



## Service Oriented Architecture & Web Services

Service Oriented Architecture (SOA) has become a solution for more and more technical groups trying to create consistent solutions throughout an organization. The emergence of web services, an important technology, has made it easier to enable SOA and has opened up new opportunities for integrating software within and across organizations. Those who find success using web services and SOA will be those who understand the technology fundamentally: its motivations, the reasons why some components are winning out over others, and the likely course of maturity.

This course cuts through the hype surrounding this new technology and teaches the concepts behind SOA and web services, a detailed understanding of the components that make up web services, as well as techniques and practices for creating organization wide software integration solutions. Students will learn the core competencies in service oriented architecture through detailed lecture and hands-on labs and be introduced to the many topics surrounding the subject.

### Objectives:

- < Understand the basic concepts of SOA and web services
- < Learn how to model a service oriented architecture for an organization integrating existing software solutions with new ones
- < Understand the skills, practices, and processes related to creating service oriented architecture
- < Learn to use web services with SOA
- < Acquire hands-on experience in these processes, techniques, through the case study lab exercises

### Topics covered:

- < How component based architectures relate to SOA
- < In depth coverage of major components of web services
- < When to use web services and when other solutions are better for SOA
- < Designing and documenting a service oriented architecture for an organization
- < Facts and fiction related to SOA and web services
- < Approaches to incorporating web services and SOA into organization wide software solutions



### Audience:

This course is designed for the technical and enterprise architects, designers, and other project team members who are interested in understanding what SOA and web services are, and how they can be sensibly incorporated into organizations. This course is also of benefit to technical leads and software quality assurance personnel who oversee development of systems and require an understanding of the process and the artifacts being produced.

### Prerequisites:

Prior development experience

### Duration:

2 days

### Outline:

1. What is service oriented architecture?
  - SOA definition and brief explanation
  - The value of a SOA
  - What makes up an SOA
  - How web services fit into SOA
  - SOA advantages and risks
2. Introduction to web services
  - What are web services
  - Advantages related to SOA
  - Disadvantages
  - Major technologies that make up web services:
    - XML
    - UDDI
    - SOAP
    - WSDL
  - How web services Work
  - Some Hype Associated with web services
3. Web services architecture
  - Web service layering
  - Details of UDDI
  - Details of SOAP
  - Details of WSDL
4. An SOA approach to architecture
  - A detailed example: Use of web services within an architecture
  - Lab: Review the components of actual web services, try out some services and review the message results
5. Describing a service oriented architecture
  - Moving from OO architecture to SOA
  - Enterprise architecture and SOA
  - SOA principles
  - Taking a top-down approach to SOA
  - SOA design considerations
  - Web services as a communication backbone
  - Service considerations and web service adaptors
  - Selecting service solutions
  - Lab: Select viable services and identify adaptors for a SOA solution
6. Describing a service oriented architecture
  - SOA Layering
  - Using UML
  - Starting with a 4+1 view model
  - An implementation view of SOA
  - Some general SOA examples



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- Lab: Design a SOA solution to a supplied problem (use Lab 1 information as well as results)
6. Service oriented architecture activities and process
    - Architecture role
    - Enterprise wide architectural activities
    - Project wide architectural activities
    - Iterative development within a Service Oriented Architecture
      - Project management considerations
    - Requirements focus and details
    - Design focus
    - Development team skills
    - Variations on testing
    - An example of project process
  7. Incorporating web services and SOA into an organization
    - Web services and SOA incorporation considerations
    - Phases of integration of web services and SOA
      - Exploratory phase
      - Sporadic adoption phase
      - Intersystem adoption phase
      - Established SOA phase
      - Mature phase
  8. Architectural options for web services and SOA
    - Data centric approach to SOA
    - Distributed approach
    - The middle tier approach
    - Optional Lab: Define services as web services identifying abstract components of a WSDL



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