What's new in Fuse 6.2

Hiram Chirino
Platform Architect
June 5th 2015
What is JBoss Fuse?
## JBoss Fuse:

### Red Hat JBoss Fuse

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**Core Enterprise Service Bus (ESB)**

### Runtime Container

- Apache Karaf
What JBoss Fuse Brings to Red Hat’s Customers:

Integration that extends to the edges of enterprise

- **Easy to deploy** – sophisticated tooling, connectors, small footprint makes it easy to deploy with less hardware and limited IT staffing
- **Many deployment options** – deploy on-premise or in the cloud in any configuration, and change on the fly with automated provisioning
- **Standards-based** – commitment to industry standards ensures that JBoss infrastructure is easy to modify and maintain
- **Centralized management** – innovative tooling makes it easy to configure, deploy, manage and maintain integration infrastructure
- **Open source** – less expensive and pay as you go to reduce over all costs in all stages of the project
Leader in Forrester Wave: Hybrid Integration 2014

Red Hat leader in 3 categories:
- Deep Integration
- Cloud Integration
- Internet of things (IOT)
Check out the IDC White Paper

- **Highlights why our customers love Fuse!**
- **Bottom line: amazing ROI**

History of Fuse Development

- CodeHaus
  - ActiveMQ: May 2004
  - ServiceMix: May 2005

- ASF
  - CXF: Aug 2006
  - Camel: Mar 2007
  - Karaf
  - Fabric: Feb 2011

- GitHub
  - FuseSource created: October 2010
  - Red Hat acquire: Sept 2012

- LogicBlaze
  - Formed: May 2005

- IONA
  - April 2007

- Progress
  - October 2008

- Dec 2013
Fuse is made possible by Open Source

- ActiveMQ
- Qhawtio
- CloudStack
- Apache Commons
- Apache CXF
- Apache Camel
- Karaf
- ServiceMix
- Apache Aries
- Apache Felix
Apache Camel - Architecture

**Camel**
Integration Engine And Router

**Camel Endpoints**
- Camel can send messages to them
- Or receive messages from them

**Camel Components**
- Provide a uniform endpoint interface
- Act as connectors to all other systems

**Camel Processors**
- Are used to wire endpoints together
- Routing
- Transformation
- Mediation
- Interception
- Enrichment
- Validation
- Tracking
- Logging

**JMS Component**
- JMS API
  - JMS Provider
    - ActiveMQ | IBM | TIBCO | Sonic...

**HTTP Component**
- Servlet API
  - HTTP Client

**File Component**
- File System
  - Local File System

**Web Container**
- Jetty | Tomcat | ...
Enterprise Integration Patterns

- A Book by Gregor Hohpe and Bobby Woolf
- Patterns and Recipes for common integration problems
- Message Centric
- Used as the basis for all the major integration products
- Should be the the first thing to reference when starting an integration project

http://www.eaipatterns.com/
Camel provides an embedded DSL (in Java & Spring) for implementing enterprise integration patterns

The DSL uses URIs to define endpoints which are combined by form integration flows

```java
from("activemq:topic:Quotes")
  .filter().xpath("/quote/product = 'widget'")
  .to("mqseries:WidgetQuotes")
  .filter().xpath("/quote/product = 'gadget'")
  .to("mqseries:GadgetQuotes");
```
What’s new in Fuse 6.2
New Features in Fuse 6.2.0

- Core Integration
- Fabric8
- SwitchYard on Karaf
- Tooling
Core Integration
Fuse Integration Package

Red Hat JBoss Fuse

- SOA framework
- SwitchYard
- Integration framework
- Apache Camel

Core Enterprise Service Bus (ESB)

- Runtime Container
- Apache Karaf

Integration Package

- Rules & BPM
- JBoss BRMS 6.x
- JBMS BPMS 6.x
OpenShift Enterprise

Fuse for xPaaS

Red Hat JBoss Fuse

OpenShift Cartridge

Cloud Platform

OpenShift 2.2 Enterprise
New Karaf Feature: RBAC
Karaf RBAC: Roles

- `etc/user.properties` - Maps roles to users:
  
