



WARNER MUSIC GROUP - 2007 RED HAT INNOVATION AWARD WINNER

FAST FACTS

Category	Service Oriented Architecture (SOA)
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warner | music | group

OVERVIEW

Selected for implementing JEMS to create a customer asset management system with a Service-Oriented Architecture that enables efficient website data management and maximum scalability across WMG's rapidly growing extended enterprise

1. PLEASE DESCRIBE YOUR COMPANY. (NUMBER OF EMPLOYEES, PRIVATE/PUBLIC, INDUSTRY, ETC.)

Warner Music Group became the only stand-alone music company to be publicly traded in the United States in May 2005. With its broad roster of new stars and legendary artists, Warner Music Group is home to a collection of the best-known record labels in the music industry including Asylum, Atlantic, Bad Boy, Cordless, East West, Elektra, Lava, Maverick, Nonesuch, Perfect Game, Reprise, Rhino, Roadrunner, Rykodisc, Sire, Warner Bros. and Word. Warner Music International, a leading company in national and international repertoire, operates through numerous international affiliates and licensees in more than 50 countries. Warner Music Group also includes Warner/Chappell Music, one of the world's leading music publishers.

2. PLEASE DESCRIBE THE BUSINESS AND/OR TECHNICAL CHALLENGES YOU FACED IN THIS PROJECT.

The Digital Properties Division of Warner Music Group provides in-house website development services for all of the entities that comprise the worldwide organization.

With hundreds of labels and artists managing their own websites, efficient data management was a challenge for the Division. On Atlantic Records alone, more than 200 artists have individual web sites, which share much of the same data as their label's corporate site.

Five years ago, the Division began implementing a customer asset management system to enable the web managers throughout the extended enterprise to make and publish content changes more easily. After experiencing major problems with an off-the-shelf solution, Aled Davies and Brian Compton, the Division's Senior Software Architects, realized that to fix the software issues and address the organization's specific business processes would mean rewriting the vendor's code. This implementation was a custom version of an off-the-shelf product. There were many issues with the product as it did not integrate well with the business requirements and was not easy to use and customize. There was also a challenge integrating with e-commerce vendors, integrating with ad servers and providing search optimization techniques. The ease of change was essential as the music industry is rapidly changing and systems that support it need to change quickly as well.

Sanjay Sen, who runs the Digital Properties Group and Karen Stavisky, Vice President, Worldwide Content and Rights Management, WMG, put this challenge and the business requirements in front of the architects - Aled Davies and Brian Compton - who quickly realized that to fix the software issues and address the organization's specific business processes would mean rewriting the vendor's code. It would be easier to build a new asset management system using JBoss products -mostly because of the flexibility and the "open source" factor that the JBOSS product brought to the table.

3. WHAT WAS THE DESIRED SOLUTION?

WMG required a solution that would enable the Division to support the company's rapid growth without being locked into a particular package or vendor. Davies wanted a solution that was easy to maintain and offered affordable support fees. He wanted the members of his team to have the flexibility to fix problems themselves as they came up, without having to rely heavily on vendor support. Finally, the desired solution would enable the Digital Properties Division to build out a centralized asset management system from which web managers could pull data and turn it into content for their own individual web sites. This central system would also support integration with e-commerce vendors, B2B partners and ad servers easily, as well as provide a platform to be used for search optimization on websites.

4. PLEASE DESCRIBE YOUR VENDOR SELECTION PROCESS AND WHY YOU CHOSE RED HAT IN THE END.

Digital Properties had used JBoss solutions in implementing other development projects. Zero-cost product licenses made the JBoss Enterprise Middleware Suite very appealing, since WMG had been paying large fees for licensing and support. JEMS open source code and readily available knowledge base meant that Davies' team would be able to fix problems themselves quickly and easily. With affordable subscriptions, the Division would also be able to call on Red Hat Support when necessary. The Digital Properties Division evaluated other J2EE application server vendors but their performance running on JDK 5.0 was too low. The performance needs of the WMG application running on other programs would have required a significant hardware investment.

JEMS provided all the services that the Division required within one affordable, easy-to-maintain bundle. As a result, the Digital Properties Division decided to migrate to JEMS in 2005.

