

SOA on iSeries

— First Contact



By Al Grega

Here we go again — a new architecture is out there and the buzz in our industry is deafening. So what exactly is Service Oriented Architecture, or SOA as it is more commonly called? Why should you care about this architecture and why is it so different from what we have all seen in the past? Most importantly, what can iSeries shops do to prepare for all this?

Before we get started, it is important that we all get on the same page and understand this new suite of terminology. First and foremost, SOA is based on a concept called a service. A service is a repeatable business task, like performing a credit check, or approving an order. This business task can be written in any programming language and is not restricted to frameworks like J2EE or .NET. It can be accessed using technology like web services or other

methods. We will have a more detailed discussion on web services later.

Integrating your business as a collection of linked services (and the outcomes that they bring) is the idea behind service orientation. For example, you may have a service that collects data from an order form, another which checks inventory, and another to access shipping costs; you may also have the ones we mentioned before to perform a credit check and approve an order. If you assemble these services together to support a business process, the end result is a composite application whose job is to process orders and perform fulfillment.

SOA is the IT architectural style that supports service orientation and makes it a reality. This is where all the buzz is today. In September, IBM announced the IBM SOA Foundation. (See **Figure 1.**) It offers solutions and accelerators for every

phase of the SOA lifecycle. Other major software companies are also promoting their SOA solutions in the marketplace, and the analysts are bullish, with Gartner predicting that 80 percent of customers will adopt SOA by 2008.

What's So Different About SOA?

Remember back 15 years ago, it was extremely difficult to get two or more systems to talk with each other unless they were purchased from the same manufacturer. UNIX servers leveraged technology like TCP/IP and Ethernet to communicate with each other. Mainframe systems used SNA (LU6.2) across dedicated communication lines. It wasn't until the mid-1990's that TCP/IP and Ethernet emerged as the standard that all systems are following today. Why? It was all based on open standards and this helped pave the way for the Internet to flourish.

