

# JUDCon

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# 2012:India

Business Process as a Service using JBoss SOA 5.x

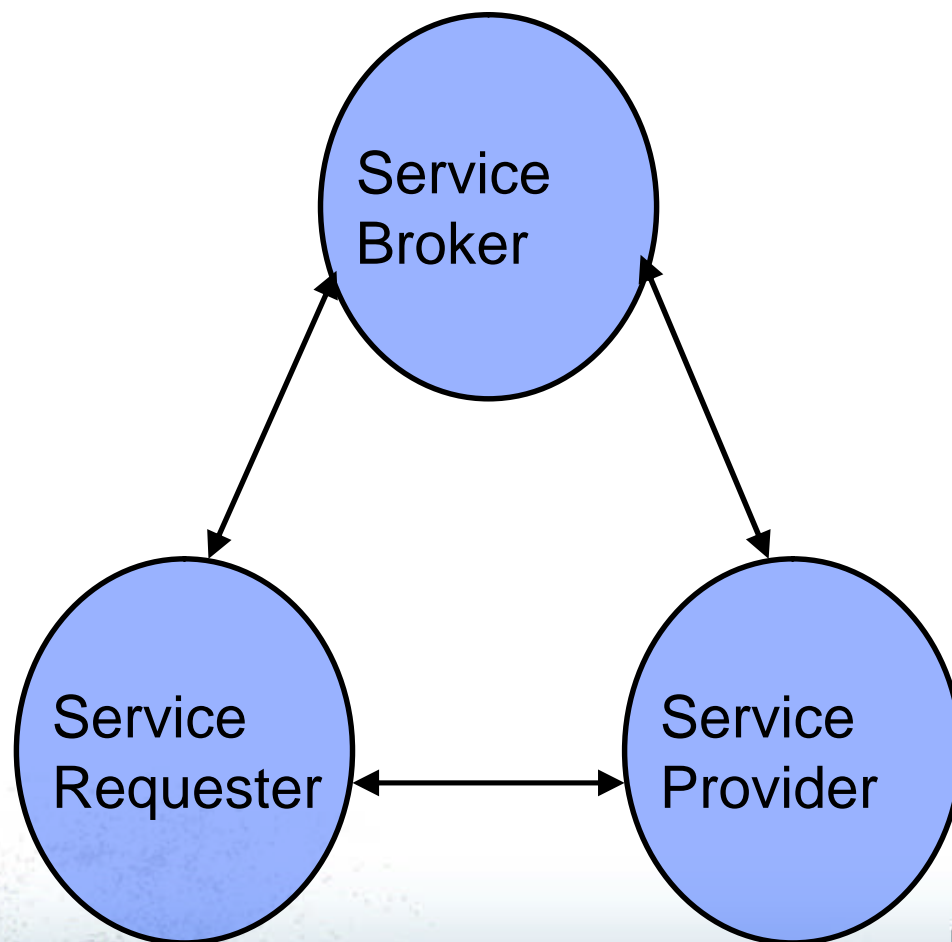
Antony J Kitherian  
Founder Director, InfotechS3

**“The objective is to orchestrate Internet Parts Ordering Services as a business process, and deliver it as a service on a Single Platform”**

# Key Components of SOA

- Messages being exchanged
- Agents that act as service requesters and providers
- Shared transport mechanisms that allow the messages to flow back and forth

