RED HAT SUMMIT

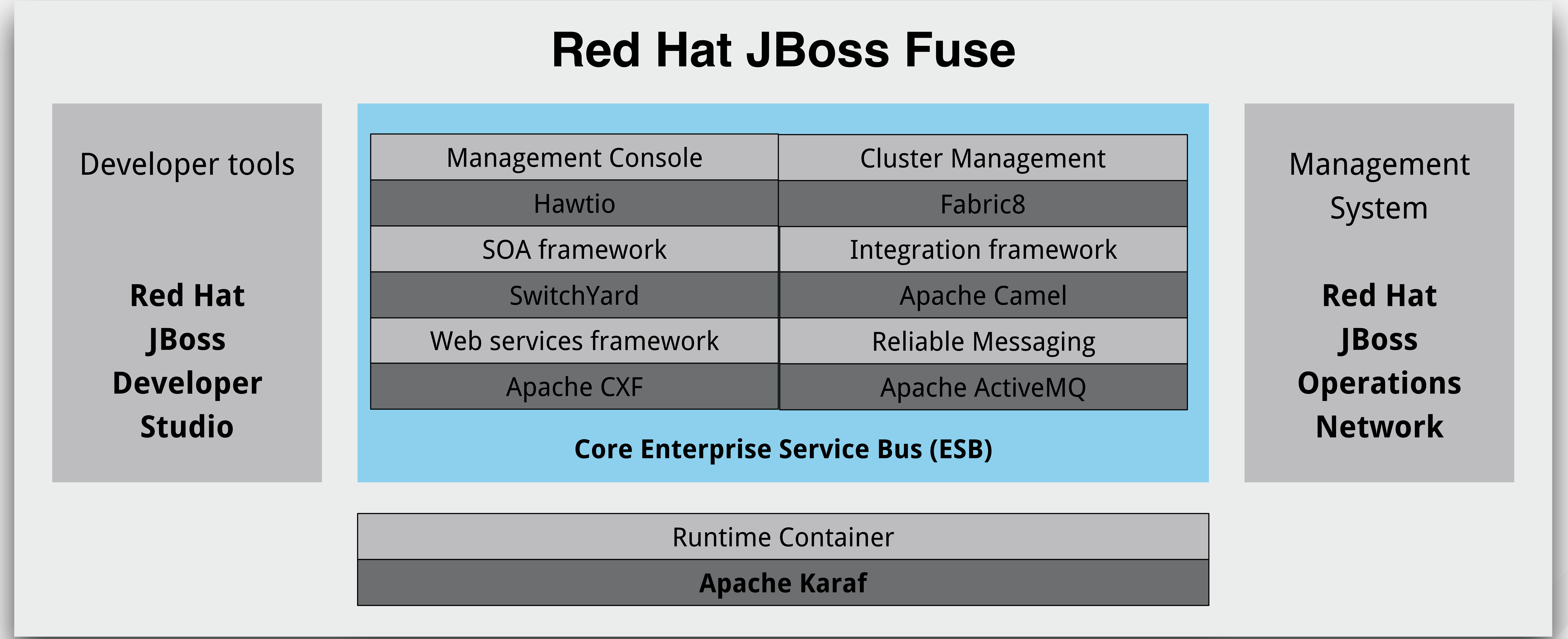
BOSTON, MA
JUNE 23-26, 2015

# *Whats's new in Fuse 6.2*

Hiram Chirino
Platform Architect
June 5th 2015

# What is JBoss Fuse?

# JBoss Fuse:



## Red Hat JBoss Fuse

Developer tools

**Red Hat JBoss Developer Studio**

| | |
|---|---|
| Management Console | Cluster Management |
| Hawtio | Fabric8 |
| SOA framework | Integration framework |
| SwitchYard | Apache Camel |
| Web services framework | Reliable Messaging |
| Apache CXF | Apache ActiveMQ |

**Core Enterprise Service Bus (ESB)**

Management System

**Red Hat JBoss Operations Network**

Runtime Container

**Apache Karaf**

# What JBoss Fuse Brings to Red Hat’s Customers:

## Integration that extends to the edges of enterprise

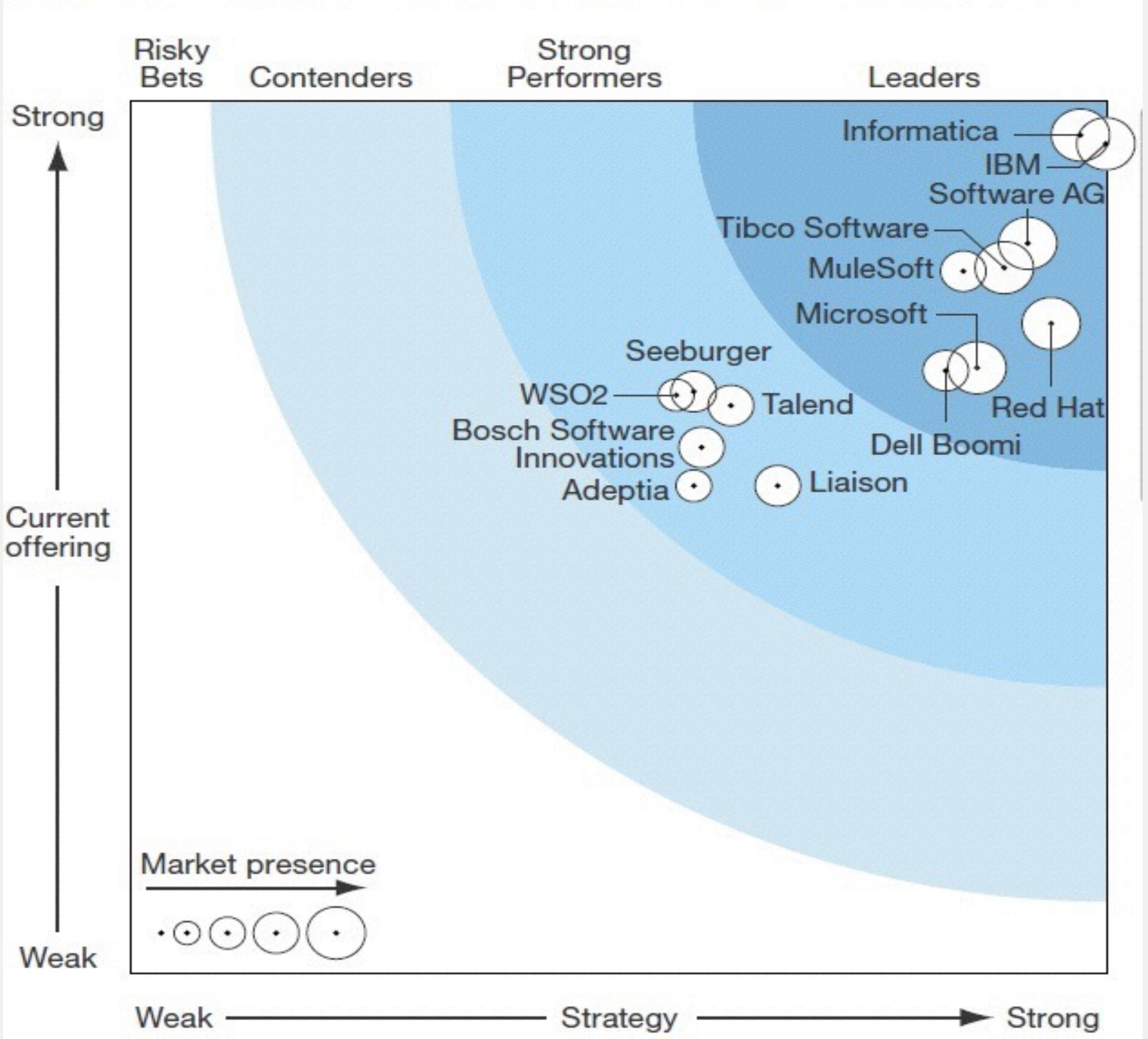
- **Easy to deploy** – sophisticated tooling, connectors,small footprint makes it easy to deploy with less hardware and limited IT staffing
- **Many deployment options** – deploy on-premise or in the cloud in any configuration, and change on the fly with automated provisioning
- **Standards-based** – commitment to industry standards ensures that JBoss infrastructure is easy to modify and maintain
- **Centralized management** – innovative tooling makes it ease 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:

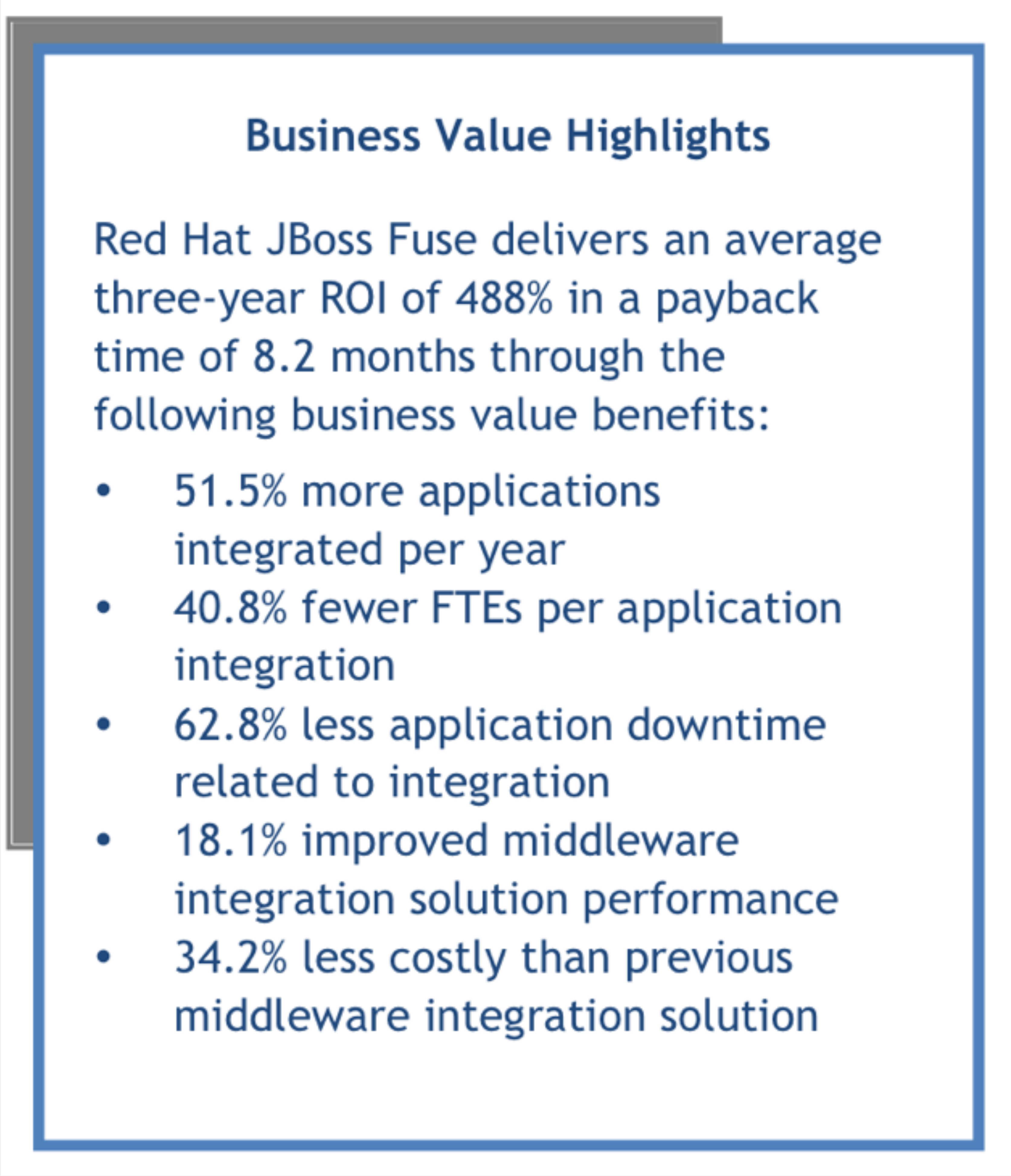
- Deep Integration
- Cloud Integration
- Internet of things (IOT)

