SAP NetWeaver™ Training Overview
- SAP Web Application Server

Scott Lowden
SAP America

Technical Solution Architect
Fully J2EE compatible

Web services for standard based communication

Standard based Management Environment
- Common Information Model (CIM)
- Web-Based Enterprise Management (WBEM)
- Java Management Extensions (JMX) *

SAP drives standardization in various organizations and numerous participation in open panels
- Java Community Process (JCP), e.g. Java Data Objects (JDO), Web services, J2EE Connector Architecture, J2EE 1.4 etc.
- SAP is a founding member of the Web Services Interoperability Organization (WS-I)
- SAP is UDDI Business Registry node operator

*Part of J2EE 1.4
What Is An Application Server?
Application Server Technology Evolution @ SAP

SAP Basis

SAP Web Application Server

Java Development
- Java IDE
- Software Lifecycle Mgmt.
- Software Logistics

Openness
- Full J2EE support
- Web Services (WSDL, SOAP, UDDI)

Native Web Technology
- Server-side scripting
- Native HTTP/XML support

Internet-enabling
- Internet Transaction Server
- SAP Business Connector
- SAP GUI for HTML

Reliable Architecture
- Three tiers
- Scalability
- High Performance

SAP Web Application Server
Open System Architecture

Shared benefits
- Multi tier architecture
- Highly scalable and reliable
- Advanced security
- Platform independence
  - Windows,
  - Linux (SuSE /Red Hat)
  - Unix (AIX, Solaris, HP-UX, Tru64)
  - OS/400

Common connectivity
- Different protocols (SOAP, HTTP, SMTP, RFC, FTP)
- Expandable
- Advanced caching

Common persistence
- Database independence
- Scalable transaction handling
- Caching

Connectivity
Internet Communication Manager

Web Dynpro
J2EE / ABAP
Web Services Infrastructure

Persistence
Database Abstraction

SAP Web Application Server

Browser / Portal

3rd party apps / exchange infr.
Cluster Architecture in Action (Deploying)

- J2EE Instance 2
- J2EE Server Node
  - Locking Manager
  - Cluster Manager
  - Configuration Manager

- SAP Central Services Instance
  - Locking Service
    - (Standalone Enqueue Server)
  - Messaging Service
    - (Message Server)

- SAP J2EE Configuration Database

- J2EE Instance 2
  - Locking Manager
  - Cluster Manager
  - Configuration Manager

New Application
Cluster Architecture in Action (Deploying)

Acquire Lock

New Application
Cluster Architecture in Action (Deploying)

Write Application into DB

New Application
Cluster Architecture in Action (Deploying)

Get Notification about the new application and load it from the DB

New Application
Developer Pain Points in Java Projects

- **Build Process**
  Complex, manual consolidation of local developments

- **Development Process**
  Manual configuration of local development environments

- **Deployment**
  Time-consuming deployment into test systems

- **Modification and Upgrade**
  Complex change of existing applications, minor flexibility

- **Large Development Projects**
  Extended build and repair cycles, minor development system availability, no software componentization

- **Persistence and DB Access**
  DB dependent SQL statements, hardcoded

- **User Interface**
  Inefficient support for professional development
Overview: Java Development Infrastructure

IDE

Local File System

Software Logistics (SL)

Component Build Service (CBS)

Design Time Repository (DTR)

Deploy

Run Time J2EE Server
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Effective Java Development Process

- Open project
- Develop, Build and Test locally
- Check-in Changes
- Activate

SAP Java IDE

Repository

Java Sources

Archive Pool

Component Build

Build Service

Deploy archives

SAP Web AS

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Flexible Change Management of Java Applications

- Controlled flow of changes in development, test and productive landscape (consolidation)
- Controlled repairs, enhancements and modifications
- Avoid multiple maintenance
Developer Pain Points in Java Projects

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Enterprise-Scaled Persistence Layer

- Open JDBC
- Open SQLJ
- JDO
- EJB CMP
- JDO Manager
- CMP Manager
- Persistence Manager
- Table Buffer
- Statement Cache
- SQL Trace

- Meta Data Repository
- Direct JDBC
- Vendor A JDBC
- Vendor B JDBC
- Database A
- Database B
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### Web Dynpro – An Example

#### Customer Details
- **Last Name**: Smith
- **First Name**: Robert
- **Account Number**: 8675308
- **Phone Number**: 
- **House No. / Street**: 456 Main St.
- **City**: Los Angeles
- **Zip Code**: true
- **Country / State**: USA / CA

