

SOUG – SOA

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ORACLE FUSION MIDDLEWARE

Before we begin...

The Real Important Things

The Real Important Things

Oracle Technology Network

- <http://technet.oracle.com/>
- Home of documentation, software downloads, **OracleByExample** series, discussion forums, and much more.



Oracle By Example

- <http://technet.oracle.com/obe>
- Great assisted learning for the Oracle Platform



Working Effectively with Support

- <http://www.oracle.com/support/seminars.html>
- **Learn how to save time by optimizing Oracle Support**
 - leverage your support investment
 - inform you of customer best practices
 - provide tips for Oracle Support Metalink
- **Available recorded, bi-weekly webcast, or custom for your team**



Key Slide!

The SOA and BPEL Buzz

SOA = Service Oriented Architecture

BPEL = Business Process Execution Language

SOA What...

- **Is anyone doing SOA?**
- **Is anyone looking at SOA?**
- **Any specific questions/topics?**

The Buzz- SOA

Traditional Architecture

Functionality Oriented

Designed to last

Long development cycle

Tightly Coupled

Application Silos

Object Oriented

Service Oriented Architecture

Process Oriented

Designed to change

Iterative development

Loosely Coupled

Heterogeneous

Message Oriented



The Buzz- BPEL

*“ Gartner believes that BPEL will emerge as the **leading industry standard** for Web service orchestration and coordination of business processes. ”*

- David Smith, Research Vice President and fellow, Gartner

*“ BPEL is the **future** of the integration space. ”*

- John Rymer, Vice President, Forrester Research, Inc.

The SOA/BPEL Alternative



?

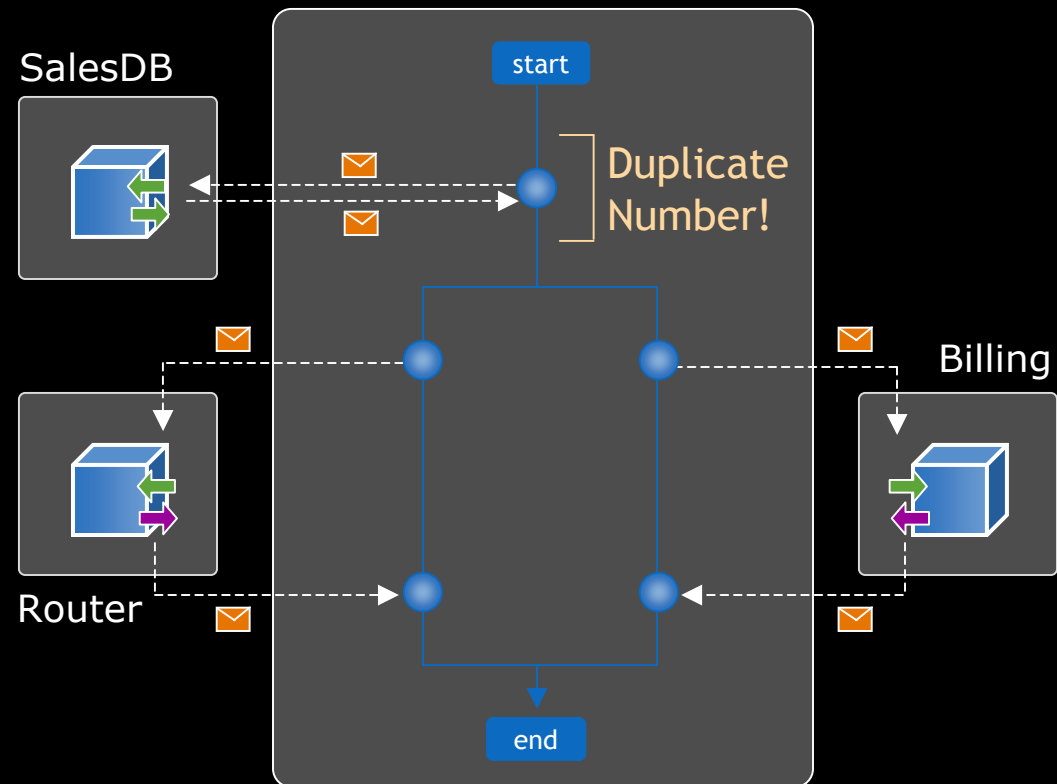
- Build your own 1-off orchestration
- Traditional EAI
- The SOA/BPEL Alternative
 - Standards-Based
 - Convergence of application development and integration

Overview of BPEL standard (Business Process Execution Language)

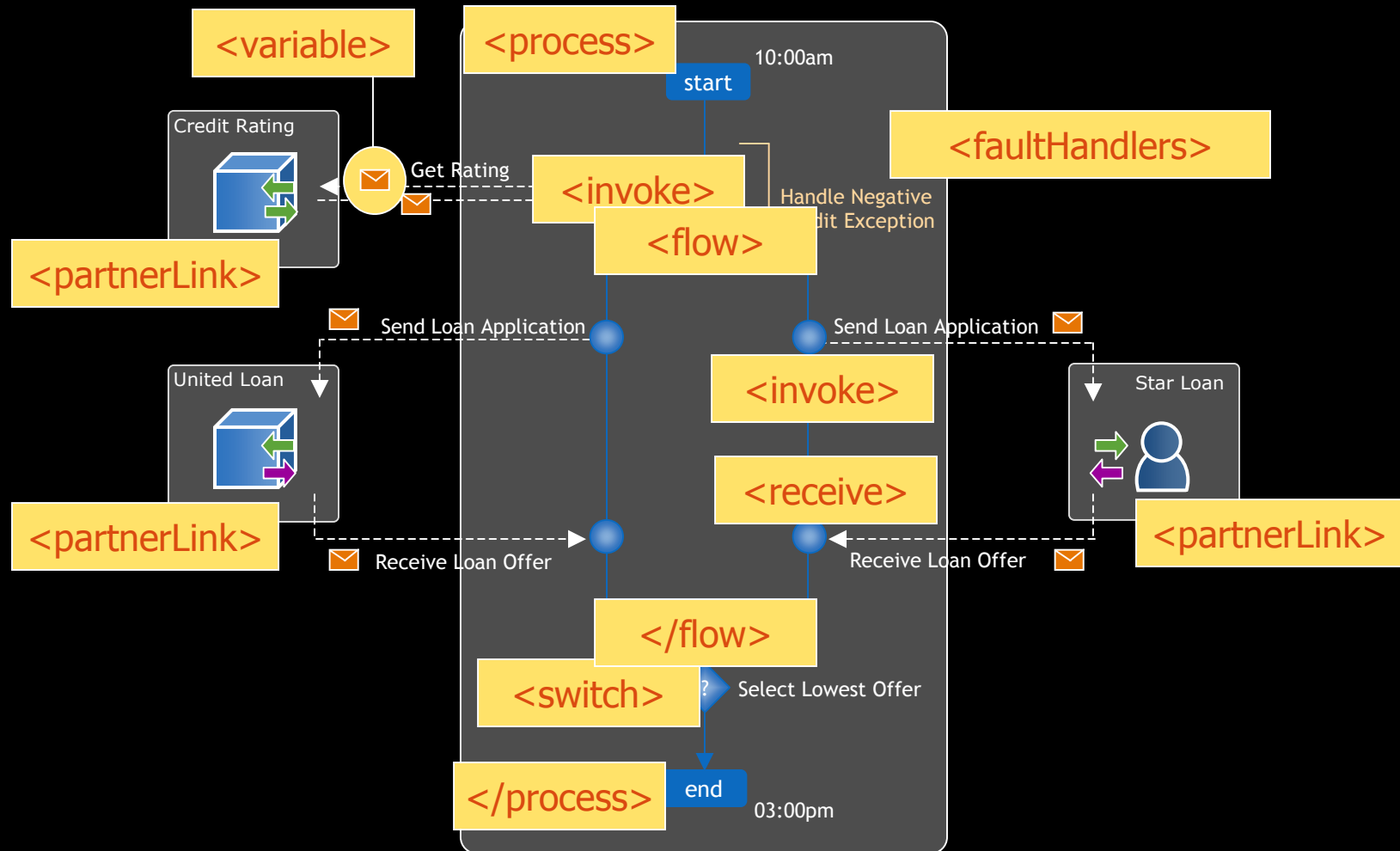
What is BPEL?

