



DELL AND JBOSS JUST WORK

INVENTORY MANAGEMENT CLUSTERING SYSTEM ON JBOSS ENTERPRISE MIDDLEWARE

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Dell and JBoss Just Work

EXECUTIVE SUMMARY

Together, Dell and JBoss offer open source customers reliable, stable server solutions via leadership in standards-based computing.

JBoss Enterprise Middleware delivers enterprise-class open source middleware for application and service hosting, content aggregation, data federation, and service integration for both development and production. With industry-leading 24x7 support and multi-year updates and maintenance policies, it delivers a better way to improve developer productivity, reduce time to market, and automate business processes. This means you can refocus people and budget to attack more projects with significantly less risk.

Since 1999, developers have been using JBoss Enterprise Middleware as their preferred middleware development platform. Its popularity continues to grow, as evidenced by developer surveys like the BZ Research Study, (Seventh Java Use and Awareness Study, December 2007) which gives JBoss as one of the top three most popular JEE application servers (ahead of BEA and Oracle) for three years running. JBoss.org open source projects have been downloaded more than 24 million times.

As for hardware, the cost-effective, easy-to-manage, energy-efficient Dell™ PowerEdge™ M600 blade server with a Dell PowerEdge M1000e blade enclosure is perfect for the JBoss Enterprise Application Platform. Featuring the latest Intel® Xeon® Quad-Core processors, it helps reduce the cost and complexity of managing computing resources so you can focus on growing your business or managing your organization. Dell PowerEdge blades address datacenter server sprawl and complexity by delivering one of the most energy-efficient, flexible, and manageable blade servers on the market.

Combining JBoss and Dell lets you simplify IT by improving application performance, lowering security risks, and easing operational complexity. And it all comes with the value you expect from open source middleware, plus the flexibility to choose the operating system that works best for your environment.

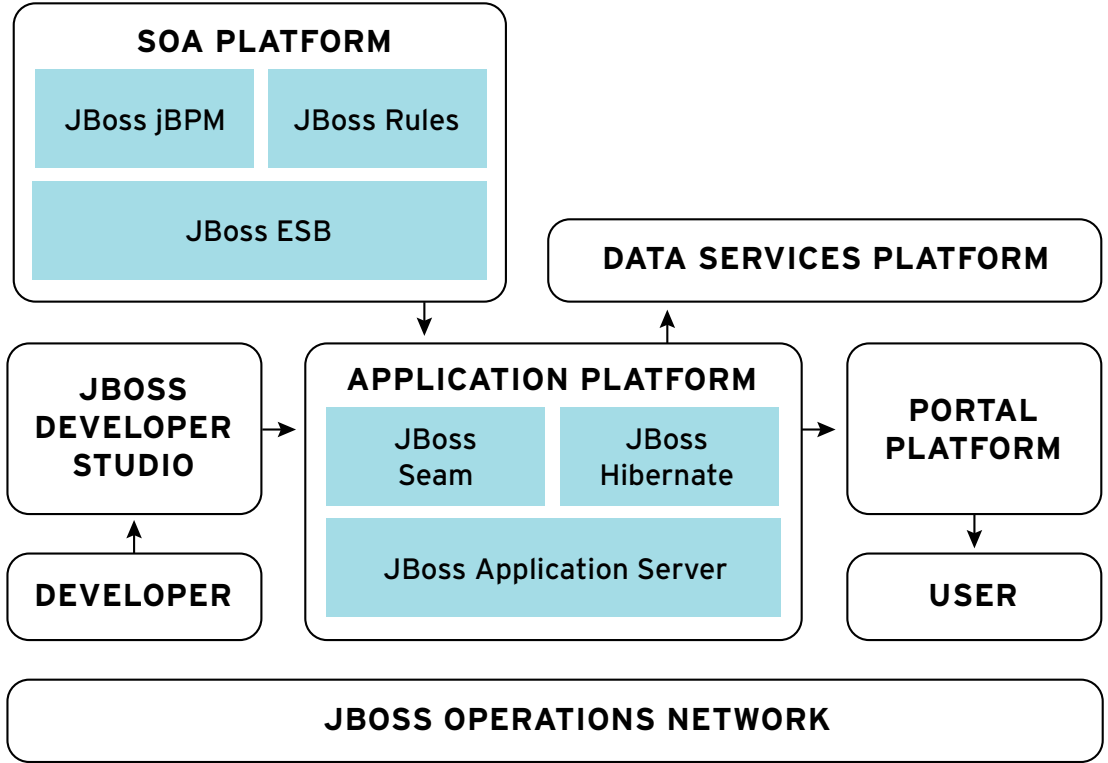
The JBoss/Dell Interactive Inventory Management System demonstrates the ease of building applications on the JBoss Enterprise Application Platform and the Dell PowerEdge blade servers. It can be used across a variety of devices—point-of-sale, mobile handheld, and back-office servers. This paper details how this solution was implemented and shows how JBoss facilitates the addition of enterprise features like persistence, clustering, and custom data synchronization framework.

