

THE STENCIL SCOPE

An Analysis Memo from The Stencil Group

How Web Services Will Beat the “New New Thing” Rap

(June 2001) We argue that after substantial hype and a deceptively slow start, web services will drive a significant change in enterprise computing over the next two years. Bottom line, web services will beat the impression that they are just the industry’s “new new thing” by effectively shifting the e-business decision-making process back to core, strategic processes—and away from the limits of what IT departments can accomplish. By Bill Robins.

Web services represent a substantial development in the enterprise computing market. Vendors large and small are betting that this emerging technology trend will take hold, enable new possibilities for e-business—and reinvigorate enterprise software spending. Do web services truly represent a dramatic shift in how companies will engineer their business processes, or are they simply the latest flavor of the technology industry’s beloved “new new thing?”

In answering this question, this memo will:

- Provide context for the developing landscape,
- Explain the business value behind web services, and
- Look ahead to emerging challenges and areas of opportunity.

Author’s note: This essay assumes that the reader is generally familiar with the basic concepts and technologies behind web services (e.g. SOAP, UDDI, WSDL, XML, etc.). For an introduction to these ideas, please see The Stencil Group’s recent article, “Defining Web Services,” available on our web site (http://www.stencilgroup.com/ideas_scope_200106wsdefined.html).

Web Services and the “New New Thing” Rap

Software vendors see tremendous opportunity for their businesses by providing “web services” solutions, but in their haste to spark a new market and accelerate demand, they also have created substantial confusion. Some of this confusion is normal for an emerging technology—it is no secret that marketing new technology requires an educational sell.

However, much of the confusion derives from the vendors’ emphasizing different aspects of the same basic framework. In particular, the major vendors’ presence—HP, IBM, Microsoft, Oracle, and Sun—helps to raise awareness, but they all are driven to defend their existing franchise. Each has an agenda to advance. While each talks about “web services,” the approach and benefit differs. HP pushes their existing hardware and developing software

Bill Robins (bill@stencilgroup.com) is a partner in The Stencil Group. He focuses on venture financing, business models, and the emerging e-business landscape.

businesses, IBM emphasizes middleware and connectivity, Microsoft touts benefits for consumers and small business, Oracle sees extending its e-business suite, and Sun paints a picture of network-connected hardware devices. By addressing similar topics in different voices, they have succeeded in exciting the market but have also left many listeners confused about what, exactly, web services are.

Some may wonder if this confusion really indicates that charlatans are at work, commanding us to ignore the man behind the curtain. Before web services will succeed, the model will encounter extensive skepticism as the “New New Thing,” simply a technology fad designed to continue the cycle of hype, investment, and disappointment. Indeed, in the aftermath of 1999–2000’s B2B explosion, enterprise customers and venture investors will be justifiably suspicious about web services and its new new crown. Web services’ advocates will even amplify this skepticism by acclaiming web services as **the** silver bullet that solves every IT and e-business problem, not to mention curing the common cold.

Web Services’ E-Business Context

Web services sit at the intersection of many trends in business and information technology (see Figure 1, “Drivers of Web Services Adoption,” below). During the past decade, technology has marshaled internal operational processes to ever-increasing efficiency and has changed the way customers interact with most businesses. Large corporations have simultaneously merged with former competitors while outsourcing non-core operational activities. In IT departments, too, the model has shifted from in-house development and single-vendor, homogeneous approaches to a best of breed and heterogeneous approach. Meanwhile, billions of dollars have been invested in enterprise and e-business software, the Internet became ubiquitous, and XML became a standard for describing and transferring data.

**Figure 1: Drivers of Web Services Adoption
 (The Stencil Group, 6/2001)**

BUSINESS ENVIRONMENT	TECHNOLOGY TRENDS
Decrease in product lifecycles and heightened customer expectations	Ubiquitous Internet infrastructure
Wide acceptance of outsourcing non-core business functions	XML as lingua franca
Internal processes already highly automated and efficient	Challenges of heterogeneity and enterprise application integration
Economic uncertainty mandates focus on efficiency	History of components and object-oriented programming
Mergers, acquisitions, and process integration	Distributed computing and acceptance of “the cloud”

These contextual forces have created the opportunity for web services, a model of e-business integration in which discrete tasks within e-business processes are distributed widely throughout an organization and among its trading partners on top of a clearly-defined, standards-based infrastructure. (Please see “[Defining Web Services](#)” for a more explicit definition of the technology behind web services.)

