

## Service-Oriented Architecture (SOA): A Comprehensive Hands-On Introduction - 3 Days

### Course 424 Overview

- You Will Learn How To**
- Design modern Service-Oriented Architectures (SOA)
  - Evaluate and analyse your organisation to map it as a "set of services"
  - Develop logical service model designs using the Service-Oriented Modeling Framework (SOMF)
  - Convert logical designs into service contracts that can be implemented in any development environment
  - Select the right service technology to support each of the four service-oriented business scenarios
  - Orchestrate services to implement interoperable solutions

**Course Benefits** Service-Oriented Architectures (SOA) package business processes as services, enabling organisations to become more agile by integrating internal and external systems, regardless of their platform. In this course, you gain the skills necessary to design, model and begin to manage SOA within your organisation by applying SOA-specific methodologies, technologies and standards. You learn how to determine what services your organisation needs and to derive an SOA design from business requirements.

**Who Should Attend** Anyone interested in designing an SOA and its components, including analysts, strategists and software architects. A general understanding of software development is required.

**Hands-On Training** In this course, you perform a series of simulations and hands-on exercises, including:

- Mapping an organisation as a set of services
- Driving service design from business requirements
- Designing composite services by applying the optimal composition style
- Modelling detailed message designs from business use cases
- Orchestrating services to create new applications
- Integrating brokers into an SOA to provide "services for services"

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## Course 424 Outline

### Overview of SOA

- Integrating business processes with SOA
- Deriving services from the organisation's goals and purpose
- Merging SOA design and project management processes

### Architecting Services

#### Service-Oriented design process

- Progressing from conceptual services to buildable services
- Structuring business requirements into SOA
- Aligning services with the organisation

#### Following an architectural road map

- Working forward to deliver applications
- Recycling backwards to support change

### Mapping Services to Your Organisation

#### Discovering conceptual services

- Defining the service domain
- Drilling down into atomic services
- Consolidating into composite services

#### Refining the conceptual design

- Identifying the underlying resource for the service
- Leveraging legacy assets for inclusion in the SOA
- Selecting cross-boundary services

### Modelling Services

#### Developing logical services

- Integrating consumers
- Exploiting the four composition styles
- Hierarchies
- Star
- Network
- Circular

#### Achieving effective designs

- Supporting loose coupling
- Handling sequential processing
- Establishing relationships between consumers and services

#### Addressing the business needs

- Designing for reuse and integration
- Aligning services with the organisation to improve responsibility

#### Factoring in brokers

- Identifying "services for services"
- Leveraging the seven categories of brokers
- Transform

- Filter
- Gateway
- Monitor
- Enricher
- Locator
- Router
- Aggregator

### Converting Designs into Specifications

#### Specifying operations

- Deriving operations from use cases
- Identifying design flaws early to take corrective action

#### Communicating the specification

- Building on the three principles of contract design
- Expressing the service as a contract

#### Messaging for services

- Evolving messages from the SOA design
- Formatting the operation's messages

#### Finalising the service design

- Specifying operations and endpoints
- Binding messages to operations

### Transitioning from Design to Implementation

#### Supporting implementation

- Enabling parallel development with contract-first design
- Optimising infrastructure for SOA scenarios
- Interoperability
- Internal backbone
- Ajax
- Implementing components of the SOA

#### Building services

- Creating services from the SOA modelling process
- Developing service consumers

#### Orchestrating services

- Assembling services to deliver new functionality
- Dealing with long running processes

### Avoiding Common Problems

#### Applying "Lessons Learned" to improve designs

- Facilitating asynchronous services
- Dealing with change and growth

#### Ensuring performance

- "Chatty" vs. "Chunky" messages

- Avoiding the failures of applying object-oriented design to services

### Managing the SOA Environment

#### Instituting governance at run time and design time

- Advancing up the Services Integration Maturity Model
- Leveraging Enterprise Services Buses (ESB)
- Integrating key tools in managing your SOA environment