iPaaS & beyond: Red Hat's Integration Roadmap

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Overview of Red Hat Integration Products
TODAY'S IT LANDSCAPE: COMPLEXITY SPHAGHETTI

- Compliance
- Reports
- Trading partner portal
- Supply chain integration
- New Regulatory compliance portal
- Sales force automation
- Operations
- Website
- Financial reporting
- New SaaS and Cloud based Applications
- Customer service
- Sales forecasts and reports
- Business Scorecard & Dashboard
- Website
- Compliance reports
- Operations
- Website
- Customer service
- Sales forecasts and reports
- Business Scorecard & Dashboard
- Financial reporting
- New Regulatory compliance portal
- Supply chain integration
- Trading partner portal
- New SaaS and Cloud based Applications

Existing Applications:
- ERP
- Finance
- Inventory
- CRM
- Operations

Infrastructure:
- SQL Server
- Windows
- Oracle Solaris
- Oracle DB RHEL
- Cloud
- IBM
- DB2
- Z/OS
BUSINESS AND IT CHALLENGES

- Inconsistent Information
- Inefficient Processes
- Lack of Visibility and Control

NET RESULT: Lack of productivity, more errors & higher costs
SOLUTION: COMPREHENSIVE INTEGRATION PLATFORM

– that is –

Lightweight, cost effective, agile, lean

Apps & Data On-premise

[Images of Oracle and SAP logos]

Apps & Data In the Cloud

[Images of Facebook and Twitter logos]

Integrate Everything Everywhere

Mobile Clients, Devices & Sensors

[Images of mobile devices and sensors]
### JBoss MIDDLEWARE: LIGHTWEIGHT INTEGRATION

<table>
<thead>
<tr>
<th>ESB</th>
<th>RED HAT JBOSS FUSE</th>
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</thead>
<tbody>
<tr>
<td>Transformations</td>
<td>RED HAT JBOSS FUSE</td>
</tr>
<tr>
<td>Media routing</td>
<td>FOR xPaaS</td>
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<tr>
<td>Integration services</td>
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</tbody>
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<table>
<thead>
<tr>
<th>MESSAGING</th>
<th>RED HAT JBOSS A-MQ</th>
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<tbody>
<tr>
<td>Message between legacy silos</td>
<td>RED HAT JBOSS A-MQ</td>
</tr>
<tr>
<td>Real-time notifications</td>
<td>FOR xPaaS</td>
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<table>
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<tr>
<th>DATA VIRTUALIZATION</th>
<th>RED HAT JBOSS DATA VIRTUALIZATION</th>
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<tbody>
<tr>
<td>Connect Sources,</td>
<td></td>
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<tr>
<td>Compose Data,</td>
<td></td>
</tr>
<tr>
<td>Consume</td>
<td></td>
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</tbody>
</table>
WHY JBoss INTEGRATION SOLUTION?

Simple pricing model
Great customer service

Apache Camel

Faster time to solution
Simplicity, lightweight enterprise integration patterns

No vendor lock-in
Open, extensible, standards-based

Buy only what you need

Cloud ready and virtualization friendly
ENTERPRISE INTEGRATION PATTERNS (EIP's) & APACHE CAMEL

- Commonly used integration patterns to design, develop, accelerate and simplify integration solution development

- Apache Camel – most popular EIP implementation

- De-facto standard to build flexible and lightweight integrations

- Large, vibrant and growing ecosystem
Red Hat JBoss Fuse
What's new in JBoss Fuse 6.2

- Additional Connectivity
  - More than a dozen new connectors in Apache Camel
  - SAP iDocs support added
- Developer Experience Improvements
  - Improvements in the design pallet
  - Visual Debugging in JBDIS
  - Visual Data Mapper
  - Rest DSL
- Better integration with other JBoss Middleware
  - BRMS
  - EAP
  - Switchyard
- Support for Java 8
JBoss Fuse 6.2 Open Source Components