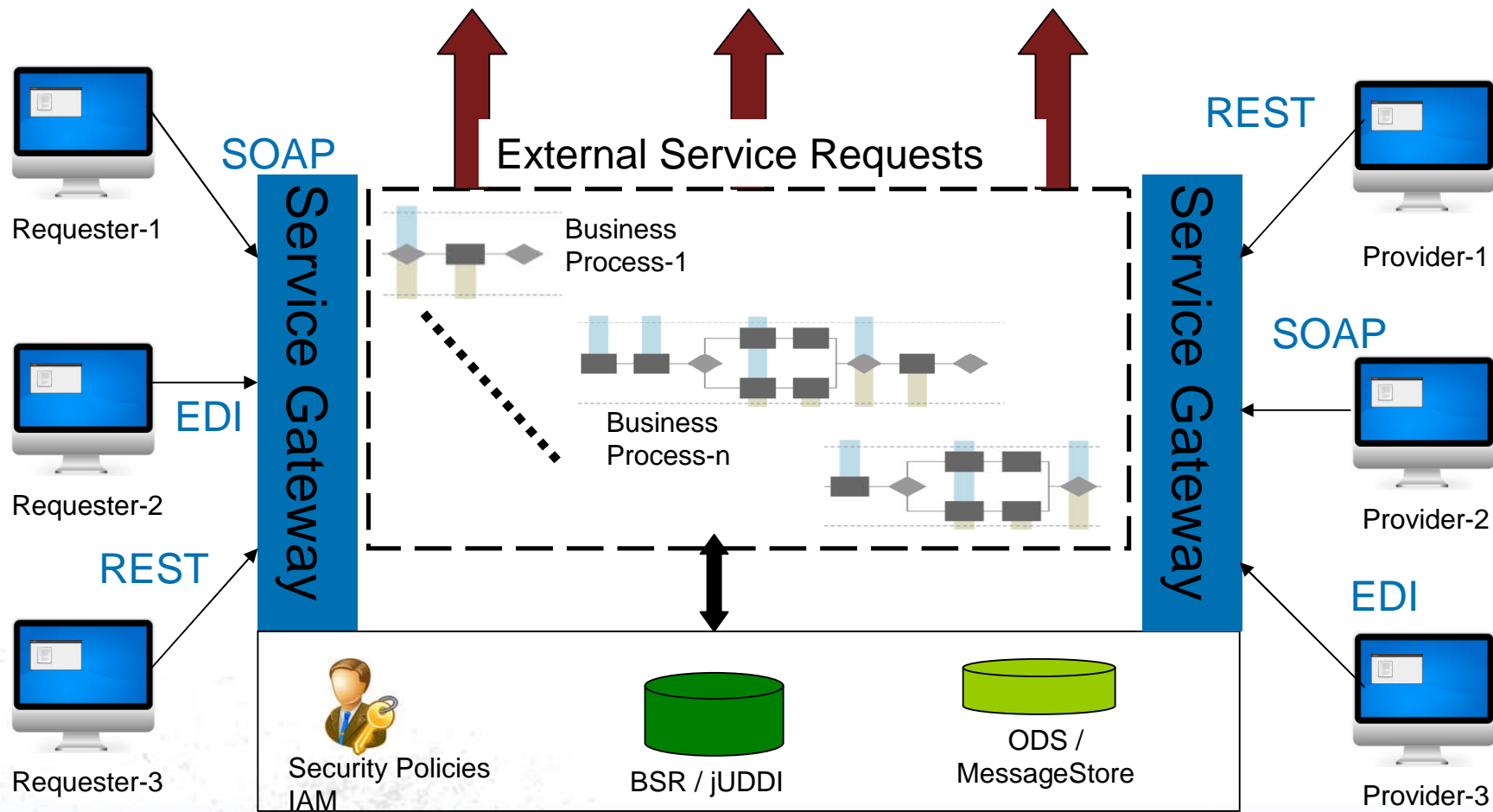
# Critical Roles in SOA



# Inter-domain/enterprise Requirements

- Platform agnostic (multiple vendors)
- Interaction agnostic (multiple interfaces EDI, SOAP & REST)
- Ecosystem Breadth (more services from varied partners)
- Flexibility to adopt new partner acquisition

# Business Process as a Service





# Service Repository

- Enterprises should describe and publish services and interfaces
- Discover the services, bind the parameters and invoke the published services
- Enterprises expose **ONLY** externally invoked services

# Service Gateway

- Single entry point for all integration traffic
- Separation of concerns
- Edge security provides earlier threat detection
- Consistent Security Policy Enforcement
- High Performance Security offload
- Enterprises can define common security policies across partners and establish federated identify access management

