Innovative ideas for Integration Solutions through JBoss ESB

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Agenda

• JBoss ESB today and tomorrow
• Extending JBoss ESB Components
• Working with:
  – GoogleDocs
  – Openfire (XMPP)
• Apache Camel and JBoss ESB
• Breakinwoods Project
Enterprise Integration Patterns

- There are just 4 Integration Styles:
  - File Transfer
  - Shared Database
  - RPC
  - Messaging

JBoss ESB is built according EIPs principles
Is there a place for an ESB into your Architecture?

(*) Curiosity: Red Hat Brazil Viewing in São Paulo Brazil
Why do I need an ESB?

You shall be bored to listen it again though :) 

- An ESB can promote an “Event Architecture” simply due to the capacity to listen the events that the company produces and must to react based on them.
- Would be great we think in Clouds of ESBs
- Collaboration is required
- Transport warranty (JMS Clustering + Fault Tolerance)
- Events are like Messages for ESBs
ESB vs Standards

- There is no JSR that standardize an ESB, however the majority of ESB are created on top of many standards:
  - JDBC, JMS, JAX-WS, JAX-RS, JNDI etc

- ESB (Service Bus) offers a way to integrate several applications through standards and common protocols such as File Systems, FTP, E-mail etc

- **Caution:**
  - Sometimes is had better to adopt a standardized document / protocol to perform data interchange as well as integration
    - Ex: XML+Schema, JSON, CSV etc
JBoss ESB

- Can be used as a Lightweight Enterprise Service Bus
- Inherits benefits from the traditional JBoss Application Server
- Many services “out-of-the-box”
  - CBR based on Rules Engines *(Drools (drl) e Guvnor)*
  - Workflow based on **JBPM**
  - Services Orchestration via **BPEL** *(Riftsaw/Apache ODE)*
  - Transformation Services via **Smooks**
  - Adapters (File, FTP, Http, REST, WS, JMS etc)
  - InVM Transport
- Available at: [http://www.jboss.org/jbossesb](http://www.jboss.org/jbossesb)
“Show me the source code”!
http://code.google.com/p/breakingwoods
esbgen.sh

Creating a new ESB Project made easy
GoogleDocs Listener
XMPPListener
(Openfire+Smack)
Apache Camel is already present
in JBoss ESB 4.9 svn trunk

Thanks David Ward!

http://community.jboss.org/wiki/CamelGateway
<jbossesb xmlns="http://anonsvn.labs.jboss.com/labs/jbossesb/trunk/product/etc/schemas/xml/jbossesb-1.3.0.xsd" parameterReloadSecs="5">
    <services>
        <service category="camel_helloworld" name="service1" description="Hello World" invmScope="GLOBAL">
            <listeners>
                <camel-gateway name="gateway1">
                    <from uri="file://.../samples/quickstarts/camel_helloworld/build/input1?delete=true"/>
                    <from uri="file://.../samples/quickstarts/camel_helloworld/build/input2?delete=true"/>
                </camel-gateway>
            </listeners>
            <actions>
                <action name="action1" class="org.jboss.esb.actions.SystemPrintln"/>
            </actions>
        </service>
    </services>
</jbossesb>
<to uri="jbossesb://service?category=camel_helloworld&name=service1"/>
Introducing Apache Camel

• [http://camel.apache.org](http://camel.apache.org)

• Apache Camel is a powerful open source **Integration Framework** based on known Enterprise Integration Patterns

• Apache Camel uses URIs so that it can easily work directly with any kind of Transport or messaging model, for **instance**:

  - `mina:tcp://localhost:6200?textline=true&sync=false`

  - `ftp://scott@localhost/public/reports?password=tiger&binary=true&delay=60000`
Apache Camel can to Act as...

- Event Consumer
- Event Producer

Source Protocols
- HTTP
- FTP
- JMS
- GOOGLE
- AMQP
- SMTP
- Others

Destination Protocols
- HTTP
- FTP
- JMS
- GOOGLE
- AMQP
- SMTP
- Others
Available Components URI

- ActiveMQ / activemq-camel
- ActiveMQ Journal / activemq-core
- AMQP / camel-amqp
- Atom / camel-atom
- Bean / camel-core
- Browse / camel-core
- Cache / camel-cache
- Cometd / camel-cometd
- CXF / camel-cxf
- CXFRS / camel-cxf
- DataSet / camel-core
- Direct / camel-core
- Esper / camel-esper in camel-extra
- Event / camel-spring
- File / camel-core
- Flatpack / camel-flatpack
- Freemarker / camel-freemarker
- FTP / camel-ftp
- FTPS / camel-ftp
- GAuth / camel-gae
- GHttP / camel-gae
- GLogin / camel-gae
- GTask / camel-gae
- GMail / camel-gae
- HDFS / camel-hdfs in camel-hdfs
- Hibernate / camel-hibernate in camel-extra
- HL7 / camel-hl7
- HTTP / camel-http
- IRC / camel-irc
- RSS / camel-rss
- SERVLET / camel-servlet
- Smooks / camel-smooks in camel-extra
- SMTP / camel-mail
- SMPP / camel-smpp
- SNMP / camel-snmp
- SpringIntegration / camel-spring-integration
- SQL / camel-sql
- Stream / camel-stream
- TCP / camel-mina
- Others

Full Components List:
http://camel.apache.org/components.html
Routing (from...to)

From an URI (Process the Exchange) deliver to another URI

from("direct:start")
    .setHeader(HttpConstants.HTTP_METHOD,
        constant(org.apache.camel.component.http.HttpMethods.POST))
    .to("http://www.google.com")
    .to("mock:results");
Extending Apache Camel
Component → Endpoint

Endpoint → Consumer

Endpoint → Producer
Creating a New Apache Camel Component

Infinispan (Cache/Datagrid)

http://www.jboss.org/infinispan
“Show me the source code”!
Proposed Architecture

Apache Camel Data Consumer Cloud

JBoss ESB Server
CBR, Drools, CEP, Workflow, BPM, BPEL, EJB, Transactions, Clustering, Loadbalancing etc

Java Virtual Machine
QA
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