J2EE/EJB
Overview

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Agenda

✓ Enterprise JavaBeans (EJB) Overview
  ● 3-Tier C/S and Application Servers
  ● J2EE Architecture and Technologies
  ● J2EE Containers
  ● J2EE Clients and Components
  ● J2EE Roles and Deployment
  ● J2EE Transactions and Security
The Application Server Ecosystem

App Servers: The New Kid on the Block

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The J2EE Architecture and Technologies

J2EE Technologies: EJB 2.0

Business Logic Building Block
- Provides fields and methods
- Three Basic Types of EJBs
  - Session
  - Entity
  - Message Driven

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J2EE Technologies: Java Servlet 2.3

✓ Provides Web Server extensions
   • Written as a Java class
   • Typically outputs HTML for display by a browser
   • Follows HTTP request-reply model

J2EE Technologies: JavaServer Pages (JSP) 1.2

✓ A JSP page is typically an HTML page with embedded snippets of Java code
   • Compiles to a Servlet
J2EE Technologies: JNDI

✓ Java Naming and Directory Service (JNDI)
  - Java API layer built on top of an existing Naming or Directory Service
    - COS Naming
    - LDAP
    - etc
  - Provides a look-up mechanism for EJB clients
  - Used to provide deployment information to EJBs
    - Home Interface look-up
    - Environment properties
    - Resource locations

J2EE Technologies: JTA/JTS

✓ Java Transaction API (JTA)
  - Provides transaction interfaces for applications, application servers, and resource managers
  - Consists of three parts
    - High-level application interface that provides begin, commit, rollback semantics
    - Java Mapping of X/Open XA protocol
    - Transaction Manager interface for an application server to control transactions
**J2EE Technologies: JTA/JTS (cont.)**

✔ **Java Transaction Service (JTS)**
  - Specifies the implementation of a transaction manager using the JTA interfaces
  - Uses the Java mapping of the CORBA Object Transaction Service (OTS) version 1.1 for the implementation

**J2EE Technologies: RMI/IIOP**

✔ **Remote Method Invocation (RMI)/Internet Inter-ORB Protocol (IIOP)**
  - EJBs and their clients use RMI programming APIs
  - IIOP is used as the transport protocol for interoperability and to provide transaction and security contexts
J2EE Technologies: JDBC

☑️ JDBC 2.0 + JDBC Optional Package provides:
- Object-oriented Java access to your relational data by invoking SQL commands
- Rows sets
- Connection Naming via JNDI
- Connection Pooling
- Distributed Transaction Support

J2EE Technologies: JMS

☑️ Java Message Service (JMS)
- Provides loosely coupled, reliable, asynchronous communications between J2EE application components
J2EE Technologies: JavaMail/JAF

✔️ JavaMail provides access to email storage and ability to create and send email messages
✔️ Java Activation Framework (JAF) is required for JavaMail and provides support for MIME datatypes

J2EE Technologies: JAXP

✔️ Java API for XML Processing (JAXP) 1.1
  - Used for the manipulation of XML documents using Java
J2EE Technologies: Connector Architecture 1.0

- Resource adapter created to allow component access to non-relational data
  - Container extension
  - Provides access to EIS managers such as PeopleSoft and SAP

J2EE Technologies: JAAS 1.0

- Java Authentication and Authorization Service (JAAS) 1.0
  - Allows authentication and authorization of users and groups
  - Part of the Java 2 security architecture
J2EE Containers

- Overview
- Evolution
- Supported Bean Types
- Runtime Support
- Contracts
- Delegation

The J2EE Containers

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