



BOVESPA

A Bolsa do Brasil

Overview

Country or Region: Brazil

Industry: Financial services

Customer Profile

The Brazilian São Paulo Stock Exchange (BOVESPA) handles an average of 110,000 daily trades worth U.S.\$1.5 billion. Its financial infrastructure component, the Brazilian Clearing and Depository Corporation, retains custody of \$400 billion.

Business Situation

With dramatic growth in trade volume, BOVESPA needed to replace its mainframe and mainframe-based applications with a more flexible and robust IT platform.

Solution

BOVESPA undertook a massive project to deploy Microsoft-based servers and migrate dozens of mission-critical applications to the new environment.

Benefits

- Smoother growth path
- More cost-effective development environment
- Lower TCO, higher ROI
- Higher broker and dealer productivity

Brazilian Stock Exchange Ushers in New Era with Server-Based Infrastructure

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Carlos Umberto de Faria, Production Planning and Quality Manager, BOVESPA

Starting the late 1970s, the Brazilian São Paulo Stock Exchange (BOVESPA) ran its mission-critical applications on ever-larger, ever-more costly mainframe platforms. By the early 2000s, however, with daily trading volume growing by 50 percent each year, BOVESPA IT executives decided to evaluate their technology investments and infrastructure. Seeking a more flexible approach, they decided to migrate their entire operation to a Microsoft-based server infrastructure and ultimately retire the mainframe. Based on early results, the decision was a wise one, as BOVESPA is enjoying higher performance, stability, and security and a lower total cost of ownership. The institution is also helping brokers and dealers become more productive, thereby facilitating access to securities trading by individuals and organizations of all sizes worldwide.



“Compared with a mainframe environment, we enjoy equal or better scalability, availability, manageability, and security for lower capital and operating costs.”

Luiz Gonzaga de Oliveira Simões, Chief Information Officer, BOVESPA and the Brazilian Clearing and Depository Corporation

Situation

In operation for well over a century, the Brazilian São Paulo Stock Exchange (BOVESPA) is the sole institution for trading stock, debentures, investment fund quotas, and other securities issued by publicly owned companies in Brazil. It also is the largest stock exchange in Latin America.

Starting in the 1980s the BOVESPA IT infrastructure was based primarily on IBM mainframe platforms. But as BOVESPA's trading volume grew dramatically in the last decades of the 20th century and by 50 percent yearly starting in 2002, IT executives recognized the need for a more cost-effective and versatile approach.

In particular, they wanted a platform that would help them support continuing growth, reduce costs, and simplify their technology environment, says Luiz Gonzaga de Oliveira Simões, Chief Information Officer for BOVESPA and its financial infrastructure component, the Brazilian Clearing and Depository Corporation. And for these reasons, Gonzaga and his colleagues turned their attention to Microsoft.

As Gonzaga explains, BOVESPA IT executives first became familiar with large-scale computing environments based on Microsoft technology with the proliferation of the Internet in the mid-1990s. Over the next few years they migrated a number of applications to Microsoft-based servers, including a payment solution for the Brazilian Central Bank that became operational in 2002.

After evaluating the success of that application, they decided to proceed with a major mainframe migration project, which included migrating 72 legacy applications based on COBOL and DB2 to a Microsoft platform, committing to future application development on that platform, and ultimately phasing out the mainframe. As of early 2007,

they had migrated 70 applications and were in process of migrating the last two.

According to Carlos Umberto de Faria, BOVESPA Production Planning and Quality Manager, the decision to undertake such a significant endeavor was based on several factors.

“We figured that development of core solutions connected with the bank payment system would be faster and less costly in a server environment than on the mainframes, and that we could use the opportunity to evolve our knowledge of the new platform,” Faria says. “We figured maintenance costs would be lower because of more affordable hardware and greater choice of third-party vendors. We also figured that by retiring the mainframes, we could avoid compatibility and stability problems that might arise from trying to run the two different platforms.”

In sum, Faria points out, “We realized that with a Microsoft-based platform, we could get availability, security, and productivity all in one place.”

Solution

The initial phase of the project, to migrate the existing mainframe-based applications, ran from 2003 to 2005. It involved a team more than 200 people—about 80 from BOVESPA, 100 from partner companies, and 30 from Microsoft Consulting Services (MCS) and other Microsoft organizations—who generated upwards of 4 million lines of code. Technical experts from HP, the hardware provider, were also heavily involved.

