Oracle SOA Suite
Integration in a Service-Oriented World

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Agenda

Web services, BPEL and 100% standard integration approaches extend the reach of the application server platform to enable mainstream developers to build service-oriented, process-centric applications in a highly productive, declarative fashion.

• Key SOA Standards
• Oracle Integration / SOA Platform
• Spotlight on:
  • Adapters, ESB, BPEL
• SOA Credit Request Demo
  • ESB, BPEL, Rules, BAM
• Q&A
Oracle Fusion Middleware

Development Tools
SOA Tools & Framework

User Interaction
- Portals, Content, Search, Desktop, Mobile, VoIP

Business Intelligence
- ETL, Q&A, OLAP, Reports, Alerts, Real Time

Integration & Process Management
- Messaging, ESB, BPM, B2B, BAM, MDM

Application Server
- J2EE, WS-*^, Events, Rules

Grid Infrastructure
- Clusters, Metadata, Registry, Security

Systems Management
- System Application Services

Identity Management
- Directory Provisioning, Single Sign On, Identity Administration
Key SOA Standards

- Fusion Effect
  - Portal
  - Web Application
  - WS API

- Richer Experience
  - Security
  - Reliability
  - Logging
  - Failover
  - Dynamic Routing

- More Adaptable
  - BPEL
  - XSLT/XQuery

- More Interoperable
  - ERP/Legacy Apps
  - Custom Apps & Services
  - Web services

- Process Flow
  - Logic

- More Adaptive
  - Process Orchestration

- User Interface
  - Struts/JSF

- Monitoring
  - BAM
  - JMX

- Business Services
  - XML/XML Schema
  - WSDL/WSIF
  - SOAP/JCA/JMS

- Security
  - WS-Security
  - WS-Policy, SAML
  - Web Services Mgmt

Oracle
The Oracle SOA Platform

- BPA Suite
  - Analyst Tools
- BAM
  - Events
  - Business Monitoring
- BI
  - Analytics
- Enterprise Manager
  - System Monitoring
- JDeveloper
  - App Dev Framework
- BPEL Process Manager
  - Native BPEL
  - Human Workflow
  - Business Rules
- Enterprise Service Bus
  - Multi Protocol
  - XSLT Transform
  - Routing
- Adapters
  - Apps
  - DB
  - Legacy
  - B2B Partners
  - SES RFID
- Web Services Manager
  - Policies
  - Security
- Registry
  - UDDI
- Messaging
  - J2EE Application Server
    - Oracle AS, JBoss, WebLogic, WebSphere
Example: DSL Provisioning at Belgacom

Application for the provisioning and activation of DSL lines. Belgacom is processing up to 15,000 DSL provisions / day through SOA and BPEL processes which link their customer interfaces and OSS layer, managing activation and repair.

**Diagram:**
- **Application Server**
  - Struts
  - Register for New Service
  - Self-service web app
  - Call Center
- **BPEL**
  - Telco Activation Services
    - DSL Activation Manager
    - 6000+ network equipment endpoints (SLEE gateway)
    - SDSL Activation Manager
  - Sales/Customer Service Interfaces and Order Review
  - Exception Management
  - Billing Services
  - Reporting Services
  - Account Management Services
<table>
<thead>
<tr>
<th>Category</th>
<th>Examples</th>
</tr>
</thead>
</table>
| Financial Services | Order/Payment Processing  
New Account Provisioning Process  
Trade Exception Management |
| High Tech     | Order Management  
Trading Partner Integration |
| Telecom       | Cell Phone Activation  
VoIP Provisioning  
DSL Provisioning |
| Government    | Medicare Eligibility Determination and Enrollment  
Satellite Data Exchange  
Publish and Process Forms  
Employee On-boarding |
| Transportation | Fleet and Asset Management |
| Travel        | Reservations |
| Retail        | Sales Data Integration |
A Consistent Set Of Requirements

