FUSE ESB™

The Open Source Enterprise Service Bus (ESB)

Based on Apache ServiceMix, FUSE ESB provides a standardized methodology, server, and tools to deploy integration components, freeing architects from the dependencies that have traditionally locked enterprises into proprietary middleware stacks. FUSE ESB enables organizations to achieve their service-oriented architecture (SOA) objectives with a proven open source solution for enterprise integration. FUSE ESB does more than provide an integrated architecture; it gives your IT organization the control and agility you need to effectively manage evolving technology requirements and realize new market opportunities.

Built from the ground up to support the JBI specification (JSR 208), FUSE ESB provides a structured environment to manage and deploy the components that developers create using FUSE Services Framework and FUSE Mediation Router, as well as additional JBI-compliant components like BPEL. FUSE ESB uses FUSE Message Broker as its underlying messaging infrastructure.

SUPPORTED STANDARDS

FUSE ESB supports Java EE 1.4 and Java SE 1.5, JMS 1.1; plus components including JDBC, JCA, and EJBs; dependent specifications such as JTA and JNDI; as well as AJAX, REST, HTTP, TCP, SSL, NIO, UDP, multi-cast, JGroups and JXTA transport protocol; and Web Services - SOAP, WSDL, WS-*. Through its internal JBI-based APIs, FUSE ESB supports JBI-compliant BPEL engines for orchestration, XSLT engines for transformation, and JMX-compliant solutions for systems management.

FUSE: A Family of Open Source SOA Components

FUSE ESB is one of a family of components that includes FUSE HQ, FUSE Message Broker, FUSE Services Framework, and FUSE Mediation Router. The FUSE components are tested for interoperability, 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 an Open Source ESB?

- **Ease of adoption and evaluation**
  Organizations can download FUSE ESB immediately and evaluate it in their SOA environment, in any number of scenarios over any length of time.
- **Standards-based design**
  FUSE ESB is designed to work with other integration components utilizing industry standards including JMS, JCA, JMX, enabling straightforward integration with existing middleware solutions, both commercial and open source.
- **The right open source license**
  FUSE ESB is available under an Apache-based license, Version 2.0, allowing your organization to incorporate it into any type of solution, without restrictions.
- **Cost-effective growth**
  Over time, you can deploy FUSE ESB across geographies, business units and systems architectures, without incurring the cost of additional license fees.
- **Ready for the enterprise**
  FUSE ESB is used by IT organizations worldwide, and is fully supported by IONA, with support subscriptions; training, and custom services.
- **A Complete SOA Solution**
  FUSE ESB provides the foundation for a comprehensive SOA runtime environment comprising all-open-source components. It's the fastest, most cost-effective way to build a complete foundation for SOA-based integration.

IONA®

Making Software Work Together™

FUSE ESB Features and Benefits

THE AGILE, OPEN SOURCE ESB

OPEN SOURCE

Open Source License FUSE ESB is available under an open source license that is based on the Apache License, Version 2.0.	The FUSE product license allows FUSE ESB to be used at no charge, and 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 ESB may be published or kept confidential.
Professionally Supported IONA provides complete 24x7 support, plus training and technical services for FUSE ESB.	Enterprises can use FUSE ESB as the runtime backbone of their SOA 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 ESB has support and contribution from a leading community of enterprise Java developers.	With an active base of contributors and users, FUSE ESB has been deployed in a wide variety of IT environments, and proven in thousands of business applications.

JAVA BUSINESS INTEGRATION

Pluggable Architecture The Java Business Integration specification provides interface standards for integration services, enabling a pluggable architecture in which multiple providers may be called upon for key integration requirements.	The pluggable JBI architecture allows organizations to use their preferred service solutions in their SOA. Any standard JBI-compliant Service Engine or Binding Component may be deployed to the FUSE ESB JBI container, and FUSE ESB components may be deployed to other JBI-compliant ESBs.
Normalized Message Router (NMR) The NMR mediates message exchanges between service consumers and providers and can also help consumers locate appropriate service providers.	By handling messages in a normalized manner, the NMR provides a standard interface for many-to-many connectivity among service providers, regardless of their internal structures, or the structure of message payloads.
Complete JBI Container FUSE ESB provides a complete container for JBI components, including FUSE ESB's own JBI-based components.	FUSE ESB provides a complete container for JBI components, including FUSE ESB's own JBI-based components.
Web Services Support JBI provides an open, extensible architecture that facilitates collaboration between integration technologies and Web services.	With FUSE ESB, integration through Web services is fully supported, either in stand-alone services, or as a part of a complex, distributed composite application spanning multiple transport and message formats.

