



IBM Software Group

Defining Connectivity to Oracle E-Business Suite using WebSphere JCA Adapter

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WebSphere® Support Technical Exchange



Agenda

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- Adapters and IBM® SOA Suite
- Oracle E-Business Suite
 - High Level Integration Architecture
 - Integration Basics
- Oracle E-Business Suite Adapter Capabilities
- WebSphere Adapter for Oracle E-Business Suite – evolution
- Case Study : 1 – A2A Integration scenario
 - Salient Points of Case Study 1
- Case Study : 2 – B2B Integration scenario
 - Salient Points of Case Study 2

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- FAQ 1 : Does WebSphere Oracle E-Business Suite Adapter integrate with Oracle Financials modules
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 - Configuring integration to AR
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- FAQ 3 : Can I use JDBC adapter instead of Oracle E-Business Suite adapter to integrate to Oracle E-Business Suite database objects
 - JDBC Adapter versus Oracle E-Business Suite adapter

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- FAQ 4 : Can I use technology options and code connectivity to Oracle E-Business Suite instead of using Oracle E-Business Suite adapter
 - How Oracle E-Business Suite Adapter compares with integration solution using technology options
- Useful information
- Summary



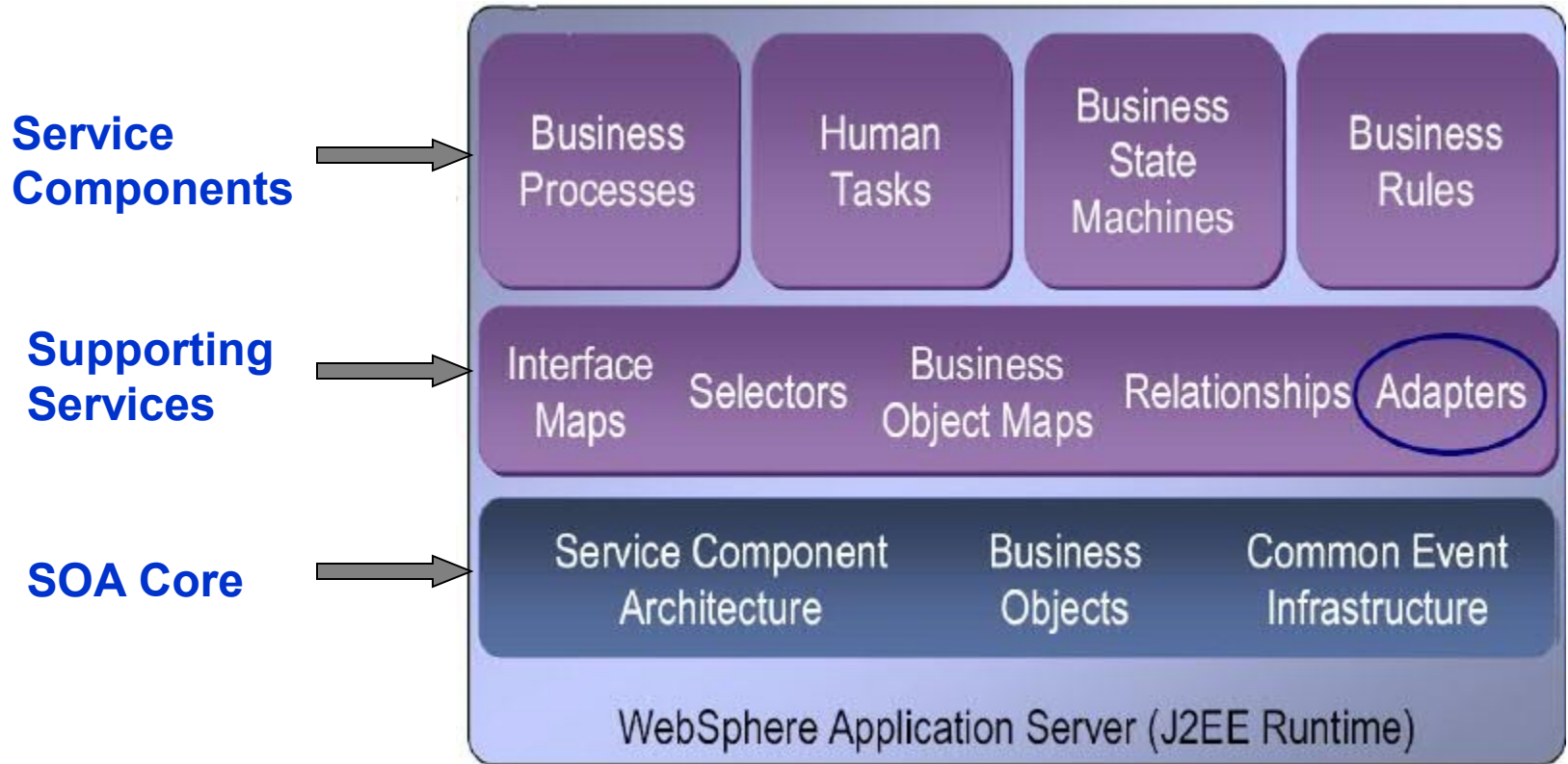
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Adapters and SOA Suite



