



POSTECH (Pohang University of Science and Technology) attains advanced research capabilities with high performance computing cluster

• HPC



“With our HPC solution we are now engaging in research that is usually conducted by industries rather than academia, at a fraction of the cost of proprietary systems.”

*Professor Hwanjo Yu,
Department of Computer Science
and Engineering, POSTECH*

Customer profile

Company:	POSTECH (Pohang University of Science and Technology)
Industry:	Education
Country:	Pohang, South Korea
Students:	3,100
Faculty:	249
Website:	www.postech.ac.kr and www.itce.postech.ac.kr

Business need

[POSTECH \(Pohang University of Science and Technology\)](#) needed a high performance computing solution to conduct intense data mining research efforts.

Solution

A high performance computing cluster powered by Dell™ PowerEdge™ servers was deployed within the Department of Computer Science and Engineering.



Benefits

- Maximized computing power enables university to complete larger scale research projects
- Reduced energy consumption helps reduce costs
- Minimized downtime creates a more consistent user experience

POSTECH (Pohang University of Science and Technology) was founded in 1986 and is one of the first research-oriented universities within Korea. With approximately 3,100 students, 249 academic staff and over 60 research centers on their main campus, POSTECH engages in cutting-edge research and development, providing world-class research facilities and learning resources to its students and faculty.

"Our desire to experiment with large scale databases meant we needed at least 100 node machines. A HPC solution could reasonably meet our needs."

Professor Hwanjo Yu, Department of Computer Science and Engineering, POSTECH

Professor Hwanjo Yu joined the Department of Computer Science and Engineering at POSTECH in 2008 and wanted to pursue research projects focused on distributed data mining and intelligent data retrieval. The challenge was the compute power needed to pursue such large scale projects. Professor Yu discussed his requirements with the department, which then agreed to support the installation of the necessary IT infrastructure.

After discussions with Dell, HP and IBM, POSTECH selected Dell to implement a high performance computing (HPC) solution consisting of Dell PowerEdge R610 rack servers and Dell PowerConnect 6248 Ethernet switches to deliver exceptional performance and manageability to support the university's innovative research and development efforts.

Maximizing computing power to solve advanced computation problems

HPC enables researchers to accelerate innovation by utilizing parallel processing to run advanced applications efficiently, reliably, and quickly. Prior to the implementation of the Dell HPC solution, POSTECH was using non-branded, custom-built 12 node machines with insufficient capacity to house the databases needed for such large scale research projects. "Our desire to experiment with large scale databases meant we needed at least 100 node machines. A HPC solution could reasonably meet our needs," notes Professor Yu.

Members of the faculty of the computer science department worked together in formulating the ideal configuration for the solution that could handle the massive data

intensive processing that their research demanded. Each node would need 24 GB memory, 3 TB hard disk space and 2 hexa-core CPUs and Dell worked closely with the POSTECH team to meet their requirements.

By deploying a 150 node Dell PowerEdge R610 rack server cluster and Dell PowerConnect 6248 Ethernet switches housed within PowerEdge Rack 4210 server enclosures, POSTECH created a flexible and powerful HPC solution that can scale to meet the department's growing research needs. Professor Yu comments, "Working on data-intensive research projects such as developing intelligent search engines is now possible for our students and faculty."

Technology at work

Services*

Dell™ ProSupport
– Mission Critical Option, four hour onsite service

Hardware

Dell PowerEdge™ R610 rack servers with Intel® Xeon® processor 5600 series

Dell PowerConnect™ 6248 Ethernet switches

Dell 42U PowerEdge Rack 4210 cabinet



Superior performance while achieving energy efficiency

The Dell PowerEdge R610 servers featuring the Intel Xeon processor 5600 series architecture feature energy-tuned technologies designed to reduce power consumption while increasing performance and capacity, in line with the university's need to provide energy efficient infrastructure. Dell's 42U PowerEdge Rack 4210 server enclosures support this by providing a highly efficient rack system to help POSTECH optimize their physical storage space, and improved airflow for optimal cooling features further enhances server and power management, resulting in lower long-term operating costs for the university.

POSTECH is assured of support through the Dell ProSupport Mission Critical option with four

hour onsite service that provides rapid resolution. With instant insight into how their HPC solution is performing at all times, POSTECH can now spend less time troubleshooting and more time in engaging students and faculty members in innovative research programs.

POSTECH has become a pioneer in undertaking large scale research projects that are typical of large corporations and industries. Professor Yu notes, "With our HPC solution we are now engaging in research that is usually conducted by industries rather than academia, at a fraction of the cost of proprietary systems."

For more information go to:
dell.com/casestudies and
dell.co.kr

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For more information go to dell.com/casestudies

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