Executive Overview

Distributed Processing Services in the New Telecomputing Environment

INPUT®

About INPUT

INPUT provides planning information, analysis, and recommendations to managers and executives in the information processing industries. Through market research, technology forecasting, and competitive analysis, INPUT supports client management in making informed decisions. Continuing services are provided to users and vendors of computers, communications, and office products and services.

The company carries out continuous and in-depth research. Working closely with clients on important issues, INPUT's staff members analyze and interpret the research data, then develop recommendations and innovative ideas to meet clients' needs. Clients receive reports, presentations, access to data on which analyses are based, and continuous consulting.

Many of INPUT's professional staff members have nearly 20 years' experience in their areas of specialization. Most have held senior management positions in operations, marketing, or planning. This expertise enables INPUT to supply practical solutions to complex business problems.

Formed in 1974, INPUT has become a leading international planning services firm. Clients include over 100 of the world's largest and most technically advanced companies.

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Planning Services For Management

To Our Clients:

This summary is an excerpt from a full research report, Distributed Processing Services in the New Telecomputing Environment, issued as part of INPUT's Information Systems Program (ISP). A complete description of the program is provided at the end of this Executive Overview.

If you have questions or comments about this report, please call INPUT at (415) 960-3990 and ask for the Client Hotline.

REPORT ABSTRACT

Distributed Processing Services (DPS) is defined as "the placement of user-dedicated computers which share processing with vendor machines at either the user's or vendor's site."

Expanded from user site hardware services (USHS), the method offers powerful remote computing service (RCS) software for execution on the vendor's computers, along with other vendor services such as communications and data bases.

This report examines the role of DPS and its place between full RCS usage and internal processing solutions. The report also examines associated issues such as linking user processors of all sizes to RCS services.

Included is an analysis of user needs, case studies, and participating vendor profiles. The study concludes with detailed recommendations.

OVERVIEW CONTENTS

A. REMOTE COMPUTING SERVICE HISTORY

- Computer timesharing systems were developed in the 1950s to support military needs. Data communications, an essential component of remote computing, was also evolving during this period.

- Processing power became more affordable in the late 1960s and early 1970s with the introduction of minicomputers, originally designed for scientific and engineering needs and later adapted to office systems and production processing.

- With minicomputers came distributed processing, connecting multiple minis to a central host and used initially for transaction processing. Later came desktop processing with the now nearly ubiquitous microcomputer and associated software designed for end users rather than computer professionals.

- Essentially, a triad internal processing environment evolved: end-user micro-based computing, office systems, and production data processing.

- Generally, these domains developed separately, with separate staffs and different hardware, software, and service vendors for each environment. Later, users and vendors recognized that integrating the three systems would lead to greater efficiencies and other benefits. For many, however, integration would be (and still is) difficult.

- Meanwhile, RCS vendors began to experience declining growth and eroding profits as processing migrated from a service mode to internal systems. Many RCS firms recorded alarming losses and were forced to change.

EXHIBIT II-1

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REMOTE COMPUTING SERVICE HISTORY

1950s - Military Timesharing and Data Communications

1960s - Business Remote Computing
- Commercial Services Introduced

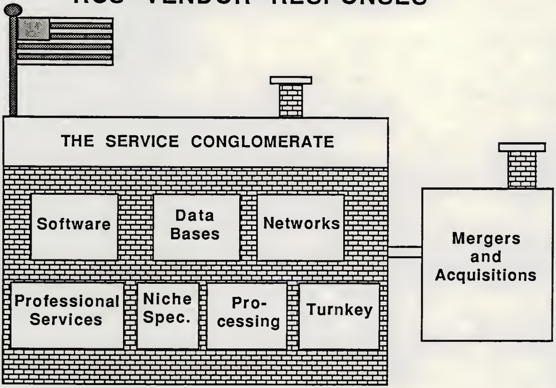
1970s - Minis, DDP, and Micros Appear
- Distributed Processing Services Introduced

B. RCS VENDOR RESPONSES

- RCS vendors responded to the changing environment in several ways:
  - Some shifted their focus to selling the software which was previously accessed via timesharing. Initially this meant mainframe software, but it became software on all levels.
  - Some vendors introduced turnkey systems, bundling hardware and software to provide customers with processing similiar to that available on-line.
  - Some vendors leveraged their expertise in designing, configuring, installing, maintaining, and managing information service facilities to offer professional services beyond processing. In some instances, processing services were deemphasized or even discontinued.
  - Some vendors targeted niches which were too small for competitive hardware vendors or rival RCS firms to address, particularly when industry- or function-specific software was needed.
  - Some vendors joined others through mergers and acquisitions to build critical mass in attempts to survive.
  - Others vendors repackaged their services to incorporate microcomputers or other processors into the service mix.
- The most successful vendors became "service conglomerates" offering a range of professional services, processing, communications, software, and/or hardware solutions to their customers.

EXHIBIT II-2

RCS VENDOR RESPONSES



C. DISTRIBUTED PROCESSING SERVICES BRIDGE OPTIONS

- One RCS response to industry change was distributed processing services (DPS).

