Cisco Unified Computing Systems Case Study

Toyo University

EXECUTIVE SUMMARY

Implemented Solution

- Cisco UCS B Series Blade Server
- UCS 5100 Series Blade Server Chassis
- VXC 2200 Series

Challenges and Concerns before Implementation

- Server integration was needed in order to operate and manage the system with limited staff.
- A system suitable for virtualization was needed in order to operate individual middleware and applications for each division while centralizing infrastructure.

Benefits of Implementation

- The system has run without significant problems for eight months since actual operations started.
- Even when a failure did occur, a backup blade immediately served as the actual system by simply reading a service profile.
- The system is also utilized as a solution for thin clients.

In order to upgrade its office administration system, Toyo University chose Cisco UCS, having favorably evaluated its design with emphasis on convenience and virtualization of operation and management. The university also introduced Cisco's solution to create a foundation for thin client introduction.

Details of installation

Meeting individual requirements at the application layer by sharing infrastructure through server virtualization for administration system

Toyo University, one of the oldest universities in Japan, with a main campus located in Bunkyo-ku, Tokyo, celebrated its 125th anniversary in 2012. Recently, a major overhaul of the administration system was conducted at the university. Atsushi Aoyama, manager of the Supply Section, Administration Department and manager of the Information Section, Toyo University, explained the reason for the renovation.

"In 2002, we introduced a unified package product together with hardware for university administration, but because we customized the product quite a bit at the time of introduction, the package could not be updated. As a result, we could not even upgrade middleware and hardware, so we had to keep using obsolete hardware."

In order to address the situation, the university started constructing a new system in 2009, according to a fundamental policy to introduce a multi-vendor approach for each task. At that time the university used an approach similar to a so-called "private cloud." With this approach, each department individually procures and operates layers higher than OS, (i.e. middleware and applications,) in accordance with the department's needs. At the same time, the Information System Department centrally manages hardware and OS by integrating infrastructure using server virtualization technology. In this way, the requirements of each department can be met at the application layer by making infrastructure procurement, operation and management as efficient as possible.

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Mr. Aoyama said, “Server integration was necessary in order to operate and manage the system with a limited number of staff members.”

In May 2010, the university started searching for a vender to build its infrastructure. After several vendors were considered, Cisco UCS (Unified Computing System) was selected. Yoshihito Fujiwara, chief of the Information System Section, Information System Department, Toyo University, intuitively thought that this was a superior system when the newly released Cisco UCS was explained to him.

“It has a very simple architecture and the wiring at the rear is simply arranged. The basic specifications are quite high and the system is designed for virtualization, so I thought it could integrate more virtual servers in a more effective way. Another advantage is that a single controller can easily control several blade chassis.”

As Cisco UCS had been adopted in only a few places at that time, some people at the university expressed anxiety about the system. Mr. Fujiwara patiently convinced those people.

“I recommended Cisco UCS not only for its groundbreaking technology. Above all, the system has superior basic architecture and performance. Some large ISPs and universities had already introduced the system at that time, indicating that the system had something of a track record. The only concern was whether the product would be continuously supported in a stable manner in the future. However, after thorough discussions with Cisco staff, I learned that Cisco was prepared to work on this system seriously and on a long-term basis,” said Mr. Fujiwara.

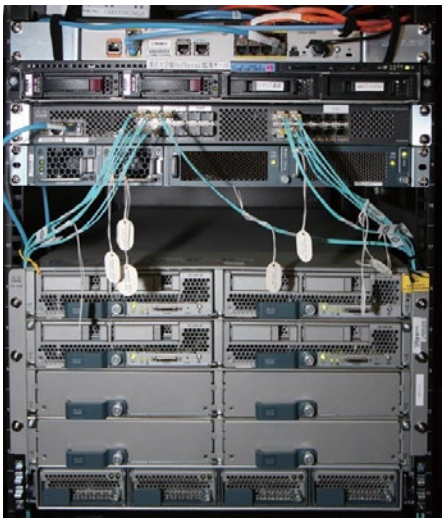
Mr. Fujiwara also said that another decisive factor was that Cisco has an open strategy to closely work with storage vendors and virtualization software vendors and guaranteed operation of the system by validating combined products in advance.

Results of installation
In addition to stable operations, UCS utilization as a foundation for thin clients is possible

In 2010, development of a new administration system based on Cisco UCS server was started. Server products introduced included three Cisco UCS 5108 Blade Chassis and 12 Cisco UCS B200 M2 Blade Servers (two of the 12 servers were for backup). A configuration which runs a total of 25 virtual servers was selected. The actual operation started about a year and half ago, and there have been almost no hardware problems. The system seems to run in a particularly stable manner. Mr. Aoyama said that there was only one failure in a blade server.

“A failure occurred in a blade which contained the entrance exam system. However, the VMware HA system was enabled to make a transition to fallback operations without any problems. Moreover, by simply reading the service profile into a backup blade according to simple instructions of UCS Manager, the blade immediately started working as the main system. I am sure that no end-users realized there had been a failure at that time. Because it was an important entrance exam system, if we were using a physical server, it could have been a disaster. I was very happy that I had chosen UCS.”

Cisco’s VXC (Virtualization Experience Client) 2200 series has been introduced as a terminal for the university’s thin client project. Koki Matsushima from the Information System Section, Information System Department, explained as follows:



Three Cisco UCS5108 blade chassis and 12 Cisco UCSB200 M2 blade servers (two of the 12 servers are for backup) accommodated in a rack. 25 virtual servers in total are running.

"The thin client terminal, which we introduced on a trial basis, had a dedicated OS, but it had bugs and problems related to different versions. However, Cisco VXC has minimal software, so we expected that software-related problems would be reduced with VXC. In addition, with VXC, all terminals can be centrally controlled using a web console. Time saved at start-up and being able to understand situations remotely are significant benefits especially over time. Since power can be controlled centrally, time spent to turn machines on and off is also reduced." Currently, Toyo University is moving forward with its VDI environment development with the aim to start actual operation in April 2013. The university also plans to shift about 700 PCs for administration to VDI. In the end, all client environments at the university are planned to be moved to Cisco UCS VDI.

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