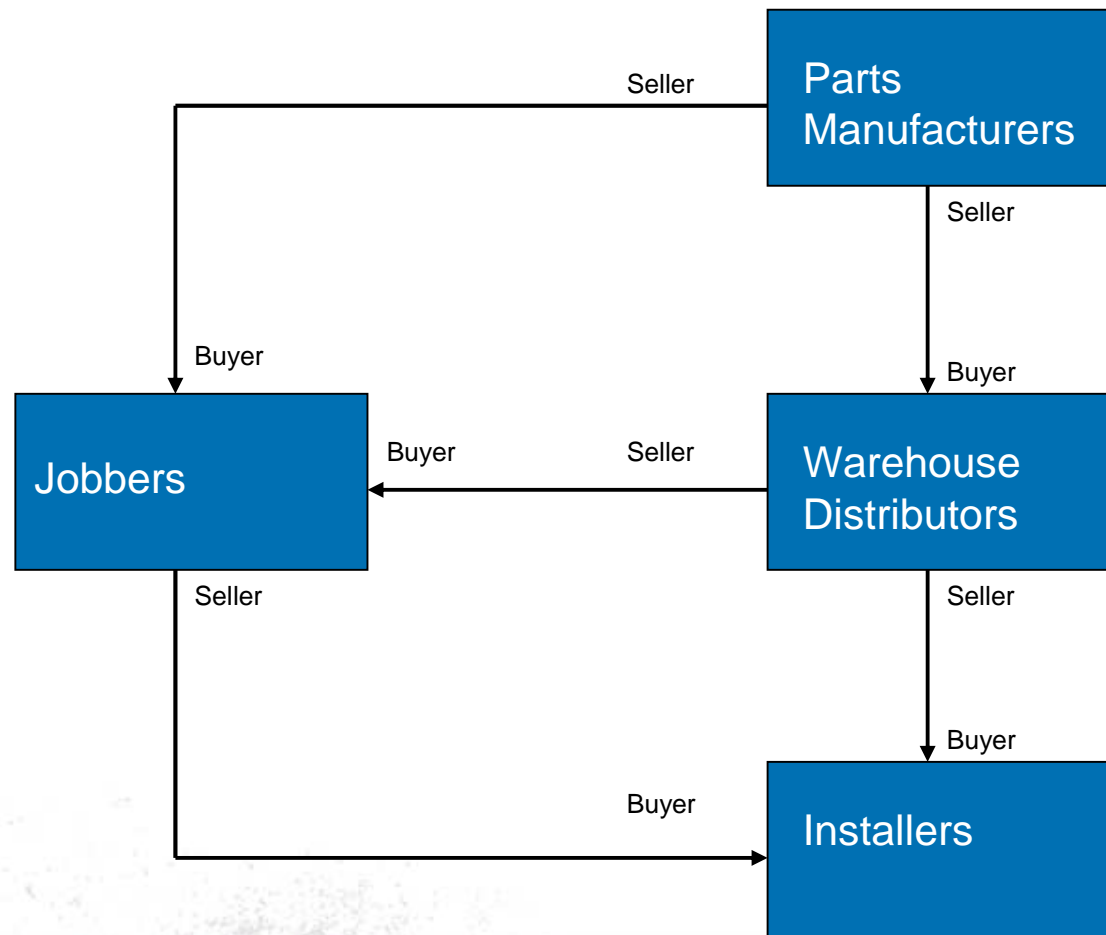


# Operational Data Store

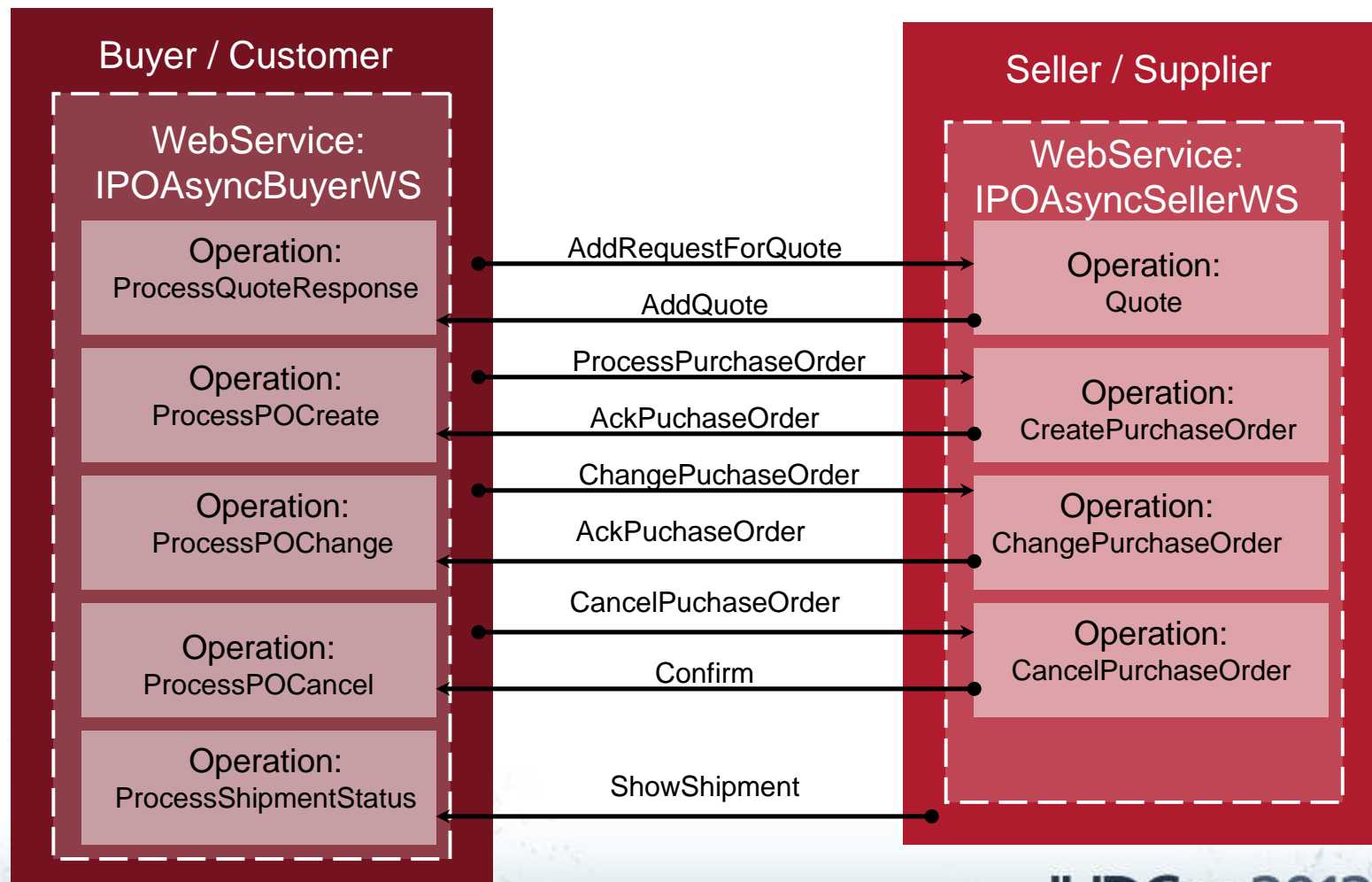
- All messages need to be stored so that they can be managed and audited easily
- Can be used and analyzed for supply chain or partner relationship management

# What is IPO?

# AAIA IPO Participants & Roles



# IPO Asynchronous Web-Services



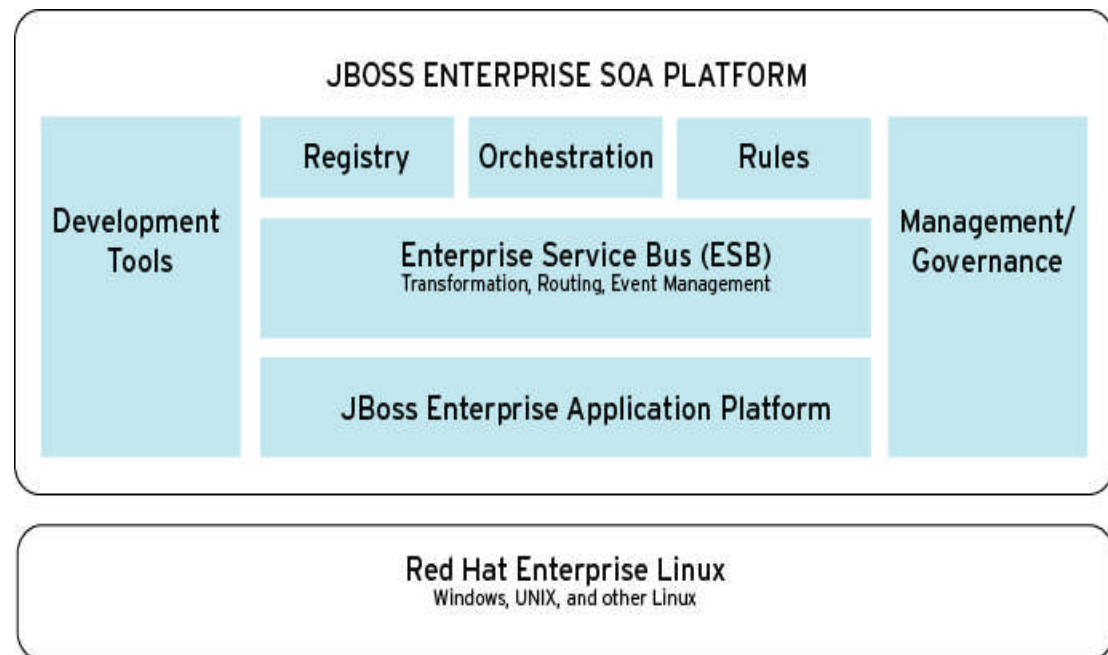
# So, What do we need?