JBoss ENTERPRISE MIDDLEWARE

JBoss is the global leader in open source middleware software. Fueled by the thriving JBoss.org community, JBoss Enterprise Middleware hardens and integrates innovative community projects into a comprehensive portfolio of stable, supported, enterprise-class distributions that support the entire application lifecycle. The portfolio includes application, portal, data integration, and ESB-based SOA platforms. Available via subscriptions that include patches, updates, support, multi-year maintenance policies, and software assurance, JBoss Enterprise Middleware enables enterprises to confidently deploy their next-generation open source middleware reference architecture.

Customers trust JBoss for improved performance, greater flexibility and control, industry-leading 24x7 support, and significantly lower total cost of ownership. JBoss is a division of Red Hat, the world's leading open source solutions provider, ranked first for value in enterprise software for four consecutive years in the *CIO Insight Magazine Vendor Value* study (<https://www.redhat.com/promo/vendor/>).

JBoss ENTERPRISE MIDDLEWARE PORTFOLIO



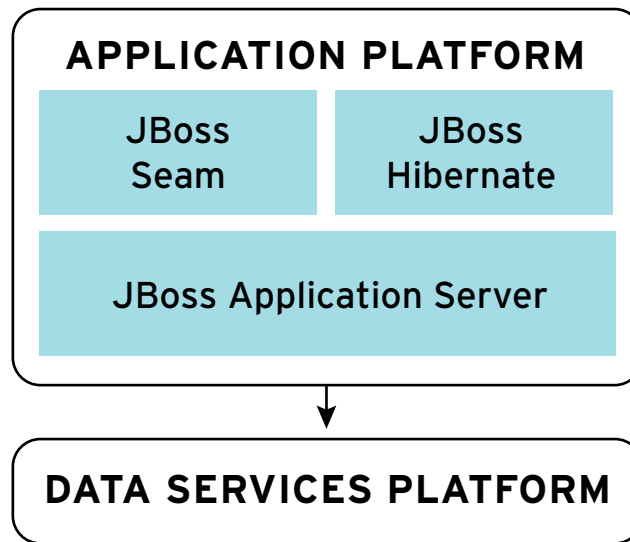
JBoss Enterprise Application Platform is the market-leading open source platform for innovative and scalable Java applications. It's an integrated distribution that includes everything you need to run standards-based web and rich enterprise Java applications. And it's delivered by the leaders in open source.

By integrating the most popular Java EE application server with flexible application frameworks, JBoss Enterprise Application Platform balances innovation with enterprise-class stability. Built on open standards and available through affordable subscriptions, it integrates JBoss Application Server, Clustering, Hibernate, and Seam into a complete enterprise solution for Java applications. As a cross-platform solution, JBoss Enterprise Application Platform runs on Windows, Linux, UNIX, mainframes, or any other platform running a certified Java Virtual Machine (JVM).

