



UNION BANK REINVENTS IT ENVIRONMENT WITH RED HAT ENTERPRISE LINUX AND JBOSS ENTERPRISE MIDDLEWARE

2009 RED HAT INNOVATION AWARDS

FAST FACTS

Company	Union Bank, N.A.
Industry	Financial Services
Headquarters	San Francisco, CA
Business challenge	An aging and costly IT infrastructure was impeding the ability of Union Bank to scale to growth and respond agilely to changing market dynamics
Software	Red Hat Enterprise Linux™, Red Hat Network Satellite, JBoss Enterprise Application Platform™, JBoss Seam, JBoss Hibernate, Red Hat Consulting
Hardware	More than 150 Intel™ Xeon™ processor-based HP ProLiant servers
Migration path	UNIX™ on high-end RISC machines to Red Hat Enterprise Linux running on Intel Xeon based HP servers; Websphere to JBoss Enterprise Application Platform
Benefits	Improve reliability and scalability, cut costs, and deliver new financial services and products to market faster



BACKGROUND

Union Bank, N.A., headquartered in San Francisco is a full-service commercial bank providing an array of financial services to individuals, small businesses, middle-market companies, and major corporations. Union Bank is California's fifth-largest bank by deposits. The bank has 335 banking offices in California, Oregon, and Washington and two international offices. Its holding company, UnionBanCal Corporation, is the 16th largest commercial bank holding company in the U.S. based on assets at March 31, 2009.

Union Bank was selected for its operating platform migration from AIX to Red Hat Enterprise Linux and Websphere to JBoss to support its mission critical applications at an improved price with greater performance and less up-keep. Union Bank used open source solutions to increase time to market, reliability and return on investment.

BUSINESS CHALLENGE

When Mok Choe joined Union Bank in early 2007 as chief technology officer, the Union Bank IT infrastructure faced a host of challenges similar to those of many other companies at the time, mainly increasing costs and resources associated with the maintenance and upkeep of legacy systems.

Over the years, Union Bank's IT infrastructure had grown increasingly large, cumbersome, and complex. Not only was it costly to operate and maintain, but it couldn't scale to accommodate the bank's rapid expansion into new markets. System availability was also a continuing challenge. And as the financial services industry expanded into electronic banking products, Union Bank's reliance on IT was increasing. The bank thus required an IT infrastructure that could speed new products to market with rock-solid reliability and availability, and which could also scale as needed.

"First, we migrated our entire Web-based infrastructure over to Red Hat Enterprise Linux. Next, we ported our teller platform over to JBoss. And third, we wrote a brand new Web-based cash management application built on the entire Red Hat stack: Red Hat Enterprise Linux, JBoss, Hibernate, and SEAM."

-Mok Choe, chief technology officer, Union Bank

The hardware environment embraced a "big box" approach with a few massive servers at strategic locations that offered little relief when significant impacts occurred. This environment required tremendous overhead with constant monitoring and management of server problems.

The IT department at Union Bank was also under pressure to reduce the total cost of ownership (TCO) of its overall IT operations. The solution needed to deliver a robust disaster recovery environment with minimal mean-time-to-restore (MTTR) and maximum mean-time-between-failures (MTBF) times. Finally, the solution needed to better leverage Union Bank's most highly skilled IT workers. By enabling valued staff workers to reduce the day-to-day support required by overhead-intensive legacy systems, productivity would improve, and the bank's IT department could move from a reaction to proactive support model.

"First and foremost, we needed to improve system availability," said Choe. "Secondly, we needed to speed time to market of new financial services products. And at the end of the day, we needed to decrease the cost per transaction of delivering services."

SOLUTION

Union Bank immediately focused on the task of establishing a new and innovative technology environment. The first decision: to create a new open source-based enterprise-wide IT platform to obtain improved availability, agility,

scalability and reduced TCO (total cost of ownership), while enabling the support of the bank's growing IT needs and better alignment with the bank's overall business plan.

"We did three specific things," said Choe. "First, we migrated our entire Web-based infrastructure over to Red Hat Enterprise Linux so we could go from a scale-up to a scale-out architecture. Next, we ported our teller platform over to JBoss. And third, we wrote a brand new Web-based cash management application built on the entire Red Hat technology stack: Red Hat Enterprise Linux, JBoss, Hibernate, and SEAM."

The strategy started at the operating platform level by replacing the aging UNIX based RISC servers with commodity x86 machines running Red Hat Enterprise Linux, and migrating to JBoss Enterprise Application Platform at the application server level. Union Bank initially utilized Red Hat Network to set up centralized, secure management of its Red Hat Enterprise Linux systems.

