MUKOGAWA WOMEN'S UNIVERSITY: CREATING TOMORROW'S LEADERS

Prestigious Japanese University improves learning and information-sharing environment with help from Alcatel-Lucent Enterprise.

Advocating education that nurtures women's identity, ability to think rationally, and to execute, Nishinomiya's Mukogawa Women's University is the premier women's university in Japan, with more than 10,000 students. As an institution at the forefront of educational practices, the University recognized that increasing use of videos for instructional and research purposes, combined with the establishment of a new School of Nursing, would significantly increase demands on their network. The University decided to upgrade its network infrastructure, and turned to its long-term technology partner, Alcatel-Lucent Enterprise, to provide a solution. With the new network in place, Mukogawa Women's University can now confidently deal with changes in the education and research environment and better support the needs of its students and faculty.

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CHALLENGES

- Dealing with aging network infrastructure no longer able to keep up with demand or future capacity needs.
- Maintaining stable network services while meeting new requirements.
- Facilitating preferred method of exchanging information using cell phones.
- Keeping costs in check and predictable over the long term.
- Managing increasing traffic due to changes in curriculum.

SOLUTION

- Alcatel-Lucent Enterprise Converged Campus Network solution provided over a high-capacity 10 Gigabit Ethernet (GE) backbone
- High-speed wireless access throughout the central library to assist with research and education.
- Always-on, robust, scalable and versatile edge switching that provides optimal response time, enables business continuity and prevents network outages.

BENEFITS

- Improved performance: new infrastructure provides a stable network environment to cope with the increase in traffic.
- Economic predictability: The network design allows the University to make a long-term budget that takes into account future extensibility rather than just the current costs.
- Improved learning opportunities: The solution's optimal network environment enables students and faculty to exchange data over smartphones, increasing mobility and enabling support for the bring your own device (BYOD) trend.

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Takashi Hirai, Associate Professor, Mukogawa Women's University Department of Japanese Language and Literature

THE CUSTOMER CHALLENGES

Mukogawa Women's University currently consists of five departments: Literature, Health and Sports Sciences, Human Environmental Sciences, Music, and Pharmacology, with plans to open a School of Nursing in April 2015. The University has over 10,000 students enrolled.

"Cases where video is being used as teaching materials were increasing in a variety of learning situations, such as verifying students' performance in physical education classes, analyzing human expressions in psychology, and sharing of 3D blood flow images in the pharmacology department," said Takashi Hirai, Associate Professor, Mukogawa Women's University Department of Japanese Language

and Literature, who is promoting the current network implementation. "There were also frequent exchanges of data with other collaborating institutions, which further increased traffic that the old network just could not handle."

In addition, the University has made it a priority to improve communication and collaboration between faculty and students. "In line with the theme to promote education, Mukogawa Women's University established fiscal year 2012 as the 'Beginning of the era to reform the information education and research environment,'" said Associate Professor Hirai.

"This goal, combined with the University's mission of promoting the education of highly skilled women professionals, made it necessary to implement a

End-To-End Communication Infrastructure Solution includes:

- Converged Campus Network solution
- Unified Access for wired and wireless devices
- Pervasive Wi-Fi throughout the central library
- Ready for BYOD and advanced guest access

Specific components of the solution:

- Alcatel-Lucent OmniAccess™ 225 Access Points
- Alcatel-Lucent OmniSwitch™ 9800E Chassis LAN Switch
- Alcatel-Lucent OmniSwitch™ 9702E Chassis LAN Switch
- Alcatel-Lucent OmniSwitch™ 6450 Stackable LAN Switch

high-speed stable backbone network, together with centrally manageable high-speed wireless LAN services with a flexible configuration," said Hirai.

Because the conventional aging network could not handle the rapid changes in the education and research content, the University decided to rebuild the network in 2013.

THE SOLUTION

Mukogawa Women's University considers its communications network as a basic utility, similar to electricity and water, which all students and faculty can benefit from. Rather than developing a modern network environment limited only to those departments that required one in the short term, the University wanted an institution-wide, stable high-speed network that could be shared by all departments. However, according to Associate Professor Hirai, "There were incompatibilities and connection problems when we tried to expand our existing network, because each location was using equipment from different manufacturers."

