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Research Bulletin

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Java is great, but Shockwave will dominate the Web first!

Java in the Spotlight

Java, from Sun Microsystems, has been in the spotlight recently for its ability to create exciting, interactive multimedia Web sites. With Java, one can create self-contained, platform-independent programs, or applets, that execute through any Java-enabled browser. Java has been endorsed by Netscape Communications Corp., which supports the technology in its Navigator 2.0 browser.

Java is a great technology, but when it comes to adding interactivity and multimedia to web sites, Macromedia Shockwave for Director is much better.

What is Shockwave?

Shockwave for Director is Macromedia's product name for the Director-on-the-Internet project. Shockwave for Director includes two distinct pieces of functionality:

- Shockwave Plug-In for Web browsers, like Netscape Navigator 2.0, which allows movies to be played seamlessly within the browser.
- Afterburner is a post-processor for Director animation source files. Multimedia developers use it to prepare content for Internet distribution. Afterburner compresses movies and makes them ready for uploading to an HTTP server, from which they'll be accessed by Internet users. Afterburner compresses standard Director files by approximately 60%, adds security, and optimizes content by media type for quick downloading.

Why will companies employ Shockwave to add interactivity to their web sites? Shockwave will be successful for several reasons including:

- Director is the Preferred Multimedia Development Environment

Macromedia is clearly the market leader in multimedia development. In 1995, 80% of the multimedia titles on CD-ROM were created in Director, according to Macromedia. With Macromedia's Director, developers can easily combine text, graphics, animation, sound, digital video, and interactivity to create dynamic

multimedia productions. Today, Director is used to create corporate presentations, entertainment and educational CD-ROMs, simulations and visualizations, kiosks, digital publications, electronic reference materials, software demonstration disks, and more.

At the 1995 New Media INVISION Awards - recognizing excellence in the use of multimedia technology - 75% of the winners used Macromedia's Director to create the title. Over 10,000 titles have been created in Director as well.

Director gives users precise control of virtually every element in a developer's multimedia production. Developers can use the integrated Cast, Paint, and Score windows to create and sequence text, graphics, and animation, and synchronize them with sound and video.

- Director's Lingo is Object-Oriented

Director features Lingo, a powerful scripting language that enables developers to add extensive interactivity to their multimedia productions via buttons and scripts. Object-oriented commands provide reusable code and simplified scripting. Lingo allows users to test and set a variety of Cast member properties, including type, registration points, and color depth as well as control the playing, size, location, and appearance of windows. Mathematical functions and a list feature for the simplified creation of arrays are also part of Lingo.

Java is a general purpose programming language, with its roots in C and C++. It competes with, and can be compared to C++: both are high-level, object-oriented programming languages designed to build system-level software. Sun has done a good job convincing the general public that Java is an ideal language for creating animations, but it really is not. Some developers may make the investment necessary to build Internet multimedia from the ground up, in the same way that some CD-ROM title developers choose to build their entire title in C++. But developers who use Director can clearly generate equivalent animations in a fraction of the time.

Some critics of Shockwave claim that the media clips take too long to download via the Web. However, in some cases, the object-oriented properties of Lingo allow graphics to be downloaded even faster than standard GIF files.

- Shocking Speed of Development

With over 250,000 Macromedia developers, this vast pool of creative talent can immediately create multimedia clips for the Web using Macromedia Director. The end result of this will be that, by this time next year, the Web as we know it will be a far more exciting place to visit. Shockwave will transform the Web from a dull slide show to a truly interactive multimedia environment.

Macromedia's Shockwave plug-in for Netscape's Navigator 2.0 is only a month old, dating back to the Winter Internet World show. What's most interesting is the sheer number of web sites that have implemented Shockwave in that amount of time. A number of web sites already list over 200 “shocked” web sites.

Will Java Be Used?

Of course. Java enjoys wide support, principally for its cross-platform support--because it is an "interpreted" language, its applets can run on virtually any machine, and because it executes code in protected "virtual machines" on the client end, it's a plus for security-conscious users.

The Java development environment is still immature. Although the technology will be stabilized, it's not there right now. Developers won't be able to use it like they would C++ for at least six months to a year. Roaster, developed by Natural Intelligence, is the only development program available to create applets in Java. Netscape, Sun and others do not plan to offer development kits for several more months.

Although the Java development and authoring market will be a very scalable one, the majority of its use will be within the enterprise for industrial-strength applications. Sun believes the first users will be primarily IS managers interested in financial analysis and data mining applications. Java offers these system developers a robust, secure, network aware programming environment.

Macromedia has licensed Java

Macromedia plans to build an interface between Director and Java similarly to the way Director interfaces with C and C++ today. Developers will then be able to build exotic applications that can take advantage of Java's distributed and modular properties.