- A tool to design business processes
- Reliable and scalable run-time environment to execute business processes
- Information about requester and provider services
- A transport mechanism to exchange service requests and responses between parties
- Ability to transform messages in various formats such as XML, EDI, JSON, CSV
- Non-intrusive security container

# JBoss Enterprise SOA Platform 5.2

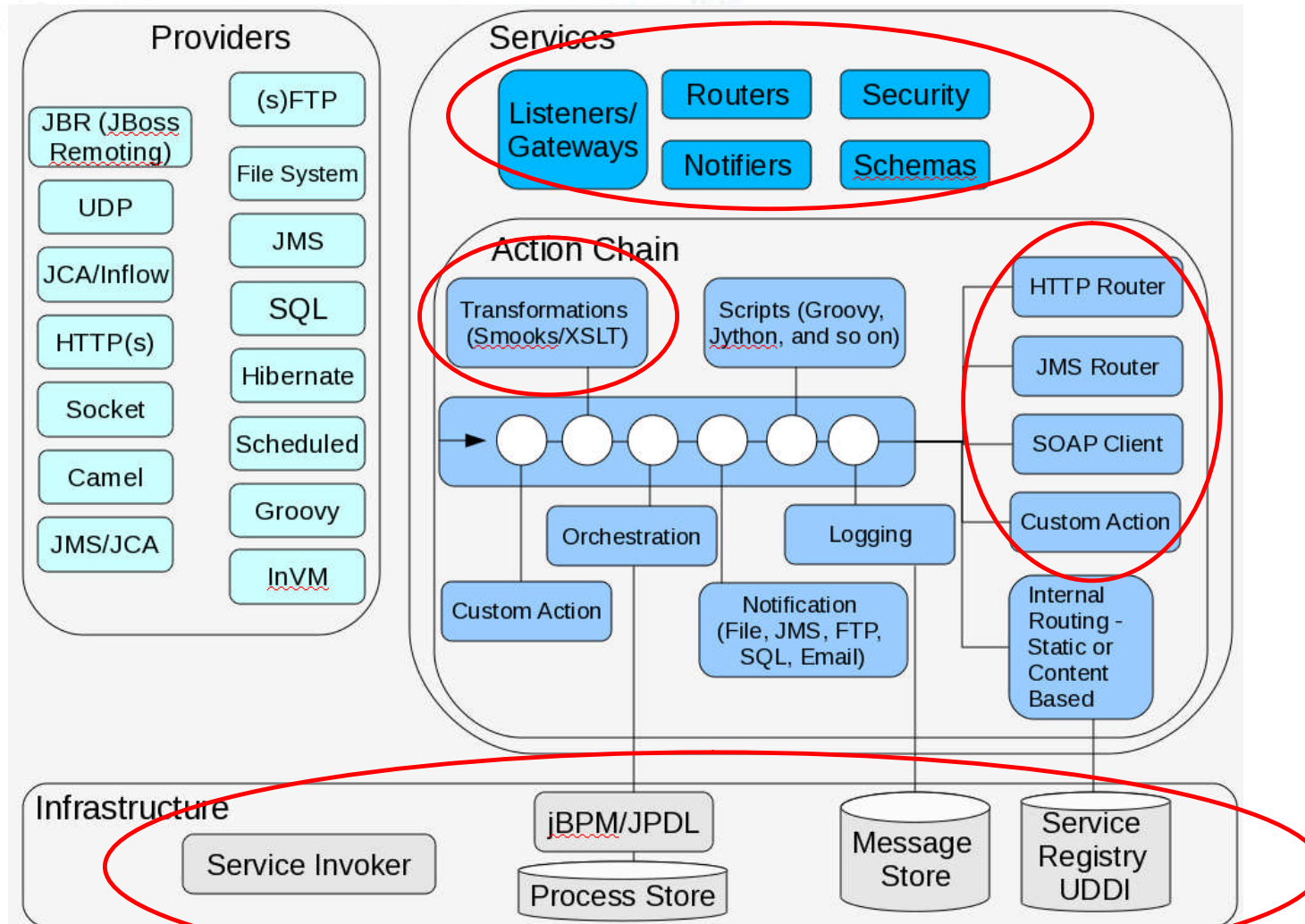
*A flexible, standards-based platform to integrate applications, SOA services, business events and automate business processes.*

- Open Choice Integration
- Application/EAI
- Service-oriented
- Event-driven
- Messaging
- Workflow
- Service Orchestration
- Intelligent routing
- Registry
- Rock solid enterprise-grade

