

## Understanding SOA: A Technical Overview

### Course Summary

#### Description

Understanding Service-Oriented Architecture (SOA) is a one-day, technical overview SOA training course geared for managers and project stakeholders who need to understand the impact of SOA, what is different about SOA and the overall process of adoption and implementation. This course focuses on what separates an ad hoc set of web services (NOT SOA) from a managed, vibrant, reusable catalog of enterprise services (definitely SOA). It provides an overview of the entire spectrum from the promise of cloud computing to the grit of XML content. The course presents a clear portrait of how a service orientation can fundamentally change the dynamics of how software is developed and "lives" within an enterprise.

Organizations are struggling with how to translate SOA's vision into practical terms and concepts. Understanding SOA: A Technical Overview is designed for enterprise managers and stakeholders who wish to understand what services and service-oriented architectures are and how implementing a SOA system will impact their projects.

While our training is "technology centric," it is vendor independent, meaning that the content is not clouded by sales and marketing messages. Although a specific SOA product can be discussed, the comprehensive lessons are geared towards teaching the practical application of SOA, rather than focusing on the finer points of the tools in use. Of course, SOA is not a technology but a set of practices and concepts that hold the promise of more closely aligning business with IT applications.

Understanding SOA: A Technical Overview provides coverage of practical issues for enterprise applications relative to SOA. The goal of this course is to empower students with the knowledge and foresight they need to lead and participate in the implementation of realistic SOA-based business application projects. In addition, there is an extensive review of topics such as Enterprise Service Bus (ESB), the Business Process Execution Language (BPEL), SOAP, Web Services Description Language (WSDL), and Web Services.

The course provides a solid foundation in basic terminology and concepts, extended and built upon throughout the engagement. Processes and best practices are discussed and illustrated through both discussions and group activities. Throughout the course students will be led through a series of progressively advanced topics, where each topic consists of lecture, group discussion, comprehensive hands-on lab exercises, and lab review. This course is "skills-centric", designed to train attendees in essential skills, coupling the most current, effective techniques with the soundest practices.

#### Objectives

After taking this course, students will be able to:

- Explain the concepts behind a SOA
- Discuss how a common framework is embodied in both a technical infrastructure and an organizational entity in the form of governance
- Understand the history of services-oriented architecture and what design processes led up to SOA
- Discuss the challenges to adopting SOA in the enterprise
- Understand the various standards, conventions, and best practices in implementing and supporting SOA

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### Course Summary (cont'd)

- Explain how Enterprise Application Integration affects the reuse of existing applications
- List the various roles involved in Service-oriented Analysis and Design (SOAD)
- Understand the importance of business process modeling
- Relate a SOA maturity model and adoption process to where an organization currently is and where they are trying to go
- Discuss business process analysis and its relation to BPEL
- Understand the difference between OO analysis and design and SOA analysis and design
- Compare SOA best practices
- Understand the responsibilities crucial to governance
- Explain what an Enterprise Service Bus is and its relationship to SOA
- Discuss ESB security and roles
- Understand the relationship between SOA and the entire spectrum of services from SOAP and RESTful services to microservices
- Discuss how the concept of event-driven processing relates to business processes, workflow, and service orchestration

### Topics

- SOA Overview
- SOA: The Business Proposition
- Service-Oriented Architecture
- Service-Oriented Analysis and Design
- Modeling Business Processes
- Common Framework: Infrastructure
- Common Framework: Governance
- SOA Best Practices
- Web Services Overview (Optional)

### Audience

This course is designed for technical managers, stakeholders, executives and developers, architects, and analysts. This is an overview level SOA training course, designed for people who need to understand and manage existing or upcoming SOA projects. Experience with managing and working with enterprise applications will be helpful. We will explore the terminology, the specification, the processes, and technologies specific to SOA.

### Prerequisites

Attendees should have a minimum of 2 years working knowledge in the IT industry. A basic understanding of software development and web-based applications is necessary. Actual development working knowledge is helpful but not necessary.

### Duration

One day

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### Course Outline

- I. SOA Overview**
  - A. Services and SOA Defined
  - B. Organizational Framework
  - C. Technical Framework
  - D. What is new in SOA
- II. SOA: The Business Proposition**
  - A. Web services standards
  - B. ESBs
  - C. Leveraging business processes
  - D. Challenge to adoption
  - E. The SOAD Process
  - F. SOA Maturity Model
- III. Service-Oriented Architecture**
  - A. Logical Components of a SOA
  - B. SOAP, RESTful, and Microservices
  - C. Business Process-Driven Development
  - D. SOA Reference Architecture
  - E. Role and Uses of an Enterprise Service Bus
  - F. IT Governance Overview
- IV. Service-Oriented Analysis and Design**
  - A. Service Lifecycle Phases
  - B. Top-Down: Strategic Orientation
  - C. Bottom-up: Tactical Strategy
  - D. Service-Oriented Analysis and Design Process
  - E. Identification and Specification
  - F. Realization
- V. Modeling Business Processes**
  - A. Top Down: Domain Decomposition
  - B. Business Use Case
  - C. Making SOA Work
- VI. Common Framework: Infrastructure**
  - A. The Role of ESB in a SOA
  - B. Typical Service Bus Functionality
  - C. ESB Scenarios and Analysis
  - D. ESB Issues
- VII. Common Framework: Governance**
  - A. Areas Ripe for SOA Governance
  - B. Architecture
  - C. QA/Security/Regulatory Compliance
  - D. Consumer/Provider Management
  - E. Reference Architecture
- VIII. SOA Best Practices**
  - A. The Challenge of Legacy Systems
  - B. Standardizing
  - C. Service Design Guidelines
  - D. Metrics Provide Visibility of Effectiveness
  - E. Service Reusability Metrics
- IX. Web Services Overview (Optional)**
  - A. Web Services Architecturally
  - B. SOAP in a Nutshell
  - C. WSDL
  - D. Spec and Standard Evolution
  - E. Web Services Interoperability Organization