Integration Simplified: Native Service-Oriented Architecture in Oracle E-Business Suite

Veshaal Singh  Neeraj Chauhan
Director Development  Manager – Product Management
The following is intended to outline our general product direction. It is intended for information purposes only, and may not be incorporated into any contract. It is not a commitment to deliver any material, code, or functionality, and should not be relied upon in making purchasing decisions. The development, release, and timing of any features or functionality described for Oracle’s products remains at the sole discretion of Oracle.
Agenda

• SOA Enablement Of Oracle E-Business Suite
• Introduction To Integrated SOA Gateway
• Key Features
• Interoperability
• Business Benefits
• Q & A
SOA Enablement Introduction
Value Drivers
Oracle E-Business Suite SOA Enablement

• Leverage the investment of existing Applications
• Flexibility to coexist with the best-of-breeds
• Interoperability in heterogeneous environment
• Incremental approach to integration
• Standardization in software deployment
• Path to Fusion
Service Enablement

- Service: Unit with discrete business functionality
- Pre-built, reusable business services as building blocks
- Agile infrastructure as integration framework

In a nutshell it’s all about…
- Abstracted Re-Usable Interfaces
- Capability to Provide Services
- Ability to Consume Services
- Standard Based (Web) Business Services
- Well Documented Business Services
## Service Oriented Architecture

**Oracle E-Business Suite Integrated SOA Gateway**

### SOA Concept vs. Oracle E-Business Suite SOA

<table>
<thead>
<tr>
<th>SOA Concept</th>
<th>Oracle E-Business Suite SOA</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Service Broker</strong>: Describe Service’s Location and Contract</td>
<td><strong>Integration Repository</strong></td>
</tr>
<tr>
<td><strong>Service Provider</strong>: An appropriate agent to implement a particular service</td>
<td><strong>SOA Provider</strong></td>
</tr>
</tbody>
</table>

### Diagram

- **Integration Repository**
  - **Find**: Service Consumer
  - **Register**: SOA Provider

### Additional Notes

- **Client** ↔ **Service**
- **Service Consumer**
- **SOA Provider**
- **Oracle E-Business Suite SOA Concept**
I changed the descriptions for Provider and FMW adapter. These should be explained separately.

Jose Lazares; 10/10/2006
Oracle Integrated SOA Gateway

Key Features

• Extensible Integration Repository
• Out of the box Service Enablement
• Composite Services
• Service Invocation
• SOA Monitor
Extensible Integration Repository
Integration Repository

Single source of truth

- Catalog of all E-Business Suite Public Integration Points
  - PL/SQL APIs
  - Business Events
  - Open Interface Tables
  - Concurrent Programs
  - XML Messages
  - EDI Messages
  - Business Service Object
  - Interface Views

- Source of truth for all integration projects for
  - Customers
  - Consultants
  - Integrators
# Extensible Integration Repository

## Custom Interfaces

<table>
<thead>
<tr>
<th>Name</th>
<th>Internal Name</th>
<th>Product</th>
<th>Type</th>
<th>Source</th>
<th>Status</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Custom SDR</td>
<td>CUSTOM_SDR</td>
<td>Trade Management</td>
<td>PL/SQL</td>
<td>Custom</td>
<td>Active</td>
<td>This custom PL/SQL package can be used for SDR.</td>
</tr>
<tr>
<td>Custom SDR1</td>
<td>CUSTOM_SDR1</td>
<td>Trade Management</td>
<td>PL/SQL</td>
<td>Custom</td>
<td>Active</td>
<td>This custom PL/SQL package can be used for SDR.</td>
</tr>
<tr>
<td>Custom Supplier Ship and Debit Request</td>
<td>CUSTOM_SD_REQUEST</td>
<td>Trade Management</td>
<td>PL/SQL</td>
<td>Custom</td>
<td>Active</td>
<td>This custom PL/SQL package This package can be used to Create Ship &amp; Debit Request.</td>
</tr>
<tr>
<td>OZF_SD_REQUEST Public API</td>
<td>OZF_SD_REQUEST_PUB</td>
<td>Trade Management</td>
<td>PL/SQL Oracle</td>
<td>Active</td>
<td>This package can be used to Create,Update and Copy Ship &amp; Debit Request.</td>
<td></td>
</tr>
<tr>
<td>Single ship and debit request</td>
<td>ZZ_SDREQUEST</td>
<td>Trade Management</td>
<td>PL/SQL</td>
<td>Custom</td>
<td>Active</td>
<td>This custom PL/SQL package can be used to create supplier ship and debit request for single product.</td>
</tr>
</tbody>
</table>
Custom Interfaces