Web Services Adoption

Although momentum clearly is building, web services are fundamentally still a promising technology, not a packaged business application. Indeed, we expect that while web services will begin making immediate inroads into individual e-business initiatives, CIOs will require at least twelve months to evaluate the pros and cons of the technology before web services are implemented in a major way (see Figure 2, Beating the New New Thing Rap?” below).

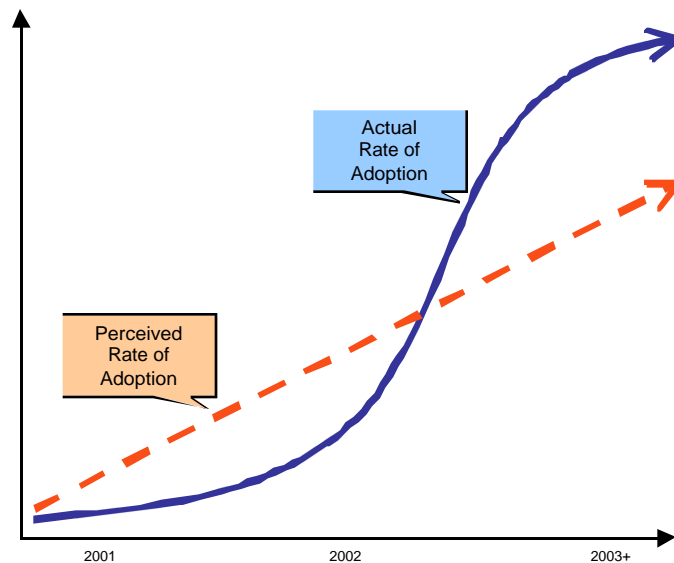
**Figure 2: Beating the “New New Thing” Rap?
 (The Stencil Group, 6/2001)**

CREATING MOMENTUM	ERECTING BARRIERS
Real technology in sound conceptual design	Generic label allows for confusion and “poseurs”
Web services represent incremental effort with measurable benefit	Saturation of investment by the VC community
Web services’ value grows with the network	No “killer app” to herald web services’ arrival
Major software vendors are helping to generate demand and shepherd start-ups	Major software vendors are creating noise and confusion in the market

Ultimately, the positives will outweigh the negatives, and web services will succeed—but not before more than one pundit has declared web services to be a flop. So many of the factors driving web services adoption will also distort perception of its success; Cringely’s Law—the observation that technology changes far less in the short term than we expect, but that it has a far greater impact in the long term than we realize—will certainly apply to web services (as it has to XML and even to the web itself).

During the next year, hype about web services adoption will race ahead of reality. While growth (and expectations) are perceived as linear, actual adoption will creep ahead until a “tipping point” is reached, at which adoption will surge exponentially (see Figure 3, “Web Services Market Growth—Reality vs. Perception,” below).

Figure 3: Web Services Market Growth—Reality vs. Perception
(The Stencil Group, 6/2001)



Based upon past behavior and input from decision-makers today, we anticipate that the web services tipping point will occur 12–18 months ahead, or in mid–late 2002. By then, the vendors of hype certainly will have exposed web services as a “fraud” and will have moved on to the next new new thing. The fact remains, however, that following the tipping point, the impact of web services will have far exceeded the perceived or anticipated impact. This is similar to the adoption of XML as the lingua franca for data exchange.

Seeing Beyond the New New Thing

Tipping points aside, investors and prospective customers certainly should be evaluating web services in context of previous instances of enterprise software. Given web service’s heritage, B2B e-commerce solutions represent a likely model for comparison. While the B2B boom delivered a phonebook full of companies promising new efficiencies, nearly every net market or supply chain solution launched in the past two years required major changes in business processes, human behavior, and technology strategies.