- Apache Camel 2.15.1
- Apache CXF 3.0.1
- JBoss A-MQ 6.2 (based on Apache ActiveMQ 5.11.2)
- Apache Karaf 2.4
- Fuse Fabric 1.2
## Connectivity – connect API's and unlock information

<table>
<thead>
<tr>
<th>Service</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Box</td>
<td>Provides access to all box.com APIs accessible using box-java-sdk-v2</td>
</tr>
<tr>
<td>Dropbox</td>
<td>Treats Dropbox remotes folders as a producer or consumer of messages</td>
</tr>
<tr>
<td>Google Drive</td>
<td>Provides access to the Google Drive file storage service via Google Drive Web APIs</td>
</tr>
<tr>
<td>Salesforce</td>
<td>Supports producer and consumer endpoints to communicate with Salesforce</td>
</tr>
<tr>
<td>Apache Olingo</td>
<td>Utilizes Apache Olingo version 2 APIs to interact with Odata 2.0 and 3.0 compliant services</td>
</tr>
<tr>
<td>Aysync HTTP Webscoket Client</td>
<td>A websocket based endpoint for communicating with external servers over websockets</td>
</tr>
<tr>
<td>Atmosphere Library</td>
<td>Uses the atmosphere library to support the websocket transport in various servlet containers</td>
</tr>
<tr>
<td>Apache Gora Framework</td>
<td>Work with NoSQL databases using the Apache Gora Framework</td>
</tr>
<tr>
<td>Apache Spark REST java library</td>
<td>Uses the Spark REST java library</td>
</tr>
<tr>
<td>Camel Route</td>
<td>Collects various metrics directly from Camel route</td>
</tr>
<tr>
<td>Apache Netty</td>
<td>Stramlines network programming over TCP and UDP</td>
</tr>
<tr>
<td>Apache OpenShift</td>
<td>Manage OpenShift applications</td>
</tr>
<tr>
<td>Google Mail Web API's</td>
<td>Provides access to Gmail via the Google Mail Web API's</td>
</tr>
<tr>
<td>OpenShift</td>
<td>Manage OpenShift applications</td>
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Apache Camel-Kura for IoT

- Kura is an OSGi based M2M gateway framework dedicated for small devices
- camel-kura provides camel integration between the gateway and enterprise services
Create and share API's - Rest DSL

Expose restful endpoint with parameter

Expose restful endpoint

<rest path="/customers/">
  <get uri="/\{id\}/orders"/>
  <to uri="direct:customerOrders"/>
  </get>
  <post uri="/neworder"/>
  <to uri="direct:customerNewOrder"/>
  </post>
</rest>
Tooling improvements for better usability

New Built-in Camel components
Easy drag and drop

Consumer/Producer
Provides consumer and producer configuration

Built-in Properties
Help on configuration settings.
Debugging & Tracing for more productive platform

- Displays the stack frame for the suspended threads for each target you are debugging.
- Lists all the breakpoints you currently have set in your workspace.
- Display camel outlines.
- Entire Camel route diagram and show what current step is.
- Log
- Header and body of Camel message
Visual Data Mapper

Mapping between Java, XML, JSON and open for customization

Dragging fields from the source model to the target model

Generate Java base from XML and JSON schema and instance

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JBoss Middleware Interoperability

- JBoss Integration Pack
  - BRMS on Karaf
  - SwitchYard on Karaf (tech – preview)
  - Fuse (camel) on EAP (tech – preview)
Future Releases

- JBoss Fuse 6.2.1
  - Brings Fuse on EAP and Switchyard to fully supported
  - Data Mapper tooling is fully supported
  - Customer bug fixes

- JBoss Fuse 7.0
  - Integrate with Fabric8 v2
  - JBoss A-MQ 7
JBoss Fuse Product Timeline

- 6.2
- 6.2.1
- 7.0 Beta

- Fuse on EAP and Switchyard on Karf become fully supported
- Data Mapper becomes fully supported
- Fabric8 v 2
- A-MQ 7.0
What's New in JBoss A-MQ 6.2?