*Figure 6* Forrester Wave™: Hybrid² Integration: Deep Integration, Q1 '14



# Check out the IDC White Paper

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



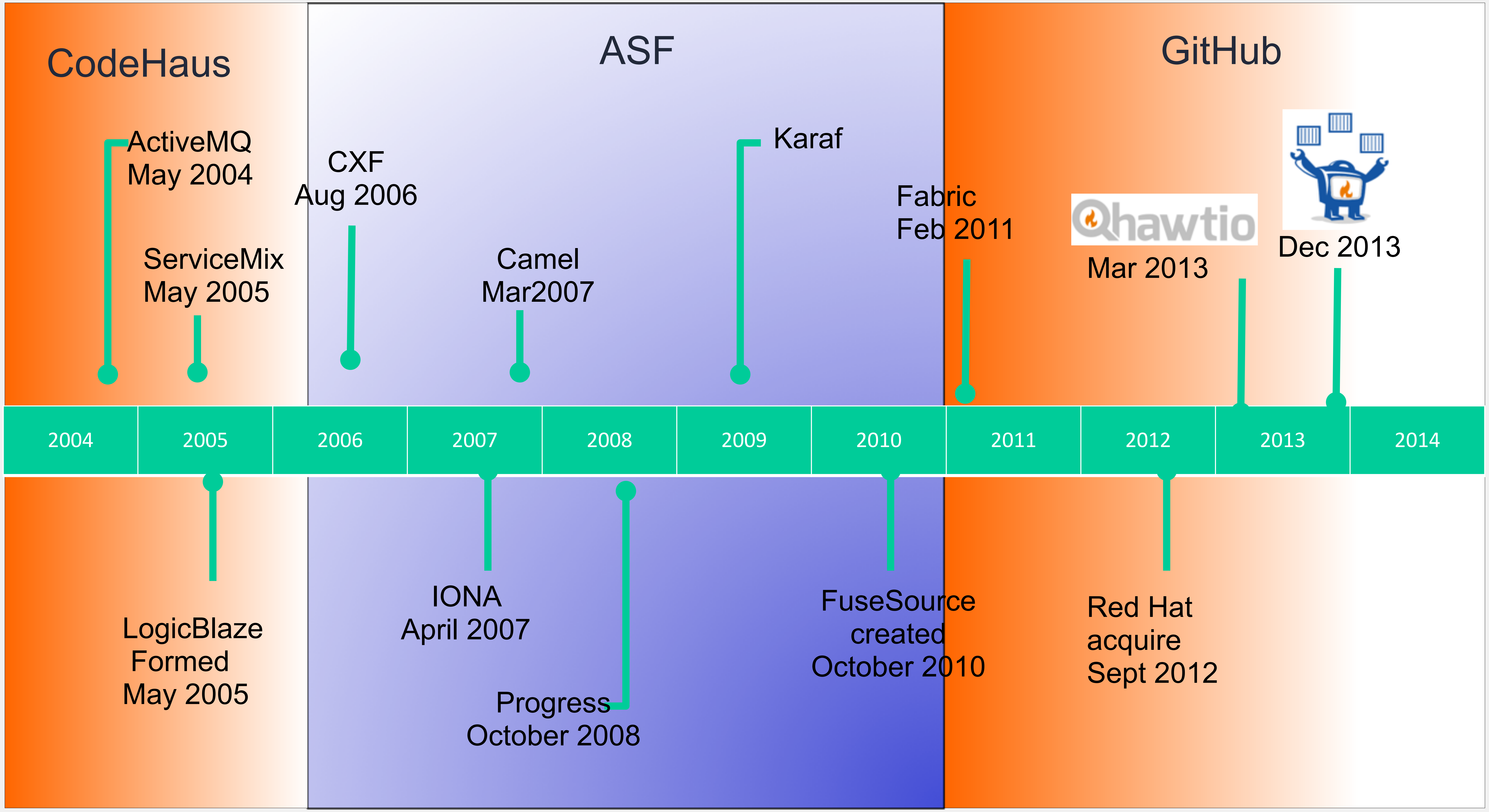
**Business Value Highlights**

Red Hat JBoss Fuse delivers an average three-year ROI of 488% in a payback time of 8.2 months through the following business value benefits:

- 51.5% more applications integrated per year
- 40.8% fewer FTEs per application integration
- 62.8% less application downtime related to integration
- 18.1% improved middleware integration solution performance
- 34.2% less costly than previous middleware integration solution

http://www.redhat.com/en/resources/value-red-hat-integration-products

# History of Fuse Development



CodeHaus

ASF

GitHub

ActiveMQ
May 2004

ServiceMix
May 2005

CXF
Aug 2006

Camel
Mar2007

Karaf

Fabric
Feb 2011

Mar 2013

Dec 2013

2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014

LogicBlaze
Formed
May 2005

IONA
April 2007

Progress
October 2008

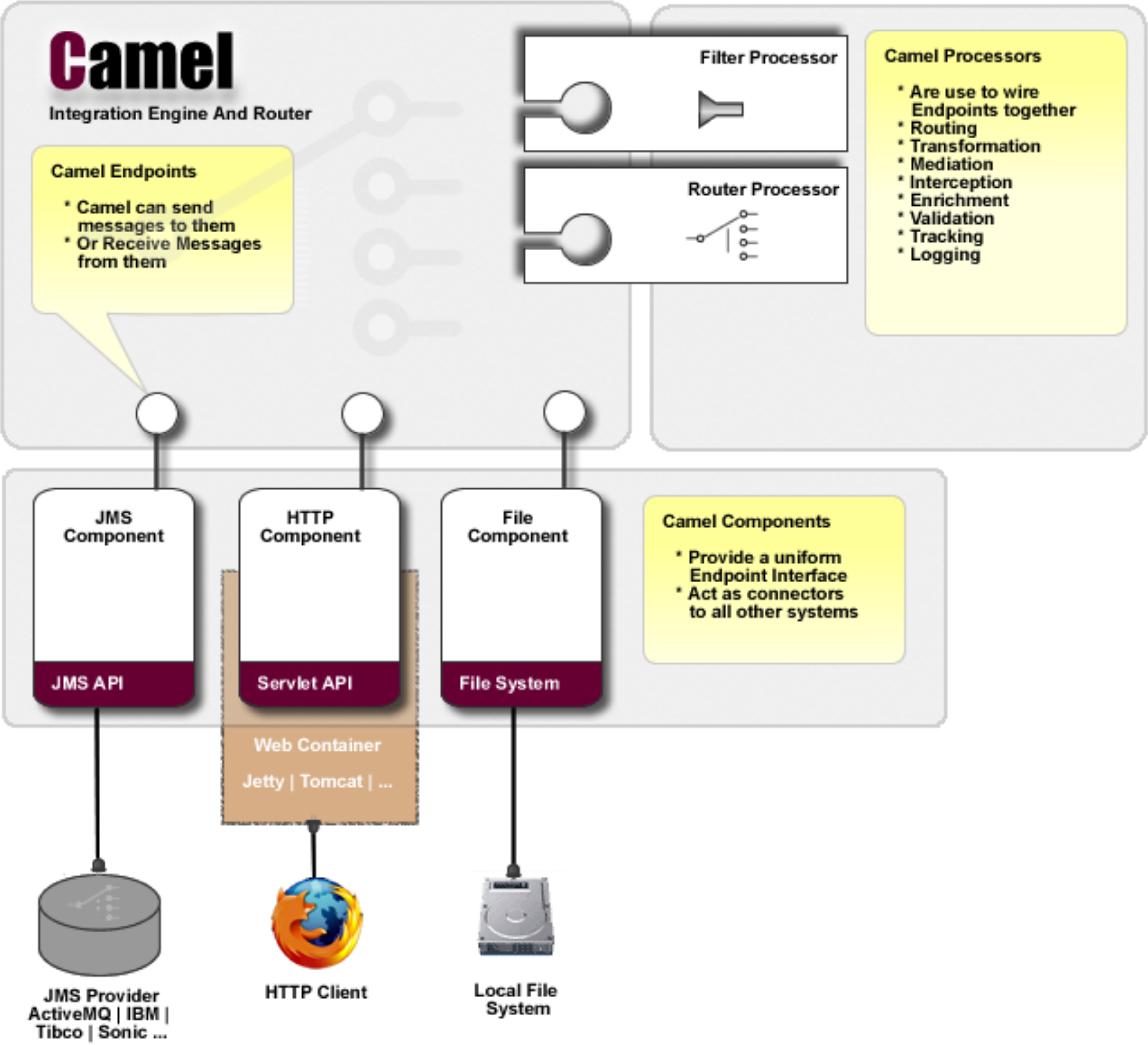
FuseSource
created
October 2010

Red Hat
acquire
Sept 2012

# Fuse is made possible by Open Source

ActiveMQ
hawtio
cloudstack
Apache Commons
Apache Camel
Apache CXF
Karaf
Apache ARIES
ServiceMix
S
APACHE felix

