FuseSource

WHITE PAPER

How to Use Open Source Integration Software Safely in the Enterprise

Analysis of potential risks and how to protect your IT environment

The FuseSource Team
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INTRODUCTION

Open source software is very tempting—its low cost and inherent transparency addresses two of the biggest challenges for IT professionals: the high cost of infrastructure software and the limitations a closed stack imposes on the enterprise. IT organizations are typically risk-adverse and have initially shied away from open source projects. With open source technology consistently proving itself in mainstream IT, more and more once-reticent CIOs are embracing and deploying open source technology.

The benefits of open source software include:

- **Cost savings**—Users do not pay a license fee to adopt open source software nor do they pay for updates, eliminating the large upfront cost typically associated with infrastructure development and significantly reducing the total cost of the project.
- **Vendor neutrality**—Open source software is developed and owned by the community. Users of the project are not locked in to a vendor's platform and are not forced to buy proprietary modules or adopt prerequisite technology.
- **Access to source code**—By definition, open source projects make the source code available. This allows enterprises to inspect the code for safety, edit the code to add unique features, and not be at the mercy of a vendor.
- **Innovation**—With a large community that includes end users contributing to the project, open source software has proven itself to be a practical vehicle for the latest technological advancements.

Deploying open source projects safely and successfully in an enterprise environment requires thorough understanding and careful evaluation of each project. Not all open source projects are designed for enterprise use, and not all open source communities service the unique needs of enterprise development.

The deployment criteria explored here are derived from the collective experiences of many professionals who have deployed open source technology in large IT organizations. The FuseSource team has over 15 years of experience in delivering IT solutions to the Global 2000 and employs project chairs and active committers at Apache.

UNDERSTANDING OPEN SOURCE

Being able to effectively evaluate open source software depends on fully understanding what open source is and what it is not and how it is developed. While all open source projects can claim the benefits listed above, some projects are highly appropriate for enterprise use and some are less so.

What Is Open Source?

Open source software is developed collaboratively and is owned by a community rather than a single vendor. The source code is freely available, and users are permitted and encouraged to change, improve, and redistribute the software—subject to the terms of the open source license.

The result is a paradigm that moves development teams away from being locked into a vendor and provides benefits from cost savings, access to source code and continued innovation.

Wikipedia describes open source software as follows:

> *Open source is a development methodology, which offers practical accessibility to a product's source (goods and knowledge) … The open source model of operation and decision-making allows concurrent input of different agendas, approaches and priorities, and differs from the more closed, centralized models of development.*

The description is enhanced with 14 chapters on open source including the culture business models, and (as of October 7, 2008) is a compilation of 2512 separate contributions made by 1263 unique individuals. Wikipedia is a good example of how an open, community-based project works, but no CIO would consider it enterprise-ready. To be assured of stability, qualities of service (QoS) and robustness, open source projects require closer examination.

What Open Source Is Not

The open source approach is a new paradigm for developing software, not a new name for an old marketing program or delivery channel.

Open source software is not freeware.

One of the most common misconceptions about open source is the same as freeware. Freeware is usually proprietary and distributed in binary-only form so the provider can retain some control over the user. Enterprise software companies often used freeware to attract new customers into an up-sell position. While open source software is also free, in contrast, it is owned by a community whose primary motivation is to free users from vendor control.

Open source software is not shareware.

Shareware is copyrighted software that is free for a trial period or with certain features disabled, but users are expected to pay for it in order to deploy. Again, this is in stark contrast to open source projects because open source software consists of complete packages intended to be deployed in full production scenarios.

Open source is not just for proof-of-concepts.

It is also tempting to recognize open source projects as a great incubator for innovation, but not ready for mission-critical environments due to the lack of corporate QA departments and the lack of enterprise qualities-of-service (QoS). The reality is that the community includes many target users of the project, and enterprise developers drive projects to meet enterprise requirements. Code quality comes from having a large community working with the software—all of whom can look at the source code—as this means many more eyeballs scrutinize the code. Empirical evidence shows that this model works and produces consistently high-quality code.

Open source development is not free.

The code is available without licensing fees, but services used to support development are comparably priced to services for commercially available software. Development teams still need to draw on the expertise of training and consulting services during the design phase to make sure the project is optimally architected, and teams still need enterprise support when they deploy.

FuseSource products are open source products that are fully owned and managed by the community. The FuseSource team will never attempt a bait-and-switch maneuver or limit functionality of the Apache projects in an attempt to sell more commercial licenses. All FuseSource products are intended to be deployed in complex, mission-critical IT environments, and today the FuseSource products can be found in numerous Fortune 2000 and large government organizations, and in many applications handling over a billion transactions daily.

