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Web Services: Floor Wax or Dessert Topping?

By Barbara Angius Saxby



Established market leaders and start-ups alike are developing product strategies to capitalize on the promise of Web services.

Lately, you can't go anywhere without hearing about Web services. They've become the topic du jour in most trade journals, discussions at software companies, and industry conferences. What's all this hype about? What is a Web service, why is it important, and who should care? What are the opportunities for start-ups? These are among the questions this article will explore. *A Saturday Night Live* skit once promoted a product by saying, "It's a floor wax *and* a dessert topping," meaning it serves all of your needs. The hype around Web services also proposes to solve all our computing needs. That isn't the case, but it could be a pretty good floor wax.

The Promise

Web services promise to provide unprecedented application interoperability and leverage by allowing applications to participate more broadly as integrated components of complete e-business solutions. By exposing application components as Web services and letting consumers invoke the components, businesses can more readily integrate enterprise applications and interact with customers and partners. In this distributed,

service-based environment, transactions in the form of XML message exchange allow for just-in-time integration and deployment of modular bits of application logic for performing specific tasks. Web services will be described, published, discovered, and invoked at run-time in a distributed network environment.

The 2001 mantra was that the adoption of Web services would result in more flexible application infrastructures, easier integration, reduced development time and costs, and collaborative commerce with partners and suppliers. The projected opportunities for this technology, presumed to be infinite in 2001, seem to be hitting a more realistic plateau. A healthy skepticism has emerged. Much of the debate centers on the role of Web services in the enterprise infrastructure and its application to e-commerce. Where does the real value lie? To answer this, you can't survey users because few actual implementations have been deployed. But established market leaders and start-ups alike are developing product strategies to capitalize on the promise of Web services. Is this rational planning or a distraction caused by the latest fad?

The Opportunities

Vendors are working on their strategies, positioning, product road maps, and alliance strategies. Venture capitalists are also actively looking for the next great viable technology. Software vendors now want to determine:

- How to position themselves with regard to Web services
- The scope of the research and development investment required to bring a Web services-based offering to market
- When to launch products.

The resulting false starts, failures, and apparent successes will provide lessons for those that follow, helping the market evolve.

Implementation of Web service-based solutions will occur at different rates for different vendors and buyers, depending on their business needs and the importance of Web services in addressing those needs. Revenue opportunities for vendors will mirror the natural evolution of technology adoption. Historically, the first people to make some money are those involved in creating the enabling technology itself. But ultimately, the big money goes to people who leverage technology to solve problems that transcend the technology either by improving applications and business processes or by seeing the opportunity to create something new and valuable. Revenue associated with Web services will flow to participating companies in four identifiable phases:

- Infrastructure
- EAI integration
- Business-to-Business (B2B) and Supply Chain Management (SCM) applications
- Enterprise applications.

Infrastructure

The first vendors who make money in this new market will develop and sell technology tools and frameworks for building and managing Web services applications. Application developers and architects now are using several first-generation Java 2 Enterprise Edition (J2EE) tools to build applications today. Current marketing campaigns promote tools and frameworks that will provide the easiest, fastest Web service development and implementation.

The challenge for established compa-

nies building infrastructure products will be to innovate fast enough to gain mind-share and revenue with easy-to-use tools and frameworks. Application server vendors are optimistic about the prospect of Web services and are positioning their products as the deployment platforms for the next generation of service components. They're vying to be Web services "command central" to connect all the pieces, including applications, integration, and Business Process Management (BPM). Even though these vendors have a strong market position, some observers doubt these big guys will get it right and be successful. They "don't know what they don't know" about the difficulties of building J2EE applications and it'll take them too long to build needed solutions. In tough economic times, these companies manage their businesses to return earnings and positive results. Their focus is on delivering products that return short-term dollars as opposed to spending a lot of money on longer-term strategic initiatives that these new architectures require.

Opportunities exist for smaller vendors that can bring new products to market that are flexible, scalable, and complement application server functionality while promoting the vision of Service-Oriented Architectures (SOA). However, start-ups will be challenged with building a sustainable business, developing discrete tools only. Innovative start-ups will quickly move to develop capabilities that add several pieces of the needed functionality to deploy Web service applications and therefore define their place in the software mix. But will they be able to do so profitably? Larger companies will probably gobble up start-ups that build tools that meet the right needs, at the right time. The larger firms will integrate the unique technology they acquire into larger solutions.

There's a niche opportunity for start-ups to develop solutions to specifically manage Web services and their components. As these services are deployed in distributed environments, they'll need to be centrally managed. To the degree Web services functionality cuts across traditional enterprise software vendor boundaries, limitations will be exposed in the management capabilities offered by each of those vendors. Overlay solutions will be needed. This creates an

opportunity because of the innovation required and the need for a new third party to arbitrate between the functionality provided by several application vendors. A new layer of internal brokering functionality will be added to the software stack that will direct messages and content use from enterprise applications to third-party Web service management applications. These management applications will provide real-time and long-term visibility into the interactions between Web services components, while increasing control over issues such as business process flow management, performance, security and access control, policy management, failure analysis, diagnostics, contract management, format rendering, and version control. A few companies are moving into this space and developing products.