Sun, Silicon Graphics, Inc., and Macromedia have announced intentions to jointly define a new set of open multimedia formats and application programming interfaces (APIs) to extend Java programming language.

The companies believe that the new formats and APIs will enhance Java's capabilities for providing animation and interactivity, especially in the are of 3D rendering and multimedia over the Internet or corporate networks. These technologies will enable capabilities such as the integration and real-time streaming of audio, video and 3D; spatialized audio; and video conferencing. The open specification is planned for publication during the first half of calendar 1996.

What Competes with Shockwave?

Not really anything. Director owns 80% of the multimedia development market, and is positioned to own most of the online multimedia development market.

Although Sun introduced Java first and has gained momentum, Microsoft follows close behind with a plan to deliver much of the same functionality through OLE Custom Controls (OCXs).

Microsoft claims its Visual Basic product can easily create animations, but it is clearly inferior to Director. Microsoft plans to introduce VB Script which will compete with Java and Shockwave to create web-based animations.

Oracle markets its Oracle Media Objects (OMO), a software authoring environment to create interactive multimedia applications. Although the October 30th issue of MacWeek contains an advertisement for OMO which makes the claim that OMO allow authoring for the Internet, Oracle has never shown Internet delivery from OMO in public, and has announced no specific technology that allows playback on the Web.

Macromedia's Future Plans

For the future, Macromedia plans to add streaming features to Shockwave for Director. Currently, a shockwave file does not start playing in a web page until the entire file in downloaded from the Internet. The streaming feature will allow a Netscape browser to begin playing the animation before the entire file is downloaded. This feature will be very

similar to the streaming ability of Progressive Networks' RealAudio system. Macromedia also plans to add streaming ability to the video XObjects in its Lingo scripting language.

Conclusion

By year end, INPUT believes most corporate web sites on the Internet will feature Shockwave animations. As web developers upgrade their sites to "keep up" with the rest of the pack, a number of opportunities will arise including:

- Increased Demand for Director Developers

As soon as a few good "shocked" web sites are created, all others will be required to upgrade in order to compete. A frenzy, or shockwave, will permeate the web as webmasters and presence providers scramble to add true interactivity to their web sites. In 1996, the industry will actually witness a decrease in the development of CD-ROM titles as Director-skilled developers are lured by the opportunities to create truly interactive multimedia web sites. Director services will explode to $30 million in 1996 and $85 million in 1997.

- Need for Affordable, "Lite" Director or Equivalent

As corporations add Shockwave functionality to their web sites, amateur web sites will be left behind unless an affordable version of Director is introduced. Today, Director retails for approximately $800. Multimedia developers can justify paying this amount because of its importance to their work, but home developers probably will not pay $800 to "shock" their web sites. However, these amateur web developers might be inclined to pay $300 for an animation package that doesn't provide as much of the functionality of Director, but that allows them to create exciting animations for the Web.

Macromedia has dominated the multimedia development market for several years, and is poised to dominate the Internet multimedia development market. With the recent acquisition of the Freehand drawing package from Aldus, Macromedia finally offers an entire multimedia development suite. The only piece of Internet multimedia development environment that Macromedia does not offer is an HTML editor to assemble everything. But don't be surprised if Macromedia purchases an HTML editing package or company in the near future.

And just when Microsoft thought it caught up to the rest of the Internet companies with its acquisition of Vermeer, Shockwave will put Microsoft behind again. Without a decent multimedia development application, the company may find it difficult to compete against a company like Macromedia that can offer an entire Internet multimedia development suite. And by the time Microsoft ports its Blackbird development tool to the Internet, it may be too late.

This Research Bulletin is issued as part of INPUT's Internet Opportunities Program. If you have questions or comments on this bulletin, please call your local INPUT organization or Brad A. Meinert at INPUT, 1881 Landings Drive, Mountain View, CA 94043-0848, (415) 961-3300.

B.

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January 19, 1996

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RI01-11L	IBM CANADA LTD, Library,		1
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RI73-2	IMI SYSTEMS, INC., Mirabal, Jules	1	
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RM08-47	MCKINSEY & COMPANY, INC., Porras, Susan	1	
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RM59-24	MICROSOFT CORPORATION, Gustafson, Sonja	2	
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RI17-8	INTEL CORPORATION, Vadasz, Leslie L.	1
RI39-44	CSK, Endo, Gensei	2
RI73-1	IMI SYSTEMS, INC., Forman, Robert	2
RI73-2	IMI SYSTEMS, INC., Mirabal, Jules	1
RI85-1	ITAA, Green, Paul	1
RJ12-17A	JIPDEC, Murotsuka, Shuhei	2
RM08-1	MCKINSEY & COMPANY, McArthur, Melanie	1