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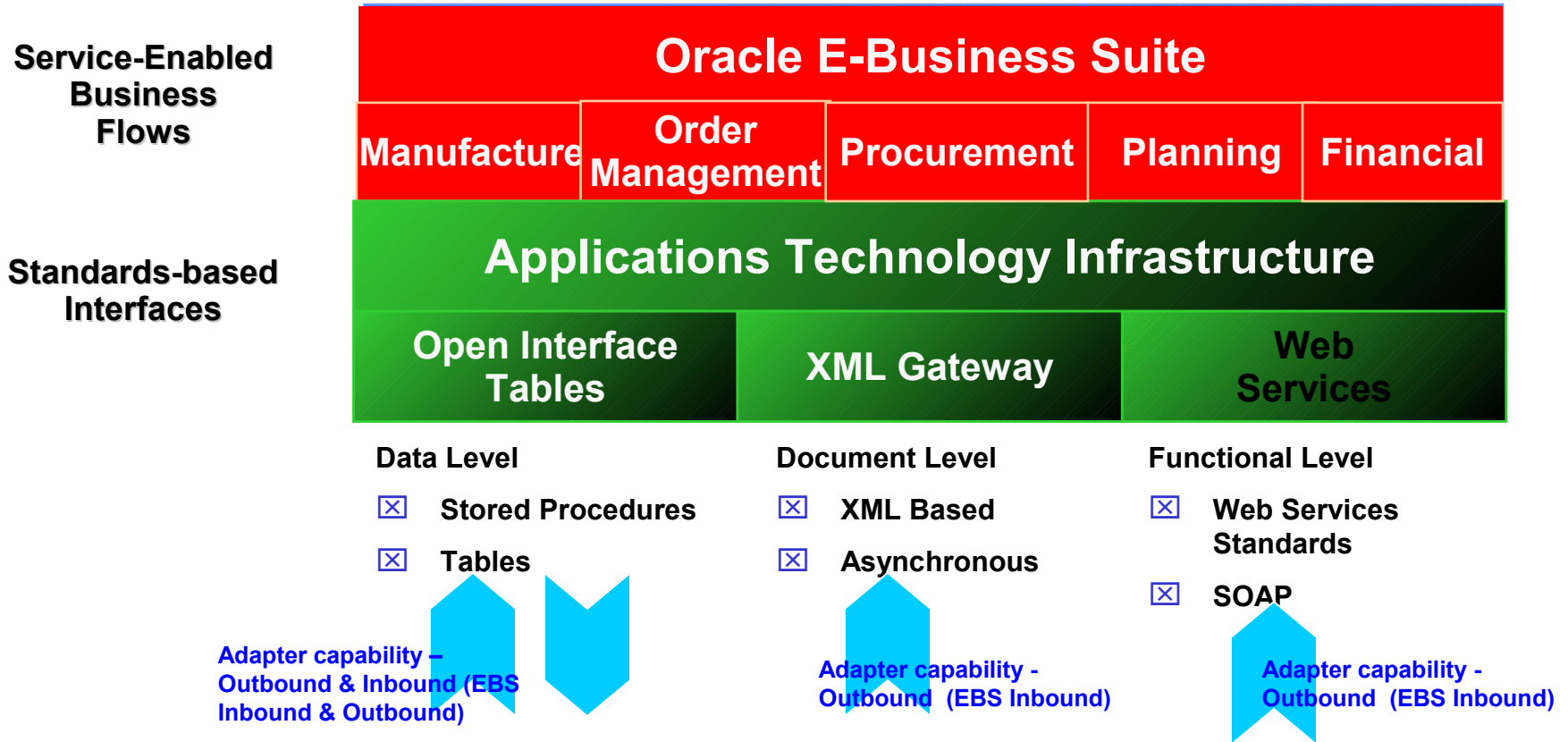
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Oracle E-Business Suite

High Level Integration Architecture



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Oracle E-Business Suite

Integration basics

Oracle EBS interfaces Integration requirement Description

Open Interface/
Concurrent Program

Oracle Interface Table is used to store data from external sources. A concurrent program runs as a concurrent process and is executed by the Concurrent Manager. The Concurrent program validates the data in Oracle Interface Table and then applies it into the Oracle Base Table. This mechanism ensures the data integrity and consistency in Oracle EBS system.

