and legal advice.

Recent Business Developments

PwC set up a technology center at Saltlake, in the suburbs of Calcutta, in April 1995. This 55,000 sq.ft facility is where more than 450 consultants work with Tomorrow's Technology Today. In fiscal 1999-2000, PwC plans to build a second major 100,000 sq.ft facility which will house the Center for Emerging Technologies. PwC India has over 850 professionals in Management Consultancy Services, including 50 dedicated E-Commerce personnel.

E-Commerce Services & Activities

PwC is a source of holistic insight and support for a company's total eBusiness needs. PwC's depth of experience in Electronic Business is industry-centered and worldwide. The firm offers clients the benefit of seasoned expertise, augmented by innovative use of business process and technology to create opportunities for market growth, new sources of profitability and sustainable competitive advantage.

A client considering eBusiness, is presented with a plethora of confusing choices -- Java, Netscape, websites, eCommerce, eMail, firewalls, security, customer care, online selling .. and so on, but PwC views the eBusiness opportunity from three very distinct, yet interrelated, dimensions namely, strategy, architecture and solutions. In brief, strategy looks at what needs to be done and why? and by whom? Architecture looks at potential applications and technology available to meet the application requirements and Solutions looks at the actual hardware and software needed to meet a customer requirement.

In eBusiness/strategy, PwC looks at the competitive environment and the technological choices that are changing or going to change this environment. It seeks to identify the business drivers - like customer care - that are propelling the organization towards eBusiness. It identifies new roles and responsibilities and possible new ways of doing old tasks so as to equip the organization for the future. Finally it seeks to put in place a change management process that will help the organization make a smooth transition into the future. As a natural extension of eBusiness/strategy, the PwC Process Improvement practice helps client improve the effectiveness of the business process by factoring global best practices in the area of Market & Customer Management and Supply Chain Management. eBusiness/strategy lays down the ground rules that go beyond websites and seeks to connect the organization, its suppliers and customers (or distributors) in a seamless but cost effective fashion.

In building an eBusiness/architecture, PwC carries the eBusiness/strategy forward by identifying the applications that are necessary to meet the requirements of the business drivers that have been identified within the constraints imposed by the new way of doing things. Solutions are evaluated and their relative merits and demerits listed. Next the crucial linkages between the mainline OLTP systems, like order processing, inventory, logistics and customer care, and the eBusiness solutions are identified and issues related to compatibility and interoperability are addressed. The infrastructure required to support the new applications and their connectivity to OLTP systems are determined and finally security and other standards are laid down.

eBusiness/solutions are provided either by developing customized solutions or by implementing internationally accepted packages. PwC provides a

set of services that span the full gamut of activities that include but are not limited to domain registration, server rental and website maintenance, hardware and software installation, security audit and customization of firewall, developing applications and interfacing them with existing OLTP and MIS systems. PwC has a dedicated team of developers who are skilled in Java, RDBMS, HTML, CGI and related technologies to actually implement any solution that is technically and legally feasible in India.

Targeted Vertical Markets

In India PwC is most focused on Utilities, Consumer and Industrial products, Telecommunications and Financial services.

In the Utilities sector, PwC has developed a niche ERP called EmPower that meets the financial, customer related and some of the operational requirements of electricity companies. This is being implemented in two client sites in India and two more in Bangladesh. This package is being significantly extended with a web enabled java front end that will allow customers to access relevant information over the Internet.

PwC also has a configurable solution known as WebSD that facilitates sales and distribution related functions at small branch offices and dealer locations of companies engaged in the distribution of consumer and industrial products. The store and forward technique has been used to develop multiple versions of this application and it runs either on LotusNotes or with Personal Oracle with replications services enabled. This product can either work in a standalone mode or can extend the reach of popular ERPs to "extend" the organization beyond its traditional organizational borders.

Strategic Positioning

It is considered that PwC's key strengths and differentiators are as follows:

- Complete suite of solutions beginning with strategy, through architecture and finally into real life workable solutions

- Access to the knowledge base of more than 140,000 consultants worldwide, together with proven methodologies and best practices

- Very strong base of technical personnel based at the SaltLake Technology Center plus a whole range of hardware and software that includes the latest Network Computing Devices from IBM, Oracle and Sun

- Organizational knowledge of the entire business life cycle including issues related audit, tax, finance and security issues

PwC India is a very powerful node in the huge PwC global network. Physically, all PwC offices in India are connected to the global network through a VSAT service and a 128 kbps IPLC to PwC-US. As a part of this network, PwC-India has access to:

- proven and time tested proprietory methodologies covering systems management, information systems planning, change integration, etc.

- a global pool of Lotus Notes knowledge databases.

These methodologies and knowledge bases act as force multipliers that help translate raw technical skills into complete eBusiness solutions. PwC-India also maintains close business relationship with the major international players in the world of eBusiness, by:

- having a Network Centric Computing Center with IBM

- being an Authorized Java Training Center for SUN

- partnering with Oracle to develop an iCommunity center

- being a preferred solution provider for Microsoft

Case Study

PwC was entrusted by a major FMCG company (with turnover of more than Rs 60 billion) to develop a comprehensive eBusiness solution that will facilitate the entire outbound logistics process by integrating more than 800 wholesale dealers with a central ERP solution. After studying the requirements, PwC designed a LotusNotes based system, that can work with the low quality telephone lines available in rural and semi-urban India, that would interface with a central SAP server. After the design was approved, PwC built a full working prototype of this system that met all the functional requirements of the dealers, branch offices and the central marketing and corporate office. This prototype was the first and most comprehensive example of LotusNotes and SAP working together and exchanging information in a real time mode. The company has accepted this design and the prototype and is now planning to roll it out to all locations.

Satyam Infoway

Contact Information

Satyam Infoway Ltd.
271A, Maan Sarovar Towers,
Anna Salai, Teynampet,
Chennai - 600 018

Tel: (91-44) 435 3221
Fax: (91-44) 434 8691

S. Kumar
General Manager - E-Commerce Business
Email: S_Kumar@maaln.satyam.net.in

www.satyamonline.com
www.satyam.net.in

Company Background

Satyam Computer Services was founded in December, 1995, and is the first private Internet Service Provider (ISP) to operate in India. The company has offices in North America and is in the process of expanding into Australia.

Satyam works with best-of-breed partners, such as Sterling Commerce, OpenMarket and Compuserve, to offer EDI and Internet commerce services. It also has a 19-city Frame Relay ATM-based network.

Services

Satyam's offers EDI, Internet Commerce and Intranet services.

Electronic Data Interchange (EDI)

Satyam offers both traditional and web-based EDI services. Their solution brings together and integrates all entities of the supply chain. It is an end-to-end integration from the applications running at one trading partner to the same at the other end.

Customer can choose between web-based EDI or web-based forms transaction, as well as traditional EDI. The direct benefits of Satyam's EDI solution include reduced direct and indirect costs, as well as reduced inventory.

Internet Commerce

Satyam offers an assortment of tools and solutions that enable commerce on the Internet. Examples include catalogs on the web, payment systems, and information publishing on the Internet. These solutions increase the reach attained by the clients deploying Internet applications, creating 'brand' on the Internet that ultimately results in increased market share.

Intranets

Satyam has a software development wing that goes through the typical development cycle, starting from a 'system study', in providing Intranet & Extranet solutions to customers.

Industry Focus

Satyam is especially strong in meeting the needs and requirements of businesses in the automotive, manufacturing and retail industries.

Automotive

Satyam were active participants of an initiative in the auto industry called "Auto Pilot" that is developing common standards for the industry. Working closely with consultant and experts within the auto industry, they are customizing solutions for businesses in this industry.

Retail

Obviously, distribution is an essential part of the retail trade, and Satyam offers solutions that help manage and improve distribution. Their traditional and web-based solutions are positioned to meet the needs of businesses in the retail and distribution industry. Prominent clients include Henkel Spic, Whirlpool and Du Pont.

Strategic Positioning

Satyam strengths and capabilities in electronic commerce include:

Understanding Business Issues

Satyam understands the issues and concerns facing businesses. Their focus is on addressing business needs, rather than simply implementing a technical solution.

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67

Access to Multiple Technologies

The diversity of Satyam's capabilities and partnerships -- in EDI, Internet Commerce and Intranets -- provides both the breadth and depth of skills needed to address a broad range of business issues and needs.

Proven Solutions

The solutions offered by Satyam are based on time-tested, proven products. Satyam has partnered with best-of-breed global players to ensure that their customers get only the very best.

Case Study

Scenario

Develop an auto industry 'Hub' which deals with 400 plus entities in India and abroad. Problems to be addressed included high cost of communication, lack of information and inefficient operations.

Objective

To streamline the entire supply chain operations with minimum cost, resulting in substantial benefits.

Why Satyam?

Technical expertise from its many implementations; partnership with global leaders like Sterling Commerce, OpenMarket and UUNet; state-of-the-art technology; and easily deployable solutions.

Solution

Web-based Supply Chain Management solution:"Web Suite"

Implementation

System study; Analysis; Design; Customization; Installation; and Testing - all in 3 man months' time.

Benefits

Relevant information at any point, reduced cost, increased efficiency.

Wipro Infotech Software & Services

Contact Information

40/1A Lavelle Road,
Bassapa Complex,
Bangalore - 1

Telephone: (91-80) 221 7655
Fax: (91-80) 227 8597

Sangita Singh
Marketing Manager - Cross Industry Solutions
Email: sangita@wipsys.soft.net

www.wipro.com

Company Background

Wipro Infotech is the largest publicly traded IT company in India and is a part of the US$510 million Wipro Corporation, which carries a market capitalization of US$4.1 billion (as of March 31, 1999). Wipro Infotech is a global provider of software services to Fortune 500 Companies. Over the last decade, they have maintained a strong track record of steady growth, satisfying over 100 customers worldwide in North America, Europe, Japan and Asia Pacific.

Wipro Infotech was the first software services company in the world to achieve the prestigious **SEI-CMM Level 5** rating. To build organization wide commitment to quality, Wipro has initiated the **Six Sigma Quality Program**. Focusing on defect and cycle time reduction, Six Sigma provides analytical tools necessary to sustain and optimize processes in software development and support functions.

Wipro integrates people, processes and technology to develop and deliver innovative solutions for the customer. World class solutions that span the entire spectrum of IT Services, customized to individual client needs, are delivered with consistency and reliability because of their leadership in quality.

Wipro's Service Offerings in Electronic Commerce

In order to maximize the benefits from Web enabling business applications, while decreasing lead times of development and deployment, organizations are making increased use of emerging technologies, such as distributed objects and application frameworks which facilitate componentization of services. At the same time, it is becoming increasingly important that organizations protect their existing investments as much as possible.

By virtue of a good understanding of the business requirements of the customer, combined with the necessary skills to overcome technological challenges, Wipro has developed considerable expertise in the following solution offerings.

Application Development via tools or leveraging the existing customer architecture: With the Web emerging as the transaction vehicle for business transactions, quick development of applications is of paramount importance. Rapid Web application development tools (such as Netscape Application server and Netdynamics) can be used to reduce development time and address the basic issues of Web transactions, such as state & session management, and connectivity. Wipro has developed considerable expertise in using such tools and also developing applications around the customer's existing Web architecture.

Legacy Web Integration services: Organizations usually have huge existing investments in legacy systems, and many of them now have an immediate requirement to web enable them. It is important to understand the issues involved in Web enablement of existing legacy systems, before suggesting the various architectural options:

- Web to legacy integration is a complex construction due to inter platform issues.
- Scalability – As volumes of transaction increases performance degrades.
- Performance of the web enabled system will not be as high as the legacy system
- Control of commit points (especially for transactions)
- Security on an end-to-end basis

Some of the solution frameworks include; terminal emulation, thin client, applets & servelets, message oriented middleware and application servers.

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69

Componentization services facilitating migration to Web: As business transactions begin over the Web, componentization of applications to facilitate distributed computing should be a strategy employed by organizations. Componentization offers certain advantages, such as; location transparency; re-usability; ease of configuration & maintenance; and design in tune with business modeling. With this in mind, Wipro has developed expertise in various distributed object frameworks such as ORBIX, Visigenic ORB (CORBA compliant) and DCOM.

Web Security architecture, consultancy & implementation services: As the use of the World Wide Web shifts from simple information sharing to deploying mission-critical business applications, the challenge of securing enterprises and these applications becomes important. Wipro follows a comprehensive security model which helps customers take advantage of Web security technologies and integrate them with their business model. The key guiding factors influencing this security model are:

- Easy to deploy, manage & use

- Interoperable across intranet & extranets

- Comprehensive integrated security architecture

- Ability to provide scalability & 24x7 reliability & availability

Internet EDI implementation services: Wipro also helps organisations wire their enterprise to trading partners and customers by offering EDI implementation services. Wipro's expertise in EDI covers the following areas:

- EDI standards across industry segments and geography - ANSI X12, X12-N, EDIFACT EDI Mapping standards, - MERCATOR ™ from TSI Software International

- Transaction and EDIFACT sets

- EDI templates / maps (industry specific)

- Deploying ECXpert ™ from Netscape

- Internet Commerce software integration of Web and EDI transactions with legacy systems

Electronic Payment Solutions

Through working with various E-Payment vendors, such as OpenMarket, Wipro has developed strong expertise in understanding the issues related to E-Payments; secure transaction standards; merchant, buyer and authorizer requirements.

With OpenMarket's Transact product, Wipro played a significant role in developing and extending some subsystems, for example application localization to Japanese business practices, micro transactions etc. Apart from developmental association in the subsystems, Wipro were involved in maintenance of the product (bug fixing). Currently Wipro are involved in a number of consulting projects, which originate from the client's clients - mostly in the areas of customization and extension of Transact.

Expertise in E-Commerce Applications Development

Wipro has established an Internet and E-Commerce practice that has been undertaking significant leading-edge projects for several Fortune 1000 companies. Wipro is also a member of the Netscape Development Partners program and a subscriber to the MSDN (Microsoft Developer's Network) through which Wipro receives the latest releases from Microsoft long before they reach the market.

Wipro has acquired significant strength in the development of EC applications in Intenet, Intranet & Extranet segments. This strength is derived from partnering with Internet Platform providers (like Netscape and Microsoft); Platform enhancers (like Netdynamics, NetScape Application Server); Middleware technolgy vendors (like TIB, NEON, MQSeries) and Market Creaters (like WeBridge, OpenMarket and BroadVision).

Moreover, Wipro has its own dedicated R&D and center of excellence for Electronic Commerce, which provides direction and support to their electronic commerce implementations. The center serves as a facility in which Wipro can rapidly launch projects for all their clients.

Wipro Net Ltd.

Contact Information

10th Floor, Du Parc Trinity,
17 M.G. Road,
Bangalore – 560001

Telephone: (91-80) 509 2599
Fax: (91-80) 559 6748

Nirmala Kamath
Marketing Manager
Email: nirmala.kamath@wipro.co.in

www.wipro.net

Company Background

Wipro Net is a subsidiary of Wipro Ltd. The company has been providing Business Communication Services to corporate customers in India for the last 4 years. Wipro Net has a nationwide data communication network, which is used by corporates to deploy intranets, extranets and E-Commerce solutions. With assistance from business units of Wipro Infotech, Wipro Net can design and deploy end-to-end E-Commerce solutions for corporates, including application development, equipment supply, networking infrastructure and after sales support.

In December 1998, Wipro Net received a 'Category A' (National) ISP license from the Indian Government. All of the previous services offered, namely VAN and E-mail were morphed to Internet based services, and new Web based services were added to the service portfolio. The nationwide network now operates on the TCP/IP protocol and gateways to the Internet have been established at Bangalore and Mumbai.

Wipro Net is recognized as one of the leading Business-to-Business (BTB) Communication Services Providers in the country and has implemented intranet and extranet solutions for over 40 corporates in India. Wipro Net in association with the Electronic Commerce and Financial Solutions (EC & FS) arm of the company provides corporates with end-to-end E-Commerce solutions. The EC & FS group has been helping organizations the world over to harness the power of the Internet through solutions for Marketplace Management, Internet Banking, Internet Securities Trading, and Internet Payment Systems. The EC&FS group provide organizations with software consultancy

and products and services covering both the Buy and Sell side of BTB E-Commerce.

E-Commerce Services & Activities

In India, E-Commerce requirements begin with communications, such as messaging between business partners, and then evolve into web-publishing and finally move to full fledged E-Commerce transactions - including payment settlements and linkages to supply chain management. A proper IT culture, workflow changes between partners, and the enactment of cyberlaws will fuel the growth.

Wipro Net as part of its Internet service portfolio provides organizations with an entire gamut of services and solutions for E-Commerce. The basic requirements of a corporate to adopt the E-Commerce culture are provided by Wipro Net in the form of:

Messaging & Web Access Services

1. SMTP Mailbox Hosting – giving corporates the facility to host mailboxes in the Wipro Net Messaging server. The benefits to corporates from this service are;

   Anytime/ anywhere mail; Company domain name in e-mail address; 24x7 service

2. Enterprise E-mail & Gatewaying Services - giving corporates the facility of connecting their messaging systems like Notes, MS-Exchange, MS-Mail, etc to the Internet. Corporates can use the nationwide network of Wipro Net for their intracompany messaging. The advantages of this service being;

   Intracompany messaging in native format; Company domain name in the e-mail address; Committed delivery times for intracompany messaging; No investment in Internet E-mail gateways as Wipro Net supplies the infrastructure.

3. Corporate Web Access Services – connecting corporates to the Web through a variety of access methods, like dial-up PSTN, ISDN and leased lines. The benefits to corporates are;

   Committed service levels; Bandwidth on Demand; 24x7, fault tolerant infrastructure.

Web Publishing Services

1. Web Hosting Services – giving corporates the secure 24-hour infrastructure required to host their Web Site on the Internet. These web sites are hosted on a Shared High Availability Server in the Wipro Net Hosting Centre. Corporates benefit from: Committed service levels; 24x7, managed, high availability infrastructure; Web site reports;

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71

No worries of security, staffing, high capital investment; Skilled network operations and support personnel

2. Web Server Co-Locating Service – giving corporates the facility of locating their business critical Web Server off-site in Wipro Net's Hosting Centre. The benefits include;

No last mile problems for mission critical Web Server; 24x7 managed, high availability infrastructure; High security; Ready bandwidth availability as requirement scales

3. Web Site Services – in association with strategic partners Wipro Net provides corporates with Content Creation services, involving the design and maintenance of a professional web site.

Once corporates have their messaging platform and web site in place, they are ready to implement work-flow applications, intranets and extranets. In this area Wipro Net provides the following services:

Virtual Private Network Services

This service links offices of corporates into secure intranets / extranets while also providing links to the Internet. With strategic partners, Wipro Net also provides corporates with end-to-end network solution design and deployment. Wipro Net has implemented over 40 intranets/extranets in the country. Building VPNs on Wipro Net infrastructure helps corporates to;

Benefit from a private network without the burden of operating it on a 24x7 basis; Committed service levels as networks are implemented on Wipro Net's backbone network not the public Internet; Scaleable network on demand; Customized commercial packages; Protection against technology obsolescence

With the intranet and extranet infrastructure in place, a corporate is ready for electronic transactions on the net. The Wipro EC&FS group can provide full life-cycle services from Solutions Planning right through Architecture Evaluation to Solution Design and Implementation in the Business-to-Business EC domain. Wipro's technology management expertise, coupled with industry knowledge of Finance, Health Care, Telecom, Manufacturing, Retail and Utilities enable customers to avail of complete EC business solutions. The EC&FS service offerings include:

- EC Value Added Consulting – Architecture Evaluation, Solution Planning; Specialized EC Services – Internet Banking, Online store front, Supply Chain Management; Core EC services – Integration of Web applications to legacy environment, project management in implementation of new EC procedures/processes

Strategic Positioning

Wipro Net's key strengths and differentiators are:

- Focus on services for the Business Market Place with an established customer base

- Proven Skills in implementation of Intranets and Extranets for the Corporate Market

- Ability to sign customer specific Service Level Agreements and deliver the same

- Ability to provide customers with an end-to-end E-Commerce solution comprising of Infrastructure, Application and Implementation by leveraging across Wipro's various business units

Wipro Net is a subsidiary of Wipro Ltd., and is part of the Wipro Infotech business group. Wipro Infotech is a leading IT company in India with strengths in software services, network integration services, facilities management, customer support services and outsourced network services. Wipro Infotech also has strong ties with major vendors, being a leading distributor of SUN, Cisco and 3Com products and is a Microsoft Authorised Suppport Centre. Wipro Net is a Lotus Business Partner for Net Service.

Case Study

Secure Network for a leading Electronic Payments Firm:

Wipro Net was commissioned by an electronic payment services company to deploy a secure network to carry the payment transactions from the merchant to the banks for authorization. Wipro Net studied the networking requirements of the customer and carried out a 6 month pilot of the solution, after which the solution was deployed on a nationwide basis. The solution was the first of the business critical applications to be deployed on Wipro Net's infrastructure. Wipro Net supplied the customer with guaranteed service levels, allowing them to give their end users desired levels of response time for payment transaction authorization.

Client Coverage for a leading International Investment Banking and Securities Firm

The EC& FS Group provided Web-based sales tools to supply Sales Personnel with client information, products and contacts using Orbix based App.Server, Netscape Enterprise Server and Rouge Wave tools.

Profiles

Detailed Profiles of Electronic Commerce Services Providers in Indonesia

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73

Andersen Consulting

Contact Information

Andersen Consulting Indonesia
46 - Kota BNI, 18th Floor
Jalan Jendral Sudirman Kav. 1
Jakarta 10220

Telephone: (62-21) 574 6575
Fax: (62-21) 574 6576

Adji Gunawan
Associate Partner
Email: adji.gunawan@ac.com

www.ac.com

Company Background

Andersen Consulting is a US$8.3 billion global management and technology consulting organization whose mission is to help its clients create their future. By working with clients to align their business elements -- people, strategy, processes and technologies -- Andersen Consulting helps clients achieve best business performance. Andersen Consulting has approximately 65,000 people in 48 countries.

In Indonesia the consulting practice was founded as part of the SGV-Utomo Group in 1968. In 1989 they were known as Andersen Consulting-SGV Utomo, which then was legally changed to Andersen Consulting Indonesia in 1995. At present, with a more than 200-strong and diverse team of professionals, Andersen Consulting Indonesia continues to grow with its clients.

Services

Electronic commerce is redefining the global economy, and every business must reassess the how -- and where -- it does business. Andersen Consulting is committed to helping clients understand the impact of E-Commerce, and the transformations they must make to succeed in the new 'eEconomy'. They are helping clients create their future in the new and emerging electronic economy.

Andersen Consulting not only helps clients implement E-Commerce, but provides the expertise and

perspective to help them integrate E-Commerce into the very fabric of their enterprise.

They help their clients set new benchmarks for business performance and discover entirely new solutions in product innovation, supply chain velocity, process concurrency, customer intimacy and more.

But electronic commerce is not a commodity or service that can simply be purchased. Therefore, Andersen Consulting does not provide just one E-Commerce offering or staff just one practice unit. Instead, E-Commerce is a point of view embedded throughout their organization, a perspective they bring to every client they help. Today, their community of E-Commerce professionals spans 48 countries -- every industry segment and every geographic region where they do business.

A recent IDC report ranked Andersen Consulting number one among all Internet service providers in 1998, with revenue of US$425 million related to interactive and on-line services.

Andersen Consulting helps its clients change to be more successful. Part of that is helping clients make E-Commerce opportunities real, by integrating their business strategy, technology, business processes and people. This integrated approach is the key to achieving and sustaining a new level of performance, and a more competitive position in a changing marketplace.

As further testament to their commitment to E-Commerce, they have invested significant resources in research and the development of unique resources such as Electronic Commerce Centers of Excellence.

The Electronic Commerce Center of Excellence in Singapore was opened in April, 1997, and functions as a business solutions incubator for companies keen to exploit the potential and capability of electronic networks to connect businesses and consumers in real time. In the Center, executives can conceptualize their business in the future and prototype innovative solutions.

Clients from the region can also take advantage of Andersen Consulting's expert capability, built into every level of the firm to ensure the delivery of comprehensive, integrated solutions. The Center of Excellence brings together Andersen Consulting's depth of experience in people, processes, strategy and technology, and gives business executives a clear vision of the way forward.
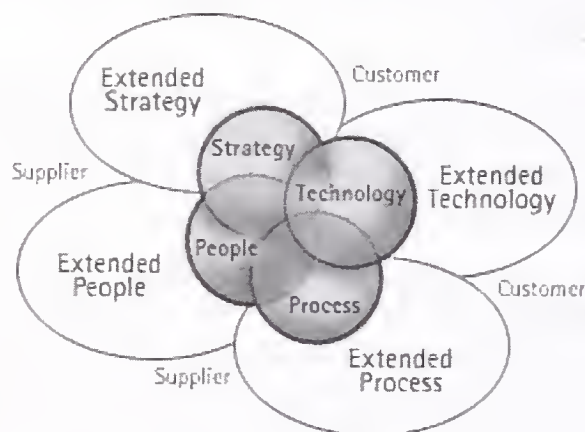
The Center offers a whole spectrum of services geared mainly for business executives and company CEOs. Services include workshops on electronic commerce that focus on specific client needs, demonstrate innovative electronic commerce

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75

solutions, and help clients define successful implementation strategies. Visitors to the Center also gain hands-on experience to work with and learn from some of the projects developed by Andersen Consulting.

Strategic Positioning

Andersen Consulting offers a depth of expertise and a breadth of capabilities in E-Commerce that businesses need to address the full range of E-Commerce opportunities.

They are also uniquely positioned to help their clients break through barriers to E-Commerce value with their Business Integration Model.

*"eCommerce is not just technology:
it's fundamental business change"*

Through the Business Integration Model, Andersen Consulting offer:

- Deep understanding of the economic implications and opportunity landscape of the eEconomy
- Ability to create a compelling enterprise-wide vision for the future in the eEconomy
- Expertise in the strategic and operational application of technology
- Cross-disciplinary, cross-functional and cross-industry perspective and expertise
- Expertise in aligning people, processes and technology with strategic intent
- Ability to execute a complex, global change program at scale

Andersen Consulting's E-Commerce Solutions

eStrategy: Establishing your business strategy and execution plan in the context of eCommerce and the eEconomy, including defining value propositions, product portfolios, customer segmentations and channel strategies.

Electronic Customer Relationship Management: Maximizing the value of the electronic channel as a means to market, and selling and serving the customer in a personalized, differentiated manner. This creates and exploits exceptional customer understanding by interweaving the electronic channel with existing customer channels, producing a 360º customer view.

eProcurement: Using eCommerce solutions to facilitate, integrate and streamline the procurement process, from buyer to supplier and back.

eInfrastructure: Designing industrial strength eCommerce architectures as a platform for mission critical business solutions.

Electronic Supply Chain: Using the power of the Internet to develop, build and implement solutions that enable companies to collaborate and synchronize operations with their supply chain partners.

eHuman Resources: Delivering employee information and services virtually to the desktop or kiosk, organized around work and life events.

Electronic Enterprise Business Solutions: Using E-Commerce capability to extend enterprise systems across and beyond corporate boundaries; enabling your customers to place their own orders, check order status, administer account administration and perform other service transactions to reduce costs, optimize revenue potential and enable new business strategies.

Case Study

Kadin

The Indonesia Chamber of Commerce (Kadin) planned to provide on-line networking capabilities to all its members. Andersen Consulting worked to evaluate the preferred approach in catering for all sizes, types, and nature of members. The study involved several alternatives, including PC-based Kadin member workstations, Network Computer (NC), and Net-PC. An evaluation and planning of Kadin's online capabilities was completed to achieve the "quick-win and buy-in" rewards for members.

Providing a low cost online networking capability was a key factor in the success of Kadin-Net. After several iterative evaluation processes, it was agreed that the NC and Net-PC workstation solutions were not feasible as startup options. On-line services were directed to cater for similar Kadin members, for example, Real Estate services, Oil & Gas industry services, etc.

Based on Andersen Consulting's business plans and feasibility analysis, Kadin applied the study to its current on-line service, in providing information on business contact opportunities and linking its members' web-sites.

Arthur Andersen

Contact Information

Jakarta
Stefanus Aryawan
Email: stefanus.aryawan@id.arthurandersen.com
Telephone: (62-21) 575 7733
Fax: (62-21) 573 5252

www.arthurandersen.com

Company Background

Arthur Andersen is a multi-disciplinary global professional services organization, with offices in 382 locations in 81 countries. Its more than 70,000 people are united by a single world-wide operating structure and a common culture that fosters innovation, knowledge sharing and quality service. This unique "one-firm" approach qualifies the people of Arthur Andersen to serve clients by bringing together any of more than 40 services in a way that transcends geographic borders and organizational lines.

The Arthur Andersen Business Consulting practice assists leading organizations improve their strategic decision making, business operations and organizational capacity. They provide diverse process improvements, performance enhancement and technology implementation services. Business Consulting services are divided into five main areas, and includes their Information Technology practice.

E-Commerce Services & Activities

Arthur Andersen, due to the firm's multidisciplinary skills, is perfectly positioned to offer clients a full range of services to help them develop strategy, manage risk, design and implement solutions and consider and plan for the financial, tax and regulatory implications of eBusiness.

Business Consulting offers integrated services in four main areas:

- eBusiness strategy consulting services to identify and prioritize opportunities and develop strategies to enable them.

- eBusiness design services to develop the solution architecture involving experiential design, business model design and technical design.

- eBusiness implementation services to build and implement custom solutions and packaged solutions including eTailing, Self Service, and eProcurement.

- ERP systems integration services and process re-engineering services to ensure seamless integration with the current business operations including financial, inventory management, order fulfillment and logistics management.

Computer Risk Management provides services in four areas:

- ^{e}Risk: Services related to helping organizations identify, source and manage risks, including Business Risk Model-level risks, business process and technology-level risks, legal and regulatory risks and fraud risks.

- ^{e}Ready: Services related to ensuring organizations are ready for E-Commerce including focus on overall organization, process and technology readiness, performance, availability and capacity planning, and EC solution integrity and reliability.

- ^{e}Secure: Services related to make the Internet safe for business use, including security strategy, security software selection and implementation, security audits, and privacy policy / privacy risk management services. In this context, their security services encompass both network security and public key cryptography solutions.

- ^{e}Measure: Services related to attest reporting, web site activity analysis and testing of EC solutions.

Arthur Andersen's Electronic Commerce Competency Center is a leading consulting practice in the fast evolving E-Commerce, public key infrastructure and certificate authority operations that is being set up around the world.

Total Customer Satisfaction: Arthur Andersen believes that customers are the bloodline of business and must be kept coming back. E-Commerce and Customer Relationship Management are useful and effective means to retain customers and turn them into advocates of a company's services and products. Arthur Andersen believes in satisfying the customer, which they have done so effectively for many years.

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77

Strategic Positioning

Arthur Andersen's key strengths are considered:

1. Providing a one-stop complete service for clients embarking on E-Commerce. By combining the latest technologies with best industry practices, they have the knowledge capabilities to provide multi-disciplinary services ranging from IT system integration and implementation, to tax and legal advisory, business strategy planning, process re-engineering and accounting governance.

2. In-depth expertise in both E-Commerce and ERP implementation, enabling a seamless integration of E-Commerce with the organization's backend financial, inventory management and order fulfillment processes and systems.

3. Experience in implementing E-Commerce with the 'human touch' – which is an integrated E-Commerce and Call Centre solution.

4. Client focus. In a 1998 survey conducted by Emerson Research Company, a group of U.S. multi-national companies ranked Arthur Andersen number one among professional service providers in terms of "overall client satisfaction". Emerson's survey report commented: "AA...dominated the study" and noted that "AA was...the first firm to achieve a 5-star rating in overall satisfaction since the inception of our research in 1993." Arthur Andersen was the sole leader or tied for first in each of the nine categories of client satisfaction surveyed by the Emerson Research Company. These results reflect their unmatched ability to service clients globally.

PT Asaba Computer Centre

Contact Information

PT Asaba Computer Centre
Jl. Ir.H.Juanda 9,
Jakarta 10120

Telephone: (62-21) 384 4577, 351 3575
Fax: (62-21) 380 7385, 381 3004

John Hartono
Marketing Director
Email: john@asaba.co.id

www.asaba.co.id

Company Background

PT. Asaba Computer Centre (Asaba) was founded in 1990 as a System Integrator and a Novell Authorized Education Centre. Today, after nine years of steady growth, Asaba is expected to record revenues of approximately US$15 million in 1999 and is recognized as one of the leading total solution providers in Indonesia. Asaba is particularly well regarded for its internetworking, Internet-intranet and extranet solutions.