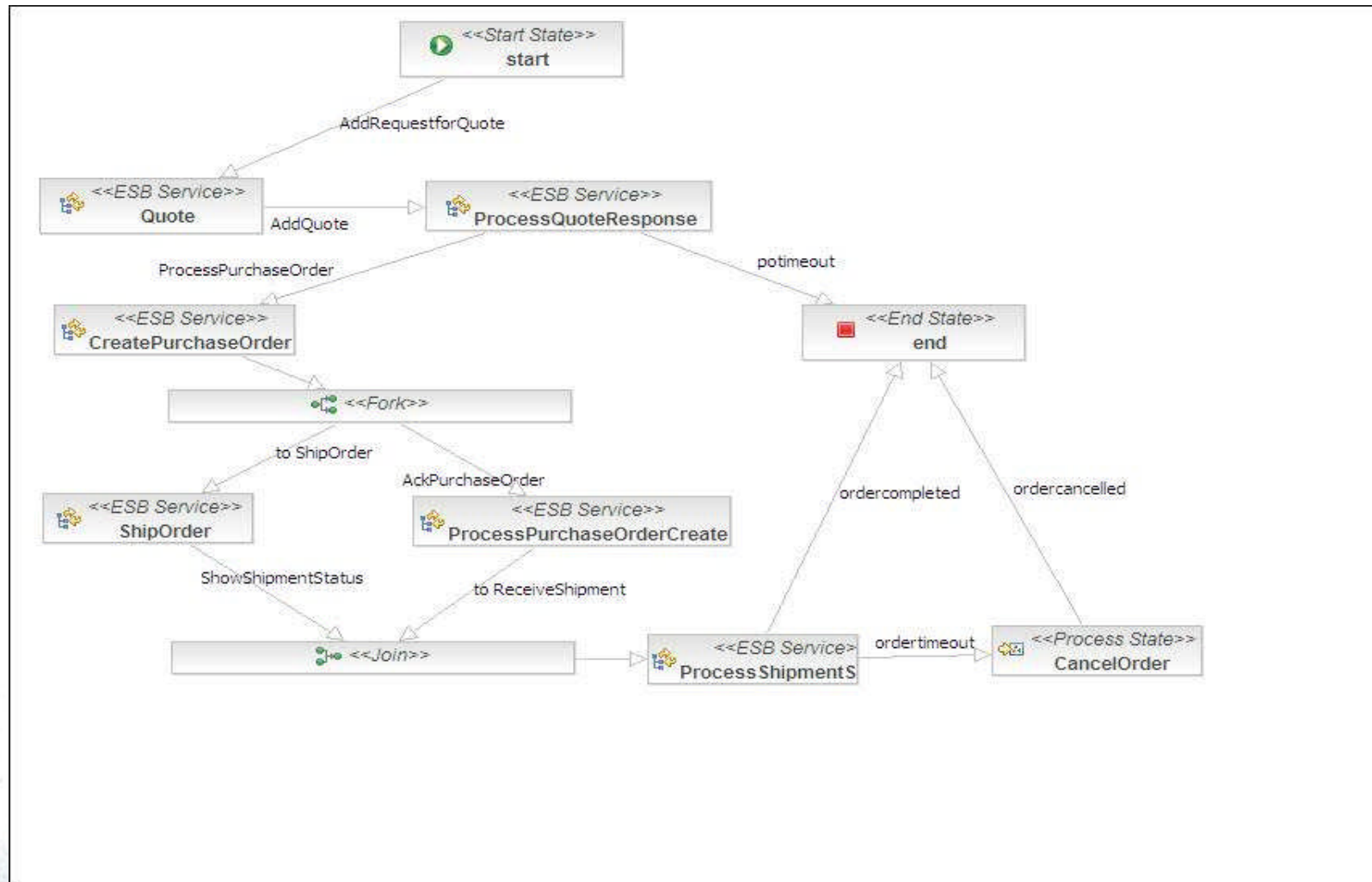




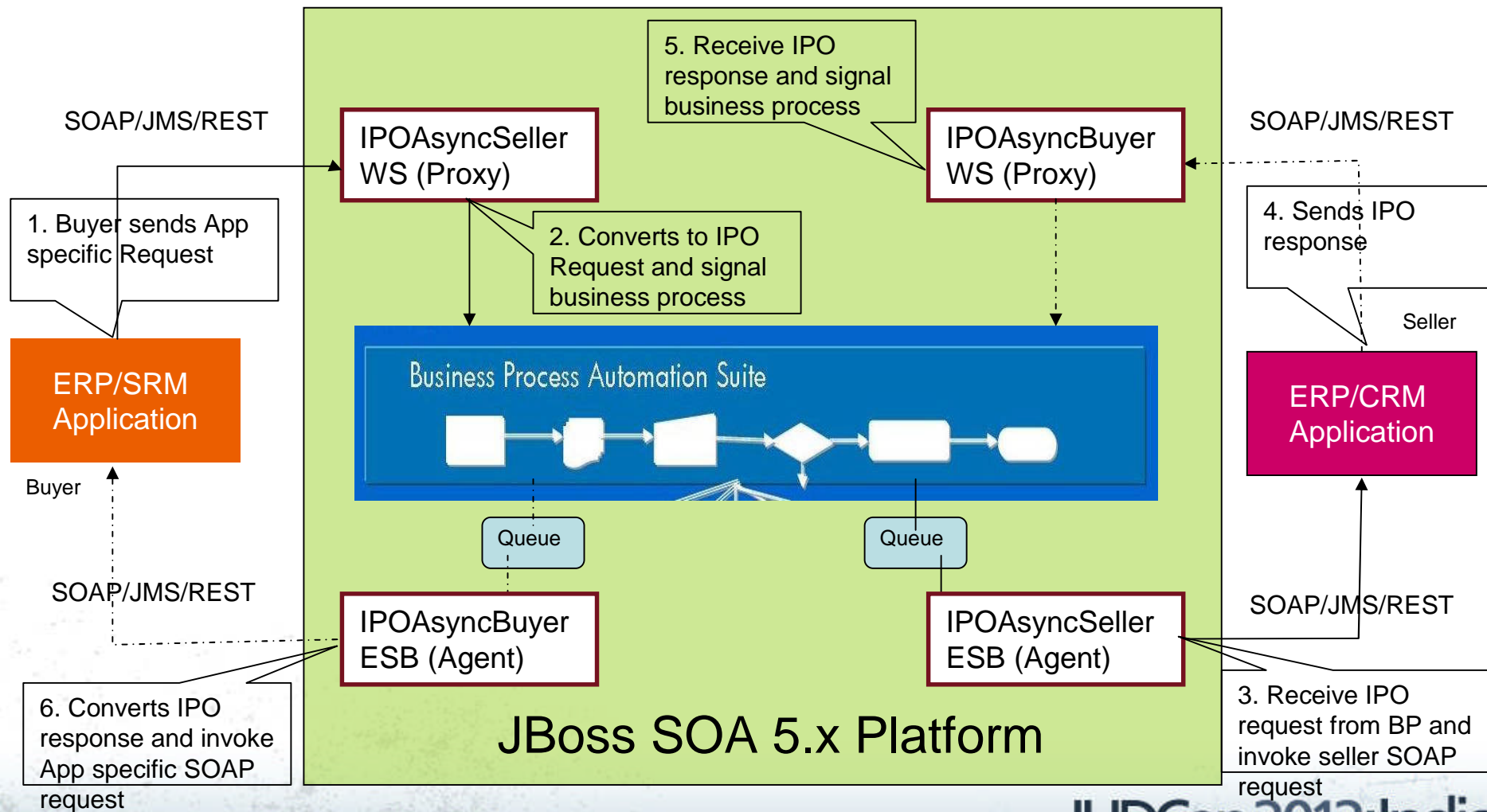
# JBoss SOA Component



# IPO Process in jBPM/jPDL



# IPO Process Components in JBoss SOA



# IPOAsyncSellerWS (Proxy) Service Configuration

```
<service category="AAIAIPOWebServices"
description="InfotechS3 implementation of AAIA IPO Aysynchronous Seller
Services" name="IS3IPOAsyncSellerWS" invmScope="GLOBAL">
  <listeners>
    <http-gateway name="Proxy_IS3IPOAsyncSellerWS_GwChannel"
urlPattern="proxyseller/*" >
      <asyncResponse />
    </http-gateway>
    <jms-listener busidref="IS3IPOAsyncSellerProxyGwChannel" is
gateway="true" name="JMS-Gateway"/>
  </listeners>
  <actions mep="OneWay">
    <action name="seller-proxy"
class="org.jboss.soa.esb.actions.soap.proxy.SOAPProxy">
      <property name="wsdl"
value="internal://jboss.ws:context=is3ipows,endpoint=IS3IPOAsyncSellerWS"/>
    </action>
  </actions>
</service>
```



# IS3IPOAsyncSellerWS (code snippet)

```
@WebService(  
    name = "IS3IPOAsyncSellerWS",  
    targetNamespace = "http://is3ipo/asyncprocess")  
public class IS3IPOAsyncSellerWS  
{  
  
    // A proxy mentody to be called by a buyer to invoke seller quote service  
    @WebMethod  
    @SOAPBinding(style=SOAPBinding.Style.DOCUMENT,  
        use=SOAPBinding.Use.LITERAL)  
    public void quote(@WebParam(name = "Quote")String addRequestforQuoteXml) throws  
        java.rmi.RemoteException  
    {  
        try {  
  