PL/SQL APIs

Oracle predefined or custom stored procedures / functions to complete business functions in Oracle EBS system.

XML Gateway

Supports Oracle XML Gateway interfaces via Web Services and JMS, supports both Oracle seeded XML Gateway interfaces (like Order Entry, Invoice Entry) and custom XML Gateway interfaces.

Integration Repository

IREP provides a complete catalog of Oracle E-Business Suite business service interfaces, and is shipped as part of the Oracle E-Business Suite and exposed as Web Services, which can be invoked to get the structure and metadata of different business service interfaces (including XML Gateway, Open Interfaces, Concurrent Programs, PL/SQL APIs, etc)

Advanced Queue

Oracle AQ provides messaging capabilities like other messaging providers. These capabilities are built over the database engine, and the messages are stored persistently in the Oracle database.

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Oracle E-Business Suite Adapter Capabilities

Adapter can work with Open interface tables and views, stored procedures and functions

Adapter provides event based integration by leveraging the Business Event System of Oracle E-Business Suite

Adapter augments PL/SQL data types support over what can be provided by jdbc driver.

Adapter provides document level (XML) integration with XML Gateway by using Advanced Queues, AQ Jms API and WebServices

Adapter leverages Integration Repository which is a very important component in the E-Business Suite

Adapter facilitates integration solution development by providing Enterprise Service Wizard based metadata discovery of the E-Business Suite objects and interfaces

**Packaged offering
for most of EBS
connectivity needs**

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WebSphere Adapter for Oracle E-Business Suite - evolution

WBI Oracle EBS Adapter

- Data level integration to Oracle database objects like interface tables, stored procedure
- Inbound and Outbound support

Oracle EBS Adapter V6.2

- Data level integration with Oracle database. Objects include
 - Open Interface Tables
 - Interface Views
 - Stored Procedures/Stored Functions
- Inbound and Outbound Connectivity
- Driver compliant with JDBC V2.0 and above
- Support Oracle EBS version 11.5 and 12.0

Oracle EBS Adapter V7.5

- Document level integration with XML Gateway using
 - WebServices (SOAP/JMS)
 - Advanced Queues
- Supports Oracle EBS version 11.5, 12.0 and 12.1.X

Oracle EBS Adapter V7.0.2

- Enhanced PL/SQL API support
 - PL/SQL data type BOOLEAN
 - Overloaded Stored Procedures and Functions
- Document level integration with XML Gateway using
 - Integration with IREP for service discovery
 - WebServices (SOAP/HTTP)
- Supports Oracle EBS version 11.5, 12.0 and 12.1.x

Oracle EBS Adapter V7.0

- Support for PL/SQL data type RECORD
- Capability for mapping SQL date types to xsd date
- Supports Oracle EBS version 11.5, 12.0 and 12.1.x