For fundamental physical network infrastructure, Asaba works closely with Lucent Technologies, using its *Structured Connectivity Solutions* for cabling, intelligent building systems, and a wide range of wireless solutions for mobile applications and building-to-building connectivity. At the data, network and transport layer, Asaba has forged alliances with world-class networking vendors, such as 3Com and Lucent Technologies to provide the most advanced internetworking devices, such as manageable hubs, routers, and switches for Fast Ethernet, FDDI, Gigabit Ethernet and ATM.

At the network operating system level, Asaba is a well-known local distributor of Novell and a solution provider for Microsoft products. For hardware, Asaba represents NCR, Compaq, Sequent and Acer. Asaba has teamed with Microsoft and Oracle for workgroup and enterprise information management solutions. In the Internet-intranet-extranet and E-Commerce area, Asaba has various solutions from Netscape, Oracle, Microsoft and Novell. Asaba believes that Internet

value added services will become its major business in the coming years.

To integrate these building blocks of solutions, Asaba has invested heavily in a number of professional consultants and specialists at each technology area. Asaba's staffing level has grown at almost 50% per annum and now numbers 120. The company is planning to double its Internet team headcount next year, with most of the additions joining the Internet solution team.

To compliment their professional services, the company also offers certified training programs to its customers. The enhancement of customer IT knowledge is the cornerstone of Asaba's business philosophy and this is highlighted by the training they provide for Oracle, Microsoft, Netscape, Novell and Lucent Technologies. Asaba believes that once a project is undertaken the customer's IS team becomes part of their team, with the goal of providing the best IT infrastructure to the end-users.

E-Commerce Services & Activities

Asaba has aligned its business around Internet, intranet and extranet implementations, as it recognizes the future potential of this technology. Asaba, as the business partner of many leading Internet solution companies, can help organizations in the design, documentation and implementation of Internet, intranet and extranet requirements. One of the key advantages of Asaba is that they offer multiple E-Commerce products and ensure that the right solution, both in terms of price and performance, is supplied to the customer.

Asaba delivers the following Internet, intranet and extranet services;

- design of the Internet gateway and firewall to allow secure Internet access

- provision of the required bandwidth access speed

- provision of internet server sizing and configuration advisory

- Internet protocols advisory

Asaba's E-Commerce team consists of 12 consultants and the services offered are:

- company requirement assessment

- server and connectivity design, with link sizing

- web-site design and content development based on a choice of technologies

- design, development and integration of the application, online transaction and payment facility

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79

- connectivity with existing back office and legacy system applications

- provision of Internet data and statistics, in order for customers to better understand the profiles of their customer base

- Internet security consulting, both for the internal and external system

- provision of EDI (Electronic Data Interchange) consulting and integration services with business partners

The Asaba E-Commerce team works with client staff to analyze the requirement, provide a risk assessment, explain all the options open to them, and the potential effect of those decisions. During these initial consultations the Asaba team will specify the necessary equipment and begin to design the security system. The types of access available to clients include; mail only, web, FTP and Telnet. The one selected will depend on the customer's business profile and the number of expected transactions. Asaba will produce a report on the discussion with the customer to ensure there are no misunderstandings and the objectives are clear.

The Asaba team then develops a detailed project schedule with the client. This planning will include, but is not limited to, connectivity with the legacy system, database and system requirements, allowable user response times, web site development, implementation of various internal interfaces and the required statistics to monitor system activity.

Asaba works on the project by splitting its team into two, with one focusing on the front-end interface and the other on the back-end system. Both teams work closely with users within the customer organization. All applications developed will be based on a standard methodology and will be fully documented for the client at each stage of development.

Targeted Vertical Markets

Asaba's core competencies are found in the following industry sectors:

- Telecommunications

- Finance

- Distribution and Retail

- Manufacturing

Strategic Positioning

Key Differentiators

Asaba's key strengths and differentiators can be summarized as follows;

- Top-class networking and system integration expertise – enabling organizations to maximize their existing IT infrastructure for the project

- Through its broad range of IT services and knowledge, Asaba understands all the IT components involved in E-Commerce development

- A solid Internet team with more than five years experience and a multitude of E-Commerce solutions and services

- Ability to develop a very thin client application and ability to assist companies convert existing client/server applications

- Asaba's credentials and expertise can be recognized by the fact that they provided services to local telecommunication providers embarking on E-Commerce projects

- Methodology built around fully understanding the customer requirement and environment

Case Study

PT. Indosatcom Adimarga, a subsidiary of Indosat, was one of the first companies to offer true business-to-business and business-to-customer E-Commerce services in Indonesia. Asaba teamed up with PT. Indosatcom Adimarga to help develop the necessary E-Commerce infrastructure. Asaba provided consultancy services to PT. Indosatcom Adimarga for hardware configuration, application development and implementation. PT. Indosatcom Adimarga's development of this online infrastructure has reduced the required investment for other companies in Indonesia who wish to put their own business online, as companies using their service do not have to invest in the costly system infrastructure or retain experts to maintain the system.

Asaba was also contracted to assist in Telkom MultiMedia's web-enabled yellow and white pages project. Asaba provided Oracle database expertise and integration and developed the front-end web application used in the project.

PT Astra International

Contact Information

PT Astra International Tbk
Corporate Information Technology
AMDI Buiding, 7th Floor,
Jl. Gaya Motor Raya No.8,
Sunter II, Jakarta 14330

Telephone: (62-21) 652 2555
Fax: (62-21) 652 0057/9

Mr. Abi Jabar
Senior General Manager
Email: jabar@astra.co.id

www.astra.co.id

Company History

PT. Astra International was founded in 1957 and has become Indonesia's largest diversified public corporations, employing around 100,000 people with more than 150 subsidiary companies. Business interests include automotive, financial services, heavy industry, agribusiness, infrastructure and another division which oversees Information Technology.

Company Background

Driven by the need of its subsidiary companies for quality Information Technology consulting and services a corporate IT division was established in 1993. The initial role of the IT division was to ensure standard use of technology across the Group, lead technology planning and apply innovative solutions across the various different business enterprises. As the division expanded its capability and skilled resources it started delivering its services beyond the Astra Group and even beyond Indonesia itself, as projects were also undertaken in Australia and Singapore.

In the longer term, the unit will manage all of the Astra Group's IT departments via one centralized IT department, allowing the subsidiaries to focus on their core business. Also as non-Group business expands it is expected that there will be around 300 professionals in the unit by the year 2002, compared to the present figure of 140.

Astra Graphia Information Technology, has been appointed to provide a marketing and sales channel for Astra International Information Technology.

E-Commerce Services & Activities

The services offered by Astra's 20 dedicated E-Commerce professionals can be categorized into three main areas:

1. **Business-to-Business:**

*   SAP system monitoring via web

*   Sales prospecting system via the web

*   CMall (CyberMall): a Purchasing Net for Astra Group companies, running in the SAP environment to provide an ordering and purchasing system for company needs, such as stationary, car accessories, insurance, etc

*   Homepage design, web content design and web maintenance

*   Interactive Computer Based Training on the web

*   Development of company profile and image services (multimedia)

2. **Business-to-Customer**

*   Electronic Mall

*   Web kiosk development using touch screen technology

*   Internet banking

3. **Business-to-Internal user**

*   Corporate monitoring via the web

*   Intranet development with integration to legacy systems, such as corporate directory, medical claims, personnel administration

*   Helpdesk online services (e.g. customer satisfaction, internal problem management, service agreement monitoring).

Vertical Market Competencies

The key industry strengths and core competencies of Astra International can be summarized as follows:

*   Automotive Distribution

*   Telecommunications

*   Manufacturing

*   Finance

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81

The company has more than 10 years experience in automotive distribution and is one of the key manufacturing partners for Toyota in the region. One of PT Astra's subsidiaries, Pramindo Ikat Nusantara, is a notable Joint Operation company with PT. Telekomunikasi Indonesia. Astra International plans to expand its key services into the financial services industry, as this is also a major focus of the Group.

Key Differentiators

- Cross Industry experience and knowledge benefits its E-Commerce service offerings

- Capability to provide services with full integration to legacy systems (SAP)

- Strong business process management experience and knowledge of best practices

- Excellent human resources and management. Has one of the best people development training centers in the country

- Strong business partnership with SAP, Computer Associates, HP and Compaq

Case Studies

PT Astra Auto 2000

Astra created a dynamic multimedia automotive shopping experience using *Jasmine* from CA. The **Auto 2000 Information Kiosk** application allows the company to showcase its products via the Internet. The system was also integrated with SAP R/3 to deliver critical ERP information to the web-based application. PT Astra's distributors will display the solution in their showrooms where both customers and staff will be able to access multimedia automotive information quickly and effectively. In addition, the information can be accessed by customers at home or in the office via the Internet. *"We wanted the **Auto 2000 Information Kiosk** to be exciting, visual and interactive using a wide variety of ways to attract potential customers"* Abi Jabar, Senior General Manager Corporate IT, Astra International.

Astra Mobil Group (ASMO)

ASMO's **Sales Prospect System** is a typical example of how Internet technology has impacted the way its sales force works today. Because it is web-based, sales personnel can access the system from any location. This enables them to keep close track of all potential customers. The **Sales Prospect System** is so powerful as a sales tool as staff can obtain vital information, such as whether or not a prospective customer has secured financing, while managers can monitor pre-sales activities and determine if sales staff are fulfilling their monthly quotas.

Job Opening Recruitment System

One of the first Internet-based applications to go live at Astra International was its **Job Opening Recruitment System**. Every year, Astra's corporate recruitment team travels widely to seek out talented students studying locally or abroad. *"Putting our recruitment system on the web has saved us billions of Rupiah"*, says Paulus Bambang, VP Human Resources. Today prospective candidates log on to the Astra website and apply for available positions directly. This system has proved a very effective mechanism for all companies within the Group.

Toyota Rent-a-Car (TRAC) On-line Reservation System

*"Today a customer with Internet access anywhere in the world can log on to our **TRAC** system, pick out the car he wants to rent while in Indonesia, and gets his order confirmed immediately"*, said Edy Prawirohardjo, Senior Manager, Corporate IT Division, Astra Intl. *"On arrival the car is ready and waiting for him, doing away with uncertainty and delay"*. The Internet-based On-line Reservation System, built on SAP's R/3 system, acts as the storefront for **TRAC**, open 24x7, reaching out to customers globally.
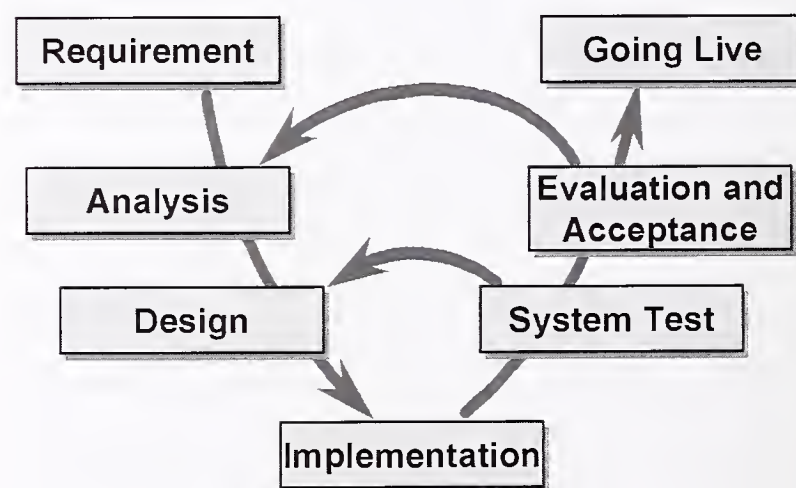
PT Berca Cakra Teknologi

Contact Information

PT Berca Cakra Teknologi
Tomang Raya 40 A
Jakarta 11430

Telephone: (62-21) 568 1760
Fax: (62-21) 569 68754 / 55

Chaterin Wijaya
Service Business Manager
Email: chaterin@berca.co.id

Company Background

In 1996 PT Berca Cakra Teknologi (BCT) was formed to provide system integration and other professional IT services. The objective being to offer a one-stop point for a comprehensive range of total IT solutions, including Internet, intranet application development, messaging, Internet security systems and E-Commerce. BCT has expanded rapidly and now employs 40 IT professionals.

BCT's business partners presently include Hewlett-Packard, Compaq, D-Link, Cisco, Microsoft, Intel and Lotus Development. To further its service offerings BCT is continually looking to expand relationships with IT product vendors, as well as other system integration companies. The provision of professional IT services is becoming an increasingly important part of BCT's operation, both at its existing installed base as well as generating new customers.

BCT service customers range from single users to large corporate and government institutions. As a result services delivered range from standalone systems to installation of sophisticated Wide Area Network (WAN) technology. BCT helps its clients keep pace with technology developments by analyzing the options and providing sound independent advice. BCT can then design and implement the best industry solution that meets all customer requirements, also providing all the necessary IT ingredients.

E-Comerce Services & Activities

BCT offers a total E-Commerce solution based on Microsoft Internet and multimedia technology, including such products as Microsoft Site Server Commerce, Microsoft Internet Information Server and Microsoft Net Show Theater.

BCT consultants work with clients to assist them with all phases of the IT development life-cycle, ensuring effective planning, rapid technology transfer, high quality design and integration with existing IT and business systems. This is achieved by:

- Providing a direct link to Microsoft product development. By working directly with BCT customers establish an ongoing communication with Microsoft. As part of this relationship, BCT supplies up-to-date technology information to customers and, in turn provides valuable customer feedback to Microsoft's product development groups.

- Using the consultants' broad working knowledge of products to best apply new technology to clients' environments.

- Drawing on their consultants command of the latest and most powerful technologies (Microsoft Windows and Windows NT operating systems, graphical user interface, multi-media computing, object orientation and messaging) to provide effective customized solutions.

Organizations obtain the greatest value from working with BCT by making use of the following services:

Systems Architecture and Planning: Helping develop the technical and applications architectures, or frameworks, for distributed computing - including client-server, workflow applications, internet/intranet publishing and applications development - together with comprehensive plans for implementation.

"Proof of Concept": Helping organizations design, build and/or implement their first distributed systems within this architectural framework to "prove the concept" and to enable their staff to build expertise and confidence in the new technology.

Infrastructure Planning, Design and Implementation: Helping mitigate risk in the planning, design and implementation of large infrastructure projects using Microsoft's systems products - Windows and Windows NT networking, Messaging/Mail, Systems Management Server, SNA Server and SQL Server, Microsoft Internet products, etc., - in heterogeneous information technology environments.

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83

The deliverables that are provided by BCT are:

* Microsoft Solutions Framework workshop
* Microsoft Platform Design workshop
* Microsoft commerce design workshop
* Vision/Scope document (covering project vision, business and technical requirements, risk management, key assumptions, etc.)
* Application development (design, coding & testing)
* Technical design document (platform and commerce system)

Process and approach: BCT strongly recommend the project team to use Microsoft Solution Framework (MSF). MSF is an integrated set of technology models to help frame problems and enable organizations to reach effective decisions when planning, building, and managing a distributed technology infrastructure. MSF exposes critical risks, planning assumptions, and key interdependencies required for the successful deployment of technology-based solutions.

Microsoft Solutions Framework can help companies address these issues in a systematic way. Rather than a predetermined methodology, MSF is a flexible, interrelated series of models that guide organizations through assembling the resources, people, and techniques necessary for technology infrastructure and solutions to continue to meet business objectives. It can help organizations maintain a synergy between business and technology objectives.

The recommended MSF standard process model records certain project milestones:

Vision/Scope Approved Milestone; the envisioning phase culminates in the vision/scope-approved milestone. This first milestone is the point at which the project team and the customer agree on the overall direction for the project, including what the product will and will not include.

Project Plan Approved Milestone; the planning phase culminates in the project plan approved milestone. This second milestone is the point at which the project team, the customer, and key project stakeholders agree on what the project will deliver and design a solution.

Scope Complete/First Use Milestone; the developing phase culminates in the scope complete/first use milestone. At this milestone, all features are complete and the product is ready for external testing and stabilization.

Release Milestone; the release milestone occurs once the team addresses all outstanding issues and ships the product or places it in service.

Strategic Positioning

BCT's entire focus is on helping organizations take advantage of client-server, messaging, and Internet technologies, while also leveraging their investment in existing systems. BCT works jointly with its clients, placing major emphasis on skills transfer to empower in-house client staff to meet on-going IT system challenges. BCT's intimate knowledge of Microsoft products, coupled with a unique ability - along with Microsoft employees, to access Microsoft development groups, gives BCT strong insight into the future direction of distributed computing.

BCT has solid expertise in providing Internet total solutions, security, networking, database integration, messaging and application development. BCT is recognized for its ability to design and build effective, robust applications that fully satisfy business requirement and yield business advantage.

Customer References

The customer is the largest entertainment CD producer in Indonesia. Its aim was to take its business global via the Internet while also broadening its local services. However as the Internet was new to them they decided to seek assistance and support from a third party, particular in the technology area. They prefer PT Berca Cakra Teknologi to assume this role and BCT proposed a total E-Commerce solution based on Microsoft Internet and Multimedia technology. The scope of the project was as follows:

* Network infrastructure design and implementation (including connection to Internet)
* Platform infrastructure design and implementation (network operating system, commerce platform, databases, proxy, multimedia service, platform security and other platform related systems)
* E-Commerce system planning, including application design, web site design, inventory strategy, payment and shipping strategy, connectivity to existing line of business applications running on AS/400.
* E-Commerce system development

BCT has built an impressive portfolio of assignments for leading corporations and organizations across a range of industries. Recently BCT has completed E-Commerce security systems at Bank Internasional Indonesia and Amoco Mitsui.

PT Indosatcom Adimarga

Contact Information

PT Indosatcom Adimarga
Indosat Building, 9th Floor,
Jl. Medan Merdeka Barat 21,
Jakarta 10110

Telephone: (62-21) 386 9940
Fax: (62-21) 386 9879

Mr. Asep Suhendi
Marketing Manager
Email: ash@indosat.net.id

www.indosatcom.com

Company History

PT.Indosatcom Adimarga is a subsidiary company of PT Indosat, the International Telecommunications Provider in Indonesia. The company was established on 19 November 1997 with its main business service as a B2B (Business-to-Business) E-Commerce service provider.

Part of PT Indosat's long term strategic plan included the development of value added services to support the company's core business. PT Indosatcom was formed in response to this plan and has the objective of facilitating and servicing business-to-business E-Commerce in Indonesia.

PT Indosatcom presently has 20 employees and this team is expected to expand by 30% this year. The company has seven main business functions; network and system operation, business consultation, sales & marketing, customer service, administration, product development and education / training.

PT Indosatcom's main service offerings include:

- B2B E-Commerce implementation solutions
- System integration and network services
- Intranet / Extranet consulting services, e.g. Interface applications
- E-Commerce application development services

E-Commerce Core Products

Recent developments in information technology have resulted in it being possible to utilize Internet protocol (IP) as a global platform. Adapting to this changing environment, PT Indosatcom conducted a series of research and product development exercises and found it was able to deliver implementation of EDI over the Internet platform to Indonesian businesses.

The core E-Commerce products of PT Indosatcom are **EDImail** and **EDIweb**. On top of these core products other services can be implemented, such as ORDER* net, Online Stock Monitoring and SME* net, to support business transactions especially for supply chain management.

- **EDImail** is a product designed to facilitate batch electronic document interchange between business partners. The type of documents interchanged over the Internet service may include Purchase Orders, Delivery Orders or even Payment. This product is designed specifically for companies that already have their own business document application format. Unlike ordinary e-mail, **EDImail** is protected by a security system to ensure the safety and integrity of the data being transmitted. The security measures include; password and user ID, data encryption system, fire-wall software and a Trading Partner Agreement (TPA), which limits the service usage only to a specified user group.

- **EDIweb** is a product designed similar to **EDImail** with online facility electronic document interchange between two business partners using WEB technology and utilizing Internet transportation. This product is designed specifically for companies that do not have their own business document application format. **EDIweb** provides all document application formats, which can then be customized according to the users' requirements, enabling the user to easily retrieve the document needed, complete it and send it. The security is the same as for **EDImail**.

The uniqueness of these products is in their flexibility. **EDIweb** and **EDImail** enable users to interact using a standard business system. PT Indkomsat can assist in developing and designing the system and business mechanism according to the user's requirements and industry specifics.

In summary, the main benefits of **EDIweb** and **EDImail** are that they offer the customer substantial large enhancement to business efficiency, both in terms of operational costs, such as savings on couriers and long-distance telecommunication

charges, and improving workflow. Improvements to the latter include faster and more integrated inter-departmental processing. Moreover, online document transactions tend to minimize the occurrences of human error.

E-Commerce Value Added Services

SME* net

One of the key features of **SME*** *net* is that it handles the transfer and receipt of documents for local small and medium-sized companies. **SME*** *net* helps these companies by managing inventory, purchasing sales and order processing, etc., -- even for companies that have not fully computerized their systems. **SME*** *net* is particularly suited to retailers and beside the business processes indicated above can provide clients with:

- Inventory Management
- Sales monitoring
- Automatic creation of Purchase Orders (PO)
- Advanced Shipping Notice (ASN) management.

On the supply side **SME*** *net* can be utilized to:

- Monitor Purchase Orders (PO)
- Provide Advanced Shipping Notice (ASN) delivery
- Monitor stock

ORDER* net

ORDER* *net* is an EDI service over Internet to accommodate the document flow of business transaction between a company and its supply chain. It is designed for a company that uses the international EDI standard document as well as other standard formats.

Benefits and opportunities of **ORDER*** *net*

- For supplier / distributor

Global presence, improve competitiveness, customer oriented, simplified supply chain, substantial cost savings, new business opportunities

- For retailer

Global choice, quality of service, personalized products & service, quick response to needs, substantial price reduction, improve new products & service

B2B E-Commerce :
INDOSATCOM Value Added Services
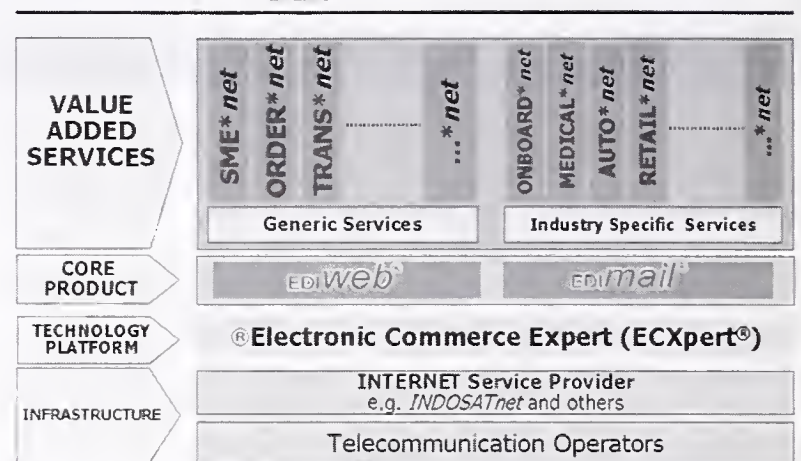
Strategic Positioning

EDI*web* and **EDI***mail* are key differentiators:

- Inexpensive system installation, by using Internet browser
- Low cost network investment, by using Internet browser
- Users do not need to install customer software on their own system or purchase an interface application as the system is installed on PT Indosatcom's server
- Substantial savings on long-distance communications as connection to the system is via a local call
- Tailor-made application format document reflecting clients' exact business process requirements
- Internet platform is user friendly and clients can use a regular PC and software
- High security data transmission system through the use of PIN & User ID, SSL, data encryption and fire-wall software. This is a key advantage over standard Internet Service Provider offerings.

Customer References

- PT Matahari, a major retailer of consumer goods, implemented **EDI***mail*, with the **ORDER*** *net* solution.
- PT Sari Ayu, a significant producer and supplier of cosmetic products, implemented **EDI***web*, with the Online Stock Monitoring System and **ORDER*** *net* solutions.

INDOSATnet

Contact Information
INDOSATnet
Jl. Merdeka Barat 21,
Jakarta 10110

Telephone: (62-21) 386 9474
Fax: (62-21) 352 0520

Ilham L. Poetranto
Manager, INDOSATnet Marketing
Ilp@indosat.net.id

www.indosat.net.id
www.i-2.co.id

Company Background
PT Indosat has implemented a business strategy it terms *"1-plus-3"* with the aim of ensuring its long-term growth potential. This means that as well as focusing on its core business of providing international telecommunication services, the plan calls for the company to invest in developing the domestic communication infrastructure, increasing its role in the regional and global telecommunication markets, and undertaking limited diversification into complementary businesses.

As a result of the latter objective, INDOSATnet, which is wholly owned by PT Indosat, was formed. INDOSATnet launched Internet services in Indonesia in April 1996. In June 1997 INDOSATnet introduced E-Commerce services, under the *Indonesia Interactive* name (www.i-2.co.id).

INDOSATnet now has a staff of 35 IT professionals, 10 of whom are dedicated to providing leading edge E-Commerce services.

Main Activities
INDOSATnet plays three key roles in the Indonesian Internet market:

- **Internet Content Provider:** In co-operation with several organizations and information providers, INDOSATnet has designed and deployed web-sites on its *Indonesia Interactive* server. At this site, merchants can promote and sell their products. *Indonesia Interactive* also provides

information for business, shopping, news, entertainment and travel.

- **Internet Network Provider:** INDOSATnet as a network provider will provide a total network facility solution to any ISP in Indonesia, enabling them to connect to the global Internet. Existing ISPs can also arrange alternative links by using a shared bandwidth, which will offer cost savings as well as boosting connection efficiency.

- **Access Services** – both personal and corporate. Supported by state-of-the-art technology and equipment INDOSATnet provides a full range of global information access services, including; search engines, gophers, electronic mail, Internet relay chat, newsgroups, wide area information services (WAIS), file transfer protocol, telnet / remote login, international roaming services, web paging and multimedia applications.

INDOSATnet also provides total Intranet solutions, including; system design and consultation, infrastructure development, application development, system maintenance and training.

E-Commerce Services & Activities
INDOSATnet has invested heavily in its E-Commerce business and its vision is to become the leading provider of Internet Multimedia products and services.

The company's E-Commerce service offerings include:

- Web-site design and production.

- Online transaction processing: INDOSATnet provides system, server and merchant applications for back-end systems, as well as front-end applications for end-users.

- Online reservation processing for hotels and ticketing

- Facility services: content hosting and server colocation

- Web advertising

Indonesia Interactive
Indonesia Interactive is an ongoing project that was started with the idea of providing a "one stop site" for Internet users. Since the site was launched in June 1997 it has quickly become one of the country's premier web-sites for local content. The main reason why it has become so popular is the fact that it combines a site that has up-to-date current events coverage, with extensive search options, and also a site that supports the ever growing

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87

E-Commerce phenomena. Hence the site provides a meeting place for both merchants and shoppers. One important feature is that the site allows full customization to meet all user specific requirements and needs. The site is constantly evolving and INDOSATnet is continuously expanding the number of merchant partners providing on-line commerce opportunities at the *Indonesia Interactive* web-site.

The company's E-Commerce services are based on the Microsoft Commerce Internet System (MCIS) providing a strong and technologically advanced platform on which INDOSATnet can deliver its services. Payment transactions are supported by Citibank, Bank Bali and Bank International Indonesia, which have adopted Visa card encryption.

Target Vertical Markets

The *Indonesia Interactive* E-Commerce facility is primarily targeted at sellers of consumer goods, office supplies, arts and crafts, and companies involved in the entertainment and travel industry. Large potential is seen also for manufacturers of export-oriented products.

Key Differentiators

- The combination of INDOSATnet - one of the leading ISPs in the country with impressive market share, with *Indonesia Interactive* - one of the leading content providers, is very powerful.

- INDOSATnet is backed by the technical and financial resources of PT Indosat, the Indonesian telecommunications giant.

- Microsoft's Commerce Internet System provides a strong E-Commerce platform

- INDOSATnet's partnership with Bank Bali, Bank International Indonesia and Citibank

- Secure system. INDOSATnet uses 64 bit SSL & SET encryption technology and has security access from the first level up.

- Ambitious future plans including; Video on Demand, Commercial TV on the Internet, Web-enabled tele-medicine and Web-based stock trading.

Reference Customers

Some of *Indonesia Interactive's* merchants include:

- Bookstore (Gramedia Cyberstore)
- Office Supplies (Office 1)
- Computer Software (Precision)
- Music (Disc Tara, Musica Record)
- Souvenirs / Gifts (DAGADU Djokdja)
- Tour & Travel (The Park Lane Hotel, Arus Liar, Astrindo)

"Gramedia Cyberstore opened a new era for Gramedia bookstore. The 'virtual' store has improved customer services and provided a secure and practical means for purchasing our products. This project has also expanded our market, not only domestically, but has established Gramedia as a global player. Within the first few months of opening the Cyberstore orders started to flow in from overseas. This has proven that Gramedia has chosen the right path in the new E-commerce era". ***Andi Sutaryono, Gramedia Cyberstore Manager.***

PT Integrasi

Contact Information

PT Integrasi
Wisma Kyoei Prince, 25th Floor,
Jl. Jend. Sudirman Kav 3,
Jakarta 10220

Telephone: (62-21) 572 4243
Fax: (62-21) 572 4241

Andy S. Hidayat
Managing Director
E-mail: andy@integrasi.com

www.integrasi.com

Company History

Integrasi was founded in 1989 and has been a partner of Microsoft and Lotus since 1995. In 1997 Microsoft asked Integrasi to invest in building competency in Intranet services. Shortly after that Integrasi was appointed as the first Microsoft Intranet Competency Center (MICC) in Asia, which highlights the fact that Integrasi is one of the most strategic partners of Microsoft in the region.

With its increasing focus on E-Commerce Integrasi participated in the Microsoft *TechEd '99* exhibition in Dallas, USA, with the objective of gaining access to the global market, while also continuing to expand its own technical capability. Early this year Integrasi also formed a SAP and Great Plains division, which has resulted in the company doubling the number of employees to around 100 personnel. Expansion into the U.S and Asia/Pacific market is also being actively planned.

E-Commerce Services & Activities

As an MICC, Integrasi is initiating and facilitating the development and advancement of information technology competency in Intranet technology in Indonesia. As a result of accepting this role, Integrasi has gained high demand for its services and as a result has rapidly accumulated experience and skills in E-Commerce application development, which now represents a major asset of the company. Integrasi's commitment to E-Commerce is witnessed by the fact that approximately half of its staff are involved in this emerging business area.

Integrasi's core E-Commerce solutions and services are as follows:

- **SAP / Great Plains E-Commerce implementation**; provides deployment service of Business-to-Business Procurement, Online Store and Employee Self Service

- **Shop.Commerce**; provides consulting, development and deployment of Internet shop-front for medium-sized operations to virtual mega-malls

- **Pharmacy.Commerce**; provides consultation in improving business processes using E-Commerce from design, development, deployment to change management in pharmaceutical distribution

- **ERP.Integration**; provides integration of ERP software with other E-Commerce applications

- **Commerce.Infrastructure**; provides design, development and deployment of E-Commerce infrastructure

In developing Pharmacy.Commerce, for instance, Integrasi invited all parties involved in the supply chain to participate and to share the risk and benefits of the undertaking collectively. This approach helps ensure all the links of the customer's supply chain are fully integrated so that the solution produces accurate and on-time information. Attention is paid to developing and integrating the system with the legacy and ERP systems found throughout the supply chain. The principal or manufacturer can then use this information to improve their production planning and reduce the cost of distribution, while Pharmacies and drug stores can reduce their inventory cost.

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89

Targeted Vertical Markets

Integrasi's main areas of vertical expertise includes;

- Consumer goods
- Retail
- Pharmaceutical

Strategic Positioning

Integrasi's vision is to assist clients in becoming more competitive in their business. Its vision statement of *"Better Understanding for Better Solution"* reflects that the company ensures it properly understands the customer requirement and environment before seeking to develop and implement the best technology and solution for that company. As a process based company, Integrasi continuously works to develop and innovate its own solution methodologies and development processes.

Key Differentiators

- Process methodology; Integrasi's AIM (Advance Integrated Methodology) has been designed to gain an in-depth understanding of the customer's business needs and to find how technology can be leveraged to the maximum economic benefit. On a technical level, Integrasi has developed the Integrated Software Development Process (ISDP). Both methodologies guide Integrasi to build world class applications for their world class customers. Moreover their methodologies and approach are being continually reviewed and refined to ensure innovation and client satisfaction levels are maintained.

