



Infotrend Moves Tunghai University's Storage and Backup Solutions to the Top of the Class



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Mr. Kun Liang Chen
Network Engineer
Computer Center of Tunghai Univ.

Business: *Computer Center of Tunghai University*

Challenge: *Economically increase storage capacity and improve data backup efficiency for a growing campus network.*

Solution: *EonStor® RAID subsystems met the challenge for:*

- high capacity
- high availability
- excellent price/performance

Founded 50 years ago, Tunghai University has long been dedicated to establishing an information infrastructure, systemized computer education, a digital campus network and administration system, and applications to enhance daily life. With the most complete equipment and labor force among the private universities in Taiwan, Tunghai University's computer center maintains the administration system and campus network, and provides

information services to the staff and students. The computer center delivers 24x7, enterprise-class IT service that enhances administration efficiency and improves applications in order to add to the overall competitiveness of the university.

OUTDATED STORAGE CAN'T PASS THE TEST

Starting in 2006, all of the staff and students at Tunghai University were given an email account and webpage capacity of 200MB, plus 1GB of shared network backup space. With approximately 20,000 users, the computer center faced a challenging demand for storage capacity. The original Sun Fire T3 RAID storage failed to provide sufficient storage capacity, and the increased data flow imposed a tremendous load on the existing tape backup. As a result, the computer center decided to implement a disk drive-based solution in order to reduce the time required for routine backup.

Because the computer center had just invested millions of dollars in large-scale UNIX servers and a Gigabit network to create the "Tunghai e-campus," not much budget was left for storage

devices. After considering price/performance and the recommendations of the system integrators, the computer center decided to adopt EonStor RAID subsystems from Infortrend Technology, Inc. for online and drive backup. They purchased two high-density, 16-bay RAID subsystems—a Fibre Channel to Fibre Channel (FC to FC) EonStor F16F-S and a SCSI to SATA EonStor A16U-G.



16-bay EonStor RAID Subsystem

The EonStor F16F-S contains 16 73GB FC disk drives for a total capacity of 1TB, and connects to application servers over 2Gb Fibre Channel switches. IPStor software from FalconStor manages the storage network and provides access to Sun servers and the administration system's Oracle database.

The EonStor A16U-G houses 16 400GB SATA hard drives with a total capacity reaching 6TB and connects to the FalconStor VTL virtual tape backup via SCSI host links. The EonStor A16U-G serves as a reservoir of backup data.

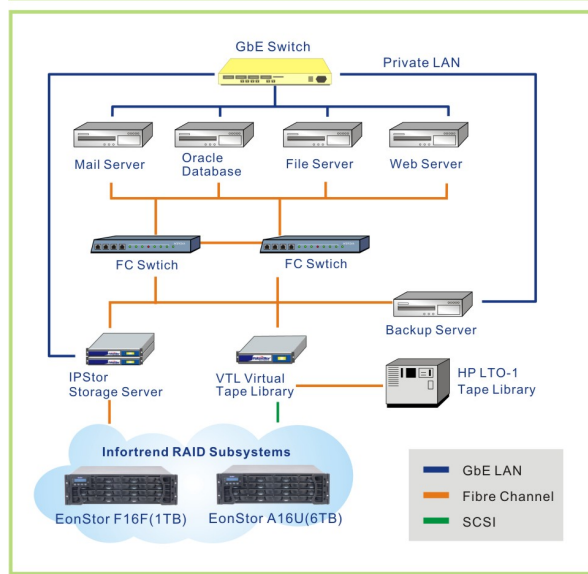
EONSTOR RAID GETS AN 'A' FOR RELIABILITY AND PERFORMANCE

Mr. Kun Liang Chen, network engineer at the Tunghai computer center, was impressed that the operation interface, reliability and performance of Infortrend arrays are equal to systems from storage leaders such as Sun and EMC. "With an easy approach to RAID configurations, RAID partitions, caching policies, and status monitoring, administrators with little or no RAID experience can easily handle the EonStor subsystem. Moreover, the subsystems are highly stable. Infortrend's DrvSmart technology scans potential bad blocks and repairs them before the defects can produce data inconsistencies. System auto-shutdown and automatic cache flush also prevent further damage. With these complete

and proactive self-monitoring mechanisms, we feel safe to store important data on the EonStor subsystems."

With the Infortrend arrays, Tunghai University now has sufficient storage space as well as a reliable backup solution. It used to take three days for a complete backup of the >3TB database using the LTO tape library. The university website was once hacked and data was not immediately recovered due to the lack of a complete backup. After implementing the EonStor subsystem with its processing power and high speed I/O transfer rate for virtual tape backup, backup is completed in just half a day. Every backup is finished on time and data can be searched and recovered significantly faster in case of data loss.

VTL Structure of the Computer Center of Tunghai University



There have been a few drive failures since the Infortrend RAID subsystems have been in use; however, thanks to complete failover protection, the disk rebuilds were quickly completed and no data was lost. According to Mr. Chen, "We found Infortrend RAID subsystems easy to maintain and cost-effective. After using Infortrend subsystems, we realize that enterprise-class storage devices with high quality are also affordable."

ABOUT TUNGHAI UNIVERSITY

From Tunghai University's humble beginnings in 1955, they had adopted the "pioneering spirit" to be their hallmark. When most Taiwanese universities sole emphasis was on specialization, they were the first to encourage a well-rounded general education. When the standard practice was separation between academics and life, they innovated with a student work labor program to promote holistic education. Even after 47 years, this program is an integral part of the Tunghai curriculum. It has been affirmed by people from all walks of life, and has been imitated by other universities. These manifestations of their pioneering spirit have made Tunghai a university unique in its goals and ideals.

Recently, they have been working to enlarge and improve their educational facilities. Tunghai has consistently been among the best private universities in the country. In the future, they will continue to innovate and make their unique contribution to Taiwanese higher education.

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