Design Time - Publishing to Integrated SOA Gateway

Custom interfaces in E-Business Suite

- Annotate Interfaces
  - PL/SQL API
  - Concurrent Program
  - XML Message
  - Business Service Object
  - Business Event

- Stand Alone Parser
  - Reads annotated files and generates Integration Repository Loader Files

- Loader File (ildt)
  - FNDLOAD Uploads Loader File to Integration Repository

Integration Repository
Integration Repository

Your Snapshot

Seeded Services
(Written by Partners / Customers)

Custom Services
(Written by Partners / Customers)

Seeded Composite Services

Custom Composite Services
(Written by Partners / Customers)
SOA Enablement
Service Enablement
SOA Simplified!!!

Out of the box Services

Business Process Orchestration

Enterprise Integration

Process Monitoring

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What is service enabled

• PL/SQL APIs
• Concurrent Programs
• XML Messages
• Business Service Objects
• Business Events

• More than 2500+ services
Integrated SOA Gateway

1. Annotate interface
2. Publish interface
3. Generate WSDL
4. Deploy Service
5. Invoke Service
SOA Enablement
Use Case

• Extend Integration Repository
  • Write a custom PL/SQL API
  • Annotate the custom PL/SQL API
  • Publish the PL/SQL API in Integration Repository

• Generate and Deploy the Web Services
  • Generates WSDL for PL/SQL API
  • Deploys web service

• Implement the Integration
  • Searches for the interface
  • Uses the WSDL while creating BPEL process
  • Deploys & tests the BPEL process
Custom API – Create Supplier Ship and Debit Request

Inception
- Annotate custom API to create SD
- Validate annotations
- Upload to Integration Repository
- Generate WSDL for custom SD
- Deploy WSDL for custom SD

Design
- Locate WSDL URL for Custom SD in IREP
- Set SOA Header for Custom SD SOAP request
- Read SD input payload from file
- Set SD Request Number
- Invoke custom API as WS
- Get SD Request Header ID

Create and deploy BPEL process

Execution
- Initiate BPEL process from BPEL Console
- View response in BPEL Console
- Verify created SD request in Oracle Trade Management
- Initiate BPEL process from BPEL Console
- View response in BPEL Console
- Verify created SD request in Oracle Trade Management

Integration Developer
Integration Administrator
Trade Management User
Integration Administrator
DEMOnstration

End-to-End
SOA Enablement
Composite Services
Composite Services

A Composite Service is a coarse-grained abstracted service within which multiple finer-grained services are bonded together to execute in a series

- Need for composite service
  - Difficult to implement fine grained APIs
  - Quick return on existing investment
  - Provides flexible business integration architecture
  - Easy to maintain and manage

- Created with Oracle BPEL PM Designer
Integration Repository

Composite services - BPEL

- Catalog of BPEL composite service
- Download BPEL service artifacts to local system
- View WSDL of BPEL composite service
Composite Services (BPEL)

Design Time

1. Create BPEL process (JDev)
2. Annotate BPEL file
3. Create jar of BPEL project
4. Place BPEL jar in Product_Top
5. Create ARU Patch of BPEL jar
6. Apply the patch
7. Unzip the BPEL jar
8. Execute standalone IREP parser
9. Upload ildt file (FND Load utility)
Composite Services (BPEL)

Deploy Time

1. Download BPEL jar
2. Unzip BPEL jar
3. Open BPEL jpr in JDev
4. Modify service end points
5. Deploy BPEL process
Service Invocation
Service Invocation
Plug and Play Services

- PL/SQL
- FORMS
- OA FWK
- Java

Raise Business Event
Web Service Subscription
Request
Response

Fire Wall

Standard Web Services

E-Business Suite
- Contracts
- Projects
- Finance
- Maintain
- Service
- Develop
- Market
- Sell
- Order
- Plan
- Procure
- Fulfill
- Make
- Customers, Suppliers, Products...

ORACLE
Service Invocation

Use Case

- Oracle E-Business Suite HRMS
- Oracle PeopleSoft HR Help Desk

- Sync Up between EBS & PSFT applications
- Job description changed in EBS
- PSFT service invoked from PSFT
- Job description updated in PSFT

- Oracle E-Business Suite – Service Invocation Framework
- Oracle PSFT – HR Help Desk Business Service
DEMONSTRATION

Service Invocation
SOA Monitor
SOA Monitor

Salient features

- Monitor SOAP REQUEST / RESPONSE
- View error description of failed Request / Response
- Purge web service monitoring log
Interoperability Leverage
Interoperability Leverage

Services

ORACLE
E-Business Suite

Customers, Products,
...

