



# INDIABULLS ACHIEVES 10 TIMES MORE PERFORMANCE BY MIGRATING FROM HP TRU64 TO ENTERPRISE LINUX

## FAST FACTS

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| <b>Industry:</b>   | Financial Services   |
| <b>Challenges:</b> | Modernize and scale proprietary, SMP-UNIX infrastructure. Set up a high performance computing environment that can handle cutting edge research projects. Simplify management and system administration. |
| <b>Solution:</b>   | Software: Red Hat Enterprise Linux, Oracle 9i Database & Order Routing System  |
| <b>Benefits:</b>   | Enterprise Linux on x86 servers generate 10 times more performance than the earlier UNIX-RISC infrastructure. Linux' inherent security provides a hassle free solution.                                  |

## INTRODUCTION

Indiabulls is India's leading retail financial services company with a network of 135 outlets spread across 95 cities. Indiabulls offers a complete range of financial services and products, including equities, insurance and personal loans. The company has a vision of using technology to create a world of smart investors. Indiabulls offers real-time electronic trading capabilities to over 1,30,000 investors across the country, generating a total turnover of Rs 10,000 million daily in cash and derivatives.

## CHALLENGES

Indiabulls offers investors across the country a secure, reliable way to carry out their transactions remotely. Using an installable client application provided by Indiabulls, investors can log in to the Indiabulls Professional Network from a remote PC. After their identity has been verified, investors can proceed to send transaction data to the Stock Exchange. A confirmation receipt is returned to the investors after the data has been transmitted. The application server runs an Order Routing System, which manages the transaction lifecycle.

"This end-to-end transaction round trip take place in approximately two seconds; and it's the Internet that

takes up a bulk of the delay," says Tejinderpal Singh Miglani, CTO, Indiabulls Group.

With approximately 8,000 concurrent investors logged on to the Indiabulls Professional Network at any given time, there is absolutely no room for error. During peak loads, investors generate up to 2,000 requests per minute for which 4,000 responses are triggered in return. This puts the total peak volume of online transactions at 6,000 per minute. The database server logs the entire length of the transaction, handling an average of 25 queries per transaction. Under a peak load of 6,000 online transactions, this translates to approximately 1,50,000 queries per minute.

During volatile market days, there are sudden spikes in usage, which adds a further strain to the database and application server. "We needed a high performance platform that could match our demanding, continuous availability needs," explains Miglani.

Approximately 45-50 percent of Indiabulls' total revenue is generated online, which totals to about Rs 1 crore daily. A downtime of a single minute could generate a loss of Rs 50,000 for the company.



"Our database and application servers are the lifelines of our online share trading business. Even a performance delay of a few seconds translates into lost revenue for us," adds Miglani.

Originally, both the Oracle 9i Database and Order Routing System were hosted on HP Tru64 Alpha. As the UNIX platform headed towards uncertainty, Indiabulls decided to migrate to the latest platform available.

As the number of investors grew, Indiabulls was expecting the workload to increase significantly. Indiabulls was also keen to introduce redundancy into its infrastructure to provide reliable services to its customers. The enterprise had an option of continuing with proprietary UNIX-RISC machines, which presented an expensive proposition and an uncertain future. Indiabulls wanted a low cost platform that could run on commodity hardware without any compromise in performance or reliability. "A non-proprietary platform running on x86 servers would give us complete freedom from vendor lock-ins and eliminate the expensive operating costs that proprietary UNIX-RISC machines command - i.e. expensive upgrades, updates, patches and maintenance," says Miglani.

### SOLUTION

After an extensive evaluation phase, Indiabulls found Enterprise Linux to be the perfect choice. "The performance of Enterprise Linux overshadows Windows under benchmark results. Enterprise Linux offers a reliable, robust architecture for which support is easily available. Also, since we were planning to implement Oracle RAC in future, Red Hat was the perfect platform, as it offers the maximum pre-certified configurations for RAC technology," says Miglani.

On the hardware front, as the 64-bit RISC technology faced limited and extremely slow development over the years, Indiabulls found high-speed, 32-bit x86 servers an attractive proposition to invest in.

"Migrating away from the proprietary RISC-UNIX bundle to Red Hat running on inexpensive x86 servers provided the best value proposition for us," says Miglani.

The backend infrastructure consisting of an Oracle 9i database and an Order Routing System are both powered by Red Hat Advanced Server 2.1. The personal loans system which falls under Indiabulls Credit Services has also been hosted on Red Hat Advanced Server 2.1. As the Internet Share Trading and personal loans applications were developed in Java, porting to Enterprise Linux was virtually seamless.

### BENEFITS

By using Enterprise Linux, Indiabulls could extract high performance from low cost, 32-bit x86 servers, which were available at less than half the price of their 64-bit UNIX-RISC counterparts. Enterprise Linux running on the x86 architecture has empowered Indiabulls to purchase more servers and generate 10 times more performance than its earlier UNIX-RISC infrastructure.

"Linux' inherent security and lower vulnerability to viruses has delivered a hassle free solution," claims Miglani. With absolutely no downtime or performance delays, Enterprise Linux ensures that daily revenues remain intact at Indiabulls.

### FUTURE ROADMAP

Indiabulls is now looking at standardizing on Linux and is also considering migrating to Red Hat Enterprise Linux v.3 to further increase performance. With growing popularity of Linux on the desktop, Indiabulls is considering to port its client application to Linux. In doing so, it hopes to meet the needs of investors who prefer to use Linux desktops from their home or office in connecting to their services network.

### CONCLUSION

Indiabulls has found a robust and reliable solution by banking its entire online Share Trading platform on Enterprise Linux. With its mission critical needs satisfied by Enterprise Linux running on low cost servers, Indiabulls has managed to procure a cost effective alternative to proprietary technologies.

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