- AMQP 1.0 Reactive API Clients
  - Python (wrappers around proton-C)
  - .Net (based on amqp.net Lite)
  - JMS (based on proton-J)

- AMQP C++ Client (MRG Messaging)

- Role-based Access Control
JBoss A-MQ 6.2 Open Source Components

- Apache ActiveMQ 5.11.2
- Apache Camel 2.15.1
Red Hat Messaging: future direction

- Continue to consolidate to a single messaging product – JBoss A-MQ, consisting of three components
  - A-MQ Clients
    - Ubiquitous access for common platforms and programming languages
  - A-MQ Broker
    - Full-featured, high performance enterprise message broker
    - Full featured, HA through replication and failover
  - A-MQ Interconnect
    - Large-scale, secure, reliable, and management message networks
JBoss A-MQ Clients

- Client release cycle not linked to broker release cycle

- Current
  - AMQP 1.0 clients for JMS, Python, and .Net (based on proton-j and proton-c)
  - MRG 3.2 AMQP 1.0 C++ Client

- Under development
  - AMQP Client C++ based on proton-c
  - Node.js

- Future
  - Ruby, perl, MQTT, COAP
Red Hat JBoss Fuse on OpenShift – private iPaaS
Private iPaaS announced in November 2014

Red Hat JBoss Fuse for xPaaS & Red Hat JBoss A-MQ for xPaaS
- Integration and messaging services in the cloud
- Based on the foundation of award winning OpenShift Enterprise
Red Hat JBoss Data Virtualization
Data Control Challenges Getting Bigger with Big Data, Cloud and Mobile

- Security capabilities are tightly coupled to data sources
- Extracting and moving data adds risk
- Every project solves data access in a different way
- Inconsistent and decentralized control of data

BI Reports  Operational Reports  Enterprise Applications  SOA Applications  Mobile Applications

Different security capabilities for each Data source

Hadoop  NoSQL  Cloud Apps  Data Warehouse And Databases  Mainframe  XML, CSV & Excel Files  Enterprise Apps

Constant Change
How to align?
Siloed & Complex

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Desired State

Data as a Service

- Standards based interface
- Single view of disparate source data
- Single point of access/integration
- Re-use of data

But you cannot achieve this by writing more application code...

Data Sources Siloed & Complex

- Hadoop
- NoSQL
- Cloud Apps
- Data Warehouse And Databases
- Mainframe
- XML, CSV & Excel Files
- Enterprise Apps
Data Supply and Data Integration Solution

Data virtualization sits in front of multiple different data sources and
✔ Allows them to be treated as a single source
✔ Delivers the desired data
✔ In the required form
✔ At the right time
✔ To any application and/or user

Think Virtual Machine for Data
Fit for purpose tooling

Business Dashboard
Quickly visualize your data

Data Virtualization Designer
Model Driven Development

Lightweight WebUI with data services library (Dev Preview)
### JBoss Data Virtualization

#### Key Business Values

<table>
<thead>
<tr>
<th>Area</th>
<th>Benefits</th>
</tr>
</thead>
</table>
| **Increase ROA**            | • Improved utilization of data assets  
                              • Derive more value from existing investments  
                              • Complements existing systems |
| **Boost Agility**           | • Faster, less costly than batch data movement  
                              • Data virtualization provides loose coupling |
| **Improve Productivity**    | • Better/faster than hand coding  
                              • Right data at the right time to the right people  
                              • Decision support, BI with a complete view of information |
| **Better Information Control** | • Powerful security, Auditing, Data Firewall  
                              • Avoid data silo proliferation  
                              • Central data access and policy, Compliance |
6.1 (Released: Mar/CY15)
- MongoDB, Solr, Cloudera Impala, Cassandra (TP)
- Audit log dashboard
- EAP 6.3, JDG 6.4 support, Java 8
- RHEL 7, Azul JVM
- Easier custom translator creation
- Web UI - Developer preview

6.2 (Target Aug/CY15)
- EAP 6.4 support
- Enhanced Kerberos support
- Key RFEs

6.3 and beyond
- Cassandra, SAP HANA, HBase, Accumulo, SaaS
- OpenShift v3 support
- Lightweight WebUI
- OData v4 with Olingo
- Embeddable runtime
## What’s new in JDV 6.1