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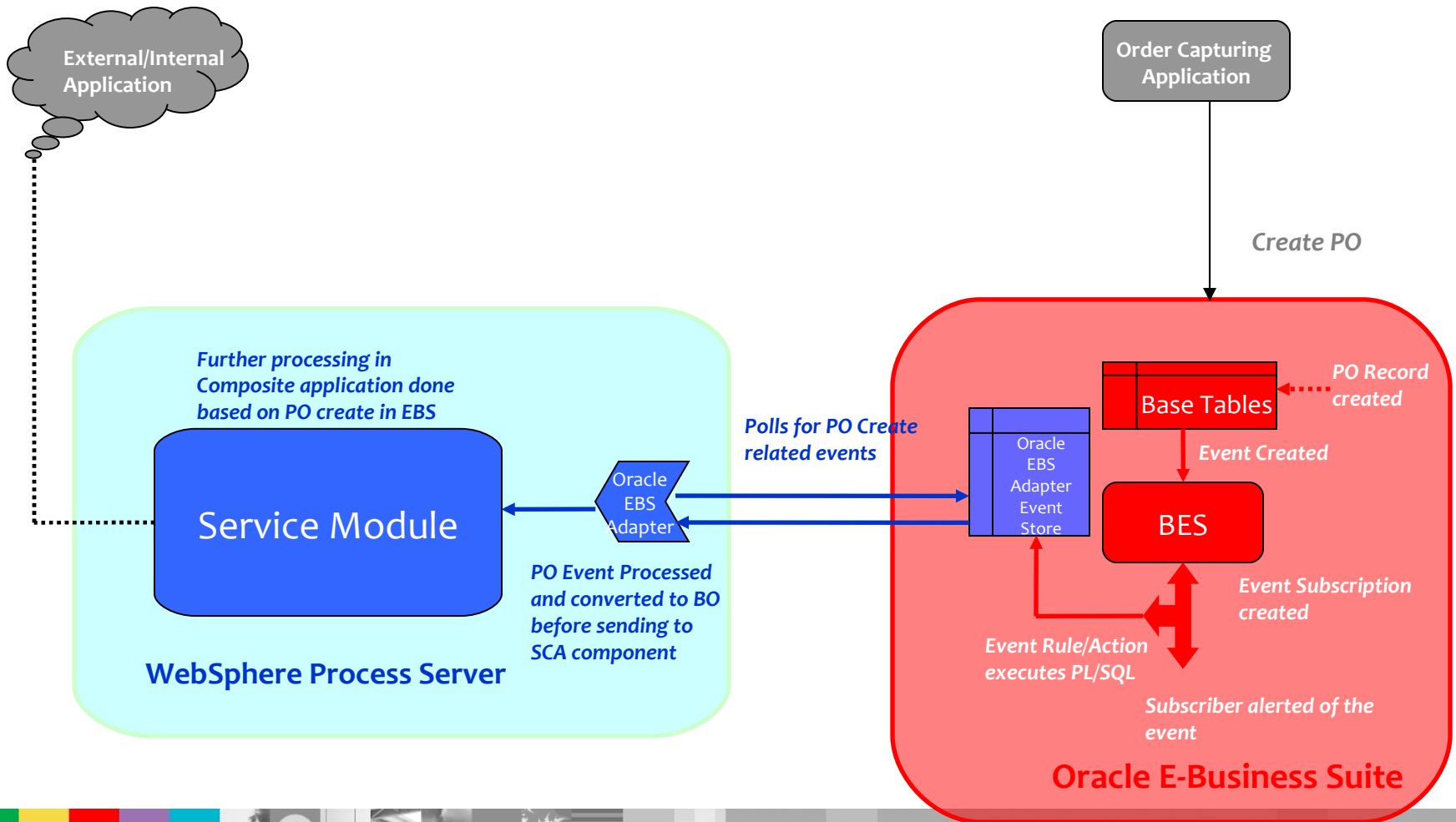
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Case Study : 1 – A2A Integration scenario

Oracle E-Business Suite Adapter



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Salient Points of Case Study 1

- Adapter leverages Oracle Business Event System in Oracle-E-Business Suite to enable event based integration to Composite applications on IBM SOA
- Adapter's Inbound connectivity based on Message In-flow contracts defined in JCA specification
- Offers Transactional Support
- Poll based retrieval of events, which can be controlled by configuring poll related properties
- Assured Once Only Delivery Support