  ```
  $ cat etc/users.properties
  admin=password,Operator, Maintainer, Deployer, \ 
  Auditor, Administrator, SuperUser
  ```

- You can now have Groups assigned roles, and then just assign the group to a user
- Uses that same seven predefined user roles EAP defines: Monitor, Operator, Maintainer, Deployer, Auditor, Administrator, and SuperUser.
Karaf RBAC: JMX Access Control

- **etc/jmx.acl.*.cfg**

  ```
  $ cat etc/jmx.acl.java.lang.Memory.cfg
  gc = Deployer,Auditor,Administrator,SuperUser
  ```

- **Flexible operation matching syntax to be as specific as needed.**

  ```
  $ cat etc/jmx.acl.org.apache.activemq.Broker._.Topic.cfg
  set* = Deployer, Auditor, Administrator, SuperUser
  browse* = Monitor, Operator, Maintainer, Deployer, Auditor, Administrator, SuperUser
  resetStatistics = Deployer, Auditor, Administrator, SuperUser
  sendTextMessage* = Deployer, Auditor, Administrator, SuperUser
  ```

- **Runtime access checking? Use the “org.apache.karaf:type=security,area=jmx,name=root” MBean and it’s canInvoke methods.**
Karaf RBAC: Shell Control

- `etc/org.apache.karaf.command.acl.*.cfg`

  ```
  $ cat etc/org.apache.karaf.command.acl.osgi.cfg
  bundle-level = Deployer, Auditor, Administrator, SuperUser
  bundle-level[/.]*[-][f].*/ = Administrator, SuperUser
  bundle-services = Monitor, Operator, Maintainer, Deployer, Auditor, Administrator
  bundle-services[/.]*[-][f].*/ = Administrator, SuperUser
  ...
  ```

- One config file per ‘command scope’
New Karaf Features

- jdbc: install/manage DataSources
- jpa: hibernate
- cdi: weld
New Camel Components

- camel-sap
- camel-salesforce
- camel-linkedin
- camel-ahc-ws
- camel-box
- camel-dropbox
- camel-metrics
- camel-netty4
- camel-oolingo2
- camel-openshift
- camel-google-drive
- camel-schematron
- camel-rest
New Camel Features

• REST DSL
• Enhanced Documentation
• Swagger Support
• Camel API Component Framework
protected RouteBuilder createRouteBuilder() throws Exception {
    return new RouteBuilder() {
        @Override
        public void configure() throws Exception {
            rest("/say")
                .get("/hello").to("direct:hello")
                .get("/bye").consumes("application/json").to("direct:bye")
                .post("/bye").to("mock:update");

            from("direct:hello")
                .transform().constant("Hello World");
            from("direct:bye")
                .transform().constant("Bye World");
        }
    };
}
<camelContext xmlns="http://camel.apache.org/schema/spring">
  <rest path="/say">
    <get uri="/hello">
      <to uri="direct:hello"/>
    </get>
    <get uri="/bye" consumes="application/json">
      <to uri="direct:bye"/>
    </get>
    <post uri="/bye">
      <to uri="mock:update"/>
    </post>
  </rest>
  <route>
    <from uri="direct:hello"/>
    <transform>
      <constant>Hello World</constant>
    </transform>
  </route>
  <route>
    <from uri="direct:bye"/>
    <transform>
      <constant>Bye World</constant>
    </transform>
  </route>
</camelContext>
New ActiveMQ Features

• Support for anonymous style producers in AMQP
• Load Camel routes dynamically
• Export/Import destinations created at runtime
• CLI command to create destinations
• Improved support for MQTT 3.1.1

• New AMQP - JMS, Python and C++ clients
New CXF Features

• **Streaming** (StAX-based) WS-Security impl in WSS4J 2.0.0.
• **Complete JAX-RS 2.0 Impl**
• **Netty based HTTP servers and clients**
• **WebSocket based transport**
## Project Version Alignment