AGILITY & EXTENSIBILITY

Loosely Couple Applications The FUSE ESB enables loosely coupled services to be assembled in composite applications with reliability and manageability.	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.
Lightweight Container Deployment FUSE ESB can be deployed to servlet containers or the Spring Framework. FUSE ESB can be embedded in an application, and deployed to endpoints.	Allows the organization to leverage its application server platform where an underlying J2EE application server is beneficial, but also supports lightweight deployment to a network of endpoints where appropriate.
Incremental Deployment FUSE ESB supports gradual extension of the services architecture, with JBI-based connectivity for a wide range of endpoints, and its open source license.	Deploy FUSE ESB as quickly and as extensively as you wish. With its breadth of connectivity options, and open source license, FUSE ESB is an ideal foundation for an integration infrastructure that can grow with your needs.

ORCHESTRATION & WORKFLOW, J2EE SUPPORT, AND COMPATIBILITY

ORCHESTRATION, WORKFLOW AND ROUTING

BPEL-based Orchestration FUSE ESB provides a standard plug-in that supports any JBI-compliant BPEL-based orchestration engine.	Any JBI-compliant BPEL engine is supported through the standard JBI-based BPEL interface.
Scripting for Efficient Workflow Management FUSE ESB allows workflow and routing to be governed by any JSR 223-compliant scripting engine. The open source Groovy engine is bundled with FUSE ESB.	Workflows can be rapidly prototyped, and simple routines can be defined in scripting languages, without requiring a full BPEL implementation.

FLEXIBLE JAVA SUPPORT

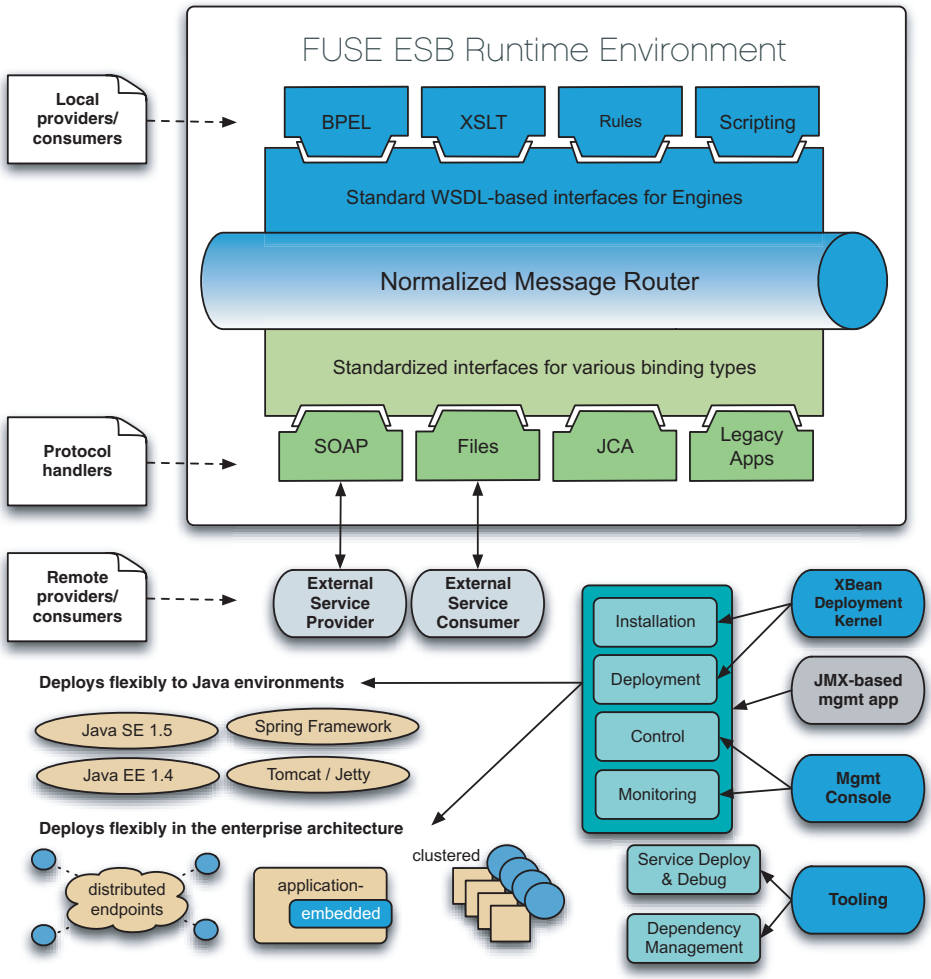
Java EE 1.4 & Java SE 1.5 FUSE ESB supports deployment to any Java EE 1.4 application server; as well as deployment to any Java SE 1.5 runtime environment.	Deploy FUSE ESB to your existing Java platform, or run it integrated with Apache Geronimo or JBoss. Alternatively, run FUSE ESB stand-alone in any Java 1.5 runtime environment, or deployed to the Spring Framework.
Java Connector Architecture (JCA) FUSE ESB provides full support for transactions, persistence, and XA in JCA.	Connections to legacy systems through JCA adapters are readily incorporated into FUSE ESB, leveraging existing investments in integration development.
Java Messaging Service (JMS) FUSE ESB can manage exchanges over all standard JMS Solutions	Organizations with large investments in commercial JMS messaging platforms can leverage those investments while taking advantage of the extended connectivity, reliability and manageability provided by FUSE ESB across multiple transport types.