Business Process Execution Language: A markup language for composing a set of discrete services into an end-to-end process flow

- OASIS open standard
- Service invocation (SOAP, J2EE, etc).
- Rich Flow Semantics
- Optimized Bindings
- Standards based data transformation
- Standards based security
- Built in exception handling
- A process is a reusable service

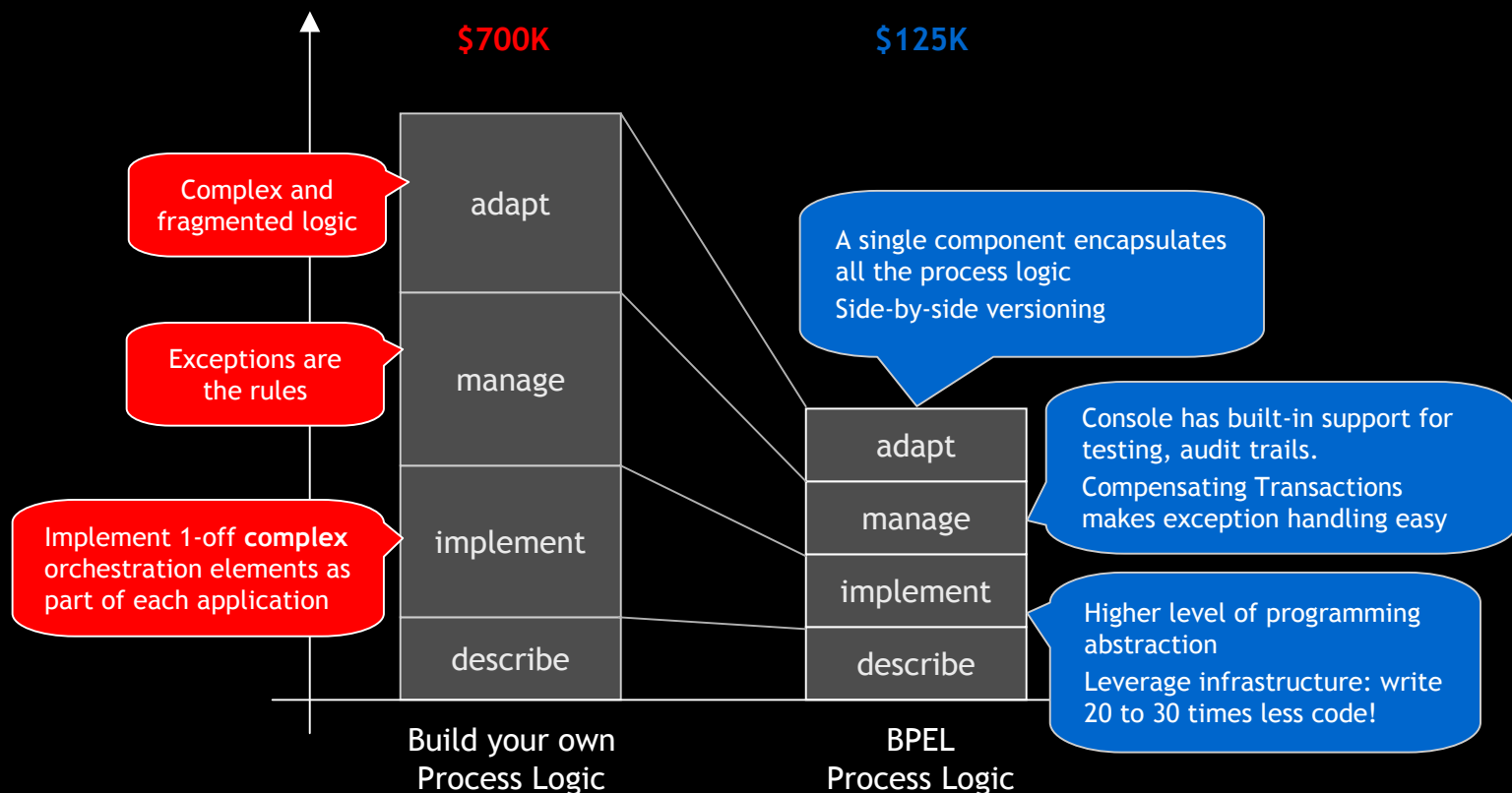


BPEL by Example



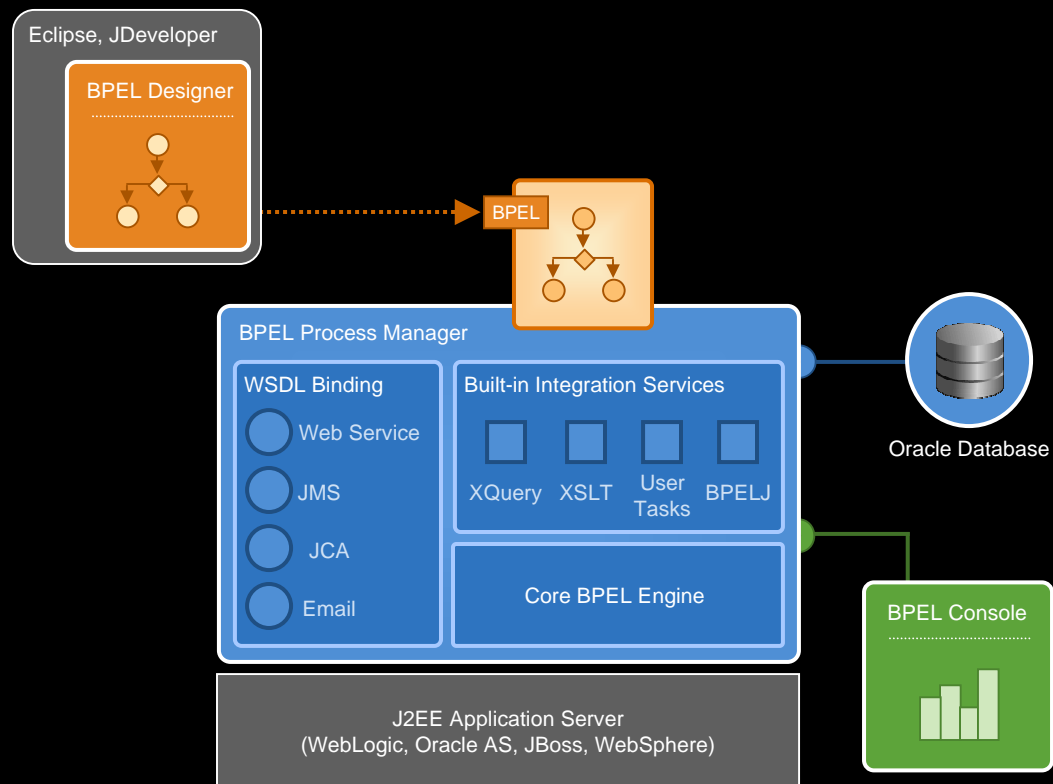
BPEL Value Proposition

Reduce the cost and complexity of process integration initiatives



Oracle BPEL Process Manager

Simplifying integration and delivering repeatable, 100% portable process success



- The leading native BPEL implementation
 - Maturity, breadth, performance, support...
- Scalable and reliable
- Comprehensive integration support
- Rich management and monitoring
- App Server and DB neutral
- Get up and running in less than 15 minutes!

