Oracle Technology Day
Oracle9i Application Server
Web Services and Business Process Integration
Sungwoo Chang
Principal Consultant
Application Server Technology
Oracle Korea
E-Business Demands Integration

B2B
- Trading Partners
- Customers
- Service Providers

A2A
- Oracle E-Business Suite
- Packaged Applications
- Legacy Systems

Internet

Enterprise
Key Pain Points

- Fragmented View of Business Information
- Inefficient Supply Chains
- Low ROI of Disconnected Applications
- Business Flexibility Limited by Excessive Dependencies on IT
Key Opportunities

- Improve Partner Collaboration
- Extend ROI of Existing Assets
- Reduce Costs
- Expand Markets
- Enable New Business Models
Key Challenges

- Connecting Heterogeneous Applications
  - Different platforms, operating systems, networks
- Integrating New and Legacy Systems
  - Multiple schemas, no standard interface
- Maintaining Proprietary Integration Solutions
  - Expensive to manage, difficult to update components
- Defining Abstract Business Flows
  - Implementing business processes only at the lowest technology level is inflexible, and time consuming
Web Services
Web Services: Hype or Reality?

Web services will represent the **dominant mode of deployment** for new application solutions — for Fortune 2000 companies that are interested in agile business solutions.

*Gartner*
Web Services: Hype or Reality?

Despite the hype to the contrary, the move to Web services will do nothing to decrease the complexity of developing, maintaining, and enhancing e-business applications.

IDC
From Web Sites to Web Services

Web Services Make Your Applications Programmatically Accessible over the Internet

Browsers

External Applications

Firewall

Application Server

Web Presentation

Business Logic

Databases

HTML

XML

Oracle Technology Day
Publish Existing Business Logic

- Shipment tracking application
- Address update procedure
- Any Java or PL/SQL application
Case Study: Philippine Airlines

Reservation System (Call Center)

Customer ID

Miles in Account

U.S. Intranet Firewall

Manilla Intranet Firewall

Oracle 9i Application Server

“Mabuhay Miles” Frequent Flyer System

Oracle Technology Day
Case Study: OTN Mobile Service

Any Wireless Application → SOAP/XML → Oracle 9iAS Wireless (messenger.oracle.com) → Telco A Gateway

Telco B Gateway
Web Service Architecture

Client Application

XML Binding

Find / Discover (UDDI)

Invoke (SOAP)

Internet

Publish (WSDL)

Web Service Registry

XML Binding

Service Implementation (J2EE, PL/SQL, Other)

Web Service
Oracle Web Services Platform

• Complete
  - Model, develop, test, debug, deploy, manage, integrate
  - Java or PL/SQL

• Standards-based
  - SOAP, WSDL, UDDI
  - Interoperable
Complete and Integrated

J2EE & Web Services

Portals

Management & Security

J2EE & Web Services

Performance & Reliability

Mobile & Wireless

Business Intelligence

e-Business Integration

Oracle Technology Day

ORACLE
Open Standards Interoperability

- Java
  - J2EE, J2SE, J2ME
- W3C
  - XML, XHTML, Schema
- ANSI and ISO
  - SQL
- Web Services
  - SOAP, WSDL, UDDI
- Open Source
  - Apache, WebDAV...
Commitment to Open Standards

- Joint submitter of WSCI
- Web Services WG (SOAP, WSDL, UDDI)
- XMLP WG
- XML Schema WG
- XML Query WG

- Founding member
- WG coordinator
- Basic Profile, Sample Apps, Test Tools WGs

- J2EE Web Services JSR
- JAXM JSR
- JAX-RPC JSR

- UDDI WG
- TPAML
- BOPC WG
- WSRP

- XMI Metadata WG
- Component Model WG

- Joint Coordination Committee Member
- Protocol/JAXP
- Repository/JAXR
- Messaging/JAXM

- Interoperability WG
Oracle9i JDeveloper: Full Web Services Development Lifecycle

- Monitor, Test, & Optimize Web Services
- Generate SOAP Client & Server
- Generate WSDL
- Model Web Services
- Develop & Deploy J2EE Components
- Browse & Publish to UDDI
Web Services and UML Modeling

- **UML Class Modeler**
  - Model classes, EJBs and Web services
  - Synchronization of code, model, editors