- A distributed processing service is defined as processing via RCS computers and user-dedicated computers at the user or vendor sites.

  - When first introduced, user site hardware costs were bundled in a fixed price contract; currently, however, vendors encourage users to take title to the equipment.

  - This report focuses on minicomputer-based DPS since this was the original configuration offered. However, DPS configurations can be based on microcomputers (standalone or clustered), multiuser micro systems, or even mainframes.

- DPS provides a bridge for customers weaning themselves from RCS services and bringing applications in-house.

- Early DPS participants were ADP (Onsite), General Electric (Mark III DDP), and National CSS (now D&B Computing).

- Later entries in DPS include Control Data Corporation (Distributed Services) and Shared Medical Systems (Action).

- Key features of DPS are user-dedicated processors hosting RCS-provided applications. This processor is linked to the RCS. The link supports access to infrequently used applications, data bases, and communications services such as E-mail. It is also used for overload and peak processing, data transfers, and equipment monitoring.

EXHIBIT II-3

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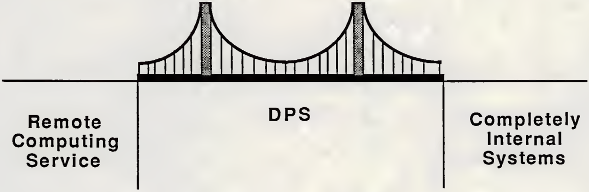
DISTRIBUTED PROCESSING SERVICES BRIDGE OPTIONS



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D. DPS BENEFITS/DISADVANTAGES

- The benefits of DPS are:
  - Access to significant and specialized RCS applications, high-power processors, equipment (such as high-speed printers, plotters, or mailing equipment), and services (such as consulting, communications, and customized programming).
  - Better control over RCS processing costs due to fixed-price contracts with discounts provided on other, not included, RCS services.
  - An economical way to test new applications or equipment before committing resources to buying them.
- The disadvantages of DPS are:
  - For large companies with constant use of the same applications, inhouse IS departments are more cost effective.
  - Loss of control. A user organization is at the mercy of the vendor; any equipment failures are beyond the user's control.
  - Redundancy. The company's internal systems may duplicate some supported by the DPS.

EXHIBIT II-4

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DPS BENEFITS/DISADVANTAGES

BENEFITS	DISADVANTAGES
● Access to RCS - Applications, Equipment, Data Bases, Services	● Internal Systems May Be More Cost Effective
● Fixed Price	● Loss of Control
● Does Not Require IS Staff	● May Be Redundant

E. WHY VENDORS OFFER DPS

- Vendors offer DPS primarily to maintain a customer considering migration to an internal system, away from RCS services.

- By bridging these customer options, the user enjoys support during what may be a difficult conversion period, and the vendor/client relationship can be extended.

    - The RCS vendor first licenses applications on a timeshared basis, then provides them via DPS delivery mode, and finally makes them available on the customer's equipment.

    - Further, the RCS vendor hopes to continue to provide other services such as communications, data bases, overload processing, and professional services.

- Other equally important reasons include:

    - High profit margins. Because the client performs most of the work involved, DPS configurations require little vendor support. Understanding this becomes important in negotiating contracts with vendors.

    - The vendor's desire to participate in distributed data processing and decentralization trends. Originally, DPS was seen as supporting multiple sites of the same client.

- The most successful DPS placements are in end-user departments receiving little IS support or in settings without an extensive IS organization.

EXHIBIT II-5

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WHY VENDORS OFFER DPS

- Fills Gap Between Full RCS Services and Wholly Internal Solutions
- High Profit Margins
- Alternative Delivery Mode
  - Expands Service Options, Product Mix
- Participation in DDP/Decentralization Trends

F. DPS MOSTLY FILLS TRANSITIONAL NEEDS

- INPUT estimates that the minicomputer-based distributed processing services currently represent a $173 million market.

- INPUT also projects that the market for DPS will be relatively flat, with a projected growth rate of a marginal 4% annually through 1991.

  - New customers will avoid or replace DPS services by taking their processing in-house.

  - Growth will mostly occur in the hospital segment, the commercial banking segments, and the general business middle market, with some installations found within larger corporations supporting specialized applications or remote locations.

- This bearish forecast does not necessarily mean that DPS is an unsuitable service configuration for users. It does, however, underscore that DPS is primarily a bridging service which permits the vendor and client to participate jointly in the transition between full RCS-supported services and an internal IS solution.

- DPS can also support, on a long-term basis, function-specific departmental needs in non-IS environments, such as small- to medium-sized health care and financial institutions, and in marketing organizations.