BPEL Process Manager

It's not just about Web Services

- **WSIF (Web Services Invocation Framework)**
 - Standard-based way to make stuff (EJBs, POJO, JCA, C++, C, etc) be called as if it was a web-service
 - Avoid having to write web-service wrappers
 - Avoid the SOAP layer
- **Integration Adapters**
 - Runtime and Design support to easily use non-web service stuff
 - Leverages JCA, WSIF
 - 200+ Different Adapters available
- **Human Workflow**
 - Assign Task to users and roles
 - Implement Routing and Approval Processes

BPEL Process Manager

It's not just about Web Services

Enterprise
Level

Business Process Management

Order-to-Cash

Medicare Eligibility Determination and Enrollment

Modern Web Applications

DSL Service Provisioning

Contract Management

New Employee Hire

Workflow

Approval

Exception Management

Data/Apps Integration

File-to-DB

DB-to-DB

MF-to-PeopleSoft HR Sync

Process Portal

Parallel Data Retrieval

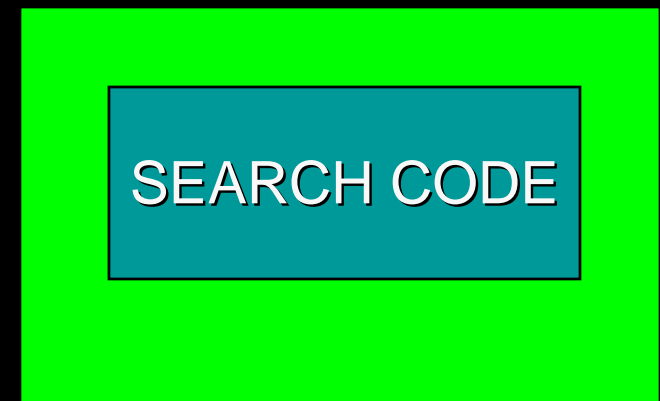
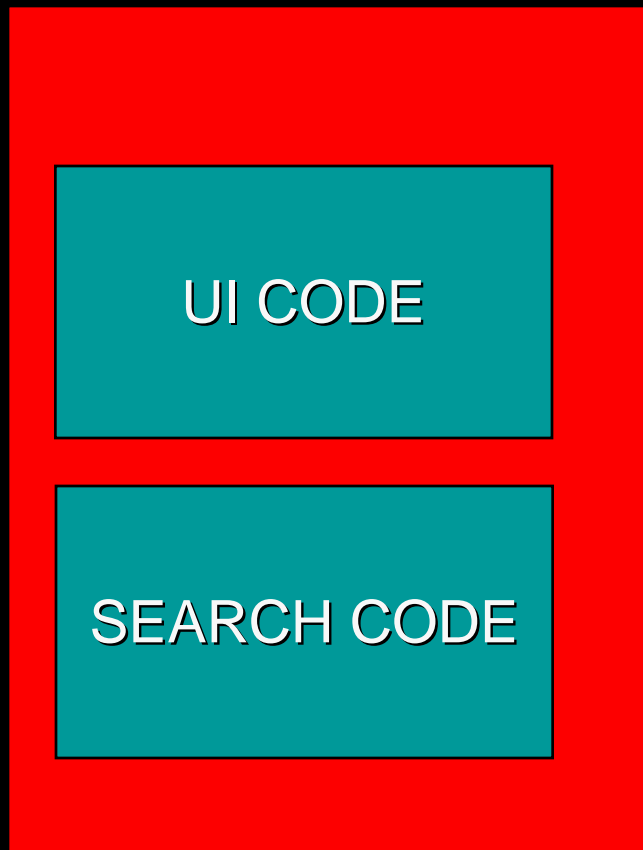
Content Publishing

Project
Level

My Story

- **I have a non-SOA web app.**
- **Want to make it SOA.**
 - Need to implement new features
 - Want to support open standards
 - Want to be able to reuse functionality (for instance, let people add a presentations search to their portals)
 - Want to develop better (less coding, better tools)
 - Want to be more flexible and adaptable

Before - After



Search Code is now a web-service,
callable from other stuff, reusable,
easily maintained and enhanced

Example to show...

- **Current Version of App**
- **Jdev – XML Schema**
- **Jdev – BPEL Process Manager and DB Adapter**
- **Jdev - Deploy to Server and Test via BPEL console**
- **Jdev – web client proxy**
- **Write test code**
- **Run Finished App. Show BPEL console**
- **Discuss WSM. Discuss BAM. (demo?)**

Project Pelican

ORACLE®

Current App

Presentations

View | Maintain | Statistics

Search

Most Recent Presentations

Most Popular Presentations

Most Often Used Slides

Recommended Presentations

List Presentations by Category

Launch Viewer Applet

Create PDF

Search Results

 TIP The tables below show the results of your Project Pelican search.

 TIP You can launch the Viewer Applet by clicking on the java cup icon.

Matching Presentations

Thumbnail	Category	Title	ID	Slides	Notes	Score
	Tech Day 2005	<u>BPEL Tampa Tech Day</u>	Z_000969	44	291	18
	Oracle10g AppSvr	<u>BPEL Customer Presentation</u>	Z_000832	30	9	18
	Oracle10g AppSvr	<u>BPEL- Analyst Presentation</u>	Z_000833	23	2	18
	Oracle10g AppSvr	<u>BPEL PM Customer Presentation</u>	Z_000983	69	14	18

Edit View Search Navigate Run Debug Source Refactor Versioning Tools Window Help

Applications N... Connections PelicanBPELContent.java deployment.txt Dave_PelicanBPELPortClient.java PelicanContent.java

GeneralConstants.java
PDFContent.java
PelicanBPELContent.java
PelicanContent.java
PitchContent.java
PortletBean.java
PresentationWebBean.java
QuickAddContent.java
TestClass.java
TestServlet.java
ThumbnailServlet.java
UploadBean.java
DataBindings.cpx
Pelican_jpr_War.deploy
Resources
Web Content
Presentation
testWS
play1013
Model

PelicanContent.j... Hierarchy

createPOPULARContent(PageLayo
createPresentationTable(MarlinBea
createRANDOMContent(MarlinBear
createRECENTContent(PageLayo
createRECOMMENDContent(PageL
createRESULTSContent(PageLayo
createRETRYContent(PageLayoutE
createREVIEW2Content(PageLayo
createRFVIFWCNFTIRMContent(P

Source Design

```
11 {noteSearch || slideSearch} {  
    outputType="SEARCH_SLIDE";  
}  
*/  
}  
  
int slideHits = 0;  
int presentationHits = 0;  
  
try {  
  
    if (simpleSearch) {  
        //do presentation query first  
        Statement seqStmt0 = conn.createStatement();  
  
        ResultSet seqRS0 = seqStmt0.executeQuery(sqlPresentation);  
  
        presentationHits = createPresentationTable(header, seqRS0, outputTypeSimple, "", t  
  
        //      System.err.println("num presentation hits="+presentationHits);  
  
        seqRS0.close();  
        seqStmt0.close();  
    }  
  
    //      System.err.println(sqlSlides);  
}
```

