

Case study

National Institute of Education, Singapore

»THE COMPLETION OF THIS LARGE-SCALE PROJECT WITHIN A TIGHT TIMELINE IS A TESTAMENT TO FUJITSU'S CAPABILITIES AND COMMITMENT«

Mr Tan Hoon Chiang, CIO, National Institute of Education, Singapore



The customer

The National Institute of Education (NIE) is Singapore's national teacher training institute, committed to the mission of creating a world-class institute renowned for its excellence in teacher education and education research. With approximately 1,200 employees* and 6,090 full-time students, NIE provides for all levels of teacher education, from initial teacher education programs to professional development programs for in-service teachers and executive leadership programs.

The challenge

NIE hosts the largest education library in Singapore with an abundance of print, electronic and digital resources for internal and external use. The Institute's Data Center (DC) is one of the critical resources supporting the Institute to reach destination 2012 as mapped out in its Strategic Plan for the 21st Century Teacher Education.

NIE's DC was a complex, heterogeneous computing environment with five Operating Systems (OS), five different backup software, and running on 111 servers from five vendors. This affected the effective patch and configuration management. By 2009, the backup window was stretched to eight hours with different tape formats for 22 storage sub-systems. The center's servers were performing backup using shared production network, competing with production system network for bandwidth.

With the implementation of new initiatives over the years, NIE's DC was populated with servers and equipment. Other than running out of DC floor space, the DC was operating at near full capacity and the annual equipment maintenance cost amounted to more than S\$600,000.

NIE was looking to consolidate its IT infrastructure to optimize usage, reduce Total Cost of Ownership (TCO) and improve operational efficiency. More importantly, the ability to support the anticipated 30% growth in the 3 years leading to 2012.

The customer

Country: Singapore
Industry: Education
Founded: 1950
Employees: 1,200*
Website: www.nie.edu.sg

*estimated as at October 2011

The challenge

NIE's needed to improve operational efficiency, maximize floor space utilization and reduce total cost of ownership, and to prepare its Data Center for the anticipated growth of 30% over the next 3 years.

The solution

Fujitsu put together an integrated solution with best-of-bred, proven industry technologies – with hardware and software from Fujitsu, EMC, Commvault, CA, Redhat, VMWare and GTEC.

The benefit

- Improved productivity and efficiency
- Reduced power consumption by 30%
- Enhanced governance of information and data protection in Data Center
- Reduced unscheduled downtime resulting from power or component failure with alarm mechanism

The solution

Following a joint study, Fujitsu put forth a solution to integrate the heterogeneous open architectures into one optimized system:

Server Consolidation and Virtualization - The servers were consolidated physically and virtually to 63 servers on 7 racks with the Fujitsu PRIMERGY Blade Server and VMware virtualization. HP-UX, OpenVMS and Solaris OS were replaced by Linux to reduce the number of OS from 5 to 2.

Storage Consolidation - An architectural change using Storage Area Network (SAN) environment on EMC Celerra solution consolidated 22 storage sub-systems to a single, scalable storage platform.

Green Power Concept - By replacing the numerous rack-mount servers with blade servers, electrical and cooling power required to run the DC was cut down by 30%. An independent Environmental Monitoring System (EMS) was installed to monitor the facilities such as Uninterrupted Power Supply (UPS), Incoming Power and Room Temperature.

Backup and Recovery - Data Management was introduced and a tiered backup and recovery strategy for applications and database was applied in accordance with their importance and time essentiality. CommVault and Virtual Tape Library were deployed to ensure a speedy, reliable, flexible and easy-to-manage backup and recovery which offered high availability and scalability at a lower cost. The 8-hour long backup window was eliminated by using Storage Cloning and VCB Snapshot. A dedicated gigabit Ethernet backup network was designed to avoid bandwidth contention on production network.

Systems Management & Security - Various IT management and security solutions were introduced to improve the productivity and security of the DC operations including System Management, Storage Capacity Management and Security Patch Management. Fujitsu also held a review with NIE IT Security and advised on adaptive changes for the new infrastructure.

Products and services

- A Fujitsu integrated solution including:
- Fujitsu PRIMERGY Blade Server and ServerView
 - VMware vSphere and vCentre
 - EMC Celerra
 - CommVault SIMPANA
 - CA Spectrum, eHealth, VPM
 - Redhat Satellite
 - GTEC Supreme Plus 120, UPSMON

The benefit

The renewed DC has enhanced operational efficiency and resiliency, and required less management resources. Through actively adopting energy efficient technology and hardware, NIE was able to run a much greener DC. The resulting benefits include:

- Improved productivity with consolidated OS
- Reduction of patching time from 2 days to 4 hours
- Reduced backup window to less than 2 hours in production systems and less than 4 hours for less critical systems
- Reduced power consumption by 30% and savings on electricity alone amounted to \$60,000 annually.
- Reduced costs and risks associated with duplication through the governance of information in the DC.
- Improved management of unscheduled downtimes with proactive, round-the-clock monitoring system
- Reduced unscheduled downtime resulting from power or component failure with alarm mechanism
- Stronger data protection with capability to automatically shut down servers before UPS is depleted

Conclusion

With this transformation initiative now completed, NIE is equipped with the IT capability to support the growing demands from end users well beyond 2012.

"This was a very extensive project with a lot of dependencies. Thumbs up to the team who had to work within many constraints and their creative approach to resolve issues promptly."

- Mr Tan Hoon Chiang, CIO, National Institute of Education, Singapore

About Fujitsu

Fujitsu is a leading provider of ICT-based business solutions for the global marketplace. Headquartered in Tokyo with approximately 170,000 employees supporting customers in 70 countries, Fujitsu combines a worldwide corps of systems and services experts with highly reliable computing and communications products and advanced microelectronics to deliver added value to customers.

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2010-01-01 [Singapore] [English]

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