JBoss Hibernate Framework is the leading technology for object/relational mapping, persistence (ORM), and database independence. Hibernate directly addresses ORM complexities by providing the ability to map an object model's data representation to a relational data model and corresponding database schema. Hibernate also provides data query and retrieval facilities that significantly reduce development time and relieve enterprise application developers from common data persistence programming tasks through eliminating the need for manual, hand-crafted data processing using SQL and JDBC.

JBoss Seam Framework is a powerful application framework that simplifies building next-generation Web 2.0 applications. Seam supports a streamlined programming model for popular Java technologies and helps overcome common integration, usability issues, and complaints from developers with traditional Java EE.

JBoss ENTERPRISE APPLICATION PLATFORM



The key features of the JBoss Enterprise Application Platform provide a complete solution for building enterprise-class Java applications.

- **Innovation with stability:** Build and host next-generation Java applications and web services with market-leading technology. Benefit from the latest open source innovations that have been integrated, tested, and certified for enterprise-class stability and that are fully supported by the leaders in open source Java.
- **Improve developer productivity:** Utilize the Web 2.0 development technologies integrated into JBoss Developer Studio. This Eclipse-based toolset is pre-configured with the JBoss Enterprise Application Platform to remove configuration complexities and streamline the move from development to production, reducing time to deployment. This, combined with innovative productivity frameworks, such as JBoss Hibernate and Seam, delivers a complete solution for next-generation enterprise Java applications.
- **Enterprise-class performance:** Take advantage of enterprise clustering and high-availability features for superior application performance. Use a proven foundation for mission-critical applications with failover, load balancing, and distributed deployment features used to deploy large, scalable enterprise applications.

- **Do more with less:** Improve application investment returns and savings by leveraging an affordable middleware solution that includes everything you need for enterprise Java applications. Improve your company's total cost of middleware ownership by reinvesting savings to improve collaboration and innovation in other technology areas.
- **Open source, open standards:** Alleviate vendor lock-in with open source standards. IT will have the transparency to see exactly what's happening in their underlying platform and the flexibility to deliver business applications on time and under budget.

JBoss/DELL INVENTORY MANAGEMENT

Retailers are faced with legacy inventory management tools that have limited functionality and run on a variety of servers with different technologies. Their inconsistent user interfaces result in inaccurate inventories, unhappy customers, and a decrease in productivity.

To be competitive, retailers require an inventory management system that runs on multiple platforms and is accessible from a variety of devices in the store, from the traditional PC to pen-based mobile scanning devices. It also must be flexible to adapt quickly to changing business needs and customer demand. The key is to have an open system that can be easily changed and deployed for a business that must adjust rapidly to changing market conditions.

The JBoss/Dell Inventory Management solution answers these needs with Dell PowerEdge servers running the JBoss Enterprise Application Platform 4.3 to develop and execute an inventory management system that is usable across a variety of devices and retail stores.

ARCHITECTURE

Each retail outlet is equipped with a system that includes:

- JBoss Enterprise Application Platform 4.3
- Dell PowerEdge Modular Blade M1000e enclosure
- 10 Dell M600 blade servers
- Quad Core Intel Xeon processors
- Red Hat Enterprise Linux 5.2
- 4GB of RAM
- JBoss Operations Network