Running: BPELProxy.jpr - Log

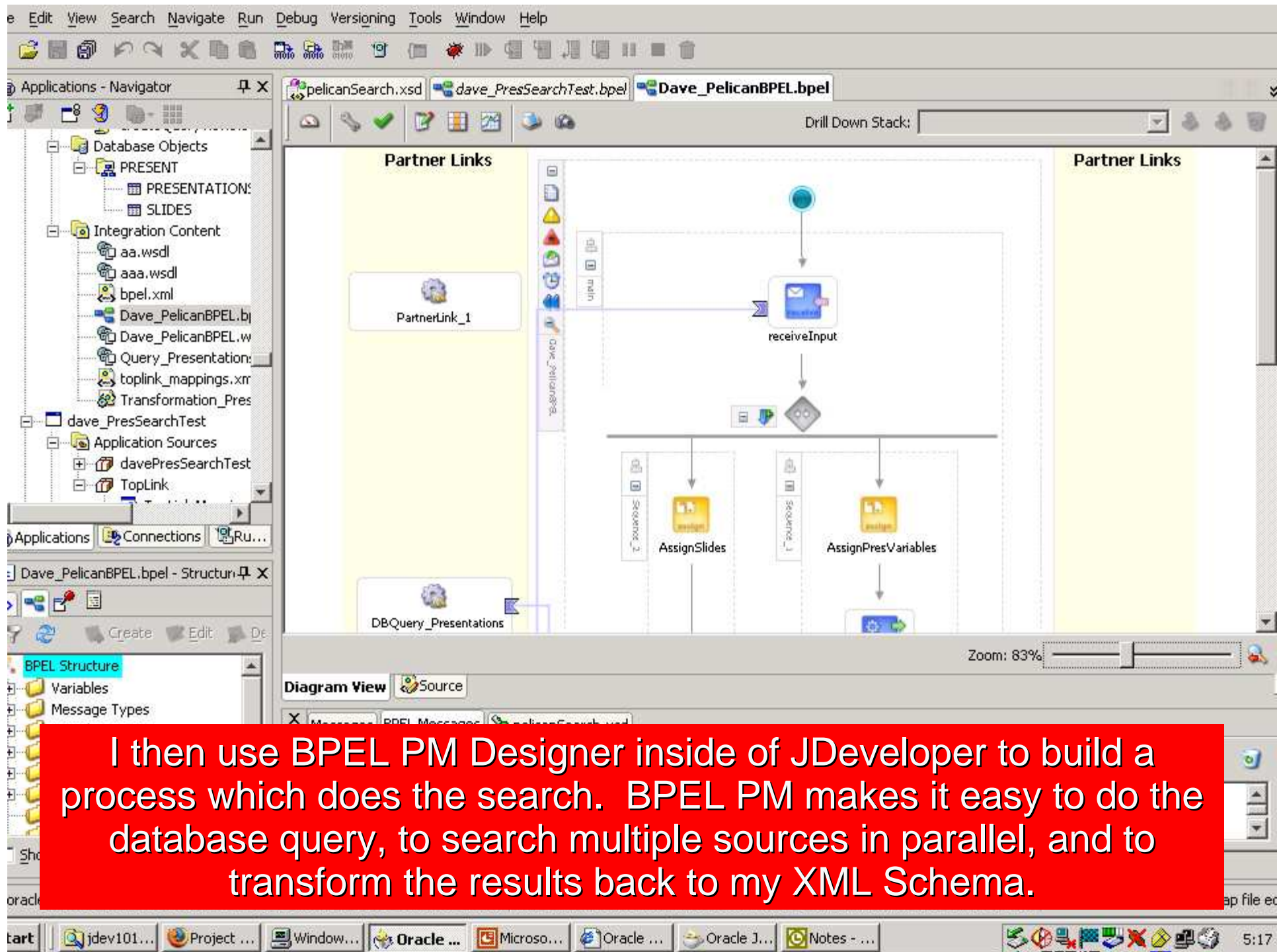
F:\jdev1012ea\jdk\bin\javaw.exe -ojvm -classpath F:\pelican\BPELProxy\classes;F:\jdev
calling http://dbayard-pc:9700/orabpel/default/Dave_PelicanBPEL/1.3
java.rmi.RemoteException: HTTP transport error: javax.xml.soap.SOAPException: java.se
HTTP transport error: javax.xml.soap.SOAPException: java.security.Privileged

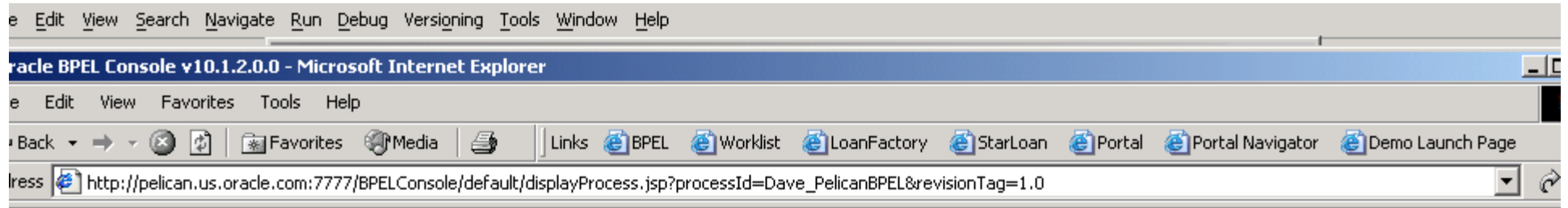
Messages Web Services Running: test1.jpr Running: BPELProxy.jpr

pelican\Pelican\src\Pelican\PelicanContent.java Line 5259 Column 1 Insert Windows: CR/LF Edi

start jdev101... Project ... Window... Oracle J... Microso... Oracle ... Oracle ... Notes - ... pelican... 5:05

Current App embedded querying logic tightly into code





ORACLE BPEL Console Manage BPEL Domain | Logout | Support

Dashboard **BPEL Processes** **Instances** **Activities**

BPEL Process: Dave_PelicanBPEL **Version:** 1.0 **Lifecycle:** Active

Statistics: [0 Open Instances](#) | [8 Closed Instances](#)

[Manage](#) **Initiate** [Descriptor](#) [WSDL](#) [Sensors](#) [Source](#)

Testing this BPEL Process

Initiating a test instance HTML Form

To create a new 'test' instance of this BPEL Process, fill this form and click on the 'Post XML Message' button.

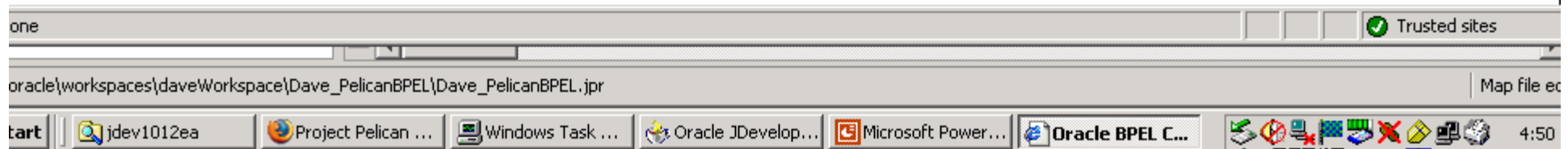
Dave_PelicanBPELProcessRequest input string

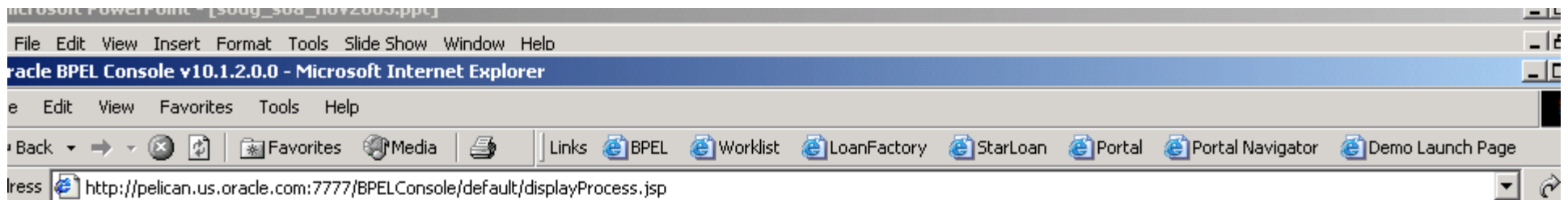
☐ Save as default input

☐ Add optional message header properties

☐ Perform stress test

I deploy my BPEL process to the server. I then test the process via the administrative console.