Different Projects, Different Development Processes

All open source projects have cost savings, vendor neutrality, access to source code and innovation in common, but other characteristics vary depending on the audience that they serve. Where Wikipedia is intended for casual readers, enterprise software is intended for mission-critical applications. As a result, the processes to contribute—and therefore the attributes of the project—can differ greatly from project to project.

The Apache Software Foundation provides support for the Apache community of open source software projects. Apache projects are characterized by a collaborative, consensus-based development process, an open and pragmatic software license, and a desire to create high-quality software that leads the way in its field. Their processes for developing software reflect these goals.

Apache projects elect "committers" who are the only community members allowed to add code to the project. Users have to prove themselves to the community before they are elected, and, once elected, they have to follow a careful contribution process that is managed by the project chairs. Because robustness and enterprise QoS are such high priorities, the process by which Apache projects are created results in software appropriate for use in IT departments.

MEETING THE NEEDS OF ENTERPRISE IT

Enterprise IT organizations deploy, manage and maintain many of the world's largest and most complex software installations and, therefore, have unique packaging and productization needs as explored below.

Stable Releases

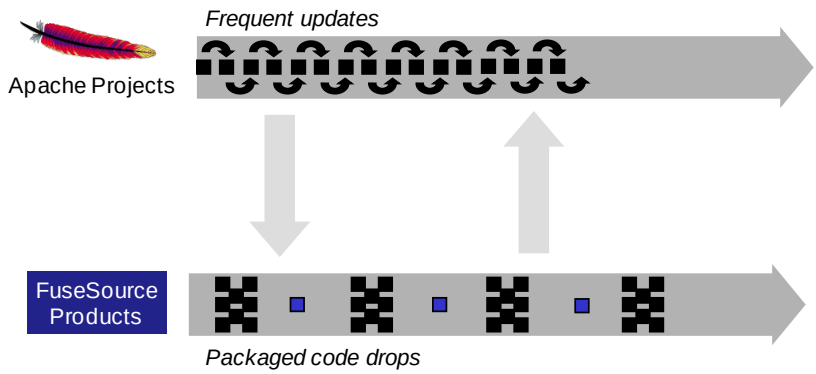
Enterprise IT department require that the software they use comes in discrete, stable releases so managers can be sure that all developers are working from the same set of bits, support the software, and track and fix issues.

The Apache projects take contributions on a continuous basis to get new features and fixes to users quickly. While this is good for promoting innovation and progress, it is a challenge for enterprise IT departments.

To overcome this difference, the FuseSource team takes a stable and consistent snapshot of the Apache projects and creates a packaged code drop that goes through a standard release process as shown below. Any patches or enhancements created by the FuseSource team are contributed back to Apache.

Qualities of Service

Enterprise IT departments—more than most other software consumers—have high standards for robustness, performance, availability, security and other qualities of service (QoS). Although popular open source projects are typically of high quality due to the number of users working with and vetting the code, enterprise organizations often require more.



FuseSource distributions are productized releases of Apache projects.

The FuseSource team performs extensive quality assurance tests on the FuseSource releases tests that go beyond Apache's unit tests, including tests for typical enterprise configurations that have long-running processes, multiple clients, and multiple machines. FuseSource releases are also tested on a broad range of platforms and are tested for backwards compatibility.

Licensing

Another concern of enterprise IT departments is the license associated with the open source project. Some licenses are not suited for enterprise or embedded applications as they restrict the use of the software and potentially leave organizations liable for misuse of intellectual property. It is important for users of open source software to examine the license and understand the obligations.

FuseSource products employ the Apache license, which allows developers to freely modify and redistribute the code. This license is permissive in nature and is preferred by enterprise developers. The Apache license is very popular for infrastructure software adoption because infrastructure software is often customized and connected with or embedded in other technologies.

Support and Professional Services

The most important concern for IT departments when considering software of any type is how they will get quality support. When deploying missions-critical systems, development teams need 24x7, experienced support as well as training and consulting during the development phase. Professional services used early in the software development lifecycle ensure that applications are architected properly and efficiently so that there are no unexpected problems at deployment.

The FuseSource team provides a complete array of professional services including enterprise-class subscriptions, comprehensive training, and consulting delivered by experienced staff members. The FuseSource team has over 15 years of experience solving problems for some of the largest IT departments worldwide and employs many of the key committers on Apache ServiceMix, ActiveMQ, CXF and Camel. With these committers on the FuseSource team, FuseSource users have direct access to the committers and get issues resolved by the developers who wrote the code.

