

Service oriented architectures and web services: opportunities for service providers

by Shanker Annaswamy, Managing Director, IBM India

The age of homegrown, telecommunications applications is passing. Powerful Service Oriented Architectures (SOAs) and web services – open standard based web applications that exchange data and interact with other web applications – are replacing many made-to-measure applications. These new applications let enterprises create and connect applications with far less development time, expense and expertise than ever before. Due to the open standards, all SOAs are interoperable with each other, they eliminate the risks inherent in betting on any given legacy-style platform.



Shanker Annaswamy is the Managing Director of IBM India. He is responsible for all IBM's sales and marketing, services and Global Delivery operations in India. He previously served as the President and Chief Executive Officer for GE Medical Systems, South Asia and Managing Director, Wipro-GE Medical Systems. Shanker began his career with Philips Medical Systems. In his 25 years of experience, he has worked in project management, sales, marketing and quality and as an Advisor to the Ministry of Health in Oman. An accomplished speaker, Shanker has delivered keynote addresses at many seminars and conferences.

Shanker has a Bachelor of Engineering (BE) in Electronics and communication from Madras University and a Diploma in Business Management Education from the All India Management Association, New Delhi.

For most of the last century, advances in telecommunications technology were generally homegrown. With the debut of intelligent networks (INs), service providers and specialized ISVs (independent software vendors) gained a hand in developing new services as well, although they often took a long time to deliver to end customers.

Now, the telecommunications industry in India, as in the rest of the world, is entering a new era of opportunity, driven by advances outside its own realm.

One of the most significant advances is the general adoption of standards, such as Service Oriented Architectures (SOAs) and the web services that enable them. Web services are open standard (XML, SOAP – simple object access protocol, etc.) based web applications. They exchange data and interact with other web applications. Their

use is expanding to include, among others, the processing of transactions on the Internet. The power of these advances lies in the fact that they are not rooted in legacy telecommunications technology; rather have the ability to exploit far more generalized information technologies.

SOAs and web services enable enterprises to create and connect applications with far less development time, expense and expertise than ever before possible. This not only fuels more robust internal development efforts, it also opens up new sources of ideas and opportunities for developers to craft innovative, easily deployed applications from previously deployed web services.

Using an SOA approach, enterprises can more easily manage the complexity of multi-department systems and facilitate interactions among multiple

companies (partners and customers). For service providers, SOAs and web services have the power to open lucrative new markets and generate substantial new revenues by facilitating communication and interaction between the internal and external applications of their customers.

SOAs and web services can also give service providers access to hidden value within many of their network assets. As they break down barriers up and down the value chain, SOAs and web services can profoundly increase the revenue-generation and market-expansion opportunities offered by next-generation network environments.

A historical perspective

The goal of making platforms, systems and software more interoperable is

hardly new. What now puts that goal within reach of many enterprises are breakthroughs in open standards and the subsequent advent of SOA-enabling web services.

Today, enterprises and organizations of all types are steeping themselves in SOA and web services. A Google search produces hundreds of thousands of hits for “service oriented architecture” – and millions for “web services” and the standards, such as SOAP, that support it. In fact, Gartner states that the worldwide market opportunity for SOA, including software and services, will continue to grow through 2008, when it’s expected to reach US\$143 billion.



Figure 1: Web services allow even the most disparate IT assets to be recombined and reused.

Major vendors have incorporated SOA and web services principles within their integration framework, their delivery environment for service providers, since the framework’s inception.

Special opportunities for service providers

SOAs can insulate enterprises of all types from the challenges and disruptions that ongoing change and increasing operational sophistication would otherwise place on them.

Because of standardization among their underlying web services, SOAs enable diverse applications to be combined and recombined, used and reused – on the fly – without “rip and replace” and without new coding. Web services offer enterprises unprecedented flexibility to pick and choose among seemingly disparate functions and quickly assemble them into innovative new capabilities – faster and at a lower cost than what was possible previously.

If a service provider used SOA to do no more than help manage the complexity of its own IT infrastructure, the resulting flexibility, responsiveness

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and resilience would easily justify the investment.

Service providers also enjoy the unique advantage of being able to use SOAs to facilitate better integrated services with partners and customers. For example, location information can easily be combined with call control, and then with a business application such as workforce management.

A service provider could then enable commercial customers to automatically track and direct the deployment of individual field service technicians through their cell phones, no matter which workforce management solution a customer might be using. Because common standards are used at the web services layer, service providers can easily meld functions such as call control and location with applications from partner enterprises – generating new revenues and relationships in the process.