Your test request was processed synchronously. It took 1.509seconds to finish an

Value: `<pelicanSearch>`

`<searchSource>`

`<title>Test Title </title>`

`<link>link </link>`

`<description>description </description>`

`<category>category </category>`

`<item>`

`<title>BPEL Tampa Tech Day</title>`

`<link>itemLink </link>`

`<categoryLink>Tech Day 2005</categoryLink>`

`<description>business process execution language BPEL Process Manager</description>`

`<category>Tech Day 2005</category>`

`<guid>Z_000969</guid>`

`<newIndicator>NO </newIndicator>`

`<oldIndicator>YES </oldIndicator>`

`<score>77 </score>`

`<numSlides>44</numSlides>`

`<numNotes>291</numNotes>`

`</item>`

`<item>`

`<title>BPEL Customer Presentation</title>`

`<link>itemLink </link>`

`<categoryLink>Oracle10g AppSvr</categoryLink>`

`<description>bpel business process execution language orchestration web services</description>`

`<category>Oracle10g AppSvr</category>`

`<guid>Z_000832</guid>`

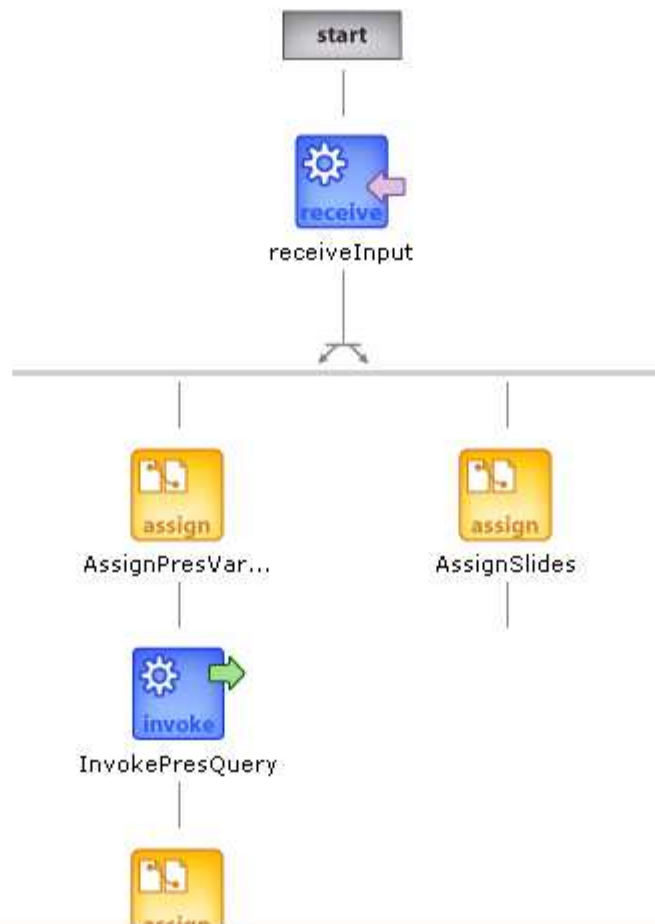
`<newIndicator>NO </newIndicator>`

`<oldIndicator>YES </oldIndicator>`

`<score>77 </score>`

Here are the results of my test. This is in XML which matches my XML Schema definition.





I can also use the console to see a graphical view of my process execution.

InvokePresQuery

Activity Audit Trail -- Web Page Dialog

[2005/11/17 17:01:17]
Reply to partner "client".

```
<outputVariable>  
<part  
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" name="payload">  
  <pelicanSearch  
    xmlns="http://www.oracle.com/pelicanSearch.xsd">  
    <ns1:searchSource  
      xmlns:ns1="http://www.oracle.com/pelicanSearch.xsd">  
        <ns1:title>Test Title</ns1:title>  
        <ns1:link>link</ns1:link>  
        <ns1:description>description</ns1:description>  
        <ns1:category>category</ns1:category>  
        <ns1:item>  
          <ns1:title>BPEL Tampa Tech Day</ns1:title>  
          <ns1:link>itemLink</ns1:link>  
          <ns1:categoryLink>Tech Day  
            2005</ns1:categoryLink>  
          <ns1:description>business process execution  
            language BPEL Process  
            Manager</ns1:description>  
          <ns1:category>Tech Day 2005</ns1:category>  
          <ns1:guid>Z_000969</ns1:guid>  
          <ns1:newIndicator>NO</ns1:newIndicator>  
          <ns1:oldIndicator>YES</ns1:oldIndicator>
```

Pre...



And I can click on any step to see what the information looks like.

logged to domain: **default**

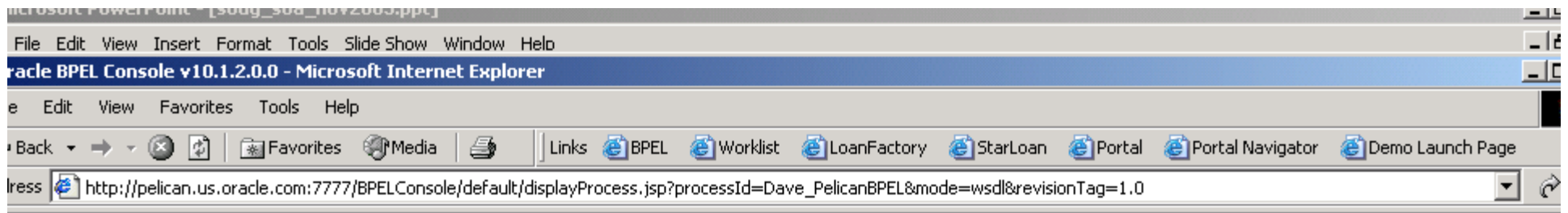
Oracle BPEL Console v10.1.2.0.0

javascript:gFlowViewer.showActivityDetails('12-BpRp10-BpSeq0.3-3')

Trusted sites

Slide 46 of 67

NEWEST_Template



ORACLE BPEL Console

Manage BPEL Domain | Logout | Support

Dashboard

BPEL Processes

Instances

Activities

BPEL Process: Dave_PelicanBPEL Version: 1.0 Lifecycle: Active
Statistics: [0 Open Instances](#) | [12 Closed Instances](#)

[Manage](#)

[Initiate](#)

[Descriptor](#)

WSDL

[Sensors](#)

[Source](#)

Web Service Interface of this BPEL Process

When deployed, BPEL Processes are automatically published as Web Services so that they can be easily initiated by other BPEL Processes but also by Visual Basic applications, Excel spreadsheets or J2EE applications.

