RED HAT VIRTUALIZATION AND JBOSS HELP QUAM LIMITED BUILD FLEXIBLE, HIGH-PERFORMANCE INFORMATION PORTAL

FAST FACTS

Company	The Quam Limited
Industry	Financial Services
Geography	Hong Kong
Business Challenge	Rapid business growth and the expansion of its service portfolio made it necessary to replace the company's website with an efficient financial information portal. It also looked to leverage virtualization technology to reduce hardware footprint and increase operational flexibility.
Migration Path	Microsoft Windows and UNIX to Red Hat Enterprise Linux Advanced Platform with integrated virtualization on Intel Xeon based servers
Software	Red Hat Enterprise Linux 5 Advanced Platform with built-in virtualization, Red Hat Satellite, JBoss Enterprise Application Platform, Hibernate
Hardware	Intel Xeon-based servers
Services	Red Hat Consulting
Benefits	Achieved a high-performance, flexible IT infrastructure with the integrated virtualization technology in Red Hat Enterprise Linux; Experienced 50-70 percent reduction in software and hardware costs

BACKGROUND

Quam Limited serves both institutional and retail investors and provides an array of services supporting participation in capital markets and wealth management. The company's history goes back to the founding of Quam Limited in 1986 and the listing of Quam Ltd on the Hong Kong Stock Exchange in 1997. Today Quam Ltd is the holding company of a diverse financial services and wealth management group with a major and fast-growing stake in Mainland China through strategic alliances and intermediaries.

BUSINESS CHALLENGE

In 1998, Quam built the first financial services website in Hong Kong. However, by the spring of 2007, Quam's rapid business growth and the expansion of its service portfolio made it necessary to replace the existing website, www.quamnet.com, with an efficient financial information portal that would provide a much stronger link between the firm's financial services and its hundreds of thousands of members.

Slow access time was becoming a problem with the old website. "In our business, users expect very rapid response time," said Philip Choi, head of Technology for Quam Limited. "And our infrastructure was not able to handle the large user base that we had acquired."

The financial information portal also has to process direct connections to the Hong Kong Stock Exchange for stock announcements on listed companies as well as wire news services, including Xinhua and Infocast Financial news for news of Hong Kong and Asia.

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"We have a very large number of active members, many of whom are involved in online trading," said Choi. "We needed to provide them with market information, including financial news, reports, analysis, and real-time stock quotes." In addition, the financial information portal needed a redesign of its front-end, the Content Management System, and back-end, the Customer Relations Management System, in order to enable Quam to know and serve its members better.

Another problem with the old website was the inflexible infrastructure, which made updating web content a tedious business. "Our financial information has to be altered frequently, so we needed a fast, simple way of updating the site," said Choi.

When Philip Choi joined Quam in May 2007, he was asked to completely re-build the website. "We were asked to totally revamp and restructure the website, so we basically did everything from scratch," said Choi.

SOLUTION

The main operating systems used in the existing website were Windows and UNIX. "For the financial services industry, Windows may have some security issues," said Choi. "UNIX is more costly, in terms of license fees and related hardware. I also had to consider the availability of skilled support labor."

In his previous experience, Choi had used Red Hat Enterprise Linux successfully, so he decided to measure it against the existing alternatives. "One advantage would be that Red Hat Enterprise Linux can run on powerful and inexpensive servers, with a wide choice of hardware vendors," said Choi, "So we would not be locked into any proprietary technology."

Another factor in Quam's decision was the wide acceptance of Red Hat Enterprise Linux as the leading platform within the financial services sector. The quamnet.com website has the same demands for performance, availability, and security as other major financial institutions, said Choi. "Like other players in the financial services market, we seek alliance with the leading vendors to optimize the performance and security of our operations."

Today, Red Hat Enterprise Linux is a very mature operating system, and Red Hat provides high-quality direct support. "I have confidence in the top management of Red Hat both locally in Hong Kong and globally, and believe the company is a long-term partner for Quam," said Choi.

Quam IT Department started the study project on the new financial information portal in May 2007, and the staff talked to several vendors. "We decided to go with Red Hat Enterprise Linux for its cost-effectiveness, enterprise support, ease-of-management, and flexibility," said Choi.

Red Hat Consulting provided guidance and hands-on support to the Quam IT team beginning with the planning stage. "Once our server hardware was installed, Red Hat Consulting certified the platforms as stable and scalable and carried out all the software installation work, providing a guarantee to remedy any platform issues," said Choi.