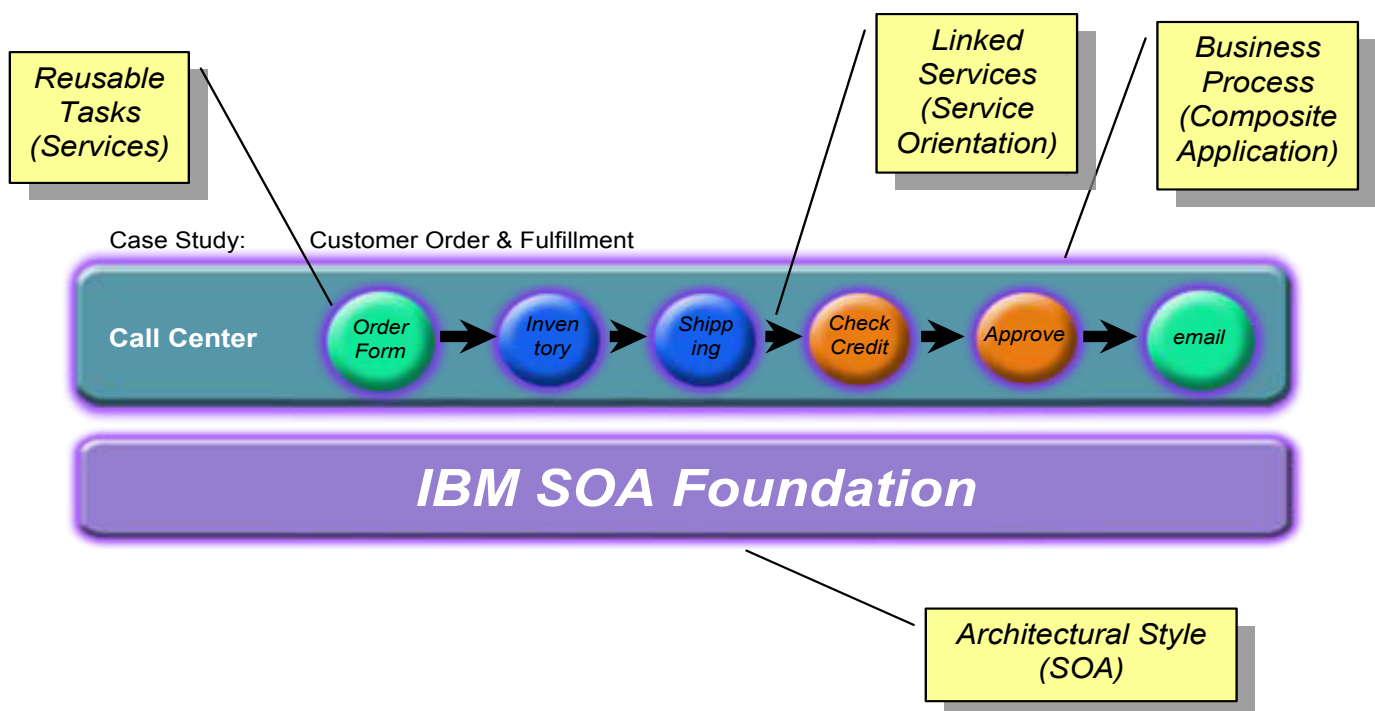


Figure 1: SOA Defined

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SOA is doing for software applications what TCP/IP did for hardware: allowing them to communicate easily with each other. One of the technologies on which SOA is based is the web service. A web service is a self-contained software component with a well-defined interface that describes a set of operations accessible over the Internet. Web services utilize other open standards like SOAP (Simple Object Access Protocol), providing a format for passing data between provider and requester, and WSDL (Web Services Description Language), describing what the service does and how to use it.

Besides being based on open standards, SOA services can be extensively re-used, leveraging existing IT assets. In the past, code re-use was usually confined to individual applications. If a developer needed a particular piece of program logic in another application, he typically copied and pasted that code from one application to the other. The re-use characteristic of SOA allows organizations to focus on business level activities, versus narrowly defined technical subtasks. So, instead of trying to leverage a particularly clever piece of code, you'll focus more on the business tasks that can be re-used.

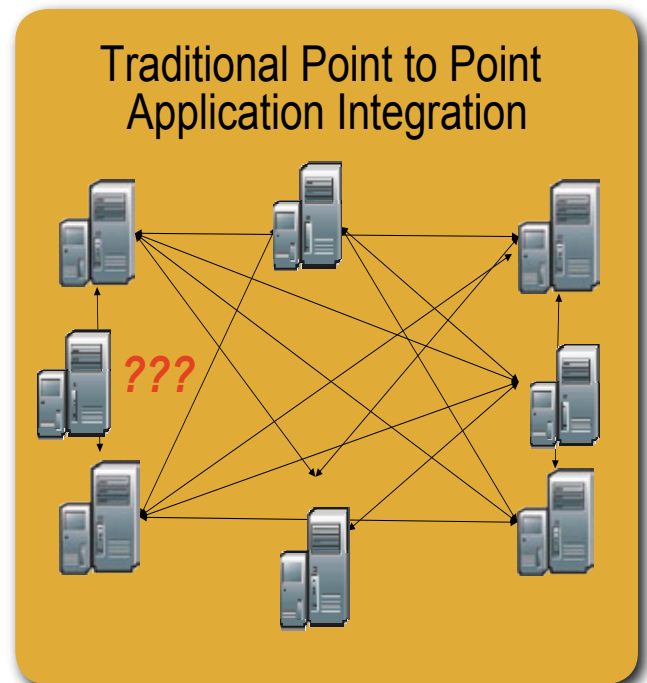


Figure 2: Proprietary connections had limited flexibility.

Another factor to consider is the way SOA applications are connected with each other. In the past, application developers often hard-coded proprietary connections, limiting the flexibility of their programs. (See **Figure 2.**) SOA applications are linked dynamically, using the industry standards we mentioned earlier. If a particular service (business task) is no longer current or needs to be replaced, a Service Oriented Architecture allows you to remove that service and replace it quickly with another. Now re-architecting changes within your infrastructure can take weeks or days, versus months or years.

SOA: On Demand Flexibility

Why SOA Today?

There are many reasons why companies are looking at SOA today. Globalization has made the world marketplace very competitive, and change is an everyday occurrence. Business process flexibility (Figure 3.) is becoming critical because of these globalization changes, and due to competition from known and unknown sources. CEOs are constantly looking for ways to keep up with change, while increasing revenue growth. CIOs are looking to contain costs and deliver the flexibility the business is demanding. SOA delivers on all these fronts, based on the points mentioned earlier.