WSDL location:

http://pelican.us.oracle.com:7777/orabpel/default/Dave_PelicanBPEL/1.0/Dave_PelicanBPEL?wsdl

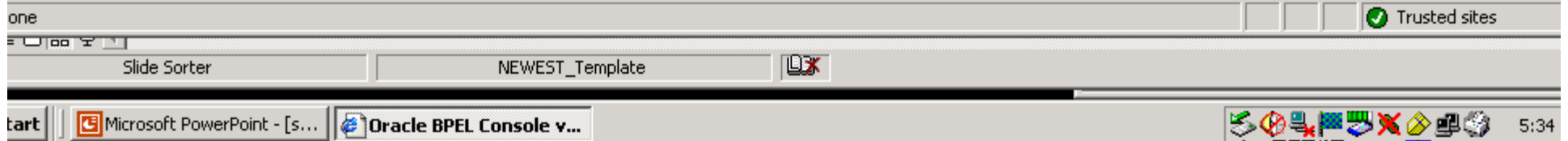
Endpoint location:

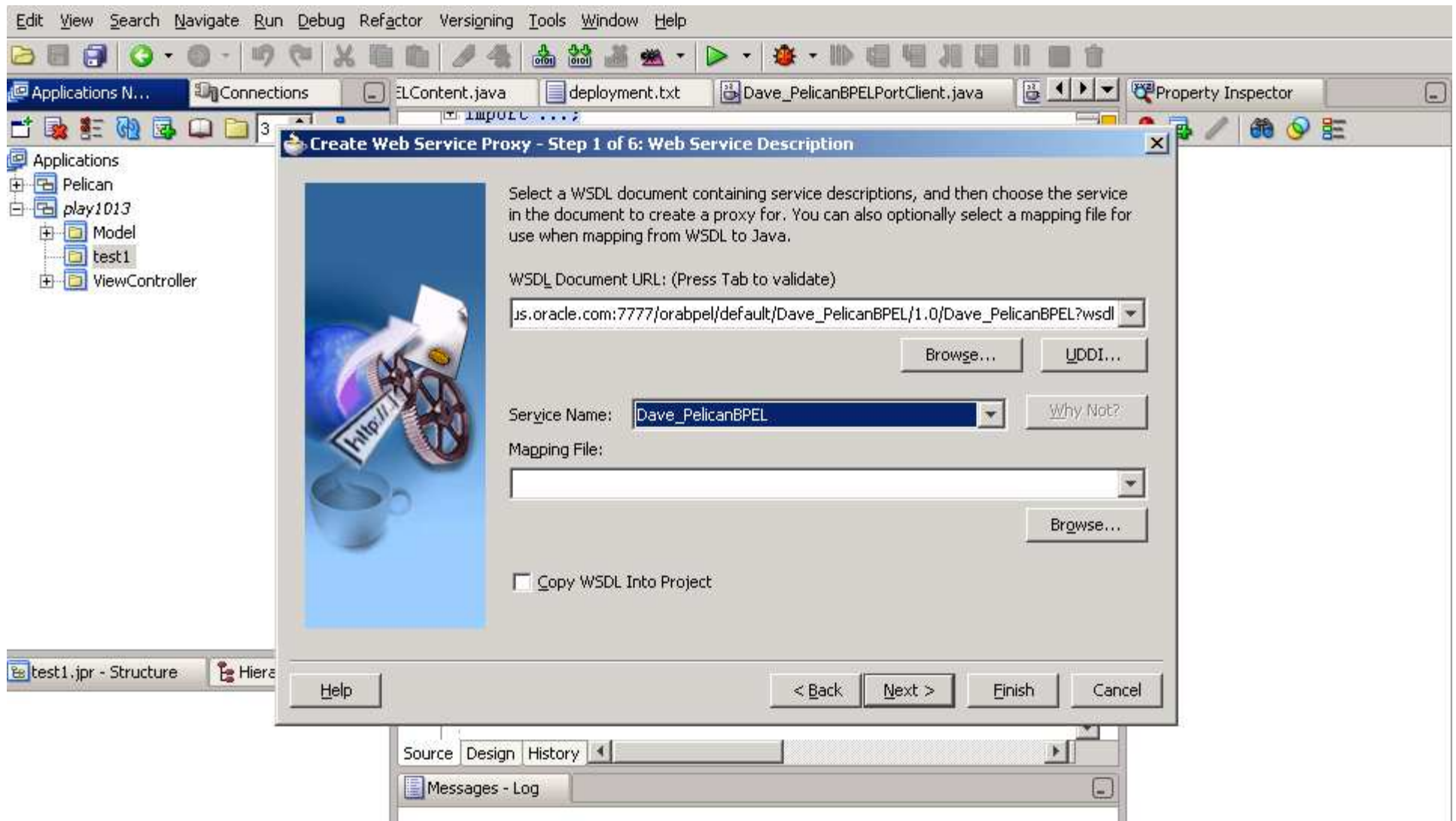
http://pelican.us.oracle.com:7777/orabpel/default/Dave_PelicanBPEL/1.0

BPEL Processes are published as Web Services, so I will capture the WSDL to use in my application.