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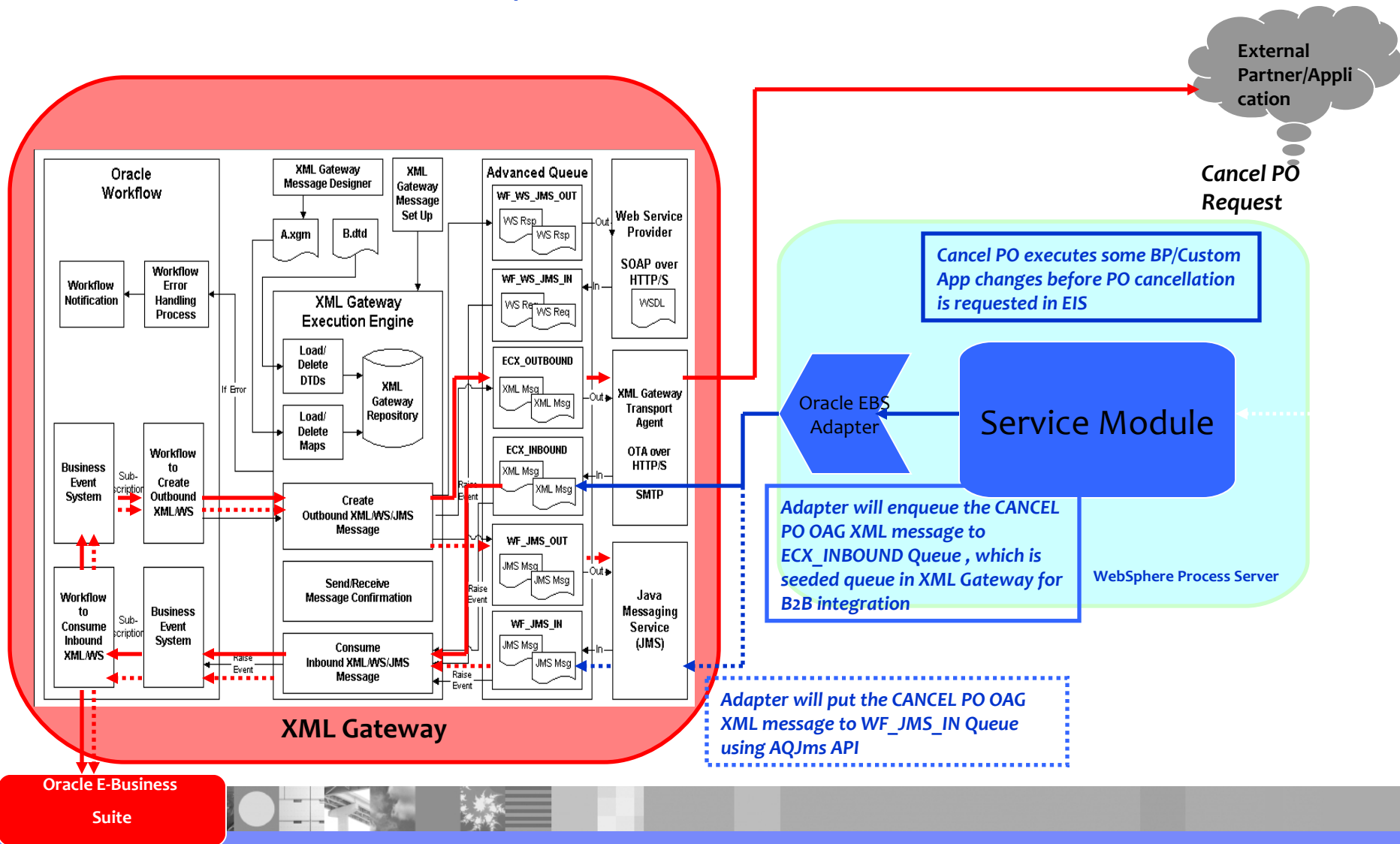
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Case Study : 2 – B2B Integration scenario

Oracle E-Business Suite Adapter



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Salient Points of Case Study 2

- Case Study 2 showcases two important integration capabilities that Oracle E-Business Suite Adapter provides out of the box.
 - ▶ Advanced Queue integration
 - ▶ JMS integration
- These integrations are viewed in relation to the B2B integration scenarios that Oracle E-Business Suite supports

- Metadata discovery for both these integration mechanisms differ
- For Advanced Queue integration, metadata discovery is done exploiting the database based architecture of advanced queues
- For JMS integration metadata discovery is performed using lookup of exposed WebServices from Integration Repository (IREP)

What is IREP

- Integration repository is a component in Oracle EBS that offers a catalogue of interfaces available in Oracle E-Business Suite.
- Interface types can be PL/SQL APIs, XML Gateway Map, Java™ APIs & Open Interface tables. EBS allows for any of these to be converted to a webservice and exposed in the iRep.
- Interfaces in Integration Repository catalogue is augmented from release 11.5 to 12.1.1 . And this has become one of the popular means of integration with the Oracle EBS

FAQ 1 : Does WebSphere Oracle E-Business Suite Adapter integrate with Oracle Financials modules

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Oracle Financials - briefing

- Oracle Financials is an important application group that exists in Oracle E-Business Suite
- Oracle Financials comprises mainly of the following modules
 - ▶ Payables (AP)
 - ▶ Receivables (AR)
 - ▶ Fixed Assets (FA)
 - ▶ Cash Management (CM)
 - ▶ General Ledger (GL)
- Integration to each of these financial modules is possible by exploiting the documented interfaces for creating/updating or removing the relevant records from their corresponding tables.
- The most popular means of working with these interfaces is by using the PL/SQL API , that at times is a Stored procedure that creates the required entity or sometimes is a wrapper on top of a concurrent program that can be invoked by using the wrapper SP API.