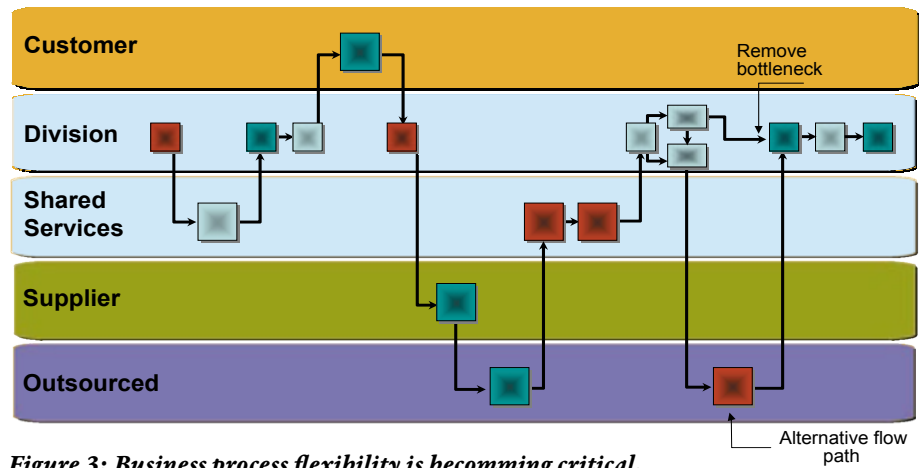


Figure 3: Business process flexibility is becoming critical.

The needs vary across industries:

- Automotive companies constantly have to change based on supply chain initiatives between their tier one and tier two suppliers.
- Banking suffers from regulatory requirements that constantly drive cost into their business.
- Healthcare initiatives are causing providers and insurers to integrate with

each other, while providing the highest level of data security.

- The retail sector needs to provide better customer service with real time product availability, and to improve supply chain efficiencies with Data Pool initiatives, as well as to stay on top of new technologies like RFID.

There are many more examples in other industries, and studies from Gartner, IDC and other leading business consultants all point to a common message: companies are spending too much money on integration and keeping what they have running instead of innovating and creating new function. CEOs want their companies to change, CIOs are trying to drive change, and they both know this is possible with SOA.

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Getting Started With SOA on iSeries


One way to get started with SOA on the iSeries system is to start simple now and grow fast later. Many iSeries applications just aren't ready to take advantage of SOA, because they were written as top down monolithic programs. So the first step is to modernize existing applications. While this may seem scary at first, the iSeries Tools Innovation program has solutions that can help speed up this process. The next step is to embrace web services.

Many iSeries customers are being asked to provide data to their partners via web services or have the need to consume web services from someone else. The good news for RPG, C and COBOL developers is there are many ways to generate and consume web services from existing ILE applications today. In most cases you already have the tools you need to get started, WebSphere Development Studio Client and the IBM XML Toolkit for iSeries. You don't have to redeploy every one

of your applications as a web service. You can leverage data queue technology in i5/OS to communicate between applications. If you need to communicate between applications on multiple systems you can leverage WebSphere MQ, with connectivity for 35 platforms, or use the native Java Message Service capability of WebSphere Application Server v6.

As you deploy more and more applications as services, you will discover that you need an easier way to manage your Service Oriented Architecture. Service enabling frameworks like IBM's WebSphere Business Integration Server Express Plus and the new IBM SOA Foundation products allow you to manage your SOA more efficiently.

The first step to learning more is to educate yourself. Please plan on attending the November TUG Meeting of Members (November 23) to learn more about modernizing your business with SOA. Trevor Perry will present "SOA - Not Just Another TLA" at 7:00 pm.

Also plan on attending the Spring COMMON Conference in Minneapolis, beginning Sunday March 26th, which will include special SOA-focused sessions and labs occurring throughout the week. Then, attend TUG TEC2006, on April 18-19, which will also present SOA sessions. Those events should give you everything you need to "Start Simple and Grow Fast with SOA on iSeries." 

Al Grega is responsible for managing the WebSphere product portfolio on the IBM eServer iSeries platform Worldwide. Prior to this position he was the Director of Product Marketing at LANSA USA for over two years, and before that an IBMer for over 24 years. He has experience in IBM systems development, services, marketing and sales. Al has also taught at the State University of New York at Farmingdale and is currently on the Conference Education Team for Web Application Development at COMMON (a Users Group.)



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