Given their confusion of “disruptive technologies” with “difficult to implement software,” it’s clear in retrospect that many startup B2B companies exhibited more hubris than real impact. Truly disruptive technologies are seductively easy to implement and deceptively restrained in their focus. Web services fit this mold far better than B2B net markets; web services offer incremental implementation costs with dramatic potential for maximizing the efficiency and flexibility of e-business processes.

Although we are very optimistic about the long-term prospects for web services, undeniable challenges remain the short term. Today’s greatest challenge is education; IT adopters are not clear on what web services are and how they can create genuine business impact. Beyond education and hype, vendors will need to deliver practical tools, products, security, and interoperability before adopters will deploy web services widely.

Although the banging of the web services drum comes at a price—the new new hype that will emerge is due in great part to the support of the vendors’ marketing machines—on balance, Microsoft’s and IBM’s significant marketing efforts will benefit the broader web services movement. IBM, in particular, will help ease concerns at most of the Fortune 500 that web services are all show and no substance.

After the smoke clears, the bottom line is clear for web services—this technology model works, decreases integration costs, and increases flexibility. These benefits are too tangible to ignore, and although there are many challenges to be overcome, web services ultimately will drive a major shift in software development, integration, and customization.

The Business Case for Web Services

To put it simply, enterprise software is purchased and implemented either to cut costs or to help generate revenue. Web services are able to deliver both benefits by enabling businesses to operate much more dynamically. Web services will allow companies to integrate and customize their existing enterprise applications and capitalize on previous investments in people and technology, while at the same time allowing business people to make decisions based on business criteria.

At base, web services deliver value by reducing the time, costs, and level of effort required to connect software—create remote procedure calls (RPCs) in programmers’ parlance—within an organization and between trading partners. More generally, this increased flexibility will be manifested in three areas:

- The actual connections between data sources,
- Customization of applications, and
- The business relationships that the technology connections enable.

Web Services Address Real IT Challenges

The concepts behind web services are a logical extension of what has been happening in the IT industry over the past decade, namely the rise of middleware and the application server. Web services will have a major impact on the way businesses integrate with each other, as well as integration of internal assets. Existing integration solutions are both rigid and expensive. Web services promise to accomplish many of the same objectives, but in a faster, easier—and cheaper—fashion.

Global 2000 companies have made substantial investments in technology. These investments have made the typical large business a very heterogeneous IT environment. When deploying new software, companies cannot rip out and replace their existing systems. Because companies must integrate existing and legacy technical assets with the new applications, this creates substantial complexities. These complexities are amplified by the need to work with partners, creating projects with external, as well as internal, integration demands.

The integration solutions to date while powerful have been rigid, time-consuming, and expensive to deploy. This rigidity forces some business decisions that are less than ideal. IT

departments and business managers are forced to make trade-offs between what a company *wants* to do and what the technology team *can* do, in the time allowed. This often leads to an overextended IT Departments.

Enterprise Application Integration (EAI) is the preferred method for integration today. EAI is a one-to-one, or point-to-point, connection between two applications or systems. It is an excellent solution for many business requirements. However, similar to EDI solutions, EAI solutions are very expensive to implement. Goldman Sachs estimates that \$198 billion was spent on outsourced EAI system integration last year, with an additional \$26 billion on B2B, or inter-company, integration. The minimum integration costs start at \$1 million, but can go up from there quickly. Gartner studies have shown that for every \$1 of middleware software that is sold, a consulting firm receives between \$5 and \$20 from integration work.

Software deployment is only a part of the equation for the total cost of ownership on software. Software maintenance accounts for 60-80% of the total costs. These integration projects are developing hard coded connections to attach two distinct end points. If one end point changes or further customization is required, the code may need to be modified on both ends.

There is a human cost to adopting new technology as well. This includes having to hire consultants or train internal IT staffs on a new application. From an allocation standpoint, integration consumes too many resources. Gartner estimates that the average programmer spends 65% of their time “gluing” applications together.