<table>
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<th><strong>Cloud</strong></th>
<th><strong>Deployment and Development Productivity</strong></th>
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<td>• Full connectivity support for:</td>
<td>• Dev Preview on OpenShift with new WebUI</td>
<td>• Security audit log dashboard</td>
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<tr>
<td>• MongoDB</td>
<td>• Amazon EC2</td>
<td>• Simplified custom translator</td>
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<tr>
<td>• Cloudera Impala</td>
<td>• Google Compute Engine</td>
<td>• EAP 6.3</td>
</tr>
<tr>
<td>• Apache Solr</td>
<td>• SFDC Bulk API</td>
<td>• Java 8</td>
</tr>
<tr>
<td>• JDG read/write</td>
<td></td>
<td>• RHEL 7 support</td>
</tr>
<tr>
<td>• Tech Preview</td>
<td></td>
<td>• MariaDB</td>
</tr>
<tr>
<td>• Cassandra</td>
<td></td>
<td>• Azul JVM support</td>
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<tr>
<td></td>
<td></td>
<td>• Fuse OData Connector</td>
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- Tech Preview
- Cassandra

- MariaDB
- Cloudera
- MongoDB
- Cassandra
- OpenShift
- SFDC Bulk API
- Amazon EC2
- Google Compute Engine
- Red Hat JBoss Fuse
JDV 6.2 –September
Quick release to primarily support EAP 6.4

• EAP 6.4
• Teiid Designer usability improvements
• Kerberos Passthrough for Oracle and MS SQL
• Technical preview:
  – SAP HANA
  – HBase
  – Informix
Under consideration for JDV 6.3

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<td>Apache HBase</td>
<td>Autoscaling</td>
<td>Embeddable runtime</td>
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<tr>
<td>Apache Spark</td>
<td>FeedHenry node.js integration</td>
<td>IBM Informix</td>
</tr>
<tr>
<td>Accumulo</td>
<td>Amazon RDS</td>
<td>Oracle Coherence</td>
</tr>
<tr>
<td>HP Vertica</td>
<td>Amazon RedShift</td>
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<tr>
<td>Tableau</td>
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<tr>
<td>Solr as a consumer</td>
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Red Hat JBoss Fuse Service Works
FSW strategy overview

• Consolidate Fuse and Fuse Service Works into single product offering
• Product/technical changes:
  1. Consistent integration functionality across runtime containers
  2. Cleanly separate products
  3. Update/rework Governance technologies
• Support lifecycle extension
FSW transition strategy - detail

- **Support lifecycle extension**
  - Fuse 6.x support lifecycle extended to align with published FSW lifecycle.
  - **Existing** Fuse 6 and A-MQ 6 Support Lifecycle
    - Maintenance: Apr 2016 – Mar 2018
    - Extended Lifecycle Support: N/A
  - **New, extended** Fuse 6 and A-MQ 6 Support Lifecycle
    - Full Support: Apr 2013 – Jan 2017
    - Extended Lifecycle Support: Feb 2019 - Jan 2022
iPaaS and beyond
Integration Platform as a Service (iPaaS) is a suite of cloud services enabling development, execution and governance of integration flows connecting any combination of on premises and cloud-based processes, services, applications and data within individual or across multiple organizations.

- Gartner
Integration Platform as a Service (iPaaS) is a suite of cloud services enabling development, execution and governance of integration flows connecting any combination of on premises and cloud-based processes, services, applications and data within individual or across multiple organizations.

- Gartner
iPaaS Touchpoints

Develop ➔ Deploy ➔ Manage

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Develop

Core Integration Technology

Works *In* vs. Works *With*

On-Premise / Off-Premise Fidelity
Deploy

Containers

Provisioning

Continuous Integration / Delivery
Manage

Operational Visibility

Monitoring

Dynamic Scaling

APIs
LEARN. NETWORK. EXPERIENCE OPEN SOURCE.