FUSE Message Broker™

The Open Source Solution for Enterprise Messaging

Businesses today expect their systems to be continuously available, to be capable of efficient integration, and to support remote access regardless of the reliability of the remote client or network connection. FUSE Message Broker enables organizations to meet these needs with a proven open source solution for enterprise messaging. FUSE Message Broker does more than provide an integrated architecture; it gives IT organizations the control and agility to effectively address shifting priorities, evolving requirements and new market opportunities.

FUSE Message Broker, IONA's distribution of Apache ActiveMQ, is the JMS platform of choice, providing high performance, unlimited scalability, and mission-critical reliability for distributed enterprise computing. FUSE Message Broker is a truly cost-effective and flexible messaging platform for reliably executing transactions and moving data, efficiently scaling operations, and connecting processes across heterogeneous database and application environments.

Supported Standards

FUSE Message Broker supports JMS 1.1 and J2EE 1.4 integration-related components including JDBC, JCA, and EJBs; dependent specifications such as JTA and JNDI; as well as AJAX, REST, HTTP, TCP, SSL, NIO, UDP, multicast, JGroups and JXTA transport protocols.

FUSE: A Family of Open Source SOA Components

FUSE Message Broker is one of a family of components that includes the FUSE HQ, FUSE ESB, the FUSE Services Framework, and the FUSE Mediation Router. The FUSE components are tested together, certified, and supported to combine the speed and innovation of open source software with the reliability and expertise of commercially provided enterprise services.

About IONA Technologies, Inc.

IONA's commitment to open source software is part of its 15-year heritage of solving the most complex integration problems by applying open, standards-based solutions. An industry leader in integration and SOA, IONA has the proven expertise to design a highly flexible, distributed SOA infrastructure for Global 2000 customers including Raymond James & Associates, Nokia, Zurich Insurance, Ericsson and Credit Suisse using standardized components.

Why Messaging?

- **High-performance delivery of information**
  FUSE Message Broker can deliver very large volumes of data to a great number of globally distributed systems in the shortest possible time.
- **Reliable connectivity to remote clients**
  Reach wireless devices, browser-based clients, or point-of-sale terminals over private networks, the Internet, and/or wireless networks.
- **Transactions protected against failures**
  FUSE Message Broker protects transactions from being abandoned and data from being lost if a system is unavailable, regardless of why or how long.
- **Efficient automation of system functions**
  FUSE Message Broker easily automates many processes that would otherwise require intervention by end users, or would place additional load on a business application.

Get the leading open source messaging system now:

FUSE Message Broker

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IONA®

Making Software Work Together™

FUSE Message Broker™ Features and Benefits

COMPLETE, STANDARDS-BASED, OPEN SOURCE SOLUTION FOR ENTERPRISE MESSAGING

OPEN SOURCE

FUSE License FUSE Message Broker is available under the FUSE product license, which is based on the open source Apache License Version 2.0.	The FUSE product license allows FUSE Message Broker to be used at no charge, and FUSE Message Broker can be distributed as a part of any open source or commercial solution. The source code is publicly available and can be modified in any way. Modifications to FUSE Message Broker may be published or kept confidential.
Professionally Supported IONA provides complete 24x7 support, plus training and technical services for FUSE Message Broker.	Enterprises can use FUSE Message Broker as a core component of their integration infrastructure with confidence that their infrastructure is backed-up by an enterprise-class support team. Additional training, consulting and customization of the platform are readily available from the product's architects.
Community Strength FUSE Message Broker has years of support and contribution from leading enterprise Java developers.	With an active base of contributors and users, FUSE Message Broker has been deployed in a wide variety of IT environments, and proven in thousands of business applications.

STANDARDS-BASED

JMS 1.1 Compliant Messaging Queue and Topic messaging domains, persistent and non-persistent messaging, Local JMS transactions supported, XA-enabled JMS API, Application Server Framework (ASF) API.	JMS 1.1 allows J2EE application components to create, send, receive, and read messages for reliable, loosely coupled communication across distributed systems.
J2EE 1.4 Compatible Supports any J2EE 1.4 application server such as Geronimo 1.x, JBoss 4.x, WebSphere 6.x or WebLogic 9.x.	FUSE Message Broker can be used with the organization's existing J2EE platform architecture. The JCA Resource Adapter allows a J2EE application server to efficiently pool connections, control transactions and manage security for FUSE Message Broker.
JNDI Easy-to-Use JNDI implementation can be set up with a single property file and supports dynamic destinations.	JNDI enables applications to locate and connect with services, for seamless connectivity to heterogeneous enterprise naming and directory services. Developers rely on the JNDI standard to build directory-enabled applications.
AJAX, REST, HTTP REST API for direct integration of HTTP applications—including AJAX-based applications—into the messaging backbone.	Facilitates easy integration of existing Internet applications and wireless devices that depend on firewall-friendly HTTP. AJAX-based applications are supported through the REST connector.

COMPLETE MESSAGING PLATFORM

Loosely Couple Applications Asynchronous messaging enables applications to be loosely coupled.	The enterprise can standardize on a connectivity policy that is independent of location and underlying network infrastructure. Message-based connectivity eliminates brittle connections that are costly to maintain over time.
Publish/Subscribe & Point-to Point Messaging Enables message broadcasting and/or unique messaging. Durable, fault tolerant and high availability connections are all supported.	FUSE Message Broker can be configured so that any number of applications will receive important information simultaneously. FUSE Message Broker also allows applications to tap into information channels when necessary.