Throughout the installation process, Red Hat helped Quam with the sizing and planning of how to configure the resources. "We gave them figures, such as the number of portal visitors and page views per day that we needed to support," said Choi. "This helped us determine how many servers, how many CPUs and how much memory we needed. We have a requirement of so many transactions per second, and we need to guarantee the response time provided to end-users."

Quam's infrastructure includes server farms to support front-end users' access and back-end service delivery with all Intel Xeon-based servers on rack mounted blades. Quam relied on Red Hat for the majority of the sizing work on planning the financial information portal, server utilization, and connections to the database and application layers.

Red Hat Enterprise Linux Advanced Platform includes fully integrated server and storage virtualization, coupled with high availability clustering capabilities based on Red Hat Global File System and Red Hat Cluster Suite. The robust environment supports servers of any size and an unlimited number of virtualized guest environments.

Quam also uses Red Hat Satellite, a reliable systems management system, to help the company keep its open source environment up-to-date and to help efficiently manage its physical and virtual servers. "The beauty is we can reassign memory and CPUs on-the-fly and whatever applications need more resources, we can provide them immediately," said Choi.

Clustering is one of the elements of virtualization that Quam required. Red Hat Enterprise Linux Advanced Platform virtualization technology allows Quam users to easily move applications and resources between servers.

Powerful middleware: JBoss Enterprise Application Platform

The financial information portal build was carried out at high speed, aided substantially by Red Hat Consulting, and was mostly complete in months. "My in-house programmers had to write a number of new applications from scratch, mostly using Java J2EE," said Choi. "It was then subjected to extensive testing, after which we went live in mid-January 2008."

To support the large number of applications on their financial information portal, Quam selected JBoss Enterprise Application Platform, which it found to be the best platform for innovative and highly scalable Java applications. Integrated and simplified, it includes powerful open source technologies for building, deploying and hosting enterprise Java applications and services.

A key part of Quam's use of JBoss Enterprise Application Platform is Hibernate, a framework that

enables users to express queries in native SQL, an extension called HQL, or with an object-oriented Criteria and Example API. Hibernate provided a ubiquitous object-relational mapping and persistence framework which does not require hand-written SQL or stored procedures and this provides a significant increase in performance and scalability.

Another JBoss technology used was the JBoss cluster, which is a group of nodes comprising JBoss server instances within a server partition. "Individual nodes can be added to or removed from a cluster at any time," said Choi. "JBoss Clustering provides high availability for J2EE applications running inside of JBoss."

The use of JBoss Enterprise Middleware enabled Quam to speed up the creation of applications. "Our system is very stable, and that enables our IT team to concentrate on the programming operation," said Choi.

BENEFITS

Quam has invested in multi-lingual market communications. "Our financial information portal provides both traditional and simplified Chinese language versions, plus English," said Choi. "Our competitors have traditional Chinese only, some with English. I am proud of the fact that we were able to build a best-in-class information portal with Red Hat within six months, in three languages."

Red Hat Enterprise Linux Advanced Platform provides integrated server and storage virtualization technologies. The virtualization provided is easy-to-deploy, simple to manage, and flexible. "Red Hat virtualization technology has enabled us to reduce the number of servers we need," said Choi, "and that in turn has reduced the space, cooling, and power consumption."

For users, the new information portal provides a much faster response to queries, even at peak times during the stock exchange trading hours. It's also much easier to update information on the new financial information portal. JBoss provides a programming framework which facilitates changes to business logic using minimum programming effort.

"Previously, in the financial services industry, companies were forced to rely on proprietary vendors," said Choi. "We are using Red Hat Enterprise Linux because of our confidence in Red Hat to meet our very high levels of availability, performance, and security that are essential in our business. But we are not locked in to any vendor. The beauty of open source is that it enables freedom of choice."

Red Hat Consulting not only supported the financial information portal build, but also provided valuable information on best practices. This was vital in helping Quam to achieve an outstanding time-to-market for the project. "The use of Red Hat and JBoss technology has enabled us to save approximately 50-70 percent overall on the entire project costs and even more in annual costs," said Choi.

The success of the project confirms the value of open source solutions as a long-term strategy. "Overall we made a solid decision in choosing Red Hat as our partner and our customer's have benefited from our decision to use Red Hat and JBoss technologies," said Choi.

"Our next project will be a financial information portal specifically for the Mainland China market and we will need to deploy servers on a larger scale," added Choi. "We are committed to open source software over proprietary software, and we definitely plan to keep using Red Hat in future."

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