logged to domain: **default**

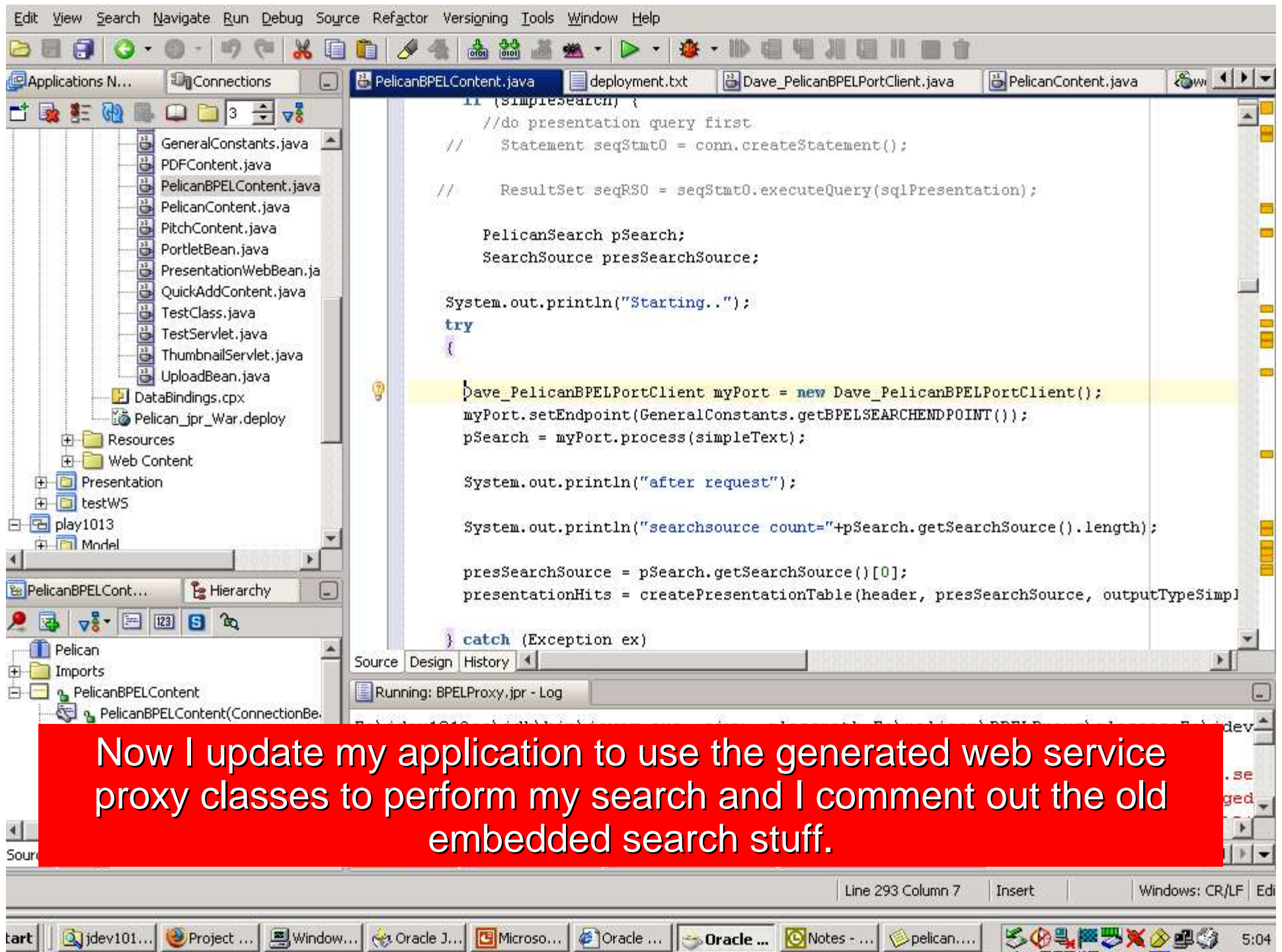
Oracle BPEL Console v10.1.2.0.0





I then use JDeveloper to automatically create the java code to act as a client of my process (a BPEL Process is just another web service).





File Edit View Search Navigate Run Debug Versioning Tools Window Help

Project Pelican Presentation Database v10.0 - Mozilla Firefox

Edit View Go Bookmarks Tools Help

http://pelican.us.oracle.com:8888/pelican/Present.jsp?simple_text=bpel&button=SIMPLE&page=PRE5_BPEL

Dave Pelican Work Demos Personal Docs CNN IPEDS Technet WebIV SalesKit W NAS ORCL GC E WSJ NL

Project Pelican

ORACLE

RFPs Presentations

View | Maintain | Statistics

Search

Most Recent Presentations

Most Popular Presentations

Most Often Used Slides

Recommended Presentations

List Presentations by Category

Launch Viewer Applet



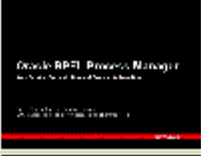



Create PDF

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	 Oracle10g AppSvr	BPEL Customer Presentation	Z_000832	30	9	
	 Oracle10g AppSvr	BPEL Analyst Presentation	Z_000833	23	2	

I deploy the new version of my application and test it. The results look good. I'm now SOA!

start | jdev101... | Project... | Window... | Oracle J... | Microso... | Oracle ... | Oracle J... | Notes - ... | pelican... | 5:01

COMING SOON!

Now I can also reuse my new web service and add Search capability to my Portal. Or write a .NET front-end. Or anything else that can invoke a web service.



And I can secure my web service with the Web Service Manager and add real-time business monitoring with Business Activity Monitoring.

Web Services Journal

Enterprise Integration – BPEL Process Manager, August, 2004

Oracle BPEL Process Manager wins WSJ #1 “World Class Product Award”

WSJ: PRODUCT REVIEW

Oracle BPEL Process Manager



Making SOA design easy

■ Service-oriented architecture (SOA), while its underpinnings have been around for years, has recently become one of the most talked about topics in the IT industry. The interest in SOAs is largely due to the emergence of Web services and their ability to expose business applications through well-defined interfaces in a platform-independent manner. While an SOA need not be built using Web services, it certainly presents an attractive option for a variety of environments.

“Oracle’s BPEL Process Manager is a very strong option for meeting this need [to easily piece components together to form a larger business process].

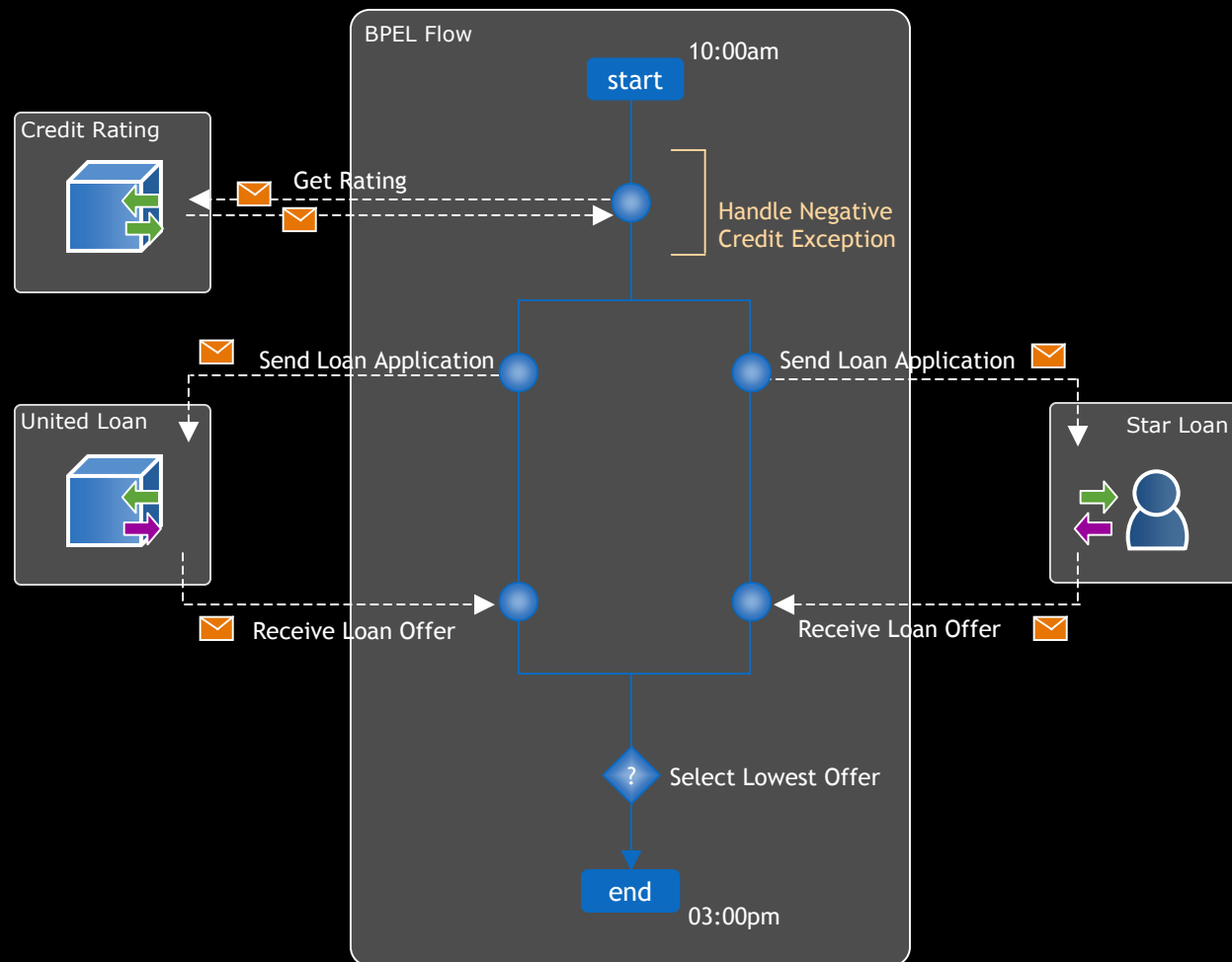
Overall, the BPEL Server is a very capable product and should be considered when building service-oriented architecture.”

Next Steps ...