- **UML Activity Modeler**
  - Web services orchestration
  - Application integration
  - Model business processes
  - Model object states
Database Powered Web Services

- Publish Existing PL/SQL
  - Any stored procedure, function, trigger
  - Automatically generate WSDL, SOAP proxy, and SOAP client
- Call Any Web Service From PL/SQL

WSDL  |  SOAP Service
Java PL/SQL Proxy
Oracle9iAS and Web Services

- Proven J2EE platform
  - Mature, scalable, portable, widely adopted
- Web services standards
  - Java XML Pack: SOAP, WSDL, UDDI
- Enterprise facilities
  - Connectivity, transactions, security, lifecycle, packaging

Web Services
Component Model
Transactions and Security
Connectivity
Lifecycle Services
Oracle9i Application Server
Oracle9iAS: Fast & Scaleable

Web Service
Client

Content
Delivery
Network

Oracle9iAS
Web Cache

Compressed
XML over SOAP

Cached
Response

Web Service
Oracle9iAS

Web Service
Oracle9iAS

Web Service
Oracle9iAS

Web Service
Oracle9iAS

Web Service
Oracle9iAS

Web Service
Oracle9iAS

Distributed
Web Caches

Failover

Oracle Technology Day

Oracle
Oracle9iAS: Central Management

- UDDI v2.0 and JAX-R Compliant
- Database-backed
- Managed with Oracle Enterprise Manager

Public UDDI Business Repositories

Import WSDL

Enterprise UDDI Registry

Register
Set Access Controls
Browse

Export WSDL
Secure Multi-Channel Services

- Web Portal
- Mobile Device
- Web Service

Purchasing Application

Data
Services Directory
Web Services: A Panacea?
From Web Services To Automated Business Flows

1. Sales
2. Supplier
3. Partner
4. Application
5. Distributor
6. Internal User

- Wireless
- Web Service
- Email
- JCA
- Rosetta Net
- Portal
Enterprise Application Integration
Integration Roadblocks

- Different systems use different schemas
- Defining business flows at the technology level is expensive and inflexible
- Difficult to automate asynchronous processes
- Lack of real-time intelligence
Ideal Solution Requires

- Centralized Metadata Repository
- Business Process Management
- Data Transformation
- Queuing Capability
- Real time Business Intelligence
Oracle9i Application Server
One Platform for EAI, B2B, and Web Services

Web Services  B2B Integration  Enterprise Application Integration

Business Process Management  J2EE

Trading Partners  Exchanges  Service Providers

Oracle E-Business Suite  3rd party Applications  Legacy Systems
Oracle9i Application Server
Metadata Driven Integration

• Application Views
• Common View
• Business Objects
• Business Events
• Maps / Transformations
• Routing information
• Runtime error and management data

Oracle9iAS

Visual Design Environment

App1
Adapter
App2
Adapter

AQ

XML JMS
XML JMS
Oracle9i Application Server

*Connect Back Office Systems*

- **Application Adapters** (Oracle, SAP, Siebel, Peoplesoft, JCA …)
- **Database Adapters** (Oracle, DB2, SQL Server …)
- **Legacy Adapters** (Mainframe, CICS, EDI …)
- **Queuing Adapters** (JMS, AQ, MQ Series, Tibco, Sonic …)

---

**Oracle9iAS**

- **Business Process Management**
- **Transformation**
- **Messaging**
Oracle9i Application Server

Integration End Points

Applications
- SAP R/3
- SAP R/4
- Oracle 10.7
- Oracle 11.5.X
- Peoplesoft
- Ariba
- Commerce One
- JD Edwards
- Siebel
- Siebel 2000
- i2
- Any JCA Application

Databases
- Oracle7.3, 8.0, 8i, 9i
- MS SQL-Server
- IBM DB/2 UDB
- Sybase
- Informix
- JCA Datasources

Messaging
- Oracle AQ
- MQ-Series
- TIBCO

Legacy
- CICS
- New EDI

Transports
- HTTP, HTTP-S
- SMTP
- FTP
- CORBA/IIOP
- COM/COM+
- Generic DB
- Flat File
Oracle9i Application Server