Union Bank took advantage of Red Hat Consulting to assist the IT group with the initial design of the first phases of deploying the new architecture and Web-based applications. The bank's infrastructure and application development teams attended Red Hat Training to learn valuable tools and lessons on integration and migration issues.

The new strategy also encompassed building a new data center that leveraged virtualization technology on top of Red Hat Enterprise Linux to dramatically reduce the bank's hardware footprint. "The bank is very serious about its green initiative, and Red Hat Enterprise Linux is a key part of that," said Choe.

One of the most strategic projects was to replace the bank's operating system environment on branch teller systems with JBoss Enterprise Application Platform running on Red Hat Enterprise Linux. Within just months, the Union Bank development staff was able to create a "silent" JBoss deployment package and distribute it remotely to over 330 production branch servers.

"The JBoss-based teller application has been running successfully at the 330 branch sites ever since," said Choe, "The small footprint of JBoss has freed up much needed space on each branch server and has laid the ground work for future expansion. We plan to migrate other customer-facing web applications from Websphere to JBoss Enterprise Application Platform."



BENEFITS

Union Bank's innovative approach to its IT re-architecture has resulted in improvements to system availability, scalability and, resiliency, increased ROI, enhanced security, provisioning, configuration management, and improved time to market.

The most significant benefits have been improved system availability and resiliency. Upon migrating to Red Hat Enterprise Linux, there have been improvements of the bank's hardware infrastructure, as seen by improved mean-time-to-restore (MTTR), and mean-time-between-failures (MTBF).

The return on investment (ROI) was also substantial. For example, the large RISC machines were running at less than 50 percent capacity. To ensure redundancy, the bank needed to double its hardware investment to allow for fail over. "With Red Hat's commodity model, we were able to spread the load over multiple machines and reduce our overall spend by approximately 80 percent," said Choe. "And these savings don't take into account the reduced maintenance costs of moving to the Red Hat platform, which is easier - and therefore cheaper - to maintain."

Additionally, because application performance increased significantly under the new JBoss and Red Hat architecture, the bank was able to reduce the time-to-market of new products. The bank was also able to improve customer service by boosting the performance of its teller application. "The success of that project gives us confidence to tackle the rest of our browser-based Web applications with a JBoss solution," said Choe.

The move from a vertical to a horizontal architecture and process enhancement have improved both system availability and resiliency, which allows the bank to absorb normal glitches without impacting customer transactions. "The reliability of our Web applications has improved to the point where I can go to our business partners and confidently say we have better than 'four 9s' availability," said Choe.

The Red Hat/JBoss solution requires less maintenance and enables Union Bank IT to reduce their efforts on day-to-day support of legacy systems, allowing for better resource utilization. This also helped the IT group move from a reactive to a proactive model more expediently.

Additionally, the bank's overall cost-per-transaction declined 25 to 40 percent, something that Union Bank's business centers appreciate. "We have a charge-back

system in which our departments pay for the IT resources they consume," said Choe. "They've seen their charges go down month by month."

"We benefited greatly from Red Hat Consulting as they provided valuable input and assistance in helping us migrate to Red Hat technology and dramatically improved our ability to achieve our goals. With Red Hat Consulting, we felt there was an immediate knowledge transfer, and we were very satisfied with the level of involvement and quality of knowledge provided to our team."

And ultimately many of the ongoing benefits that Choe expects to reap in coming years as a result of transforming the bank's IT operations come from his expanded technology options. "We've achieved tremendous cost, reliability, and availability benefits, but in the end it all comes back to the fact that we now have choices when it comes to deploying hardware and software," he said. "We're no longer locked into using a particular product or vendor. Open source - and by extension, Red Hat - makes that possible."

"The high costs and overhead associated with legacy proprietary-software and infrastructure led us to the decision to deploy Red Hat and JBoss open source solutions, and this allowed us to provide core infrastructure and development platforms at a significantly lower cost and at a faster rate," said Choe, "Our use of Red Hat and JBoss solutions demonstrate creative business innovation through the use of horizontal architecture and the improvements allow Union Bank to continue to increase our customer experiences."



RED HAT SALES AND INQUIRIES

NORTH AMERICA

1-888-REDHAT1
www.redhat.com

ASIA PACIFIC

+65 6490 4200
www.apac.redhat.com
apac@redhat.com

EUROPE, MIDDLE EAST AND AFRICA

00800 7334 2835
www.europe.redhat.com
europe@redhat.com

LATIN AMERICA

+54 11 4341 6200
www.latam.redhat.com
info-latam@redhat.com