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Configuring integration to AR

- In this session we will look at a brief overview on how integration to one such financial module (AR) can be achieved using the Oracle E-Business Suite adapter
- AR (Account Receivables)
 - ▶ Create Invoice
 - PL/SQL API:
`AR_INVOICE_API_PUB.CREATE_SINGLE_INVOICE`

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Discovering PL/SQL API to create invoice

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New External Service
Specify the Discovery Properties

Connection properties

Oracle system connection information

Properties:

- JDBC driver type: Oracle Thin Driver
- System ID: * VIS
- Host name: * jazzadmin@in.ibm.com
- Port number: * 1521
- JDBC driver class name: * oracle.jdbc.driver.OracleDriver
- Database URL: jdbc:oracle:thin:@jazzadmin.in.ibm.com:1521:VIS

Additional JDBC driver connection properties [name=value;name=value]:

User name: * apps

Password: * ****

Prefix for business object names:

Change the logging properties for the wizard

< Back Next Finish Cancel

Provide the required information to connect to your EBS instance

New External Service
Find Objects in the Enterprise System

Use a query to find objects on the enterprise system. Click Edit Query to create the query, then click Run Query to run it.

Query: [SchemaName|TableName|SchemaName or pattern|Supported database object types|Tables|Supported data]

Run Query

Discovered objects:

Selected objects:

< Back Next Finish Cancel

Click on Edit Query

New External Service
Specify the Query Properties

Specify the pattern for the schema name filter: (for example, ADMIN* or SCOTT)

Schema name or pattern: APPS

Supported database object types:

- Tables
- Views
- Stored Procedures
- Synonyms - Nick names

Map Oracle JDBC Date/Timestamp types to date/dateTime.

Prompt for additional configuration settings when adding business object

Create a query business object to build user-defined Select statements

Number of select queries to create:

The select datatables are listed under the Query Statements side of the discovered objects tree. These statements can be defined for various business requirements and used to track the status of operations performed on Oracle open interface tables.

OK Cancel

Provide the schema name to discover objects from



Discovering PL/SQL API to create invoice

2 of 3

Click on Run Query to discover the objects

Select Stored Procedures and click on the Filter icon to display the filter criterion

Specify the pattern to filter the SP by their package names

Once the query is executed, list of objects under the selected schema is displayed

Discovering PL/SQL API to create invoice

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Expand the filtered list of Stored Procedures and select the one applicable to create a single invoice

Stored procedure attributes displayed in tree structure (post v7501) to handle SP with very large number of arguments

Click on the right arrow to add the stored procedure as selected object

FAQ 2 : How does the WebSphere adapter leverage Business Event System in Oracle E-Business Suite

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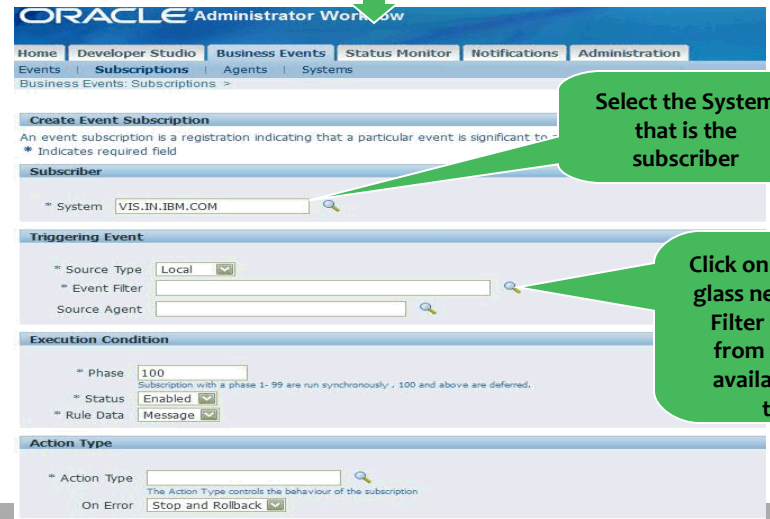
Inbound connectivity from Oracle E-Business Suite using WebSphere Adapter (1 of 4)

