SERVICE ORIENTED ARCHITECTURE
SOA ANALYSIS (TT7110)

Course Code: 4230

In this course, you will explore what Service-Oriented Architecture (SOA) is, the impact of SOA, what it means in terms of today’s systems and architectures, and how to apply the concepts in identifying business and systems services. You will gain a better understanding of what services and SOAs are, and the best practices and processes used in supporting the design and implementation of SOA-based applications. You will examine the enterprise systems and how to identify, design, and develop complex services using sound analysis and design techniques. You will have a clear picture of how a service orientation can fundamentally change the dynamics of how software is developed and "lives" within an enterprise.

You will leave this course armed with the required skills to support the design and implementation of realistic SOA-based business application projects. You will also cover advanced SOA concepts and practices for enterprise applications. Multiple detailed lab exercises throughout the course are designed to reinforce fundamental skills and concepts learned in the lessons.

What You’ll Learn

• Business impact of SOA
• History of SOA and what design processes led up to SOA
• Challenges to adopting SOA in the enterprise
• Apply the concepts and principles of SOA to on-going and future projects
• How Enterprise Application Integration affects the reuse of existing applications
• SOA from an architectural perspective
• Business process analysis and its relation to Business Process Execution Language (BPEL)
• Difference between object-oriented (OO) analysis and design and SOA analysis and design
• List the various roles involved in Service-Oriented Analysis and Design (SOAD)
• Perform SOA analysis to identify useful and manageable services
• Importance of business process modeling
• Governance and how it applies to SOA and IT in general
• Compare SOA best practices
• Responsibilities crucial to governance
• Web services

Who Needs to Attend

Business and system analysts who need to identify and support the design of SOA applications and infrastructures
Virtual Classroom Live Outline

1. SOA
   - Architectural Style - Common Framework
   - Loose Coupling - Spectrum of Options
   - Software Agents - Services
   - Interacting - Orchestrated
   - Services vs. SOA
   - Business Perspective
   - Technical Perspective
   - Myths and Realities
   - SOA and Web Services

2. SOA: The Business Proposition
   - Motivation for SOA
   - Typical Software Project
   - Service Model
   - Service Consumer
   - Service Bus
   - Commonality is Critical Element of SOA
   - Service Provider
   - Business Process: OpenCheckingAcct
   - SOA Addresses
   - SOA Help Deals Change
   - Leverage SOA to
   - Benefits of SOA
   - SOA Maturity Models Abound
   - Incremental Adoption of SOA

3. SOA: An Architectural Perspective
4. SOA: A Development Perspective
- Strategic Orientation
- Tactical Strategy
- Lifecycle Phases
- SOA Roles and Skills (Existing and New)
- Business is the Starting Point
- Service-Oriented Analysis and Design (SOAD)
- SOAD Process
- Service Identification
- Service Modeling Guidelines
- Model For Cross-Application Reuse
- Preventing Boundary Logic Creep
- Target a Balanced Model

5. Service-Oriented Architecture
- Technical Principles
- Logical Components of a SOA
- Business Process-Driven Development
- SOA Business Modeling and Reference Architecture
- Business vs. Application
- Service Layers
- Application, Functional, and Business Process Services
- Two Messaging Models
- Publish/Subscribe
- Point-to-Point (P2P)
- Message Servers
- SOAP
- Role and Uses of an Enterprise Service Bus
- Enterprise Service Bus
- Challenge and Solution of Handling Transactions
- Security
- Governance

6. SOA in Practice
- Trends in Software
- Distributed Systems
- Terminology and Various Players
- SOA Platform Basics
- TCP/IP at the Foundation
- HTTP Request and Response
• Service Sender/Receiver Responsibilities
• Web Services Architecturally
• High-level View of a Web Services-based SOA
• Frameworks Reduce Complexity and Support Components
• JEE
• Compliant JEE Framework Ready for an Application
• JEE and SOA
• .NET
• Issues in Integration

7. Service-Oriented Analysis and Design
   • Lifecycle Phases
   • Service Identification
   • Service Specification
   • Results
   • Service Realization
   • SOA Reference Architecture
   • Results and Realization
   • Systematic Process to Achieving these Results
   • Challenge of Governance

8. Service Identification
   • SOAD Process
   • Service Identification
   • Top Down - Domain Decomposition
   • Business Use Case - Order Processing
   • Initial Process Model - Order Processing
   • Bottom Up - Asset Analysis
   • Asset Analysis for Order Processing
   • Cross-Cutting
   • Goal-Service Modeling for Order Processing

9. Modeling Business Processes
   • BPML/BPMN
   • BPMN Fundamentals
   • Swimlanes
   • Flow Objects
   • Connecting Objects
   • Artifacts
   • Order Processing
   • BPEL
   • Comparing BPEL and BPMN
   • Top-Down Process Design
   • Importing WSDL and/or XSD
   • Process Elements
   • Expression Language
   • Fault Handler
• Compensation Handlers
• SOAD Process
• Service Identification

10. Service Specification
• SOAD Process
• Focus of Service Specification
• Specification Supports Design of Service Details
• Service Analysis
• Elimination Criteria
• Service Analysis Refines the Service Portfolio
• Service Specification
• Shifting to Component Analysis and Specification
• Entity-Centric, Task-Centric, and Functional Service Components
• Service Component Specification
• Identification and Specification

11. Service Realization
• SOAD Process
• Service Realization
• SOA Reference Architecture
• Application Services
• Functional Services
• Business Process Services
• Solving Problems Using Layers
• Service Realization
• Service Design Guidelines
• Designing SOAs by Composition

12. Common Framework - Infrastructure
• ESB
• Role of ESB in a SOA
• Typical Service Bus Functionality
• Security
• ESB Scenarios and Analysis
• ESB Issues

13. Common Framework - Governance
• Implementing IT Governance
• SOA Governance
• Governance Policies and Responsibilities
• Processes Enforce/Enable Policies
• Metrics Provide Visibility of Effectiveness
• Service Reusability Metrics
• Challenges of SOA
• Service Architecture
• Technology and Product Selection
• Development
• QA/Security/Regulatory Compliance
• Consumer/Provider Management
• Reference Architecture
• Governance Support Requirements
• SOA Information and Quality Management
• Aligning Business and IT
• Use of Business Component Model

14. SOA Best Practices
   • Planning
   • Standardizing
   • Service Modeling Guidelines
   • Preventing Boundary Logic Creep
   • Target a Balanced Model
   • Service Design Guidelines
   • Managing
   • Using Patterns
   • Avoiding Anti-Patterns

Virtual Classroom Live Labs
This course is approximately 50% dynamic lab exercises and 50% lecture, designed to train you in essential analysis and design skills, coupling the most effective techniques with the soundest industry practices.
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PRIVATE GROUP TRAINING 3 days

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