Masaryk University

Masaryk University transformed the performance of its critical information system by migrating it to an Oracle* 10*g* cluster running on SUSE® Linux Enterprise Server. The Linux-based solution offers excellent response times for 20,000 daily users, ultra-high availability and low cost of ownership.

Overview

Masaryk University in Brno, Czech Republic, was established in 1919 and has more than 30,000 students in nine faculties. The University is the largest in the Moravia region and the most selective in the country, accepting just over 30 percent of all applicants.

Challenge

The Masaryk University Information System (IS MU) is a Web-based system that supports every aspect of university life, from admissions and administration to e-learning, research and communication. Originally developed in 1998, IS MU quickly grew to encompass more than 1,000 applications, used on a daily basis by more than 20,000 users.

By replacing manual, paper-based administrative processes with faster and more efficient electronic systems, IS MU had improved the productivity of both staff and students. However, the system was in danger of becoming a victim of its own success—the underlying technology could not scale rapidly enough to meet growing demands from users, and performance began to suffer. At peak times, the system could take up to 20 seconds to respond to

requests, leaving users frustrated and unable to work at an optimal pace.

Masaryk University needed a new, high-performance platform for its core Oracle database, capable of supporting around one million transactions per day and of scaling up to meet tens of millions of daily transactions.

Solution

The University reviewed hardware platforms and operating systems from several major vendors, aiming to find the best combination of outright performance, high availability, low acquisition cost and scalability. Based on these criteria, Masaryk University selected two SGI* Altix* 350 servers and SUSE Linux Enterprise Server as the platform for its Oracle 10*g* Real Application Cluster solution. Each Altix server is powered by eight Intel* Itanium* 2 processors and includes fibre-channel connections to high-performance SGI storage arrays.

"The IS MU includes dozens of additional servers for load balancing, software development, application serving and presentation layers, all of which were already running Linux," said Miroslav Kripac, Database Architect at Masaryk University. "We wanted

---

Masaryk University at a glance:

Leading Czech Republic higher education institute

- **Industry:**
  Education
- **Location:**
  Czech Republic
- **Solutions:**
  SUSE Linux Enterprise Server
- **Results:**
  – *Faster response times for all administrative and e-learning systems*
  – *High availability and scalability for critical applications*
  – *Solution won the 2005 EUNIS Elite Award for excellence*

"We selected SUSE Linux Enterprise Server as the only distribution certified for both SGI Altix and Oracle 10*g*."

Miroslav Kripac
Database Architect
Masaryk University

www.novell.com

to have the same platform for the core Oracle cluster, and selected SUSE Linux Enterprise Server as the only distribution certified for both SGI Altix and Oracle 10*g*."

The whole architecture of the IS MU now runs on Linux*, supporting practically every process that takes place in the University. It acts as the central information hub, feeding data to administrative systems, departmental bulletin boards, e-learning applications and student grading systems. The system won the 2005 EUNIS Elite Award for excellence in implementing Administrative Information Systems for Higher Education.

"Our primary goal in selecting Linux was not to lower our budget, but to provide much better service and performance for the same budget," said Michal Brandejs, Project Manager at Masaryk University. "We achieved this goal, and gained an open source environment that we can easily adapt and optimize."

The openness of Linux was an important advantage during the installation of the new Altix servers. While waiting for an official fix for a problematic driver, the University was able to install a temporary patch created in the open source community and continue work.

"With Linux, we can very easily access security fixes not only for system components but also for the many GNU applications that we use," said Kripac. "SUSE Linux Enterprise Server is an excellent distribution in terms of getting kernel code changes, including support for the SGI NUMAflex platform."

Results

The combination of SUSE Linux Enterprise Server, Oracle 10*g* database and SGI Altix servers delivered an immediate improvement in performance for the IS MU, cutting response times to sub-second levels and boosting user satisfaction. With faster access to information, Masaryk University's users can work more efficiently, increasing staff productivity and giving students more time to study.

"Oracle and SUSE Linux Enterprise Server support all of our study and research systems, including traditional courses, e-learning and communications, said Kripac. "About 20,000 people use the IS MU every day, and the high performance of SUSE Linux Enterprise Server enables other systems to access the database without impacting live users."

As Masaryk University continues to move towards student-driven education, the IT staff adds dozens of new applications for online learning to the IS MU each year. This increases the value of the system to the University and makes it all the more important to maintain high levels of availability.

"We just can't afford to have the system offline," said Brandejs. "Altix servers, Oracle 10*g* and SUSE Linux Enterprise Server provide excellent stability and reliability. The solution gives everyone at Masaryk instant access to all the information they need, and we can grow the system on demand to meet the challenges of tomorrow.

Contact your local Novell® Solutions Provider, or call Novell at:

1 888 321 4272 U.S./Canada
1 801 861 4272 Worldwide
1 801 861 8473 Facsimile

For More Information:
To read more customer success stories, visit:
www.novell.com/success

Novell, Inc.
404 Wyman Street
Waltham, MA 02451 USA

Novell.