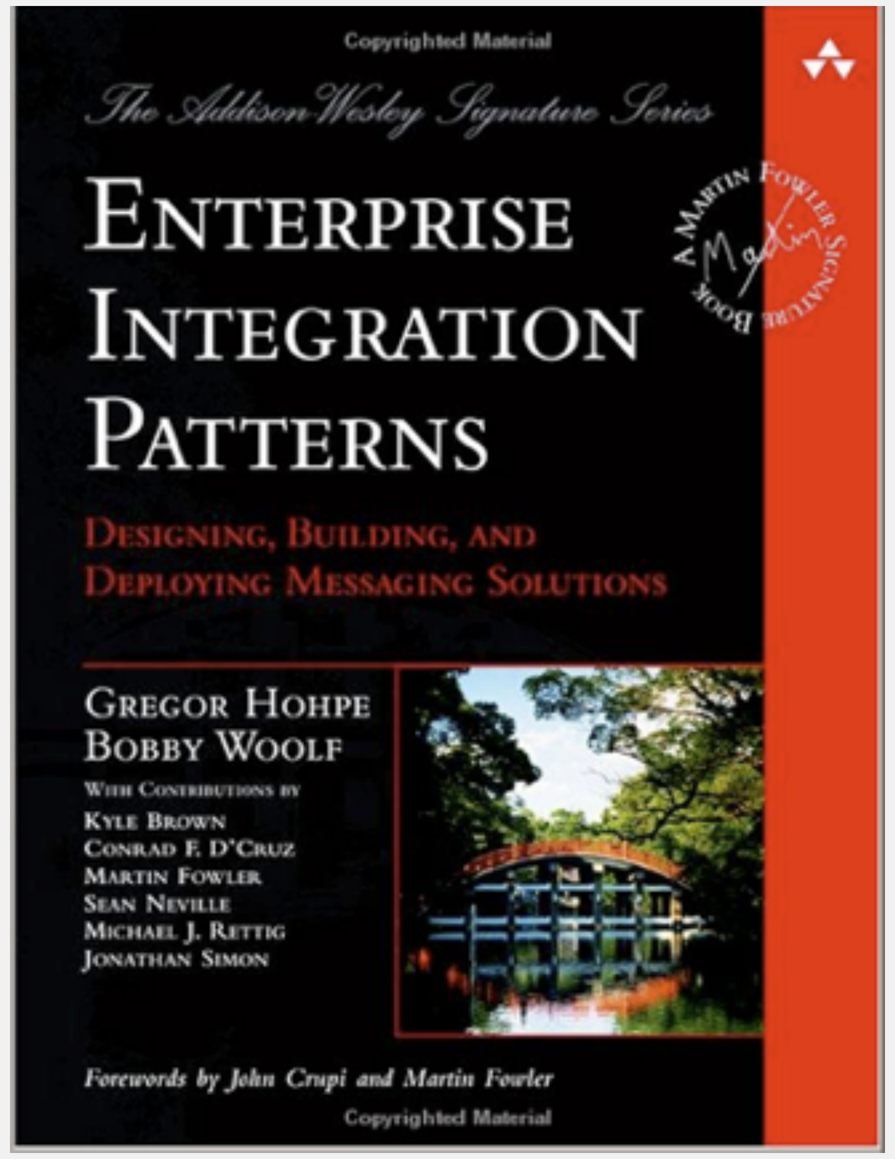
# Apache Camel - Architecture



redhat

# 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](http://www.eaipatterns.com)/


Copyrighted Material
The Addison-Wesley Signature Series
Enterprise Integration Patterns
Designing, Building, and Deploying Messaging Solutions
Gregor Hohpe
Bobby Woolf
With Contributions by
Kyle Brown
Conrad F. D'Cruz
Martin Fowler
Sean Neville
Michael J. Rettig
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Forewords by John Crupi and Martin Fowler
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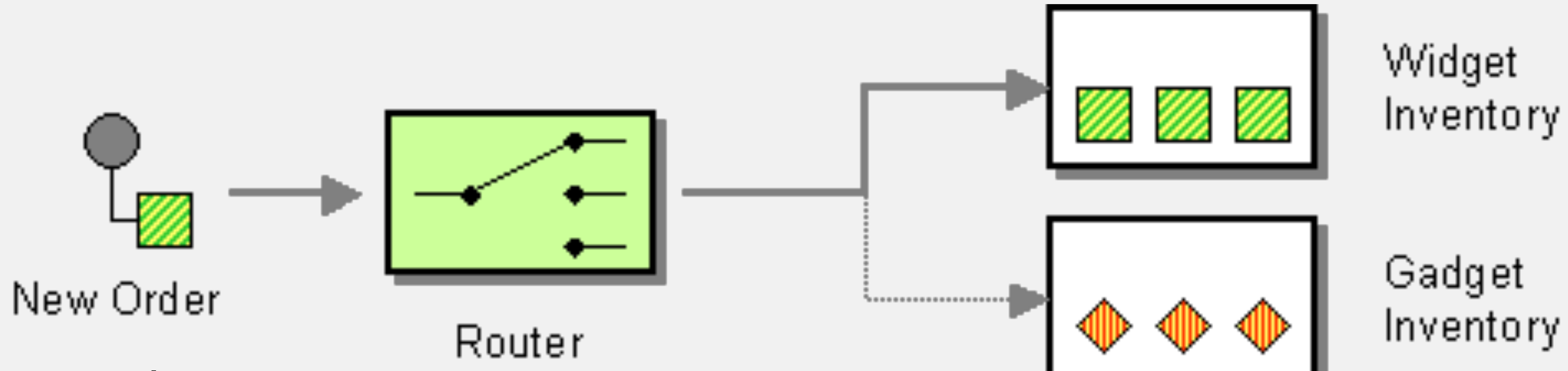
A Martin Fowler Signature Book

# Apache Camel

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



```
from("activemq:topic:Quotes”)
   .filter().xpath("/quote/product = ‘widget’”)
     .to("mqseries:WidgetQuotes")
   .filter().xpath("/quote/product = ‘gadget’”)
    .to("mqseries:GadgetQuotes");
```