- Steps to configure inbound connectivity from Oracle E-Business Suite
 - ▶ Create the Event store (table) required by adapter on the EIS (database)
 - ▶ Set up the applications/Workflows in Oracle E-Business Suite to raise events when an event of significant importance occurs
 - ▶ Create subscriptions in Business Event System to the desired event of interest
 - ▶ Configure the subscription to execute a custom PL/SQL program when the subscribed event is received in Business Event System
 - ▶ The custom PL/SQL program is responsible to populate the adapter event store with information necessary to retrieve the event of interest

Inbound connectivity from Oracle E-Business Suite using WebSphere Adapter (2 of 4)



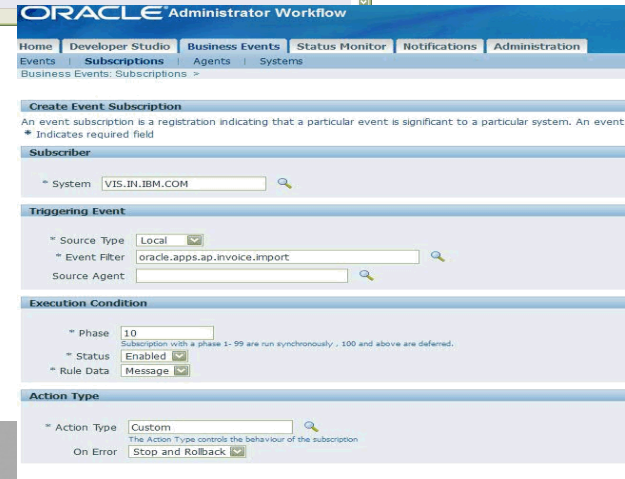
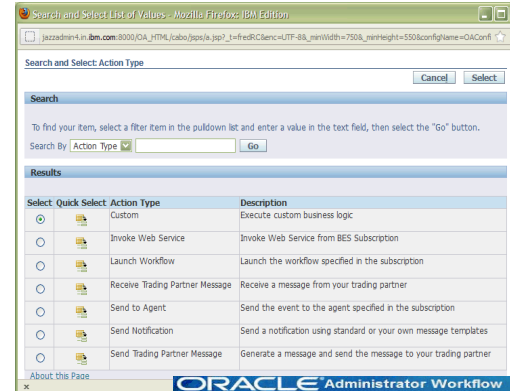
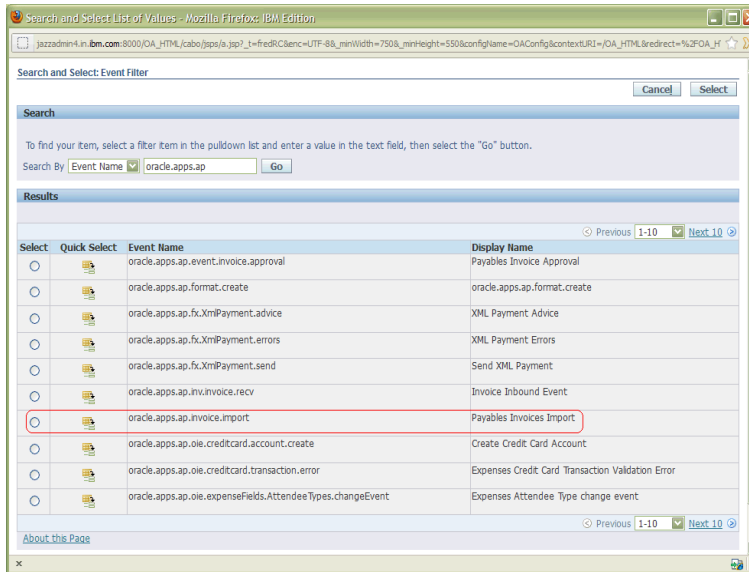
Login to Oracle E-Business Suite home as Sysadmin user, Go to **Workflow Administrator, Web Applications** from the left navigation pane



Inbound connectivity from Oracle E-Business Suite using WebSphere Adapter (3 of 4)

On the Event Filter screen select from the list of available event names, in this example we have selected the event that corresponds to the invoice import in an AP module

Next click to configure the Action Type for the selected event, this will show list of Action Types available. Choose **Custom** from the list



Inbound connectivity from Oracle E-Business Suite using WebSphere Adapter (4 of 4)

- On the next screen configure the action that needs to be performed when the subscribed event occurs.
- Here provide the name of the PL/SQL function that will be run when the trigger event occurs. This is a custom PL/SQL program that you will need to write to populate the event table that adapter uses with appropriate values extracted from the trigger event that occurs .