A key success factor is how well the tools vendors help make Web services more secure by adding digital certificates to the mix. Protocols and mechanisms to strengthen the security, reliability, and workflow capabilities of Web services are vital. There's work in progress, but today's approaches might not be robust enough for the enterprise of tomorrow, which may cause subsequent interoperability or integration problems. The goal is to make security a fundamental part of each Web service while reducing complexity during development. Vendors can score big by improving security in Web services.

Enterprise Application Integration

Application integration continues to rank as one of the top-five pain points for IT departments. The ability to build and deploy Web services is fundamental, but reliably getting them from one location to many locations is essential to making them useful. The EAI phase of Web services adoption is short-term but also has long-term market potential. We should see vendor offerings and integration projects using Web services within the next six to 12 months.

Current EAI solutions link existing, monolithic applications into a common infrastructure, while Web services are designed to allow for smaller, modular functionality that can be assembled and reassembled into dynamic processes. EAI solutions enable discrete, pre-specified connections, while Web services

enable open-ended, one-to-many connections. EAI solutions are complex infrastructures that require a significant commitment of strategy and resources, while Web services can be deployed with incremental cost and effort.

Web services will play an important role in enabling applications using different infrastructures to work together seamlessly and they'll be able to do it quickly and cost-effectively. They'll be able to access pieces of data to build composite applications that can be distributed and executed as needed anywhere in the enterprise. Given the enormous amount of corporate data and business logic that resides in legacy mainframe environments, enterprises will need scalable, efficient ways to expose these core assets as Web services and share them when and where needed. For EAI vendors and systems integrators, there's a significant opportunity to leverage this technology to solve escalating integration problems. Web services will let them take greater advantage of that base capability and expand their target market by becoming a critical part of an integrated application system and overall business process.

Established vendors can be expected to revise their current offerings to provide more flexible platforms that can accommodate Web services for more efficient integration. The nature of Web services promotes a distributed SOA approach to integration. Current EAI solutions feature hub-and-spoke architectures that centralize all the business intelligence and management functionality. Due to the inherent limits on scalability and flexibility of this approach, many skeptics question its longevity. Technologies are needed that offer lightweight distributed integration frameworks and platforms that will accelerate industry evolution. This innovation will most likely come from the incumbents, but there may be room for start-ups if their solutions contribute to ease the pain and pace of integration. Innovators will offer powerful new distributed platforms or extend the basic functionality of current brokers, buses, and adapters using Web services. The crowded world of EAI vendors will slim down to a few big winners and those will be the ones who best embrace and leverage Web services.

Enterprises will need easy-to-use,

visual tools to guide decisions when assembling Web services to streamline processes. This will breathe new life into the market for pure-play BPM vendors. EAI vendors have been extending their road maps to include BPM as they all strive to improve multi-step processes for greater efficiency.

B2B Commerce and Supply Chain Management

Web services usage will facilitate SCM and will be an important component of B2B applications and BPM solutions. These enterprise application categories appear separately in this analysis because of the complexity of the business relationships and critical requirements for data sharing, transaction processing, and order and inventory management. Early

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B2B trials of applications using Web services have been primarily by companies functioning as service providers rather than consumers. Concerns about security appear to be confining most of these early test implementations to known, trusted trading partners.

Despite vendors' efforts to meet strong demand for innovation in B2B and SCM applications, this phase of the Web services adoption continuum remains 18 to 24 months out.

Before B2B collaboration can be expanded, significant work is needed in building the underlying infrastructure and integrating business processes. B2B collaboration and commerce also share the same requirements for better integration to the back-end systems that EAI vendors are working to provide. This is the basis of the opportunity. Large organizations and smaller technology providers will find success if they can deliver Web service-based technology solutions to:

- Accelerate security for B2B transactions

- Improve integration
- Streamline business processes
- Enable commerce through centralized and interactive catalogs and directories
- Include the customer in the entire process.

Enterprise Application Vendors

Established enterprise application vendors are actively investigating Web services implementations of their applications but will cautiously watch how quickly demand evolves before they re-architect their entire product on Web services standards. Effort in this phase of the continuum presupposes all new applications will be introduced with underlying Web service architectures that easily interact with other internal and external applications. That won't be the norm for another 24 months. Meanwhile, vendors will use the latest EAI technology and work to implement applications using Web services technology for early adopters. They may evolve road maps and add basic Web services functionality to existing products, create more APIs, or offer toolkits to make it easier to expose data to build and deploy applications as distributed services.

