

RED HAT JBOSS FUSE COMPARED WITH MULE ESB ENTERPRISE

COMPETITIVE OVERVIEW MARCH 2013

INTRODUCTION

The ability to integrate systems and share data across the enterprise is a common datacenter need. The needs of an integration bus, the technology used for middleware-based integration, can vary in complexity, data volume, and required performance. Both Red Hat and MuleSoft offer multiple products that can help customers develop and deploy middleware integration solutions. This competitive overview compares Red Hat® JBoss® Fuse to Mule ESB Enterprise.¹

Red Hat has been awarded the accolades of publications such as Forbes, which, in September 2012, ranked Red Hat No. 4 on its list of the world's most innovative companies.

<http://www.redhat.com/innovation/>

THE RIGHT TECHNOLOGY FOR THE RIGHT JOB

The requirements of middleware integration solutions often vary greatly and can influence the technology used for implementation. Some solutions demand centralized, large-scale service oriented architectures (SOA) that integrate systems using reliable high-performance networks. Others require the ability to handle smaller data loads economically and efficiently using distributed deployments with more enterprise application integration (EAI) than SOA integration patterns.

Often these integration solutions have less complex architectures; and the availability of reliable networking is not always a given. For example, remote offices or retail locations may need local processing of a small but important data set. In another scenario, a company may have several department-level applications of low to medium data value that need to be integrated with a larger corporate integration backbone. In both cases, the ability to leverage a capable integration bus with low economic overhead is important. Without an affordable integration bus, the solution's return on investment (ROI) may be diminished.

Red Hat JBoss Fuse is a middleware platform that targets these types of integration solutions. It is a technically capable platform with an associated subscription price point that is amenable to the economic constraints of many integration projects.

MuleSoft offers multiple integration bus products that customers can select from. Two are for on-premise use – Mule ESB Community¹ and Mule ESB Enterprise. Only Mule ESB Enterprise is supported by MuleSoft. It offers significantly more on-premise functionality than Mule ESB Community², arguably making it the one-size-fits-all on-premise solution from MuleSoft.³

OPEN SOURCE LICENSING

Red Hat JBoss Fuse and MuleSoft Mule ESB Enterprise have open source licensing terms associated with subscriptions. Red Hat's middleware platforms are licensed under the terms of the GNU General Public License and GNU Lesser General Public License with the acquired FuseSource products covered under the Apache Software License (ASL). Each of these licenses can be found in use by other open source projects outside of the Red Hat portfolio. Mule ESB licensing varies depending on if you are using the community or enterprise edition. Mule ESB Community is licensed under the Common Public Attribution License (CPAL) while Mule ESB Enterprise is licensed via a proprietary MuleSoft license.⁴



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¹ Mule ESB Enterprise web page - <http://www.mulesoft.com/mule-esb-enterprise>

² Mule ESB Community web page - <http://www.mulesoft.org/>

³ Mule ESB feature comparison - <http://www.mulesoft.com/mule-esb-enterprise>

RED HAT PRICE ADVANTAGE

Red Hat JBoss Fuse holds a price advantage over Mule ESB Enterprise. A Red Hat subscription for 16 cores of Red Hat JBoss Fuse, which includes premium support with management, has an annual list price of \$32,400 USD. Mule ESB Enterprise is available from MuleSoft with a paid subscription. According to Gartner⁵ and PCWorld⁶, the annual list price for the Mule Enterprise suite of products is approximately \$6,000 USD per core with silver-level⁷ support. (MuleSoft does not make its pricing information public, so these third-party sources were used.)

Therefore, as shown in Table A, a 16-core annual subscription for the Mule ESB Enterprise costs approximately \$96,000 annually or nearly double a Red Hat JBoss Fuse annual subscription for the same number of cores.⁸

TABLE A

2-year MuleSoft calculations using 16 cores

| | Cores | Annual Subscription per-Core | Total |
|---|-------|------------------------------|-----------------------|
| Annual Mule ESB Enterprise subscription with silver level support | 16 | \$6,000 | \$96,000 |
| | | | Annual Total \$96,000 |
| 2-Year total MuleSoft cost \$192,000 | | | |