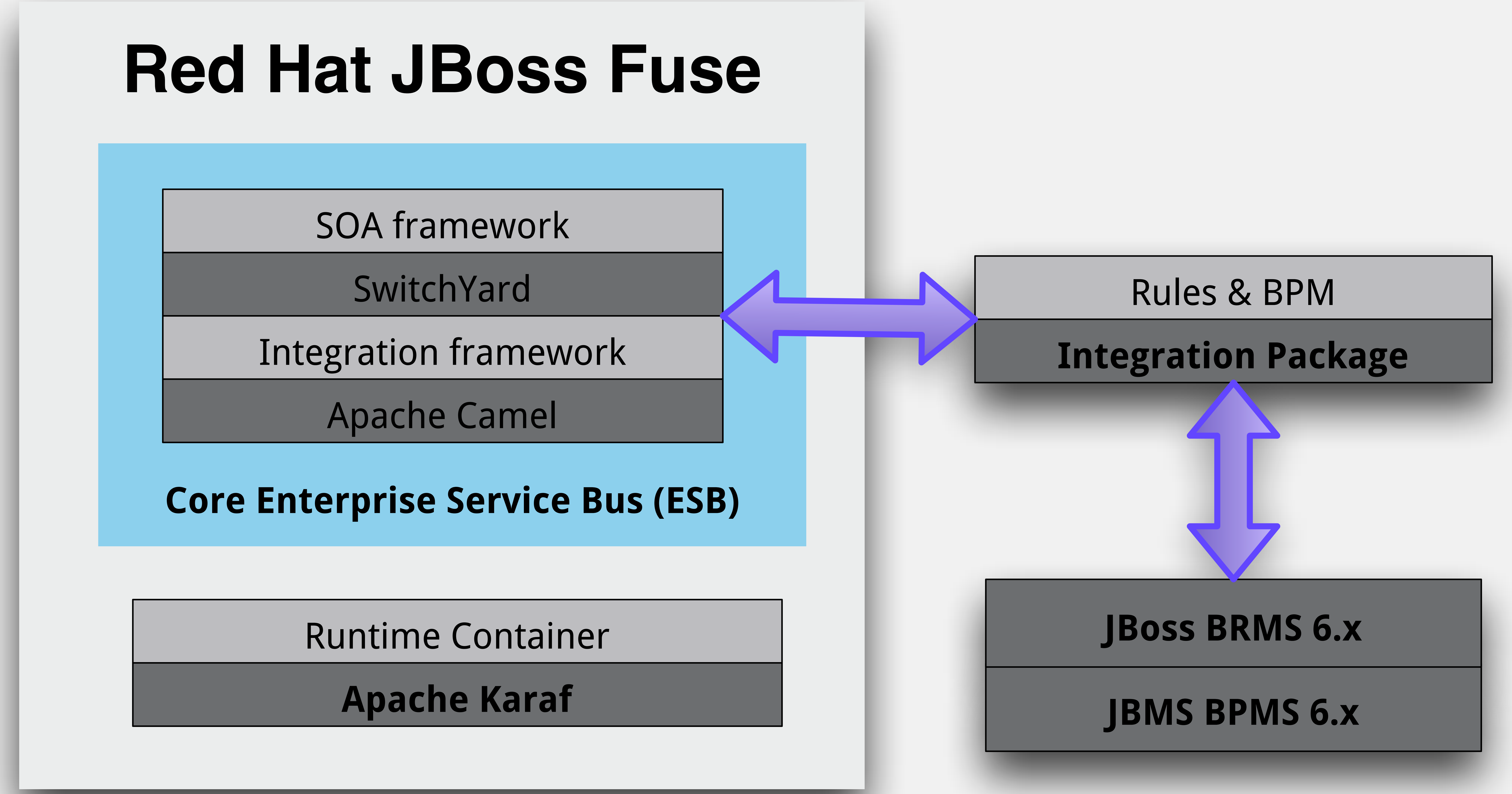
# What's new in Fuse 6.2

# 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**

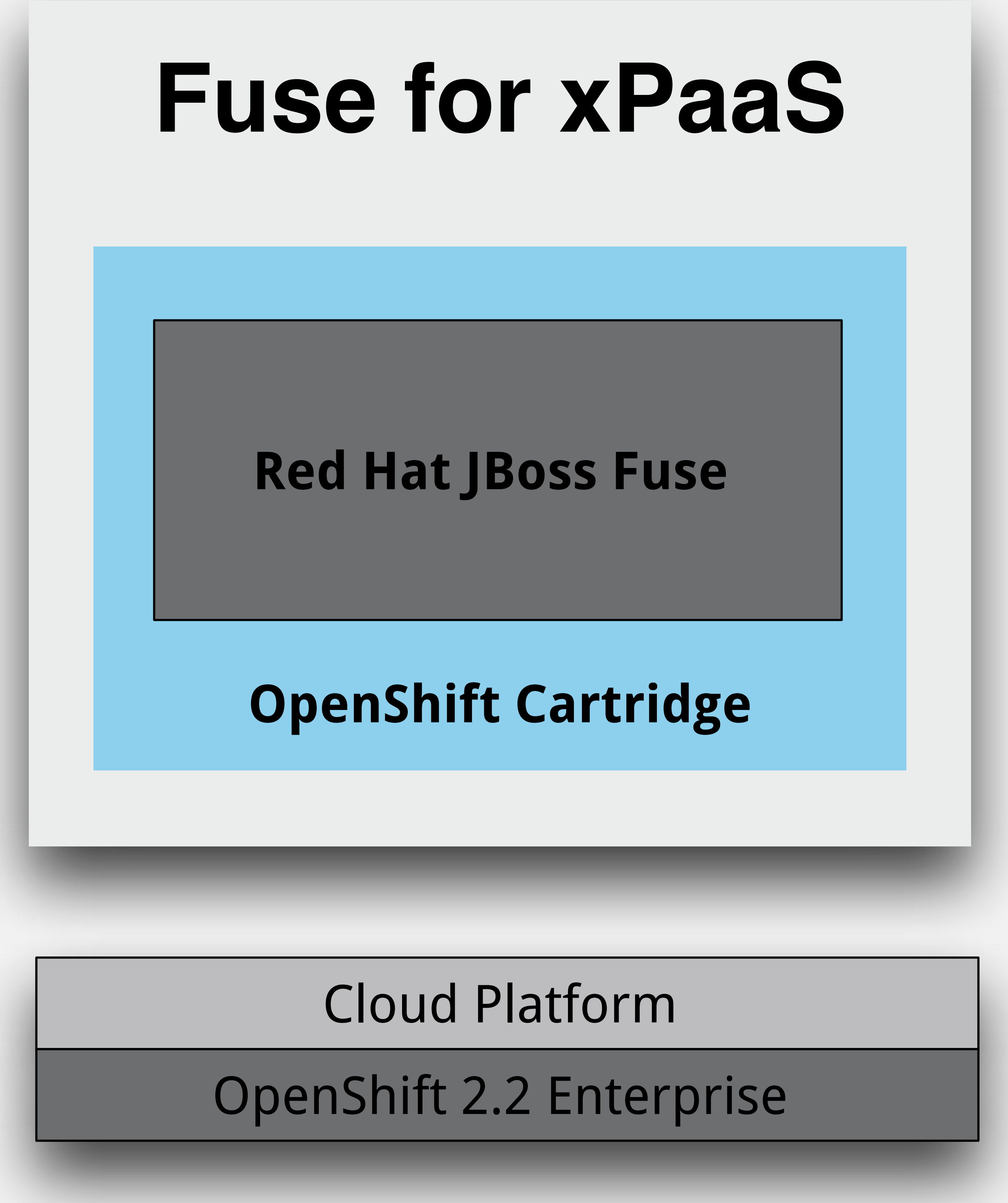
Rules & BPM

**Integration Package**

**JBoss BRMS 6.x**

**JBMS BPMS 6.x**

# OpenShift Enterprise



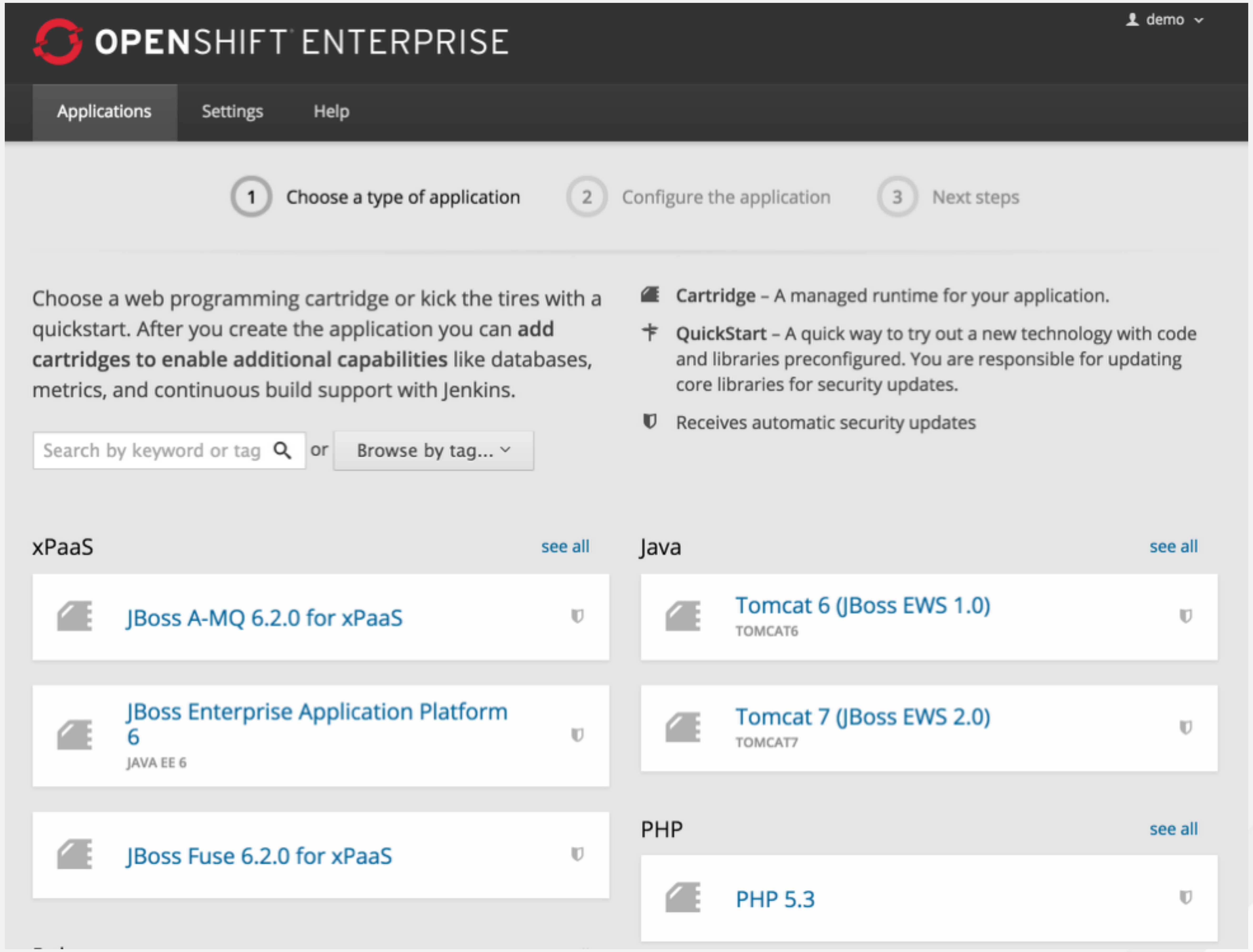
## Fuse for xPaaS

Red Hat JBoss Fuse

OpenShift Cartridge

Cloud Platform

OpenShift 2.2 Enterprise



1 Choose a type of application   2 Configure the application   3 Next steps

Choose a web programming cartridge or kick the tires with a quickstart. After you create the application you can **add cartridges to enable additional capabilities** like databases, metrics, and continuous build support with Jenkins.

**Cartridge** – A managed runtime for your application.

**QuickStart** – A quick way to try out a new technology with code and libraries preconfigured. You are responsible for updating core libraries for security updates.

Receives automatic security updates

Search by keyword or tag or Browse by tag...

xPaaS — see all

- JBoss A-MQ 6.2.0 for xPaaS
- JBoss Enterprise Application Platform 6 — JAVA EE 6
- JBoss Fuse 6.2.0 for xPaaS

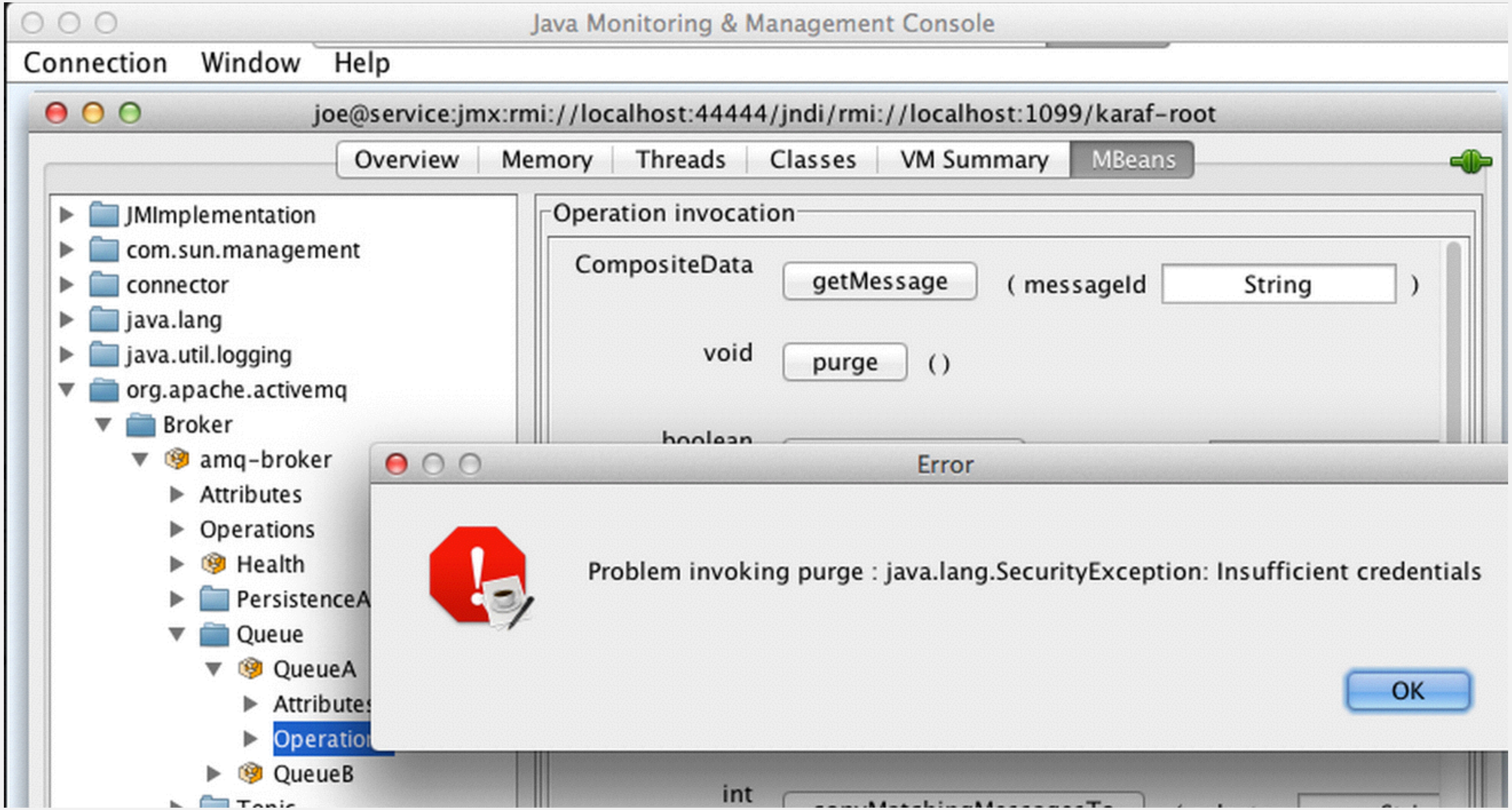
Java — see all

- Tomcat 6 (JBoss EWS 1.0) — TOMCAT6
- Tomcat 7 (JBoss EWS 2.0) — TOMCAT7

PHP — see all

- PHP 5.3

# New Karaf Feature: RBAC

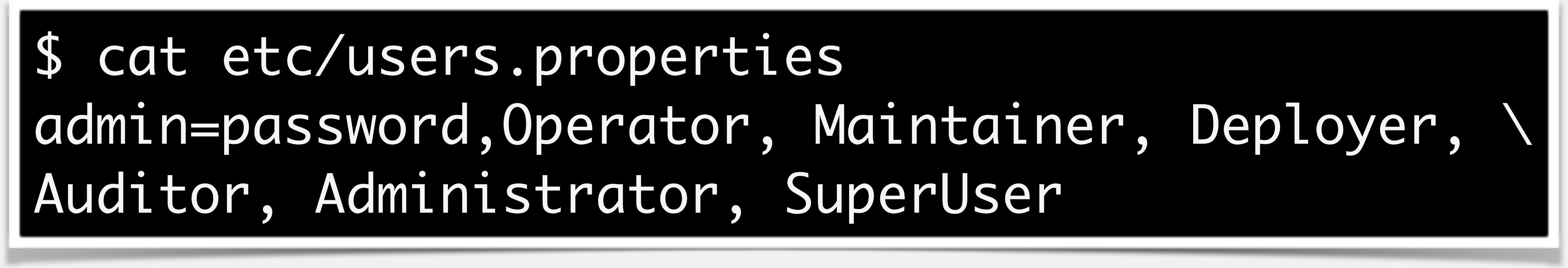


joe@service:jmx:rmi://localhost:44444/jndi/rmi://localhost:1099/karaf-root

Problem invoking purge : java.lang.SecurityException: Insufficient credentials

# Karaf RBAC: Roles

- `etc/user.properties` *- Maps roles to users:*

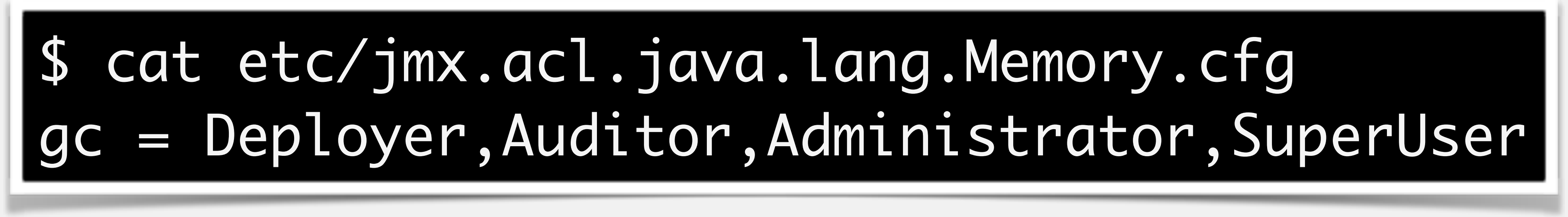


```
$ cat etc/users.properties
admin=password,Operator, Maintainer, Deployer, \
Auditor, Administrator, SuperUser
```