The screenshot shows the Oracle Administrator Workflow interface for configuring a custom subscription. The page title is "ORACLE Administrator Workflow" and the breadcrumb is "Business Events: Subscriptions > Create Event Subscription > Create Event Subscription: Custom Subscription". There are "Cancel", "Back", and "Apply" buttons at the top right. The main section is titled "Action" and contains the following fields:

- Java Rule Function:** An empty text input field.
- PL/SQL Rule Function:** A text input field containing the value "ibm_websphere_pkg.ibm_rule_function".
- Workflow Type:** A dropdown menu with a search icon.
- Workflow Process:** A dropdown menu with a search icon.
- Out Agent:** A text input field with a search icon.
- To Agent:** A text input field with a search icon.
- * Priority:** A dropdown menu with "Normal" selected.

Below the "Workflow Type" and "Workflow Process" fields, there is a note: "Choose a Workflow Type, before choosing the Workflow Process for that Type".

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JDBC Adapter versus Oracle E-Business Suite adapter

- Oracle E-Business Suite adapter offers specialized connectivity to Oracle E-Business Suite
- While working with database of Oracle E-Business Suite it may appear that a JDBC adapter would suffice , however that is not the case
 - ▶ Support for PL/SQL RECORD data type
 - ▶ Support for PL/SQL BOOLEAN data type
 - ▶ Support for overloaded Stored Procedures and Functions
- Since Oracle E-Business Suite is specific to Oracle and to Oracle E-Business System requests to support special data types, constants and database objects can be built into this adapter unlike the JDBC adapter which offers more of a generic database connectivity and is limited by the driver functionality .



















FAQ 4 : Can I use technology options and code connectivity to Oracle E-Business Suite instead of using Oracle E-Business Suite adapter

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How the Oracle E-Business Suite adapter compares to technology options in ESB/BPM

 Full Support  Partial Support  No Support	WebSphere Adapter for Oracle E-Business Suite	Technology options in ESB/BPM
Connectivity to Oracle E-Business Suite database objects		
Integration to Oracle XML Gateway through Web services and Advanced Queues		
Uniform user experience through guided wizard based discovery and configuration to Oracle E-Business interfaces		 
Isolation of concerns related to Oracle E-Business Suite connectivity		 
Keeping up with Oracle E-Business Suite upgrades		 



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Useful information

- To refer to technotes relevant to WebSphere Adapter for Oracle E-Business Suite adapter
 - ▶ http://www-01.ibm.com/support/search.wss?rs=695&lang=en&loc=en_US&r=10&cs=utf-8&rankfile=0&cc=&coll=0&spc=&stc=&apar=include&sort=desc&tc=SSCG3RH&ibm-search.x=19&ibm-search.y=15&dc=DB560+DB520&dtm
- To download Interim Fixes for different versions of the WebSphere Adapter for Oracle E-Business Suite
 - ▶ <http://www-933.ibm.com/support/fixcentral/>
- Documentation on WebSphere Adapter for Oracle E-Business Suite
 - ▶ http://publib.boulder.ibm.com/infocenter/dmndhelp/v7r5mx/index.jsp?topic=%2Fcom.ibm.wsadapters.jca.oracleebiz.doc%2Fdoc%2Fstbp_ore_welcome.html

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Summary

- In this session we looked at some of the key aspects of integration with Oracle E-Business Suite using the WebSphere Adapter
- We also saw some of the case studies that demonstrated the integration capabilities offered by the WebSphere Adapter
- A greater part of this presentation covered some of the frequently asked question related to the WebSphere Adapter for Oracle E-Business Suite



Additional WebSphere Product Resources

- Learn about upcoming WebSphere Support Technical Exchange webcasts, and access previously recorded presentations at:
http://www.ibm.com/software/websphere/support/supp_tech.html
- Discover the latest trends in WebSphere Technology and implementation, participate in technically-focused briefings, webcasts and podcasts at:
<http://www.ibm.com/developerworks/websphere/community/>
- Join the Global WebSphere Community:
<http://www.websphereusergroup.org>
- Access key product show-me demos and tutorials by visiting IBM Education Assistant:
<http://www.ibm.com/software/info/education/assistant>
- View a webcast replay with step-by-step instructions for using the Service Request (SR) tool for submitting problems electronically:
<http://www.ibm.com/software/websphere/support/d2w.html>
- Sign up to receive weekly technical My Notifications emails:
<http://www.ibm.com/software/support/einfo.html>



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Questions and Answers