Note that MuleSoft prices are estimates based on 3rd-party sources

2-year Red Hat JBoss Fuse calculations

2-year Red Hat JBoss Fuse subscription costs

| | Red Hat JBoss Fuse, 16 Core Premium, Managed | Red Hat JBoss Fuse, 64 Core Premium, Managed |
|--------------------------------------|--|--|
| Annual Subscription | \$32,400 | \$121,500 |
| 2-year subscription | \$64,800 | \$243,000 |
| Savings versus MuleSoft (USD) | \$127,200 | \$525,000 |

Further, with a Red Hat premium subscription, you get superior support service levels compared to a MuleSoft silver subscription. For example, MuleSoft silver-level support limits the number of support incidents based on the number of cores you subscribe to. With a Red Hat premium subscription, you get unlimited support cases and 24x7 coverage is provided for Red Hat severity 1 and 2 support cases. A MuleSoft silver subscription support level provides you with only 8x5 support. Read more about Red Hat support, including its many benefits beyond issue resolution at <https://access.redhat.com/support/offerings/production>.

⁴ MuleSoft Products and Licensing - <http://www.MuleSoft.org/MuleSoft-products-and-licensing>

⁵ Gartner report G00233004, "Magic Quadrant for Application Infrastructure for Systematic application integration projects", June 20, 2012 - <http://www.gartner.com/id=2056219>

⁶ "Mule Update Is Data Friendly", Jun 26, 2012 - http://www.pcworld.com/article/258317/mule_update_is_data_friendly.html

⁷ Mulesoft subscription tiers - <http://www.mulesoft.com/mule-esb-subscription>

⁸ Mulesoft calculation is 1.93 times more and round to 3 times

“Based on the results of this study, it is our belief that JBoss Enterprise Middleware subscription services from Red Hat should be seen as a strategic lever to increase benefits and decrease costs.

VELOCITI PARTNERS, INC.

FINANCIAL STRENGTH

Both Red Hat JBoss Fuse and Mule ESB are open source enterprise service buses that have been used in deployment for several years. Mule ESB is offered by MuleSoft, a privately held company financed by venture capital since July 2006.⁹ MuleSoft does not disclose revenue but InsideView estimates it at \$5M USD annually generated from 130 employees.¹⁰ By comparison, Red Hat is a publicly traded company¹¹ with over 4,500 worldwide employees, fiscal 2012 revenue that exceeded the billion-dollar mark, and is the world’s leading open source and Linux provider.¹²

Clearly, there is a disparity between Red Hat and MuleSoft in company size and financial strength.

QUALITY OF SUPPORT

In October 2012, Velociti Partners released a report commissioned by Red Hat titled “JBoss Enterprise Middleware, by Red Hat: Proven Technical Support Services Leader”¹³. This report includes data from more than 360 randomly selected Red Hat support users, which further validates Red Hat’s superior technical support services compared to its major competitors.

MuleSoft offers support for the Mule ESB Enterprise but not the Mule ESB community offering. MuleSoft offers three different subscription tiers for support but does not make pricing for each tier public.¹⁴ In addition, MuleSoft does not release how many of the estimated 130 employees are dedicated to support activities.

GET MORE FOR YOUR SUPPORT DOLLAR

With Red Hat JBoss Middleware, your support relationship extends to all stages of the technology lifecycle. We encourage you to contact us – but not just when there’s a problem. The Red Hat and customer relationship is a truly collaborative and consultative one. Typical support technicians have 8-10 years of technical experience and can understand and patch code. In addition, Red Hat employees who have contributed to the development of the various middleware components, on the enterprise team and in the community, are on call to answer questions in depth.¹⁵ You can contact Red Hat to leverage our expertise during all phases of planning, testing, deploying, maintaining, and upgrading your infrastructure.

Red Hat supports installation, usage, configuration, diagnosis, bug reports, and bug fixes. With a Red Hat subscription, you can gain access to product versions and updates, security updates, unlimited support incidents, 24x7 telephone support, documentation, hardware and software certifications, and other items detailed on the Red Hat Global Support Services section of the support website¹⁶.