- Java Platform
- Portal
- JSF
- Databases
- Mainframes
- Packaged Apps
- Java Services
- .NET Services
- Message Queues
- Orchestration
- Connectivity
  - Heterogenous Back Ends
  - Silos of API and mechanisms
  - Opaque/heterogeneous data definitions
  - Synchronizing multiple data stores
- Orchestration
  - Asynchrony, Flow Coordination, Data Transformation, Compensation, Version Control, Auditing
- Scalability
  - Unpredictable loads
  - Asymmetric performance capabilities
- Management and Security
  - Access control, Authentication, Encryption, Logging, Identity Management
- Governance
  - Directory, Audit trails, Business Rules
Oracle SOA Platform Drill-down

- JDeveloper
  - Complete IDE, J2EE, Web services, Supports WSIF Bindings
- Adapters
  - Connectivity to 300+ back-end systems, visual design, JCA
- Oracle ESB
  - Messaging, connectivity and data distribution
- Oracle Web Services Manager
  - Service intermediation, security and policy management
- Oracle BPEL PM
  - Standards based orchestration, workflow management
- Oracle BAM
  - Application Monitoring, SLA, KPI management
- Oracle Business Rules
  - Engine, repository, rules editor
- Oracle App Server
  - Full featured J2EE deployment, scalability, reliability, HA
### Some of the Adapters Available for Oracle SOA Suite…

#### Applications
- Oracle Applications
- SAP R/3
- Peoplesoft
- JD Edwards
- Siebel
- Clarify
- Lotus Notes
- Ariba
- AXIOM mx/open
- Baan
- BroadVision
- Clarify
- Commerce One
- Hogan Financials
- i2 Technologies
- Lawson
- Livelink
- Manugistics
- Microsoft CRM
- Vantine
- Walker Interactive
- Remedy
- Salesforce.com

#### Databases
- Oracle 8i and above
- IBM DB/2 UDB
- Informix
- Clarion
- Clipper
- Cloudscape
- DBASE
- Dialog
- Essbase
- FOCUS Data Access
- Great Plains
- Microsoft SQL Server
- MUMPS (Digital Standard MUMPS)
- Navision Financials (ODBC 3.x)
- Nucleus
- Paradox
- Pointbase
- PROGRESS
- Red Brick
- RMS
- SAS Transport Format
- Sybase
- Teradata
- Unisys DMS 1100/2200
- UniVerse

#### Technology
- SOAP
- HTTP, HTTP-S
- Email – POP3, SMTP, IMAP
- FTP, FTP-S
- Flat File
- LDAP
- JMS
- Oracle AQ
- IBM MQSeries
- TIBCO Rendezvous
- Socket

#### Legacy
- CICS
- IMS/DB
- IMS/TM
- VSAM
- ADABAS
- Natural
- Tuxedo
- CA-Datacom
- Screen Scraping
- CA-IDMS
- C-ISAM, D-ISAM, K-SAM, QSAM
Oracle ESB: An ESB Moves Data

**Model, Monitor and Configure**

**Connect**
- Adapters
- Metadata
- WS Manager
- Security
- Apps Events

**Enrich**
- Transformation
- Value Mappings
- Business Rules
- Workflow
- System Xref

**Distribute**
- Protocol Bus
- Messaging
- Routing
- Interoperability
- HA, Scalability
Oracle ESB: Component Architecture

Components:
- Integrated Designer
- Rich Monitoring Console
- JCA Adapters
- Routing Service
  - XPATH Filter Expressions
  - XSL Transformation
- Metadata Repository/Server

Features:
- Content Based Routing
- Enterprise Messaging - OEMS
- Native XML and Web Services
- Multi Transport Fabric

Usage Patterns:
- Point to Point
- Canonical Modeling
- Store and Forward
- Request/Response
- Externalized Services
Oracle BPEL Process Manager

Enterprise-strength infrastructure for designing, deploying and managing BPEL business processes.