EXHIBIT II-6

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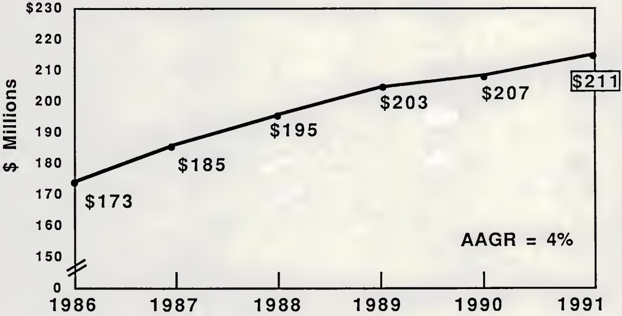
A FLAT MARKET FILLING TRANSITIONAL NEEDS



DISTRIBUTED PROCESSING SERVICES IN THE NEW TELECOMPUTING ENVIRONMENT

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EXHIBITS

INFORMATION SYSTEMS PROGRAM (ISP)

ISP: Meeting The Challenges of Today's IS Role

INPUT's Information Systems Program (ISP) helps IS executives to meet the strategic, tactical and operational challenges faced in today's and tomorrow's information systems environment:

Strategic
- √ Cost Containment
- √ Government Deregulation
- √ Non-Traditional Competitors

Tactical
- √ Cost Containment
- √ Information Delivery
- √ Integrating IS and Corporate Planning

Operational
- √ Improving Productivity
- √ Cost Containment
- √ Improving Information Delivery

ISP is a comprehensive program of research-based studies, informative client meetings, and continuous support services. ISP is simple, affordable and effective.

Continuous Services

...Strategic Issue Studies

You will receive six Strategic Issue Studies conducted by INPUT in 1986. The studies address user requirements, buying patterns, IS organization expenditures now and in future, case studies and more. Topics of research for 1986 are:

- IBM Operating Systems Strategies
- Network Services Directions
- Distributed Processing Services
- Departmental Software
- Distributed Processing Services: The New Telecomputing Environment
- Software Productivity/Applications Development (tentative topic)
- Systems Integration (tentative topic)

INPUT's Strategic Issue Studies provide the customized information you need, at a fraction of the cost of proprietary research.

...IS Executive Meetings

INPUT will conduct informative one-day seminars in conjunction with each Strategic Issue Study you select. Find out at these valuable meetings how other IS executives are meeting today's challenges, and how they are gearing up for tomorrows. For your convenience, INPUT will hold meetings on both the east and west coasts of the U.S.

The one-to-one exchange of experiences and information with your peers provided by INPUT's IS Executive Meetings allow you to make decisions based on reality -- not industry hype.

...IS Industry-Sector Analysis and Forecast

This "reference study" is crucial to successful IS budgeting and planning. Based on a multitude of interviews with key educational IS organizations as well as eight other industry sectors, INPUT will present hard data on IS spending, budgets, and more. With this study you will know -- on an industry-by-industry basis:

- Forces driving IS direction, issues, objectives
- Top management perception of IS and organizational issues
- Impact of future technology
- IS role in end-user computing (equipment acquisition, software development, training, maintenance, security)
- New applications
- IS' corporate contribution
- Distribution of corporate computing expenses (distributed vs. central vs. end-user)
- Budget distribution (personnel, hardware, computer services, communications, software, maintenance)
- And more!

INPUT's IS Industry-Sector Analysis and Forecast is the baseline of sound IS budgets and plans.

...IS Client Hotline: Continuous Planning Support

INPUT's senior Information Systems consultants, knowledgeable about the issues and challenges that face IS managers and planners, are available to you each and every day. Answers to your IS questions or a discussion about current industry events that may impact your firm are as close as your telephone.

For planning support whenever you need it, simply call any of INPUT's three U.S. research offices (California, New Jersey or Washington, D.C.). In addition, all clients have direct access to INPUT's ISP consultants via voicemail. Through this effective service, clients can pose questions at anytime during the day or night and receive rapid response.

INPUT's IS Client Hotline provides the exact information you need, when you need it.

...The Information Center

INPUT maintains information on more than 4,000 information industry vendor's products and services, more than 300 industry/application files, and subscribes to more than 140 different industry publications through its Information Center. This valuable resource is available to all clients through direct use or through the IS Client Hotline.

INPUT's Information Center -- tracking the development and growth of the information industry for more than a decade, providing up-to-the-minute information on technology, monitoring the performance of both IS and vendor organizations -- provides the facts-based foundation you need for effective planning.

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As a client you will receive up to two copies of all reports, materials and services described above for twelve consecutive months. You may send up to four attendees to each IS Executive Meeting; attendees will each receive a hardcopy of presentation materials.

OPTIONAL SERVICES

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This set of three reports details IBM's actions in the large system market and responses by other vendors in the marketplace. Residual value forecasts for IBM and selected IBM-compatible mainframes are included. Also coveredare storage devices, printers and other peripherals.

... On-Site Presentation

During the final three months of your subscription period, INPUT's senior IS consultants will present to you and your staff (at your site), the results of all IS-related research conducted by INPUT during your subscription period. The presentation and discussion following clarifies the real impact that industry events and trends will have on your firm.

For more information, contact your nearest INPUT office listed on the next page.