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<th>6.2.0</th>
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<tr>
<td>Fuse</td>
<td>6.1.0</td>
<td></td>
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<tr>
<td>Karaf</td>
<td>2.3.0</td>
<td>2.4.0</td>
</tr>
<tr>
<td>Camel</td>
<td>2.12.0</td>
<td>2.15.0</td>
</tr>
<tr>
<td>ActiveMQ</td>
<td>5.9.0</td>
<td>5.11.0</td>
</tr>
<tr>
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<td>2.7.0</td>
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<td>1.5</td>
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<td>2.0</td>
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Added Support For

JVMs:
- Java 8
- HP-UX 11i HP JVM 1.7

Databases:
- Oracle 11g - Oracle JDBC Driver v11
- MySQL 5.1 - MySQL Connector/J 5
- MySQL 5.5 - MySQL Connector/J 5
- Microsoft SQL Server 2008 - MSSQL Server JDBC Driver 3
- PostgreSQL 8.4 - JDBC 4 Postgresql Driver, Version 8
- PostgreSQL 9.1 - JDBC 4 Postgresql Driver, Version 8
Fabric8 Enhancements
Fabric8 Insight

• Centralized Logging
• Centralized Metrics Collection: CXF and Camel
• Implemented with Elastic Search: Data is replicated and partitioned.
• Out of Tech Preview
Fabric8 Gateway

- **Messaging Gateway detects client protocol**
- **Can use virtual hosting to direct messaging connections to groups**
- **Host Name routing for Openwire, WebSocket, and STOMP protocols**
- **WebSockets and SSL supported**
SwitchYard on Karaf
SwitchYard on Karaf (Tech Preview)

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Core Enterprise Service Bus (ESB)
SwitchYard

Structured development framework for integration applications
Built on Apache Camel and Java EE
Using service-oriented principles to build scalable, maintainable applications
Structured Development Environment
SwitchYard 2.0

• Karaf support
  • Runtime
  • Tooling
• Improved integration with Drools and jBPM
  • Maven resolution of KIE artifacts
  • BPM remote client
• Camel
  • Atom, RSS, SAP, HL7, Bindy, MQTT, XQuery, Dozer
• Debugger
Tooling Updates
Fuse Tooling for JBoss Developer Studio

- **Usability**
  - Extensible, component-aware palette
  - Component-specific property sheets
  - Automatic injection of Maven dependencies

- **Productivity**
  - Server Adapters/Deployment
  - Visual Debugger

- **Data Transformation Tooling**
Demo Time!
Where’s Fuse going post 6.2?
Fuse for EAP 6.2.1

**Red Hat JBoss Fuse**

- Management Console
- Hawtio
- SOA framework
- SwitchYard
- Web services framework
- Apache CXF
- Core Enterprise Service Bus (ESB)
- Runtime Container
  - Apache Karaf

**Fuse on EAP**

- Management Console
- Hawtio
- SOA framework
- SwitchYard
- Web services framework
- Apache CXF
- Core Enterprise Service Bus (ESB)
- Reliable Messaging
- Apache ActiveMQ

**Runtime Container**

- Apache Karaf

**Integration framework**

- Apache Camel

**Reliable Messaging**

- Apache ActiveMQ
- HornetQ
Camel on EAP

• **Camel Subsystem**
  • *Injects camel deps into user’s deployments*

• **Camel Modules**
  • *Apps don’t need to package camel libs*
Camel on EAP

Supported Camel Components
Fuse for EAP 6.2.1 Optional Packages

- **Integration Pack**
  - Rules & BPM

- **Runtime Governance**
  - RTGov

- **BPEL**
  - Riftsaw

- **FUSE on EAP**
  - Management Console
    - Hawtio
  - SOA framework
  - SwitchYard
  - Integration framework
    - Apache Camel

- Apache Camel
- SwitchYard
- Hawtio
- Management Console
- Runtime Governance
LEARN. NETWORK.
EXPERIENCE OPEN SOURCE.