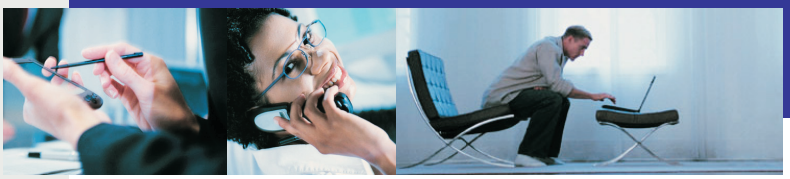
Extricom

Case Study



Enabling the Cyber-Campus: WLAN at Kyorin University

Kyorin University in Hachioji City, Tokyo, exemplifies the disciplined approach to higher education that has made Japanese universities best in class. Founded as a School of Medicine and teaching hospital, the University has progressively expanded its offerings to encompass a wide range of career fields.

杏林大学

Like most higher educational institutions worldwide, Kyorin University is looking to expand not only its course offerings but also the fundamental infrastructure of teaching and learning. The goal is to use technology to augment student access and explore new avenues for extending the educational process.

A key enabling technology for this is wireless LAN (WLAN), which can drive user mobility, organizational flexibility, and operational cost-effectiveness. But for these benefits to be realized, the chosen WLAN solution must deliver a consistent level of connectivity, to all users, everywhere on the campus. Of the products on the market today, only the Extricom WLAN solution is able to provide the kind of performance sought by Kyorin.

> We chose the Extricom WLAN because it combined the most advanced technology and comparatively lowest cost. In addition, expanding the system in the future would be easy.
>
> Munekazu Inoue
> IT Manager
> Kyorin University

A Mandate for Change

Kyorin University's charter is to enable its graduates to "wholeheartedly respond and adapt to the manifold challenges of the 21st century." Beyond acknowledging the forward-looking nature of higher education, this mission implicitly underscores the role of universities as incubators for new technology. Characterized by few pre-conceived prejudices and a willingness to try new ideas, university campuses are an ideal environment for rapid and sometimes radical technological change.

While enterprise WLAN might hardly seem like a radical concept, instituting truly pervasive Wi-Fi networks can demand a sweeping reassessment of accepted wisdom about how, where, and why WLAN is deployed. The labor-intensive, highly centralized model of traditional enterprise networks may not work in a university setting, where factors such as ease of deployment and administration, and the need for consistent coverage and capacity, are paramount.

The Challenges of Progress

Increasingly, Wi-Fi is being used to make a quantum leap in how students are taught at universities and colleges, but this shift brings deployment challenges. Among them are high-density user environments created by students congregating in libraries, laboratories, assembly halls, etc. Other challenges include the need to provide a solution that is both highly scalable across the sprawling university campus and facilities, as well as quickly and easily modifiable to changing user needs.

Security is also a key issue. Higher education IT environments will include many different profiles, from the student who just needs to access the Internet, to researchers using sophisticated applications, to medical students and faculty who are bound by strict patient privacy laws. In the dynamic and technologically sophisticated environment of a university, operational flexibility is essential to accomplish the goals of 21st century education.

Updating and Innovating

Aware of but undeterred by these challenges, Kyorin University understood that introducing pervasive WLAN would have a galvanizing effect on their educational environment. "We realized that we were updating our IT system later than other universities, but we wanted to be sure we had the right system to match our needs," said Munekazu Inoue, Kyorin University's IT manager. "The way we saw it, introducing WLAN would not just bring us back to level, but put us in the first rank of IT innovators."

Using a governmental grant for creation of a "cyber campus", Kyorin began the process of implementing pervasive WLAN at select campus locations with the assistance of a trusted VAR,

Extricom

Project Scope

Provide pervasive WLAN coverage to five-story University building. WLAN needed to support wide range of potential applications, with emphasis on capacity in high-density user environment. Deployment had to be performed within two-week period, and meet strict cost guidelines.

