

# Defining and Implementing Service Oriented Architectures (SOA) – From Theory to Practice

SOA is gaining momentum because it is seen as the key for enterprises to achieve business agility, improved quality of service and lowered total cost of ownership. Over the past two years, many Fortune 1000 companies have started to embrace a SOA approach for initial development and integration projects. Many analysts predict that companies are now ready to take the next step – a more systematic adoption of service-oriented practices. However, just technologies like Web Services and the latest generation of development tools are not sufficient for successful implementation of an enterprise SOA.

SOA represents a unique and rare opportunity to bring IT and Business together. However, this opportunity implies an evolution and often an organizational change, especially in the role of IT within organization and in the way IT and Business work together. The current IT culture must evolve, looking beyond the scope of purely departmental goals to the requirements of the enterprise as a whole. IT must also change its support of the business – moving from the delivery of line of business applications to the encapsulation of business functions as services that can be used to compose ever-changing business processes. Finally, the traditional divide of application development and integration must give way to a more holistic approach – development with integration in mind.

Service Oriented Architectures promise to improve every aspect of IT. Seamless B2B interactions, allowing companies to establish new business relationships and processes without the tedious grunt work that is usually involved when incompatible applications need to exchange information. The same should be true for integration behind the firewall, where legacy systems and packaged applications can now interoperate using standardized interfaces and protocols. And finally, new applications can be developed with less effort since much of their required functionality is already available to developers through an inventory of business services.

What should make this all possible is the concept of SOA – a concept that is not completely new, but may finally have found its time. SOA prescribes loosely coupled business services, minimizing the dependencies between service provider and service requestor. It calls for standard interfaces, standard access protocols, and a separation of interface from implementation. This may sound familiar – previous technologies such as distributed objects and components were promoting similar ideas. Today's SOA, however, calls for less rigid and thus less brittle interfaces. A SOA can now be built using the most recent Internet standards and technologies.

XML and Web Services provide a standards-based approach to implementing a Service Oriented Architecture, but it should not be overlooked that core business functionality still has to be implemented behind the interfaces of the business services. This requires a strong development methodology, as well as a comprehensive Middleware execution platform (i.e. J2EE Application Servers or .NET). The same applies to the integration of applications through a SOA approach. While service-based interfaces and standard access protocols provide for connectivity between applications, a complete B2B or EAI solution requires a Middleware Integration platform that provides a host of integration capabilities.

## Get the Competitive Advantage at a Special Seminar

This special seminar conducted by ISG will give you insight into the key organizational challenges that IT managers face with the adoption of SOA and how to master them. It will discuss the important aspects of Enterprise Architecture that have to be addressed in order to make SOA projects successful. Furthermore, the seminar will provide you with an in-depth understanding of the concepts of Service Oriented Architectures, and how they can be mapped to Web Service technologies. You will gain insight how SOA can be applied to development and integration initiatives within your company. Today's predominant platforms for building new business applications – J2EE and .NET – will be examined in terms of their support for SOA, and the major integration approaches for B2B and EAI will be looked at from a SOA perspective.

You will learn about technologies that are available today as well as emerging solutions that different vendors and standards groups are promoting. However, it's not just about understanding the technology, it's about knowing how to really apply it. At this seminar, you'll learn how to exploit current and emerging SOA technologies and products to give your company a competitive advantage.

## Benefits of Attending

- Learn how SOA can facilitate the alignment of IT with your Business .
- Define a roadmap for creating a Service-Oriented Architecture for development and integration of your application portfolio.
- Identify the challenges and benefits of developing an Enterprise Architecture.
- Learn how IT culture has to change to successfully adopt the new style of architecture.
- Understand how Web Services can be used to implement a SOA.
- Distinguish between hype and reality so that you can put the technology to its optimal use in your organization.
- Discover the role of J2EE and .NET in a Service Oriented Architecture.
- Learn how Web Services can enable and facilitate integration of applications within your enterprise and across a B2B value chain

## Who Should Attend

- Architects who want to adopt a Service Oriented Architecture.
- IT professionals who need to see how SOA can be applied to development as well as integration projects.
- IT Managers and IT Strategists selecting new standards and products for enterprise architecture
- IT Managers and IT Strategies evaluating feasible strategies for application development and integration.
- Architects and Application Developers who want a detailed look at the different technologies and products that can be used to implement SOA.
- Architects and Application Developers who want to know how these technologies and products can be applied to both, A2A and B2B application integration.
- Consultants who need to recommend and use different implementation strategies for building a SOA.

**Prerequisite:** This class requires attendees to have a conceptual understanding of middleware, component technologies, distributed computing, and application integration.

### 1. Introduction to Service Oriented Architecture

- Business drivers & IT trends
- SOA defined
- Where SOA can be applied?
- Service Oriented Development of Applications (SODA)
- SOA challenges
- SOA high-level reference architecture
- SOA, Event Driven Architecture (EDA), or Event Service Architecture (ESA)?

### 2. The Business Perspective

- New business strategies that drive SOA adoption
- How to align business and IT through SOA
- Business related benefits of SOA

### 3. The IT Perspective

- What organizational change is required for successful SOA implementation
  - Enterprise view of SOA
  - Central architecture group
  - The role of the Chief Architect
  - Governance
- Project management and methodology
- Migration from previous architectures
- Return on Investment (ROI)

### 4. The Enterprise Architecture Perspective

- Definition of enterprise architecture
- What drives the need for enterprise architecture?
- Enterprise Reference Architectures
- Tools For SOA Development & Integration
- Conceptual Service Oriented Architecture
  - Design principles

### 5. Requirements for A Service Framework

- Presentation
- Business logic
- Persistence

- Integration
- Management and monitoring
- Security
- Transactions
- Much More

## 6. The role of standards

- Services vs. data
- Formatting service requests with XML
  - Overview of technologies for managing XML
- Establishing connectivity through Simple Object Access Protocol (SOAP)
- Web Services – a new approach to the Service Oriented Architecture
  - Web Services Definition Language (WSDL)
  - Web Service Security
  - Web Service Transactions
  - Web Service Notification
  - Business Processes Management
- Universal Description, Discovery and Integration (UDDI)

## 7. SOA Implementation

- Traditional approaches/solutions to SOA implementation
  - TP-Monitors, CORBA, J2EE, .NET
  - Shortcomings of traditional approaches/solutions
- Implementing SOA with Web Services
  - Mapping Web Services to SOA
  - Web Services in real life SOA implementations

## 8. Platform Choices for Developing Service-Oriented Applications: J2EE

- Java Distributed Services
- Enterprise Java Beans
- Web Services support
- Developing & deploying a J2EE application
- Product examples
- J2EE future evolution

## 9. Platform Choices for Developing Service-Oriented Applications: .NET

- A review of COM and COM+
- The .NET Framework
- ASP.NET
- Developing & deploying a .NET application
- Product examples

- NET future evolution

## 10. How Service-orientation Facilitates Integration

- Strategies to leverage and preserve your investments
- Approaches to integration
  - Data- vs. application- vs. process integration
  - Interface vs. implementation
  - Encapsulation & migration
- Wrapping legacy systems and packaged applications as services
  - Legacy & packaged application integration tools
  - Integration Brokers
  - Enterprise Service Bus
- Integration across platforms and programming languages
  - The WS-I standard
  - Example: Interoperability between .NET and WebSphere

## 11. Best Practices and Case Studies

## 12. Market Trends and Directions

- SOA outlook – Platform Convergence and Choices
  - .NET vs. J2EE Application Servers
  - Integration Brokers vs. Enterprise Service Buses
  - Web Services platforms
  - Open Source alternatives
- When to choose what?