With the help of Microsoft® Visual Studio® .NET, Microsoft Visual Studio 2005, COM+, and other technologies in the Microsoft .NET Framework, MCS helped the team leverage a service-oriented architecture, including XML and Microsoft Distributed Transaction Coordinator, for strengthening security and

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André Vieira, Supervisor of System Development, BOVESPA

integration among applications that reside on opposite sides of multiple firewalls. In accordance with the Microsoft Solutions Framework, MCS also helped the team adopt a new methodology for quality control of development and standardization of documentation.

At the hardware level, HP Critical Service assisted with availability, service levels, efficiency, and uptime.

The project also involved 350 Microsoft Official Curriculum training sessions for developers and other IT professionals. As André Vieira, BOVESPA Supervisor of System Development, points out, “The Microsoft Official Curriculum not only brought the company’s internal mainframe experts up to speed on the new technologies, but also enabled BOVESPA to retain these valuable professionals through this major transition—a central objective.”

According to Deodoro Brusadim, BOVESPA Infrastructure Manager, the Microsoft-based platform consists primarily of 40 HP ProLiant DL360 and Integrity rx7640 and rx8620 servers for development and testing and 35 for production. The ProLiant DL360 servers run Microsoft Windows® Server 2003 and are distributed across two locations and deployed in clusters for redundancy and security. The Integrity rx7640 servers, which are powered by four single-core Intel Itanium 2 processors, run SQL Server 2000 databases and the applications that run against them; these databases and applications are being moved to the Integrity rx8620 servers powered by eight dual-core Intel Itanium 2 processors and SQL Server 2005.

Benefits

With the migration, BOVESPA is beginning to enjoy significant benefits in terms of growth, costs, and productivity.

Simplifying Growth

Perhaps most important, growth is easier now that BOVESPA can rely on the cost-effective horizontal scalability of a server-based infrastructure. “Being able to scale out and up in a fast and flexible way helps BOVESPA keep up with market evolution,” Gonzaga says. “In this way we are better able to support the rapidly expanding capital market in Brazil.”

“Fast and flexible” can also describe the new BOVESPA development environment, according to Faria.

“From developer-productivity enhancements like multilanguage debugging in Visual Studio 2005 to the greater access to skilled developers and a vibrant third-party ecosystem, it is easier and more cost-efficient to build new products and services on a Microsoft-based platform,” Faria says. “Through both the Microsoft .NET technology and the Microsoft Solutions Framework methodology, we anticipate higher application performance and reliability for currently deployed applications and lower costs for future application upgrades.”

Cutting Costs

Over the long term, those lower development costs, along with the lower maintenance costs of a server-based hardware infrastructure, will help BOVESPA reduce its total cost of ownership and enhance its return on investment. As Gonzaga emphasizes, this will be a dramatic improvement over the costly environment of running an entire IT environment on mainframe computers.

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Deodoro Brusadim, Infrastructure Manager,
BOVESPA

“What we are seeing is that even large mainframes, like the 500 MIPS system we were using before, can be replaced by a Microsoft-based platform,” Gonzaga says. “Compared with a mainframe environment, we enjoy equal or better scalability, availability, manageability, and security for lower capital and operating costs. The greater flexibility for growth is an added bonus.”

Boosting Productivity

Similarly, the higher performance and availability of the new infrastructure is helping the brokers and dealers who work in and with BOVESPA to conduct their operations a lot more efficiently. “Our productivity improvement stems from a powerful combination of stability, security, and robustness that we enjoy and will continue to enjoy as a result of moving to a Microsoft-based platform,” Gonzaga says.

Brusadim concurs, emphasizing the related advantage of retaining the BOVESPA’s “business brain”: the skilled IT professionals who supported the mainframe systems and are now applying their training and expertise to the Microsoft-based platform. “As a result, BOVESPA has become a truly ‘people-ready’ business that can make investing in Brazilian securities more available to investors of all sizes and in all locations, and thereby help to grow the Brazilian economy,” he says.

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For more information about BOVESPA products and services, visit the Web site at: <http://www.bovespa.com.br/Principal.asp>

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- Products
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 - Microsoft Systems Management Server
 - Windows Server 2000 and 2003
- Technologies
 - Microsoft Distributed Transaction Coordinator
 - Microsoft Windows 2000 Terminal Services Remote Desktop Protocol
 - HP Systems Insight Manager
- Microsoft Consulting Services
- Microsoft Premier Support

Hardware

- HP ProLiant DL360 servers
- HP Integrity rx7640 servers
- HP Integrity rx8620 servers
- HP XP512 7.7-terabyte disk array storage

Partners

- HP
- Intel