Web services reduce the level of effort required for IT programmers to glue applications together, as well as allow less

Web Services’ Demonstrated Value

During the course of The Stencil Group’s web services research, we have heard several examples—some real, some hypothetical—about how web services will impact bottom-line business operations. We highlight two of the real case studies below. The first case study highlights how web services can actually create new revenue opportunities and provide strategic advantage, while the second focuses on the efficiency IT departments can achieve by building upon existing technology assets.

DOLLAR RENT-A-CAR

The car rental industry is not known as a hotbed of technological innovation. However, by using web services, Dollar was able to develop a new partnership with Southwest Airlines with measurable results.

This partnership would enable Southwest to offer their customers a rental car via Dollar at the time of an Internet booking. In addition to the appeal of tapping into Southwest’s very successful Internet channel, two factors drove Dollar to work with Southwest: (1) Southwest has a lower commission structure than Dollar’s other channel partners, and (2) Internet sales have superior gross margins.

The greatest challenge in establishing a real-time connection between the two systems was their operating systems; Southwest runs a UNIX-centric environment, whereas Dollar use a pure Windows platform. The existing solutions for linking these two systems interact required at least six months and a very substantial investment of resources. Web services allowed Dollar to connect Southwest’s systems in less than a month’s time with a minimal upfront investment.

The results have been very positive. Not only has this partnership driven \$10 million in top line revenue over the past year, it has done so with improved margins. Dollar is planning to leverage these web services interfaces to add future online partners to its program.

skilled programmers to handle the new integrations. As a result, more skilled programmers can focus on developing code and business logic to solve more interesting problems.

Web services are built on existing and emerging technology standards, including HTTP and XML. This bodes well for future adoption as these standards enable much more firewall-friendly distributed computing than previous solutions (e.g. CORBA, DCOM). To this point, the groups driving web services have kept a lowest common denominator focus while designing their solution. This accent on simplicity may be the best decision that has been made and ultimately may make the difference between web services being another CORBA or DCOM, or it being the next XML.

Businesses Reap Benefits

Web services will improve communications between business units, partners and customers. Today, there are extensive resources being applied to make sure that, internal business units and the assets they own are integrated. Current solutions are inefficient. If companies do not connect their internal assets, it could hinder their ability to partner in the near future, which could have a greater impact on the corporation’s overall ability to compete.

Businesses can extend the life of legacy applications and programmers through web services. Businesses can take existing legacy applications and put them into a web services “wrapper.” This makes the legacy application behave like it was a modern piece of code. Because programmers can continue to develop programs they know (e.g. Java, PERL, Visual Basic, etc.), companies can extend their investment in programmers as well.

Web services allow companies to break down their existing product offerings into smaller blocks or elements using web services wrappers. After companies have experience leveraging web services, they will more seriously evaluate web services as a revenue generator opportunity. For example, a logistics company might break down their offering into shipping, billing, currency translation, etc. Web services would allow them to offer any one of these components to other companies.

Web services are the next evolution in technology development. Corporations need to

MULTI-NATIONAL BANK

Acme Global Financial (fictional name used for anonymity purposes), a multi-national bank with offices in several continents successfully embraced web services to leverage an existing strategic software asset. By leveraging this asset, they saved substantial time and unlocked valuable business assets.

The Tokyo office of Acme Global Financial had developed a risk management and analysis program. It was very widely used within the Tokyo office. Offices in Europe and North America needed access, but local deployment would require substantial effort by the bank’s IT department, as the software depended upon hard-wired connections to local databases and a plate of spaghetti code that developed over the software’s lifecycle. Initial estimates were on the order of 6–9 months for each office that needed a copy of the system.

To get around these obstacles, Acme Global Financial’s IT department partnered with a private software firm that had developed toolkits to enable web services connections in legacy applications. By working with this vendor, the bank was able to deploy the risk management and analysis tool in about a month, with only a week’s incremental effort for each additional office.

integrate and customize their own applications, as well as connect with their partners. Web services achieve these objectives in a way that the IT department will be very comfortable with, given the standards-based and component nature of the technologies involved.

What Comes Next for Web Services?

