

Hitachi Storage Solutions at Work

Hong Kong University of Science and Technology

INDUSTRY Education

SOLUTIONS Storage Management and Business Continuity/Disaster Recovery

Hardware — Hitachi Adaptable Modular Storage 500

Software — Hitachi Copy-on-Write Snapshot, Hitachi TrueCopy® Synchronous and Hitachi ShadowImage® Replication software



“For years, we have been using storage solutions from Hitachi Data Systems because of its unmatched reliability and performance in the industry. With that in mind, we expanded our storage infrastructure to include AMS500 storage systems and a Disaster Recovery solution from Hitachi to enhance service reliability and ensure prompt data recovery while providing the best possible e-mail services for the university.”

*Mr. Kenneth Lai
SAN Design and Operations In-charge
Information Technology Services Center
Hong Kong University of Science and Technology*



香港科技大學
THE HONG KONG UNIVERSITY OF
SCIENCE AND TECHNOLOGY

Hong Kong University of Science and Technology Improves Education Services with Hitachi Storage Solution

At the Hong Kong University of Science and Technology (HKUST), the Internet is a vital platform to allow for students and teaching staff to communicate and share teaching materials. The electronic exchange of e-mail and multimedia documents, in particular, is growing at an unprecedented pace as teaching becomes more lively and interactive. The university's IT services department realises that in order to better facilitate this interactive learning, it is necessary to constantly scale up its data storage infrastructure. Hitachi Data Systems was asked to provide a data management and disaster recovery solution that delivers highly reliable and scalable e-mail and storage services, while minimising data loss.

HKUST, one of the key universities in Hong Kong, deployed a storage area network (SAN) solution from Hitachi Data Systems several years ago to store and manage the huge quantity of e-mail produced every day. But, as volume expanded exponentially, the university decided to beef up its storage system with a new Hitachi Adaptable Modular Storage 500 system combined with Hitachi TrueCopy® Synchronous software to ensure

the fastest possible data recovery, while minimizing data loss and protecting against database integrity problems.

At HKUST, there are over 10,000 e-mail accounts, including students, faculty and staff, from various academic and administrative departments. E-mail data alone takes up 70 percent of the university's storage capacity. In addition, when new projects are introduced,

more new e-mail accounts and storage capacity are required to facilitate communication between the participants. The remaining storage capacity is allocated to Web site data and multimedia teaching materials, etc. Deploying a highly available and scalable storage solution was a key concern for HKUST as its storage demand increased.

Storage Needs on the Rise

According to Kenneth Lai, SAN design and operations in-charge, Information Technology Services Center (ITSC) of HKUST, the university produces as much as 100GB to 200GB of e-mail data every day, and to cope with the growing e-mail usage on campus the university will continue to increase storage capacity for users. Storage capacity has already increased from 20MB to 200MB for students and from 50MB to 400MB for university staff in recent years. As a result, HKUST needed a storage infrastructure which delivered the reliability and availability equal to that of their SAN.

SAN Outperforms Traditional Storage Approach

Before building a SAN environment, ITSC managed the university's data with a direct attached storage approach, meaning that each application server had its own dedicated storage system. This approach created a number of storage silos, making it difficult for the center to manage and maintain the storage network. As data volume grew and the ITSC had to add storage capacity, IT administrators were forced to reconfigure each individual storage system one by one to cope. The time and cost involved was immense, for example, when system upgrades were required for 30 application systems. In the year 2000, HKUST decided to deploy a Hitachi SAN to simplify its data storage management and introduce more scalability. The SAN infrastructure was used as the central data management console to consolidate application data from servers at the university.

SAN is a highly-reliable storage architecture and the Hitachi SAN solution employs RAID-5 technology that can speed up data I/O. In addition, the SAN supports tiered storage, allowing e-mail data to be migrated across storage tiers and allocated to an optimal location based on cost, performance and data protection requirements.

When creating new volumes for e-mail servers, the Hitachi SAN solution automatically completes optimization without the need for manual reconfiguration. Lai said this intelligent functionality definitely helps streamline the workload for their small storage administration team, which comprises only three to four staff members.

Better Protection from Disaster Recovery Site

With the expansion of application systems and data, HKUST needed an additional storage site to enhance service reliability. As a result, a disaster recovery site was built

with a switch-over function, which ensures that even if an error occurred in the primary production site, e-mails could still be retrieved from the recovery site through available system paths within 10 minutes.

As for secondary data, HKUST deployed Hitachi ShadowImage® Replication software to clone its database through snapshots and replicate the copies to another disk array within the same system. But as its disaster recovery site has expanded, it has also been used for remote replication of secondary data. The replication copies are mostly stored in a Hitachi Thunder 9500™ Series storage system.

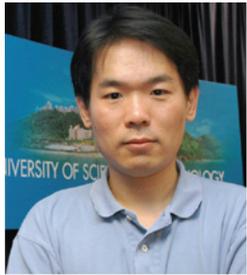
Hitachi Data Systems Stands Out in Competition

HKUST has been using storage solutions from Hitachi Data Systems for seven years. The university's very first SAN solution was built upon the Hitachi Thunder 9200™ modular storage system and from there onwards the

Lai said that the ITSC often opts to partner with Hitachi Data Systems as its storage solutions exhibit strong competitiveness in terms of reliability, scalability as well as price-performance: the solutions deliver far more capabilities than solutions from other vendors do at the same price level. He added that Hitachi Data Systems has another advantage in offering user-friendly storage management software. Hitachi uses a consistent and integrated management tool and interface across different generations of its storage products. IT administrators can easily manage new storage platforms without additional training and support.

Cornerstone for Future Development

Using simple, flexible and high-performance storage solutions from Hitachi Data Systems, HKUST has readied itself to accommodate a more interactive, sophisticated learning environment with highly available IT services. It has also ensured that all teaching materials and intellectual property have been reliably stored and protected with a well-planned data protection and disaster recovery solution.



“Hitachi delivers proven capabilities that address the various challenges we have faced. We believe that Hitachi solutions are not just fit for HKUST, but for any organizations that aspire for excellence.”

Mr. Kenneth Lai
SAN Design and Operations In-charge
Information Technology Services Center
Hong Kong University of Science and Technology

specifically for critical e-mail data. Hitachi provided HKUST with a solution that consists of two Adaptable Modular Storage 500 systems, one in the production site and the other one in the disaster recovery site. The solution also includes Hitachi TrueCopy® Synchronous software, which replicates e-mail data produced and stored in the production site to its recovery site in real time. The software is coupled

storage infrastructure has been expanding to include Hitachi Thunder 9570V™ and Thunder 9585V™ modular storage systems, and, most recently, the Adaptable Modular Storage 500 systems. Hitachi storage systems have displayed high availability, strong system reliability and performance throughout these years. There has been no hardware failure or error in the system since it was first installed.

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