#### Product Details
- **Product ID**: ZT27837878
- **Description**: IBM ThinkPad
- **Device ID**: 
- **Ref No**: 475278178
- **House No. / Street**: 11 Finance St.
- **City**: Seattle
- **Zip Code**: 54321
- **Country / State**: USA / WA

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Web Dynpro – Model-View-Controller Approach

Web Dynpro Application

View

View Controller

Custom Controller

Model Interface

Backend Proxy

View

View Controller

View

View Controller

View

View Controller
Consistent User Interfaces
- Faster learning, less training
- Less user specialization

Three levels of UI patterns
- **Navigation Flow**
  Screen layout, interaction and semantics for a generic application
- **Components**
  Reusable, task-oriented building blocks
- **Controls**
  Atomic elements in the layout, constitute the look & feel

Assembly-line development of UIs
- Developing a User Interface = Parameterizing a Business Process
- Less development, less maintenance
A Web Service
- Is a self-contained, self-describing, modular functionality
- Can be published, discovered, and invoked across a network using open standards
Web Services
Integrated Toolset Based on Open Standards

Provide Web Services
- Develop functionality
  - Implement functionality
  - Define virtual interface
  - Generate WSDL description from interface
- Publish Web Service from
  - Exchange Infrastructure
  - any SAP Web AS

Integrate Web Services
- Discover Web Service
  - Find Web Service on any Service Directory
  - Download WSDL description
- Easy way of development
  - Generate proxy from WSDL description
  - Implement functionality against generated proxy
- Access Web Service
  - Invoke Web Service via SOAP

Service Requester
Service Provider
Service Directory
Service Publication WSDL, UDDI
Service Discovery WSDL, UDDI
Service Invocation SOAP
SAP Web Application Server
Value Proposition

Geared towards Business Applications

Reliability
- High availability and fault tolerance
- Scalability
- Security

Openness
- Open standards support
- Web services and integration capabilities out of the box
- Time-saving integration of new apps (3rd/custom) into system landscape
- Platform independence

Low Cost of Ownership
- Protect existing investments (both ABAP and Java)
- Easy design, development, deployment, and continuous change
- Efficient administration and integration into system landscape
- Comprehensive software lifecycle management
SAP Web Application Server 6.20
- GA for ABAP
- Project-based release for Java
  - To be approved by the SAP Web AS Enabling Group EMEA

SAP Web Application Server 6.30
- Ramp-Up starting in August 2003
- GA estimated for January 2004
- Three editions
  - Enterprise Edition (integrated setup Java 6.30 plus ABAP 6.20SR)
  - Full Edition (Java-only setup)
  - Developer Edition (to be launched at Java One 2003)

SAP Web Application Server 6.40
- 2004
How to Get SAP NetWeaver™

Move from SAP R/3 to mySAP
- Upgrade from SAP R/3 to mySAP ERP or mySAP Business Suite.
- All mySAP solutions are powered by SAP NetWeaver.

Upgrade to the latest mySAP release
- The latest releases of mySAP solutions leverage the full power of SAP NetWeaver.

Deploy SAP xApps
- SAP xApps are snap-on applications that use SAP NetWeaver to integrate with SAP and non-SAP systems.

License SAP NetWeaver solutions
- Use SAP NetWeaver to master the heterogeneity in your IT environment. License EP, MI, BI, XI, MDM, Web AS individually.

Use partner solutions built on SAP NetWeaver
SAP NetWeaver™
Turning the Enterprise Services Architecture Vision Into Reality

The open integration and application platform for TCO reduction

- Integrate people, information and processes...
- ... in 1 hub ...
- ... across technologies and organizations.
- Enterprise-scale Java and ABAP application platform
- .NET and WebSphere interoperability and extensibility
- Pre-configured with business content
- Adapters to non-SAP

SAP NetWeaver™

PEOPLE INTEGRATION
- Multi channel access
- Portal
- Collaboration

INFORMATION INTEGRATION
- Bus. Intelligence
- Knowledge Mgmt
- Master Data Mgmt

PROCESS INTEGRATION
- Integration Broker
- Business Process Mgmt

APPLICATION PLATFORM
- J2EE
- ABAP
- DB and OS Abstraction

Composite Application Framework

Life Cycle Mgmt

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