- *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.*

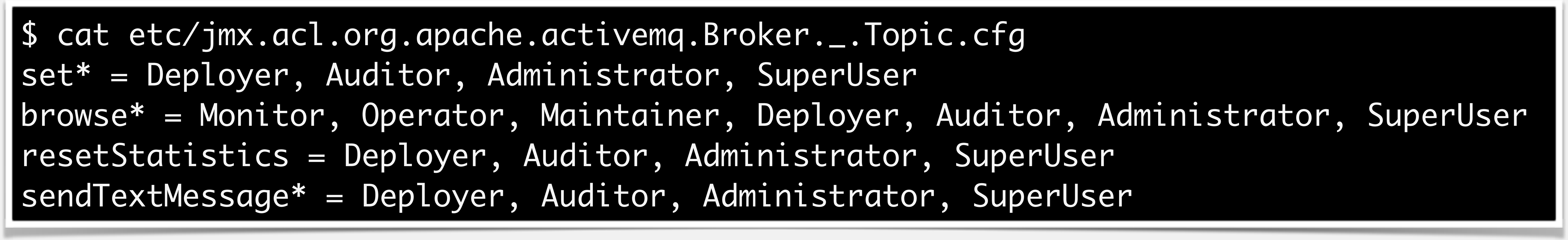
# Karaf RBAC: JMX Access Control

- *`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.*

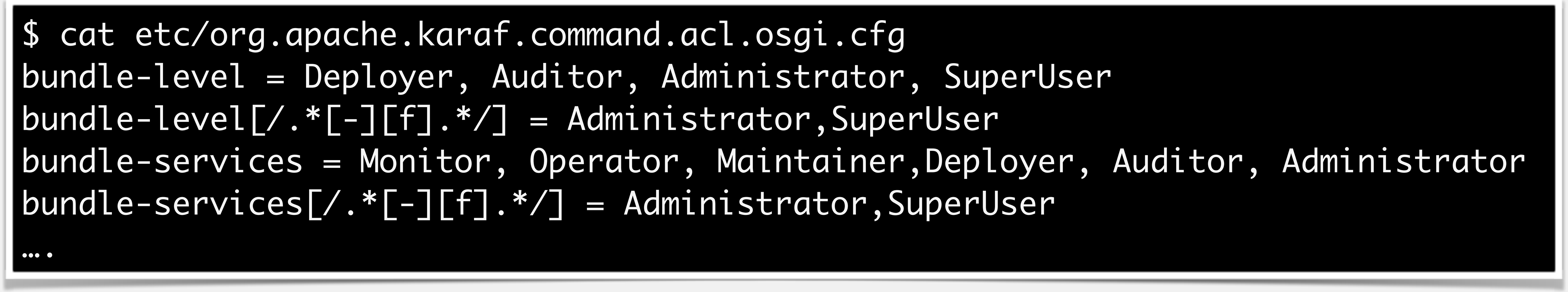


```
$ cat etc/jmx.acl.org.apache.activemq.Broker._.Topic.cfg
set* = Deployer, Auditor, Administrator, SuperUser
browse* = Monitor, Operator, Maintainer, Deployer, Auditor, Administrator, SuperUser
resetStatistics = Deployer, Auditor, Administrator, SuperUser
sendTextMessage* = Deployer, Auditor, Administrator,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

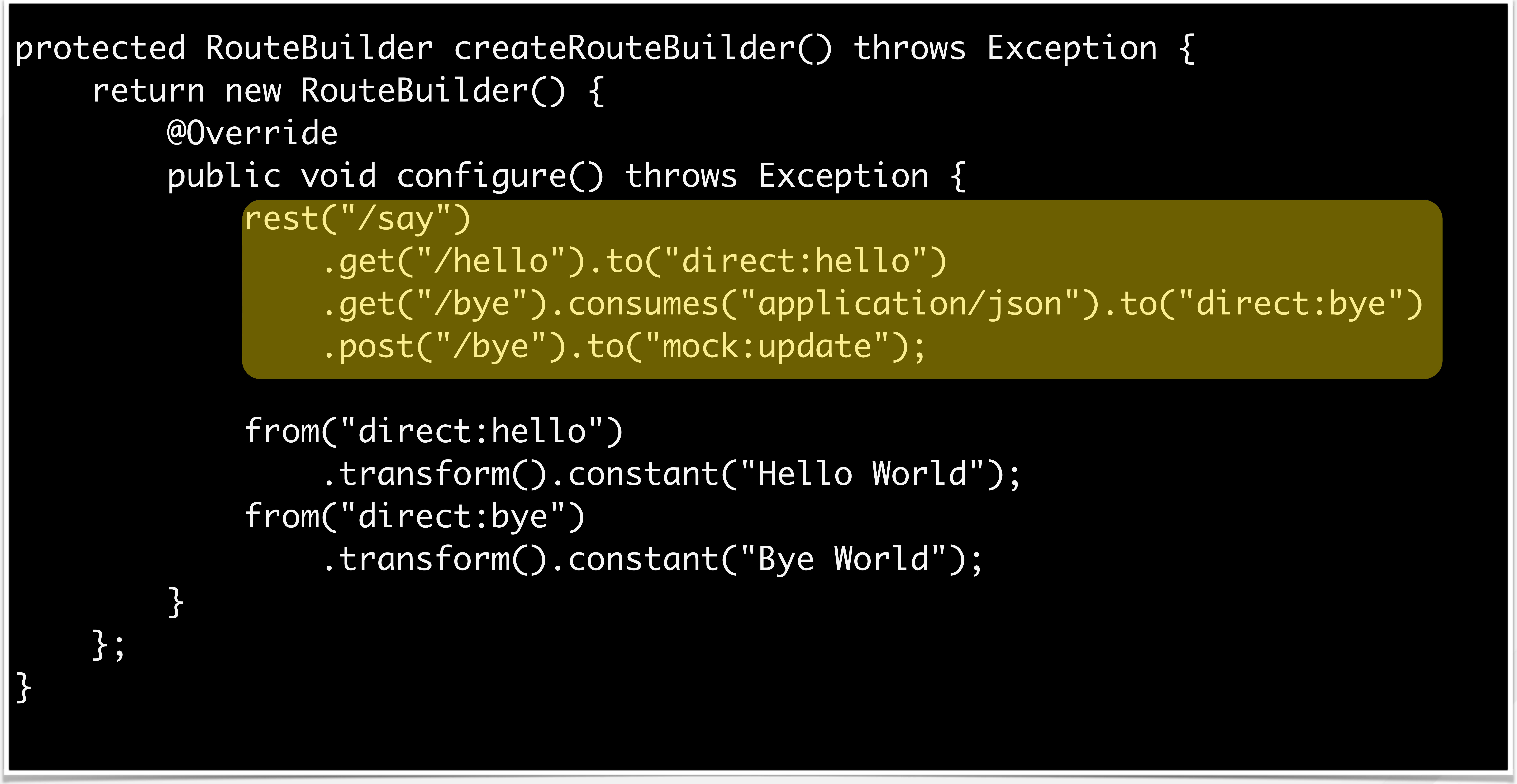
- *jdbc: install/manage DataSources*
- *jpa: hibernate*
- *cdi: weld*

# New Camel Components

- *camel-sap*
- *camel-salesforce*
- *camel-linkedin*
- *camel-ahc-ws*
- *camel-box*
- *camel-dropbox*
- *camel-metrics*
- *camel-netty4*
- *camel-olingo2*
- *camel-openshift*
- *camel-google-drive*
- *camel-schematron*
- *camel-rest*

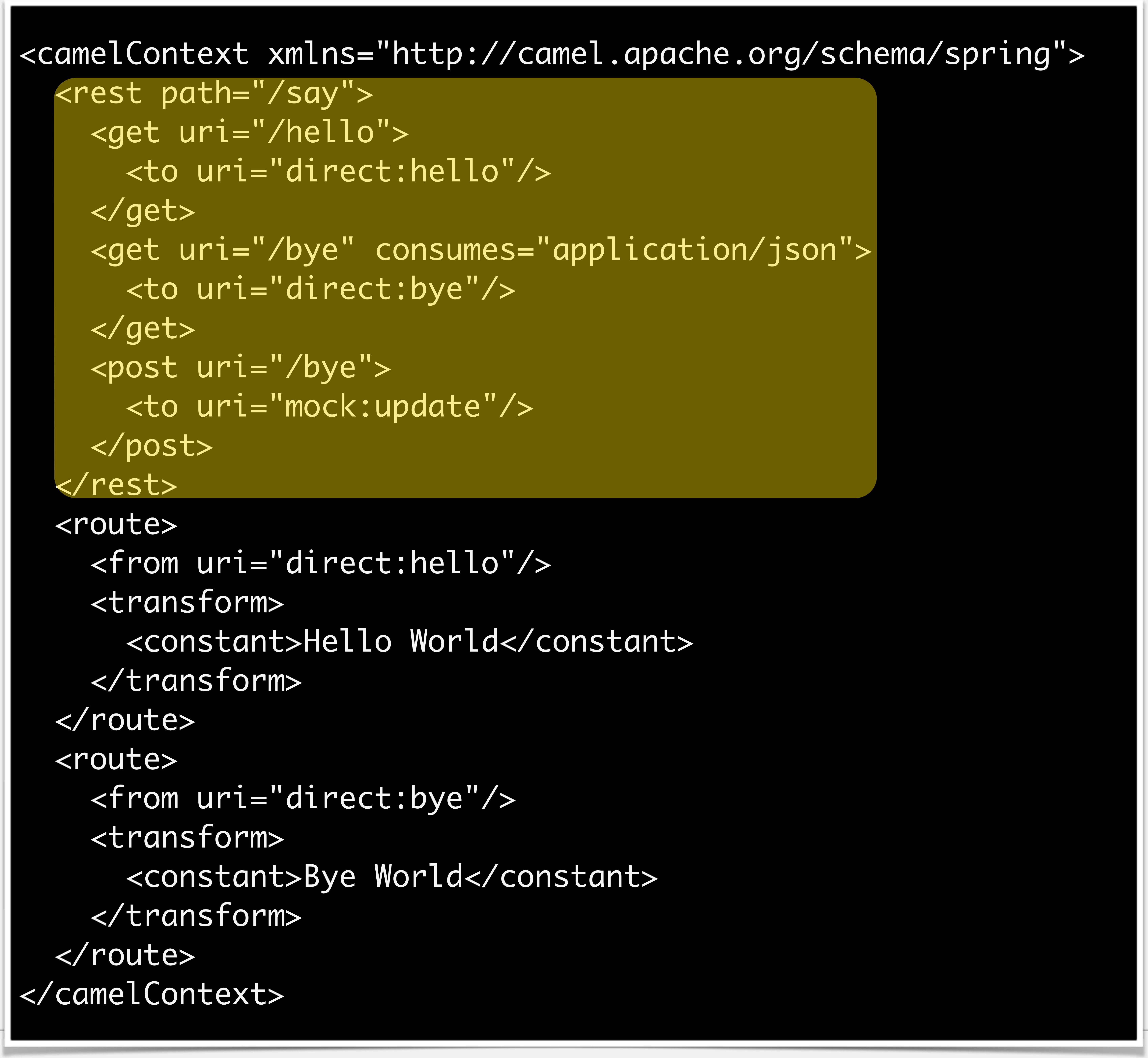
# New Camel Features

- *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

| Fuse | 6.1.0 | 6.2.0 |
|---|---|---|
| Karaf | 2.3.0 | 2.4.0 |
| Camel | 2.12.0 | 2.15.0 |
| ActiveMQ | 5.9.0 | 5.11.0 |
| CXF | 2.7.0 | 3.0.2 |
| Fabric8 | 1.0.0 | 1.2.0 |
| HawtIO | 1.2 | 1.5 |
| Switch Yard | N/A | 2.0 |

# Added Support For

*JVMs:*

- *Java 8*
- *HP-UX 11i HP JVM 1.7*

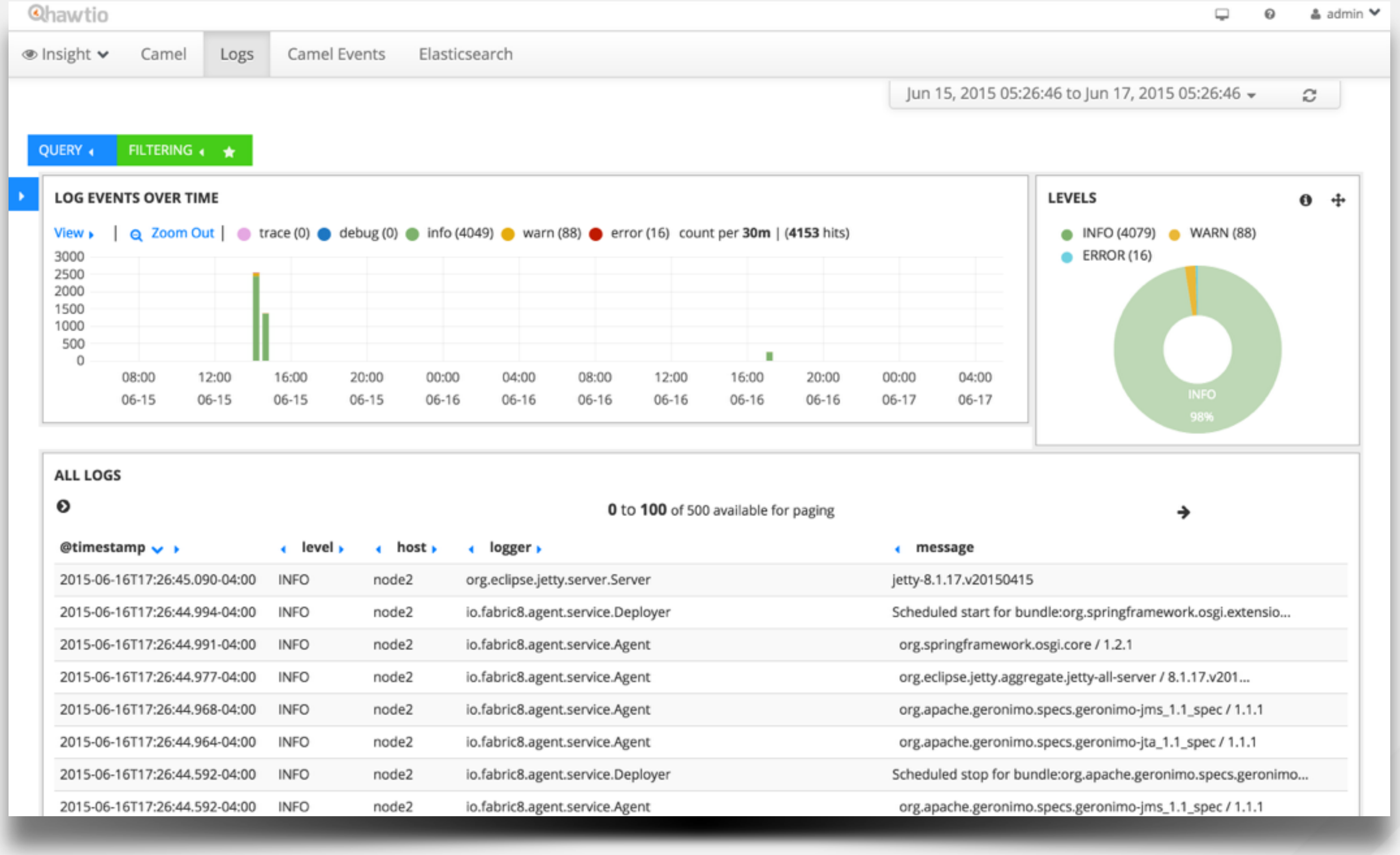