- Integrasi consultants have broad and in-depth industry experience. The company recognizes that any solution is only as good as the people who have developed it. Therefore a great deal of emphasis at Integrasi is placed on human resources and recruiting the best people.

- Industry focus is being deliberately kept fairly narrow to ensure that their competency in that sector is unmatched.

- Integrasi is willing to share the risk of the project with clients.

- Solutions focus on total supply chain integration and leverage the very latest technology available.

Case Study

The Multimedia division of the largest telecommunication provider in the country, PT. Telekomunikasi Indonesia, had a vision that they wanted to become a leading Commerce Service Provider. They saw an Internet virtual shopping mall as their entry point to this new market. The company viewed the virtual mall as a place where shop owners and virtual shoppers could come together to do business. Like most visionaries they wanted to see their plan become reality very quickly.

The main challenges of this project were the design of new processes, client requirement to utilize the latest technology, and the short delivery time requested. At the outset the project appeared high-risk, but potentially also offered a high-reward. Integrasi's proven methodology, coupled with their expertise in technology and good teamwork – both internally and with the client –won through. The project was completed successfully ahead of schedule.

The solution deployed utilizes the latest Microsoft and web related technology, such as Site Server Commerce and other state-of-the-art development tools. The application allows the store owner to design their own shop-front decoration, carry out merchandising, as well as offer promotions to customers. It also handles all order processing, payment, and delivery management automatically. Moreover the service company can now provide value-added services to its customer, including billing, new shop opening, traffic analysis, advertising management, amongst other functions. Importantly, the solution accommodates a dynamic business process and is fully scalable when the business model evolves in the future.

PT Kompas Cyber Media

Contact Information

PT Kompas Cyber Media
Gramedia Building II, 5th Floor,
Jl. Palmerah Selatan 22,
Jakarta 10270

Telephone: (62-21) 548 3008
Fax: (62-21) 536 0678

Paramita Wikansari (Mrs)
Business Manager
Email: wikan@kompas.com

www.kompas.com

Company History

Formerly Kompas Cyber Media was known as
Kompas Online, which provided the Internet edition of
the Kompas Daily newspaper. Towards the end of
1997 the management decided that a separate entity
was required to focus solely on Internet related
business, and hence Kompas Cyber Media was
incorporated.

Company Background

Backed by professionals in journalism, Information
Technology, business and advertising, as well as
Internet experts, Kompas Cyber Media became the
first local news site that is professionally managed. In
August 1998, Kompas Cyber Media was re-launched
with completely revised content, design and
advertising strategy. Kompas Cyber Media currently
has a dedicated staff of 15.

The company not only offers advertising opportunities
to local companies, but also can provide services such
as creative design, production, web applications, a
payment facility, Internet consulting and web
maintenance.

Kompas Cyber Media is committed to support and
boost the use of the Internet and E-Commerce in
Indonesia. This objective forms a part of a non-profit
activity undertaken by the company, which often can
be seen supporting seminars and other Internet
related campaigns locally.

E-Commerce Services & Activities

In December 1998, Kompas Cyber Media began
providing opportunities to companies to sell their
products via the Internet. At first payment was
processed 'offline', however since March of this year
Kompas Cyber Media, in co-operation with one of the
local Commerce Service Providers, offers a full
E-Commerce facility. Companies are now able to
develop their own webstore, or join Kompas Cyber
Media's webstore, with credit card payments being
processed online using the Internet.

Kompas Cyber Media has established a "one-stop
service" for developing and managing a website. The
company offers service in the following areas:

- Content development
- Creating advertising copyrights
- Website design & hosting
- Production
- Site positioning
- Facilitating E-Commerce

The company can also provide and facilitate an
organization's technical infrastructure requirements,
such as 'secure' server service, as well as providing
strategic business, media and Internet advisory. A key
objective for Kompas Cyber Media is to ensure it is
delivering a high quality value proposition to its clients
and providing a fully integrated solution, whether that
be wholly Internet related or also combine traditional
media.

Kompas Cyber Media offers clients a tailored or
custom product that can be adjusted to any
requirement and budget. One of the company's key
philosophies is reflected in its responsiveness to
customer suggestions.

Key Differentiators

People

The key factor in Kompas Cyber Media's success is its
people. The company comprises leaders in the fields
of News and Media, Advertising and Marketing,
Business and most recently Electronic Commerce.
The E-Commerce division comprises of a set of
people from talented creative designers to
experienced IT technicians and programmers.

Highly visited site

Kompas Cyber Media's news site provides a high
traffic location to companies wishing to effectively
promote and market their products on the Internet.
Presently, the hit rate on the site is approximately one

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91

and a half million (1.5 million) per day, representing Indonesia's most frequently visited website. Moreover, the website consistently features in the top 30 most frequently visited news sites in the world. Also as an information provider, Kompas Cyber Media attracts a large proportion of highly educated and technologically aware users, who are almost exclusively medium to high income earners.

Kompas Cyber Media not only regards the Internet as a means of information, but also as a powerful communication tool. Recently the company embarked on developing consultation sections of its website, including online advice for business and Information Technology. Already this new service is attracting a high number of responses.

Contribution

The company also frequently offers special packages aimed at encouraging Small & Medium Enterprises to establish E-Commerce as part of their business.

Future Global Expansion

Kompas Cyber Media are presently working with a number of overseas professionals to best prepare the company to enter the global market. Already Kompas Cyber Media have established relations with overseas agencies and partners to extend coverage to their customer base. A virtual office remains their goal.

Case Study

Unique Art! Ltd

Unique Art! Ltd. is a company selling products, both locally and overseas, that have a uniquely Indonesian look and feel. Unique Art! Ltd. had five local stores, located in prime shopping malls, and one overseas gallery. Promotions consisted of placing advertisements in newspapers and participating in local and overseas exhibitions.

With the economic downturn, Unique Art! Ltd. had to re-assess its promotion / exhibition expenses and cost of the overseas gallery, which has proved particularly profitable over the years and represented a major proportion of sales. However doing business overseas was expensive in terms of rental and marketing costs, and these increased sharply when the exchange rate crisis hit. The management were faced with a daunting decision to either close the gallery (and lose important dollar revenue) or continue and accept the significantly higher costs. At the same time its domestic market shrank to 50% of the normal level due to decreased spending power. The management wanted to retain Unique Art! Ltd's presence overseas and in fact put more emphasis on overseas sales, but needed to minimize its costs at the same time.

Solution

Kompas Cyber Media offered a solution to Unique Art! Ltd. – combine a virtual store on Internet with its existing overseas gallery. Kompas Cyber Media also proposed reducing its expenditure on print media advertising and place more budget on virtual advertising at heavily visited web-sites. Since Unique Art! Ltd. did not have the infrastructure or expertise to build a virtual store, Kompas Cyber Media provided a complete service. The working relationship between the two teams was close to ensure success.

The store uses Kompas Cyber Media's dedicated server located in the U.S, which made access fast and easy for overseas buyers. The virtual store is equipped with an e-commerce facility, where visitors can sort, choose and buy by a simple click of the button. Kompas Cyber Media's team also designed a set of Internet promotions for the virtual store that it is now driving. Unique Art! Ltd. evaluated all local web-sites for advertising purposes and selected Kompas Cyber Media's as first choice.

Results

The project was completed on schedule. Kompas Cyber Media provided technical advisory and training to Unique Art! Ltd. enabling smooth skills transfer. The new promotion strategy has proved to be very successful and has extended global coverage. Sales generated from the virtual store are higher than those generated by the five domestic stores combined. As a result, Unique Art! Ltd. decided to close the three lowest performing stores, and allocated the saved cost to enrich the virtual store. Advertising and Internet consulting is now ongoing. The goal of reaching a wide global audience, generating more income but no more cost has been achieved. Also the operation is now more efficient, as all activities (stock, delivery, payment, etc) are under one roof.

Services rendered by Kompas Cyber Media were:

- Infrastructure to build the virtual store
- Virtual store concept
- Design & technical aspects of virtual store website
- E-commerce facility
- Internet promotion strategy and design
- Advertising advisory

PT Metrodata Electronics

Contact Information

PT Metrodata Electronics Tbk
Wisma Metropolitan I, 16th floor
Jl. Jend Sudirman Kav 29-31
Jakarta 12920
PO Box 8316 / JKS-MP, Indonesia

Telephone: (62-21) 252 4555, 570 5998
Fax: (62-21) 252 3654, 570 5988

Tan Arman
Telcom Industry Sales Manager
Email: arman@metrodata.co.id

www.metrodata.co.id

Company Background

PT Metrodata Electronics Tbk was founded in 1983, as a member of the Metrodata Group, which has operated in the Indonesian Information Technology market since 1975.

In 1990, PT Metrodata Electronics undertook an initial public offering and the company's shares are listed on both the Jakarta and Surabaya Stock Exchanges.

PT Metrodata Electronics focuses its activities in the field of electronics, which can be categorized into four sub-industries: Information Technology, Telecommunications, Consumer Electronics and Electronic Components. Each industry segment has three sub-activities consisting of Manufacturing, Distribution and Services.

Presently PT Metrodata Electronics is the distributor of Acer, Compaq, Epson, Seagate and Creative Technology and 3Com products, and has a network of retail branches throughout the country. The company also has a joint venture with DataCraft Asia to provide networking LAN and WAN solutions for the enterprise.

For the corporate market, in early 1990 the company has developed a strategic relationship with Sun Microsystems, forming a separate division. As a Sun distributor for the Indonesian market for the past 8 years, PT Metrodata Electronics is totally committed to implementing Sun's products and infrastructure solutions to the enterprise – from workgroup/LAN solutions to Internet/Intranet and datacenters. The company subscribes to Sun's vision that *"The Network is The Computer"*.

E-Commerce Services & Activities

Despite the continuing economic crisis that has hit Indonesia, Metrodata firmly believes that E-Commerce is providing so many opportunities to local companies. Not only does E-Commerce offer the chance for companies to be successful globally, but it also allows companies to cut their operational costs and give them a competitive edge, both locally and in the region.

Metrodata supplies the customer with an open and universal platform that can be deployed on any device, at any location. Their view is that an organization should not be locked into any specific environment and that they will always strive to provide leading edge technology, like Java and Net Dynamics, to their customers.

The company presently has 15 E-Commerce personnel and that number is expected to grow by around 50% this year, as the market takes off. All E-Commerce solutions are delivered to the customer based on the PT Metrodata Electronics' corporate philosophy of striving for excellence in delivering quality customer service and acting as the best partner to the customer. The company also as part of its philosophy actively participates in the development of the nation.

Metrodata's E-Commerce service offerings include:

E-Commerce Implementation Plan Consultancy

This service helps the customer define the objectives of the E-Commerce project, plan the necessary project phases and the technical architecture, connection and interface to the operational system and explore what benefits will be brought to the customer's business.

Infrastructure E-Commerce Set-up

This service helps the customer to set-up the basic requirements for E-Commerce, such as the Internet and intranet infrastructure - comprising electronic mail server, web server, authentication server, network design, and leased line Internet access. Metrodata also provide sizing, capacity planning and tuning services for the existing environment, with the objective of optimizing system performance.

E-Commerce Security Set-up and Consultancy

Security is one of the most critical issues for E-Commerce implementations. Metrodata helps the customer to ensure that their internal network is secure, both from outside intruders as well as unauthorized internal staff. Metrodata can assess the current security system and provide recommendations

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93

on a security policy for the company. They can also implement transaction encryption, ensuring that E-Commerce transactions are secure.

E-Commerce Application Implementation

Metrodata provide customized applications using Web-based technology like Java and application server Net Dynamics. They are committed to using open technology, like Java, so that the solution can be implemented on any platform, at any location with any devices. The whole application should be web based and installation-free on the client machine, enabling easy maintenance. This application includes the payment and transaction system, electronic shopping, and a product catalogue system.

Targeted Vertical Markets

Metrodata's core vertical market competencies are found in the following industries:

- Oil & Gas
- Telecommunications
- Finance
- Manufacturing

Sun in Indonesia is very strong in the oil & gas industry, with most of the major players in this sector being Sun and Metrodata customers. There are many local examples of exploration and seismic interpretation applications running on the Sun platform. In other industries, especially in the telecommunications sector, Sun is also very well respected for handling mission critical applications, such as billing, customer care, network management, database and datawarehouse solutions.

Metrodata is organized on a vertical market basis and has a dedicated team for each industry. This ensures that the industry and environment is properly understood and the customer is better served as a result. This level of industry specific knowledge is also considered a big advantage when clients come to launch E-Commerce solutions.

Strategic Positioning

Metrodata's key competitive differentiators in the E-Commerce services market are considered the fact that its solutions are based on open standards and that they are 100% web based. Its scalable server platforms have been proven in high volume transaction environments and in mission critical applications. Metrodata's other key strength is its concern for system security and this is highlighted by the fact that its solutions are based on SSL and SKIP standards.

Another strength is found in Metrodata's methodology, which can be summarized as follows;

- Define customer business objectives
- Understand the existing system
- Define and design an implementation plan
- Prototype design
- Test the prototype system
- Incorporate feedback from prototype and refine the implementation plan.
- Modification of the prototype
- Execute the implementation plan

Unlike some of its competitors, Metrodata just focuses its resources on the local market, as it feels it fully understands the culture and business environment. Metrodata aims to position its customers to take full advantage of the exciting and dynamic emerging E-Commerce business trend and face the challenge of the AFTA regional free trade agreement in 2003. Over the next three years the company plans to continue to invest heavily in highly skilled management and E-Commerce professionals to bolster its resource strength. The company will also strive to forge strategic alliances with world class IT solution providers.

Reference Customers

Metrodata's E-Commerce team start an engagement by discussing and defining with the customer what their business objectives are for their E-Commerce venture. After these goals and other customer requirements are made clear, Metrodata will create implementation phases for the customer's project. These implementation phases include network design, security implementation, configuration sizing of the server components and application design. After the plan is agreed by all parties, Metrodata will begin executing the project phases, working in close association with customer staff.

Metrodata recently provided security and server implementation services to two Indonesian telecommunications companies – PT Indosatcom and PT Telkom Multimedia. In both projects, Metrodata provided firewall and encryption security measures and implemented both the web and database server.

PT Mitra Integrasi Komputindo

Contact Information

PT Mitra Integrasi Komputindo
Kedoya Elok Plaza, Blok DD No. 63,
Jl. Panjang No. 7&9,
Jakarta 11520

Telephone: (62-21) 580 6263, 523 8021
Fax: (62-21) 580 6261

Mr. Effendy Sadikin
President Director
Email: mkfend@id.ibm.com

www.mik.co.id

MIK & E-Business

E-Business is not limited to buying or selling products and services over the Internet, which is termed E-Commerce. E-Business is about transforming current key business processes, involving customers, business partners, and employees, by taking advantage of the ubiquity and growth of the Internet. Hence, MIK will assist companies in implementing E-Business by its **E-Business Readiness Assessment Program**, and **E-Business Enablement Program**.

E-Business will make it possible for organizations to achieve the following fundamental breakthroughs to key business components:

Internally:

- Employees; enable collaboration and share best business practices among employees throughout the organization to improve innovation and responsiveness.

- Operation; streamline internal key business processes among departments to increase efficiency and reduce costs.

Externally:

- Customers; provide a new channel for customers, and to maintain and increase customer satisfaction through focused marketing using the Internet, which will help retain the most profitable customers, thus producing a higher profit in return.

- Business partners; connecting an organization and its business partners (i.e. suppliers, distributors) to enable companies to deliver the right product, at the right time, to the right place using the right means.

MIK acknowledges the importance and impact of E-Business to an organization. With its vast Industry and IT knowledge and resources, MIK can guide an organization to engage in a secure, step-by-step process of its E-Business journey.

Company Background

Mitra Integrasi Komputindo (MIK) was originally established in 1992 as a joint venture of USI/IBM (PT. Usaha Sistem Informasi Jaya, the agent for IBM World Trade in Indonesia). MIK's mission is to provide IT consulting and services to IBM clients and create an additional vehicle to deliver focused IT solutions.

Throughout its operations, MIK has been at the forefront of delivering customized solutions for corporations. Over the years MIK's business network and technical expertise has been greatly enhanced through the close working relationship with IBM and Lotus Development. Partnering with such industry leaders has enabled MIK to keep abreast of the very latest business trends and technological advances.

MIK's core services include;

- Application Development

- E-Business Services

- Project Management

- Technical Consulting

- Business Effectiveness Reviews

- System Implementation Consulting

- Education Courses and Training Workshops

- Software Products Customization and Integration

- Year 2000 Services

All of the above can be developed under multiple platforms, including UNIX, OS/400, VM, MVS, Windows NT, and OS/2, amongst others.

MIK currently has a staff of 30 IT professionals, including a team of 6 specializing in E-Business. Despite an unfavorable economic environment the company expects to expand staffing by 20% this year to meet customer requirements.

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95

MIK E-Business Services

MIK E-Business Services are performed with due consideration to an organization's critical components:

1. Business:

E-Business Readiness Assessment Program

MIK has found that the level of E-Business awareness varies widely from one organization to the next. Therefore MIK offers this consulting program which will assist clients in understanding, defining and prioritizing their e-business visions and strategy.

These sessions allow the client to:

- Understand the value of e-business
- Understand how their organization can take advantage of e-business
- Identify and prioritize e-business opportunities
- Develop a customized e-business strategy and business plan

In addition to the E-Business Readiness Assessment Program, MIK will also assist the customer in defining its E-Marketing plan to answer questions such as:

- How to increase website traffic?
- What types of customer promotions are most effective?
- How to keep track of customer satisfaction?
- How to extract and mine customers' information and use it for focused marketing programs designed to increase customer loyalty?

2. Technology:

E-Business Enablement Program

MIK will assist companies in implementing E-Business by addressing the following technical concerns:

- Security; to provide the highest level of security for transactions, customer and business information, to avoid tampering from hackers and cyber criminals.
- Availability; to guarantee easy and fast website access by customers through dependable network connectivity, as well as by highly effective and secure system management.
- Investment Protection; to ensure that as a business grows, their solution will be able to adapt to the growth and thus avoid costly re-builds and further investment.
- Leverage of Core System / Application; MIK develop their solution without requiring major changes to the current system / application. Instead MIK will leverage the current system / application by utilizing or extending it through connectivity with the new applications.
- Development Process; MIK's solution will be based on industry standards that will allow rapid deployment and easy connection to the external components of the business (i.e. customers and business partners). In addition, supporting these open standards will enable an organization's IT staff to easily acquire the necessary skills to customize and maintain the application in the future.

Strategic Positioning

MIK's core vertical market competencies include Banking, Manufacturing, Retail and Distribution. MIK has successfully implemented e-business solutions across many industries over the years.

In the Banking sector, MIK is now in the second phase of implementing an end-to-end Internet banking solution for one of the major Indonesian banks, including the payment mechanism, which is an integral part of the E-Commerce process. This Internet Banking service will enable on-line merchants to allow their customers to perform on-line payments through direct debit from their accounts at this bank.

Key Differentiators

It is considered that the four main strengths that distinguish MIK in the Indonesian market are:

- Business focus
- Cross-industry experience
- End-to-end business offerings
- Extensive range of technical resources and skills
- Comprehensive e-business offerings; including proven experience with IBM's E-Commerce solutions
- Extensive education program
- Post implementation support; including application & product support, frequent updates & upgrades, maintenance and business process analysis
- Extensive pool of technical resources for future enhancements or migration to higher systems

PT Scientek Computindo

Contact Information

PT Scientek Computindo
27th Fl. Menara Batavia,
Jalan KH Mas Mansyur Kav. 126
Jakarta 10220

Telephone: (62-21) 574 7550
Fax: (62-21) 574 7557

Sebastian Ong
Managing Director
Email: bastian@scientek.co.id

www.scientekcorp.com

Company History

PT Scientek Computindo was established in July 1985 and is primarily regarded as supplying advanced data distribution solutions to the enterprise via open systems. The primary value proposition that PT Scientek brings to its customers is the ability to exchange information, enable communication and ability to transact business with speed, efficiency, reliability and security.

E-Commerce Services & Activities

PT Scientek foresees the day when all business transactions will be electronic - from large enterprises to global trading communities and from raw goods through the entire supply chain to the end user's purchase and payments. PT Scientek have been systematically building the infrastructure that will support all computing environments to effect fully automated business-to-business and business-to-consumers commerce. It is this vision that sets the company apart from many other players in the Electronic Commerce field. This year the company expects that about one-quarter of its revenue will be generated through E-Commerce, supporting a staff of 18 dedicated professionals.

In its endeavour to bring world-class products and services to the Indonesian market, PT. Scientek has adopted a policy of entering into strategic partnerships with "Best-of-Breed" global E-Commerce players, such as Sterling Commerce (Gentran: Server-EDI/EC applications) and Pervasive Software (tools).

PT Scientek Support Solutions

- Best global solutions through integrated automated b2b and b2c commerce

- Comprehensive array of related professional services, including business process integration

- Proven set of tools, including web-enabled enterprise data exchange (*CONNECT:Direct* from Sterling Commerce) and zero-admin web-enabled data management (*P.SQL and Tango* from Pervasive Software).

Products

Self-merchandising is an exciting new frontier of interaction that is only possible through a robust application capable of dynamic personalization. **Commerce Suite** allows users to create their own personal catalogues of merchandise and allows their customers to find information regarding a broad range of products and services. This flexibility is combined with powerful and secure E-Commerce capabilities.

- **Key features of Commerce Suite**

1. Storefront Creation Tools. PT Sceintek provides various tools to enable the set-up and maintenance of electronic storefronts. Controlling access to the store, setting up quotas and incorporating additional modules is simple. Moreover multiple predefined templates can be designed and integrated with the system to provide a framework for a new store. A store can be 'de-activated' and 're-activated' to provide an on-line demo or try-out.

2. Scalable & Open Architecture

3. Integrated Secured Transaction Processing. PT Scientek supports integrated secure payment transactions and processing via ICVerify/CyberCash, CheckFree and First Virtual. They also provide additional support for secure payment transactions and processing using Open Market's OM-SecureLink.

4. Database Management & Connectivity

5. Security Access & Control

- **Key features of Merchant**

1. Back Office Order Processing. Orders can be downloaded and analyzed down to an individual product's sales performance. Merchant can invoice customers, run numerous reports and export data into standard business management applications.

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97

2. Highly Customizable

3. Advanced Reporting & Monitoring

4. Order Notifications

5. Remote Management

6. Universal Mailbox. Merchant is equipped with a single universal mailbox, which can be accessed via a web interface or any standard e-mail access protocol. Universal Mailbox can store and recognize many different data formats, including HTML-rich data. It is an EDI-aware mailbox supporting various industry standards. Moreover it is capable of sending X.12 EDI 850 Purchase Orders, allowing integration to advanced accounting systems.

- **Key features of Shoppers**

1. Hierarchical Automated Catalog. Once customers arrive at their product of choice, relevant information, which resides in the merchant's database is elegantly displayed. This information may contain product title, descriptive text, and pricing, as well as unlimited zoomable product photos (to enable the display various angles, close-ups, etc.), selectable product variety options (such as size, width, color) and cross-sell items.

2. Advanced Search Mechanism. Shoppers can search the whole store using any criteria specified, such as name, department or price range.

3. Shopping cart with on-the-fly shipping and tax calculation. The solution also automatically calculates the shipping and tax based on the criteria entered by the merchant.

4. Automated Receipt Notification. It provides shoppers with an immediate on-screen receipt for the order, as well as an automatic smart text formatting of e-mail order form notification.

Targeted Vertical Markets

PT Scientek's core competencies are found in the retail, manufacturing, finance and government sectors.

Strategic Positioning

The key differences of PT Scientek which set it apart from the competition are;

- Comprehensive range of E-Commerce business solutions through partnering with global technology leaders who are committed to building reliable transaction based E-Commerce systems on the web

- Ability to assist customer by connecting multiple technologies and disparate systems

- Excellent account management and responsive technical support

- Proven EDI implementation experience

Commitment to providing innovative solutions for new and emerging markets, such as E-Commerce outsourcing and managed services.

Reference Customers

Customer	Type of Industry	Solution Provided	Project Details
Bank Central Asia	Banking	CONNECT:Direct for MVS, Unix, Tan-Tandem and Netware	Enterprise Data Exchange/EDX implementation as a Standard File Transfer to present reporting to the branches, cross platforms
Matahari Putra Prima	Retail	Gentran – EDI translator and mapping software	EDI implementation. Standard EDIFACT for Purchase Orders, price catalog, invoice exchange with trading partners.
Kaltim Prima Coal	Mining	Gentran - EDI translator and mapping software	EDI Implementation. Purchase Order document exchange using ANSI x.12 format
Metrodata Indonesia, Sidola, Kaledia, Berca	IT Reseller	Gentran - EDI translator and mapping software	Implementation of Compaq's global EDI program; including Inventory Control and Sales Report (EDIFACT).

PT Sisindosat Lintasbuana

Contact Information

PT Sisindosat Lintasbuana
Jl. Panataran No. 2, Pegangsaan,
Jakarta Pusat 10320

Telephone: (62-21) 319 00717
Fax: (62-21) 319 00720

A.M. Suseto
President Director
Email: amsuseto@sisindosat.co.id

Johnny S. Sjam
Director
Email: jssjam@sisindosat.co.id

Henry D. Pakpahan
Business Division Manager
Email: hdpakpahan@sisindosat.co.id

Karnajaya Putra
E-Commerce Business Manager
Email: karna@sisindosat.co.id

http://www.sisindosat.co.id
http://www.ecommerce-indonesia.com

Company History

Sisindosat was established as a subsidiary company of PT Indosat – a leading telecommunications company in Indonesia – in April 1990. The objective of the new company was to strengthen the technological development in telecommunications and informatics to provide total telematics-related solutions to its customers. In these formative years Sisindosat was the sole distributor of Oracle databases and Ungermann-Bass/New Bridge LAN/WAN products, and provided system integration services. In 1995, Sisindosat expanded its business strategy in order to reach its ultimate goal of becoming the leading IT related services company in Indonesia. A new line of business was formed and focused on facilities provision and outsourcing solutions. Since 1998,

Sisindosat has further expanded its service offerings to E-Commerce and related areas by utilizing its strength and experiences in the local IT professional services market.

E-Commerce Services & Activities

Sisindosat formed a separate business unit for its E-Commerce business to ensure that it is focused on continuing to deliver top quality expertise and service to its clients. However this newly formed unit can also rely and draw on the strength of Sisindosat's other more established business functions, which tends to complement the overall service offering and enhance the solution.

The E-Commerce business unit has comprehensive knowledge of business strategy, comprises a skilled team whose experience was gained in other service functions and the technology to ensure it meets all client requirements. Sisindosat has divided its E-Commerce deliverables into two major components: Solution Provision and Facility Provision.

Solution Provision

In this early stage of market development, the company focuses on providing a range of turnkey E-commerce solutions and services, including;

- E-Commerce application design and development
- Networking integration services
- Web design
- Workflow consulting / design, etc

The company has now developed several ready-to-use vertical industry E-Commerce solutions. These applications include a payment point system, online billing and solutions designed for the retail sector. A number of these E-Commerce solutions are currently being implemented in a pilot projects in the country, some of which are very near completion. Therefore in the future this development of industry solutions will enable customers to implement E-Commerce applications more quickly and cheaply.

Sisindosat also established a subsidiary company that provides telephone switching products and services, which further enhances its infrastructure related solutions. Similarly, the company can provide an Electronic Data Interchange (EDI) solution through another sister company. Sisindosat also has a subsidiary in the United States – Global Link, which has also expanded its business beyond telephone related services and has now formed a separate E-Commerce business development function.

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99

Facility Provision

Sisindosat anticipated that there were companies in its customer supply chain (for example; buyers and freight forwarders) who would choose not to invest in a similar facility, be it web space or related infrastructure. Therefore, Sisindosat established *E-Commerce Indonesia* and developed two main offerings to give organizations further options in implementing E-Commerce in their business;

1. partnership with Sisindosat on a mutual transaction basis agreement

2. utilize Sisindosat's own E-Commerce facility based on charges or installments.

Both agreements offer flexibility and simplicity, and have been designed to grow with an organization's business. The types of services provided in the facility include;

- Server space rental

- Use of E-transaction server

- Web hosting

- Application utilization

Targeted Vertical Markets

Sisindosat's core expertise is found in the following vertical markets:

- Oil & Gas

- Government & Banking

- Telecommunications / Infrastructure

- Manufacturing & Agriculture

These vertical functions are in place to provide best of breed, integrated and complete IT solutions. This vertical structure also ensures that services are delivered by industry experts. The client benefits by knowing that they can receive a total solution from a single IT provider, which helps ensure complete satisfaction with the system and easier project co-ordination.

Key Differentiators

- Sisindosat E-Commerce unit is fully supported by a total IT service capability with its established reputation and excellence.

- To further enhance and strengthen Sisindosat's capability and competency, Sisindosat have a number of subsidiaries that complement its services such as:

PT. EDI Indonesia: Electronic Data Interchange Network Provider

PT Sistelindo:IBM Global Network (AT&T) Value Added Network Services (VANS)

PT Intikom Telepersada: Telecommunication Infrastructure Company

USA Global Link: Telephony Services Company

- Drawing on a broad range of competencies from the Indosat Group members, Sisindosat is able to provide a comprehensive range of IT-related solutions and services to its clients. It is able to present itself as a a state-of-the-art solution to market needs.

- Sisindosat's E-commerce Unit brings an understanding and depth of experience in all aspects of IT.

- Provision of both E-Commerce Solutions and Facilities.

- Development of ready-to-use industry focused E-Commerce solutions

- Sisindosat's product partners include Oracle, Microsoft, Alcatel, Cisco Systems, ACT Networks, Sequent, Hewlett-Packard and Siemens.

- Another key strength of Sisindosat is the emphasis it places on education. No matter how sophisticated the technology, equipment or solution, one of the key success factors for any industry is the capability and qualification of the human resources involved in managing it. Sisindosat has those capabilities and qualifications, and shares it with its customers. Over the years, Sisindosat has worked to treat its customers as business partners. Sharing its knowledge and expertise through its Education Center, Sisindosat offers an array of courses that cover a wide range of modules and syllabuses. These courses can be delivered in either a standard format or customized to fit the specific requirements of the customer. This gives the user tremendous flexibility.

PT Telekomunikasi Indonesia

Contact Information

PT Telekomunikasi Indonesia (TELKOM)
Mulitmedia Division
Jl. Kebon Sirih 37, Jakarta 10340

Telephone: (62-21) 316 0500
Fax: (62-21) 316 0300

Commerce-Net
Jl. Minangkabau No.34, Jakarta 12970

Telephone: (62-21) 831 2222
Fax: (62-21) 831 5432

Indra M. Utoyo
GM Marketing,
PT Telekomunikasi Indonesia (TELKOM)
Multimedia Division
Email: iutoyo@telkom.co.id

Wirawan Bastari
GM, Commerce-Net
Email: ec-info@commerce.net.id

www.telkom.net.id
www.commerce.net.id

Company History

In 1991, the Indonesian Government transformed PERUMTEL from a *Perusahaan Umum*, a state-owned company with public service as its principal corporate purpose, into a *Persero*, a state-owned limited liability corporation with a commercial corporate purpose, and renamed it Perusahaan Perseroan (Persero) PT. Telekomunikasi Indonesia, also known as TELKOM.

The Company also organized its business support services to provide information services, training and property management to TELKOM's Regional Divisions.

The Multimedia Division, of TELKOM was established in 1997. The division was formed with the objective of supplementing TELKOM's core telecommunication services by supporting and servicing the emerging Internet Protocol (IP) business, with a key goal of

increasing the awareness and use of E-Commerce. The division now has over 80 employees, including a group of 20 professionals focused on delivering E-Commerce services.

E-Commerce Services & Activities

Telkom Multimedia's vision is to bring the Information Technology era to all Indonesians and make the division a center of excellence within the company. As the new millennium begins TELKOM aims to provide multimedia telecommunication services that are more adaptive, responsive, and meet world-class standards.

Two key service offerings from Telkom Multimedia are Commerce-Net and HomeNet. The former has the directive to contribute in the development of E-Commerce, while the latter has the directive to provide access services to enable Internet shopping, education and entertainment to Indonesian families through the television media.

