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## Web Services: The Next Technology Thunderstorm

Somewhere in your firm, a smart developer is using a simple tool from Microsoft, SilverStream, or IBM to replace a filing cabinet of business forms -- and the staff that minds it -- with a Web services interface. The result? A revolution of cost cutting and business partnering. CIOs will lead the revolution -- or be trampled by it.

Web services, a highly distributed computing environment, is the heir to client/server, PC LANs, and the Web -- the next technology thunderstorm. Web services technology is where HTML was in 1995: ready to launch. When HTML tools dropped below the spending threshold for most managers, low-cost servers coupled with free browsers and a pent-up demand to publish documents caused a hundred sites to spring up in every company. Between 1995 and 1997, more than 30 million Web sites appeared.

The same will be true of XML Web services -- the answer to the need to make corporate data available through portals and system-to-system connections, both inside and outside the firewall (see the October 31, 2001 Forrester Brief "Executive Overview: Web Services). Why now? Because for the first time:

- 1) **XML Web services tools are shipping.** Microsoft's Visual Studio .NET, SilverStream's eXtend, and IBM's VisualAge for Java give developers the tools to put Web services interfaces on corporate data, regardless of which system it sits in: SAP, mainframe, SQL Server, or other (see the February 13, 2002 Forrester Brief "Microsoft's Great .NET Tool Forces A Tough Choice").
- 2) **Managers can write the check.** The price to get started with Web services has dropped below \$5,000 for tools and a server, which puts it within the discretionary spending threshold for most managers. This will fuel a groundswell of adoption.
- 3) **Developers have the basic skills.** It's a guarantee that the best developers in your company are already using SOAP, WSDL, UDDI, and the latest tools to build Web services interfaces. Why? They're easy, cool, and offer great job security.

## WEB SERVICES WILL REPLACE FORMS -- AND ADMIN STAFF

Firms can and will use Web services technology to replace manual, forms-based business communications with automated, XML-based connections. Where will Web services catch hold?

- **Wherever there's a business form.** Purchase orders, product catalogs, and packing slips live on paper and in databases. Business forms today burden US corporate budgets with admin staff costs and physical storage. Web services will attack these costs by replacing business forms with self-service portals and system-to-system connections (see the December 2001 Forrester Report "The Web Services Payoff").
- **Whenever two systems must talk.** EAI and B2Bi technologies are too expensive and too difficult to have made more than a dent in system-to-system connections. Web services is the low-cost integration solution (see the December 2001 Forrester Report "Reducing Integration's Cost"). And though Web services won't replace transactional trading or EDI connections, in situations with hundreds or thousands of requests a day, Web services are the right approach. A customer using phone, fax, or a Web form to check your inventory is ripe for a Web services connection between his sourcing system and your inventory system.
- **Wherever people handle repetitive requests.** Any repetitive request or notification performed by a person -- a status check, purchase reorder, or approval notification -- is an endangered job. Web services will replace these low-value positions with automated interfaces, responses, and messages.

## Web Services Will Tip In 2003 -- And Change Partnering Economics By 2005

Unlike the glitzy visibility of the Web, Web services are behind the scenes. The impact will feel small at first, but the accumulation of thousands of Web services inside your company and hundreds of Web services between you and your suppliers and customers will have a dramatic impact on your cost structure, productivity, and agility.

- **In 2003, Web services' impact will become noticeable.** The cost benefits of replacing people with self-service portals and system-to-system connections, both driven by Web services interfaces, will boost firms' earnings in 2003.
- **By 2005, the connection costs of partnering will hit a critical threshold.** Business transaction costs have shaped the boundaries of firms and the structure of industries, and they have raised barriers to business innovation (see the March 13, 2002 Forrester Brief "Web Services' Ripple Effects"). By 2005, Web services technology and adoption will coalesce to dramatically lower the cost of business

interactions and recast firms and industries in more specialized, interoperating, and agile forms.

### SMART CIOs WILL LEAD THE WEB SERVICES REVOLUTION

The Web services revolution will happen with or without the CIO's leadership. Every business and organization will be overhauled from the inside out as the people who enter data, ask questions, and answer queries are replaced by XML Web services. At their peril, CIOs can ignore the groundswell, miss cost-cutting opportunities, and ignore the corporate data spilling out on the floor. Or they can step up and:

- **Inventory the Web services opportunities and existing projects.** Smart CIOs will pull together their lieutenants and find out what's already going on, figure out where the low-hanging fruit is, and learn tough lessons early.
- **Set up the guardrails for vendors, security, and skills.** Although it's much too early to choose a standard supplier and nail down every security detail, it is not too soon to lay out an online playbook of key policies and preferred suppliers.
- **Convene a Web services executive council.** It's not too early to let the CFO and CEO know that a new game's afoot. This is a revolution, and the time is now to pose the question: "What would we do differently if we could tie our business systems to customers', partners', or suppliers' -- for free?"

### Technology Barriers Will Fall Under An Innovation Onslaught

Do barriers exist? Surely. Distributed systems are notoriously complex. Who guarantees that a message was delivered once and only once? Who ensures that only authorized people or systems make requests? Who keeps the network running? What if one party changes its interface?

These problems are very hard and will keep CIOs and systems managers up nights. But the need for industrial-strength Web services will drive vendors, entrepreneurs, and investors to attack every technology barrier to:

- **Guarantee that a message is delivered exactly once.** HTTP was never designed for "reliable messaging" -- with a guarantee as strong as registered mail. The reliability of transaction systems must be replicated using Internet protocols. Startups like Grand Central Communications and Flamenco Networks are early out of the gate.

- **Turn security solutions from ad hoc to standard.** Firms must adopt an enterprise-scale and supplier-network-ready systems for managing identity, authentication, and notification. But federated identity standards will be crippled by the rivalry between Sun and Microsoft, though Oblix offers an ad hoc solution today that integrates with Microsoft's Passport. VeriSign is the possible white knight here.
- **Test, monitor, and administer Web service connections more easily.** No one has yet solved the systems administration problems that Tivoli, Computer Associates, and HP solved in corporate networks. The scale of this problem in the highly distributed Web services world is much larger than managing the resources inside a single company. This problem will linger as a horde of vendors from six different markets battle over standards and market share.
- **Improve the Internet's predictability.** For Web services to form the foundation for business services, firms need a reliable network. Though there's no single network carrier that can solve this problem, startups like RouteScience, Sockeye Networks, and Proficient Networks can now combine multiple carriers' pipes to minimize the problems of packet loss, latency, and bandwidth costs (see the June 25, 2001 Forrester Brief "Fixing The Internet's Routing Problems").

### UPCOMING FORRESTER RESEARCH ON WEB SERVICES

Forrester will soon publish two reports that together will describe the impact of Web services on businesses; segment and characterize the Web services technology markets; help IT managers choose vendors; and lay out an action plan for CIOs and business managers.