Web services will drive a shift in enterprise computing and raise questions for the existing software ecosystem. The Stencil Group projects that the *initial* adjustment period will be coming to an end by mid-2002 (see Figure 4, “Web Services Adoption Timeline,” below).

Figure 4: Web Services Adoption Timeline

TIMETABLE	ACTIVITY	NOTES
Mid 2002	Early Adopters: Internal activities; non-transactional in nature; web services will be provisioned only at this point; re-use and cost-cutting benefits are king; core web services stack is defined	Vendors bang the drums with obscene marketing expenditures; press eats up, then spits out web services concept
End 2002	Crossing the Chasm: Early adopters push out web services to their value chain; starts in hub-and-spoke environments, where there’s a gorilla; consuming activity increases as provisioning benefits are documented; stack is extended and metrics emerge	Tipping point occurs during this period; Companies start to see early revenue returns from syndicating out assets
2003	Entering Main Street: Applications Emerge; Specific web services-native applications emerge; most are vertically focused as vertical applications leverage mature stack	Web services move from “emerging technology” to accepted method of software development and distribution
2004+	On Main Street: Broad roll-out of web services	

Companies that have made smart investments in resources and time will begin to see some positive results from their efforts. Others will have to get moving faster or risk finding themselves in the role of technology laggard. Looking ahead to this initial period of adoption, we make the following predictions:

- **Web services first adopted internally.** Web services will be adopted within enterprises before moving beyond the enterprise. When a company owns both pieces involved in the project, it is infinitely easier to control and execute successfully. These initial projects

will involve non-transactional scenarios, until CIOs become more confident in web services' abilities. Once web services have proven themselves internally, it will move to solve more complex business and technical problems outside of the corporate firewall.

- **Information-intensive industries go first.** Web services are more likely to be adopted in information-intensive industries, which rely heavily on partnering or channel sales, and have aggressively deployed technology to achieve competitive advantage in the past. The Stencil Group posits that financial services, ISVs, insurance, telecom, and travel will be some of the earlier industries to adopt web services.
- **Service model implications.** A services delivery model will force a change in the way enterprise software is priced and sold. As opposed to large, expensive and up-front price tags, customers will pay for most service-based software over time in a subscription or usage model. This will result in less direct sales and a greater reliance on channel partners to sell software at a reduced price point, as well as a reduced cost of sale. Finally, customers' risk of being locked-in to a software provider, are dramatically mitigated in this model.
- **Business users and “meta-applications.”** The Stencil Group is skeptical of such potential trends emerging. In theory it sounds great, but in practice there are many challenges. Essentially, the idea is that web services will aggregate a wealth of components for a business user to choose from, similar to a menu at a diner. The business user will construct a “meta-application” from these smaller components. To obfuscate all of the complexity behind this menu is not an insignificant task. Although some business users may have the skills required to execute this vision, The Stencil Group is betting that most do not. Lastly, it seems to require a pretty substantial change in behavior for the business or marketing executive, which creates additional challenges.
- **Interoperability.** Although some hiccups will occur, the value of interoperability to the major vendors is too clear for them to risk significantly balkanized implementations. We expect that the critical, lowest common denominator elements of the web services stack—SOAP and WSDL—will be implemented nearly universally and uniformly. At higher layers of business logic, however, expect plenty of competition and a range of proprietary extensions to the core web services functionality as vendors look to add and reap value from a standards-based platform.
- **Dynamic binding.** Companies will seek out service providers (e.g. shipping services) on the fly through UDDI and other directories and dynamically bind the provider's service to their business needs. Although this will happen in the future, companies want to do business with people they know, trusted partners. Until companies become comfortable with web services and there are transitive trust mechanisms put in place, The Stencil Group does not believe that dynamic binding will enjoy widespread success in the near future.

Conclusion

Because web services significantly increase a business’ flexibility and mitigate many of the challenges traditionally associated with IT deployment, customization and integration, we argue that large enterprises will realize a significant, positive impact on their technology and business operations from web services over the next 12–24 months.