To provide a stable network, it was necessary to renovate the aging infrastructure by reorganizing the multiple networks around the campus and constructing a network that integrated the different campuses. The network upgrade took place over several stages.

Deploying a wireless network in the central library

During the summer of 2013, the library at the central campus of Mukogawa Women's University was renovated. The central library, with a collection of over 60,000 books, manages a variety of media, such as video, Internet, and satellite broadcasting in addition to traditional printed material. The central library also provides audio equipment, photocopiers, food and beverage space, and laptops to assist group activities, training and exercises. To enhance the central library's ability to facilitate student learning and information exchange, a comprehensive system of wireless access points was installed from the basement up to the sixth floor. From a network management perspective, the access points can now be centrally managed. The wireless network helps to facilitate the use of smartphones, which have become the main method of accessing the network at Mukogawa Women's University. According to Tatsuo Masui of Rikei Corporation, the system vendor that helped deliver wireless access at the library, approximately 80 percent of the wireless network is currently being used by smartphones. Smartphones are also used to exchange the majority of research data.

Providing a stable network environment on campus

In March of 2014, a new network was installed throughout the campus, with new infrastructure spanning from a 10 Gigabit backbone through the access, all

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built around the Alcatel-Lucent Enterprise OmniSwitch™ family of products.

For the backbone network, Mukogawa Women's University adopted the latest OmniSwitch 9000E series as the backbone switch to handle the anticipated increase in traffic and network expansion. For edge switching, the University required "Equipment that can withstand harsh environments is required because there are many old buildings with no air conditioning," said Associate Professor Hirai. They selected the OmniSwitch 6855, which is capable of keeping communication errors to a minimum even in harsh environments subject to high temperature and vibration.

THE BENEFITS

A Simplified, Resilient and Superior Architecture

The Alcatel-Lucent Enterprise network solution provides students, faculty and staff at Mukogowa Women's University with full mobility and the flexibility to work from the library, dormitory, classroom, or even on the road. The network understands the user's identity and provides a seamless experience, independent of location, the device used and the type of network used for access. Such an environment improves productivity and facilitates knowledge sharing and communications between all members of the university, faculty and students alike.

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WHY ALCATEL-LUCENT ENTERPRISE

There were three decisive factors in the adoption and introduction of the current system.

The first was Alcatel-Lucent Enterprise's track record with Mukogawa Women's University. In 1995, the institution adopted the Omni-5 Switch and Pizza Switch made by Xylan Corporation, a company that was later purchased and integrated into the Alcatel-Lucent's LAN switch line of products. Since then, the University has continued to deploy Alcatel-Lucent products for core switching. During that time, three major network equipment upgrades were undertaken, as technology moved from ATM, to 1G Ethernet, and then to 10G Ethernet, without major incident.

The second factor is Alcatel-Lucent Enterprise's proven ability to continue to manufacture and deliver excellent return on investment. Third, and finally, were the granular support and proposal capabilities of the Alcatel-Lucent system integrator, Rikei Corporation.

"We were able to propose an innovative and cost-effective solution because we are familiar with the situation and challenges of Mukogawa Women's University's past network environment," said Mr. Masui of Rikei Corporation.

NEXT STEPS

With the School of Nursing and the School Education Center scheduled to be approved next year, Mukogawa Women's University is expected to continue investing in its information and communications technology infrastructure. The installation of the comprehensive Alcatel-Lucent Enterprise solution has enabled the University to provide a stable network environment and cope with future network expansion.

According to Associate Professor Hirai, the challenge is "...to continue developing the network and security environment through the viewpoint of the students, while keeping pace with the changing network environment."

The Alcatel-Lucent Enterprise BYOD network solution is being considered to enable students to bring their own PCs and smartphones, and to provide unified access with enhanced authentication functionality to increase the security and visibility of each application, and to assign the appropriate policies. The recently revamped network will serve as the foundation for its construction.

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