



**Category:** Return on Investment (ROI)

**Company:** Kroger

**Winner:** Kroger Team

**Vertical:** Retail

**Location:** Cincinnati, Ohio

**JBoss ROI Innovation:** Selected for building out a shared infrastructure (grid) system on JBoss AS that deploys the majority of their mission-critical applications, boosting overall capacity by 40% and saving Kroger over \$100,000 in licensing costs and \$400 per CPU in yearly maintenance costs.

### 1. Company description / size (basic company info).

Kroger Co. spans the vast majority of the United States with store formats that include grocery and multi-department stores, convenience stores, and mall jewelry stores. They operate over 2,500 grocery stores nationwide and hold the number one or two market share position in 40 of the 52 largest markets they serve. They also operate over 790 convenience stores and more than 430 jewelry stores. Kroger also owns and manages 42 manufacturing and food processing plants that produce high-quality private labels sold throughout their stores. They thrive by building strong local ties and strong brand loyalty with their customers.

### 2. Describe any business and/or technical challenges about the project.

Kroger was a long-time customer of another leading J2EE application server vendor and made a corporate decision to investigate open source alternatives in an attempt to dramatically reduce license costs and free up funds for a strategic shared infrastructure project.

### 3. What was your solution?

Kroger's first foray into open source was the Eclipse IDE development environment. After achieving success within the development organization with Eclipse, Kroger decided to turn their attention to Application Servers.

They worked through several evaluation processes before concluding they wanted to standardize on JBoss AS:

- » **Feature Comparison** - Once JBoss AS was selected as the open source option, Kroger went through a feature-by-feature comparison between JBoss and their existing application server provider.
- » **External Research** - Leveraged the Open Source Maturity Model created by Bernard Golden and Navica, an open source consulting organization.
- » **Proof of concept** - spent two weeks migrating from previous J2EE application server to JBoss for select existing applications to test.
- » **Benchmarking** - After migrating the applications to JBoss AS, they spent two additional weeks moving the applications from development thru testing and into production on a mirror environment to their existing live applications.

#### 4. Describe your vendor selection process and reasons for choosing JEMS.

Kroger originally identified two open source options to investigate: JBoss Application Server and Apache Geronimo. After a quick research project on both options, they chose to pursue JBoss for the following reasons:

- » **Stability** – JBoss AS was a fourth generation and production-ready application server while Apache Geronimo was not yet even at a 1.0 version and thus un-tested in mission-critical environments.
- » **Support** – Kroger's applications are mission-critical and thus require expert technical support with service level agreements requiring two hour or less response times for critical support issues. JBoss Inc. offered technical support with the SLAs required by Kroger while there were not similar support options for Apache Geronimo.

#### 5. What role did JEMS products play in the solution?

JBoss AS is now a standard platform within Kroger. Many existing J2EE applications will be migrated to JBoss AS and new applications will be developed on JBoss. Key applications within Kroger that are being migrated include the manufacturing applications used to ensure their 42 manufacturing and food processing plants are properly stocked with ingredients, real estate applications that manage their vast property collection around the country, finance applications critical for closing their books on a quarterly basis, and a series of management applications that Kroger executives rely upon to make strategic decisions for the company. These applications are highly mission critical to Kroger and all run on JBoss AS today.

#### 6. What was the overall impact of the project on the business? (eg: ROI, competitive advantage, time to market?)

- » **Cost Savings** – Kroger estimates that they save approximately \$400 per CPU per year in maintenance costs and as much as \$100,000 per year in yearly license fees. This savings has allowed them to fund a new shared infrastructure (Grid) project that will enable them to move the majority of their applications to a common, shared infrastructure, boost overall capacity by 40%, and generate additional cost savings of approximately \$70,000 per year moving forward.
- » **Superior Support** – Kroger is a Platinum-level JBoss Subscription customer and as such receives two hour or less response times twenty four hours a day and 365 days a year. Access to expert JBoss Technical Support team has dramatically reduced the amount of time needed to resolve technical issues. According to JC Tierney "It is a secure feeling to know that when we have an issue, the case will not pass through four people before solving the problem. My team has only experienced top level support starting with the very first call. The confidence and reliability created by successful resolutions with the JBoss support team has had a positive impact on the operations business and development team."
- » **Improved Performance** - According to JC Tierney, anytime they have moved an application from their previous vendor to JBoss, they have experienced performance improvements in the application. Additionally, servers that were resource constrained prior to the migration to JBoss now have more resources available and can handle more load.
- » **Operational Simplicity** – JBoss has saved Kroger a significant amount of time when building test, staging, and production environments. JC estimates that moving to JBoss has allowed Kroger to reduce application server setup times in test, staging, and production from one day to one hour. Additionally, setup times for full two-tier environments (web server, application server, connectors, plug-ins, data sources and application deploy) have declined from three full days to a half of a day.

#### 7. With the savings gained from implementing JEMS, how did you reallocate your cost savings within your company?

By moving to JBoss AS, Kroger was able to save enough on licensing and maintenance costs to fund a large shared infrastructure (grid) project that consolidates the majority of their applications, boosts overall capacity by 40%, and saves the company approximately \$500,000 in future hardware and software, and \$70,000 per year in maintenance costs.

## 8. Technical description of implementation/size of deployment? (Hardware, applications, o/s, databases, etc.)?

The MCP Manufacturing applications run on IBM Linux Blade servers clustered behind an Edge Server for load balancing. They use Red Hat Linux version 2.1 and an IBM DB2 database (8.X family). For the Web-tier, they leverage Apache Web Server 2.0.5 and Apache Tomcat with mod-jk. JBoss AS (version 4.x) is utilized for the Middleware tier.

Additionally, Kroger is currently refreshing a lot of their infrastructure as they move to a shared infrastructure (Grid) environment. In addition to the MCP manufacturing applications, Kroger also currently runs a set of 15 store systems-side applications and 6 financial applications on the Grid. The total shared infrastructure consists of 8 physical servers (all IBM P570 boxes with 8 CPUs per) with 17 virtual Apache servers and 16 virtual JBoss AS servers. These servers handle production as well as staging and test. The staging servers act as a mirror of the production environment.

## 9. Did you leverage JBoss support services, training or consulting? If so, how was your experience?

- » **JBoss Subscription** – Kroger is currently a Platinum-level JBoss Subscription customer for JBoss AS and Clustering and as such receives expert development and production technical support (the latter with up to two hour response times), access to certified downloads and binary patches, and access to the JBoss Operations Network (JBoss ON), a comprehensive management platform for managing their JBoss Middleware environment. According to JC Tierney, the quality of support from the JBoss Services team has been excellent. ‘With JBoss, we are always contacted by a very knowledgeable support engineer within two hours or less and bug fixes are delivered well within or under our service agreement. Overall, we are extremely satisfied with the quality and responsiveness of the JBoss support team.’
- » **Onsite Training** – during the initial evaluation of JBoss, Kroger brought in an expert on-site training for several days in order to get more familiar with the technology. According to JC, ‘there was a very clear knowledge transfer between the JBoss training and our staff. We were much better prepared to work with JBoss after the training and it’s clear that the training has saved our development staff a significant amount of time over the long run’.

## 10. Advice to other companies considering JEMS.

Just do it