A Red Hat subscription includes much more than just break-fix support.
<http://www.redhat.com/support/>

⁹ MuleSoft, About Company web page - <http://www.MuleSoft.com/company>

¹⁰ February 2013, InsideView MuleSoft web page - <http://www.insideview.com/directory/MuleSoft-inc>

¹¹ Red Hat Investor Relations web page - <http://investors.redhat.com/>

¹² Past financial performance is no guarantee of future results

¹³ JBoss Enterprise Middleware, by Red Hat: Proven Technical Support Services Leader
<http://www.redhat.com/resourcelibrary/whitepapers/customer-satisfaction>

¹⁴ Mule ESB Enterprise support information - <http://www.mulesoft.com/mule-esb-subscription>

¹⁵ “Why subscribe to enterprise open source software? Top ten reasons to use JBoss Enterprise Middleware” -
<http://www.redhat.com/f/pdf/jb-value-of-sub.pdf>

¹⁶ <https://access.redhat.com/support/>

MuleSoft, by comparison, offers three levels of subscription tiers¹⁷ and its silver and gold levels provide only 8x5 support with limited numbers of support instances. In MuleSoft silver and gold subscription tiers, support services, outside of phone support, are limited to access to community forums, knowledgebase, service packs, and hot patches.¹⁸

COMPARATIVE DIFFERENCES

The following subsections, while not an exhaustive list, highlight competitive differences between Red Hat JBoss Fuse and Mule ESB Enterprise. While the content provided is not an exhaustive list of all differences, it includes significant points that are commonly discussed with enterprises.

MORE CONSISTENT COMMUNITY TO ENTERPRISE TRANSITION

Both Red Hat and MuleSoft offer community versions of their integration bus software offerings. The community, open source versions form the bases for the functionality of the enterprise versions. Code changes made to enterprise versions for bug fixes, security, and other changes that harden the software are included with a subscription from each company.

From a technical functionality perspective, Red Hat JBoss Fuse functionality is very close to the JBoss Community version. With the exception of JBoss Operations Network functionality, all Red Hat JBoss Fuse Enterprise functionality is found in the Community version. This helps simplify the transition to JBoss Fuse Enterprise for customers using the Community Edition. Transitioning from JBoss Fuse Community to Enterprise edition has other benefits such as bug and security fixes, platform certification, and other features presented in the document titled “JBoss Enterprise Middleware: Top 10 reasons to subscribe.”¹⁹

MuleSoft, by comparison, has a significant amount of functionality available in its enterprise edition that is not available in its community edition.²⁰ For example, all security, performance management, problem resolution, and operational control functionality available in the Mule ESB Enterprise edition is missing from the community edition. Reliability and performance features like high availability and caching are also available only in the Mule ESB Enterprise edition. Such disparity in functionality can arguably point to a completely different solution architect and developer experience when comparing Mule ESB community usage to the enterprise edition.

DEVELOPER ACCESS TO ADDITIONAL MIDDLEWARE

With your Red Hat JBoss Fuse subscription, you get development rights to all Red Hat JBoss Middleware platforms. Specifically, for every 16 cores of a JBoss subscription, 25 developers gain rights as developers for all Red Hat JBoss Middleware platforms. As a result, developers can easily explore how Red Hat JBoss Middleware platforms such as Red Hat JBoss Data Grid and JBoss Enterprise BRMS complement Red Hat JBoss Fuse.

¹⁷ MuleSoft ESB support page - <http://www.mulesoft.com/mule-esb-subscription>

¹⁸ Mule ESB Enterprise web page - <http://www.mulesoft.com/mule-esb-enterprise>. Also see MuleSoft ESB support page - <http://www.mulesoft.com/mule-esb-subscription>

¹⁹ JBoss Enterprise Middleware: Top 10 reasons to subscribe - <http://www.redhat.com/resource/library/whitepapers/jboss-top-10-reasons-to-subscribe-whitepaper>

²⁰ Mule ESB Enterprise web page - <http://www.mulesoft.com/mule-esb-enterprise>

MuleSoft does not offer a broad middleware portfolio and is missing a Java EE application platform, business rules management system (BRMS), business process management, general-use in-memory data grid, and other technology that is found in Red Hat middleware.

Every Red Hat JBoss Fuse subscription provides development rights for all of Red Hat's middleware platforms.

To provide some of these capabilities, MuleSoft provides native support for JBoss jBPM²¹ – for BPM, as well as JBoss Drools²² – for business rules and complex event processing. These technologies are included with a JBoss Enterprise BRMS subscription. Mule ESB can also leverage JBoss transaction manager for XA-transactions.²³ JBoss transaction manager is a component of JBoss Enterprise Application Platform.