By the time this stage of evolution arrives, new standards are likely to be on the horizon and vendors will continue to feel pressure to keep up. Technology is always a moving target. However, the large application vendors are so entrenched in *Fortune 2000* companies that they must continue to upgrade their technologies and deliver innovative products to meet customer demands and maintain or establish their competitive edge. Large application vendors will continue to own the enterprise and reap the rewards. Mergers and acquisitions will increase as vendors find it easier to buy rather than build Web services solutions.

Ancillary Business Opportunities

The evolution of Web services will create additional opportunities for ancillary businesses and models that can profitably leverage Web services. Potentially, the biggest winners will be Systems Integrators (SIs). These companies are not traditional early adopters, as they prefer to work with large, established ven-

dors that provide them with necessary technology, training, support, and credibility with customers. However, EAI, B2B commerce, and SCM are the prime areas where Web services technology will be used. These are the “big ticket” projects for SIs, so they’ll ultimately reap the rewards from Web services. Slowed IT spending has hit the large integrators hard and they’re less likely now to invest time and effort in new solutions. But SIs need to evaluate the technology and align with vendors today to position themselves for future gains. Mid-tier SIs that use Web services for discrete projects will rack up some early wins, achieve market leadership (particularly in vertical markets), and enjoy solid profits.

Another group that can leverage Web services is the oft-maligned Application Service Providers (ASPs). Using Web services, ASPs can improve the performance of their applications by having critical components of it temporarily operate at the customer site, as the need arises. Yet they can maintain complete control over the application architecture, performance, and security. This could reduce the costs of application delivery and improve performance, which may help ASPs capture customers and make a profit from each one. Since the ASPs can totally control the application architecture and deployment, they can deploy Web services principles and techniques immediately and not have to worry about having some of the standards and “platform wars” settle down, as the EAI and B2B vendors must. This opportunity is unlikely to be as large or certain as the others discussed earlier, but it’s still worthy of mentioning.

Brokering services are subscription-based offerings that provide management services for composite “applets.” The purpose of this new ASP model is to reduce the cost and complexity of managing interactions between partners and customers. These new service companies would offer a wide range of applications and platforms to provide more secure, scalable, and reliable communications with partners, suppliers, and customers. They offer companies a low-risk entry into Web services while the ASP provides control, data transformation, visibility, and management of the interactions and service delivery. This is per-

haps the most futuristic view of Web services adoption as infrastructure and integration technology must be in place and current Universal Description, Discovery, and Integration (UDDI) standards need much more work. Market adoption of these new models is expected to be 36 months out and it will take awhile for any real winners to emerge.

Summary

Web services is not a market — It’s the next wave in software technology, based on advances in XML and other standards, that will enable new ways for enterprises to develop, integrate, deploy, and manage applications. Web services promise to significantly ease the simple act of connecting different pieces of software.

There’ll be initial demand for devel-

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opment tools, application delivery platforms, and management tools to facilitate the adoption of Web services. These companies’ products are primarily valued for Web service technology innovation within the IT community. This is the start-up opportunity, for the most part. Some new technology leaders will emerge and do well, but these will be niche markets contributing to the overall industry success with a constrained maximum size. Established EAI, B2B commerce, SCM, other enterprise application vendors, and SIs should make the majority of the big money from Web services. Innovation will be rampant in the early stages as vendors who cleverly use the Web services architectural model to better deliver existing application types or deliver new forms of applications will be big winners. Those who don’t embrace this model may rapidly lose market position to those who do.

Web services technology is still moving through the early adopter phase and will shift to a more mainstream phase by mid-2004 and become widespread by 2005. Given the current economic cli-

mate, IT departments will be cautious in making investments. They should be looking at Web services based on a clear business value. IT management will look for sound investments, technical interoperability, and business process integration. The need for interoperability with existing infrastructure and applications will continue to drive IT purchase decisions. IT management will also be looking for a quick Return on Investment (ROI) where expectations are now three to six months to show return.

Early adopters will continue to use Web services for organic, discrete internal projects. The next phase will see more systematic deployment within the enterprise for application integration. Continued efforts in B2B and SCM solutions will achieve ubiquitous collaboration between partners and suppliers. As companies look to increase control of their business, a need exists for various business units to be connected and the granular nature of Web services solutions will increase their ability to do so.

The jury is out about which software vendors will win as considerable innovation is expected during the next few years. IT departments will continue to look to their existing vendors for technology solutions, but they’ll test promising technologies that fill a gap. So there’ll be room for a few point solutions and innovative products from start-ups if they’re deployed quickly and cost-effectively, and with minimal disruption to the current infrastructure. Such solutions will ease the pain of software development and application integration. **CAI**

This article is adapted from a white paper on Web services. The complete white paper may be downloaded at www.accelentmarketing.com.

About the Author



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