Enabling inter-enterprise communication

Web services can transform the way even the most hardened IT and organizational silos communicate and interact. They can also change the way companies interact with other companies, altering the “value equation” among partners, and introducing responsiveness and flexibility where little could exist before.

The open standards to which web services are built enable pre-built, reusable web service components and

common interfaces. By simplifying development, accelerating deployment cycles and reducing maintenance costs, SOAs and web services can bring about dramatic business breakthroughs:

- Processes built from discrete but interconnected services can become far more granular than ever before, and thus far more flexible... and marketable;
- New processes and composite applications can be built much more quickly in response to fast-breaking changes in the marketplace;

– Simplification of the interaction between the service provider and third-party content providers and aggregators. Web services

enable on demand business;

- As responsiveness improves, customer service can follow suit, no longer restricted by issues related to the underlying IT infrastructure;
- New operational efficiencies will also result, helping companies keep costs in check as their capabilities expand exponentially.

Primarily through the standards they impose, web services enable capabilities that in turn spawn new business value, and provide a direct path to becoming more flexible, responsive, resilient and cost-efficient – the hallmarks of an on demand enterprise.

Web services allow even the most disparate IT assets to be recombined and reused. Flexibility is inherent to SOA and Web services, enabling enterprise-wide costs to go down while improving their capability to rapidly address new business challenges.

With web services, new levels of automation can be achieved – increasing responsiveness without incurring the costs and complexities of new development efforts. The burdens of verifying, translating and interpreting

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data can shift – freeing people to focus on strategy, analysis, guidance and assessments.

Because of common interfaces and precise controls, core network capabilities can be safely exposed to customers and partners via web services. For example, a service provider's ability to pinpoint a wireless customer at any given moment becomes more than an enabling factor in a wireless network; it transforms into an asset that can be made available beyond the service provider's enterprise to enhance customer service, speed innovation, expand revenue opportunities and increase customer loyalty.

Consolidating disparate IT infrastructures and far-flung, resource-hungry components becomes easier and most cost-effective.

The savings join with those from automating processes and reusing code and they can save enterprises enormous amounts of time and money that can be directed at more strategic pursuits.

As noted earlier, service providers can gain a particular advantage from web services taking hold beyond their own enterprises, due to the role service provider networks can play within multi-enterprise web services deployments. Plus, service providers have unique sets of assets to expose and exploit, such as location, presence, identity management and message services (SMS/MMS). These assets can give them a distinctive seat at the table of interconnected enterprises.

Through SOAs and with their new portfolios of SOA-enabled assets, service providers can become integral parts of the value chains now being established among other SOA-savvy enterprises – opening up potentially outstanding new revenue sources. The beneficiaries can include the service provider's customers, its partners and its bottom line.

The essentials of an SOA

For innovation to flourish and for SOAs to reach their potential, web services require a critical mass of application program interfaces (APIs). They must also fit within a scaleable, reliable framework – one that is secure, measurable, policy-aware, and equipped to manage disparate traffic flows. The architecture must also support standardized communication among the many diverse elements within the network.

To foster service development, the tooling environment must be familiar to developers and users. Eclipse, an open standard familiar to thousands of application developers, can provide such a rich service-creation environment for Java web development.

When the web services developed are deployed to a standard Web application server the end user does not need to install any customer premise equipment. The web services messages are routed to the telecom service provider's network through a secure connection – and can take advantage of a broad range of network services capabilities including:

- Group management – creating network-managed groups and targeting them for executed services;
- Presence management – tracking if and when customers are available, on the phone, busy, etc.;
- Location – knowing where customers are;
- Call control – creating a call from an application (click-to-call), or notifying an application of a call, such as those used in "follow me" services;
- Account management – account services for individual customers;
- Payments – managing the flow of money from customers to suppliers and partners;
- Text and multimedia messaging.

Bharti Televentures provides a great example of the applicability of SOA to contemporary projects. Their integration and consolidation of requests via Web, Short Message Service or Interactive Voice Response for customer self-service is the first-ever implementation of service-oriented Architecture (SOA) and web services by a Telco in India.

Getting started

The broad and rapidly growing interest in SOAs and the web services supporting them is justified by the many technical and business benefits they can bring to adopting enterprises: lower costs, faster implementations, support for new business models, major supply chain transformations and beyond. Because SOAs are, by definition, interoperable with any other SOA by means of open standards, they eliminate the risks inherent in betting

on one legacy-style platform over another.

Service providers are uniquely positioned to leverage SOAs and web services because of the key role they play in inter-enterprise networking and communications. The good news is that the initial investment required to start using SOAs and Web services is low because of the wide availability of tools and platforms. ■

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