Commerce-Net

Commerce-Net was founded on the vision that the Internet would fundamentally change the way that business is done. Today this vision is a reality. All sizes of companies with a variety of aspirations are beginning to recognize Internet media as the most cost-effective way of promoting, marketing, distributing and managing products. Internet Commerce has become the new frontier for businesses around the world. Commerce-Net anticipated this trend and aims to serve all sizes and types of company to enable them to cope with this business revolution.

Commerce-Net, is the first CSP that will support a nation wide transactional network. The company has envisaged that the most critical contribution to the development of an E-commerce community is the provision of effective security systems. That is why Commerce-Net has selected a globally proven system and technology to bring to the local market.

Commerce-Net offers complete Internet Commerce services, including;

- Merchant Internet empowerment; including Internet connection and access, web site design, electronic catalogues and a hosting platform

- Platform for web transactions, including payment authorization and membership registration services

- Wide variety of application solutions; including those supplied by Open Market and VeriSign

- Telecommunication infrastructure expertise

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101

- Business consulting for process and workflow

The transaction facilities offered by Commerce-Net utilize some of the most established and technologically advanced applications available in the world. In particular their transaction centric applications feature the following functionality;

- Secure Transaction Processing – contains unique URL, MAC, SSL, etc. and incorporates digital offers, delivery and receipt

- 3-Tiered Architecture (buyer, seller and CSP) with widest connectivity

HomeNet

In the coming year, Telkom Multimedia will launch a new product called **HOme multiMEdia NETwork or HomeNet.** HOMENET™ is a multimedia communication service and it will represent the first nation-wide interactive multimedia service combining broadcast TV technology with Internet technology. One of the constraints to extending Internet use in Indonesia has been the media of delivery, as there is very limited computer ownership in the country. With the HOMENET™ solution there is no need to own or be familiar with computer technology, just simply plug in the HOMENET™ device to the TV (as you would be a VCR). This new solution is expected to greatly increase the on-line penetration rate locally and extend Internet use beyond PC users. The HOMENET™ supports smart card technology, which allows anyone to make secure transaction over the network. In order to improve the security of the system further, the company is planning to incorporate the Virtual Private Network (VPN) into the existing service. This feature will also allow people to go shopping and banking by using their existing credit card. In the future it is envisioned that this enabling smart card will serve a multitude of purposes, perhaps one day serving as a form of identification and storing medical records.

Target Vertical Markets

While Commerce-Net's market focus is cross industry, most of its customers to-date are found in the manufacturing, banking, telecommunication, retail, distribution and trading sectors. Any merchant with catalogue enabled products, be they physical or subscription goods, can develop their own virtual shop in Commerce-Net. Companies providing digital goods, such as software or music, can also offer them for downloading from the web.

Case Study

PT Elangtimur Majujaya

PT Elangtimur Majujaya was founded in 1992 and is a large supplier of stationery and office equipment in Indonesia. The owners of the company were keen to bring innovation to their business and expand their potential market, so decided to develop a virtual store on the Internet.

However the company required some expertise to accomplish their vision and elected to work with Commerce-Net on this initiative. A virtual store called "officeland" was designed and implemented by Commerce-Net in 1998. This year Commerce-Net, at the request of the customer, facilitated an online transaction function. The site can be visited at www.officeland.co.id

Other e-shops have been deployed by Commerce-Net for customers including; **PT Alas Buana Grafindotama** (Mall 2000), **Trikomsel, DRTV Indonesia, Dialmart** and **PT TELKOM** itself (Plasa.com).

Profiles

Detailed Profiles of Electronic Commerce Services Providers in Malaysia

Andersen Consulting

Contact Information

Andersen Consulting Sdn. Bhd.
17th Floor, Menara PJ
AMCORP Trade Centre
18, Persiaran Barat, off Jalan Timur
46050 Petaling Jaya
Selangor D.E.

Telephone: (60-3) 756 5133
Fax: (60-3) 758 2210

Lim Beng Choon
Partner
Email: beng.choon.lim@ac.com

www.ac.com

Company Background

Andersen Consulting is a US$8.3 billion global management and technology consulting organization whose mission is to help its clients create their future. By working with clients to align their business elements -- people, strategy, processes and technologies -- Andersen Consulting helps clients achieve best business performance. Andersen Consulting has approximately 65,000 people in 48 countries.

Andersen Consulting Sdn Bhd is an organization owned and led by Malaysians. The local practice began operations in 1979. Since then, it has grown from a five person division into an acknowledged management and technology industry leader with over 400 Malaysian professionals. Since its inception, it has contributed significantly towards improving the success of local enterprises. Notable clients include Petroliam Nasional Berhad, Proton, Bank of Commerce, Time Telekom, Kuala Lumpur Options and Financial Futures Exchange, RHB Bank, Celcom and MBf.

Andersen Consulting is the first Malaysian management and information technology consultancy to receive the Asian Management Award (in the Operations Management Category) from the Asian Institute of Management. In June 1993, the firm obtained MS ISO9001 accreditation for zero non-conformities in three service lines; and has since managed to maintain this accreditation. In January 1994, it was the first management and information technology consultancy in Malaysia to bag the coveted National Excellence in Quality Practices Award from the local standards body.

Services

Electronic commerce is redefining the global economy, and every business must reassess the how -- and where -- it does business. Andersen Consulting is committed to helping clients understand the impact of E-Commerce, and the transformations they must make to succeed in the new 'eEconomy'. They are helping clients create their future in the new and emerging electronic economy.

Andersen Consulting not only helps clients implement E-Commerce, but provides the expertise and perspective to help them integrate E-Commerce into the very fabric of their enterprise.

They help their clients set new benchmarks for business performance and discover entirely new solutions in product innovation, supply chain velocity, process concurrency, customer intimacy and more.

But electronic commerce is not a commodity or service that can simply be purchased. Therefore, Andersen Consulting does not provide just one E-Commerce offering or staff just one practice unit. Instead, E-Commerce is a point of view embedded throughout their organization, a perspective they bring to every client they help. Today, their community of E-Commerce professionals spans 48 countries -- every industry segment and every geographic region where they do business.

A recent IDC report ranked Andersen Consulting number one among all Internet service providers in 1998, with revenue of US$425 million related to interactive and on-line services.

Andersen Consulting helps its clients change to be more successful. Part of that is helping clients make E-Commerce opportunities real, by integrating their business strategy, technology, business processes and people. This integrated approach is the key to achieving and sustaining a new level of performance, and a more competitive position in a changing marketplace.

As further testament to their commitment to E-Commerce, they have invested significant resources in research and the development of unique resources such as Electronic Commerce Centers of Excellence.

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105

The Electronic Commerce Center of Excellence in Singapore was opened in April, 1997, and functions as a business solutions incubator for companies keen to exploit the potential and capability of electronic networks to connect businesses and consumers in real time. In the Center, executives can conceptualize their business in the future and prototype innovative solutions.
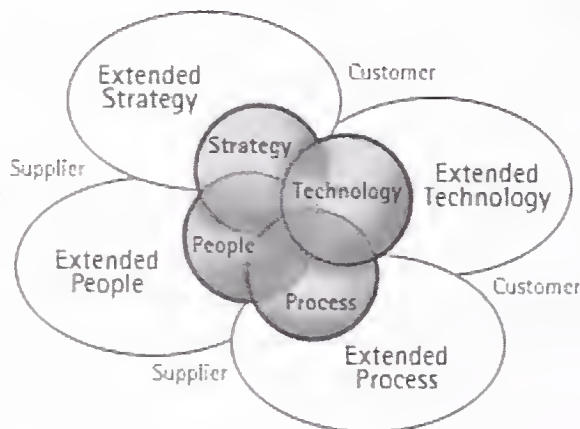
Clients from the region can also take advantage of Andersen Consulting's expert capability, built into every level of the firm to ensure the delivery of comprehensive, integrated solutions. The Center of Excellence brings together Andersen Consulting's depth of experience in people, processes, strategy and technology, and gives business executives a clear vision of the way forward.

The Center offers a whole spectrum of services geared mainly for business executives and company CEOs. Services include workshops on electronic commerce that focus on specific client needs, demonstrate innovative electronic commerce solutions, and help clients define successful implementation strategies. Visitors to the Center also gain hands-on experience to work with and learn from some of the projects developed by Andersen Consulting.

Strategic Positioning

Andersen Consulting offers a depth of expertise and a breadth of capabilities in E-Commerce that businesses need to address the full range of E-Commerce opportunities.

They are also uniquely positioned to help their clients break through barriers to E-Commerce value with their Business Integration Model.

*"eCommerce is not just technology:
it's fundamental business change"*

Through the Business Integration Model, Andersen Consulting offers:

- Deep understanding of the economic implications and opportunity landscape of the eEconomy

- Ability to create a compelling enterprise-wide vision for the future in the eEconomy

- Expertise in the strategic and operational application of technology

- Cross-disciplinary, cross-functional and cross-industry perspective and expertise

- Expertise in aligning people, processes and technology with strategic intent

- Ability to execute a complex, global change program at scale

Andersen Consulting's E-Commerce Solutions

eStrategy: Establishing your business strategy and execution plan in the context of eCommerce and the eEconomy, including defining value propositions, product portfolios, customer segmentations and channel strategies.

Electronic Customer Relationship Management: Maximizing the value of the electronic channel as a means to market, and sell and serve the customer in a personalized, differentiated manner. This creates and exploits exceptional customer understanding by interweaving the electronic channel with existing customer channels, producing a 360° customer view.

eProcurement: Using eCommerce solutions to facilitate, integrate and streamline the procurement process, from buyer to supplier and back.

eInfrastructure: Designing industrial strength eCommerce architectures as a platform for mission critical business solutions.

Electronic Supply Chain: Using the power of the Internet to develop, build and implement solutions that enable companies to collaborate and synchronize operations with their supply chain partners.

eHuman Resources: Delivering employee information and services virtually to the desktop or kiosk, organized around work and life events.

Electronic Enterprise Business Solutions: Using E-Commerce capability to extend enterprise systems across and beyond corporate boundaries; enabling your customers to place their own orders, check order status, administer account administration and perform other service transactions to reduce costs, optimize revenue potential and enable new business strategies.

Arthur Andersen

Contact Information

Malaysia
Mr. Chew Liong Kim
Telephone: (60-3) 255 7045

www.arthurandersen.com

Company Background

Arthur Andersen is a multi-disciplinary global professional services organization, with offices in 382 locations in 81 countries. Its more than 70,000 people are united by a single world-wide operating structure and a common culture that fosters innovation, knowledge sharing and quality service. This unique "one-firm" approach qualifies the people of Arthur Andersen to serve clients by bringing together any of more than 40 services in a way that transcends geographic borders and organizational lines.

The Arthur Andersen Business Consulting practice assists leading organizations to improve their strategic decision making, business operations and organizational capacity. They provide diverse process improvements, performance enhancement and technology implementation services. Business Consulting services are divided into five main areas, and includes their Information Technology practice.

E-Commerce Services & Activities

Arthur Andersen, due to the firm's multidisciplinary skills, is perfectly positioned to offer clients a full range of services to help them develop strategy, manage risk, design and implement solutions and consider and plan for the financial, tax and regulatory implications of eBusiness.

Business Consulting offers integrated services in four main areas:

- eBusiness strategy consulting services to identify and prioritize opportunities and develop strategies to enable them.

- eBusiness design services to develop the solution architecture involving experiential design, business model design and technical design.

- eBusiness implementation services to build and implement custom solutions and packaged solutions including eTailing, Self Service, and eProcurement.

- ERP systems integration services and process re-engineering services to ensure seamless integration with the current business operations including financial, inventory management, order fulfillment and logistics management.

Computer Risk Management provides services in four areas:

- eRisk: Services related to helping organizations identify, source and manage risks, including Business Risk Model-level risks, business process and technology-level risks, legal and regulatory risks and fraud risks.

- eReady: Services related to ensuring organizations are ready for E-Commerce including focus on overall organization, process and technology readiness, performance, availability and capacity planning, and EC solution integrity and reliability.

- eSecure: Services related to make the Internet safe for business use, including security strategy, security software selection and implementation, security audits, and privacy policy / privacy risk management services. In this context, their security services encompass both network security and public key cryptography solutions.

- eMeasure: Services related to attest reporting, web site activity analysis and testing of EC solutions.

Arthur Andersen's Electronic Commerce Competency Center is a leading consulting practice in the fast evolving E-Commerce, public key infrastructure and certificate authority operations that is being set up around the world.

Total Customer Satisfaction: Arthur Andersen believes that customers are the bloodline of business and must be kept coming back. E-Commerce and Customer Relationship Management are useful and effective means to retain customers and turn them into advocates of a company's services and products. Arthur Andersen believes in satisfying the customer, which they have done so effectively for many years.

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107

Strategic Positioning

Arthur Andersen's key strengths are considered:

1. Providing a one-stop complete service for clients embarking on E-Commerce. By combining the latest technologies with best industry practices, they have the knowledge capabilities to provide multi-disciplinary services ranging from IT system integration and implementation, to tax and legal advisory, business strategy planning, process re-engineering and accounting governance.

2. In-depth expertise in both E-Commerce and ERP implementation, enabling a seamless integration of E-Commerce with the organization's backend financial, inventory management and order fulfillment processes and systems.

3. Experience in implementing E-Commerce with the 'human touch' – which is an integrated E-Commerce and Call Centre solution.

4. Client focus. In a 1998 survey conducted by Emerson Research Company, a group of U.S. multi-national companies ranked Arthur Andersen number one among professional service providers in terms of "overall client satisfaction". Emerson's survey report commented: "AA...dominated the study" and noted that "AA was...the first firm to achieve a 5-star rating in overall satisfaction since the inception of our research in 1993." Arthur Andersen was the sole leader or tied for first in each of the nine categories of client satisfaction surveyed by the Emerson Research Company. These results reflect their unmatched ability to service clients globally.

Credentials for E-Commerce

Their recent E-Commerce engagements include:

Malaysia Multimedia Development Corporation

Arthur Andersen is currently engaged by the Multimedia Development Corporation, the developer of the Malaysian Multimedia Super Corridor to provide business and technology consulting services to refine the business plans and projections to establish a national certificate authority as an infrastructure pillar for the developing E-Commerce industry in Malaysia. As part of the consultancy, Arthur Andersen will be developing the technology vision and specifications for the public key infrastructure systems.

Malaysian Business ("MyBiz")

Developed and implemented jointly by Hitechniaga Sdn Bhd, Arthur Andersen, Small and Medium Industries Development Corporation (Smidec), and the Malaysia Ministry of International Trade and Industry, MyBiz is an electronic trading business environment or business system which links multiple buyers and sellers. It caters to broad business-to-business requirements and is built to facilitate ordering by component, request for quotation, tender for project and specification of contract merchandise modules. MyBiz benefits to Malaysian SMIs include low start-up cost, low risk, accessibility to new markets and market intelligence and strategic planning.

Arthur Andersen provided global best practices in the electronic commerce environment as well as expertise in developing and reviewing the MyBiz e-business model.

MyBiz is expected to attract 300 members and 1,000 partners (participants) within the first 12 months of its launch and is projected to be a billion ringgit community once the target is achieved. To date, three months after its launch, there are more than 100 members that have signed on.

KLSE-Bernama Real Time Information Services Sdn Bnd ("KULBER")

KULBER is a Kuala Lumpur Stock Exchange subsidiary jointly owned with Bernama. It is a provider of raw stock data and prices to other publishers and information service providers like Reuters, Bloomberg and Bridge.

Arthur Andersen was engaged to conduct a strategic business planning and electronic commerce strategy formulation with the aim to identify and create new business opportunities for KULBER.

The objective of the project is to chart a strategic direction for KULBER to move ahead as a financial information service provider using the Internet as a medium of delivery. The client value delivered includes a web strategies articulation for KULBER, a marketing strategy, and an overall business direction for KULBER to transform from being a low value financial information provider to a high value financial information provider.

Applied Business Systems

Contact Information

Applied Business Systems Sdn Bhd
13th Floor, Menara SMI
6 Lorong P. Ramlee
50250 Kuala Lumpur

Telephone: (60-3) 238 2288
Fax: (60-3) 238 5496

Mr. W. F. Lee
Chief Operating Officer
Email: wflee@abs.com.my

www.abs.com.my

Company Background

Applied Business Systems Sdn Bhd (ABS) was incorporated in 1989 with the mission of being the preferred UNIX-based Open System supplier. With value-added distribution as its core business, ABS also provides supplementary services in consultancy, training and customer support. To meet the diverse business needs of their clients ABS has formed strategic alliances with many reputable vendors. Today the company employs 55 IT professionals.

ABS started business as a Sun Microsystems distributor, and their focus today is centered on the Sun Workstation, Server and Software products, but with value-added distribution. ABS adds value to their services by providing expertise on third party complementary software products. The other principal products that ABS represents include Check Point Software Technologies, Fuji Xerox, Santa Cruz Operations, Stone Soft, Fulltime Software and NetPartners Internet Solution.

Being a full-line distributor of Sun Microsystems, the company models its business approach and direction to be in line with Sun. It champions the cause of Sun's Dot-Com vision where it is a metaphor for open, standards-based, Internet-style computing.

ABS has the expertise in Java, Solaris, and maintenance and servicing of Sun SPARC-based computers.

Main Activities

ABS is made up of 3 business units, namely Sales & Marketing, Professional Services and Customer Services.

ABS constantly strives to provide consistently superior services to their customers. Their professional service portfolio includes:

- Consulting application development services
- Network security consultancy
- Training and education
- Hardware and support
- System integration services
- Customized maintenance program
- Internet services

E-Commerce Services & Activities

Being a strategic Sun Microsystems partner, ABS works with a variety of Internet software providers to ensure that it is able to offer its clients total E-Commerce solutions. These include:

- **Check Point Software Technologies:**

   Firewall-1 – an industry leading network security solution

   Floodgate-1 – a bandwidth management solution

- **StoneSoft:**

   StoneBeat – a high availability solution for Check Point's Firewall-1

- **NetPartners Internet Solution**

   WebSENSE – Internet screening / filtering systems

- **Santa Cruz Operations**

   Tarantella – application broker for network computing

ABS has also established a team that focuses on the Sun NetDynamics products, both in terms of developing end-to-end E-Commerce solutions and providing pre- and post-implementation support.

Presently, their main E-Commerce focus is on providing the following solutions:

- Internet Broking
- Cyber Insurance
- Internet Document Management Systems
- Internet Banking
- SET-based Payment Gateway

This service focus helps ensure that ABS possesses the very highest level of business process knowledge and provides the most suitable best of breed industry tailored E-Commerce solutions.

Targeted Vertical Markets

ABS, together with their partners, have implemented an array of successful E-Commerce solutions in the Financial Services market. Given the experience and skill sets, the company has expanded its vertical E-Commerce services coverage to the Telecommunications, Energy & Utilities and Government sectors.

Strategic Positioning

ABS' key competitive differentiators in the E-Commerce services market include:

- Strong industry focus: ensuring that they fully understand the business and provide tailored solutions to the customers.
- Solid track record of successful E-Commerce solution implementations. ABS has successfully assisted their customers to migrate from traditional computing environments to Internet-based solutions.
- Sound architecture to support multiple delivery channels. With sound and open platforms, it has enabled the customers to incorporate additional vertical applications without changing its core technology. This way, it allows the customers to quickly adapt its IT solutions to the fast changing needs of the industry.

Strategic partnerships with best of breed E-Commerce solution vendors. ABS believes in partnering with strategic partners to offer complete end-to-end solutions by offering best of breed solutions. With this type of partnership, it helps to extend the broad range of E-Commerce Solutions to the marketplace.

Case Study

Liku Cerah Financial-Link

Financial-Link is an online marketplace for financial services. It brings customers information of and from the financial services industry instantly via the Internet. The system also allows customers access for online transactions.

Financial-Link's mission is to create the premier "one-stop" center where consumers can understand, plan and achieve their financial goals and conduct online transactions directly with participating financial institutions.

Financial-Link functions as an unbiased Internet gateway connecting financial product providers directly, to offer customers the widest selection of services in a secure environment.

Utilizing state-of-the-art technology and capitalizing on the SET (Secure Electronic Transaction) Gateway that was recently launched by MEPS, customers can be assured of a secure environment for electronic transactions.

Camtech Asia IT & T

Contact Information

Camtech Asia IT&T Sdn. Bhd.
Cyberstation 11 B, Putra Infoport,
Universiti Putra Malaysia,
Jalan Puchong,
43400 UPM Serdang,
Selangor

Telephone: (60-3) 916 0183
Fax: (60-3) 916 0182

Mr. Chris Hill
Regional Manager
email: chill@camtech.com.my

www.ecommerce.camtech.com.au

Company History

Established in 1983, originally as part of the infrastructure of a center of excellence - The University of Adelaide, Camtech met and exceeded the challenge of that demanding environment to grow into an independent commercial venture.

Now a mature, stable company with a sound financial base, Camtech is forging a reputation as one of Australia's premier Information Technology and Telecommunications companies. In 1997 the company acquired another leading IT organization in South Australia, Communica Systems. By early 1999 the company had over 100 staff and annual revenue of A$16m.

In 1998, Camtech sold its highly successful ISP business to OzEmail in order to focus on the development and deployment of its Electronic Commerce products and services.

Camtech's technical expertise encompasses many years collective experience supported by a very high level of formal qualifications and commitment to the ongoing training of its technical staff.

The company name Camtech is a contraction of Campus Technologies which reflects both their fundamental commitment to maintaining their position at the leading edge of Information Technology and the company's status as a 100% owned venture company of The University of Adelaide.

Company Background

Their principal business activities focus on the technical areas of Internet technologies, Electronic Commerce, system security, system integration, Internet application development, open systems solutions and sales and support of key best-of-breed products, horizontal solutions, network administration and professional training.

These activities are organized divisionally as follows:

- Consulting and Support Services
- Electronic Commerce Products
- Internet Services
- Training Services
- Computer Systems and Network
- Products

E-Commerce Services & Activities

Camtech is leveraging its 10 years experience in the Internet, the close association with The University of Adelaide Department of Computer Science (a world recognized center of excellence) and its considerable experience with security systems to produce world class Electronic Commerce products early in the market cycle.

Camtech has become a leading developer of niche products to facilitate Electronic Commerce deployment. These products are marketed throughout Australasia and globally by industry leaders in Electronic Commerce.

Camtech Electronic Commerce

The first product to market from Camtech's Electronic Commerce group is Camtech E-Commerce Payment Gateway, a highly secure, real time payment gateway product for processing credit card transactions.

Standards Based

Camtech E-Commerce Payment Gateway has been designed and developed in Australia using international protocols and enciphering technologies.

Camtech E-Commerce Payment Gateway can be simply configured to any localized variant of the ISO 8583 protocol (ISO 8583 is the international banking networks default interbank communication method) and installed in a cost effective and efficient manner.

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111

Real Time Processing

Camtech E-Commerce Payment Gateway has the ability to process credit card transactions in real time. The gateway functions similarly to a standard EFTPOS terminal in a retail store providing all standard transaction types including pre-authorization, credit approval, reversals and reporting as standard features.

Although real time processing is an important differentiator for the Camtech E-Commerce Payment Gateway product, it is also able to process transactions in batch mode and via call centers providing considerable diversity to meet the needs of merchants.

Military Strength Security

Camtech E-Commerce Payment Gateway uses military strength enciphering and digital certificates to provide unparalleled levels of transaction security. Enciphering of transaction information is performed using 1024 bit RSA (symmetric) algorithms for the entire transaction process, from the client web browser through to the payment gateway.

On the physical security side Camtech E-Commerce Payment Gateway uses multiple independent firewalls to ensure that neither the web server nor the gateway are compromised.

Authentication

Camtech E-Commerce Payment Gateway uses digital certificates from a central certificate authority to provide authentication for both merchant and consumer. All merchants are authenticated via a digital certificate prior to any transaction being accepted by the payment gateway. Consumers are validated in a similar way.

Open Systems

Unlike many of its competitors, Camtech has developed the Electronic Commerce product based on open systems platforms. This includes a Java based implementation on an open systems client server architecture.

Case Studies

Greengrocer

Greengrocer.com.au provides households and offices in Sydney, Australia with home delivery of quality fruit and vegetables. The produce is purchased freshly each morning at the Sydney markets by an experienced buyer. The company which began operating in 1997, now has over 3,000 customers on their database.

Greengrocer.com.au approached Camtech in late 1997 to provide a cost effective and secure solution to performing Internet transactions in real-time. Due to Camtech's ability to reach these requirements Greengrocer.com.au has been operating successfully, providing better customer service and increasing profit margins dramatically through greater efficiency.

Orders are received over the Internet using a Microsoft NT SiteServer developed front end, and payment is received via credit card. The credit card details are forwarded onto the appropriate financial institution using the Camtech E-Commerce Merchant Server Solution and The Camtech E-Commerce Payment Gateway. The credit card transactions are processed in real-time and the consumer is notified of either an approved or declined transaction immediately after bank authorization has occurred.

The Commonwealth Bank of Australia

The Commonwealth Bank of Australia (CBA), is Australia's largest merchant bank with over 35% of the merchant market. The CBA in late 1997 embarked on a project to provide its merchants with a highly secured Internet payment solution.

Camtech, as the leading provider of payment solutions to banking institutions in Australia was approached by CBA to develop an interface to the bank for processing Internet transactions in real time.

The CBA's business and marketing requirements of Camtech were for:

- A highly secure Internet payment solution
- On line real time transaction engine
- Fast and reliable transactions processing
- Comprehensive auditing and reporting systems
- ISO 8583 Interface and connectivity to host systems
- CBA branded solution for its merchants

The Camtech solution provides the bank with a completely secure system capable of processing multiple types of transactions. The Camtech E-Commerce Payment Gateway was configured to communicate to the CBA banking network and is capable of not only processing Internet transactions but also future debit card transactions. All Electronic Commerce transactions passed through Camtech's E-Commerce Payment Gateway are processed using 1024 Bit RSA and 56 Bit Triple DES encryption. This high level of security met the CBA business case and enabled CBA to offer a solution direct to its merchants. The solution provides a complete end to end secure payment method that enables CBA to be confident that its merchants are secure from the hazards of Internet commerce. The CBA has a dedicated EC sales unit promoting the solution to its existing and potential merchant base.

Computer Systems Advisers (M) Bhd

Contact Information

Computer Systems Advisers (M) Bhd.
3rd Floor, Wisma CSA,
46200 Section 13/4,
Petaling Jaya,
Selangor D.E.

Telephone: (60-3) 758 7878
Fax: (60-3) 758 1939

Mr. Tan Ah Wah
Senior Manager
Email: awtan@csam.com.my

www.csam.com.my

Company History

Computer Systems Advisers (M) Bhd. (CSAM) first ventured into the arena of electronic business when it was appointed to supply, install and maintain the first nationwide real time data delivery network on behalf of the KLSE to its broker community nationwide. This project called the "Broker Front End" system was commissioned in 1993 and today has more than 5,000 users nationwide. The experience gained from this project includes a keen eye for servicing and maintaining a mission critical system and understanding the sheer effort of maintaining a nationwide system. This experience gives CSAM an advantage over the other organizations in Malaysia that are venturing into the mission critical arena of Electronic Commerce. Today CSAM has a fully web enabled Stock monitoring and trading system called *WebStock,* which is developed in Java. This application enables individuals and companies to monitor and trade online via the web, and is considered to provide the latest technology in online trading systems.

CSAM has approximately 800 employees. The company has also formed CSA MSC Sdn Bhd, a fully owned subsidiary, chartered to develop and market interactive, multi-media web based applications for the regional markets.

E-Commerce Services & Activities

CSAM maintains a pool of skilled and highly-trained resources focusing in E-Commerce services and technology. Thirty out of the 800 employees of CSAM are focused on E-Commerce. CSAM provides a complete range of services which assist their customers in successful implementation of end-to-end E-commerce solutions. The main services offered by CSAM are as follows:

- Design and selection of application
- Solution/application development
- Deployment
- Project management
- Application/system integration

In addition, CSAM also has partnerships with many leading edge E-Commerce solution/tools suppliers, such as Sun Microsystems, Brokat, Broadvision and others.

CSAM is the Malaysian representation of one of their major shareholders, Computer Sciences Corporation (CSC). CSC has a global practice in E-Commerce that covers high level consulting, outsourcing and service delivery.

Targeted Vertical Markets

CSAM's main industry focus and E-Commerce competencies revolve around the following sectors:

1. Banking & Finance
2. Manufacturing
3. Trading
4. Financial services

Internet Banking

1. Applications: CSAM has been developing Banking solutions for the past 15 years and this effort has resulted in a retail banking solution called Relationship Banking System (RBS). In CSAM's drive to add functionality to RBS they have added and integrated more technology based delivery channels to the core software and this includes ATMs, EFTPOS and most recently a web-based home banking system called RBS/IHB.

2. Customized Software Development: A three-level, modular E-services platform, is an application offered by CSAM based on Brokat Technology. This is a platform independent solution and Java is the key component for development. The solution provides multi-delivery channel services

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113

such as Internet, PDA, WebPhone, WebTV, KIOSK and GSM. CSAM also uses Broadvision as a software development tool to develop web-enabled personalized home banking solutions.

3. Internet payment gateways: CSAM offers an E-Commerce payment gateway that possesses a high level of interconnectivity and security by utilizing the latest in encryption technology through the use of OASIS, Java and NetDynamics.

Manufacturing & Trading

CSAM has been providing manufacturing solutions in Malaysia for the past 10 years. They have been involved in the computerization of many of the premier local and multinational manufacturing organizations. Listed below are some of the applications currently represented by CSAM:

1. QAD – a leading global ERP solution provider that offers the entire suite of ERP and supply chain management software. This software is web enabled and allows for the system to be deployed over the web making Internet transactions a reality. This application has special functionality designed for the medical equipment, automotive and consumer goods industries.

2. Broadvision – a leader in personalized E Commerce solutions. The main weakness in most E-Commerce software is that it is static, it never changes and even when changes are made, it is time consuming. Broadvision comes with a built-in functionality that remembers the client's preferences therefore only displaying items of interest to the individual client. It remembers the individuals buying trends, type of organization and preferences making an online shopping experience delightful. This merges time-tested quality customer services with the speed and low cost of an online delivery channel.

Financial Services

With the wealth of experience obtained in developing and maintaining the "Broker Front End" system for the KLSE, CSAM is now offering the next generation in online, web enabled stock monitoring and trading systems in *WebStock*. This software contains a highly intuitive and easy to use client software that can be deployed not only at stock brokers, but also in the home for online stock purchases. Using this technique, client service levels are enhanced using the latest in software technology. The back end to this software which is deployed by the broker includes; a firewall system for security, server based software that manages the transactions and the workflow at the broker and authorization software that manages the

operations and transactions made over the system. All this leads to some key benefits which include heightened customer service, increased transaction capabilities and lower cost of management. CSAM feels strongly that this is the way stocks will be traded in the near future.

Strategic Positioning

The key strengths of CSAM are considered;

*   Strong customer support and service infrastructure (nationwide service offices)

*   Strategic usage of the correct technology and tools

*   A wealth of skill-sets in deploying web enabled and mission critical systems

*   In-depth industry skills, especially in banking, financial services and manufacturing

*   CSAM was the first Malaysian IT company to attain ISO9001 status and with this comes strong software development and implementation methodologies.

Future Directions

*   As part of CSAM's expansion for the banking solution (RBS) they have secured customers in Singapore and intends to increase their geographical coverage to include Vietnam and the Philippines. CSAM believes that as part of the financial restructuring presently taking place in the region, the use of a tested and highly functional banking application is in demand.

*   CSAM also plans to set up an E-Commerce bureau service in partnership with some of the industry leaders to lower the entry cost for Malaysian Small and Medium-sized enterprises for online trading.

CyberTouch

Contact Information

CyberTouch Sdn Bhd
22, Jalan USJ 9/5T, Subang Business Center,
47620 UEP Subang Jaya,
Selangor D.E.

Telephone: (60-3) 724 8028
Fax: (60-3) 724 4618

Mr. Hong Ka-Hin
Vice President, Sales
Email: hongkh@ctouch.com

www.ctouch.com

Company Background

CyberTouch is an Asian-based e-consulting firm specializing in helping clients use the Internet to improve business efficiency, lower operation costs, gain competitive advantage or generate new revenue streams.

The company began its operation in 1996 by distributing Internet software in South East Asia. The exponential growth of the Internet has resulted in the expansion of CyberTouch's services to include e-business consulting and professional services.

CyberTouch's mission is to provide unlimited opportunities for Asian enterprises in the global Net Economy. Its headquarters, located at the fringe of Malaysia's Multimedia Super Corridor (MSC), has over 100 professional staff working full time on helping clients build Net Economy solutions.