5. WHAT ROLE DID RED HAT AND/OR JBOSS PRODUCTS PLAY IN THE FINAL SOLUTION?

WMG implemented a combination of JEMS solutions to develop its own customer asset management system with a Service-Oriented Architecture (SOA). Using JBoss Application Server, the Digital Properties Division created a three-tiered architecture including a business logic services layer that all WMG websites can now access for various services. By calling the services, sites have the ability to access data using Java Server Pages or Servlets, SOAP, or XML. The Digital Properties Division recently started developing a number of common website services, such as user registration and polls. Because these services can be found at the business services layer of the system, developers now have the ability to easily drop them into various sites, quickly providing functionality as needed. Services can be called independently from the presentation layer, enabling PHP and Flash sites to use the same services to access data without having to use the JSP implementation. To facilitate data processing, the Division mapped JBoss Hibernate onto the database at the data tier. And to improve the performance of the web sites, which attract enormous amounts of daily traffic, WMG uses JBoss Cache.

6. WHAT WAS THE OVERALL IMPACT OF THE PROJECT ON YOUR BUSINESS? (E.G. IMPROVED ROI, INCREASED COMPETITIVE ADVANTAGE, BETTER TIME TO MARKET, ETC.)

The new SOA implementation created an affordable, easy-to-maintain, and scalable system, resulting in enormous time and cost savings for the Digital Properties Division. Because the Division no longer has to pay for software licenses, annual support costs have dropped significantly. Developers now maintain the system easily, accessing the code and solving problems quickly as they arise. As a result of using open source code, the development team is much more self-sufficient and completely vendor independent. Unlike the previous solution, which would stall when too much data was



added, the SOA system provides maximum scalability to support the continuous growth of the company. Integration with e-commerce vendors, B2B partners, ad servers and provision of a platform to be used for search optimization on websites has been easily achieved with this solution making this tool the heart of WMG's drive to take the artist and label web sites to the next generation of ad-generated revenue, e-commerce enablement and provide optimized search techniques.

The new SOA system also resulted in increased user satisfaction within WMG. The streamlined solution eliminated layers of web pages, enabling web managers to maneuver through the asset management system more quickly and work on their sites more effectively.

7. WHAT VALUE DID YOU GAIN FROM IMPLEMENTING RED HAT SOLUTIONS? IF A GAIN IN EFFICIENCY, HOW WERE THOSE ADDITIONAL RESOURCES ALLOCATED WITHIN YOUR COMPANY?

As a result of implementing JEMS, WMG realized significant gains in working efficiencies that optimized resources and improved productivity. Today, the organization can do more with the same amount of resources. Because web managers spend less time handling data, they are able to manage a larger number of sites than before. Recently, WMG added two new divisions, and with the new JEMS SOA in place, it was possible to integrate the new websites into the asset management system and to support the sites without growing headcount. The JEMS SOA system also enabled the Digital Properties Division to run more sites with less hardware. Continuing to migrate old sites to the SOA system will free up more servers, and the Division plans to reallocate these to other projects or to use them for other functions within the new environment.

8. PLEASE PROVIDE A TECHNICAL DESCRIPTION OF IMPLEMENTATION, INCLUDING THE SIZE OF DEPLOYMENT. (I.E. HARDWARE SPECS, APPLICATIONS, O/S, DATABASES, ETC.)

WMG implemented JBoss Application Server 4.03, Hibernate 3.1, Apache Tomcat, and JBoss Cache. Three Solaris machines run the JBoss Application Server solution. Each machine is divided into six nodes

running two instances of JBoss Application Server and one instance of JBoss Cache. Fourteen nodes share three caches: twelve nodes run on a live cache while two nodes run on the internal business site cache where sites are previewed before publishing. Hibernate is mapped onto an Oracle database.

Two nodes on each machine run the asset management system, based on the JBoss AS platform. The node configurations are divided by business units. For instance, all international web sites run on one node and all Warner sites run on another.

9. DID YOU LEVERAGE RED HAT SUPPORT SERVICES, TRAINING, OR CONSULTING? IF SO, PLEASE DESCRIBE YOUR EXPERIENCE?

WMG is a JBoss Platinum Support subscriber. The Digital Properties Division worked with two JBoss consultants to implement the caching capability correctly. The SOA system has been in production for over a year, and as Davies had hoped, the Division has not needed to request support very often. Whenever a request has been submitted, the support experience has been very good.

10. DO YOU HAVE ADVICE FOR OTHER COMPANIES FACING A SIMILAR BUSINESS CHALLENGE?

Don't be afraid to solve the problem yourself. Many organizations look for off-the-shelf solutions to solve their problems completely and end up having to do a huge amount of work to get those systems to work properly. Many times this requires as much work as developing the solution yourself from start to finish. Usually business requirements are so specific to each individual business that we really need to solve the problems ourselves. With tools like JEMS, we can create comprehensive solutions for our organizations more quickly and easily, meeting our particular business needs without having to rely on inflexible vendor products.

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