            .....  
            // Create the jBPM Adapter Service Invoker  
            ServiceInvoker jbpmAdapter = new ServiceInvoker  
                ("is3bpaas_partner_requisition_management",  
                "is3_internet_parts_ordering_process");  
            jbpmAdapter.deliverAsync(RFQMessage);  
        }  
    }  
}
```

# Starting a Business Process (Service Configuration)

```
<service category="is3bpaas_partner_requisition_management"
description="InfotechS3 implementation of AAIA IPO Aysynchronous Business Process"
  name="is3_internet_parts_ordering_process">
  <listeners>
  <jms-listener busidref="IS3IPOAsyncBusinessProcessEsbChannel" name="JMS-ESBListener"/>
  </listeners>
  <actions mep="OneWay">
    <action name="SaveSellerMessage" class="org.jboss.soa.esb.actions.MessagePersister" >
      <property name="message-store-class"
value="org.is3.soa.jboss.FileMessageStoreImpl"/>
    </action>
    <action name="start_a_new_order_process"
class="org.jboss.soa.esb.services.jbpm.actions.BpmProcessor">
      <property name="command"
value="StartProcessInstanceCommand" />
      <property name="process-definition-name"
value="body.processDef" />
      <property name="key" value="body.businessKey" />
      <property name="esbToBpmVars">
        <mapping esb="BODY_CONTENT" bpm="AddRequestForQuote" />
        <mapping esb="body.IPORrequest" bpm="IPORrequest" />
      </property>
    </action>
  </actions>
</service>
```