CyberTouch's clients include BERNAMA, DHL Worldwide Express, RHB Bank, SabahNet, Samling Strategic Corporation, SarawakNet, SabahNet, Sibexlink, Telekom Malaysia, Tenaga Nasional, Securities Commission of Malaysia and United Daily News.

The company recently expanded its operation by opening an office in Taipei, and will open its Singapore operation by end-1999.

CyberTouch currently partners with information technology leaders such as Broadvision, IBM, Forte, Rational, RealNetworks, Sage, Sun-Netscape Alliance, and Verity to offer its clients the best e-commerce business solutions.

Services

CyberTouch's core services are:

Strategic Planning & Consulting

The company assists enterprises by providing professional counsel in crafting digital strategies, direction, and clarity in the processes required to embark on the Net Economy.

Technology Implementation

CyberTouch analyses and helps clients utilize the best information technologies to build e-business solutions that will meet their needs most effectively.

Creative Services

To help clients reach their target audiences in an effective manner, CyberTouch employs creative techniques to get the clients' objectives across by building interactive, user-friendly web sites.

E-Commerce Services & Activities

CyberTouch's speciality is in e-commerce consulting -- helping its clients build digital business that will help them compete more effectively in the new Net Economy.

Being an Asian-based firm, CyberTouch understands the complexities of doing business in the region and are able to help clients craft e-commerce strategies that takes into consideration local and international factors.

CyberTouch provides services for both types of e-commerce trade:

Business to consumer: CyberTouch helps enterprises generate revenue by building secure, scalable and flexible web sites. These sites are also designed to be visually compelling and interactive. They track consumer purchasing habits, allowing enterprises to use gathered information to sell more effectively. The goal is to help clients manage and build long-term relationships with their customers.

Business to business: CyberTouch helps clients use the Internet to create a value chain of suppliers, intermediaries and customers. This effectively lowers operation costs while enhancing efficiency as processes are automated.

CyberTouch e-commerce services includes:

E-Commerce Strategic Consulting:

CyberTouch's consultants work by firstly assessing the e-commerce needs of its client. They then help the

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115

client develop goals and strategies, as well as recommend the required technologies that will be used to build the client's e-commerce services. The consultants employ a modular, evolutionary approach that provides the client with the choices of where to start, what to implement, how fast, and how to make these decisions.

Professional Services:

Once the business objectives are clearly defined, CyberTouch's professional services assist in handling the design and implementation of the web-based e-commerce solutions. These services include:

- I3Net Infrastructure (INI): INI services help clients build the infrastructure required for the Net Economy. They build the foundation on which clients can conduct their transactions securely and in a scalable manner.

- E-Commerce and Publishing (ECP): The ECP team helps clients build systems to publish information on the web, set-up ISP services, build portals, and conduct commerce on the web.

- Enterprise Application Development (EAD): The company offers a highly professional team that can develop custom built, secure web centric applications, and web enable legacy business systems and/or databases.

- Interactive Multimedia Development (IMD): CyberTouch helps translate a client's image and message into a creative and interactive customer interface on the web.

Education Services:

CyberTouch believes that technology and knowledge transfer is essential in assisting its clients during the implementation lifecycle. The company provides training at its Authorized Training Center with state-of-the-art equipment and certified technical instructors. A combination of classroom training, hands on workshops and, mentoring to transfer specific knowledge, insight, and methodologies are provided to the clients. This allows their clients to develop the skills and knowledge to derive the most out of the technology implemented.

Support Services:

CyberTouch provides multi-level support services to cater from novice to advanced client service demands. Besides offering a special maintenance program to provide on-line or on-site technical support services with unlimited access to the Technical Support Specialist, CyberTouch also offers E-Commerce Application Support Service where they provide services to the implementation and operation of their clients' e-commerce systems.

Strategic Positioning

CyberTouch's key strengths and competitive differentiators in E-Commerce includes:

- Total focus on the Internet -- helping clients use the Web as a strategic business channel and technology force.

- Dedicating the firm's services to helping a client build its e-business or conduct e-commerce.

- Having highly qualified, knowledgeable staff with specific industry and technological expertise.

- Using MIDAS, a unique fixed time, fixed price project management methodology that ensures each project delivers innovation and results required by the client.

Case Studies

Financial Services:

CyberTouch helped one of Malaysia's leading local banks to improve its customer relationships by using Web-based technology when designing its corporate banking application infrastructure.

The web-based application allows the bank's clients to gain access to the bank using any web browser or private leased lines. The bank's clients were enthusiastic because the application was easy to use and easily accessible.

For the bank, deployment and maintenance of the corporate banking application was reduced dramatically. The application infrastructure will also allow the bank to easily expand and scale its services both internally and externally in the future.

Future enhancement of this service will include a new payment mechanism for the bank's clients.

Telekom Malaysia

Contact Information

Telekom Malaysia Berhad
Kelana Park View Tower, (209, 1st Floor),
No. 1 Jalan SS6/2, 47301 Petaling Jaya.
Telephone: (60-3) 707 4471
Fax : (60-3) 704 7540

Mr. Zulkifli Shahari
Head, Smart Card Unit - E-Commerce
Telephone: (60-3) 707 4401
Email: zuljay@tm.net.my

www.tmsmartcard.com.my
www.telekom.com.my

Company History

Telekom Malaysia Berhad (Telekom) is synonymous with the telecommunications industry in Malaysia. Telekom Malaysia is the country's leading telecommunications company.

Telekom provides a full range of services from fixed lines to cellular telephony; delivering voice, broadcast and data to a host of affordable multimedia services and Internet products.

The Multimedia Super Corridor is a world-class act that accelerates Malaysia's entry into the Information Age to actualize Malaysia Prime Minister's vision 2020 with the perfect global Multimedia climate. Telekom is playing an aggressive role in efforts to shape and speed up the growth of Internet-based, broadband communications and e-commerce in this quest. This task is being undertaken by Telekom Multimedia (TMM), which is focused on value-added Internet services, E-Commerce payment services, smart cards, and building E-Communities within the health and education sectors.

E-Commerce Initiatives

One of the E-Commerce initiatives that Telekom is embarking on is in the area of Smart Cards. TMM recognized the need to build and develop a whole new infrastructure to support one of the government's MSC Flagship applications – the National Multipurpose Smart Card. TM Open Smart Card Infrastructure, a ubiquitous network of card acceptance device (CAD), is a secure access payment for service infrastructure.

Telekom's early involvement in smart card, working closely with industry organizations and authorities, clearly positions Telekom as an E-Commerce enabling corporation providing end-to-end solutions and complementing E-Commerce builders. Through the use of its E-Commerce infrastructure, Telekom can provide a cheaper and high quality mechanism and contribute constant inputs to its partners. Telekom is geared towards helping Malaysian companies utilize the power of E-Commerce.

The Birth of Smart Cards

Telekom's smart card unit was established in 1996 and its first prepaid card for public phone services was launched. This platform served as a springboard for Telekom's move into a multi-function smart card business. However, the initial focus was to capitalize on Telekom Malaysia's existing pre-paid Smart Card - Payphone Kadfon which has a card usage base of around 1.5 million per month. The retail project made its debut in mid-1998, followed by the launch of its Visa card early this year.

Smart Cards on Trial

Telekom is still piloting its smart cards in the Klang Valley to monitor market acceptance and usage before it is expanded nationwide under its smart card business initiative. Under the pilot run, a laundry operator Jurumuda equipped over 170 washers and dryers with the CAD (Card Acceptance Device), while a leading petrol station vendor fitted the device at 10 petrol pump terminals. In the recent Commonwealth Games 1998 event, Telekom's smart cards were also accepted by more than 100 vending machines at the Games' Village. In addition, two notable corporations in the food and transportation industries recently partnered with Telekom in this project, reflecting increasing acceptance and confidence in Telekom's smart card initiative.

The success of the pilot run will lead to widespread roll-out and adoption of Telekom's smart card nationwide involving an initial estimate of 500 washers and dryers, over 960 petrol stations nationwide, and over 500 vending machines fitted with CADs. Other services in the pipeline include parking meters, video arcade machines, EFTPOS, restaurants, fast food chains, retail and convenience stores.

It Pays to be Loyal with Telekom

TM Visa Card is a co-branded loyalty card shared between Telekom, Standard Chartered Bank and Visa

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117

International. It is the first of its kind to be introduced in Southeast Asia. Telekom's Visa Card is positioned as a strategic business plan that will build customer base and sales besides retaining and increasing customer loyalty. It will provide a platform for the continuous product bundling (between Telekom and its partners) to encourage and reward customer loyalty.

Cardholders will be able to use the TM Visa Card at more than 15 million merchants and 450,000 ATMs worldwide. Not only is the TM Visa Card a full credit card, it combines the convenience and synergies of using a single card for payment on all Telekom products and services.

Strategic Positioning

Telekom's key E-Commerce objectives:

- build and operate a national smart card infrastructure/network (TM Open Smart Card)

- build TM Open Smart Card Infrastructure to support multiple e-purse schemes like Proton, KadFon and other cards that are commercially viable

- capitalize smart cards as a payment mode for various services at various outlets

- establish a choice of service providers/merchants to provide smart card related services.

One of Telekom's activities in E-Commerce centers on the development of the TM Open Smart Card Infrastructure, which will provide support to the value-added services that will be offered through Telekom's smart card project. It is also being built to be the backbone infrastructure to support the Government's Smart Card initiative. As the national carrier with established private and business phone networks, public phones, mobile phone networks, ISP, merchant connection and cable system, Telekom's network forms the backbone of the electronic transaction infrastructure. By enhancing the infrastructure to accept Smart Card, Telekom is in a strong strategic position to "upgrade" the payment for service function (electronic transaction infrastructure). This can be done by developing ubiquitous Smart Card access points (CAD) through equipment such as unattended terminal (transaction kiosk, vending machine, parking meter, entertainment machine, washer/dryer) and attended terminals (EFTPOS).

Strategic Partnerships

Telekom's current partners in the smart card technology consists of multinational and local corporations in the retail/consumer markets – including petrol, food, beverage, transportation, office automation and cleaning services.

Telekom invites retailers/merchants to partner with it to expand coverage to a cross section of the market to enhance value to its customers - giving them more reasons to use Telekom's smart cards and retailers even more reasons to keep partnering Telekom.

Future Directions

From the first phase of using disposable TM Kadfons, Telekom is in the progress of creating a new generation of re-loadable e-purse smart cards and enhancing the visa cards (expected by the end of 1999). Telekom is also in negotiations with participating banks to enable the bank's e-purse to be re-loaded via the Telekom payphone and Telekom Smart home phone infrastructure – adding greater convenience to users.

This development reflects Telekom's continued support and commitment to the government's MSC project. With a strong network backing and an upward trend of smart card usage, Telekom expects to significantly expand the sale of its smart cards from its 1.5 million monthly currently and come out with new and innovative smart card programs to provide convenience to customers and enhance merchant business opportunities.

Don't be Left Behind …

Service providers accepting Telekom's Smart Card can look forward to lower operating costs (from lower pilferage and handling costs associated with managing coins); better management information and planning and increased customer traffic flow. Participants in the loyalty program will also benefit from cross-marketing or cross-selling activities between Telekom's partners. This will add value to customers and nurture customer loyalty while stimulating increased usage and customers through brand awareness.

Smart cards offer tremendous opportunities to service providers. It is a cost-effective and efficient way of delivering cash-less service through improved work processes, better quality of payment services, security to operators/consumers and better customer satisfaction/convenience.

The smart card will radically ease routine transactions. Furthermore, Telekom's open smart card infrastructure allows cardholders from multiple issuers to use and pay at a common terminal. This reduces duplication and redundancy as well as optimises terminal and network load. So, there is no need to carry a wallet full of cards because Telekom's one card pays it all.

Profiles

Detailed Profiles of Electronic Commerce Services Providers in the Philippines

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119

Andersen Consulting

Contact Information

Andersen Consulting
Makati Stock Exchange Building, Ayala Avenue
1200 Makati City
Philippines

Telephone: (63-2) 841 0111; 849 5306
Fax: (63-2) 849 5008

Judy S. Tan
Associate Partner
E-mail: judy.s.tan@ac.com

www.ac.com

Company Background

Andersen Consulting is a US$8.3 billion global management and technology consulting organization whose mission is to help its clients create their future. By working with clients to align their business elements -- people, strategy, processes and technologies -- Andersen Consulting helps clients achieve best business performance. Andersen Consulting has approximately 65,000 people in 48 countries.

Andersen Consulting's View of E-Commerce

The convergence of computing, communication and content technologies has revolutionized the way in which business is conducted. Powered by compelling customer and business value, an expanding technological infrastructure and a reasonably supportive regulatory environment, electronic commerce is growing exponentially.

In just five years, the Internet has grown from a network of three million predominantly US-based subscribers into a commercial mass medium with more than 100 million users worldwide. Traffic on the internet doubles every 100 days. Commerce conducted via the Internet is widely projected to grow to exceed US$500 billion per annum in the next five years.

The technology convergence has done more than change the way business is conducted, however. It has changed the fundamental economic assumptions on which business is based -- changing the Industrial Economy into an Electronic Economy.

No longer are interaction and collaboration costs high. No longer do physical assets play the central role in value propositions. No longer does size ultimately limit returns. No longer is access to information restricted and expensive. And no longer does it take years and deep pockets to build a business with global presence.

These changes threaten existing organizations and especially today's leaders. Nimble new competitors, launched and based in these new economics, can create faster, better, cheaper value propositions and steal market share, while leaders must undergo wrenching change to transition from the old economic realities to the new.

By all estimates, the E-Commerce market is booming and service providers are rushing daily into the fray. IDC projected in a comprehensive report on E-Commerce ("Worldwide Internet Services Market and Trends Forecast, 1998-2003") that the market for Internet services will grow from US$7.8 billion last year to nearly US$80 billion by 2003, a compound annual growth rate of nearly 60 percent.

The IDC report ranked Andersen Consulting number one among all Internet service firms in 1998, with revenue of US$425 million related to interactive and on-line services. IDC ranked Andersen Consulting ahead of IBM Global Services, PricewaterhouseCoopers, Ernst & Young and EDS, among other Internet service providers.

Worldwide Top 10 Internet Services Firms, 1998
(Source: International Data Corporation, 1999)

Rank	Name	1998 Internet Services Revenue ($M)
1	Andersen Consulting	425
2	IBM Global Services	385
3	PricewaterhouseCoopers	250
4	Ernst & Young	150
5	EDS	150
6	USWeb/CKS	148
7	KPMG	125
8	CSC	115
9	Cap Gemini	90
10	Cambridge Technology Partners	90

Note: Revenue numbers for 1998 are IDC estimates.

Virtual reality.

In the Philippines, "our eCommerce campaign addresses critical issues in the electronic economy," says Jaime G. del Rosario, Country Managing Partner

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121

of Andersen Consulting. "In the past, success depended on how often you reached the right customer on time and on budget. With the development of eCommerce, the business process is now complicated with issues such as security, technical expertise, hardware and software, access to information, and real-time transactions. Succeeding in the electronic economy takes more than just building a web site; it takes a keen understanding of the various issues involved in each aspect of the business."

How does Andersen Consulting Help Clients Succeed at E-Commerce?

Andersen Consulting is uniquely positioned to help clients break through barriers to value.

Its **Business Integration Model** takes on increased relevance and importance to their clients as they transition to the eEconomy because an integrated, multidisciplinary model is required to successfully break through the complexity of change.

Andersen Consulting's challenge is to help clients build the technological capability to become eEnterprises, apply our Business Integration Model to help them embrace and conduct eCommerce, and most importantly, to successfully transition from the industrial economy to the eEconomy. This message differentiates Andersen Consulting in a very positive way from competitors who promise fast, simple, "plug-and-play" E-Commerce solutions.
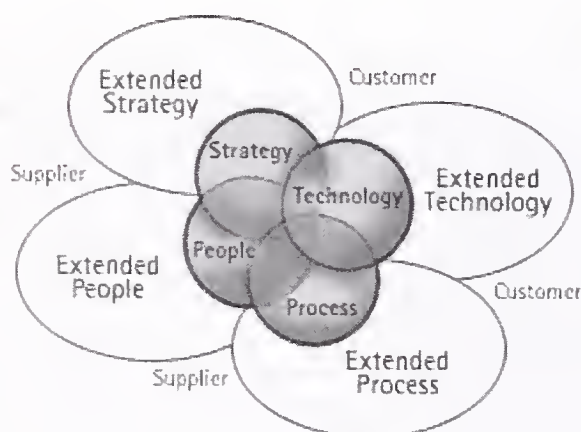
"eCommerce is not just technology: it's fundamental business change"

Andersen Consulting can help clients make the daunting changes required to survive and thrive in the emerging eEconomy.

Andersen Consulting offers:

- Deep understanding of the economic implications and opportunity landscape of the eEconomy

- Ability to create a compelling, enterprise-wide vision for the future in the eEconomy

- Expertise in the strategic and operational application of technology

- Cross-disciplinary, cross-functional and cross-industry perspective and expertise

- Expertise in aligning people, process and technology with strategic intent

- Ability to execute a complex, global change program at scale

Andersen Consulting combines all these capabilities, which gives them an advantage over multiple advisors and integrators who deliver slow and disjointed results.

Andersen Consulting's E-Commerce Solutions

eStrategy: Establishing your business strategy and execution plan in the context of eCommerce and the eEconomy, including defining value propositions, product portfolios, customer segmentations and channel strategies.

Electronic Customer Relationship Management: Maximizing the value of the electronic channel as a means to market, and sell and serve the customer in a personalized, differentiated manner. This creates and exploits exceptional customer understanding by interweaving the electronic channel with existing customer channels, producing a 360º customer view.

eProcurement: Using eCommerce solutions to facilitate, integrate and streamline the procurement process, from buyer to supplier and back.

eInfrastructure: Designing industrial strength eCommerce architectures as a platform for mission critical business solutions.

Electronic Supply Chain: Using the power of the Internet to develop, build and implement solutions that enable companies to collaborate and synchronize operations with their supply chain partners.

eHuman Resources: Delivering employee information and services virtually to the desktop or kiosk, organized around work and life events.

Electronic Enterprise Business Solutions: Using E-Commerce capability to extend enterprise systems across and beyond corporate boundaries; enabling your customers to place their own orders, check order status, administer account administration and perform other service transactions to reduce costs, optimize revenue potential and enable new business strategies.

Arthur Andersen

Contact Information

Philippines

Mildred R. Ramos
Email: mildred.r.ramos@arthurandersen.com
Telephone: (63-2) 894 8157 / 891 0533

www.arthurandersen.com

Company Background

Arthur Andersen is a multi-disciplinary global professional services organization, with offices in 382 locations in 81 countries. Its more than 70,000 people are united by a single world-wide operating structure and a common culture that fosters innovation, knowledge sharing and quality service. This unique "one-firm" approach qualifies the people of Arthur Andersen to serve clients by bringing together any of more than 40 services in a way that transcends geographic borders and organizational lines.

The Arthur Andersen Business Consulting practice assists leading organizations to improve their strategic decision making, business operations and organizational capacity. They provide diverse process improvements, performance enhancement and technology implementation services. Business Consulting services are divided into five main areas, and includes their Information Technology practice.

E-Commerce Services & Activities

Arthur Andersen, due to the firm's multidisciplinary skills, is perfectly positioned to offer clients a full range of services to help them develop strategy, manage risk, design and implement solutions and consider and plan for the financial, tax and regulatory implications of eBusiness.

Business Consulting offers integrated services in four main areas:

- eBusiness strategy consulting services to identify and prioritize opportunities and develop strategies to enable them.

- eBusiness design services to develop the solution architecture involving experiential design, business model design and technical design.

- eBusiness implementation services to build and implement custom solutions and packaged solutions including eTailing, Self Service, and eProcurement.

- ERP systems integration services and process re-engineering services to ensure seamless integration with the current business operations including financial, inventory management, order fulfillment and logistics management.

Computer Risk Management provides services in four areas:

- eRisk: Services related to helping organizations identify, source and manage risks, including Business Risk Model-level risks, business process and technology-level risks, legal and regulatory risks and fraud risks.

- eReady: Services related to ensuring organizations are ready for E-Commerce including focus on overall organization, process and technology readiness, performance, availability and capacity planning, and EC solution integrity and reliability.

- eSecure: Services related to make the Internet safe for business use, including security strategy, security software selection and implementation, security audits, and privacy policy / privacy risk management services. In this context, their security services encompass both network security and public key cryptography solutions.

- eMeasure: Services related to attest reporting, web site activity analysis and testing of EC solutions.

Arthur Andersen's Electronic Commerce Competency Center is a leading consulting practice in the fast evolving E-Commerce, public key infrastructure and certificate authority operations that is being set up around the world.

Total Customer Satisfaction: Arthur Andersen believes that customers are the bloodline of business and must be kept coming back. E-Commerce and Customer Relationship Management are useful and effective means to retain customers and turn them into advocates of a company's services and products. Arthur Andersen believes in satisfying the customer, which they have done so effectively for many years.

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123

Strategic Positioning

Arthur Andersen's key strengths are considered:

1. Providing a one-stop complete service for clients embarking on E-Commerce. By combining the latest technologies with best industry practices, they have the knowledge capabilities to provide multi-disciplinary services ranging from IT system integration and implementation, to tax and legal advisory, business strategy planning, process re-engineering and accounting governance.

2. In-depth expertise in both E-Commerce and ERP implementation, enabling a seamless integration of E-Commerce with the organization's backend financial, inventory management and order fulfillment processes and systems.

3. Experience in implementing E-Commerce with the 'human touch' – which is an integrated E-Commerce and Call Centre solution.

4. Client focus. In a 1998 survey conducted by Emerson Research Company, a group of U.S. multi-national companies ranked Arthur Andersen number one among professional service providers in terms of "overall client satisfaction". Emerson's survey report commented: "AA...dominated the study" and noted that "AA was...the first firm to achieve a 5-star rating in overall satisfaction since the inception of our research in 1993." Arthur Andersen was the sole leader or tied for first in each of the nine categories of client satisfaction surveyed by the Emerson Research Company. These results reflect their unmatched ability to service clients globally.

Corporate Information Solutions, Inc (CIS)

Contact Information

Corporate Information Solutions, Inc. (CIS)
Computer Services Building,
Meralco Center, Ortigas Avenue,
0300 Pasig City

Telephone: (63-2) 633 1321
Fax: (63-2) 633 0292

Ma. Nadia V. Tayag
Director, Philippine Marketing Operations
Email: mnvtayag@cis.com.ph

www.cis.com.ph

Company Background

Established in 1974, Corporate Information Solutions, Inc. (CIS) is generally regarded as the oldest information technology service firm in the Philippines. Manila Electric Company (Meralco) and Benpres Holdings Corporation own the company, with a 51:49 stake respectively. CIS' mission is to improve its clients' competitiveness through the superior use of information. They aim to offer the best possible integrated solutions to clients. CIS is proud of the role it has played in the development of the Philippine IT service industry, including export of services to other countries, an industry now benefiting many Philippine and foreign entrepreneurs.

CIS today provides a wide and complete range of services and products to companies in all areas of business, industry and government. Its main services offered are: IT Consultancy, system integration, application development and maintenance (including offshore work), software package customization and implementation, SAP and LotusNotes implementation, data center services, Bayad Center ™ (Payment Collection Service), education and training. Each project is a long-term partnership with the client, focusing on the use of current and emerging technologies to further the client's business interests.

CIS employs more than 600 professionals, and its people are industry recognized leaders in the application of information technologies to business situations. CIS has also had the opportunity to extend

services to major firms outside the Philippines. Foreign projects include engagements in Indonesia, Malaysia, Singapore, Thailand, Taiwan, and the United States. In 1999 the company is expecting to record Pesos 500 million in total revenue.

Key business partners include Oracle, Software AG, Informix, CSTI - a Netscape distributor, Microsoft, Sun Microsystems, IBM, Hewlett-Packard, Frontec, Radix and Netlife.

E-Commerce Services & Activities

CIS has formed an Internet and E-Commerce Group (IECG) which is presently staffed by 36 consultants. This development group is tasked with handling research, consultancy, applications development and business development activities related to web and Internet applications.

CIS uses various technologies, platforms and architectures for applications development depending on the size, level of service and complexity required of the application. Currently, CIS' expertise is focused on the following major skill areas:

- Web and Internet/Intranet applications development

- Distributed component applications development

- E-Commerce

Some of the specific technologies used include:

- N-tier client-server architectures

- Object Oriented analysis and design (using the Unified Modeling Language or UML)

- Enterprise JavaBeans, Corba, COM/DCOM

- Java, HTML, Javascript, C/C++, Visual Basic, Jdeveloper, Visual J++

- SSL, SET

Development starts with concept development and the presentation of prototypes. Next, a thorough analysis (business requirements) is completed and the application architecture and infrastructure are defined. The actual application development goes through Object Oriented Analysis and Design (OOAD) iterative cycles. CIS employs UML as the standard notation for design documentation. The primary programming language used is Java.

CIS' Internet and E-Commerce offerings are focused on enterprise web and Internet/Intranet applications development. One of the key services is the integration or extension of legacy applications to the web or the desktop. This allows customers to continue to utilise existing business applications and to

integrate these with new applications running on new platforms like the web and Windows environments.

Vertical Market Competencies

CIS' core vertical market strengths are considered:

- Utilities
- Manufacturing
- Banking
- Logistics and distribution

Many years of experience in supporting the business operations of the largest electric utility in the country enabled CIS to gain a thorough understanding of its business processes (for example, in billing, distribution operations, customer management, etc.). In addition, CIS also gained considerable IT project management experience from other utilities such as telecommunications, cable TV and water authorities.

Strategic Positioning

The key strengths and competitive differentiators of CIS are:

1. Its focus on enterprise applications – which allows it to concentrate and specialize on techniques, tools and methodologies fit for enterprise clients.

2. Turnkey systems – CIS offers a complete suite of services from IT consulting to E-Commerce business consultancy, application development, system integration, implementation, operations and facilities management.

3. Service bureau - CIS can also support hosting services for companies who wish to outsource their E-Commerce or Internet based applications.

4. Business solutions – as opposed to offering IT solutions, CIS offers business consultancy in the area of E-Commerce and helps customers formulate their strategies and business cases.

5. Open standards - CIS, being a consulting company, avoids vendor lock-in or being identified with a particular product or platform. A system is proposed based on what is the most suitable and cost effective solution for the customer's business type. Also, CIS adheres to open standards and as much as possible uses only standards-based technologies.

Case Study

Bayad Center Online: A Bills Presentment and Payment System for a local payment collection service business

Objective: "Bayad Center" is the trademark of a local payment collection service. It handles collection of payments (over-the counter) for about a dozen merchants or companies such as utilities, insurance, telecoms, cable providers, ISPs and other businesses who require payment collection. Bayad Center wants to extend this service to the Internet, both to cater to a select segment of customer and to prepare its infrastructure for future modes of payment, in this case Internet payments.

Implementation: CIS began by conducting extensive research and preparing a business plan. Several prototypes were prepared and presented to the prospective users and customers (merchants). The application was designed using object oriented design techniques and the development language chosen was Java. The key modules of the application are the subscriber management, payment processing, bills presentment and administration modules. The application is deployed on Oracle Application Server 4, running on Sun Microsystem servers.

Reasons for choice of vendor: Open standards, ease of administration, availability of local support (technical consultants and marketing expertise).

Innovative Offerings: 1) First site of its kind in the region. 2) Value added services included like, push alerts, service announcements, loyalty programs, etc.

CIS has also delivered E-Commerce consulting and web application development services to ABS-CBN (Philippines) and Kalakbayan Travel Services Inc. The former project involved the development of a directory service application, while the latter involved an online hotel reservation system that is operated nation-wide.

INFOCOM Technologies, Inc.

Contact Information

INFOCOM Technologies, Inc.
14/F., Chatham House Building,
116 Valero corner Herrera Sts.,
Salcedo Village, Makati City

Telephone: (63-2) 887 7555
Fax: (63-2) 887 4991

Odie Cabansay
Consumer Services Head
Email: odie@info.com.ph

www.info.com.ph

Company Background

INFOCOM Technologies Inc., is the one of the leading Internet Service Providers in the Philippines. INFOCOM Internet opened its Internet gateway in July 1995 and now employs 475 people. INFOCOM's multiple links to the United States have given it an edge on the competition and one of the largest bandwidths in the country.

Faced with the rapid emergence of additional Internet Service Providers in 1996, INFOCOM joined hands with the Philippine Long Distance Company (PLDT). Backed by PLDT's extensive fiber optic and digital microwave transmission network, INFOCOM Internet set up a nationwide Internet backbone that connects more businesses, schools, government agencies and NGOs in all corners of the archipelago to the Internet.

In 1997, INFOCOM Internet launched its new network, INFOCOM II, which further boosted their network and gave it the recognition as one of the most preferred ISPs. The INFOCOM II network, riding on a second E1 line, utilizes advanced and state-of-the-art networking technology that translates to improved reliability, scalability and availability.

Apart from providing fast access speed, reliable service and affordable rates, INFOCOM has launched its other value-added services, which include e-mail to pager, web hosting, web page design, 56k unlimited connections and national and international roaming.

To further boost its speed and reliability, INFOCOM Technologies Inc. became a member of the Philippine

Internet Exchange (PHIX) and a member of A-Bone, the Asian Backbone, which is the fastest and widest network covering the entire Asia-Pacific region.

INFOCOM Internet's goal is to provide fast, easy and affordable Internet access for everyone. This mission statement has been a major contributor to INFOCOM Internet becoming one of the largest Internet Service Providers in the country.

INFOCOM's business partners include, IBM, Cisco, Eduquest and Home Cable.

Internet Service Provision

Some differentiators of INFOCOM Internet service include;

- All service packages have two supplementary mailboxes, except for plan 85 which has 20 mailboxes

- All service packages have 2 megabytes of free web page space.

- Prepaid discounts are available for all plans. For six months the service is subject to a 15% discount, while one year equates to a discount of 25%.

INFOCOM also offers an Internet subscription service through a dedicated connection to INFOCOM's system. This service is normally availed by organizations with a local area network, and/or organizations that require a 24-hour connection to the Internet.

Dedicated Dial-Up

INFOCOM also offers dedicated dial-up services. Its **Dedicated CorPlan** is similar to any of the dial-up plans, but offers the client unlimited usage, and connection to a maximum of 6 computers to simultaneously access the Internet. The sign-up fee for this plan is P25,000 and the monthly fee P12,000. INFOCOM also has a service that subsidizes dedicated dial-up for education institutions. Discounts are available for pre-paid accounts.

Premium/Leased-line

Four options are available:

1. **Premium-64K** - a dedicated connection to INFOCOM using leased-line, instead of a telephone line. The minimum connection speed is 64Kbps. One-time fee is P50,000, while the monthly fee is P25,000.

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127

2. **Premium -128K** - similar service to 64Kbps, but with bigger bandwidth and faster connection speed.

3. **Premium -256K** - the fastest connection to the Internet via Leased line.

4. **Edu-64K** - similar to Premium 64k, but the charges are subsidized by INFOCOM as a privilege to education institutions.

Discounts are available for pre-paid accounts.

ISP Plans

The ISP Program entitles the ISP Business Partner to resell Internet connectivity in their area of choice. Minimum bandwidth is 64K and there are no geographical limitations imposed.

Value Added Services

Technical Support Services

- On-site technical services - for Internet connection.

- Technical consultation - for clients with a dedicated dial-up or leased-line connection who would need on-site troubleshooting services.

Network Integration Services

- Router Configuration - P4,800 one-time set-up cost with three weeks warranty

- Internet server configuration - set-up of DNS, SMTP/POP3, HTTP, FTP and NNTP servers

- System administration training - hands-on training for qualified client personnel on Internet server administration and router configuration.

E-Commerce Services & Related Activities

INFOCOM offers the following Internet and E-Commerce related services:

- **Server Co-location**: For clients who would like to save on leased-line costs and have their server co-located at INFOCOM's premises. The cost is P30,000 per month (P25K for ethernet speed; P3K for space; P2K for electricity).

- **System Administration/ Web Server maintenance**: For clients who need system administrators to manage their servers, which maybe located remotely or co-located at

INFOCOM's premises. The cost is P20,000 per month.

- **Web Concept Design**: For companies who need a web presence. Three sets of designs will be produced for the one-time fee of P50,000.

- **Web Page Encoding**: Coding of corporate materials into HTML format. The charge is P2,000 per page

- **Virtual/Web Hosting**: For companies who would want to have their own domain names hosted on another server. There is a P1,500 set-up fee and 20MB is supplied for P1,000. Each additional 5MB is charged at P200.