IMPROVED INTEGRATION DEVELOPMENT USING PATTERNS

Red Hat JBoss Fuse includes the Apache Camel open source software and includes out-of-the-box, standards-based integration patterns. These patterns are based on the the book Enterprise Integration Patterns by Gregor Hohpe and Bobby Woolf.²⁴ These patterns are the de facto standard for discussing enterprise integration. Nearly 50 different patterns are supported by Red Hat JBoss Fuse and are broken down into the following categories:

- Message routing (15 patterns)
- Messaging endpoints (11 patterns)
- Messaging systems (6 patterns)
- Messaging channels (5 patterns)
- Message transformation (5 patterns)
- Message construction (2 patterns)
- System management (1 pattern)

Building integrations using patterns can be faster than trying to start from scratch each time.

While Mule ESB supports some of these same enterprise integration patterns, 30 are missing²⁵ and those that do exist do not always translate easily. Some are a simple 1:1 mapping of Mule object names to enterprise integration style pattern names. For example, the integration style pattern named “Pipes and Filters” is a “flow” Mule object. In other cases, a single integration style pattern name could be multiple Mule object names. For example, aggregator could map to one of 3 Mule objects: collection aggregator, message chunk aggregator, or custom aggregator.

²¹ MuleSoft BPM Module Reference - <http://www.mulesoft.org/documentation/display/MULE3USER/BPM+Module+Reference>

²² MuleSoft Drools Module Reference - <http://www.mulesoft.org/documentation/display/MULE3USER/Drools+Module+Reference>

²³ MuleSoft JBoss Transaction Manager documentation - <http://www.mulesoft.org/documentation/display/MULE3USER/JBoss+Transaction+Manager+Reference>

²⁴ Enterprise Integration Patterns table of contents web page - <http://www.enterpriseintegrationpatterns.com/toc.html>

²⁵ Remote-procedure invocation, publish-subscribe channel, dead letter channel, guaranteed delivery, command message, document message, event message, request-reply, return address, correlation identifier, dynamic router, composed message processor, scatter-gather, routing slip, content filter, claim check, normalizer, messaging gateway, messaging mapper, transactional client, polling consumer, event-drive consumer, competing consumers, message dispatcher, selective consumer, durable subscriber, service activator, detour, message store

RELIABLE MESSAGING

Red Hat JBoss Fuse includes Red Hat JBoss A-MQ for reliable messaging capabilities. Red Hat JBoss A-MQ is a standards-based, open source messaging platform that deploys with a very small footprint. Key features include:

- JMS 1.1 compliant messaging
- High-performance delivery of information
- Connectivity options from multiple languages²⁶
- Transactions protected against failures

Red Hat JBoss Fuse provides Red Hat JBoss A-MQ for reliable messaging, which can be accessed using Java as well as other languages like C/C++, and .NET.

Mule ESB Enterprise does not include technology to provide an independently executed messaging platform. Instead, messaging is provided via a third-party vendor. For example, Red Hat JBoss A-MQ (previously known as Active MQ) is supported, as well as other JMS providers such as Oracle WebLogic JMS.²⁷ Any vendor that only implements the JMS 1.1 specification does not provide the following features for its JMS provider, which are found in Red Hat JBoss A-MQ included with Red Hat JBoss Fuse:

- Ability to access the messaging system using C, C++, .NET
- Streaming Text Oriented Messaging Protocol (STOMP) - a platform-neutral protocol that supports client access to messaging written in scripting languages (Perl, PHP, Python, and Ruby) in addition to clients written in Java, .NET, C, and C++
- Advanced Message Queuing Protocol (AMQP) 1.0²⁸
- IP multicast, which provides one-to-many communications over an IP network, enables brokers to discover other brokers in setting up a network of brokers, and enable clients to discover and establish connections with brokers
- Multiple other features documented in the Fuse MQ Enterprise Product Introduction documentation²⁹

The following features are associated with the JMS 1.1 specification and therefore available from any compliant JMS provider:

- Point-to-point messaging
- Publish and subscribe messaging
- Request/reply messaging
- Persistent and non-persistent messages
- JMS transactions
- XA transactions

²⁶ OpenWire and STOMP protocols are supported - http://fusesource.com/docs/mqent/7.1/prod_intro/prod_intro.pdf

²⁷ <http://www.mulesoft.org/documentation/display/MULE3USER/JMS+Transport+Reference#JMSTransportReference-VendorspecificConfiguration>

²⁸ Provided as a technology preview

²⁹ Fuse MQ Enterprise Product Introduction documentation - http://fusesource.com/docs/mqent/7.1/prod_intro/prod_intro.pdf

And to use JMS with Mule ESB Enterprise, you need to have or acquire a JMS provider. Depending on your choice of vendor, this could expose you to additional maintenance and support costs in addition to license fees. No such exposure exists for Red Hat JBoss Fuse customers who are leveraging the included Red Hat JBoss A-MQ messaging platform.