***Databases:***

- *Oracle 11g - Oracle JDBC Driver v11*
- *MySQL 5.1 - MySQL Connector / J5*
- *MySQL 5.5 - MySQL Connector / J5*
- *Microsoft SQL Server 2008 - MSSQL Server JDBC Driver 3*
- *PostgresSQL 8.4 - JDBC 4 Postgresql Driver,Version 8*
- *PostgresSQL 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*

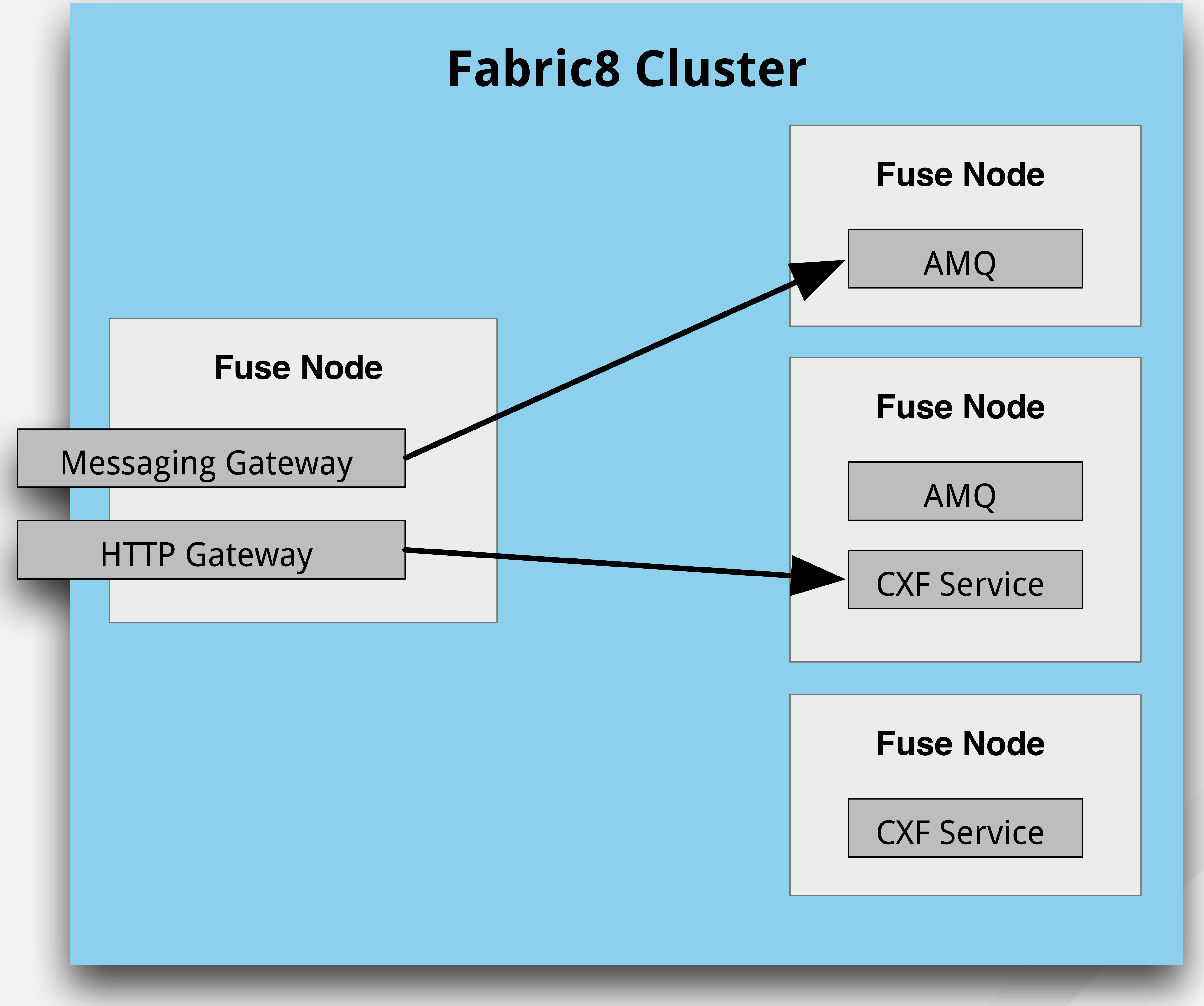


0 to 100 of 500 available for paging

| @timestamp | level | host | logger | message |
|---|---|---|---|---|
| 2015-06-16T17:26:45.090-04:00 | INFO | node2 | org.eclipse.jetty.server.Server | jetty-8.1.17.v20150415 |
| 2015-06-16T17:26:44.994-04:00 | INFO | node2 | io.fabric8.agent.service.Deployer | Scheduled start for bundle:org.springframework.osgi.extensio... |
| 2015-06-16T17:26:44.991-04:00 | INFO | node2 | io.fabric8.agent.service.Agent | org.springframework.osgi.core / 1.2.1 |
| 2015-06-16T17:26:44.977-04:00 | INFO | node2 | io.fabric8.agent.service.Agent | org.eclipse.jetty.aggregate.jetty-all-server / 8.1.17.v201... |
| 2015-06-16T17:26:44.968-04:00 | INFO | node2 | io.fabric8.agent.service.Agent | org.apache.geronimo.specs.geronimo-jms_1.1_spec / 1.1.1 |
| 2015-06-16T17:26:44.964-04:00 | INFO | node2 | io.fabric8.agent.service.Agent | org.apache.geronimo.specs.geronimo-jta_1.1_spec / 1.1.1 |
| 2015-06-16T17:26:44.592-04:00 | INFO | node2 | io.fabric8.agent.service.Deployer | Scheduled stop for bundle:org.apache.geronimo.specs.geronimo... |
