Feng Chia University Establishes “Cloud in the Sky” With Hitachi Data Systems, Relies on Solid Storage Foundation to Embody the Vision of a Smart Campus Life

Taiwan’s Feng Chia University’s (FCU) embarked on its “Cloud in the Sky” project to support various application services related to teaching, counseling, administration, research, learning and life at the university. FCU aimed to horizontally consolidate all the files related to university activities, as well as meet various information requirements from students and faculty. To achieve these goals, FCU chose the highly efficient Hitachi Unified Storage 130 to unify its cloud-storage solutions. The solution enables FCU to achieve data integration and storage modernization and centralization through a seamless process of migration. The resulting infrastructure enables streamlined data access and allows FCU to offer innovative services.

The trends of the times have ignited the need for change at FCU. The university’s traditional role was solely to propagate doctrine, impart professional knowledge, and resolve doubts. To transform into a provider of application services, FCU initiated its “Cloud in the Sky” project in 2010. The purpose of this project was to use the cloud platform for application services in various dimensions, such as teaching, counseling, administration, research, learning and life. Thereby, FCU would create a mobile FCU model for quick response and convenience.

“Cloud in the Sky” has given FCU the power to change. Nevertheless, in order to implement innovative services, FCU required more than a solid and stable information structure. It also needed software that can tightly consolidate files and make them easier to search and access. The implementation of the above mentioned aspects started with data compilation across FCU departments and offices.

“Data compilation is considered the chief task of our basic infrastructure. Many of our follow-up innovation services are associated with data,” said Dr. Lee Wei-Bin, Chief Information Officer, FCU Office of Information Technology. Dr. Lee Wei-Bin oversaw the core elements involved in the project of upgrading the storage system from a macro perspective.

Hitachi Unified Storage 130 satisfies our demands for high scalability, high capacity, high speed and high stability.

Dr. Lee Wei-Bin
Chief Information Officer
Office of Information Technology
Feng Chia University
From Management to Service-Oriented Thinking

After reviewing the history of the e-campus, FCU determined that the management system would be the focus during the early phase of its project. Most of the management information system for accounting, administration, academic affairs, general affairs, and so forth, was included in the operations process.

The e-campus nowadays pays more attention to a service-based IT environment. These operational processes may not make much sense yet to professors, students or administrative staff as users. For example, the e-campus in the past was concerned mainly with using the IT system to manage professors’ lectures and published papers as part of their performance. Today’s e-campus is concerned with the services demanded by professors and intends to help them compile their achievements, in general, and their teaching portfolio, in particular.

FCU also determined that IT devices should be user friendly, rather than just IT administrator friendly. For instance, many videos of speeches and teachings in the past were simply filed away. At present, FCU seeks to encourage students to use those video files. Therefore, the new interface would need to support easy data access, and a storage system with a high processing speed would be required.

Overall, the infrastructure faced the challenge of re-examination. “In the past, we would store data for management, whereas now we do this for services. The storage system would have to be useful and functional, which means that the data structure and framework would be different,” emphasized Dr. Lee Wei-Bin.

In fact, with the promotion of “Cloud in the Sky,” many of FCU’s service modes would have to change, as well. Take mobile technology, for instance: All contents provided nowadays must be readable by users of notepads or mobile devices. However, contents concerning university data, speech information, or videos are stored in various departments or offices (for example, career development center, library, center for general education, and so forth). It is therefore quite difficult for students to know where to access the information that they need. Additionally, each department or office uses a different storage system, consequently making it tricky for office of information technology to respond to all the information requirements.

Moreover, such trends as digital materials and e-teachings result in the continuous increase of videos. In the past, the university measured its data in gigabytes, whereas today IT is handling terabytes of data. The legacy storage system could no longer meet the demands for capacity and performance. Its maintenance costs were expensive and the storage volume was not sufficient for FCU. Hence, in early 2012, the office of information technology purchased a higher-capacity, steadier and high stability,” explained Dr. Lee Wei-Bin. Moreover, the functions provided by HUS 130 are more than what we needed. Because of its high rotational speed, the I/O system on which we are heavily dependent can optimize its high-speed access performance. Thereby, it smoothly and rapidly provides data and application access services to faculty and students.”

Unified Storage That Never Compromises

It took FCU approximately a half-year to identify an ideal storage device that did not exceed the budget and met its criteria. FCU looked for such qualities as high capacity, high flexibility, high speed, energy savings, green mark, well-known brand, and maintenance capability of the system integrator.

After testing, they chose Hitachi Unified Storage 130 (HUS 130) in September 2012.

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Seamless Upgrading

In the subsequent introduction, the system integrator also gave FCU assistance in migrating over 30TB data from students and academic affairs that are distributed in the storage devices of 3 different brands into HUS 130.

One of FCU’s requirements was that there would be no downtime for data access while the existing data was migrated and consolidated. The intuitive HUS 130 interface simplified system setup and implementation as well as the cache partition. The storage ensured that while some data was being migrated, other application data could still be accessed. Therefore, within 1 1/2 months, the office of information technology completed the new system implementation and data migration. The length of time when the system was down for the whole process lasted less than 1 hour, so there was no negative impact on university operations.

“HUS 130 met our expectations for a seamless consolidation process,” confirmed Dr. Lee Wei-Bin.
**Simplified Management, Better Services**

As HUS can manage block, file and object data with high efficiency, it can therefore meet the challenges of users managing diverse data. FCU, after implementing HUS 130, has also benefited in various aspects.

- **Data consolidation**: Core FCU data is fully consolidated, so that users can access data with ease.

- **Enhancement of performance**: In addition to high-speed disks, HUS 130 also supports a solid-state drive, which can greatly enhance the access speed and consequently provide better services.

- **Simplified management**: Data and storage are centralized. Moreover, HUS 130 uses a single interface for data addition, deletion and editing, which saves a lot of management time for IT administrators.

- **More management flexibility**: HUS 130 supports iSCSI interface. IT professionals can therefore use both SAN and iSCSI interfaces to store or temporarily migrate data.

- **More storage utilization**: Through Hitachi ShadowImage Replication software bundle, administrators can undertake tasks of replication and snapshot by data categories, thereby increasing the storage utilization in the virtual cloud environment.

- **More system scalability**: The current storage structure can meet FCU’s requirements for more than 3 or 5 years. Further expansion of capacity is also possible in the future.

Generally speaking, Dr. Lee Wei-Bin considers the storage and data infrastructure to be similar to the foundation of roads and buildings. He explains that only when FCU builds a perfect infrastructure can IT optimize its influence on campus. Only when the ways and logic of using computers are effectively changed can collective innovations be inspired and users’ expectations be created.

“FCU’s purpose in promoting ‘Cloud in the Sky’ is to bring about change in the university, from qualitative and quantitative change to institutional change. It is a high-range application and development of technology,” said Dr. Lee Wei-Bin. “Cloud in the Sky” provides a breaking point for innovation in on-campus applications and services, thereby changing the FCU’s model of thinking in university operations. In the future, the office of information technology, just like a train engine, intends to further promote changes in teaching methods and it uses new-generation concepts of services to help FCU realize the vision of a smart campus life.”