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Building Integrated SOA Applications using WID (WebSphere Integration Developer) Course Summary

Description

This course will provide each participant with an in-depth and comprehensive understanding of the Service Component Architecture (SCA) and event-driven environment. This course will focus on the concept of SCA specifications, SOA components, development of Web services, use of SDO with Service Component Architecture (SCA), depict design methods using BPEL, using MQ-enabled services, utilization of JMS, depict the role of the Enterprise Service Bus using the WebSphere Message Broker, security integration, building publisher and subscriber applications, durable and non-durable event processing, using adapter components, CEI implementation, development of SOA components using WebSphere Integration Developer and deployment of client proxies. All aspects of this class will incorporate the specific architecture of WebSphere Process Server and WID to illustrate the implementation of these techniques.

Objectives

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

- Illustrate the WebSphere Process Server environment
- Understand the role of the SOA and SCA architecture
- Demonstrate the APIs for the Service Component Architecture (SCA)
- Depict the major factors in event-driven environment
- Develop and deploy Web services using IBM framework of WID
- Define the usage and role of XML, SOAP, WSDL and UDDI registries
- Illustrate the integration between SCA and SDO for representing business data
- Demonstrate the design methodology using BPEL
- Illustrate the implementation of an Enterprise Service Bus and the Message Broker
- Depict the implementation of WebSphere Adapters for accessing back-end EIS applications
- Understand the basics of WBI Modeler, Business Monitor and WebSphere Partner Gateway
- Demonstrate the utilization of RAD/RSA or WID for creating, deploying and testing Web services
- Depict the development of business objects

Topics

- Introduction to SOA
- Business Integration
- Introduction to WebSphere Integration Developer
- Web Services Development
- Modeling Integration Patterns
- Business Process Modeling
- Defining BPEL
- Modeling with BPEL
- WebSphere Modeler
- WebSphere Business Process Server
- Enterprise Service Bus
- Service Component Architecture
- Service Data Objects
- Process Monitoring
- Message Broker
- Role of Adapters
- Common Event Infrastructure

Audience

This course is designed for legacy developers, project leaders, IT architects and other technical individuals that need to understand how to develop and implement applications and event-driven architectures using WebSphere Process Server.

Prerequisites

Students should have an understanding of application development and basic web-based development methodologies.

Duration

Five days

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Building Integrated SOA Applications using WID (WebSphere Integration Developer) 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. Process Server
- J. Message Broker
- K. 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. Introduction to WebSphere Integration Developer
- A. Eclipse 3.0 format
- B. Key features
- C. Use of perspectives and view
- D. Editor types
- E. Role of Process Server
- F. Deployment and testing

IV. Web Services Development
- A. RAD/WID 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
  1. Testing/Debugging
  2. Publishing
- F. TCP/IP tracing

V. Modeling Integration Patterns
- A. Defining eBusiness Integration Patterns
  1. Business
  2. Integration
  3. Application
  4. Runtime
- B. Business patterns
  1. Self Service
  2. Collaboration
- C. Information aggregation
  1. Extended Enterprise
  2. Integration Patterns
  3. Process
  4. Application

VI. 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

Building Integrated SOA Applications using WID (WebSphere Integration Developer) Course Outline (cont'd)

VII. Defining BPEL
- A. History, heritage and direction
- B. Integration with business process management
- C. Business process standards
- D. BPEL syntax
- E. Choreography vs Orchestration
- F. Key concepts
  1. Partners
  2. Endpoints
  3. Activities
  4. Data handling
  5. Correlation
  6. Scope
- G. Role of partners
- H. Message correlation
- I. Fault handling
- J. Vendor extensions

VIII. Modeling with BPEL
- A. Using Modeling tools
- B. Create BPEL model
  1. Workspaces
  2. Projects
  3. Catalogs
- C. Process Monitoring
- D. Exported elements (XSD and WSDL)
- E. Element mapping
  1. Files
  2. I/O
  3. Subprocesses
  4. Control nodes
  5. Decision
  6. While loop
  7. Services
- F. BPEL Modeling mode
  1. Generated files
  2. Import/Export
  3. Generate deployment code

IX. WebSphere Modeler
- A. Modeling overview
- B. Eclipse GUI
- C. Business Process Execution Language
- D. Import business process models
- E. Shared workspace
- F. Validation
- G. Simulation and testing
- H. Exporting

X. WebSphere Business Process Server
- A. Create internal/external business processes
- B. Deployment issues
- C. Business event synchronization
- D. Applications integration
- E. Role-based Access
- F. Business Object optimization
- G. JMS usage
- H. Database connections
- I. Use of EJB session beans
- J. J2EE Connector architecture
- K. Interaction with EIS systems

XI. Enterprise Service Bus
- A. Architecture pattern
- B. Functions and abilities
- C. Unify message oriented, event driven and service oriented processes
- D. ESB and Message Broker integration
- E. ESB vs. Message Broker
- F. Delivery of information and services
- G. IBM ESB integration
  1. Communication
  2. Mediation
  3. Transformation
- H. Interoperability with different platforms
  1. JMS
  2. MQSeries

XII. Service Component Architecture
- A. SCA Overview
  1. History
  2. ISV Partner
  3. SOA Integration
- B. SCA Artifacts
  1. Module
  2. Component
  3. External service
  4. Entry point
  5. Wire

Building Integrated SOA Applications using WID (WebSphere Integration Developer)
Course Outline (cont'd)

C. Assembly (Module vs. System)
D. QoS
E. Subsystems
F. SCA Specifications
   1. SOA interfaces
   2. Component implementation
   3. Assembly
G. SCA Bindings
   1. Web Services
   2. CORBA
   3. Messaging middleware
H. Use with SDO

XII. Service Data Objects
A. Service Data Objects
   1. Overview
   2. SDO vs JDO
   3. SDO vs ADO.NET
B. SDO objects
   1. Data objects
   2. Data graphs
   3. Properties

XIII. Process Monitoring
A. Work-in-process monitoring
B. Real-time data access
C. Integration with WebSphere MQ Workflow
D. Report generation
E. Workflow Dashboard
F. Business Dashboard

XIV. Message Broker
A. Application integration
B. Centralized message broker
C. Database logging
D. SOA and SOAP messages

XV. Role of 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

XVI. Common Event Infrastructure
D. API set
   1. Transmission
   2. Persistence
   3. Distribution
   4. Event information
B. CEI Interfaces
   1. Even Submission
   2. Event Subscription
   3. Event Query