- **On-line Advertising**: For companies who would like to put box advertisements on INFOCOM's homepage. Three standard formats (banner, portrait and button) are available, with placement either on the main page or section pages.

- **E-mail Hosting**: For clients who wish to avail of e-mail services only.

- **Site Counters**: For companies who would want to tabulate number of hits on their web page or on their hosted site. The charge is P300 per month.

- **Site Maintenance**: Charge for this service is P500 per page.

- **Domain Name Application**: Charge is US$150 for the first year and US$75 for subsequent years.

- **Mailing Lists**: For clients who wish to establish their own interest groups via email.

SKYinternet

Contact Information

SKYinternet, Inc.
Ground Floor, Bayantel EDSA Operations Building,
711 EDSA corner New York Street,
Cubao, Quezon City

Telephone: (63-2) 449 3772
Fax: (63-2) 449 3779

Tim M. Diaz de Rivera
General Manager
Email: tdr@skyinet.net

www.skyinet.net

Company History

On June 1, 1996, SKYinternet, Inc. launched its dial-up Internet service in the Philippines and it quickly became one of the country's fastest growing Internet service providers (ISPs). The company is a 50:50 joint venture between BayanTel, a telephone services company, and Sky Cable, a cable services company.

In late 1996, Sky Vision formed United Network Access, Inc. (UNA), another 50:50 joint venture with affiliate BayanTel. UNA was established to provide wholesale Internet access to SKYinternet and other ISPs in the Philippines on top of a nationwide backbone to be overlaid on existing submarine and terrestrial backbone telecommunications facilities of the Lopez Group.

In line with the Lopez Group's convergence efforts, SKYinternet and UNA shall eventually be merged for greater efficiencies.

Company Background

Today, SKYinternet is one of the Philippines' largest Internet Service Providers with over 20,000 regular dial-up subscribers. SKYinternet offers a wide range of Internet access services through regular dial-up (33.6 Kbps and 56 Kbps), dedicated dial-up and higher-speed Internet access via leased access lines. A 24x7 expert technical support service through a telephone hotline is available to residential and corporate Internet users. SKYinternet currently employs 175 staff and expects that number to grow by 50% in 1999.

SKYinternet maintains an ideal ratio of dial-up access phone lines per subscriber of 1:10. Its dial-up lines are mostly sourced from BayanTel and Globe Telecom GMCR, Inc., while its aggregate 4.5 megabit-per-second international leased line connections to the Internet are sourced from UUNet, MCI Worldcom, KDD and TeleGlobe. Bandwidth is continually being added to this network as the subscriber base grows.

Today, world-class Internet access is already the norm in the Philippines. Filipinos look for an ISP that offers convenient Internet solutions that match their growing demands. This is one of the reasons why SKYinternet established Points of Presence (PoPs) in Baguio, Cebu, Iloilo and Davao. These provincial PoP's now account for around 20% of the subscriber base.

SKYinternet was also the first local ISP to distribute a licensed version of the Netscape Navigator Personal Edition, the popular and user-friendly software used for browsing the Internet.

And this is only the beginning for SKYinternet. Backed by the telecommunications and broadcast infrastructure of Sky Cable and Bayantel, the possibilities are limitless.

- **A member of GRIC's ISP roaming network**

SKYinternet has always been at the forefront of deploying the latest in Internet technology in the country, with user convenience and satisfaction in mind. SKYinternet is the first Philippine ISP to have partnered with GRIC, a consortium of ISP's geared towards true global communications on the Internet. Through its partnership with GRIC, SKYinternet subscribers are able to access their accounts in more than 75 countries around the world, at a fraction of the cost of an international long-distance call. GRIC's ISP network around the world enables it to soon deploy many other IP-based communications services such as Voice Over IP (VoIP) and IP fax.

- **Backbone Network Management**

SKYinternet provides **state-of-the-art** network management services and maximum security for their Internet backbone. The company monitors and controls several E1 international links that connect with the Internet and devices that are directly attached to the backbone router, as well as the data communication lines.

SKYinternet ensures a harmonious and well-orchestrated implementation of the internal backbone network as well as the customer's access network by bringing together all the network components and services under its network management system.

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129

- **Dedicated Access Services**

Internet services for dedicated dial-up and leased line accounts:

- **IP Address Allocation:** Subscribers to the SKYinternet will be assisted in allocation of class C or fractional class C IP address blocks as required by the Internet.

- **Domain Name System (DNS) Services:** SKYinternet will also assist customers to register domain names and when requested, provide domain names under SKYinternet domain.

- **USENET News Feed:** SKYinternet provides news feeds, giving access to thousands of topics from the world's largest electronic bulletin board service.

- **Network Time Protocol (NTP):** SKYinternet operates a mechanism that synchronizes time between servers across the Internet.

- **Network Planning:** SKYinternet's highly-trained engineers and partners are ready to assist customers with connections to the network. They will help determine requirements and design the network, recommend the necessary hardware and software, and implement the design that meets the client's needs.

- **The Future With SKYinternet:** SKYinternet is continuously expanding to bring its services to major cities around the country, offering the same quality services that SKYinternet has become famous for.

- **Shared Dial Up Internet Access**

SKYinternet provides Internet connection in an instant with high-quality, cost-efficient Internet access for single-users. SKYinternet can simply connect a computer to the Internet through a modem via a public switching telephone network (PSTN) enabling users to experience the world of high-speed communication and information. Moreover SKYinternet recently adopted the v.90 standard for 56K. This allows subscribers to access the Internet either using their 56k-x2 or v.90 modem technology for double-speed Internet access while using the 56k service.

Utilizing SKYinternet's Shared Dial-Up Service entitles customers to multiple connections to the Internet backbone; 24x7 technical support; different package options; web space (additional MB can be purchased for an additional charge); chat service; 5 mail boxes (2 mb of mail space per mail box); accessible payment centers; national and international roaming feature, and free Internet browser.

- **Technical Facilities**

SKYinternet's Technical Operations Center is located in Quezon City. Their facilities consist of multiple web and proxy servers, and multiple mail servers running on RISC-based mid-range computers. Their network is connected to international links like MCI, KDD, UUNet, and TeleGlobe. Dial-up subscribers can connect to this system via a modem pool consisting of over a thousand modems connected to several terminal servers (which includes separate terminal servers for the 56Kbps service).

E-Commerce Services & Actitivities

SKYinternet in the near future will be forming a consortium with other Lopez Group companies to provide comprehensive Electronic Commerce services and related business in the Philippines.

Key Differentiators

- Parentage: combined backing of Bayantel and Sky Cable, providing synergistic linkages with the leading data services provider and the leading cable-modem ready CATV operator in the country

- Currently one of the Philippines' largest ISPs

- Maintains the international standard user to line ratio at all its branches nationwide

SKYinternet

Sun Microsystems (Philippines)

Contact Information

Sun Microsystems (Philippines)
P/H Corporate Business Centre,
151 Paseo de Roxas, corner A. Arnaiz Avenue,
Legaspi Village, Makati City (1229)

Telephone: (63-2) 813 6453 to 55
Fax: (63-2) 813 0635

Oliver Chato
Technical Specialist
Email: oliver@pspi.com.ph

www.pspi.com.ph

Company Background:

Sun Microsystems (Philippines), formerly known as Philippine Systems Products Inc., was founded in 1989 and today employs over 185 IT professionals. Sun Microsystems, leveraging on solid and leading edge Sun technology, has positioned itself as a total solutions provider. Along with the reliability and scalability of Sun hardware, Sun Microsystems relies on state-of-the-art software technology from Sun in order to deploy and integrate systems that focus on Internet, Intranet, Extranet, and E-Commerce technologies.

Replicating Sun's business model, Sun Microsystems has achieved tremendous success in promoting open systems technology in the rapidly growing Philippines IT market. The Company has penetrated key industries, namely, manufacturing, telecommunications, financial institutions, government, education, amongst others – by offering enterprise-wide network-based solutions and services.

Recently, Sun Microsystems (Philippines) has increased its capitalization due to additional equity investment by Sun Microsystems, Inc.

E-Commerce Services & Activities

Sun Microsystems offers a modular approach in terms of its E-Commerce services. It builds an E-Commerce infrastructure on top of a solid network foundation, in order to ensure the reliability and scalability of network and computer resources used in implementing E-Commerce. These foundations include the

deployment and implementation of Internet Services Infrastructures as well as Network Security Infrastructures.

On top of this sturdy and reliable foundation, Sun Microsystems implements a wide array of E-Commerce applications through the use of a diverse and modular set of E-Commerce solutions. This wide range of E-Commerce solutions is brought about by Sun's partnering with the leading solutions vendors in the IT market, such as Oracle, Sybase, Netscape, Lotus, Netlife, OpenMarket, and other E-Commerce solutions vendors.

Sun Microsystems offers systems integration of Internet services for private corporations as well as Internet Service Providers (ISPs). Included in this service are strategies and deployment of the following:

- **Messaging:** Sun Microsystems offers flexible and efficient solutions in terms of a unified messaging infrastructure.

- **Proxy and Web Services:** Sun Microsystems provides for efficient Internet Web access as well as Web publishing services. At the same time, they implement reverse proxying architecture that is vital to any E-Commerce setup.

- **Application Servers and Middleware:** Sun Microsystems provides for Web-to-database connectivity as well as web access to different network objects and applications.

- **Network Management:** Sun Microsystems implements network management solutions that enable the efficient management of network resources. They implement Security and Data Protection services to clients who value their mission-critical data. These services encompass, but are not limited to, the following:

  - Perimeter Defense and Compartmentalization – Sun Microsystems deploys enterprise-wide firewalls and gateway solutions that compartmentalize and secure each segment of the network.

  - Encryption and VPN's – Sun Microsystems implements solutions that utilize strong encryption standards to achieve secure private communications over a public network.

  - Public Key Infrastructure – Sun Microsystems provides a way to have secure Web access through the use of Public Keys. At the same time, they also provide a mechanism to manage public key validation, distribution, etc.

- Directory and Certificate Management – Key components in any Public Key Infrastructure, Sun Microsystems deploys certificate and directory services that provide for security of web communications.

- High Availability and Clustering – Sun Microsystems provides high availability and Clustering solutions for enterprises that have mission critical services running. These solutions are implemented to increase uptime and availability.

Sun Microsystems, partnering with leading E-Commerce applications and solutions vendors, provide cutting-edge technology in the field of E-Commerce. Through partnership, Sun Microsystems offers the following services:

- Business-to-Business E-Commerce Strategy and Infrastructure Development

- Business-to-Consumer E-Commerce Strategy and Infrastructure Development

- Cataloguing - Cataloguing solutions for retail and wholesale selling over the web.

- Online Ordering - Order processing / shopping carts for online retail transactions over the web.

- Online Credit Transactions / Payment Systems and Gateways – Credit transfers over the web.

- Bills Presentment - Customized billing and customer care.

- Online Storefront - Development of online storefronts for different purposes such as online virtual malls, E-Commerce web site hosting, etc.

The value proposition of Sun Microsystems in terms of its E-Commerce service lies in the fact that it has the expertise, experience and the resources to deliver E-Commerce solutions. Also importantly, Sun Microsystems strives to fully understand the business requirements that call for E-Commerce solutions.

Sun Microsystems (Philippines) employs the expertise of Sun in the development of E-Commerce solutions that are reliable, robust, and scaleable. At all implementation stages, Sun Microsystems brings fully qualified personnel to the table. At the pre-sales stage, Sun Microsystems brings in top local and foreign consultants to strategize, architect, and manage an E-Commerce solution.

Top systems integration personnel ensure the smooth and efficient deployment of E-Commerce solutions at the implementation phase. Finally, Sun Microsystems boasts a 120+ strong systems engineering team and customer support to provide post-sales maintenance support services. Also, Sun Microsystems has its own

Authorized Sun Training Center in the Philippines to facilitate the proper transfer of technology and skills.

Sun is recognized as having some of the best hardware and software resources to deploy E-Commerce solutions. With the unequaled scalability and reliability of Sun Servers, it's not hard to see why Sun is at the forefront of the Unix workstation and server markets. On top of this rock-solid hardware and operating system foundation, a myriad of state-of-the-art E-Commerce applications have been developed on the Sun platform, such as:

- Online credit transactions

- Bills presentment and payment

- Cataloguing

- Application services / Web-database connectivity.

Moreover other complimentary solutions are available from leading software companies such as; Oracle, Netscape, Lotus, OpenMarket and Intershop.

Key Differentiators

Sun is one of the leaders in the Internet services market, providing E-Commerce solutions across all verticals. Thus as a local Sun presence, Sun Microsystems (Philippines) has to be positioned to provide a wide range of clients with robust E-Commerce solutions. Sun Microsystems achieves this level of market coverage by partnering with best-of-breed solutions and applications vendors, enabling them to offer flexible, highly specialized, and fully customizable solutions and applications to their clients - while being able to rely upon a strong hardware platform and operating system at the foundation of the solution.

Their core vertical competencies are found in the following industry sectors:

- Finance, Banking and Insurance

- Government and Education

- Production and Distribution

- Telecommunications and Utilities

Another key strength of Sun Microsystems is the fact that they have a dedicated group of system integrators and consultants whose sole focus is on E-Commerce and related technologies and solutions.

Putting it simply, Sun Microsystems understand an organization's E-Commerce requirements, and they know how to implement the solution, and they have proven time and again they get the job done to the full satisfaction of their clients.

Profiles

Detailed Profiles of Electronic Commerce Services Providers in Singapore

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133

Andersen Consulting

Contact Information

Andersen Consulting
152 Beach Road
#19-00 Gateway East
Singapore 189721

Telephone: (65) 291 9611
Fax: (65) 291 7177

Willie Cheng
Country Managing Partner
willie.cheng@ac.com

www.ac.com

Company Background

Andersen Consulting is a US$8.3 billion global management and technology consulting organization whose mission is to help its clients create their future. By working with clients to align their business elements -- people, strategy, processes and technologies -- Andersen Consulting helps clients achieve best business performance. Andersen Consulting has approximately 65,000 people in 48 countries.

Andersen Consulting Singapore was established in 1975. Today, it employs about 250 professionals, helping clients in the Products, Resources, Financial Services, Government and Communications & High Tech industries.

Services

Electronic commerce is redefining the global economy, and every business must reassess the how -- and where -- it does business. Andersen Consulting is committed to helping clients understand the impact of E-Commerce, and the transformations they must make to succeed in the new 'eEconomy'. They are helping clients create their future in the new and emerging electronic economy.

Andersen Consulting not only helps clients implement E-Commerce, but provides the expertise and perspective to help them integrate E-Commerce into the very fabric of their enterprise.

Andersen Consulting help their clients set new benchmarks for business performance and discover entirely new solutions in product innovation, supply chain velocity, process concurrency, customer intimacy and more.

But electronic commerce is not a commodity or service that can simply be purchased. Therefore, Andersen Consulting does not provide just one E-Commerce offering or staff just one practice unit. Instead, E-Commerce is a point of view embedded throughout their organization, a perspective they bring to every client they help. Today, their community of E-Commerce professionals spans 48 countries -- every industry segment and every geographic region where they do business.

A recent IDC report ranked Andersen Consulting number one among all Internet service providers in 1998, with revenue of US$425 million related to interactive and on-line services.

Andersen Consulting helps its clients change to be more successful. Part of that is helping clients make E-Commerce opportunities real, by integrating their business strategy, technology, business processes and people. This integrated approach is the key to achieving and sustaining a new level of performance, and a more competitive position in a changing marketplace.

As further testament to their commitment to E-Commerce, Andersen Consulting have invested significant resources in research and the development of unique resources such as Electronic Commerce Centers of Excellence.

The Electronic Commerce Center of Excellence in Singapore was opened in April, 1997, and functions as a business solutions incubator for companies keen to exploit the potential and capability of electronic networks to connect businesses and consumers in real time. In the Center, executives can conceptualize their business in the future and prototype innovative solutions.

The Center of Excellence brings together Andersen Consulting's depth of experience in people, processes, strategy and technology, and gives business executives a clear vision of the way forward.

The Center offers a whole spectrum of services geared mainly for business executives and company CEOs. Services include workshops on electronic commerce that focus on specific client needs, demonstrate innovative electronic commerce solutions, and help clients define successful implementation strategies. Visitors to the Center also gain hands-on experience to work with and learn from some of the projects developed by Andersen Consulting.

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135

Strategic Positioning

Andersen Consulting offers a depth of expertise and a breadth of capabilities in E-Commerce that businesses need to address the full range of E-Commerce opportunities.

They are also uniquely positioned to help their clients break through barriers to E-Commerce value with their Business Integration Model.

"eCommerce is not just technology: it's fundamental business change"

Through the Business Integration Model, Andersen Consulting offers:

- Deep understanding of the economic implications and opportunity landscape of the eEconomy

- Ability to create a compelling enterprise-wide vision for the future in the eEconomy

- Expertise in the strategic and operational application of technology

- Cross-disciplinary, cross-functional and cross-industry perspective and expertise

- Expertise in aligning people, processes and technology with strategic intent

- Ability to execute a complex, global change program at scale

Andersen Consulting's E-Commerce Solutions

eStrategy: Establishing your business strategy and execution plan in the context of eCommerce and the eEconomy, including defining value propositions, product portfolios, customer segmentations and channel strategies.

Electronic Customer Relationship Management: Maximizing the value of the electronic channel as a means to market, and sell and serve the customer in a personalized, differentiated manner. This creates and exploits exceptional customer understanding by interweaving the electronic channel with existing customer channels, producing a 360º customer view.

eProcurement: Using eCommerce solutions to facilitate, integrate and streamline the procurement process, from buyer to supplier and back.

eInfrastructure: Designing industrial strength eCommerce architectures as a platform for mission critical business solutions.

Electronic Supply Chain: Using the power of the Internet to develop, build and implement solutions that enable companies to collaborate and synchronize operations with their supply chain partners.

eHuman Resources: Delivering employee information and services virtually to the desktop or kiosk, organized around work and life events.

Electronic Enterprise Business Solutions: Using E-Commerce capability to extend enterprise systems across and beyond corporate boundaries; enabling your customers to place their own orders, check order status, administer account administration and perform other service transactions to reduce costs, optimize revenue potential and enable new business strategies.

Case Study

Over the past decade, Singapore has been preparing to meet the new challenges of the information age, and positioning its residents to benefit from an advanced, national information infrastructure. Under a strategic initiative launched in 1992, known as IT2000 - Transforming Singapore into an Intelligent Island, Singapore is moving full speed towards a future in which highly computer-literate citizens will use information technology in all aspects of their daily lives.

eCitizen

One such example is eCitizen Service Centre, a concept developed jointly by National Computer Board and Andersen Consulting. eCitizen Service Centre is a virtual one-stop government information and services centre, which allows every citizen (hence eCitizen) electronic access to public services based on each citizen's needs. Traditionally, citizens are required to understand government structure in order to meet their needs and obligations, going to different ministries for information and services. Now the focus is on the delivery of government information and services from the citizen's viewpoint, instead of the government's perspective. Whether it's marriage, changing jobs, or buying a flat, Singaporeans can enter this Internet site for one-stop, non-stop interaction with the government.

Arthur Andersen

Contact Information

Arthur Andersen Associates Pte Ltd
Arthur Andersen Business Consulting
10 Hoe Chiang Road #18-00,
Keppel Towers,
Singapore 089315

Telephone: (65) 421 8043
Fax: (65) 223 4795

Faridah Khoo
IT Director
Email: faridah.khoo@sg.arthurandersen.com

www.arthurandersen.com

Company Background

Arthur Andersen is a multi-disciplinary global professional services organization, with offices in 382 locations in 81 countries. Its more than 70,000 people are united by a single world-wide operating structure and a common culture that fosters innovation, knowledge sharing and quality service. This unique "one-firm" approach qualifies the people of Arthur Andersen to serve clients by bringing together any of more than 40 services in a way that transcends geographic borders and organizational lines.

The Arthur Andersen Business Consulting practice assists leading organizations to improve their strategic decision making, business operations and organizational capacity. They provide diverse process improvements, performance enhancement and technology implementation services. Business Consulting services are divided into five main areas, and includes their Information Technology practice.

E-Commerce Services & Activities

Arthur Andersen, due to the firm's multidisciplinary skills, is perfectly positioned to offer clients a full range of services to help them develop strategy, manage risk, design and implement solutions and consider and plan for the financial, tax and regulatory implications of eBusiness.

Business Consulting offers integrated services in four main areas:

- eBusiness strategy consulting services to identify and prioritize opportunities and develop strategies to enable them.

- eBusiness design services to develop the solution architecture involving experiential design, business model design and technical design.

- eBusiness implementation services to build and implement custom solutions and packaged solutions including eTailing, Self Service, and eProcurement.

- ERP systems integration services and process re-engineering services to ensure seamless integration with the current business operations including financial, inventory management, order fulfillment and logistics management.

Computer Risk Management provides services in four areas:

- eRisk: Services related to helping organizations identify, source and manage risks, including Business Risk Model-level risks, business process and technology-level risks, legal and regulatory risks and fraud risks.

- eReady: Services related to ensuring organizations are ready for E-Commerce including focus on overall organization, process and technology readiness, performance, availability and capacity planning, and EC solution integrity and reliability.

- eSecure: Services related to make the Internet safe for business use, including security strategy, security software selection and implementation, security audits, and privacy policy / privacy risk management services. In this context, their security services encompass both network security and public key cryptography solutions.

- eMeasure: Services related to attest reporting, web site activity analysis and testing of EC solutions.

Arthur Andersen's Electronic Commerce Competency Center is a leading consulting practice in the fast evolving E-Commerce, public key infrastructure and certificate authority operations that is being set up around the world.

Total Customer Satisfaction: Arthur Andersen believes that customers are the bloodline of business and must be kept coming back. E-Commerce and Customer Relationship Management are useful and effective means to retain customers and turn them into advocates of a company's services and products. Arthur Andersen believes in satisfying the customer, which they have done so effectively for many years.

Strategic Positioning

Arthur Andersen's key strengths are considered:

1. Providing a one-stop complete service for clients embarking on E-Commerce. By combining the latest technologies with best industry practices, they have the knowledge capabilities to provide multi-disciplinary services ranging from IT system integration and implementation, to tax and legal advisory, business strategy planning, process re-engineering and accounting governance.

2. In-depth expertise in both E-Commerce and ERP implementation, enabling a seamless integration of E-Commerce with the organization's backend financial, inventory management and order fulfillment processes and systems.

3. Experience in implementing E-Commerce with the 'human touch' – which is an integrated E-Commerce and Call Centre solution.

4. Client focus. In a 1998 survey conducted by Emerson Research Company, a group of U.S. multi-national companies ranked Arthur Andersen number one among professional service providers in terms of "overall client satisfaction". Emerson's survey report commented: "AA...dominated the study" and noted that "AA was...the first firm to achieve a 5-star rating in overall satisfaction since the inception of our research in 1993." Arthur Andersen was the sole leader or tied for first in each of the nine categories of client satisfaction surveyed by the Emerson Research Company. These results reflect their unmatched ability to service clients globally.

Credentials for E-Commerce

Their recent E-Commerce engagements include:

GES International Ltd

One of Singapore's leading niche players in the regional electronics industry. The Group has 3 major integrated business activities:

*   Design and manufacture of point-of-sales (POS) terminals, personal computers (PCs) and PC-related peripherals
*   Distribution of POS terminals, PCs, computer peripherals and other electronic products for leading international IT vendors
*   Provision of research and development (R&D), technical and consultancy services.

The group has established a network of 11 distribution companies, generically known Digiland, which engage in electronics distribution businesses. At present, the GES group's overseas distribution subsidiaries cover Malaysia, Australia, Hong Kong, Indonesia, Vietnam, Taiwan, the Philippines, Thailand and India. GES employs about 1,000 personnel as at January 1999.

The GES group sees employing advanced technology to sell its products as the future of its business. Arthur Andersen was engaged by Digiland (Singapore) Pte Ltd. to help implement an E-Commerce and Call Centre solution for Singapore, Malaysia and Australia, and potentially other countries in the region, that is seamlessly integrated with its legacy systems. This system will allow people to buy and pay over the Internet, complemented by a regional call centre with a customer order management system similar to that offered on their web site.

A multi-faceted Arthur Andersen team comprising of IT, process re-engineering, tax and computer risk management consultants, together with several solution providers were assembled to implement one of the first integrated E-Commerce and Call Centre solutions in Singapore. In addition to the implementation of the systems, Arthur Andersen also assisted the client in recommending the new organization structure needed to run the E-Commerce and Call Centre Management Services, and designed the processes for this new organization to integrate with their existing operations.

CSA Automated

Contact Information

CSA Automated Pte Ltd
221 Henderson Road #07-01
Henderson Building
Singapore 159557

Telephone: (65) 278 9566
Fax: (65) 276 4968

Philip Lim
Manager, Internet Business Unit
Email: philiplim@csah.com

http://ibu.csah.com

Company Background

CSA is a leading systems integrator of open systems distributed computing architecture in the region. CSA IBU partners with leading systems manufacturers and software companies to integrate and deliver the optimal solutions for their clients. As a major systems integrator, they are able to provide professional consultancy and services for customers of all major industries to design, install and commission systems, software and networks.

CSA's Internet Business Unit

CSA Internet Business Unit (IBU) was founded in 1996 under CSA Automated Pte Ltd. CSA IBU believes that an organization's business will be fundamentally changed by Web technology and it considers its mission is to enable enterprises for Internet business and commerce. The coming change is evident everywhere, from the creation of new business models in the emerging virtual market space to the reinvention of business processes to capitalize on the Web's unique abilities to facilitate information exchange and enable transactions. The Web is changing the very nature of business interaction with customers, partners, employees – and increasing intimacy to unprecedented levels.

CSA IBU helps companies to understand the transformations that Web technology is bringing about, and to make the right choices and build the right solutions to serve their businesses, both today and in the future.
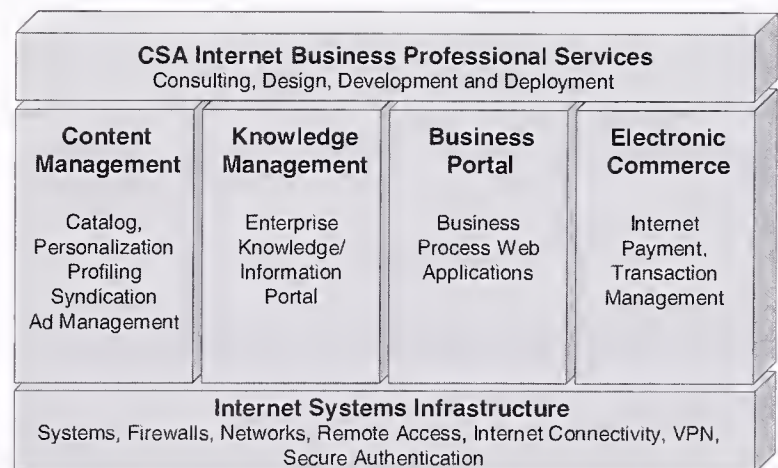
CSA's IBU team of professionals enable enterprises to perform Business-to-Business transactions securely over the Net as well as enabling new portal services for enterprises to extend their businesses. CSA IBU provides Internet solutions designed to help move the customer's business to the next level: leveraging the Internet to achieve real business results. The combined skills of CSA' IBUs technology and strategy help customers develop actionable E-Business strategies and solutions that lead to business growth, operations excellence and technical agility.

CSA IBU also provides systems integration services for Electronic Commerce solutions. These include consulting, architecture design, deployment and development services. CSA builds front-end and back-end Electronic Commerce solutions that use standard web technologies and components-based architecture to offer a total solution for e-business.

Offering a Complete E-Business Solutions Framework

As shown below, CSA IBU's E-Business services are part of a complete portfolio of services and solutions designed to meet the E-Business needs of enterprises in Singapore.

Complete E-Business Solutions Framework

CSA Internet Business Professional Services Consulting, Design, Development and Deployment			
Content Management	**Knowledge Management**	**Business Portal**	**Electronic Commerce**
Catalog, Personalization Profiling Syndication Ad Management	Enterprise Knowledge/ Information Portal	Business Process Web Applications	Internet Payment, Transaction Management
Internet Systems Infrastructure Systems, Firewalls, Networks, Remote Access, Internet Connectivity, VPN, Secure Authentication			

CSA
Internet Business Unit

Professional Services that Enable Enterprises for E-Business

CSA has vast experience in systems integration and software development projects. With its worldwide presence, CSA has been able to provide total solutions to cater to the growing needs of its customers.

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139

IBU has a team of professionals offering E-Business services such as Consultancy, Project Management, Development, Integration and Deployment in the following areas:

Electronic Commerce: Based on their solutions in Business-to-Business Supply Chain and Business-to-Consumer Marketplace, CSA IBU integrates Electronic Commerce products from its Alliance Partners that specialize in Internet Relationship Management, Content Management, Personalization, Profiling Transaction Management and Legacy Systems Integration.

Web Application Solutions Deployment: CSA IBU leverages on the Internet, Java and Application Server to provide software application solutions in the areas of Electronic Information System, Supply-Chain Management, Web-enabled Back-end Applications and Multi-tier Web Business Applications.

Enterprise Information Portal Deployment: CSA IBU Professional services consultancy provides the design, programming and data sources integration to build the knowledge map that creates the knowledge community within the customer enterprise.

Security Consulting and Implementation: CSA IBU provides complete security consulting and implementation services to build a security infrastructure and framework for customers to conduct electronic business and commerce securely using the Internet.

CSA IBU's breadth and depth of experience in providing professional services allows them to deliver best-of-class applications - individually or in tandem - that respond most effectively to customers' specific business requirements.

CSA's E-Business Consultancy Services

More companies are facing the prospect that continual developments in technology will leave them on the wrong side of a growing chasm that separates success from failure.

CSA IBU helps a business re-examine its strategies in light of the rapid changes in both markets and technology, serving as a knowledgeable and experienced partner. CSA IBU helps an organization define an integrated business and IT strategy that will position them for success in the digital economy.

CSA IBU team of Sales and IT Consultants focus on developing an actionable strategy that both allows a business to take advantage of immediate opportunities, and also helps them move toward their long-term vision.

Among the questions that are answered during the meetings with their E-business Consultancy Team are, *"What can my business do with the Internet?"* and *then* *"What do I do next?"* CSA IBU provides organizations with an insight into how the marketplace peers and competitors are adopting Web technology and the potential impact of the Web within their own organization on processes ranging from marketing and brand-building to product distribution.

CSA IBU helps the organization further define its e-business goals by prioritizing the many possible initiatives they may be considering, and to define the systems requirements that will support the implementation of a complete solution. CSA IBU provides the groundwork for a business to move ahead with thoughtful urgency, based on a well-defined road map.

Case Studies

Government

CSA IBU successfully implemented a secure data transfer system over the Internet for a Singapore government authority. The system is used for submission of highly sensitive data via the Internet.

Large Corporation

IBU is currently being engaged as a systems integrator for one of the biggest corporations in Singapore to develop a new system module as well as porting and downsizing existing applications using Java and Internet technologies. They have already successfully completed a few modules and the project is proceeding smoothly.

Ticketing Agency

IBU implemented a well-known "Business to Consumer" E-Commerce application for a ticketing agency. The solution, named Credit-Online server allows customers to pay for the booked tickets using a credit card number with an Internet browser. Using SSL encryption, the credit card information is encrypted before reaching the bank for settlement.

EC1 Pte Ltd

Contact Information

7 Bedok South Road,
Singapore 469272

Telephone: (65) 240 3041
Fax: (65) 441 9721

Heng Cho Hiong
Manager, Market Development
Email: chohiong.heng@geis.ge.com

www.geis.com
www.scs.com.sg

Company Background

GE Information Services, a global leader in business-to-business Electronic Commerce and Singapore Computer Systems (SCS), the IT arm of SembCorp Industries, have formed a joint venture in Singapore, EC1 Pte Ltd (EC1).

GE's global Electronic Commerce solutions include Internet, intranet and extranet services, Electronic Commerce transaction, EDI services and a full suite of applications that help to streamline supply chain management processes. The company combines the power of Electronic Commerce applications with business process consulting, system integration, community management and customer support. GE Information Services manages the world's largest electronic trading community of more than 100,000 trading partners.