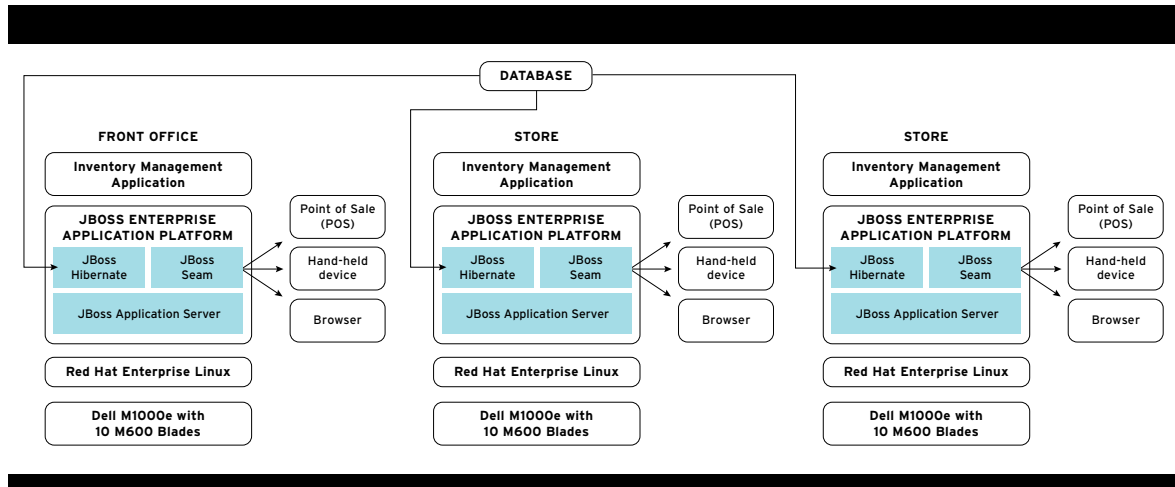
Each store has a single instance of JBoss Enterprise Applications Platform, and the central office is supported with a cluster of six JBoss Enterprise Application Platform servers. Both the stores and central office use the Dell Power Edge M600 Blade servers, which can host a variety of business applications, including centralized inventory management, returns, and an operations dashboard. Custom data synchronization via JBoss Hibernate integrates activity between the single servers at the individual stores and the central office cluster.

Each point-of-sale (POS) client pulls from the centralized database of all register transactions for an offline browser application that uses JBoss Seam to provide access to POS, corporate servers, and mobile devices. When an associate updates front store inventory with his mobile device, it's synchronized with the store's servers and is sent to the corporate servers via nightly EDI batches.

JBoss Seam integrates inventory management functions, such as vendor receiving and inventory adjustments. This JBoss framework allows a larger retailer to access Inventory Management in multiple places, such as browsers and hand-held devices. The Inventory Management applications deliver the same functionality regardless of the interface.

BENEFITS

- Standard applications result in a reduction in training time and improved productivity.
- With improved inventory processes and management, the retail outlets will be positioned to implement new inventory technology as it becomes available.
- The increased throughput and reliability of the platform allows stores to refocus resources on other mission-critical projects.
- The customer experience is improved with the new robust inventory management system. Shelves are always stocked.
- The IT staff spends less time maintaining application infrastructure and more time developing business logic for the applications.
- Overall the retail organization experiences improved productivity at the front-end, improved customer experience, improved ability to respond to future business initiatives, and reduced cost of deployment with open source software.



CONCLUSION

With the market for heterogeneous solutions growing rapidly, Red Hat and Dell are focused on helping customers drive out cost and complexity to enable cross-platform interoperability. Customers looking to use open source for a fresh alternative to costly legacy middleware need look no further. A flexible and orderable solution, JBoss Enterprise Middleware makes it easy to develop, deploy, and manage enterprise Java applications on virtually any operating system.

Together with Dell, JBoss Enterprise Middleware offers an ideal migration path to modernize critical business applications. You can get the value you expect from open source middleware along with the flexibility to choose the operating system that works best for your environment. Dell helps you find a reliable alternative to proprietary middleware with trusted hardware.

Get IT faster

- Decrease development complexity
- Resolve business process friction
- Enable unparalleled flexibility

Run IT better

- Deliver the applications and services that differentiate your business
- Focus development team on building new revenue-generating applications for the business

Grow IT smarter

- Easy to develop, deploy, and manage enterprise Java applications on any operating system
- 24x7 support and multi-year update



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