| 2015-06-16T17:26:44.592-04:00 | INFO | node2 | io.fabric8.agent.service.Agent | org.apache.geronimo.specs.geronimo-jms_1.1_spec / 1.1.1 |

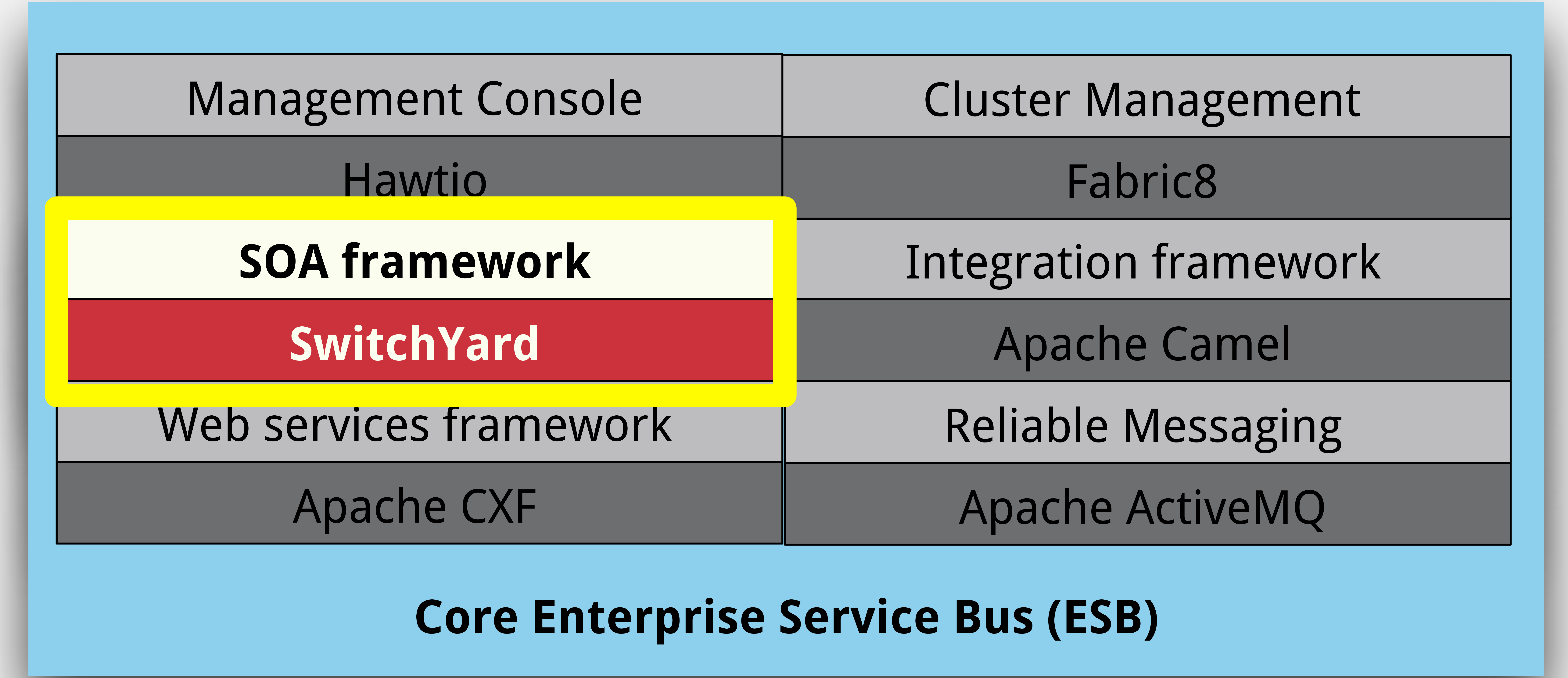
# Fabric8 Gateway

- *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)



Management Console

Hawtio

SOA framework

SwitchYard

Web services framework

Apache CXF

Cluster Management

Fabric8

Integration framework

Apache Camel

Reliable Messaging

Apache ActiveMQ

**Core Enterprise Service Bus (ESB)**

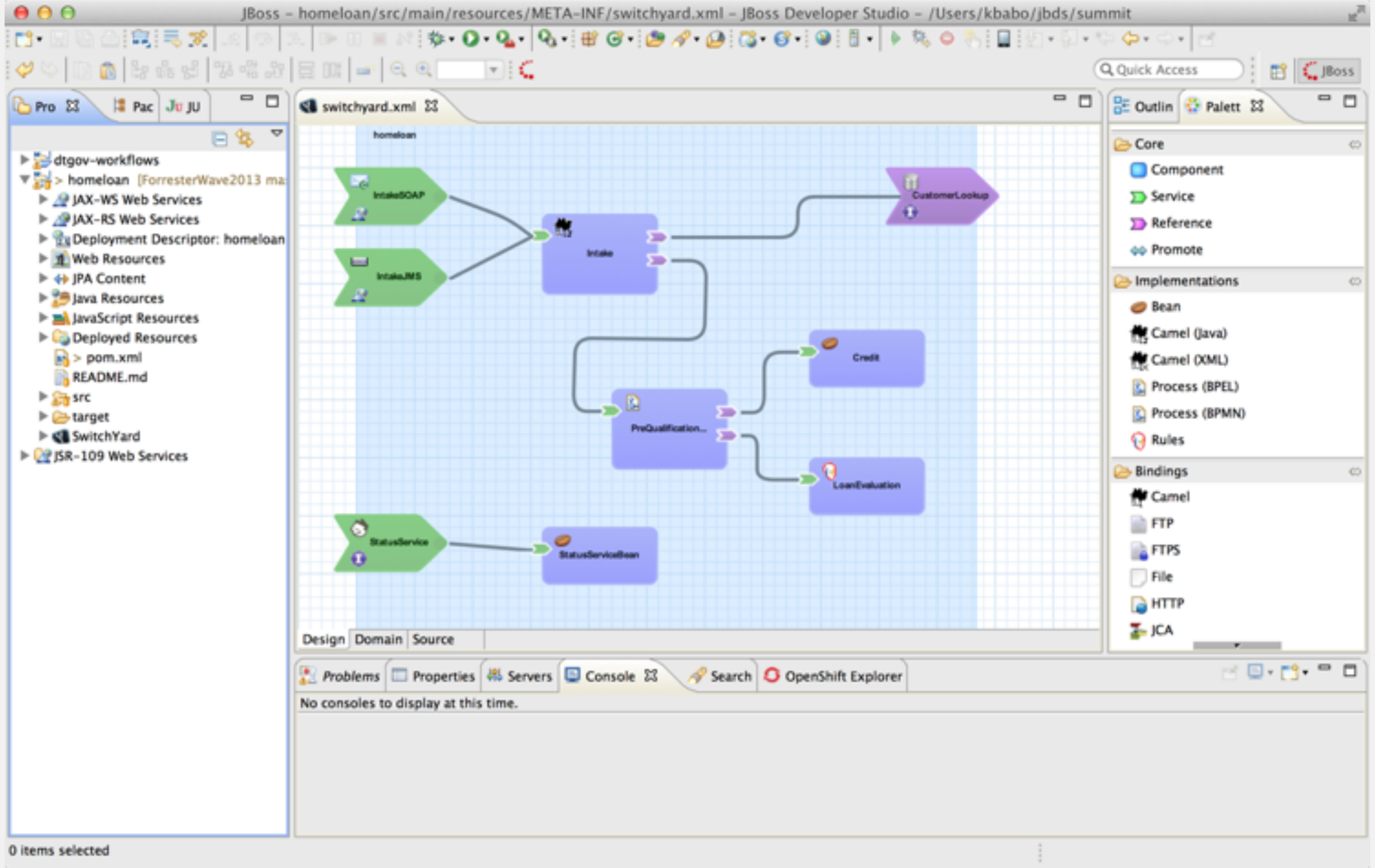
# SwitchYard

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



JBoss - homeloan/src/main/resources/META-INF/switchyard.xml - JBoss Developer Studio - /Users/kbabo/jbds/summit

No consoles to display at this time.

0 items selected

# SwitchYard 2.0

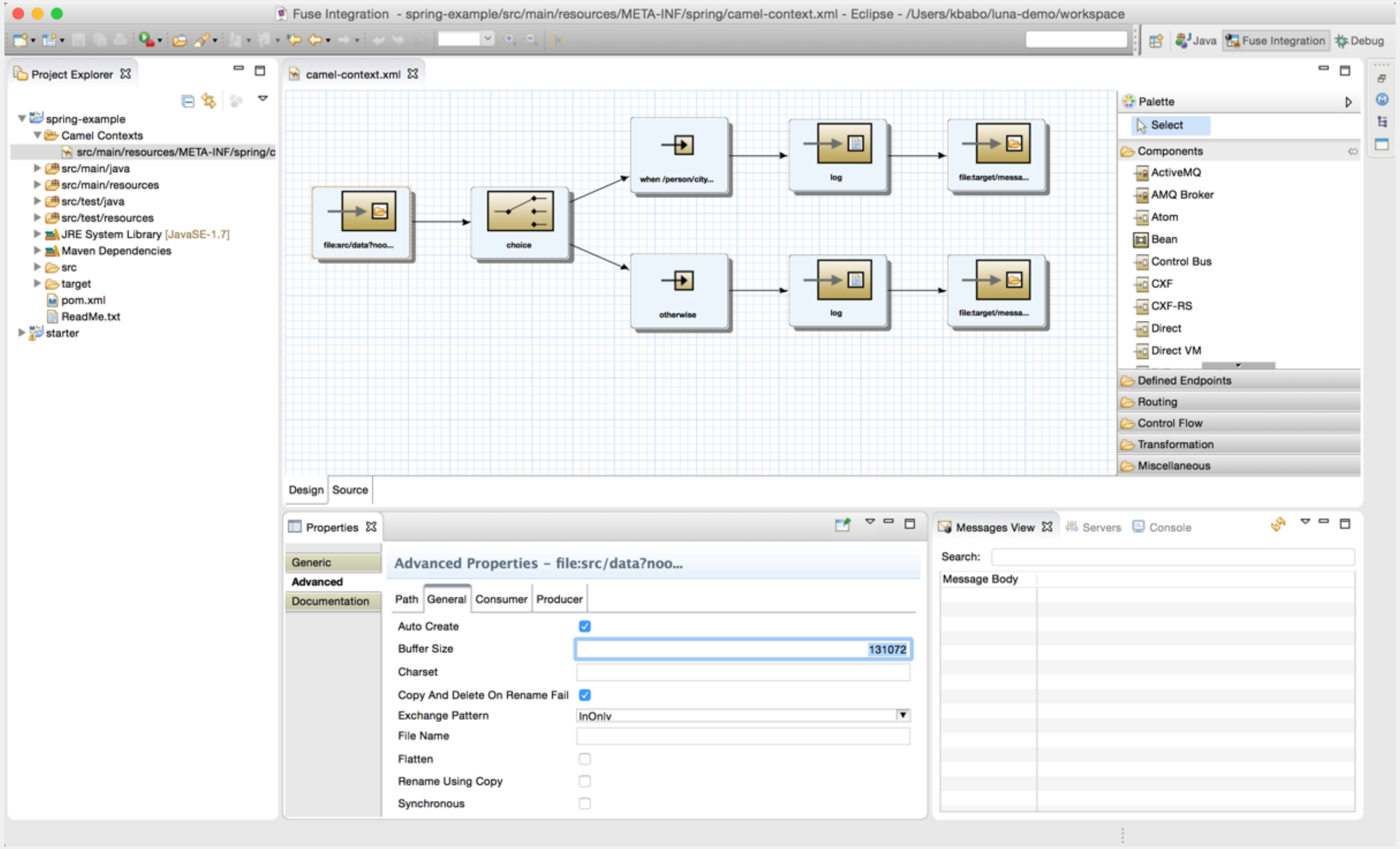
- *Karaf support*
  - *Runtime*
  - *Tooling*
- *Improved integration with Drools and jBPM*
  - *Maven resolution of KIE artifacts*
  - *BPM remote client*
- *Camel*
  - *Atom, RSS, SAP, HL7, Bindy, MQTT, XQuery, Dozer*
- *Debugger*

# 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!



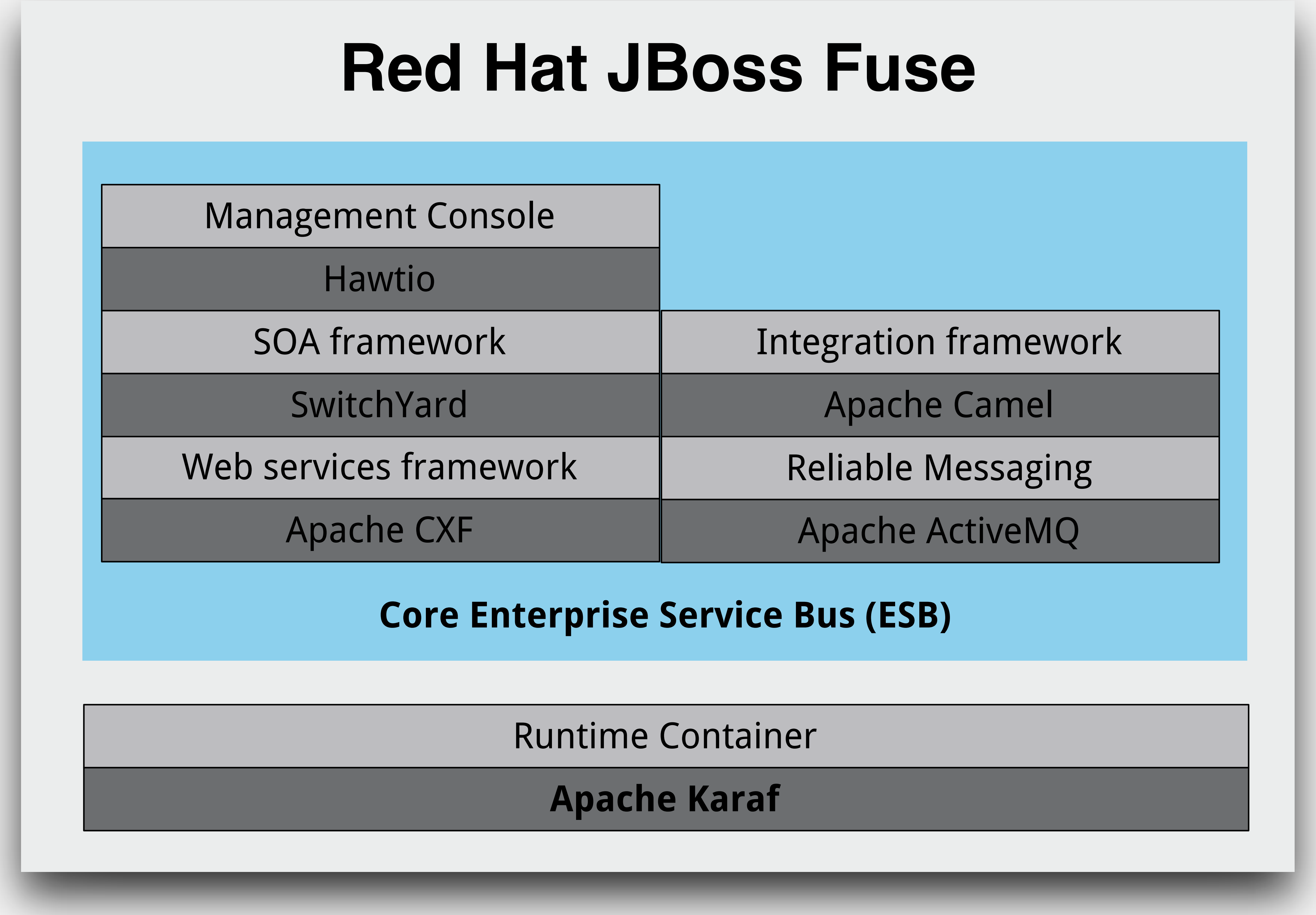
Fuse Integration - spring-example/src/main/resources/META-INF/spring/camel-context.xml - Eclipse - /Users/kbabo/luna-demo/workspace

Advanced Properties – file:src/data?noo...

| | |
|---|---|
| Auto Create | ☑ |
| Buffer Size | 131072 |
| Charset | |
| Copy And Delete On Rename Fail | ☑ |
