

# BSE – India's biggest and most important stock exchange sharpens its edge



By consolidating multiple servers, HP has helped the Bombay Stock Exchange simplify its IT infrastructure to attain a leaner and more competitive edge.





Mr. S.B. Patankar  
Chief Technology Officer, BSE



"With daily trade volumes rising, it was not enough to just add more production environments, which was just reducing the efficiency. The need of the hour was a streamlined and consolidated IT infrastructure."

### **The Bombay Stock Exchange**

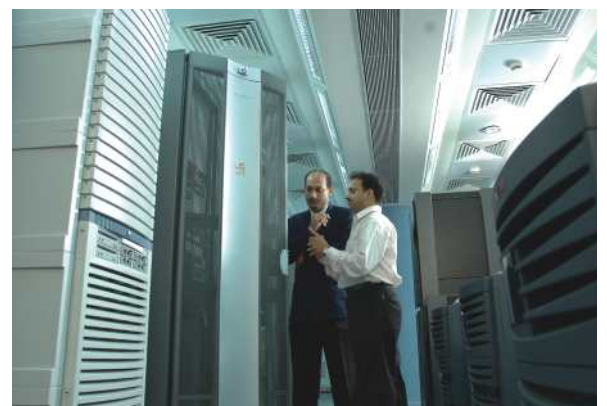
The Stock Exchange, Mumbai, popularly known as BSE, was established in 1875, and is the oldest stock exchange in Asia. It accounts for over one third of the total trading volume in the country. The average number of daily trades on the Exchange is one million, giving it one of the highest per hour rates of trading in the world. In the financial year 2003-04, its average daily turnover exceeded US\$ 450 million.

### **Making the Right Decision**

As India's leading financial exchange, BSE realised the importance of having in place state-of-the-art IT infrastructure to support trading activity. With the tremendous growth in the volume of daily trades, BSE recognised the need to invest in business solutions that were efficient, scalable, cost-effective and reliable.

In its effort to help sustain trading activity, BSE had, over the years, introduced several new software applications. With each new application, new servers were added, leading to a loss of operational efficiency. "It was getting difficult to manage different production environments" recounts Mr. S.B. Patankar, Chief Technology Officer, BSE.

There were 14 disparate servers running different applications, and a few of these servers were more than five years old. The existence of a large number of servers – some of them nearly obsolete – meant that maintenance costs were skyrocketing, even as the BSE was striving to streamline its operations. Therefore, the Company's goal was to consolidate the IT Infrastructure for these various applications.





### **The HP Partnership and Solution**

The Exchange has been one of HP's major customers and the two organisations already had a relationship based on trust and experience. The Exchange's main trading engines BOLT (BSE OnLine Trading System) application runs on the HP NonStop Server S-86016. This past relationship and the fact that many of the existing servers were HP servers, made HP an ideal partner for this project.

HP worked with BSE to design a solution that would enable them to optimise infrastructure, enhance performance and flexibility while reducing the Total Cost of Ownership.

"We implemented the solution in a phased manner. In the first phase of the solution, we consolidated storage at BSE on to a single EVA5000 platform. The total storage capacity is 3.5 TB. In the second phase, we addressed the issue of servers," says Suresh Menon, Solution Consultant, HP. "We brought down the server count from 14 to just two. It has drastically reduced the complexity of the IT Infrastructure deployment," he adds.

Two new HP rp8400 servers were chosen for their high performance, flexibility and growth capacity. HP rp8400 servers have been designed to meet demanding workloads and perform crucial functions such as server consolidation while being flexible and adaptable to future needs of BSE.

Each HP rp8400 server is configured into multiple partitions. Each partition runs a set of applications, and the solution has been designed in a way so as to allow BSE to move computing resources across partitions. Key production partitions are configured to cluster to each other across the two servers for the highest levels of availability. Storage is completely virtualised and can dynamically be allocated, de-allocated or reallocated depending on application requirements.

"We were able to design and deliver a highly flexible solution using a combination of storage virtualisation, partitioning technologies as well as the use of the current high performance CPUs available on our servers. By putting these together into a cohesive consolidated solution, we were able to provide a high performance and agile IT Infrastructure which a dynamic organisation like BSE needs" explains Menon.

### **The Gains from Collaboration**

HP servers and storage deliver a combination of enterprise-class performance, availability, manageability and investment protection. BSE therefore gained from improved infrastructure management, continuity, flexibility and, not to mention, cost savings.

At BSE, the benefits of consolidating storage and servers were visible almost immediately. The new IT infrastructure adopted by BSE has enabled the Exchange to anticipate and respond to business changes and market needs with greater speed and flexibility. The servers are now configured to handle growth in planned and unplanned peaks during trading activities. "We went in for IT Consolidation in order that performance would increase and manageability would become easier. Our expectations have definitely been met." says Mr. Patankar. There has been an estimated capacity improvement of around 20% with a head room of 4x which helps in handling sudden peaks in transactions. In addition to a system that performs more efficiently, BSE has also been able to lower the cost of maintenance and ownership by around 50% by employing the HP rp8400 servers and EVA Storage arrays. BSE today has gained a leaner and more competitive edge, enabling it to move a step closer to becoming an Adaptive Enterprise.

## Challenges

- Consolidate the IT infrastructure
- Provide a flexible and scalable, streamlined infrastructure to support rising trading activity and business growth
- Reduce complexity in the IT environment
- Tackle loss of operational efficiency
- Reduce the high maintenance costs

## Solutions

- Consolidated storage on to a single EVA5000 platform with total storage capacity of 3.5 TB
- Number of servers brought down to 2 reducing the complexity of the IT infrastructure
- Two new HP rp8400 servers, chosen for their high performance, flexibility and growth capacity, each configured into multiple partitions, so as to allow the movement of computing resources across partitions
- A combination of partitioning technologies and completely virtualised storage that can dynamically be allocated, de-allocated or reallocated depending on application requirements

## Results

- Enables BSE to anticipate and respond to business changes and market needs with greater speed and flexibility
- Easy handling of growth in planned and unplanned peaks during trading activities
- Capacity improvement of around 20% with headroom of 4x
- Cost of maintenance and ownership reduced by around 50%

To know more about the HP Adaptive Enterprise solutions,  
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