Before web services will be seen to have succeeded, however, the technology must overcome the burden of being labeled “The New New Thing.” The drumbeat of marketing and the blue-sky optimism that evangelists will paint around web services will amplify the hype, as the assumed pace of adoption will streak ahead of actual adoption in the short-term. Despite the spotlight’s glare, web services will not find a single “killer app” to champion or announce its success, and skeptics will see web services’ slow start as a fatal stumble.

In the end, the disparity perceived between promise and adoption will be resolved as a case of the hyped hare and the quiet tortoise. Similar to the growth pattern exhibited by XML and even the web itself, web services technology will grow quietly on the way to nearly universal adoption. Web services will succeed because they provide real answers to the e-business challenges that companies are facing today.

We suggest the technology will overcome the hype for three significant reasons:

- **At a technological level, web services simply work.** Web services allow businesses to integrate and customize applications much more easily than existing solutions, and the basic technology can be deployed incrementally by making good use of current infrastructure. This functional appeal will make web services very appealing to the grass roots of developers and IT departments.
- **Web services enable the mythical “agile business.”** Companies who adopt web services will come significantly closer to the ideal flexible, dynamic e-business than they could with previous generations of enterprise technology. While no technology can work miracles, web services will make the promise of service-based software, B2B e-commerce, and trading partner integration significantly more real.
- **Web services will drive a return to core competencies.** Web services represent that all-too-rare breed of major technology shifts that deliver the goods without requiring the entire enterprise to stand up and march in line. Web services will allow businesses to make decisions about e-business based on truly strategic criteria rather than the capabilities of a monolithic software solution—or of the team implementing it.

The bottom line: web services will succeed. Implementation will not be as easy as the evangelists would have us believe, but the technology represents a significant improvement in the operational efficiency and flexibility of e-business models and software development as a whole. The question for vendors and adopters is how best to manage expectations and deliver genuine, if incremental, value—in other words, how to ride the tortoise, not the hare.

**Figure 5: Five Take-Aways
 (The Stencil Group, 6/2001)**

- Web services are for real. They will have a substantial impact on the enterprise software market in the next 12-24 months.
- After being dispatched by pundits as a “flop,” web services will be adopted under the radar and move from emerging technology to accepted technical solution during late 2002.
- Web services are based on emerging and existing technology standards. IT organizations will be able to learn and adopt web services with incremental investment.
- As case studies emerge proving that web services increase flexibility while cutting costs, businesses will adopt web services because they simply make too much sense.
- Consider what web services will mean for your organization. As a starting point, we suggest “what to do on Monday morning,” as sketched below in Figure 6.

**Figure 6: What to Do on Monday Morning...
 (The Stencil Group, 6/2001)**

ROLE	QUESTIONS TO ASK	COMMENTS
CIO in Large Organization	How is our EAI project progressing? How far along are our partners? Competitors?	Set-up small web services skunk works team to identify opportunities for internal deployment; Bring in IBM, Microsoft, Sun, et al. to define their vision on web services.
CEO of Start-up Software Company	Do we have a web services story? How does our story compare to the major software camps? What is the real business value of our web services product?	Look for technology partners to leverage and define your go to market strategy. Consider implications of wide web services adoption and how your product can benefit.
Venture Capitalist	Where are the market opportunities? Which ones will incumbents win? Which ones are their opportunities for start-ups? Timing for market development?	Understand which areas the major software camps plan to own and figure out what type of company they might ultimately acquire.
Services Provider	How do web services impact our clients? Will our clients be consuming or provisioning web services?	Attend conferences; research market so that you understand how web services will impact existing market and your customers.

Related Articles

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About The Stencil Group

The Stencil Group provides business strategies and implementation services to companies focused on the business Internet. We help our clients—early-stage companies and established companies entering new markets—go to market quickly, professionally, and with the proper strategy in place. Stencil’s services help compress the time required for our clients to scale their operation. The result is accelerated customer acquisition, retention, and revenue.

Web Services Research

To learn more about The Stencil Group’s web services research plan, or if you would like to **participate in future memos**, please visit our web site at www.stencilgroup.com. We are available to discuss this memo in more detail; please feel free to contact us directly at (415) 615-0636 or stencils@stencilgroup.com.