| Exchange Pattern | InOnly |
| File Name | |
| Flatten | □ |
| Rename Using Copy | □ |
| Synchronous | □ |

# Where’s Fuse going post 6.2?

# Fuse for EAP 6.2.1



## Red Hat JBoss Fuse

Management Console

Hawtio

SOA framework

SwitchYard

Integration framework

Apache Camel

Web services framework

Apache CXF

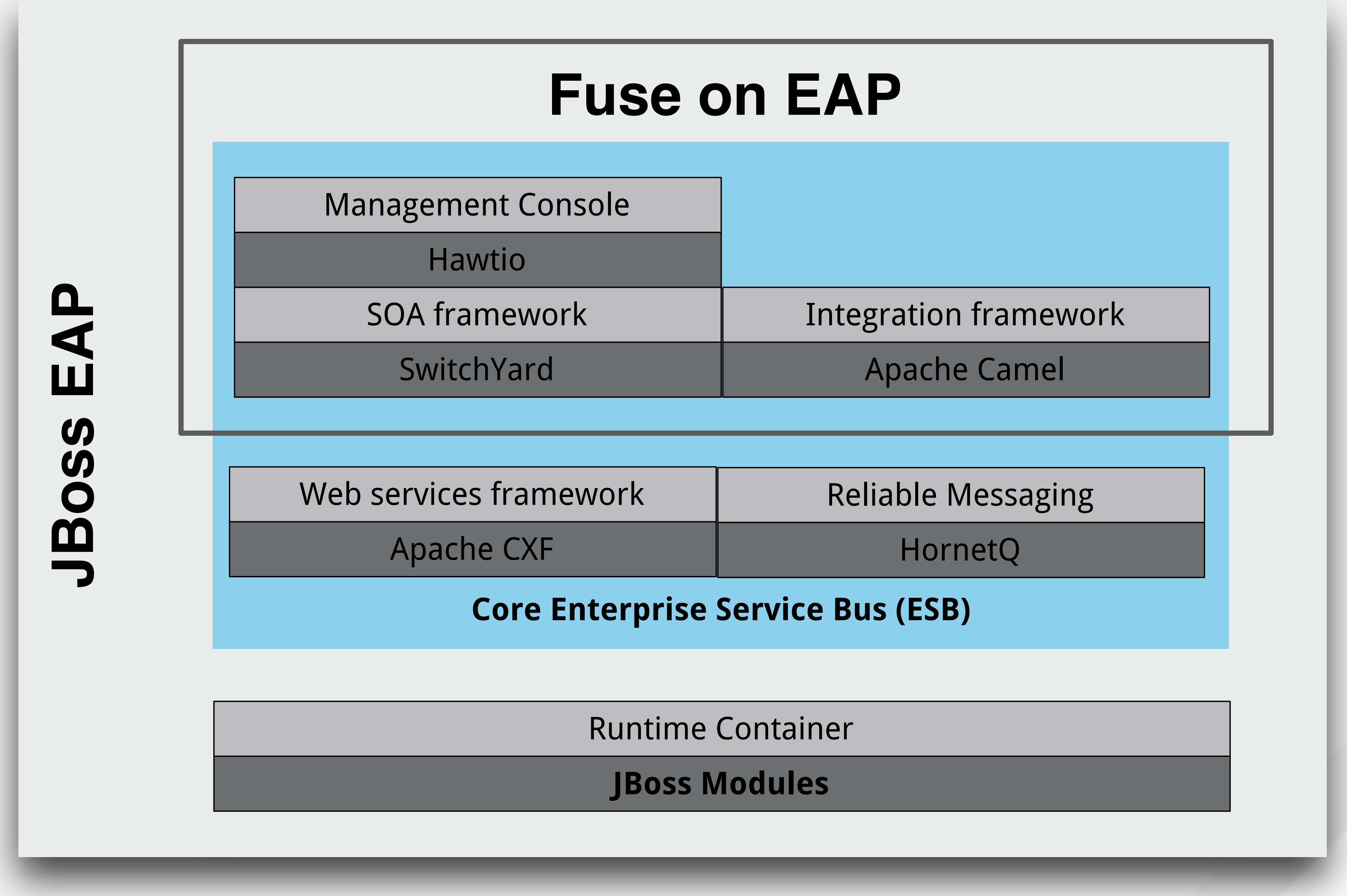
Reliable Messaging

Apache ActiveMQ

**Core Enterprise Service Bus (ESB)**

Runtime Container

**Apache Karaf**



**JBoss EAP**

## Fuse on EAP

Management Console

Hawtio

SOA framework

SwitchYard

Integration framework

Apache Camel

Web services framework

Apache CXF

Reliable Messaging

HornetQ

**Core Enterprise Service Bus (ESB)**

Runtime Container

**JBoss Modules**

# 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*

activemq
atom
bindy
castor
cdi
crypto
csv
cxf
dozer

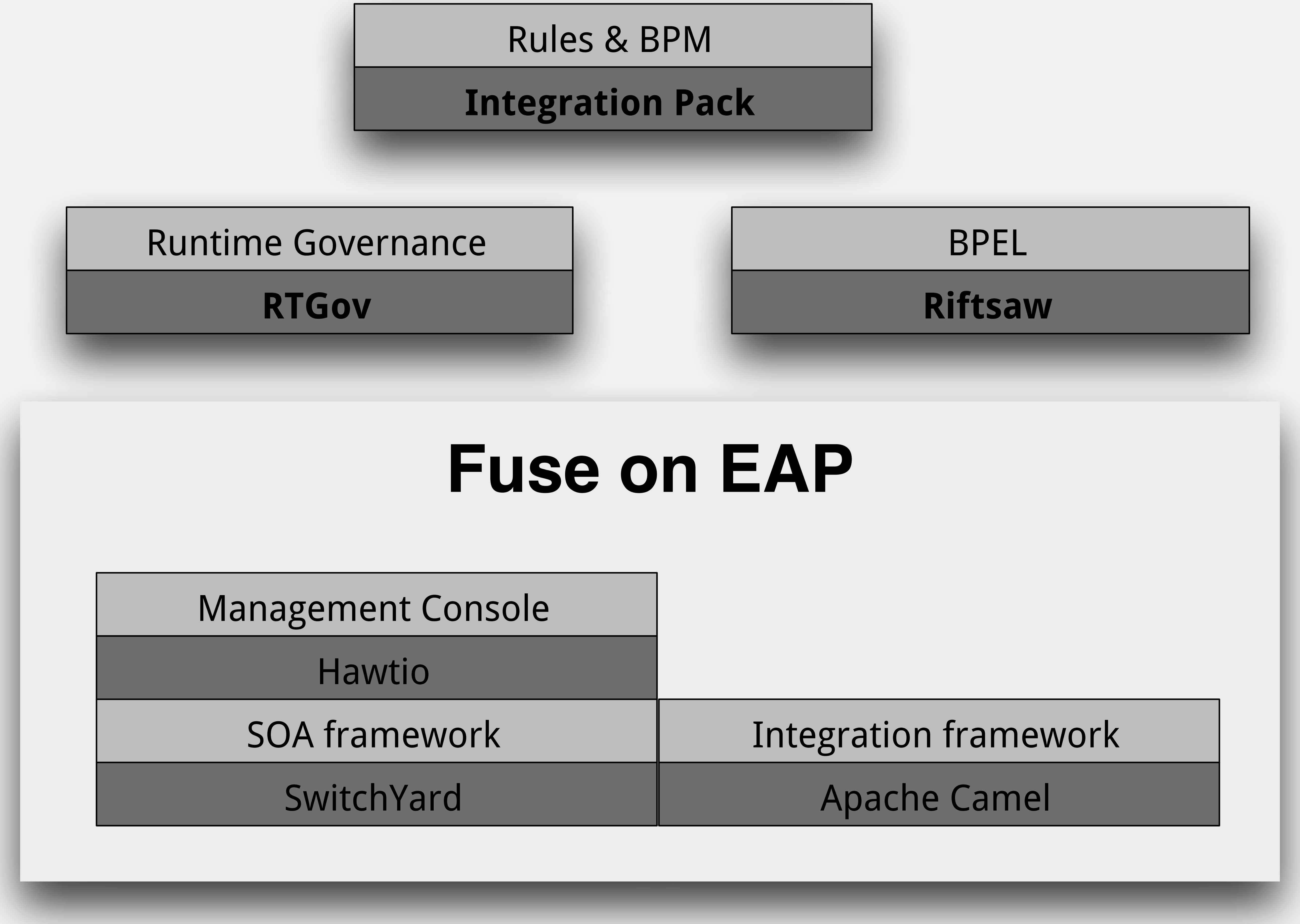
ejb
flatpack
ftp
hl7
http
http4
jackson
jaxb
jms

jmx
jpa
lucene
mail
mina2
mqtt
mvel
netty4
ognl

protobuf
quartz2
restlet
rss
salesforce
saxon
script
servlet
soap

sql
swagger
tagsoup
velocity
weather
xmlbeans
xmlsecurity
xstream
zipfile

# Fuse for EAP 6.2.1 Optional Packages



Rules & BPM

**Integration Pack**

Runtime Governance

**RTGov**

BPEL

**Riftsaw**

**Fuse on EAP**

Management Console

Hawtio

SOA framework

SwitchYard

Integration framework

Apache Camel

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