

ZAPTHINK ZAPNOTE™

MACROMEDIA FLEX *EXPANDING ON FLASH TO PROVIDE RICH CLIENT CAPABILITIES*

Analyst: Ronald Schmelzer

Abstract

Companies originally moved to adopt standards-based technologies like those underlying the Web and the Internet as a way to achieve distributed computing functionality at a very low total cost of ownership. However, such companies had to forego many of the user interface and productivity advantages that other distributed computing methods, such as traditional client/server applications, gave them. This fundamental drawback to thin clients like Web browsers led to an emerging class of vendor that offers rich client solutions that provide the optimal combination of rich, low-cost interaction through standards-based distributed computing.

Macromedia was one of the early pioneers in rich user interaction across the Internet. In 1997, they made a splash in the market with their Flash product, and as of the date of this report, over 90% of Web browsers and 500 million users are equipped with the Macromedia Flash player. Continuing this legacy, Macromedia has introduced its Flex product that leverages Flash to provide rich client capabilities over standards-based, loosely coupled distributed computing infrastructures.

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Combining Rich Client Interfaces with Highly Distributed Applications

Users are demanding rich client interfaces to Web Services that provide an end user experience similar to client/server applications. Such clients must offer a rich graphical user interface, responsive performance and highly interactive functionality. Companies originally moved to adopt standards-based technologies like those underlying the Web and the Internet as a way to achieve distributed computing functionality at a very low total cost of ownership. However, these companies had to forego many of the user interface and productivity advantages that other distributed computing methods, such as traditional client/server applications, used to give them.

Such rich client solutions must provide the optimal combination of rich client interaction and low-cost interaction through standards-based distributed computing. One set of vendors provides these capabilities on end user systems through the use of proprietary plug-ins or client-side code that serves to provide a controlled runtime environment for presentation logic. The benefits to basing a rich client on a browser plug-in are straightforward: by controlling the runtime environment, a vendor can guarantee that they can provide a consistent, fully-functional set of rich client capabilities to a browser or desktop application across multiple deployment environments. In addition, plug-ins aren't limited by browser constraints or the sandbox environments of Java or .NET virtual machines, thus enabling a wider set of interaction capabilities over synchronous and asynchronous protocols.

Leveraging the Power and Presence of Flash

Macromedia was one of the early pioneers in rich user interaction across the Internet. In 1997, they made a splash in the market with their *Flash* product, and as of the date of this report, over 90% of Web browsers and 500 million users are equipped with the Macromedia Flash player. Continuing their Flash legacy, Macromedia has introduced its *Flex* product (previously code-named Royale) that leverages Flash to provide four key areas of rich client capabilities:

- The ability to develop multi-step, complex user interaction scenarios, such as configuration, multi-page electronic forms, and elements that require context, flow, transitions, and visual effects.
- The need for client-side business logic processing that end-users require for business logic validation, calculations, data verification, formatting, filtering, sorting, and other aspects of user feedback.
- The need to directly and visually interact with data through metaphors such as drag-and-drop, data grids, list boxes, checkboxes, calendars, and other rich user interactions.
- The ability to represent data and complex, aggregate information from multiple sources in a visually intuitive manner to enable data visualization, data integration, graphing, charting, data drill-down, and other intelligence requirements.

Macromedia Flex-based applications run and execute within Macromedia's client-side Flash environment. So, in essence, Flex is a standards-based, distributed programming model for the Flash client. In addition, Flex requires a server-side component, currently based on Java, to allow users to author and compile Flex applications for delivery at runtime to Flash clients.

Users create Flex applications by writing in a proprietary XML-based declarative language for application development and UI called MXML. The language defines how users interact as well as provides a class library for artifacts like data grids, date choosers, and other interactive elements. MXML applications can consume Web Services, and the language provides the requisite decoupling of presentation logic from business logic. Finally, users can

develop in any text-based editor they choose, although Macromedia is planning on releasing their own Flex IDE soon.

Since Flex is a native Java application, deploying a Flex server on the J2EE platform is straightforward. Flex applications are handled with Java Web archive (WAR) files. Through the use of XML and file-based application development, developers can incorporate Flex applications into the administration and application lifecycle tools already in use in the enterprise. While executing in the Flash Player, the Flex application can interact with server-side functionality, such as databases, SOAP-based Web Services, and other server-side application components.

Macromedia Flex Products

Macromedia Flex	Availability: Now
Overview: Leveraging Macromedia Flash technology, Macromedia Flex is the provides a presentation-layer, server-side solution for deploying rich client applications to a wide set of client interfaces.	
Details: The Macromedia Flex presentation server is a server-side product that enables companies to build rich client applications. The Flex presentation server sits in an organization's presentation tier, and leverages client-side Flash technology to augment existing Web Services, HTML, and server-side scripting with executable code that runs on the client.	
Key Differentiators: <ul style="list-style-type: none">➤ <i>Time-tested client-side plug-in</i> – Macromedia Flash plug-in has been on the market since the mid-1990's and has been tested across many different Web, Web Services, and other distributed computing approaches.➤ <i>Large developer base</i> – Macromedia boasts one of the largest contingents of client-side developers, and can thus leverage this base for rich client application development.➤ <i>XML-based development language</i> – Macromedia Flex's use of the XML-based MXML language enables developers to accelerate their development of rich client applications through simplified coding.	
Value Proposition: Key Macromedia Flex benefits include: <ul style="list-style-type: none">➤ Faster time-to-market with applications through simplified development of rich client code that accesses Web Services.➤ Improved transactional Web-based apps by providing rich client interface on top of existing business logic.➤ Higher end-user productivity by providing applications that look, behave and perform the same, regardless of their access means and connection.	