Solution

- EXSW-800 8-port WLAN switches and EXRP-20 Dual-Radio UltraThin™ APs
- Multiple applications supported on same infrastructure, with performance and security optimized through multi-channel channel blanket topology

Results

- WLAN quickly deployed over two-week period
- Cost-effectiveness and ease of maintenance contribute to optimized TCO over product's lifecycle
- Highly scalable modular network architecture will allow Kyorin to continue expansion of WLAN campus-wide as needs dictate

info@extricom.com
www.extricom.com

Wireless On the Move

Wireless On the Move™

Sangikyo Corporation. The University envisioned a system that would fully leverage the freedoms stemming from WLAN, including taking attendance electronically, enabling web-based learning, and giving each student an online portal accessible from anywhere on campus.

Mobility and Capacity as Critical Design Criteria

WLAN in higher education must not only support a "cyber campus," it must also enable a "mobile campus." The difference between the two end-goals highlights the gap between so-called "third-generation" WiFi systems, designed for portability but not mobility, and Extricom's new class of system that is designed for both seamless mobility and high capacity.

This is a critical point, since students of today learn not only in the classroom, but also in a range of non-traditional settings, many of which may require accessing a range of voice, video, and data applications while on the move. Capacity is just as important as mobility. In the classroom, users are densely concentrated, straining the traditional WLAN's ability to provide the kind of bandwidth that is vital to a productive learning environment.

Unfortunately, traditional systems force a trade-off between capacity and mobility – maximizing both is not possible. By contrast, the Extricom system's "channel blanket" architecture de-couples capacity from mobility, enabling both to be optimal. This unique architecture uses each available radio channel, on every AP, to create blankets of coverage controlled by a central switch. The channel's bandwidth is delivered across the blanket's service area (i.e. the combined coverage of all APs connected to the switch), enabling seamless mobility with no AP-to-AP handoff, no co-channel interference, "wire-like" client connections, and a guaranteed and predictable level of service for all users.

The channel blanket inherently provides seamless mobility. Separately, the elimination of co-channel interference and channelization constraints means that all users operate on each channel blanket at the highest possible communications data rate, thereby experiencing the highest capacity and bandwidth in the industry. Capacity is further boosted by stacking overlapping channel blankets, all from the same set of APs. As users move throughout the channel blanket service area, capacity and bandwidth remain consistent, since user load does not shift between cells (and channels), as is the case with cell-planning WLAN solutions.

Advanced Technology and Low Cost of Ownership

The Kyorin University team undertook a comprehensive review of the WLAN offerings in the marketplace. They whittled these down to four vendor WLAN solutions, and evaluated them based on technical and cost performance. In the end, the Extricom solution was chosen, as Inoue explained, because "Extricom combined the most advanced technology and comparatively lowest cost. In addition, expanding the system in the future would be easy."

For institutions like universities that operate on tight budgets, cost-effectiveness is as important as performance and operational flexibility. The Extricom system is the market's easiest WLAN solution to implement and maintain, and therefore delivers the highest possible return on investment over the complete lifecycle of the product, supporting key total cost of ownership (TCO) elements such as minimized deployment and operating costs. In addition, the solution is easily scalable because of its highly modular design and simple interconnection to a customer's existing network management solution.

Plug-and-Play Simplicity

In a short two-week delivery window, Sangikyo and Kyorin validated the Extricom WLAN's performance, then quickly moved to set up and implement the system. Using floor plans of Kyorin buildings, the implementation team assessed the physical deployment environment and determined the AP placement that would deliver the target data rate and user grade of service. The system was then installed and configured, taking advantage of Extricom's multi-layer channel blanket capabilities to securely segregate student network users from faculty members by running using a different channel blanket for each group.

The implemented system is currently providing complete coverage for a four-story building housing large lecture halls, language labs, seminar rooms, and classrooms. The project has been extremely cost-effective for Kyorin University, having been completed in half the time and at 20% less deployment costs than any other comparable solution.

And this is just the start; Kyorin is leveraging the experience gained in this deployment to move forward with a comprehensive rollout to large portions of their 4500-student campus. As the university continues to explore new ways to fulfill its educational mission, it does so with the confidence that a simple and effective Extricom WLAN infrastructure will support whatever initiatives are undertaken.