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RM08-22	MCKINSEY & COMPANY, Librarian,	1
RM08-47	MCKINSEY & COMPANY, INC., Porras, Susan	1
RM26-1	MITRE CORPORATION, Kersh, Beth	1
RM26-2	MITRE CORPORATION, Roth, Beth	1
RM59-24	MICROSOFT CORPORATION, Gustafson, Sonja	2
RN14-30	NEC CORPORATION, Kato, Shin'Ichi	2
RN14-7	NEC CORPORATION, Uchida, Koichi	2
RN17-4	NIPPON STEEL CORPORATION, Miyabe, Hirosh	2
RN29-14	NTT DATA COMMUNICATIONS SYSTEM, Sakube,	12
RN29-21	NTT, Kubo, Hirotaka	2
RN29-31	NTT AMERICA, INC. R&W, Kishigami, Junich	2
RO39-1	OMRON, Masuda, Kiyoshi	2
RO72-1	OLIVETTI NORTH AMERICA, INC., Olszewski,	1
RO72-2	OLIVETTI NORTH AMERICA, INC., Riello, Lo	1
RP51-19	KPMG PEAT MARWICK LLP, Kull, David	1
RP51-198	KPMG PEAT MARWICK LLP, Info Center,	1
RS01-1	SHL SYSTEMHOUSE INC, Gray, Rick	2
RS01-3	SHL SYSTEMHOUSE CORPORATION, Lozier, Joh	1
RS01-4	SHL SYSTEMHOUSE CORPORATION, Hampton, Je	1
RS08-1	SUNGARD DATA SYSTEMS INC., Tarbox, Richa	2
RS10-7	SAIC, Kelly, John	2
RS106-1	SAS INSTITUTE, INC., Riggsbee, Jackie S.	2
RS32-2	SLIGOS, Bentolila, Pierre	3
RS44-44	SIEMENS NIXDORF INFO. SYS. AG, Grueter,	1
RS44-44A	SIEMENS NIXDORF INFO. SYS. AG, Froeschl,	1
RS44-44S	SIEMENS NIXDORF INFO. SYS. AG, Siemens,	1
RS44-44T	SIEMENS BUSINESS SVCS. GMBH, Gajek, Oliv	1
RS45-9	STERLING SOFTWARE, Moore, Phillip A.	2
RS62-1	SLOAN SCHOOL - MIT, Wang, Richard	1
RS87-3	STRATUS COMPUTER, INC., Nosek, Susan	1
RS93-1	SERICS MINISTRY OF INDUSTRY, Knight, Pat	1
RT01-69	TRW FINANCIAL SYSTEMS INC., Burton, Lind	2
RT01-70	TRW FINANCIAL SYSTEMS INC., Sherne, Gary	1
RT47-11	TSC, Bilderback, Diann	2
RT59-6	TOSHIBA CORPORATION, Izumi, Hidekazu	2
RT67-1	TECHNOLOGY SOLUTIONS COMPANY, Bilderback	1
RU09-17	UNISYS LIMITED, Locke, Tony	1
RU09-19	UNISYS CORPORATION, Schwatka, Elizabeth	1
RU09-44	UNISYS CORPORATION, Miniutti, John	1
RU09-47	UNISYS CORPORATION, Robertson, Paul G.	1
RU09-7	UNISYS CORPORATION, Haynes, Steven	1
RV71-2	VISA INTERNATIONAL, Chaffee, Todd	1
RW01-1	WELSH,CARSON,ANDERSON & STOWE, Anderson,	2
ZINTERCOB	Z.. INTERNAL - COMMERCIAL, Telesales Lib	1
ZINTERCOBB	Z.. INTERNAL - COMMERCIAL, Goodwin, Bob	1
ZINTERCOCB	Z.. INTERNAL - VIRGINIA, Billingsley, Ch	1
ZINTERCOE	Z.. INTERNAL - COMMERCIAL, Hey, Angela	1
ZINTERCOEA	Z.. INTERNAL - COMMERCIAL, Meinert, Brad	1

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ZINTERCOF	Z.. INTERNAL - COMMERCIAL, Library,	2
ZINTERCOG	Z.. INTERNAL - FRANCE, Library - Sales,	4
ZINTERCOH	Z.. INTERNAL - NEW JERSEY, Office Manage	12
ZINTERCOJ	Z.. INTERNAL - UK, Library/Stock,	12
ZINTERCOK	Z.. INTERNAL - VIRGINIA, Berthaut, Norm	6
ZINTERCOL	Z.. INTERNAL REG. OF COPYRIGHT, Dep & Ac	2
ZINTERCOO	Z.. INTERNAL - JAPAN, Library,	4
ZINTERCOW	Z.. INTERNAL - GERMANY, Solbach, Frank	5
ZINTERCOZ3	Z.. INTERNAL - CORPORATE, Peter Cunningh	1
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