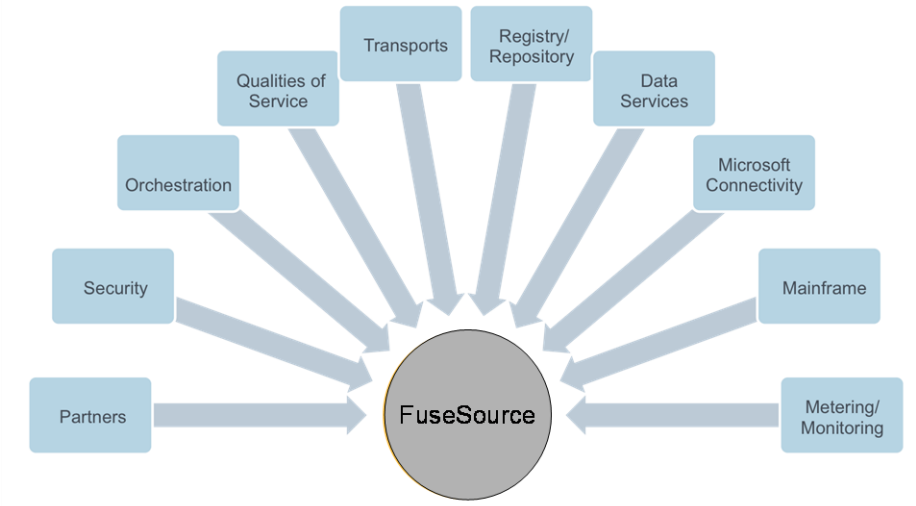
Any patches or enhancements the FuseSource team makes for customers are contributed back into the Apache project to keep the distributions in sync.

Extensibility of Solution

Just like commercially licensed products, no matter how sophisticated a product is, it rarely meets all the requirements out of the box. Enterprises need to assess is the extensibility of the solution and options for customization. By definition, open source software gives at least one option since the source code is open, available and editable, but not all enterprise IT organization would choose that route.

FuseSource products are built and managed with extensibility in mind, resulting in the following attributes:

- **Standards-based**—All the FuseSource products use industry standards wherever possible, making it easier for both the community and users to add new features.
- **Pluggable architecture**—The architecture is designed to easily connect to supplementary modules, so specialized functionality can be added to the periphery.
- **Partner program**—The FuseSource team partners with key technology providers to give users more options in designing solutions



FuseSource Solutions are extensible

FUSESOURCE: OPEN SOURCE FOR THE ENTERPRISE

Apache SOA projects are built for IT developers, and the FuseSource distributions are intended for a subset of those users. The FuseSource products are targeted at large enterprise environments running mission-critical applications. The team at FuseSource, a wholly owned subsidiary of Progress Software, has over 15 years of experience working with complex infrastructure at Fortune 2000 companies and tests, certifies and supports distributions of Apache ServiceMix, ActiveMQ, CXF and Camel to meet the needs of this audience. FuseSource offers enterprise-class services and support to ensure customers are successful with these projects.

FuseSource products are a family of components for SOA development that are distributions of Apache projects. FuseSource products are always open, always free, and many of the committers are a part of the FuseSource team. The components include:

- **Fuse ESB®**—Based on Apache ServiceMix, Fuse ESB provides a standardized methodology, server, and tools to deploy integration components. Fuse ESB was built from the ground up to support the JBI specification (JSR 208) and 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 Message Broker®**—Based on Apache ActiveMQ, Fuse Message Broker is a 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.
- **Fuse Services Framework**—Based on Apache CXF, Fuse Services Framework provides the ability to create Web services on an existing or new application. Specifically, Java developers can use JAX-WS, JavaScript, REST, or POJOs to create Web services for a client or server endpoint.
- **Fuse Mediation Router**—Based on Apache Camel, Fuse Mediation Router makes it easy for Java developers to quickly implement integration patterns using a code-first approach using simple POJOs. The API maps to easy-to-understand Enterprise Integration Patterns so a developer with minimal integration skills can quickly create integration components with routing, mediation, and other integration capabilities.
- **Fuse™ HQ**—A SOA management and monitoring system available as a part of any FuseSource support subscription, Fuse HQ is integrated with the Fuse™ product family for real-time administration and control of FuseSource™ SOA infrastructure.

CONCLUSION

Open source brings many advantages into IT organizations, but projects should be examined carefully to determine if they can be deployed safely in the enterprise. Specifics include:

- Stability and productized releases
- Availability of qualities of service
- License associated with open source project
- Availability and quality of professional services
- Extensibility of the solution

FuseSource products support all of these attributes and are intended specifically for enterprise use. Visit fusesource.com to download the products, read the documentation or peruse the forums today, and register to join the community. As a member of the community you can post questions on the forums, read analyst reports, and stay updated on the technology and the products and more.

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FuseSource

FuseSource, a wholly owned subsidiary of Progress Software, is a community of open source experts that provide software, support, training, and consulting for the most popular Apache-licensed open source integration projects including Apache ServiceMix, ActiveMQ, Camel and CXF. The FuseSource team includes key committers and the leaders at Apache who know the code the best to help FuseSource customers build reliable and scalable software integration infrastructure.

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