SCS is a one-stop IT service provider with key competencies in IT consulting, systems integration, outsourcing, network and E-Commerce services. Other services include design and implementation, business recovery services, provision of a wide range of computer hardware and software through systems integration. Currently, SCS has operations in Australia, Brunei, China, Hong Kong, Malaysia, New Zealand, Philippines, Thailand and the United States, and has a staff strength of more than 1,900.

E-Commerce Services & Activities

EC1 is a GE Electronic Commerce Center, one of 6 deployed throughout the Asia Pacific region. The center offers a full range of Electronic Commerce products and services to allow companies in Singapore to fully harness the power of E-Commerce.

EC1 provides Singapore organizations with a world-class mission-critical Electronic Commerce infrastructure. Its solutions enable companies to trade electronically with their trading partners and suppliers.

The EC Center is at the heart of every EC1 solution. It offers a full range of Electronic Commerce products including a complete end-to-end Electronic Commerce outsourcing service. Every solution is supported, managed and operated in Singapore by an experienced team of Electronic Commerce specialists. The EC Center services are also interconnected with GE global services to provide world-wide coverage.

The center offers a five-tier suite of solutions, from E-Commerce transaction services to complete electronic marketplaces, for any type of business-to-business Electronic Commerce. This five-tier suite includes;

1.   E-Commerce Transaction Services

E-Commerce Transaction Services allow integration of the value chain with customers and suppliers seamlessly through the Internet, dial-up access or leased line. It enables electronic exchange of structured business documents through EDI or Web Forms. Message routing and transactions are done locally making the services affordable to all organizations and their trading partners, regardless of size. The service is integrated to GE's global and regional E-Commerce transaction services, providing access to GE's 100,000 trading partners. For most organizations, this means faster inventory turnover and lower inventory levels, improved production and scheduling, and shorter delivery times; thereby becoming more competitive in an increasingly global market place.

2.   Corporate Gateways

Corporate Gateway solutions provide an interface for message management and exchange between an organization's trading partners and the internal systems of an organization. The development of corporate gateways is the first critical step in expanding traditional Electronic Commerce. It protects investments in an existing legacy EDI system, and at the same time, through its Internet applications, builds a bridge to the rapidly changing world of new business applications and communication standards.

3.   E-Commerce Outsourcing

EC Outsourcing has become the ultimate in Electronic Commerce one-stop shopping. EC1 provides a convenient way for companies to outsource their entire E-Commerce operation. This allows them to focus on core competencies, and frees IT resources for other

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141

critical business areas such as Year 2000 compliance and ERP implementation. In addition, by outsourcing, operation costs can be reduced by as much as 30 percent.

In a typical business environment, EC Outsourcing works in the following way:

- EC1 will set up the gateway application environment and provide the necessary infrastructure to support the work – this includes processing, storage, facilities, and network.

- EC1 then monitors and supports a company's Electronic Commerce gateway solution on a 24x7 basis for operability. This support uses analysis tools and provides maintenance services like system backups, and system firmware and operating system upgrades.

- EC1 also provides application management – which includes document tracking, map repair, data recovery, and monitoring for certain application events.

4. Extranets

In Electronic Commerce environment, extranets become private web communities that connect a company directly to its trading partners and customers. Extranets provide a radically new way of business collaboration using web technologies. Rather than computer-to-computer connectivity, extranets are based on real-time, interactive person-to-computer or person-to-database connectivity.

Staying competitive in today's fast paced business environment requires companies to reach out to their business partners, shorten their supplier-customer value chain, embrace new technologies to increase productivity and reduce costs, and disseminate information quickly and efficiently to both internal and external audiences. **GE InterBusiness Partner**, the first commercially available extranet service, enables companies to achieve all of that and more.

GE InterBusiness Partner service enables an organization to establish a private community of its business partners, using Internet-based capabilities. Security is ensured with the use of technologies such as strong mutual authentication, data encryption, firewalls and access controls to maintain the integrity of an organization's information resources.

5. Electronic Marketplaces

An electronic marketplace is an electronic trading community based on the many-to-many model where any supplier can sell to any buyer. These electronic markets are typically based on industry-accepted standards and classification systems, and incorporate electronic catalogue technology.

Strategic Positioning

The GE Advantage

Building on GE's philosophy of *"Local Focus, Global Reach"* and leveraging on the resources and expertise of both GE and SCS, EC1 is uniquely positioned to develop and deliver end-to-end business-to-business E-Commerce solutions locally to enable companies to conduct business faster and more profitably globally.

EC1 understands an organization's Electronic Commerce needs. Their industry expertise spans manufacturing, retail, trade and transportation, government and financial services. This expertise is a customer's guarantee that any solution adopted will deliver a tangible return.

As part of GE Information Services (GE), EC1 services are connected to a global network and provide access to the world's largest trading community of more than 100,000 trading partners. At the cutting edge of Internet technology, EC1's web-based solutions create a secure environment for Internet Commerce.

EC1 offers state-of-the-art Internet and Electronic Commerce solutions for all companies from large enterprises to small and medium sized businesses.

Key Differentiators

EC1's key strengths are considered as follows:

- Parentage: General Electric and Singapore Computer Systems

- Over 100,000 strong global trading community

- More than 30 years experience in E-Commerce

- Cost effective EC services and solutions through a local processing and hosting center

- One-stop shop for an organization's E-Commerce needs

- Solutions are based on tried and tested "Best Practices" of the General Electric Company

- Extensive industry experience covering a diverse range of sectors, including manufacturing, high-tech, retail, trade and transportation, banking & finance and government.

FT Solutions

Contact Information

FT Solutions Pte Ltd
57 Science Park Drive,
The Faraday,
Singapore Science Park
Singapore 118237

Telephone: (65) 773 7117
Fax: (65) 779 4455

Wong Wai Meng
Business Director
Email: wmwong@frontline.com.sg

www.frontline.com.sg

Company Background

Incorporated in April 1998, FT Solutions Pte Ltd is the regional professional service subsidiary of Frontline Technologies Holdings. FT Solutions operates from its headquarters in Singapore providing best practices consulting, project management, E-Commerce services, system integration services, enterprise-wide IT management, systems support and maintenance to the regional markets including Singapore, Malaysia, Indonesia, Thailand and the Philippines. In 1999 it is forecast that FT Solutions will achieve revenues of S$12 million and next year S$20 million, with a growing proportion being derived from the region and E-Commerce services. FT Solutions presently employs around 30 IT professionals.

FT Solutions is dedicated to helping organizations gain the competitive edge through optimization of their IT investments by addressing the major IT issues confronting them such as IT planning and integration, solution applications & implementation, and system & network management in a heterogeneous computing environment.

FT Solutions focuses on all major industries such as manufacturing, education, government, telecommunications, healthcare, automotive, aerospace, logistics, transportation, electronics, finance and other industries.

Main Activities

FT Solutions provides a full spectrum of next-generation solutions for enterprise IT management. As a leading provider of open client/server software solutions, it addresses IT needs such as storage & data management, system management, workgroup management, enterprise & security management and E-Commerce solutions. These solutions include Solaris software, Veritas, CA Unicenter, SAP Basis, Oracle DBA, Informix DBA, Microsoft Backoffice, Sun NetDynamics and Netscape Application Server. With these solutions, FT Solutions is well positioned to provide a truly end-to-end solution, from a well-defined infrastructure using state-of-the-art technology like Storage Area Networks and CA System Management to a scalable and robust E-Commerce architecture, using highly acclaimed products like Sun NetDynamics and Netscape Application Server.

To summarize FT Solution's main products and services are as follows:

- Veritas, for Storage Management (master distributor for South East Asia)

- Computer Associates Premier Partner, for system management solutions

- E-Commerce products, with Netscape Application Server & Sun NetDynamics

- Oracle, with Oracle Application Server

- Java Development

- Sun Enterprise Products, eg. iPlanet, JavaTest tools, SunScreen, etc.

- Storage Area Network, implementing fabric storage network, dynamic storage allocation, LANfree backup and clustering

Storage & Data Management

Using Storage Area Network technologies to provide a network of storage devices (online, offline, nearline) to the wide array of servers on the traditional LAN, hence increasing the availability of data to more servers, providing data redundancy and system availability. VERITAS software is designed to ensure applications remain available to users by minimizing operational downtime - both planned and unplanned. High performance on-line backup and recovery protect essential information while leaving operational systems available to users. Through centralized management, large scale storage environments can be managed efficiently at minimal operational cost. All aspects of storage, relating to disks and tapes, can be managed across a range of open computing environments.

System and Operation Management

In today's changing business world with distributed computing, from laptops to mainframes, intranets, extranets, to the Internet, it is virtually impossible to even list the multitude of platforms, operating systems, networks, databases, applications, and vendors involved in today's IT systems. Unicenter TNG solves today's enterprise management problems through a rich set of functions. They are built on top of an object-oriented architecture and a scalable manager/agent infrastructure, which operate across heterogeneous networks. FT Solutions has developed well-defined methodologies for the consulting and implementation of system and operation management to handle the distributed nature of business-critical applications in your heterogeneous network environment.

E-Commerce Services & Activities

FT Solutions can deploy new E-Commerce solutions that expand an organization's business potential using best-of-the-breed solutions in the market today. They offer a comprehensive set of services for business-to-business or business-to-consumer solutions, with extensive experience in creating secure payment programs and other security and privacy services for Web commerce. Taking advantage of new business opportunities in the electronic marketplace, they can create or improve an organization's IT infrastructure, extending its information reach and messaging capability, make use of intranet applications, and build profitable, web-based relationships. Using products, such as Sun NetDynamics, Netscape Application Server and Oracle Commerce Server, FT Solutions can also design and operate a customer's web pages, linking them to their core business and ERP applications that precisely meet the business requirement.

FT Solutions main E-Commerce services include;

- Web-page creation and content hosting
- Deployment of a web-based Electronic Data Interchange
- Provision of electronic payment services
- Design and implementation of E-Commerce security and privacy applications
- Web storefront design and product cataloging
- Business integration to existing ERP applications, such as SAP and Oracle Financials
- Electronic messaging architecture and workflow consulting

Targeted Vertical Markets

FT Solutions core industry competencies are found in the following sectors:

- Manufacturing
- Retail and Distribution
- Finance
- Government

Strategic Positioning

FT Solutions key competitive differentiators are considered:

- Rapid deployment of solutions utilizing templates and RAD tools
- Ability to web-enable ERP systems for both business-to-business and business-to-consumer solutions
- Provision of end-to-end IT system solutions
- Utilizes well defined processes and methodologies

Case Study

A Retail & Distribution Company

FT Solutions provided Web Integration of existing merchandising software to Oracle Application Server, using Java and Stored Procedure Cartridges. This software was utilized to open up the once closed environment. Suppliers and customers can now access merchandise information via the web. Security was implemented over a Virtual Private Network between suppliers in Singapore, Hong Kong and the United States. Java Applets and Servlets were the main components used to build the business logic, which provided a centrally managed environment for the rapid deployment and upgrade to the business logic with minimal disruption to the business operation.

National Computer Systems

Contact Information

National Computer Systems Pte Ltd
75 Science Park Drive
#01-01/04 Cintech II Building
Singapore 118255

Tel: (65) 778 9966
Fax: (65) 778 4376

Irene Hwa
Programme Manager (Marketing)
Internet Commerce Group
alhwa@ncs.com.sg

http://www.ncs.com.sg

Company Background

National Computer Systems Pte Ltd (NCS) was born out of the biggest computerization project in Singapore - the Civil Service Computerization Program (CSCP). As the main provider of information technology (IT) services to the CSCP for the past 17 years, NCS has built up experience and skills unmatched in range and quality by any other computer company in Singapore. Its 1,900 IT professionals are amongst the largest pool of IT expertise in the region.

With solid, wide-ranging IT and management expertise -- from a simple LAN implementation to developing a nation-wide infrastructure -- no project is too large or too small for NCS. In a nutshell, they provide the full spectrum of IT services and products to organizations, and assist them in realizing higher levels of productivity and service, competitive advantage and returns on investment through the strategic exploitation of IT.

While the initial focus of NCS was on Singapore's government sector, it has been aggressively expanding beyond Singapore and into the private sector. It has been especially focused on the area of Internet commerce in the retail, banking and finance, and the manufacturing industries.

Electronic Commerce Solutions

NCS offers a complete and comprehensive suite of services in the area of Internet Commerce, from end-to-end systems integration to value-added network services.

NCS is fully qualified and has considerable experience in implementing the various aspects of E-Commerce solutions, having successfully delivered projects involving intranet and extranet applications, electronic payment systems, supply chain management, business re-engineering processes and back-end integration with existing legacy systems.

Major E-Commerce projects undertaken by NCS over the past two years include solutions for Internet Banking (Overseas Union Bank), the Virtual Post Office (Singapore Post), and the integrated Land Information Services (INLIS) system, which was jointly launched by NCS and the Ministry of Law. INLIS delivers digital maps and land information to online users paying with the CashCard, or a Netrust-ready smartcard linked to a GIRO account.

NCS comprises business groups under its various Internet Commerce value services, namely Professional Services Unit (PSU), Commerce InterChange, Consumer Connect and Media Hub.

NCS have invested in a comprehensive Internet infrastructure, which includes connectivity to payment facilities, such as for the CashCard, credit card, and Financial Electronic Data Interchange (FEDI). To date, NCS are possibly the only vendor in the region to offer a complete range of business-to-business and business-to-consumer outsourcing services.

Bringing Business and Business Together – E Procurement Portal

NCS *MarketSite* is a comprehensive, integrated suite of e-procurement solutions that dynamically links buying and supplying organisations into real-time trading communities. The solution helps companies to significantly reduce operational costs and increase efficiency by automating the entire indirect goods and services supply chain.

The solution comprises COMMERCE ONE BUYSITE, an intranet application that automates the internal procurement process from requisition, approval to order and NCS *MarketSite*, a B-B marketplace portal that automates buyers' interactions with their suppliers, including purchase order transmissions, status checks and payments.

The *MarketSite* provides an efficient and effective way for buyers and suppliers to meet online. Suppliers' catalogue content is aggregated into one unified

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145

catalogue to enable transactional capabilities between trading partners. NCS will grow and manage the supplier content and integrate suppliers into *MarketSite*.

The NCS *MarketSite* will be interconnected to the *MarketSite* hosted by COMMERCE ONE in the United States to leverage on the total mass of suppliers and buyers from both regions. This creates an opportunity for both buyers and suppliers to reach out to an unprecedented set of global trading partners.

NCS *MarketSite* is uniquely positioned to become the leading full service e-procurement portal in Asia. By partnering with COMMERCE ONE in the US, NCS *MarketSite* offers traders unlimited opportunities to participate in the global trading community.

* NCS Marketsite is a temporary 'working' name chosen to represent NCS' e-procurement service. The full service will be available in the fourth quarter 1999.

Bringing Business and Business Together - Commerce InterChange

Commerce Interchange, NCS' well-established business-to-business commerce infrastructure, help their clients achieve efficiencies in the form of faster processing and reduced human errors, which result in increased competitiveness.

Commerce InterChange comprises a suite of E-commerce services designed to facilitate business transactions in the supply chain, and within specialised business communities. By automating the supply chain, business documents such as purchase order, order response, delivery schedule and invoice can be exchanged more quickly and efficiently. Companies will have greater control over inventory levels while distributors can easily access current stock levels.

Commerce InterChange takes the complexities of e-commerce out from the customer. By connecting the back-end system to the Commerce InterChange framework, the customer will not have a need to administer an electronic commerce system and still be E-Commerce enabled. Further, electronic information received from trading partners can be specially formatted for input into the designated back-end system. The use of web-browser for electronic trading is also supported in Commerce InterChange.

To enhance communication, Commerce InterChange can also provide an alert mechanism for inbound electronic business information – either through fax, email, or paging. Commerce Interchange empowers organisations to be on top of their business transactions.

Some E-Commerce solutions they have completed in this area include the development of a supply and distribution network to manage electronic trading for

Singapore Airlines (see Case Study in Solution Provider section), a customer support network for global semi-conductor company ST Microelectronics, and electronic supplier networks for NTUC Fairprice, Watson's and Diethelm.

Bringing Business and Consumers Together – Consumer Connect

NCS' Consumer Connect service is a complete suite of E-Commerce outsourcing services that seamlessly connects businesses to consumers in the world wide web. NCS' clients are able to establish storefronts quickly, without heavy up-front investments in computer infrastructure and staffing costs. In addition, their clients benefit from the hassle free set-up that NCS provide with efficient support services such as online marketing, multi-currency settlements and fraud protection.

Consumer Connect offers Web merchants and digital content publishers an innovative and easy way to create a new transaction-based revenue channel. It has the existing infrastructure, data centres, hardware and connection network established and ready for use.

Experienced consultants from NCS are able to advise, design and implement entire electronic commerce operations, from front-end concept to back-end operations. Their consultants also possess unmatched expertise in systems integration, operations and management of data centre operations.

Consumer Connect has many independent modules allowing companies to select those most suitable for their business needs.

Amongst NCS' business-to-consumer E-Commerce projects are successful solutions for service and retail establishments such as the Royal Crowne Plaza Hotel, Times Publishing Ltd and home-grown Mustafa Centre. (see Case Study in Solution Provider section)

Media Hub: Providing the Right Connecti,on

NCS offer a full range of virtual hosting, messaging and server co-location packages on their Media Hub for business operations that require high-performance connectivity, reliable security, daily back-up and 24-hour help desk support to meet their growing needs. Maintaining a 24 hours x 365 days online operation is very demanding. Outsourcing to Media Hub lets businesses judiciously deploy resources for core business functions.

For more detailed information, please refer to the NCS profile in the Solutions Provider Section.

Pacific Internet

Contact Information

89 Science Park Drive #04-09
Singapore 118261

Telephone: (65) 872 0322
Fax: (65) 872 6347

Sandeep Bagaria
Senior Business Development Executive
Email: sbagaria@pacific.net.sg

www.pacific.net.sg

Company Background

Pacific Internet (Nasdaq: PCNTF) was founded in 1985 and last fiscal year recorded revenues of US$43.5 million. Recognized as the premier ISP in Singapore, Pacific Internet now offers a comprehensive range of E-business solutions and services, including web design, payment infrastructure, system integration, advertising and delivery. Pacific Internet services have also expanded geographically beyond Singapore to Hong Kong, the Philippines and Australia.

Pacific Internet's E-Business initiative began as early as 1996 when they saw that the Internet-based commercial market was still at its infancy and hungry for strong, secure platforms and solutions. Businesses and organizations had just heard of transactions and sales over the Internet but did not know the technology solutions and business processes needed.

Pacific Internet decided to form a new division, Mediaworks to look into the full turnkey aspects of E-Commerce, ranging from the simple web-designs to turnkey secure E-commerce solutions. Mediaworks started by finding the key requirements and constraints that merchants were facing when adopting E-Commerce. With the specifications in place, Mediaworks then scoured the marketplace for suitable e-commerce technologies that were scalable, secure and could be integrated with clients back-end systems. This ensured that the services offered were customized to clients needs as opposed to the client having to fit his business requirements into packaged solutions.

Pacific Internet E-Hub Services – www.pi-ehub.com.sg

Launched in January 1999, Pacific Internet's (PI) E-Hub is a cornerstone in Singapore's hotly-contested ISP marketplace. It brings to the local scene a strong, secure turnkey solution designed to handle large-volume real-time commercial transactions over the Internet. Already E-Hub has won over a number of big names including Changi General Hospital, local food and beverage giant, Cerebos Pacific Ltd and Singapore's National Kidney Foundation. PI E-Hub offers:

- **A Turnkey Solution**

PI E-Hub is a complete infrastructure and services solution that significantly reduces the cost of doing e-business. E-Hub offers Internet backbone connectivity, secure and controlled hosting environment, 24x7 server monitoring, data backup and connectivity to payment servers allowing real time online Credit Card, SET and Cash Card transactions.

- **Flexible Solutions**

From secure hosting of E-Commerce servers to the support of an accredited team of designers, engineers and project managers, PI E-Hub is as flexible as an organization's needs require. Solutions are scalable and customized to individual merchants.

Products and Services of E-Hub

PI E-Hub is designed to accommodate a variety of E-Commerce requirements, from E-Commerce site hosting to remote connection to their payment servers.

- **Hosting**
E-Hub has been created especially for E-Commerce web site hosting. Every effort is made to provide a secure hosting environment with speedy and safe connection to PI's payment facilities for real-time online credit card and cash card transactions. Hosting is via robust IBM Netfinity servers with 24 hour around the clock maintenance and daily data backup.

- **Ecomplete**
Traditionally, a merchant would have had to deal with multiple vendors to create and deploy an E-Commerce site, or integrate E-Commerce into his existing site. Now, with PI E-Hub and the dedicated team of consultants and engineers, customers get a turnkey solution.

- **E Payment**
Clients that have their web sites and e-commerce applications hosted on servers outside the E-Hub can still make use of PI's payment infrastructure by linking up to E-Hub's payment servers for Credit Card

processing. Depending on client requirements, VPN's (Virtual Private Network's) can be set up between the client network and PI's E-hub for dedicated credit card processing or use PI's common payment gateway for shared credit card processing. One of the key characteristics that differentiates Pacific Internet payment services from others is that Pacific Internet does not charge commissions on transactions. This has been particularly well received by clients as their costs does not increase when their e-business grows.

E Leasing

Pacific Internet and IBM announced a special collaboration for PI E-Hub customers. When companies build their E-Commerce business with Pacific Internet services and IBM solutions they can qualify for IBM's special leasing programs at competitive rates, and protect their technological edge with special solutions upgrade programs, lease refinancing with project expansion, and more.

Some key benefits of leasing include; lower monthly payments as compared to cash purchases; simplifies budget allocation; protects against obsolescence; 100% financing for hardware, software and services; and protects against inflation.

Furthermore, leasing frees up cash-flow giving the freedom to expand investment in E-Commerce. Many companies trade-off distinguishing website content and services to reduce their up-front capital outlays. With the leasing program, companies spread their total start-up Investment over three years, freeing them to add depth to their site, such as more online help facilities, multimedia, more content, product information, and advertising and promotion expenditure.

Key Strengths of PI's E-Hub

- One Stop Shop: Clients don't have to deal with multiple vendors
- Customized solutions at different investment levels as opposed to packages
- No commissions. Clients only pay fees charged by the Banks directly to them
- Lower cost of entry due to shared infrastructure
- High traffic from PI subscribers
- Leasing options available
- Multiple payment offering
- Backbone connectivity
- Value added services available

PI Mall

Pacific Internet recently launched its proprietary PI Mall (http://www.pimall.com.sg). The online mall gives a boost to E-Commerce development in Singapore by offering low-cost infrastructure available to merchants who want to do their business online.

The cost to set up a turnkey solution may not be viable for SME's. In addition, the merchants need to have expertise in hardware, databases, web-design and payment systems. To address the need in the market for a simple, low-cost E-Commerce environment, Pacific Internet developed the PI Mall to allow merchants to operate in one of the most cost-effective online trading environment in Singapore. PI Mall takes care of one of the bottlenecks to merchants adopting E-Commerce – getting a MOTO account with a bank. PI has directly tied up with business partners and banks to do the financial clearance for the merchants. Additionally, Pacific Internet does not charge any commission for online transactions, unlike other services overseas which charge a fee per transaction. In addition, the cost for rental of space is extremely low at only $80 a month per 100 products listed for sale.

For consumers in Singapore, PI Mall is a one-stop shopping solution that makes it possible for anyone to buy at anytime and from anywhere. The online mall also represents a hassle-free and secure proposition being hosted in the secure e-hub environment. Merchants do not have to worry about logistics and orders are delivered right to the buyer's doorstep. In the near future, Pacific Internet will be offering the PI Mall infrastructure and multiple currency transaction facilities to its subsidiaries in Hong Kong, Philippines and Australia.

Key Strengths of PI Mall

- High traffic due to PI subscriber base
- Target marketing through Pacific Internet Portals
- Community building and user involvement
- Special PI subscriber discounts and surf perks program to help increase turnover.

Vanda Systems

Contact Information

Vanda Systems (Singapore) Pte Ltd
1 Jalan Kilang Timor,
#06-03 Pacific Tech Centre,
Singapore 159303

Telephone: (65) 272 4789
Fax: (65) 271 2926

Jane Seng
Marketing & Communications Executive
Email: info@vandasys.com.sg

www.vandasys.com.sg

Company History

Vanda Systems was established in Singapore in 1995 to serve the local, Malaysian, Indonesian and Philippines market. Vanda Systems (Singapore) Pte Ltd is a subsidiary company of Vanda Systems & Communications Holdings, a public company listed on the Hong Kong Stock Exchange. The group has more than 1,200 staff across the region.

Company Background

Vanda has been a top reseller of IBM mid-range hardware and software products since inception. Vanda's core competency is the provision of focused Systems Integration expertise and services in the Banking & Finance, Manufacturing and Telecommunications industries. Vanda also offers business consulting and vertical specific applications for these sectors.

Vanda also provides large scale software development services, particularly in telecommunications, banking and the securities industry, utilizing leading edge technologies and techniques, including Object Oriented technology and Java. Software development is offered in UNIX, OS/400 and Windows NT environments.

Vanda later developed a strong partnership with Oracle and now offers application integration services on the Oracle database solution. Vanda also invested skills and expertise in IBM's e-business suite of tools and applications. With these capabilities, it aims to provide best of breed solutions for the Internet and

E-Commerce. The company has recently been appointed distributor of Security Dynamics' range of products which meet E-Commerce security requirements. This expanded product portfolio has lent Vanda a capability to implement end-to-end E-Commerce solutions with the highest level of security to protect both business and consumers.

E-Commerce Services & Activities

Vanda has a team of around 20 professionals based in Singapore, who provide a variety of E-Commerce solutions, such as;

- **Interactive Web Marketing Solutions:** enabling vendors to present corporate and product information to potential customers effectively

- **Web-enabled Supply Chain Management Solutions**; enabling companies to streamline operations and strengthen vendor-supplier relationships in the areas of efficient forecasting & demand planning, strategic sourcing and procurement, effective distribution network and warehouse operations, efficient transportation & shipment management and efficient production logistics

- **Web-enabled Customer Relationship Management Solutions**; enabling companies to identify, select, develop and retain profitable customers and build long-term relationships with them by the best-of-class functionality across sales and marketing and customer service

- **Online Sales to Consumers**; to provide catalogues, accept orders and payments using credit cards and/or cash cards on-line

- **Internetworking Infrastructure**; to provide expertise in networking through intranet, extranets and Internet, a critical centerpiece of the E-commerce delivery

E-Commerce Services available from Vanda include;

Custom software development using Java and C++; they are also able to integrate legacy applications using Message Oriented Middleware, such as IBM's MQSeries, into Internet or E-Commerce applications. While implementing Internet or E-Commerce applications, organizations need to integrate these with their legacy applications and data as these are normally critical to their business. Vanda's ability to integrate the new and existing applications and provide a seamless transaction flow will prove invaluable to any organization.

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149

Systems Integration; Vanda is able to integrate the complete solution including hardware, networking, software, services and project management that is necessary to support any E-Commerce initiative. Their unique combination of knowledge in new and leading edge technology, like Java and C++, and their experience in legacy environments, particularly IBM environments, gives them the ability to successfully integrate and deliver the solutions that customers need.

Security solutions; security is the most critical success factor in any Internet or E-Commerce application. Without the comfort of knowing that information is transmitted correctly and securely in the Internet or E-Commerce application, no consumer or business organization would dare use it. Vanda provides a complete set of security solutions for authentication, authorization and encryption of information across the network.

Technology Expertise and Practice

Vanda has expertise and experience with the following Oracle and IBM solutions;

- Oracle iSolutions; consisting of Oracle 8i, Oracle Application Server, Java Developer/Designer, Web Supplier, Web Customer, Internet Procurement, Internet Commerce Server, and Payment Server, amongst others.

- IBM e-business suite of tools and applications, including, Lotus Domino Designer, VisualAge, Net.Commerce, and Websphere. IBM's e-business application framework is built from a multi-platform, multi-vendor approach to optimize ease of application deployment.

Vertical Market Competencies

Vanda's core vertical competencies are found in:

- Banking, Finance and Securities

- Manufacturing

- Distribution/Retail

- Telecommunications

- Government

Vanda have provided the E-Commerce infrastructure for a number of stock-broking firms to launch their Internet trading services for their customers. In the manufacturing sector, Vanda has also provided leading edge IT solutions to a number of MNCs and have the ability to integrate their entire supply chain,

upstream and downstream, with best-of-breed applications that meet their specific requirements.

Key Differentiators

The competitive differentiators pertaining to Vanda are considered:

- Their strong in-house industry specific knowledge and expertise

- Use of a proven set of tools and the adoption of IBM's standard practices and framework for developing E-Commerce solutions

- Unique combination of knowledge in new technology and legacy applications

- Complete end-to-end E-Commerce solution and services provider and systems integrator

Profiles

Detailed Profiles of Electronic Commerce Services Providers in Thailand

151

Andersen Consulting

Contact Information

Andersen Consulting Co. Ltd.
30th Floor, Abdulrahim Place
990 Rama IV Road
Bangkok 10500

Tel: (66-2) 636 1616
Fax: (66-2) 636 1640

Kiatisakdi Osothsinlp
Country Managing Partner
Email: kiatisakdi.osothsinlp@ac.com

www.ac.com

Company Background

Andersen Consulting is a US$8.3 billion global management and technology consulting organization whose mission is to help its clients create their future. By working with clients to align their business elements -- people, strategy, processes and technologies -- Andersen Consulting helps clients achieve best business performance Andersen Consulting has approximately 65,000 people in 48 countries.

Services

Electronic commerce is redefining the global economy, and every business must reassess the how -- and where -- it does business. Andersen Consulting is committed to helping clients understand the impact of E-Commerce, and the transformations they must make to succeed in the new 'eEconomy'. They are helping clients create their future in the new and emerging electronic economy.

Andersen Consulting not only helps clients implement E-Commerce, but provides the expertise and perspective to help them integrate E-Commerce into the very fabric of their enterprise.

Andersen Consulting is committed to helping clients benefit from the dramatically profitable economics made possible when time and distance no longer

stand between the enterprise and its partners, suppliers and customers. They help their clients set new benchmarks for business performance and discover entirely new solutions in product innovation, supply chain velocity, process concurrency, customer intimacy and more.

But electronic commerce is not a commodity or service that can simply be purchased. Therefore, Andersen Consulting does not provide just one E-Commerce offering or staff just one practice unit. Instead, E-Commerce is a point of view embedded throughout their organization, a perspective they bring to every client they help. Today, their community of E-Commerce professionals spans 48 countries -- every industry segment and every geographic region where they do business.

A recent IDC report ranked Andersen Consulting number one among all Internet service providers in 1998, with revenue of US$425 million related to interactive and on-line services.

Andersen Consulting helps its clients change to be more successful. Part of that is helping clients make E-Commerce opportunities real, by integrating their business strategy, technology, business processes and people. This integrated approach is the key to achieving and sustaining a new level of performance, and a more competitive position in a changing marketplace.

They are developing fresh insights, new perspectives and better approaches to realizing the benefits of E-Commerce, and overcoming the challenges. As further testament to their commitment to E-Commerce, they have invested significant resources in research and the development of unique resources such as Electronic Commerce Centers of Excellence.

The Electronic Commerce Center of Excellence in Singapore was opened in April, 1997, and functions as a business solutions incubator for companies keen to exploit the potential and capability of electronic networks to connect businesses and consumers in real time. In the Center, executives can conceptualize their business in the future and prototype innovative solutions.

Clients from the region can also take advantage of Andersen Consulting's expert capability, built into every level of the firm to ensure the delivery of comprehensive, integrated solutions. The Center of Excellence brings together Andersen Consulting's depth of experience in people, processes, strategy and technology, and gives business executives a clear vision of the way forward.
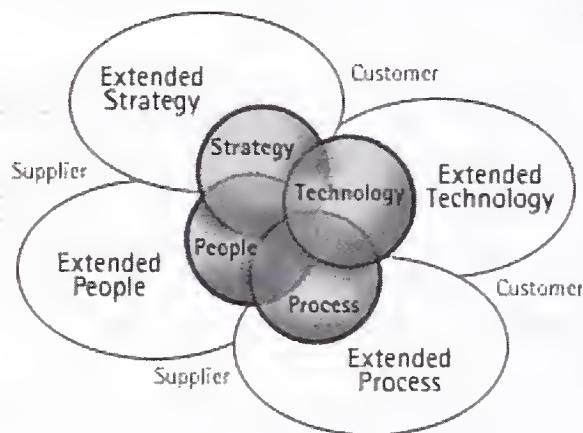
The Center offers a whole spectrum of services geared mainly for business executives and company CEOs. Services include workshops on electronic

commerce that focus on specific client needs, demonstrate innovative electronic commerce solutions, and help clients define successful implementation strategies. Visitors to the Center also gain hands-on experience to work with and learn from some of the projects developed by Andersen Consulting.