EXTENSIVE COMPATIBILITY

J2EE Application Servers FUSE ESB is integrated with Apache Geronimo, JBoss, and Tomcat. Deployment via the Spring Framework is also supported.	Leveraging the services of a robust J2EE when necessary, FUSE ESB can also be deployed via the Spring Spring Framework where a full J2EE application server is not required.
Rules Engines and Scripting Engines FUSE ESB supports rules engines, including Groovy, as well as any JSR 223-compliant scripting engine, such as Drools.	FUSE ESB supports standards for routing and transformation, and provides proven open source solutions to act as providers. At the same time, organizations can leverage solutions in which they have already invested.
JMS Messaging Platforms FUSE ESB can bridge multiple transports including JMS to other transport, or JMS to JMS bridging.	FUSE ESB can be used with the organization's existing JMS-based messaging platform.
Transports FUSE ESB provides JBI bindings for HTTP, JMS, WSIF, SAAJ/Axis, Mule, and ActiveSOAP.	With FUSE ESB, the SOA can encompass a wide range of transports. The transport used for exchanges between distributed services is determined at runtime, allowing any distributed process to comprise multiple transports and protocols.
Relational Databases All standard JDBC-accessible relational databases are supported for persistence, including Oracle, DB/2, Sybase, SQLServer, MySQL, Postgresql, Apache Derby.	Apache Derby is provided as the default database for persistence, and XSQL is supported via a lightweight component.
JMX-based management Interface FUSE ESB provides JMX based management for its components and the internals of the JBI container.	Organizations can use the included JMX console to manage integrated processes through the FUSE ESB, as well as any preferred JMX compatible solution from third-party providers, both commercial and open source.

The Open Source Runtime Environment for SOA

A STRUCTURE PROVIDING CONNECTIVITY, RELIABILITY, AND EXTENSIBILITY



This example shows the internal, JBI-based FUSE ESB runtime environment. Local providers and protocol handlers are incorporated through standards-based interfaces, to act as Service Engines and Binding Components for message-processing. External services are connected via the Binding Components. The environment is deployed, managed and monitored through standard tools and protocols. FUSE ESB instances can be distributed, embedded with applications, clustered, and deployed to virtually any Java runtime environment.

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