Services

ORACLE FUSION MIDDLEWARE

Oracle Application Integration Architecture

ORACLE SIEBEL

PEOPLESOFT ENTERPRISE

3rd Party Standard WS Client

.NET WS Client

Apache Axis
Key Take-Aways
Business Benefits

• Out of the box Service Enablement
• Real Time Visibility into Business Processes
• Open and Standards based services
• Flexible Coupled Service Architecture
• Customize your Integration Repository
Key Take Away
Oracle E-Business Suite – SOA Enablement

- Extensibility of Integration Repository
- Out-of-the-box Services
- Composite Service
- Service Invocation
- SOA Monitor
Related Sessions: ATG

**Tuesday, September 23, 2008**

**09.00** **Customer Case Study: GE Infrastructure**
Centrally Managing your Oracle E-Business Suite, Using Oracle Application Mgmt Pack
*Benjamin Cabanas, GE Infrastructure & Biju Mohan, Oracle*
Moscone West 2007

**11.30** **Change Management**
Change Management in the Lifecycle of Oracle E-Business Suite
*Kenneth Baxter and Uma Prabhala, Oracle*
Moscone West 2007

**17.00** **Install and Cloning Techniques Deep Dive**
Oracle E-Business Suite Release 12
*Max Arderius and Biju Mohan, Oracle*
Moscone West 2007
Wednesday September 24, 2008

13.00 Customer Case Study: General Electric
Accelerating Oracle E-Business Suite Implementations with Oracle iSetup
Judy Warfield, General Electric and Uma Prabhala, Oracle
Moscone West 2007

17.00 Java Authentication and Authorization Service for Oracle E-Business Suite
Veshaal Singh, Oracle
Moscone West 2007

Thursday September 25, 2008

09.00 Centralize your Oracle E-Business Suite Search
Powered by Oracle Secure Enterprise Search
Rajesh Singh and Veshaal Singh, Oracle
Moscone West 2007

10.30 Customer Case Study: Forsythe Technologies Inc
Oracle E-Business Suite SOA Implementation
Samuel Tong, Forsythe Technologies Inc and Neeraj Chauhan, Oracle
Moscone West 2007
Related Sessions: ATG

**Thursday, September 25, 2008**

12.00  Managing Oracle E-Business Suite Customizations and Patches, using Oracle Enterprise Manager  
       Uma Prabhala, Oracle  
       Moscone West 2005

13.30  Opening Up Oracle Application Framework Applications through Web Services and Portlets  
       Ramkumar Sekar, Oracle  
       Moscone West 2005

13.30  Understanding the Oracle Diagnostics Security Model and Support for Custom Responsibility  
       Angelo Rosado, Oracle  
       Moscone West 2007
Demogrounds

Pod K30  E-Business Suite Lifecycle Management
- Oracle Applications Management Pack for Oracle E-Business Suite
- Oracle iSetup and Oracle Diagnostics Framework
- Oracle E-Business Suite Cloning Techniques

Pod K24  SOA Enablement of E-Business Suite
- Native Service Enablement of Oracle E-Business Suite
- Integration Repository and E-Business Suite Adapter
- Oracle SOA Suite for Oracle E-Business Suite

Pod K26  Oracle Secure Enterprise Search
- The Next-Generation Semantic Search Experience
- Design and Develop New Searchable Objects, Using the Search Modeler
- Powered by Oracle Enterprise Search

Pod K25  Web Services / Portlets in Oracle OAF
- Extract Portlets from Oracle OAF Applications
- Generate, Test, Deploy, and Integrate Web Services
- Desktop Integrators Using Oracle Web Applications Desktop Integrator
“Meet the Experts”

Application Lounges @ Oracle OpenWorld 2008
Moscone West - 2nd Floor (Lobby)

- E-Business Suite – Tools and Technology
  - Wednesday, 09:00 – 11:00 (Section 1)
    - Oracle E-Business Suite Release 12 Upgrade (Technical Upgrade)
    - Oracle E-Business Suite Release 12 Advanced Configuration
    - Managing and Maintaining the Oracle E-Business Suite
    - SOA-Enablement of E-Business Suite

- Wednesday, 12:00 - 2:00 (Section 2)
  - Oracle Business Intelligence Publisher for Oracle Applications