Strategic Positioning

Andersen Consulting offers a depth of expertise and a breadth of capabilities in E-Commerce that businesses need to address the full range of E-Commerce opportunities.

They are also uniquely positioned to help their clients break through barriers to E-Commerce value with their Business Integration Model.

"eCommerce is not just technology: it's fundamental business change"

Through the Business Integration Model, Andersen Consulting offer:

- Deep understanding of the economic implications and opportunity landscape of the eEconomy
- Ability to create a compelling enterprise-wide vision for the future in the eEconomy
- Expertise in the strategic and operational application of technology
- Cross-disciplinary, cross-functional and cross-industry perspective and expertise
- Expertise in aligning people, processes and technology with strategic intent
- Ability to execute a complex, global change program at scale

Andersen Consulting's E-Commerce Solutions

eStrategy: Establishing your business strategy and execution plan in the context of eCommerce and the eEconomy, including defining value propositions, product portfolios, customer segmentations and channel strategies.

Electronic Customer Relationship Management: Maximizing the value of the electronic channel as a means to market, and sell and serve the customer in a personalized, differentiated manner. This creates and exploits exceptional customer understanding by interweaving the electronic channel with existing customer channels, producing a 360° customer view.

eProcurement: Using eCommerce solutions to facilitate, integrate and streamline the procurement process, from buyer to supplier and back.

eInfrastructure: Designing industrial strength eCommerce architectures as a platform for mission critical business solutions.

Electronic Supply Chain: Using the power of the Internet to develop, build and implement solutions that enable companies to collaborate and synchronize operations with their supply chain partners.

eHuman Resources: Delivering employee information and services virtually to the desktop or kiosk, organized around work and life events.

Electronic Enterprise Business Solutions: Using E-Commerce capability to extend enterprise systems across and beyond corporate boundaries; enabling your customers to place their own orders, check order status, administer account administration and perform other service transactions to reduce costs, optimize revenue potential and enable new business strategies.

Arthur Andersen

Contact Information

Thailand
Paitoon Taveebhol
Email: paitoon.taveebhol@th.arthurandersen.com
Telephone: (66-2) 658 0658

www.arthurandersen.com

Company Background

Arthur Andersen is a multi-disciplinary global professional services organization, with offices in 382 locations in 81 countries. Its more than 70,000 people are united by a single world-wide operating structure and a common culture that fosters innovation, knowledge sharing and quality service. This unique "one-firm" approach qualifies the people of Arthur Andersen to serve clients by bringing together any of more than 40 services in a way that transcends geographic borders and organizational lines.

The Arthur Andersen Business Consulting practice assists leading organizations improve their strategic decision making, business operations and organizational capacity. They provide diverse process improvements, performance enhancement and technology implementation services. Business Consulting services are divided into five main areas, and includes their Information Technology practice.

E-Commerce Services & Activities

Arthur Andersen, due to the firm's multidisciplinary skills, is perfectly positioned to offer clients a full range of services to help them develop strategy, manage risk, design and implement solutions and consider and plan for the financial, tax and regulatory implications of eBusiness.

Business Consulting offers integrated services in four main areas:

- eBusiness strategy consulting services to identify and prioritize opportunities and develop strategies to enable them.

- eBusiness design services to develop the solution architecture involving experiential design, business model design and technical design.

- eBusiness implementation services to build and implement custom solutions and packaged solutions including eTailing, Self Service, and eProcurement.

- ERP systems integration services and process re-engineering services to ensure seamless integration with the current business operations including financial, inventory management, order fulfillment and logistics management.

Computer Risk Management provides services in four areas:

- eRisk: Services related to helping organizations identify, source and manage risks, including Business Risk Model-level risks, business process and technology-level risks, legal and regulatory risks and fraud risks.

- eReady: Services related to ensuring organizations are ready for E-Commerce including focus on overall organization, process and technology readiness, performance, availability and capacity planning, and EC solution integrity and reliability.

- eSecure: Services related to make the Internet safe for business use, including security strategy, security software selection and implementation, security audits, and privacy policy / privacy risk management services. In this context, their security services encompass both network security and public key cryptography solutions.

- eMeasure: Services related to attest reporting, web site activity analysis and testing of EC solutions.

Arthur Andersen's Electronic Commerce Competency Center is a leading consulting practice in the fast evolving E-Commerce, public key infrastructure and certificate authority operations that is being set up around the world.

Total Customer Satisfaction: Arthur Andersen believes that customers are the bloodline of business and must be kept coming back. E-Commerce and Customer Relationship Management are useful and effective means to retain customers and turn them into advocates of a company's services and products. Arthur Andersen believes in satisfying the customer, which they have done so effectively for many years.

Strategic Positioning

Arthur Andersen's key strengths are considered:

1. Providing a one-stop complete service for clients embarking on E-Commerce. By combining the latest technologies with best industry practices, they have the knowledge capabilities to provide multi-disciplinary services ranging from IT system integration and implementation, to tax and legal advisory, business strategy planning, process re-engineering and accounting governance.

2. In-depth expertise in both E-Commerce and ERP implementation, enabling a seamless integration of E-Commerce with the organization's backend financial, inventory management and order fulfillment processes and systems.

3. Experience in implementing E-Commerce with the 'human touch' – which is an integrated E-Commerce and Call Centre solution.

4. Client focus. In a 1998 survey conducted by Emerson Research Company, a group of U.S. multi-national companies ranked Arthur Andersen number one among professional service providers in terms of "overall client satisfaction". Emerson's survey report commented: "AA...dominated the study" and noted that "AA was...the first firm to achieve a 5-star rating in overall satisfaction since the inception of our research in 1993." Arthur Andersen was the sole leader or tied for first in each of the nine categories of client satisfaction surveyed by the Emerson Research Company. These results reflect their unmatched ability to service clients globally.

Camtech Asia IT & T

Contact Information

Camtech Asia IT & T
Cyberstation 11 B, Putra Infoport,
Universiti Putra Malaysia,
Jalan Puchong,
43400 UPM Serdang,
Selangor

Telephone: (60-3) 916 0183
Fax: (60-3) 916 0182

Mr. Chris Hill
Regional Manager
Email: chill@camtech.com.my

www.ecommerce.camtech.com.au

Company History

Established in 1983, originally as part of the infrastructure of a center of excellence - The University of Adelaide, Camtech met and exceeded the challenge of that demanding environment to grow into an independent commercial venture.

Now a mature, stable company with a sound financial base, Camtech is forging a reputation as one of Australia's premier Information Technology and Telecommunications companies. In 1997 the company acquired another leading IT organization in South Australia, Communica Systems. By early 1999 the company had over 100 staff and annual revenue of A$16m.

In 1998, Camtech sold its highly successful ISP business to OzEmail in order to focus on the development and deployment of its Electronic Commerce products and services.

Camtech's technical expertise encompasses many years collective experience supported by a very high level of formal qualifications and commitment to the ongoing training of its technical staff.

The company name Camtech is a contraction of Campus Technologies which reflects both their fundamental commitment to maintaining their position at the leading edge of Information Technology and the company's status as a 100% owned venture company of The University of Adelaide.

Company Background

Their principal business activities focus on the technical areas of Internet technologies, Electronic Commerce, system security, system integration, Internet application development, open systems solutions and sales and support of key best-of-breed products, horizontal solutions, network administration and professional training.

These activities are organized divisionally as follows:

- Consulting and Support Services
- Electronic Commerce Products
- Internet Services
- Training Services
- Computer Systems and Network
- Products

E-Commerce Services & Activities

Camtech is leveraging its 10 years experience in the Internet, the close association with The University of Adelaide Department of Computer Science (a world recognized center of excellence) and its considerable experience with security systems to produce world class Electronic Commerce products early in the market cycle.

Camtech has become a leading developer of niche products to facilitate Electronic Commerce deployment. These products are marketed throughout Australasia and globally by industry leaders in Electronic Commerce.

Camtech Electronic Commerce

The first product to market from Camtech's Electronic Commerce group is Camtech E-Commerce Payment Gateway, a highly secure, real time payment gateway product for processing credit card transactions.

- **Standards Based**
Camtech E-Commerce Payment Gateway has been designed and developed in Australia using international protocols and enciphering technologies.

Camtech E-Commerce Payment Gateway can be simply configured to any localized variant of the ISO 8583 protocol (ISO 8583 is the international banking networks default interbank communication method) and installed in a cost effective and efficient manner.

- **Real Time Processing**
Camtech E-Commerce Payment Gateway has the ability to process credit card transactions in real time. The gateway functions similarly to a standard EFTPOS terminal in a retail store providing all

standard transaction types including pre-authorization, credit approval, reversals and reporting as standard features.

Although real time processing is an important differentiator for the Camtech E-Commerce Payment Gateway product, it is also able to process transactions in batch mode and via call centers providing considerable diversity to meet the needs of merchants.

- **Military Strength Security**

Camtech E-Commerce Payment Gateway uses military strength enciphering and digital certificates to provide unparalleled levels of transaction security. Enciphering of transaction information is performed using 1024 bit RSA (symmetric) algorithms for the entire transaction process, from the client web browser through to the payment gateway.

On the physical security side Camtech E-Commerce Payment Gateway uses multiple independent firewalls to ensure that neither the web server nor the gateway are compromised.

- **Authentication**

Camtech E-Commerce Payment Gateway uses digital certificates from a central certificate authority to provide authentication for both merchant and consumer. All merchants are authenticated via a digital certificate prior to any transaction being accepted by the payment gateway. Consumers are validated in a similar way.

- **Open Systems**

Unlike many of its competitors, Camtech has developed the Electronic Commerce product based on open systems platforms. This includes a Java based implementation on an open systems client server architecture.

Case Studies

Greengrocer

Greengrocer.com.au provides households and offices in Sydney, Australia with home delivery of quality fruit and vegetables. The produce is purchased freshly each morning at the Sydney markets by an experienced buyer. The company which began operating in 1997, now has over 3,000 customers on their database.

Greengrocer.com.au approached Camtech in late 1997 to provide a cost effective and secure solution to performing Internet transactions in real-time. Due to Camtech's ability to reach these requirements Greengrocer.com.au has been operating successfully, providing better customer service and increasing profit margins dramatically through greater efficiency.

Orders are received over the Internet using a Microsoft NT SiteServer developed front end, and payment is received via credit card. The credit card details are forwarded onto the appropriate financial institution using the Camtech E-Commerce Merchant Server Solution and The Camtech E-Commerce Payment Gateway. The credit card transactions are processed in real-time and the consumer is notified of either an approved or declined transaction immediately after bank authorization has occurred.

The Commonwealth Bank of Australia

The Commonwealth Bank of Australia (CBA), is Australia's largest merchant bank with over 35% of the merchant market. The CBA in late 1997 embarked on a project to provide its merchants with a highly secured Internet payment solution.

Camtech, as the leading provider of payment solutions to banking institutions in Australia was approached by CBA to develop an interface to the bank for processing Internet transactions in real time.

The CBA's business and marketing requirements of Camtech were for:
- A highly secure Internet payment solution
- On line real time transaction engine
- Fast and reliable transactions processing
- Comprehensive auditing and reporting systems
- ISO 8583 Interface and connectivity to host systems
- CBA branded solution for its merchants

The Camtech solution provides the bank with a completely secure system capable of processing multiple types of transactions. The Camtech E-Commerce Payment Gateway was configured to communicate to the CBA banking network and is capable of not only processing Internet transactions but also future debit card transactions. All Electronic Commerce transactions passed through Camtech's E-Commerce Payment Gateway are processed using 1024 Bit RSA and 56 Bit Triple DES encryption. This high level of security met the CBA business case and enabled CBA to offer a solution direct to its merchants. The solution provides a complete end to end secure payment method that enables CBA to be confident that its merchants are secure from the hazards of Internet commerce. The CBA has a dedicated EC sales unit promoting the solution to its existing and potential merchant base.

Internet KSC

Contact Information

Internet KSC
333/100 Laksi Plaza, 12th Floor, Tower 1,
Changwattana Road,
Don Muang, Bangkok 10210

Telephone: (66-2) 576 0899 or 0990
Fax: (66-2) 576 1003

Kitiwat Tangkijngamvong
Channel and Product Development Manager
Email: kitiwat@ksc.net.th

www.ksc.net.th

Company Background

Internet KSC, founded in 1994, was the first private Internet Service Provider (ISP) in Thailand. The company was formed as a Joint Venture with the Communications Authority of Thailand (CAT) and the Jasmine Group, two key telecommunication players in the country. This strategic partnership has assured the long-term growth prospects for Internet KSC.

Company Background

Internet KSC's vision is to make the Internet available to everyone in Thailand. To help achieve this objective Internet KSC has established many education institutes across the country, which act as incubators to local budding Internet talent. The company also has an association with the Assumption Colleges, one of the most respected education institutes in the country. The investment Internet KSC is making in education is expected to bring rewards in the future and will ensure that the firm continues as an Internet leader in the years to come.

Internet KSC not only provides its customers with leading edge technology, but also possesses the largest international infrastructure link. Presently, they have up to 16 Mbps connection and the company over the years has kept its policy of utilizing the very latest innovations and connection technology. Internet KSC is constantly examining ways in which the service it provides to customers can be improved, while keeping the cost as reasonable as possible for Thai users.

Internet KSC offers a comprehensive range of Internet services, from an instant Internet package that does not require registration, to high-speed corporate nodes. Building on its strong infrastructure Internet KSC expanded its services to offer full E-Commerce solutions. The company has a policy of not limiting itself to a particular solution, but will evaluate the customer requirement and select the best of breed software for them. In this way, Internet KSC is confident that it is serving its customer base with the most innovative applications available in the world, while also ensuring that it can offer solutions to all sizes of business and all groups within Thai society.

E-Commerce Services & Activity

The key objectives in Internet KSC's provision of E-Commerce services is that the solution should be kept simple and effective, while delivering the most competitive pricing rates in Thailand. Internet KSC believes in keeping the solution simple to encourage the participation and understanding of the customer. Working in such a way ensures that 'time & material' costs are minimized and an effective solution is delivered at a reasonable and fair price. However Internet KSC does not compromise its belief in using the most suitable and advanced technology in providing a solution.

Payment system

Internet KSC also formed a joint venture with the Krung Thai Bank (KTB), one of the largest commercial banks in Thailand, to offer their customers the service of on-line payment transactions via credit card. Internet KSC selected VISA and MaterCard, the two most popular credit cards in the world to ensure that its cyber-merchants' sales could reach their full potential.

The system utilized offers high levels of security, as it not only relies on its encryption device, but also features a fully automated procedure for credit card transaction approvals. This means that neither the ISP nor the merchant will be able to view the customer's credit card information. All information is encrypted and transferred directly from Internet KSC's server to the KTB. After the card is authenticated and the approval procedure is complete, the KTB system returns an approval code to Internet KSC, whose E-Commerce system will forward the authentication code, plus order information and confirmation, to the respective merchant and buyer.

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159

In the future, Internet KSC expects that its clients' everyday back-office operations will be handled automatically by the system, not only the front office. For example, there will come a time when the calculation of distribution charges or tax can be built into the system.

One-stop E-Commerce shop

Internet KSC aims to provide a one-stop shop for E-Commerce products and services. The idea is that clients will just come to them with an idea in mind and the KSC team will search for the optimal solution that fits their requirements, while also considering their constraints. Beyond simple product selection Internet KSC is able to provide consulting and advice for back office operations. The Thai business market is still relatively new to the E-Commerce concept and will require effective guidance to enable them to become E-Commerce entrepreneurs. Business advice is crucial to ensure that these new entrepreneurs understand the environment and can build a stable, sustainable company that can benefit from the limitless potential of cyberspace. Once a plan is in place, Internet KSC will embark on building the storefront, customized to meet all the client's objectives.

Once the Internet KSC team has designed and built the store for its customer, a handbook is prepared to detail its design and functionality. The design is deliberately kept simple to enable customers to update the system, add new products or delete them, etc. This makes it convenient for customers because they don't necessarily have to wait for service to make simple changes, and importantly spend more money. This is a key reason why Internet KSC believes its E-Commerce service is available to everyone.

In some cases when stage one has been implemented Internet KSC recommends further consulting services to prepare for the second stage of the business plan and beyond. The expertise of Internet KSC is there to grow with its customers.

Customer service is very important to Internet KSC. Response time is closely monitored, not just for technical support but business issues as well. Their team are also always looking to expand offerings when new technology becomes available to ensure the company is offering the very best global solution to its customers.

Internet KSC caters to all industry sectors of the local market. No matter what the product or service for sale, Internet KSC can find the right solution.

Key Differentiators

The key strengths of Internet KSC are considered as follows:

- Strategic partnership with CAT and Jasmine Group

- Secure Online Payment Processing agreement with Krung Thai bank

- Offers One-stop E-Commerce shop

- Staff dedication to serve the customer and ensure satisfaction

- Reasonable solution and service pricing

- Well designed and documented system

- Clear future corporate direction and vision

Logic

Contact Information

Logic Company Limited
202 Nanglinchee Road,
Chongnonsee, Yannawa,
Bangkok 10120

Telephone: (66-2) 678 0478
Fax: (66-2) 678 0490

Mr. Boonchai Patanatananon (ext.3641)
Assistant General Manager
Email: boonchai.p@cdg.co.th

www.isi.cdg.co.th

Company History

Logic Company Limited was founded in 1989 as a subsidiary of the Control Data Group, which is regarded as one of the leading Information Technology companies in Thailand. As the first authorized distributor of Sun Microsystems products in the country, Logic was able to capture a high market share of the server market, particularly for Unix based systems. Over this ten year period, Logic have built experience with a wide ranging customer base, and has become recognized for its skills and expertise in the government, banking and finance, telecommunication, education and manufacturing sectors. In 1998 Logic achieved revenues of approximately Baht 550 million and this figure is expected to rise to around Baht 750 million this year, as economic growth returns in Thailand. Logic presently has 220 employees.

Company Background

Since 1995, the Internet phenomena boomed, with a rapid expansion of Internet users seen in Thailand over the past couple of years. In response to market demand the Internet System Integration (ISI) was established as strategic business unit of Logic. Its focus; comprehensive Internet related services.

Internet System Integration (ISI) have experience and expertise in providing consulting, design and implementation of Internet systems, comprising both hardware and software solutions. ISI first examines the network infrastructure within an organization, then the server platform and finally the Internet software solution. ISI can offer a fully integrated system and can connect the Internet / Intranet network with database systems, such as Oracle, Informix, IBM, DB2 and Microsoft SQL Server. Moreover, ISI also possesses expertise in designing and implementing security systems on the Internet by using Check Point's *Firewall-1* or Sun's *Sunscreen*. Proof of their expertise in this area is witnessed by the trust placed in their services by many banks and the government sector.

ISI are continuously seeking to strengthen and improve their knowledge and expertise by researching new technology and Internet products. The goal is to add value to their service portfolio and maximize customer satisfaction. ISI is not afraid to innovate to achieve this.

The core services provided by ISI are as follows;

- Internet and Intranet consulting

- System Integration services for Unix Platform (Sun Solaris) and Windows NT

- Design and system planning services

- Web-based application and Java development (for SUN, Windows NT platform or run via a web browser)

- System analysis and application integration with database

- Designing, installing and testing a network's security system

- Provision of Electronic Commerce solution

- Electronic Commerce development consulting

- Internet Commerce site installation

E-Commerce Services & Activities

ISI's mission is to provide, design, integration and consulting services to ensure a value added, high quality E-Commerce solution is provided to partners and customers. ISI is expected to gain Baht 20 million from E-Commerce services in 1999, a figure which is projected to more than double in the year 2000. The number of dedicated E-Commerce professionals within Logic is now 35.

While ISI is primarily a systems integration company their whole focus is providing total Internet solutions to both partners and customers alike. They offer full E-Commerce services from design services to business consulting. On the product side they offer a variety of industry applications and transaction

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161

processing software. ISI will customize these products to fulfill the customer's unique business objectives.

Moreover, ISI are not tied to any particular platform, which means they can respond more flexibly and accurately to a client's exact requirements.

Targeted Vertical Markets

ISI is seeing strong demand for its Internet related services across the board, but its key industry competencies comprise the following sectors:

- Manufacturing
- Telecommunications
- Transportation
- Government
- Education
- Banking/Finance
- Oil & Gas

ISI is also organized vertically to ensure delivery of solid industry expertise to the client. A narrow focus also helps in getting to know the client well and really understanding their business and appreciating the challenges they face.

Strategic Positioning

Many of ISI's key strengths and competencies revolve around their expertise in system integration. This sets ISI apart from the competition and allowed them to quickly penetrate the Internet business space. Now they are also becoming recognized as a leader in the E-Commerce field.

Key Differentiators

Other key strengths are:

- ISI a division of Logic, which is backed by the Control Data Group
- Recognized technical skills in system integration, in particular its Internet / Intranet infrastructure implementation services
- Strong industry focus has led to high understanding of customers' businesses
- Open platform approach provides benefits to the customer in terms of choice
- High levels of customer satisfaction achieved
- Provision of full E-Commerce services

- Well regarded for their security products and services, especially by the leading banks and key government agencies
- Wide range of strategic partners, including hardware providers, ISPs, CSIs, information management firms and E-Commerce and payment solution vendors.

Logic / ISI's Experience

The Logic ISI team have engineered an E-Commerce Framework which provides a step by step approach to help clients achieve their E-Commerce objectives.

First Step: Server Infrastructure – Logic have been a major Sun business partner for more than 10 years in Thailand, giving them an unparalleled appreciation of the UNIX market and the popular Sun Server product in particular. Most of the local ISPs are based on the Sun platform and many are Logic customers.

Second Step: Internet / intranet infrastructure – Planning the correct infrastructure within an organization for Internet / intranet integration is of paramount importance, as it forms the very basis for E-Commerce solutions. Logic / ISI over the past six years have gained much experience in this area across all industry sectors.

Third Step: Security Infrastruture – A sound security system is absolutely critical to an E-Commerce business. Logic / ISI provide world-class security systems for E-Commerce applications. In fact over the past six years, the company has implemented security solutions in many sectors, including firewall implementations for four large Thai banks. Furthermore, the company is not only expert in security network products, but also provides support regarding adaptive security network products that manage network security risk by monitoring, detecting and responding to changing vulnerability and threat conditions.

Fourth Step: E-Commerce Solution – The final stage is the implementation of the E-Commerce application itself. Logic / ISI have teamed with many of the leading E-Commerce vendors to ensure the widest possible choice for its customers, who vary from manufacturers to large ISPs.

Details of Logic / ISI's customer success stories are available on their website.

MFEC

Contact Information

MFEC Co., Ltd
699 Modernform Tower, 22nd Floor,
Srinakarin Road, Suanluang,
Bangkok 10250

Telephone: (66-2) 722 8393
Fax: (66-2) 722 8388

Mr, Siriwat Vongjarukorn
General Manager
E-mail: siriwat@mfec.co.th

www.mfec.co.th

Company Background

MFEC Co., Ltd, part of the Modernform OA Group, was founded in 1997, with the focus of providing solutions for emerging technologies, particularly Enterprise Network Computing, Internet / intranet and Electronic Commerce.

MFEC is regarded as a leading provider of business critical workgroup and enterprise class solutions and they are committed to helping clients build their business by assisting them in adopting cost effective, state-of-the-art technology products and solutions. This commitment has shaped the firm's values and professional practices since its inception.

MFEC's integrated service base of business strategy and technology expertise is combined with special skills in delivering web-based solutions that realize clients' business objectives within the shortest timeframe possible. Pioneered by a visionary team of professionals, MFEC has positioned itself as a one-stop solution provider with a mission to change the face of enterprise computing in the Thai marketplace. Their product line comprises best-of-breed hardware systems, networking products and web application services.

Spearheaded by a committed team of professionals MFEC is the country distributor for Netscape, an authorized distributor of Sun Microsystem and Cisco products. They also work with other global product vendors to ensure they offer the widest available choice of innovative technology to their customers.

The overall objective of the company is to help clients and business partners build and manage their business effectively, thereby assuring them the highest return on their investment in MFEC services.

E-Commerce Solutions & Services

Over the past two years, MFEC's solution line has continually broadened to encompass many types of web based solutions, such as EDI over the Internet, a suite of E-Commerce products and application server solutions for the rapid development and deployment of business critical enterprise applications on the web.

MFEC also offers customers a wide range of Support, Education and Professional Consulting Services. MFEC as a key partner of Sun, Cisco and Netscape, have classified their solution accordingly.

SUN Solutions

Originally appreciated for its powerful range of workstations, Sun's product line has broadened significantly over the years to encompass workgroup, department and mainframe-capacity servers, mass storage systems, system software and network management solutions, amongst others. Whatever the computing environment, Sun hardware is the ideal platform for mission-critical business solutions, such as E-Commerce.

Built on the latest technologies, like Java and objects, Sun's wealth of authorizing and development tools range from leading-edge compilers to sophisticated environments for designing web-enabled enterprise applications. Sun's highly respected family of Enterprise management and Security Solutions address every resource.

Netscape Solutions

Netscape products address the new market opportunity - accessing, navigating, publishing and sharing information over the Internet and intranets. MFEC's mission is to be recognized as the leading local provider of Internet, intranet and E-Commerce solutions based on Internet open standards.

Netscape products comprise; Netscape Communicator products, Netscape Server products and Netscape Commerce Applications, the enabler for E-Commerce.

Netscape CommerceXpert applications allow enterprises to exploit the opportunities created by the Net Economy – from global markets, personalized service, process automation, to complete value chain integration. Used in combination, CommerceXpert applications provide strategic advantages to enterprises and are fully integrated - sharing

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163

interactive catalogs, payment administration, security and communications.

Commerce information exchange: Taking an order online and fulfilling it the same day is a powerful concept that offers direct cost savings. Commerce Exchange enables an enterprise to exchange information, such as sales orders, invoices, and forecasts, among diverse business partners over the Internet and existing private networks.

Netscape ECXpert seamlessly connects internal business systems with partners, suppliers, and customers. This simplifies trading partner management and leverages existing investments in ERP, EDI and back-end transaction processing systems.

Corporate procurement over the Internet:
Optimizing supply-chain efficiencies improves bottom-line results. Corporate procurement over the Internet enables an enterprise to automate the entire process.

Netscape BuyerXpert lets purchasing managers gain increased control of procurement, including the comprehensive information needed to maximize savings. Under established purchasing constraints, employees can order directly from a web-browser.

Online selling: An enterprise needs to quickly enhance selling sites with online services to strengthen customer relationships and take advantage of new revenue opportunities.

With Netscape SellerXpert for business-to-business selling and Netscape Merchant-Xpert for business-to-consumer selling, an enterprise can rapidly establish commercial sites, which also act to strengthen customer relationships.

Customer information services: Online knowledge sales and targeted information delivery enable publishers and others to manage diverse online communities and foster lasting customer relationships.

Netscape Publishing Xpert manages information sales, targets advertising, and dynamically generates personalized information based on user preferences to reinforce customer satisfaction.

MFEC Support & Service

MFEC has an experienced team of support professionals, both front and back-line to serve and solve concerns and issues. To enhance and reassure support strength, MFEC has the resources of Sun Service Asia Escalation Center to solve complex or critical issues. As an Authorized Sun Service Provider MFEC support programs are in line with the structure of Sun service. A range of support packages are available to suit any customer requirement.

Key Differentiators

- MFEC's primary focus is customer satisfaction and they are one of the few who have installed a customer call logging system. Staff keep track of each and every call using Netscape Netshare Technology to ensure speedy fault resolutions.

- MFEC engineers are certified and continuously monitored by Sun, ensuring professional service

- MFEC is recognized as a leader for security consulting and solutions. Clients include many strategically important organizations.

- MFEC assists its customers in realizing their visions by directing the correct adoption of new technology. MFEC is a long-term partner, keeping clients informed of the latest technological advances and their potential business benefits.

Case Study

The Shin Corporation
The Shin Corp. is Thailand's leading broad based telecommunications and IT conglomerate, focusing on operating telecommunication networks, notably mobile phones, pagers, satellites and broadcasting.

Business Challenges: React faster to market changes and customer demands; reduce the cost of information distribution; and cope effectively with rapid expansion across a large geographic area.

Solution: MFEC was engaged to supply a Netscape-based intranet and extranet solution.

Solution Features:
- Interactive computer-based training enables employees to learn about the latest products.
- On-line workflow applications streamline processes, such as leave requests, ordering office supplies, maintenance requests, etc
- Group scheduling and resource management makes it easier to schedule appointments and reserve conference rooms, company-wide.

Business Benefits:

- Reduced costs for creating, publishing and copying hard-copy documents (tens of millions of Baht a year).
- Fast and accurate communications within and between business units.
- Improved productivity, as it saves staff time.
- Reduced costs for new employee training.

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165

INPUT Services
For IT Buyers

INPUT conducts a variety of research-based projects for decision makers. Projects are selected in consultation with sponsors, and focus on topics of high and immediate value to sponsors. The value proposition of IT buyer projects is that they are based on original research as opposed to opinion.

Projects cover the following IT and business sectors:

- Electronic Commerce
- Electronic Banking
- Electronic Government
- Enterprise Application Solution
- Internet & Intranets
- IT Customer Services & Support
- IT Operational Services

INPUT's decision maker projects:

- Enable vendor selection based on organised data from research with active buyers and users
- Support buying decisions on systems, software, services and processes
- Provide data, analysis and advice for strategic and tactical planning
- Support communications on industry developments and strategies with users, vendors and management

In addition, INPUT offers the following services:

- Extensive analysis and assessments of the world's leading IT vendors
- Comprehensive programmes of market forecasting for all leading IT markets worldwide
- Custom research projects
- Client presentations

Contact your local INPUT or The New Century Group office (see back cover) to find out how you can use our services, knowledge and experience to grow and profit in the revolutionary IT world of the late 1990's and the 21st century.

INPUT®

Worldwide

The New Century Group

Frankfurt
Perchstätten 16
D-35428 Langgöns
Germany
Tel. +49 (0) 6403 911420
Fax: +49 (0) 6403 911413

London
Cornwall House
55-77 High Street
Slough, Berkshire
SL1 1DZ UK
Tel: +44 (0) 1753 530444
Fax: +44 (0) 1753 577311

Paris
24, Avenue du Recteur
Poincaré
75016 Paris, France
Tel: +33 (1) 46 47 65 65
Fax: +33 (1) 46 47 69 50

San Francisco
1881 Landings Drive
Mountain View
CA 94043-0848
U.S.A.
Tel: +1 (650) 961-3300
Fax: +1 (650) 961-3966

Washington, D.C.
1921 Gallows Road
Suite 250
Vienna, VA 22182 3900
U.S.A.
Tel: +1 (703) 847-6870
Fax: +1 (703) 847-6872

Bangalore
31, Palace Orchards Building,
9th Main Road,
Raj Mahal Vilas Extension,
Bangalore 560080, India
Tel: (91-80) 331 2732
Fax: (91-80) 331 7421

Bangkok
Level 23, Liberty Square
287 Silom Road
Bangkok 10500, Thailand
Tel: (66-2) 631 1989
Fax: (66-2) 631 1932

Beijing
No.L-N, 9/F, Tower A,
East Gate Plaza,
No.9, Dong Zhong Street,
Dong Cheng District,
Beijing 100027, P.R.China
Tel: (86-10) 6418-1688
Fax: (86-10) 6418-1686

Hong Kong
602, The Centre Mark,
287-299 Queen's Road Central,
Hong Kong
Tel: (852) 2851 8099
Fax: (852) 2851 8082

Jakarta
Vila Melati Mas, Melati Point
Blok P2 No. 9, Tangerang 15323,
Jakarta, Indonesia
Tel: (62-21) 537 7654
Fax: (62-21) 537 9945

Kuala Lumpur
22nd Floor, MNI Twins, Tower 2
11, Jalan Pinang
50450 Kuala Lumpur, Malaysia
Tel: (60-3) 269 6528
Fax: (60-3) 264 6678

Melbourne
1st Floor, 288 Brunswick St.
Fitzroy, VIC 3065, Australia
Tel: (61-3) 9482 9111
Fax: (61-3) 9482 9122

Singapore
6 Battery Road #22-03
Singapore 049909
Tel: (65) 423 0614
Fax: (65) 423 0654