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Enterprise Integration Patterns

Course Summary

Description

Messaging Oriented Middleware is a critical part of modern enterprise systems. This course covers the critical Enterprise Integration Patterns and shows how they can be used to solve common enterprise integration problems. The course covers both the patterns and their implementation and includes a case study that has students apply the patterns they learn to an existing integration problem.

Objectives

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

- Design applications with messaging systems
- Design applications that use distributed transactions
- Design applications using Messaging Design Patterns
- Distinguish Message Brokers from Message Servers
- Describe the roll of the Enterprise Message Bus and the technologies it is built on

Topics

- Application integration Paradigms
- Messaging End Point Patterns
- Message Construction Patterns
- Message Routing Patterns
- Message Transformation Patterns
- Messaging Channel Patterns
- System Management Patterns
- Message Brokers
- Enterprise Message Bus
- Integrated Case Study

Audience

This course is designed for programmers & architects who need to learn how to solve enterprise integration problems using messaging systems.

Prerequisites

Students should have experience developing enterprise applications in Java or .NET or Mainframe.

Duration

Two ½ days

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Course Outline

I. Application Integration Paradigms
- A. Extract, Transform, Load
- B. Shared Database
- C. Remote Procedure Invocation
- D. Messaging

II. Messaging Channel Patterns
- A. Point-To-Point Channel
- B. Publish-Subscribe Channel
- C. Datatype Channel
- D. Invalid Message Channel
- E. Dead Letter Channel
- F. Guaranteed Delivery
- G. Channel Adapter
- H. Messaging Bridge
- I. Message Bus

III. Message Construction
- A. Command Message
- B. Document Message
- C. Event Message
- D. Request-Reply
- E. Return Address
- F. Correlation Identifier
- G. Message Sequence
- H. Message Expiration
- I. Format Indicator

IV. Message Routing
- A. Content-Based Router
- B. Message Filter
- C. Dynamic Router
- D. Recipient List
- E. Splitter
- F. Aggregator
- G. Resequencer
- H. Composed Message Processor
- I. Scatter-Gather
- J. Routing Slip
- K. Process Manager
- L. Message Broker

V. Message Transformation
- A. Envelope Wrapper
- B. Content Enricher
- C. Content Filter
- D. Claim Check
- E. Normalizer
- F. Canonical Data Model

VI. Messaging Endpoints
- A. Messaging Gateway
- B. Messaging Mapper
- C. Transactional Client
- D. Polling Consumer
- E. Event-Driven Consumer
- F. Competing Consumers
- G. Message Dispatcher
- H. Selective Consumer
- I. Durable Subscriber
- J. Idempotent Receiver
- K. Service Activator

VII. Systems Management
- A. Control Bus
- B. Detour
- C. Wire Tap
- D. Message History
- E. Message Store
- F. Smart Proxy
- G. Test Message
- H. Channel Purger

VIII. Message Brokers
- A. Message Brokers Overview
- B. Brokers vs. Messaging Servers
- C. Websphere Message Broker Overview

IX. Enterprise Message Bus
- A. Canonical Data Models
- B. Enterprise Message Bus
- C. ESB and SOA Overview

X. Integrated Case Study
- A. Students are presented with an integration scenario and asked to design a solution using the patterns they learn in the class.