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Introduction to BEA SOA Architecture

Course Summary

Description
This course will provide each participant with a high-level comprehensive overview of the BEA WebLogic Service-Oriented Architecture (SOA) and business integration components of the eCommerce environment. This briefing will focus on the concept and role of the SOA surroundings in the corporate environment, integration of Web services, architecture of the BEA Enterprise Service Bus and the message broker, routing of SOA messages, event driven processing, business process modeling using BPEL, BPEL4WS and BPMN, using WebLogic Workshop, AquaLogic Interaction tools, BPEL Process Manager for modeling, AquaLogic XML data transformations, logging and auditing, security concerns, BEA business integration architecture (Integration Server, MOM, adapters, etc) and the development tools that can be utilized.

Objectives
At the end of this course, students will be able to:

- Understand the BEA Service-Oriented Architecture
- Depict the role of Web services and corresponding client interaction
- Discuss the Publisher and Subscriber models
- Illustrate the deployed components in the BEA WebLogic Integration environment and their distinctive roles.
- Define the use of the BEA AquaLogic Enterprise Service Bus for managing SOA communications
- Illustrate the role of different messaging brokers as the deployed AquaLogic ESB component
- Discuss the logical and physical SOA components in the WebLogic corporate environment
- Understand the business process modeling concept for depicting enterprise workflows
- Depict the implementation of Business Process Execution Language (BPEL), BPEL4WS and the modeling notation of BPMN
- Define the integration of WebLogic Workshop and BPEL Process Manager for creating SOA components
- Illustrate the role of adapters for accessing backend components

Topics

- Introduction to SOA
- Business Integration
- Web Services Development
- BEA Application Server and ALSB
- AquaLogic Service Bus
- Service Oriented Analysis & Design
- Business Process Modeling
- SOA Governance
- Legacy Adapters

Audience
This course is designed for programmers, managers, project leaders, enterprise architects and other technical individuals that need to understand the BEA SOA model.

Prerequisites
Students should have a basic understanding of application development and design methodologies.

Duration
Two days

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Course Outline

I. Introduction to SOA
- A. SOA business challenges
- B. Service Oriented Architecture
  1. UDDI Registry
  2. Service Requestor
  3. Web Service
- C. B2C vs B2B
- D. Defining XML
- E. Defining SOAP
  1. Architecture
  2. Messages
- F. Web Services Descriptive Language (WSDL)
  1. Definition
  2. Usage
- G. Application Server
- H. Enterprise Service Bus
- I. Message Broker
- J. Business process modeling

II. Business Integration
- A. Need for application integration
- B. How SOA addresses integration
- C. Using integration and IDE tools
- D. Integration Components
  1. Application Server
  2. Process Server
  3. Enterprise Service Bus
- E. Role of adapters
- F. Use of business objects
- G. Topology
  1. Point-to-Point
  2. Hub-to-Bus

III. Web Services Development
- A. IDE Tool support
- B. Web Services wizard
  1. Deployment settings
  2. Java to XML mappings
  3. Binding Proxy generation
  4. XML to Java mappings
  5. SOAP Binding Mapping configuration
- C. MQ enabled service
- D. Generated files
  1. Client
  2. Proxy
- E. Deployment

IV. BEA Application Server and ALSB
- A. Overview
- B. Deployment issues
- C. Business event synchronization
- D. Applications integration
- E. Role-based Access
- F. Business Object optimization
- G. JMS usage
- H. Interaction with EIS systems

V. AquaLogic Service Bus
- A. Overview of an ESB
- B. Architecture pattern
- C. Functions and abilities
- D. Unify message oriented, event driven and service oriented processes
- E. ESB and Message Broker integration
- F. ESB vs. Message Broker
- G. Delivery of information and services

VI. Service Oriented Analysis & Design
- A. Objectives
- B. Introduction to SOAD
- C. Applying SOAD Principles
  1. Abstraction
  2. Encapsulation
  3. Application
  4. Modularity
  5. Hierarchy
- D. Granularity concepts
- E. Coupling
- F. SOAD Methodology Steps
  1. Stage 1-Process Modeling
  2. Stage 2-Service Identification
  3. Stage 3-Service Design & Implementation
  4. Stage 4-Process Implementation

Introduction to BEA SOA Architecture

Course Outline (cont'd)

VII. Business Process Modeling
- A. Defining BPM
- B. Benefits of BPM
- C. BPM Workflow analysis
- D. Process re-engineering
- E. Integrating SOA into BPM
  1. Notation specification
  2. Behavior modeling
  3. Process activity sequencing
- F. BPM lifecycle
- G. Roles in BPM

VIII. SOA Governance
- A. Challenges and Risks in SOA
- B. Need for SOA Governance
- C. SOA Governance Model
- D. Roles
- E. Address SOA Governance Challenges
  1. Establishing decision rights for your SOA environment
  2. Defining appropriate services
  3. Managing the lifecycle of service assets
  4. Measuring effectiveness
- F. Realization of SOA benefits
- G. Business risk mitigation

IX. Legacy Adapters
- A. J2EE JCA
- B. Resource adapters roles
- C. Mainframe adapters
  1. CICS
  2. IMS
  3. VSAM
- D. Technology adapters
  1. JDBC
  2. COM
  3. EJB
  4. Exchange
  5. XML
  6. Mapping business objects
  7. Business object extraction via adapters