- Comprehensive and native BPEL implementation
- Easy-to-use modeling tool
- Scalable and reliable engine
- Flexible binding framework
- Rich management and monitoring
- Support for Oracle AS, JBoss, WebLogic and WebSphere
- Get up and running in less than 15 minutes!
A Typical SOA Application
What Are the Security Requirements?

1. Limit who can initiate processes
2. Encrypt SSN
3. Callback has to go through firewall
4. Make sure no other sensitive data is unprotected
Designed for Performance

BPEL-Optimized SOAP Stack

Write-through Cache

BPEL Server

App. Server

BPEL Server

App. Server

BPEL Server

App. Server

Dehydration Store (Oracle Database)

Binary DOM
- Lazy Loading
- Smart Partitioning
- W3C DOM Interface
- Support for Large Documents

Stateless Architecture
- Clustering
- Fail Over

Support for large BPEL Processes (20,000+ activities)
Oracle Adapters

Enterprise-strength infrastructure for connectivity to enterprise information systems (EIS).

- Comprehensive and pervasive connectivity
- Support for SOA / EDA
- Open Standards Support
- Hot Pluggable
- Rapid development
- Robust & highly scalable.
- Managed through Oracle Application Server 10g
Web Service Management

Decouples Security and Management Policies from Service Logic

- Without WSM, policy is hard-coded into each Web Service
- Result is siloed, inconsistent security and management
- A change in enterprise standards = rework of every service
- Higher cost, more fragile, harder to change
- No unified insight into operations across services
Oracle WSM Components

**BUILD Policies**

- Policy Manager

**ENFORCE Policies**

- Deployment as Gateway Process or as Embedded Agents
  - Policy Gateway
  - Policy Agents

**MONITOR Policies**

- Oracle Enterprise Manager

*Web Services*
Oracle BAM
Business Activity Monitoring
Real-Time Dashboards, Analytics & Alerting
Challenge #1 – Capture Real-Time Data

**Business Apps**
- Business Events, state transitions

**RFID and Sensors**
- Active and Passive
- Location, Temperature, Moisture, Motion, etc.

**Messaging Systems**
- JMS, TIBCO, MQSeries

**System Management**
- Performance metrics, alerts, logs

**Business Processes (BPEL)**
- Monitoring activities, states

**Security**
- Authentication, authorization, audit trail

**Database**
- Streams
Challenge #2 – Analyze Processes, Trends, and Context

Monitor a Single Process
- Track each process step
- Identify failures

Process Aggregations
- Averages, KPIs, SLAs
- Identify bottlenecks

Complex Event Processing
- Correlate independent events
- Identify threats & opportunities

Context
- Historical performance
- Rolling average

Past Week
Today
Past 15 Minutes
Challenge #3 – Deliver Information to Business Users

- Real-Time KPIs
- Thin Browser GUI
- Role-Based Access
- Live Display Technology
- Portal Compatible
- Embedded Actions
Oracle Web Services Manager

Securing Processes and Services in a Policy-Oriented Fashion
Oracle’s BPM Approach

- Complete Service Oriented Architecture platform for full BPM innovation cycle
- 100% standard process models
- Shared model between analysis, execution and monitoring
- Provide choice of modeling tools to customers
  - OEM leading BPA tool
  - Enhance the logical view of BPEL PM Designer for analysts
  - Provide integration with leading BPA tools so that customers can select BPA tool of their choice
Business Rules

- Are declarative not procedural
- Best practice for SOA applications
  - Agility
  - Transparency
  - Can be generated from GUIs
- Applications requiring agility
  - Frequently changing (legal) regulations
  - Frequent policy changes to reflect market changes
  - Requirements for high levels of customization

Rules de-couple decision services from SOA applications
Oracle Business Rules

Rules enabled applications

Application run-time logic

RuleSession Class

Rules Engine

Rules repository

Rule Author

Rules customizing application

Rules SDK

Facts can be Java objects or XML
Questions & Answers

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