The ZapThink Take

As companies desire richer interaction with their Web Services-based applications, they will increasingly move away from static Web browser-based applications and towards rich client solutions such as those from Macromedia. As a result, the market for rich client solutions is in its infancy, and we can expect significant growth over the next six years (See ZapThink's *Rich and Smart Clients for SOAs* report [ZTR-WS111] for more detail).

What makes Macromedia's approach unique is that its Flex-based applications run and execute within Flash. So in essence, the server-side Flex solution provides the Web Services rich client application development interface for the Flash client. While the Flex presentation server runs on Java now, Macromedia plans call for it to on the Microsoft .NET platform by early 2005.

The company also seeks to differentiate itself from the emerging class of rich client focused startup vendors in the following ways:

- Macromedia believes that since 90% of all web browsers already have the Flash plug-in installed, they have an existing captive audience of potential rich client users. While the Flash player is proprietary, it's so ubiquitous among users that they don't believe that the plug-in will become a barrier for entry, as it would be for competing plug-in based solutions.
- Macromedia Flex leverages not only the deep UI capabilities of Flash, but also the thousands of developers in the rich user community that is already building thousands of Flash applications.
- Since Macromedia has already ported their Flash client-side application to a wide variety of desktop operating systems, the rich client solution is not tied to limitations around deployment to specific platforms, such as Macintosh or Linux operating systems. In addition, there is no need for cross-browser testing due to the plug-in nature of their approach.

Finally, the company is targeting developers that are familiar with declarative tag-based language. So, while the Flex solution is not meant for the casual user, they are seeking to capitalize on those thousands of developers familiar with XML, HTML, and other tag-based development, as well as those who are currently working with JSP and ASP. As a result, the company is well poised to help transition the casual corporate developer into a powerful rich client application developer.

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Thank you for reading ZapThink research! ZapThink is an IT market intelligence firm that provides trusted advice and critical insight into XML, Web Services, and Service Orientation. We provide our target audience of IT vendors, service providers and end-users a clear roadmap for standards-based, loosely coupled distributed computing – a vision of IT meeting the needs of the agile business.

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Profile: Macromedia	March 2004
Date Founded: February 25, 1992	
Funding: Public company (NASDAQ: MACR)	
Employees: 1085	
CEO: Rob Burgess	
Products:	
➤ Macromedia <i>Flex</i>	
➤ Macromedia <i>Flash</i>	
➤ Macromedia <i>Studio MX</i>	
Address: 600 Townsend Street San Francisco, CA 94103	
URL: http://www.macromedia.com	
Main Phone: (415) 252-2000	
Contact: Melissa Sheridan msheridan@macromedia.com (415) 252-2246	

Related Research

- *Rich and Smart Clients for Service-Oriented Architectures* Foundation report (ZTR-WS111)
- *Service Orientation Market Trends* Foundation Report (ZTR-WS110)
- *SOA Tools and Best Practices* Foundation Report (ZTR-WS107)
- *Service-Oriented Integration* Foundation Report (ZTR-WS103)
- *DreamFactory* ZapNote (ZTZN-1138)
- *JackBe* ZapNote (ZTZN-1141)
- *Curl* ZapNote (ZTZN-1142)



About ZapThink, LLC

ZapThink is an IT market intelligence firm that provides trusted advice and critical insight into XML, Web Services, and Service Orientation. We provide our target audience of IT vendors, service providers and end-users a clear roadmap for standards-based, loosely coupled distributed computing – a vision of IT meeting the needs of the agile business.

ZapThink's role is to help companies understand these IT products and services in the context of SOAs and the vision of Service Orientation. ZapThink provides *market intelligence* to IT vendors who offer XML and Web Services-based products to help them understand their competitive landscape and how to communicate their value proposition to their customers within the context of Service Orientation, and lay out their product roadmaps for the coming wave of Service Orientation. ZapThink also provides *implementation intelligence* to IT users who are seeking guidance and clarity into how to assemble the available products and services into a coherent roadmap to Service Orientation. Finally, ZapThink provides *demand intelligence* to IT vendors and service providers who must understand the needs of IT users as they follow the roadmap to Service Orientation.

ZapThink's senior analysts are widely regarded as the "go to analysts" for XML, Web Services, and SOAs by vendors, end-users, and the press. They are in great demand as speakers, and have presented at conferences and industry events around the world. They are among the most quoted industry analysts in the IT industry.

ZapThink was founded in October 2000 and is headquartered in Waltham, Massachusetts. Its customers include Global 1000 firms, public sector organizations around the world, and many emerging businesses. ZapThink Analysts have years of experience in IT as well as research and analysis. Its analysts have previously been with such firms as IDC and ChannelWave, and have sat on the working group committees for standards bodies such as RosettaNet, UDDI, CPExchange, ebXML, EIDX, and CompTIA.

Call, email, or visit the ZapThink Web site to learn more about how ZapThink can help you to better understand how XML and Web Services impact your business or organization.

ZAPTHINK CONTACT:

ZapThink, LLC
11 Willow Street, Suite 200
Waltham, MA 02453
Phone: +1 (781) 207 0203
Fax: +1 (786) 524 3186
info@zapthink.com
www.zapthink.com