TRANSPORT BINDINGS

Red Hat JBoss Fuse supports multiple bindings including the popular JMS, HTTP, HTTPS, FTP, XMPP, REST, and web services. In addition, you can easily extend its connectivity options using routing and integration components.³⁰ There are more than 125 different Camel components supported by Red Hat JBoss Fuse that can be used for connectivity to integration endpoints. Apache Camel documentation details how to write custom components if you find a special endpoint connectivity need.³¹ You may also be able to find a Camel component provided by a third-party vendor that you could use as an alternative to writing a custom component.

Red Hat JBoss Fuse provides connectivity to many different types of endpoints.

Mule ESB Enterprise provides 30 different transports with a subscription.³² Those transports can be supplemented with MuleSoft cloud connectors.³³ Standard cloud connectors are included with a Mule ESB Enterprise subscription and community cloud connectors “are open source software, though each package may vary depending on the third-party maintainer.”³⁴

MuleSoft launched APIhub in December 2012. The site is provided as “a powerful publishing and community platform along with consoles and developer tools to insure rapid API adoption.”³⁵ The APIs listed on APIhub are not provided as pre-built connectors to systems for use with Mule ESB. For example, none of the JBoss APIs listed on the site is pre-built for use with Mule ESB.³⁶

³⁰ Fuse ESB Enterprise Product Introduction, page 14 - http://fusesource.com/docs/esbent/7.1/esb_prod_intro/esb_prod_intro.pdf

³¹ Apache Camel documentation, Writing Components - <http://camel.apache.org/writing-components.html>

³² Mule available transports documentation - <http://www.mulesoft.org/documentation/display/MULE3USER/Transports+Reference>

³³ MuleSoft cloud connectors - <http://www.mulesoft.com/cloud-connectors-full>

³⁴ MuleSoft additional cloud connectors documentation - <http://www.mulesoft.org/documentation/display/MULE3STUDIO/Additional+Cloud+Connectors>

³⁵ About APIhub web page - <http://www.apihub.com/about>

³⁶ JBoss APIs listed on APIhub - <http://www.apihub.com/search/api/jboss>



CONCLUSION

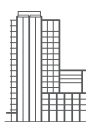
This competitive brief has presented high-level differences between Red Hat JBoss Fuse and Mule ESB Enterprise. More differences between the products can be found when comparing the capabilities of both products. While some are easy to find, others are best revealed via in-depth, hands-on product usage.

The economic difference between Red Hat JBoss Fuse and Mule ESB Enterprise is significant. At list price, a 16-core premium, managed subscription of Red Hat JBoss Fuse is about \$127K (33.75%) less than the MuleSoft offering.

In addition, Red Hat offers the full functionality of Red Hat JBoss Fuse without any associated software licenses fees. Red Hat customers simply purchase subscriptions for the Red Hat technologies they use. Red Hat JBoss Fuse is available in 16- and 64-core entitlement increments in annual or discounted 3-year subscriptions.

The cost savings you realize by selecting Red Hat can enable you to start more projects, deploy technology more pervasively within the enterprise, and apply more of your budget toward innovation.

Contact your Red Hat sales professional for more information.



ABOUT RED HAT

Red Hat is the world's leading provider of open source solutions, using a community-powered approach to provide reliable and high-performing cloud, virtualization, storage, Linux, and middleware technologies. Red Hat also offers award-winning support, training, and consulting services. Red Hat is an S&P company with more than 70 offices spanning the globe, empowering its customers' businesses.



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NORTH AMERICA
1-888-REDHAT1

**EUROPE, MIDDLE EAST
AND AFRICA**
00800 7334 2835
europe@redhat.com

ASIA PACIFIC
+65 6490 4200
apac@redhat.com

LATIN AMERICA
+54 11 4329 7300
latammktg@redhat.com