

UNIVERSITY RESEARCHERS AND STUDENTS USE SOLUTION TO SIMPLIFY HIGH PERFORMANCE COMPUTING

PROFILE

The Technical University of Berlin is an internationally renowned establishment in the capital of Germany. It offers a diverse selection of courses to 30,000 students.

The Technical University Berlin is a leading institution of higher education in Germany. Because of its focus on advanced technology, it has a strong demand for high performance computing (HPC) solutions. In April 2008, Microsoft and Dell took the chance to offer the university a trial of Windows® HPC Server 2008. Now, students can train to use and maintain high-performance clusters, making complex calculations through a simple Windows interface.

BUSINESS NEEDS

The Technical University of Berlin was officially established in 1946, but can trace its roots back to a school of mining founded in 1770. The university is now an internationally renowned organisation at the forefront of teaching and research in Germany. As such, its staff and students demand modern, high performing technology. Until recently, they used a range of predominantly UNIX-based HPC solutions. But, in keeping with the university's policy of adopting the latest innovative technology, executives were keen to test a Windows-based HPC environment for staff and students.



CUSTOMER PROFILE

COMPANY: Technical University Berlin

INDUSTRY: Education – Universities

COUNTRY: Germany

EMPLOYEES: 30,000 students, 7000 employees

WEB ADDRESS: www.tu-berlin.de

CHALLENGE

The Technical University of Berlin used a range of predominantly UNIX-based HPC solutions. But, in keeping with the university's policy of adopting the latest innovative technology, executives were keen to test a Windows-based HPC environment for staff and students.

SOLUTION

In April 2008, Microsoft and Dell took the chance to offer the university a trial of Windows® HPC Server 2008. Now, students can train to use and maintain high-performance clusters, making complex calculations through a simple Windows interface.

BENEFIT

- Simple installation
- Complete integration
- Ease of use
- Comprehensive security and sustainability
- Great support
- Good productivity



The Technical University Berlin identified three requirements that needed to be addressed before it could consider promoting a novel computing environment:

- Simple implementation – HPC solutions are usually only installed and maintained by specialists. However, the university needs the solution to be quick and easy to deploy across seven schools, by people without specialist expertise.
- Easy to use – the environment must be uncomplicated. For many students, using the system will be their first experience of HPC. Training must be fast and straightforward.
- High-throughput capacity – employees and students need to perform complex calculations to achieve the results they need. The solution has to process a large amount of information quickly and efficiently.

Michael Flachsel, Head of Infrastructure Group at Technical University Berlin IT Department (TUBIT), says: “The university has a large number of HPC solutions in operation. As such, it’s difficult to have a consistent environment to teach students how to use high performance cluster systems. We need a standardised solution that can provide our students with HPC and train them to operate these machines at the same level.”

SOLUTION

In April 2008, employees were offered a chance to participate in an exciting collaborative pilot from Microsoft and Dell. Using their specialist expertise, TUBIT employees were invited to evaluate Windows HPC Server 2008 software from Microsoft, on a Dell PowerEdge 2950 server, with eight PowerEdge M600 Blade servers housed in a PowerEdge M1000e blade chassis.

Windows HPC Server 2008 combines the power of the Windows Server® operating system with rich, out-of-the-box functionality to help improve productivity and reduce the complexity of an HPC environment.

The product can efficiently scale to thousands of processing cores and provides a comprehensive set of deployment, administration, and monitoring tools that are easy to deploy, manage, and integrate with existing infrastructures.

The partnership between Dell and Microsoft resulted in a solution that was exceptionally easy to set up. TUBIT received the system in August 2008 and implemented it in just a few days. Employees required no assistance in setting it up from either Microsoft or Dell, though both were on hand to offer assistance, and due to the familiarity of the Windows infrastructure and interface, needed no training in its use.

“WINDOWS HPC SERVER 2008 WAS SO EASY TO SET UP, OUT OF THE BOX, THAT WE DID IT OURSELVES. IT’S A GREAT TOOL TO TEACH STUDENTS HOW TO USE AN HPC SYSTEM, AS WE CAN TEACH THEM TO USE IT QUICKLY AND EASILY.”

Michael Flachsel, Head of Infrastructure Group, Technical University Berlin

HOW IT WORKS

HARDWARE

- Dell PowerEdge 2950 server with Intel Xeon processor
- Dell PowerEdge M600 blade server with Intel Xeon processor
- Dell PowerEdge M1000e blade chassis

SOFTWARE AND SERVICES

- Microsoft Server Product Portfolio
 - Windows HPC Server 2008

Evaluation and testing of the project is carried out by TUBIT specialists, who create and monitor a range of science and engineering experiments, including particle simulation. They will present their findings in January 2009 to other Berlin universities and institutions that are interested in HPC. In addition, PHD students have been given the opportunity to use the environment for research in scheduling Grid infrastructures, with the aim to publish their results at various international conferences.

BENEFITS

With the adoption of Windows HPC Server 2008, employees at TUBIT have seen significant improvements in the way HPC can be achieved. Set up and management of the solution is much easier with simplified tools for installation, administration, maintenance, and expansion. Flachsel says: “Windows HPC Server 2008 was so easy to set up, out of the box, that we did it ourselves. It’s a great tool to teach students how to use an HPC system, as we can teach them to use it quickly and easily.”

- Simple installation. Windows HPC Server 2008 is as easy to buy and set up as a standard Windows Server. No specialist expertise is required.
- Complete integration. The solution runs parallel workloads in a standard Windows environment, resulting in full integration with existing files and applications. This aids installation and maintenance.
- Ease of use. Students can be taught to programme high performance cluster systems through a familiar Windows interface.
- Comprehensive security and sustainability. Windows HPC Server 2008 comes with a range of security features and encryption processes that safeguards university work and protects its intellectual property.
- Great support. The combined Dell and Microsoft solution provides the university with a reliable, easy-to-use HPC environment.
- Good productivity. With faster processing and a simplified development environment, students and employees can complete high-quality research quickly.

To read additional case studies, go to www.dell.com/casestudies.

This case study is for informational purposes only. DELL MAKES NO WARRANTIES EXPRESS OR IMPLIED IN THIS CASE STUDY.



Microsoft®



SIMPLIFY YOUR TOTAL SOLUTION AT DELL.COM/Simplify



© February 2009, Dell Inc.

Intel and Intel Xeon are registered trademarks of Intel Corporation or its subsidiaries in the United States and other countries.

Microsoft and Microsoft Windows are either registered trademarks or trademarks of Microsoft Corporation in the United States and/or other countries.

Reference number: 10007431