- **Download it and try it**
 - JDeveloper
 - BPEL
 - OC4J
 - ...
- **<http://technet.oracle.com/>**
- **BPEL Cookbook**
 - http://www.oracle.com/technology/bpel_cookbook/

Brief Discussion of Oracle Web Services Manager, Oracle Business Activity Monitoring

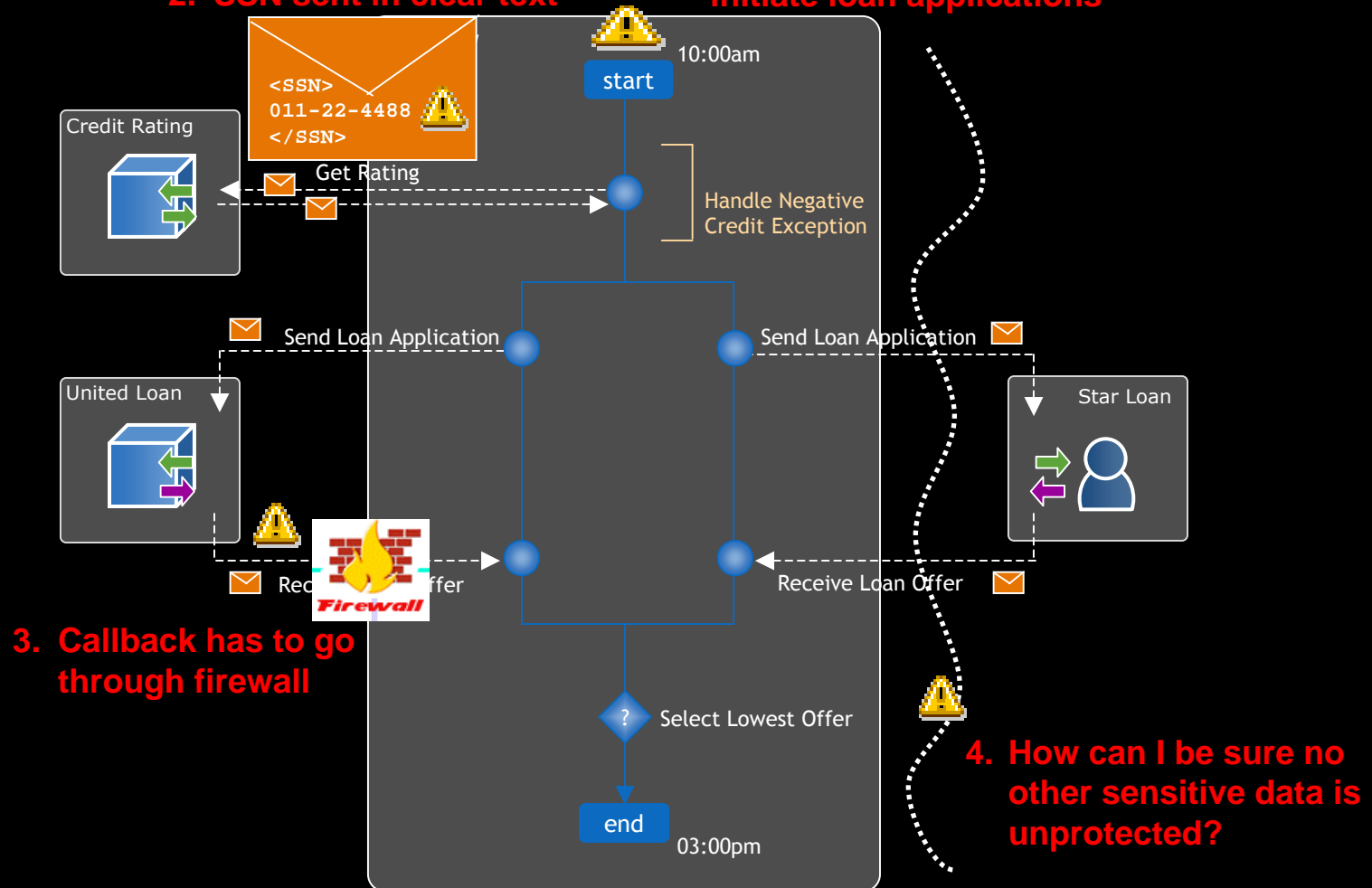
Loan Flow Example



What's Missing?

2. SSN sent in clear text

1. Anyone who can access the server can initiate loan applications



BPEL + Oracle WSM = Policy Enforcement for SOA

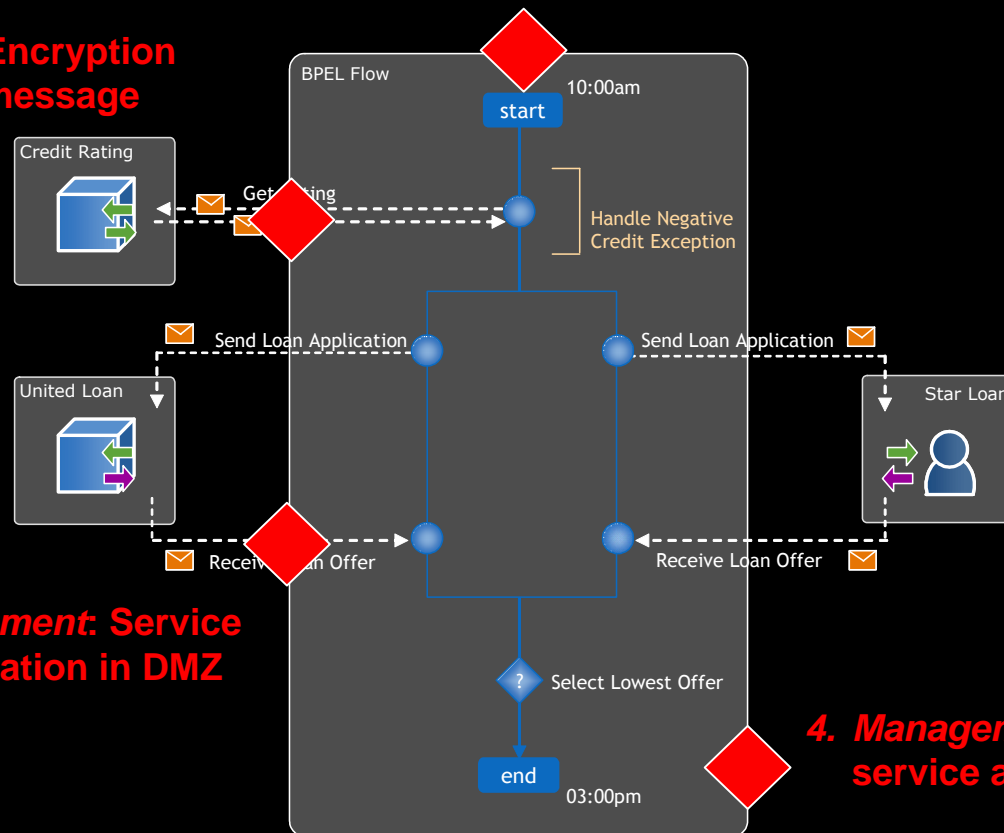
**2. Security: Auto-Encryption
of SSN in XML message**

**1. Security: Role-based
access control**

**Add Oracle WSM
Gateways/Agents**

**3. Management: Service
virtualization in DMZ**

**4. Management: System-wide
service auditing**



Oracle Web Services Manager

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 BAM



- Real-Time KPIs
- Scalable Event-based Architecture
- Live Display Technology
- Portal Compatible
- Automated Response Framework

A large, stylized graphic of the letters 'Q' and 'A' in a dark gray serif font, with a red ampersand between them, serving as a background for the title text.

QUESTIONS ANSWERS