PERFORMANCE, AVAILABILITY, AND SCALABILITY

PERFORMANCE

High Performance Design Using Staged Event Driven Architecture (SEDA), Straight Through Processing (STP), reactive scalable flow control and very high-performance journaling, FUSE Message Broker is optimized for high performance.	Performance testing has shown that FUSE Message Broker exhibits the highest performance of any open source messaging platform, and is considerably faster than many commercial messaging solutions for certain types of exchanges.
High Performance Under All Scenarios FUSE Message Broker supports high performance under high volume, high availability scenarios (durable, persistent) as well as high quality of service scenarios (durable, persistent, transacted).	FUSE Message Broker is used in many different types of messaging scenarios, and has been optimized to offer superior response time under all types of messaging parameters and business requirements.
Performance Optimization Options Message compression, Message fragmentation, Asynchronous message sends, Disable time stamps, Customizable message pre-fetching, Disable message content serialization, Disable message copying, Optimized message dispatch.	Depending on business requirements, the FUSE Message Broker can be optimized for greater performance through a number of adjustments to messaging parameters.
High Performance Journal The high performance journal captures persistent messages faster than any database can. At regular intervals, messages, transaction commits/rollbacks and acknowledgements are written to a long-term JDBC-based persistence store.	The high performance journal reduces latency—the single greatest obstacle to throughput. By batching multiple concurrent disk-write tasks into a single operation, the journal increases messaging throughput as concurrency increases.

AVAILABILITY

Clustering Adjusts workload automatically if one broker should fail. Clustering is transparent to clients, and topics and queues are available across an entire cluster.	Simplifies development and management because brokers can be added transparently to handle increased message traffic. Ensures a constant response time for wide variation in load. Also reduces development and administrative efforts to handle topology changes.
Failover A client can connect to one node in a cluster and automatically fail over to a new node in the cluster if there is a failure. On the broker side, FUSE Message Broker uses a store-and-forward method to distribute messages over a cluster.	Ensures application/client uptime and availability, and enables development efforts to focus on system functionality.

SCALABILITY

High Capacity Brokers Each broker supports thousands of persistent messages per second with minimal latency, and can handle a vast number of connections and destinations.	FUSE Message Broker enables efficient use of computing resources for processes requiring very high throughput, keeping hardware and software costs as low as possible.
Clustering for Scalability Messaging loads can be shared among brokers in a cluster.	Enables deployments to scale to support large numbers of messages, users and applications across the extended enterprise.
Wide Area Deployment Provides high volume, low latency, asynchronous messaging across remote clients on wide area networks.	Delivers faster messaging across disparate locations, enabling clients to receive information more quickly, regardless of location.
JMS Streams for Very Large Messages When sending extremely large messages, JMS streams eliminate the bottleneck that would occur as the JMS client tries to keep an entire 1+ GB message in memory.	Allows the messaging platform to deliver truly massive files (many GBs) across the network in a reliable manner.
Message Compression GZIP compression allows highly verbose messages to be compressed.	Message compression helps organizations efficiently transport large amounts of data encapsulated in SOAP and other XML formats.

RELIABILITY, FLEXIBILITY AND SECURITY

RELIABILITY

Persistence
FUSE Message Broker supports a variety of persistence options, from no persistence at all, to using a JDBC database directly, to enabling high-performance persistence using the journal plus a JDBC database.

Persistence may be enabled or disabled depending on business requirements. When persistence is enabled, FUSE Message Broker can be configured to write messages directly to a database, or to the journal for increased throughput.

Long Term Persistence
Long-term persistence is enabled through any JDBC-compliant storage database. Performance for persistent messaging can be improved with the high-performance journal.

The enterprise can use its preferred database to store persisted messages. Supported databases include: Apache Derby, Oracle, Sybase, DB2, SQLServer, Postgresql, MySQL, Axion, and HSQL.

Guaranteed Message Delivery
FUSE Message Broker ensures that messages_ arrive at their destination once-and-only-once, even in high performance situations.

FUSE Message Broker enables applications to be resilient to network failures, ensuring system availability.

Disaster Recovery
Multiple Disaster Recovery methods are supported: Hardware-based solutions: RAID, SAN, etc. External Data Stores: clustered DB or C-JDBC, Clustered FUSE Message Broker Data Store

For operations in which message loss would present a significant business risk, FUSE Message Broker supports multiple methods for eliminating a single point of vulnerability, and enabling rapid disaster recovery.

FLEXIBILITY

Multi-language Connectivity
FUSE Message Broker supports connections with clients written in C/C++, Java, .NET, Ruby, Perl, PHP, Pike, Python and more.

Many JMS solutions offer limited connectivity options, limiting their usefulness in heterogeneous computing environments. FUSE Message Broker clients are available in many different languages, for many different types of computing environments.

Multiple Deployment Topologies Supported
- Traditional client server with a single server or a network of brokers
- Client server with server failover and load balancing using the failover transport
- One or more embedded brokers via the vm:// transport
- Peer-to-peer using an embedded broker and a discovery agent to establish network connections to the other peer brokers

FUSE Message Broker is used in a great variety of topologies, from high-reliability exchanges of data within a single machine environment to high-performance broadcasting of data to globally distributed systems.

SECURITY

Encryption
FUSE Message Broker supports SSL encryption for transport over HTTPS.

Ensures compliance with security policies by enabling secure transmission of sensitive information outside the firewall.

Authentication & Authorization
FUSE Message Broker provides plug-in points to support custom authentication and authorization, and supports third-party authentication providers, firewalls, proxy servers, HTTP(s) tunneling and DMZ products.

Integrates well with existing security infrastructure, such as LDAP-based directories and firewalls, to leverage existing security investments and authentication methods.

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