Business Process Management

**Partner Management**
- RosettaNet PIPs
- ebXML Collaborations

**B2B Collaboration**

**Human Interaction**
- Notifications
- Exceptions
- Authorization

**Process Coordination**
- Get Events
- Invoke Transactions
Oracle9i Application Server

**Workflow**

- Design
  - Define/Import Types
  - Process Modeling
  - Mapping
  - Transformation
  - Validation Rules
- Manage Trading Partners
- Monitor Business Activity
- Business Intelligence

![Diagram showing the workflow](image)

- Design-Time Repository → Deploy → Run-Time Repository
Oracle9i Application Server

Business Activity Monitoring, Intelligence

- Complete Process Monitoring
  - Document tracking
  - Collaboration status
  - Business alerts

- Complete Process Analysis
  - Complete audit trail on business events, payload, process, trading partners, agreement
  - Leverages Oracle9iAS BI tools
  - Pre-built reports
Oracle9i Application Server
Link Business to Business

Oracle9iAS

Trading Partner Management
Business Process Management
Business Intelligence

Service Providers (XML, SOAP, ebXML …)

Web Services (SOAP, WSDL, UDDI)

Partners (ebXML, RosettaNET, XML, SOAP, EDI …)

Customers (XML, SOAP, EDI …)
Oracle9i Application Server

B2B Collaboration

Agreement
Specifies B2B Communication Options

<table>
<thead>
<tr>
<th>Collaborations</th>
<th>Parties/Roles</th>
</tr>
</thead>
<tbody>
<tr>
<td>Party A</td>
<td>Party B</td>
</tr>
<tr>
<td>Buyer</td>
<td>Seller</td>
</tr>
<tr>
<td>Seller</td>
<td>Buyer</td>
</tr>
</tbody>
</table>

Validation
Ensures compliance with Agreements

<table>
<thead>
<tr>
<th>Transports</th>
<th>Packaging &amp; Signing</th>
<th>Document Exchange</th>
<th>Collaboration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Http/s</td>
<td>SMIME 3.0</td>
<td>XML</td>
<td>RosettaNet</td>
</tr>
<tr>
<td>Smtp</td>
<td>SOAP 1.1</td>
<td>OAGIS</td>
<td>ebXML</td>
</tr>
<tr>
<td>Ftp/s</td>
<td>EDI</td>
<td>RNIF 2.0</td>
<td>Custom</td>
</tr>
<tr>
<td>MQ Series</td>
<td>...</td>
<td>ebXML X.12</td>
<td></td>
</tr>
<tr>
<td>Oracle AQ</td>
<td>EDIFACT</td>
<td></td>
<td></td>
</tr>
<tr>
<td>JMS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>...</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

RN3A4 – Request PO
RN3A4 – Request PO
Case Study: Tower Limited

Integrating Multiple Product Systems

TOWER
Staff Access

Adviser
WEB Access

PeopleSoft

DMS

TOWER.NET

Customer
Product
Systems

Oracle9iAS

IAC  BOA  AIA  SAS  PAS  LEO
Case Study: Tower Limited

Integrating Multiple Technologies

Oracle Database Adapters

- PeopleSoft
- DMS
- AIA
- PAS

Oracle9iAS

- IAC
- BOA
- SAS
- LEO

- MQ Bridge Adapter (Proposed)
- Custom File Based Adapters
- Custom DB2 Adapter
Summary

Why Oracle9i Application Server?

- Provides Mission-critical Performance, Scalability, Reliability, and Security
- Business Process Management & Intelligence
- 100% Open-standards Based Interoperability
What Analysts Think

“Oracle has put forward a clear, focused integration strategy designed to address the immediate need for comprehensive, business process-driven integration in the context of the emerging Web Services opportunity.”

- IDC
Next Steps

• For More Information
  – www.oracle.com/ip/deploy/ias/integration/
• Oracle9iAS Integration Accelerator Services
  – www.oracle.com/consulting
• Deployments with Standard Infrastructure
  – http://www.oracle.com/ip/std_infrastructure/
• Contact Our Sales Representatives
  – 00368-440-0051 (¼ö½ÅÀںδã)
• Online Oracle Store
  – oraclestore.oracle.com
OTN Developers Centers

- Live Web Services
- Sample Interconnect Adapters
- Hosted UDDI Repository
- Free Tutorials, Technical Information and Software
- Developers Forums

http://otn.oracle.co.kr