# IPO Process Definition (jPDL Snippet)

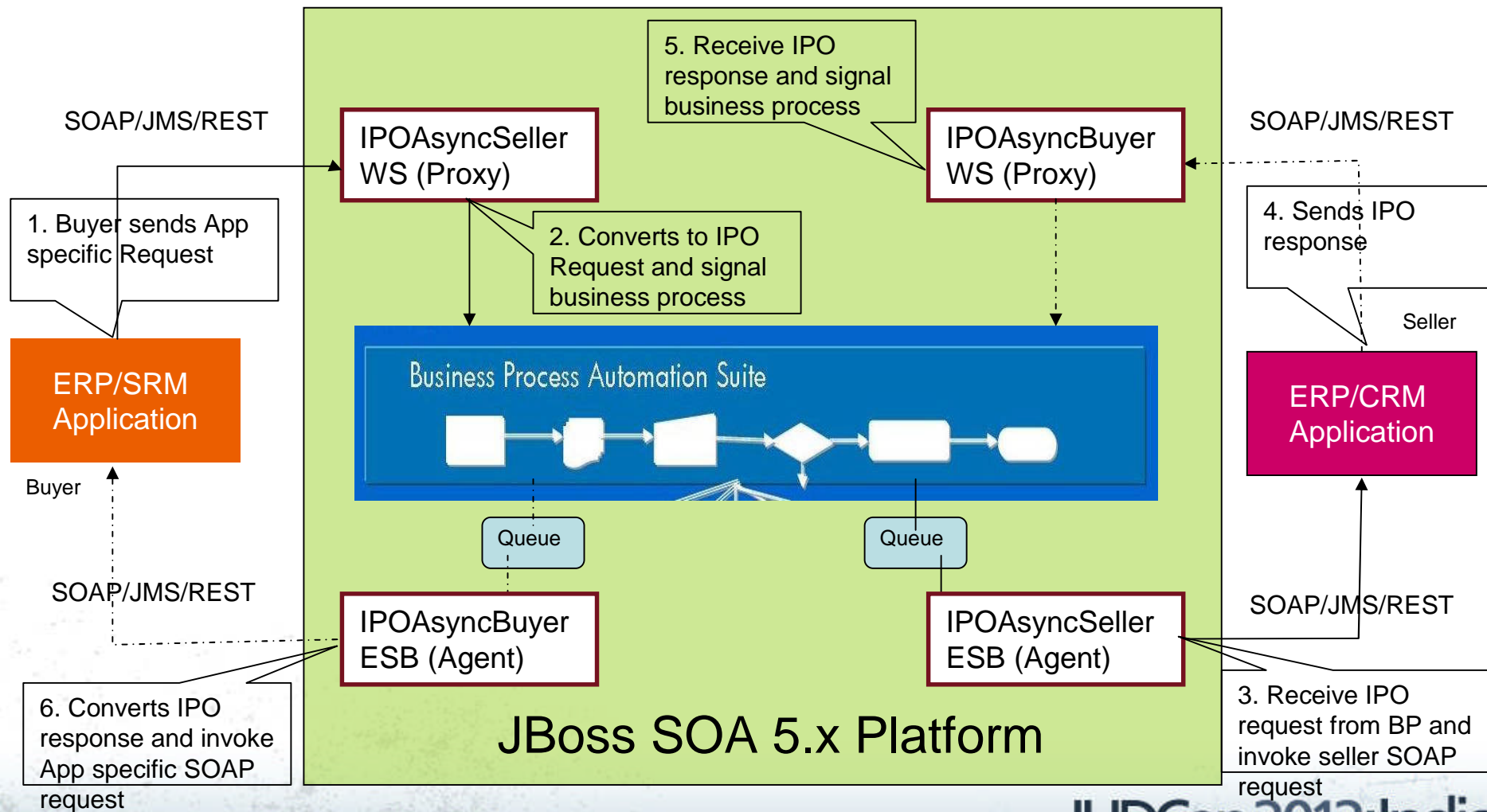
```
<start-state name="start">
  <transition name="AddRequestforQuote" to="Quote"></transition>
</start-state>

<node name="Quote">
  <action name="esbAction"
    class="org.jboss.soa.esb.services.jbpm.actionhandlers.EsbActionHandler">
    <esbCategoryName>AAIAIPOWebServices</esbCategoryName>
    <esbServiceName>IS3IPOAsyncSeller</esbServiceName>
    <bpmToEsbVars>
      <mapping bpm="AddRequestForQuote" esb="BODY_CONTENT" />
      <mapping bpm="IPORequest" esb="body.IPORequest"></mapping>
    </bpmToEsbVars>
    <esbToBpmVars>
      <mapping esb="BODY_CONTENT" bpm="AddQuote" />
      <mapping esb="body.IPORequest" bpm="IPORequest" />
    </esbToBpmVars>
  </action>
  <transition name="AddQuote" to="ProcessQuoteResponse"></transition>
</node>
```

# IPOAsyncSeller Agent (Service Configuration)

```
<service category="AAIAIPOWebServices"
  description="InfotechS3 implementation of AAIA IPO Aysynchronous Seller
  Services" name="IS3IPOAsyncSeller">
  <listeners>
    <jms-listener busidref="IS3IPOAsyncSellerEsbChannel" name="JMS-
    ESBListener"/>
    <jms-listener busidref="IS3IPOAsyncSellerGwChannel"
    is-gateway="true" name="JMS-Gateway"/>
  </listeners>
  <actions mep="OneWay">
    <action name="groovy"
    class="org.jboss.soa.esb.actions.scripting.GroovyActionProcessor">
      <property name="script" value="/scripts/uddi-request-lock.groovy" />
    </action>
    <action class="org.is3.ipoasync.IS3IPOSeller" name="seller-agent"/>
  </actions>
</service>
```

# IPO Process Components in JBoss SOA



# IPOAsyncBuyerWS (Proxy) Service Configuration

```
<service category="AAIAIPOWebServices"
description="InfotechS3 implementation of AAIA IPO Aysynchronous Buyer
Services" name="IS3IPOAsyncBuyerWS" invmScope="GLOBAL">
  <listeners>
    <http-gateway name="Proxy_IS3IPOAsyncBuyerWS_GwChannel"
urlPattern="proxybuyer/*" >
      <asyncResponse />
    </http-gateway>
    <jms-listener busidref="IS3IPOAsyncBuyerProxyGwChannel" is-
gateway="true" name="JMS-Gateway"/>
  </listeners>
  <actions mep="OneWay">
    <action name="buyer-proxy"
class="org.jboss.soa.esb.actions.soap.proxy.SOAPProxy">
      <property name="wsdl"
value="internal://jboss.ws:context=is3ipows,endpoint=IS3IPOAsyncBuyerWS"/>
    </action>
  </actions>
</service>
```

# IPOAsyncBuyerWS (Proxy) Code Snippet

```
@WebService(name = "IS3IPOAsyncBuyerWS", targetNamespace =  
    "http://is3ipo/asyncprocess")
```

```
public class IS3IPOAsyncBuyerWS  
{
```

```
    private IPOJbpmHelper jbpmlInvoker;
```

```
    @WebMethod
```

```
    @SOAPBinding(style=SOAPBinding.Style.DOCUMENT,  
        use=SOAPBinding.Use.LITERAL)
```

```
    public void processQuoteResponse(@WebParam(name = "ProcessQuoteResponse")String  
        addQuoteXml) throws java.rmi.RemoteException
```

```
{
```

```
    try {
```

```
        ...
```

```
        IPOJbpmHelper.replyBusinessProcess( refRFQ, quoteMessage);
```

```
        ...
```

```
    }
```



# IPO Process Definition (jPDL Snippet)

```
<node name="ProcessQuoteResponse">
  <timer name="timeout" dueDate="2 business days" transition='potimeout'/>
  <action class="org.jboss.soa.esb.services.jbpm.actionhandlers.EsbActionHandler">
    <esbCategoryName>
      AAIAIPOWebServices
    </esbCategoryName>
    <esbServiceName>
      IS3IPOAsyncBuyer
    </esbServiceName>
    <bpmToEsbVars>
      <mapping bpm="AddQuote" esb="BODY_CONTENT" />
      <mapping bpm="IPOResult"
esb="body.IPOResult"></mapping>
    </bpmToEsbVars>
    <esbToBpmVars>
      <mapping bpm="ProcessPurchaseOrder"
esb="BODY_CONTENT"></mapping>
      <mapping esb="body.IPOResult" bpm="IPOResult" />
    </esbToBpmVars>
  </action>
  <transition to="CreatePurchaseOrder" name="ProcessPurchaseOrder"></transition>
  <transition to="end" name="potimeout"></transition>
</node>
```



# IPOAsyncBuyer Agent (Service Configuration)

```
<service category="AAIAIPOWebServices"
  description="InfotechS3 implementation of AAIA IPO Aysynchronous Buyer
  Services" name="IS3IPOAsyncBuyer">
  <listeners>
    <jms-listener busidref="IS3IPOAsyncBuyerEsbChannel" name="JMS-
    ESBListener"/>
    <jms-listener busidref="IS3IPOAsyncBuyerGwChannel"
    is-gateway="true" name="JMS-Gateway"/>
  </listeners>
  <actions mep="OneWay">
    <action name="groovy"
    class="org.jboss.soa.esb.actions.scripting.GroovyActionProcessor">
      <property name="script" value="/scripts/uddi-request-lock.groovy" />
    </action>
    <action class="org.is3.ipoasync.IS3IPOBuyer" name="buyer-agent"/>
  </actions>
</service>
```

# Simple EDI Request EDI-XML Map File

```
HDR*GUID*GUID^false*Tue Jan 24  
13:45:28 EST 2011  
QDR*eng*USD*IN*LB*  
HDR*GUID*GUID^false*Tue Jan  
24 13:45:28 EST 2011*flase  
BTP*BP23  
SFP*BP78  
OLN*1*PRD 45*2  
OLN*2*PRD 87*1
```

```
.....  
.....  
<medi:segment segcode="QDR" xmltag="Header">  
  <medi:field xmltag="Language" />  
  <medi:field xmltag="Currency" />  
  <medi:field xmltag="DimensionalUOM" />  
  <medi:field xmltag="WeightUOM" />  
  <medi:field xmltag="DocumentDateTime" />  
  <medi:field xmltag="BackOrderedInd" />  
.....  
.....  
<medi:segmentGroup xmltag="Lines">  
  <medi:segment segcode="OLN" xmltag="Line"  
    maxOccurs="-1" >  
    <medi:field xmltag="LineNumber" />  
    <medi:field xmltag="OrderItem" />  
    <medi:field xmltag="OrderQuantity" />  
  </medi:segment>  
</medi:segmentGroup>
```

# XSL Template for IPO Standard Request

```
<xsl:stylesheet xmlns:xsl="http://www.w3.org/1999/XSL/Transform"
  version="1.0">
  <xsl:output method="xml" encoding="UTF-8" indent="yes" />
  <xsl:template match="AddRequestForQuote">
    <AddRequestForQuote xmlns="http://www.aaiaso.net/IPOv2"
      xmlns:cmn="http://www.aaiaso.net/IPOv2/Common"
      xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
      xsi:schemaLocation="http://www.aaiaso.net/IPOv2AddRequestForQuote.xsd">
      <xsl:apply-templates select="ApplicationArea"/>
      <DataArea>
        <xsl:apply-templates select="RequestForQuote"/>
      </DataArea>
    </AddRequestForQuote>
  </xsl:template>
  <xsl:template match="ApplicationArea">
    <xsl:copy-of select="." />
  </xsl:template>
  <xsl:template match="RequestForQuote">
    <xsl:copy-of select="." />
  </xsl:template>
```

# Smooks Configuration

## EDI – IPO Request Transformation

```
<?xml version="1.0" encoding="UTF-8"?>
<smooks-resource-list xmlns="http://www.milyn.org/xsd/smooks-
  1.1.xsd"
  xmlns:edi="http://www.milyn.org/xsd/smooks/edi-1.2.xsd">

  <!-- Parse the EDI stream... -->
  <edi:reader mappingModel="/ipormsgtransform/edi-to-
    AddRequestforQuote.xml" validate="false"/>

  <!-- Use XSLT to transform the message to IPO Format -->
  <resource-config selector="AddRequestForQuote">

    <resource>/ipormsgtransform/AddRequestforQuote.xsl</resource>
    <param name="is-xslt-templatelet">>false</param>
  </resource-config>
</smooks-resource-list>
```

# Summary

- JBoss SOA helps one to design and deploy business processes easily
- JBoss SOA provides all listeners and gateways to connect any service
- JBoss SOA provides platform to host integration services on demand



# Thank You!



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