

CASE STUDY EDUCATION

OVERVIEW

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In addition to controlling the total cost of ownership, the deployment was expected to be both time-consuming and difficult. Therefore, Aoyama Gakuin University hoped to find a solution that could provide reliable wireless access under a limited IT budget.



REQUIREMENTS

- Extend wireless coverage accros Aoyama and Sagamihara campus
- Alleviate network congestion in high density environments such as lecture halls
- High cost performance on network infrastructure

EXTENDED & RELIABLE WI-FI AT AOYAMA GAKUIN UNIVERSITY

Proud of its 140-year history, Aoyama Gakuin University relocated its campuses to Aoyama and Sagamihara in 2013. As of today, the Aoyama campus has 7 Humanities and Social Science Departments with 15,000 registered students, while the Sagamihara campus has Science and Technology and Social Information Departments with approximately 5,000 students. The university consists of 9 undergraduate departments, 12 graduate schools, and more than 20,000 students in total. In recent years, the dramatic increase in usage of smartphones and tablets on campus have put an unpredicted amount of stress on the university's existing wireless LAN infrastructure, resulting in slow or poor Wi-Fi connectivity. How did Aoyama Gakuin University Institute of Information and Media overcome this challenge and provide reliable wireless connectivity for such a large student body?

Considering the changing communication environment and the increase in mobile device usage, Aoyama Gakuin University realized that its existing wireless LAN infrastructure needed to be expanded. However, providing a reliable wireless environment for over 20,000 students was not an easy task. In addition to controlling the total cost of ownership, the deployment was expected to be both time-consuming and difficult. Therefore, Aoyama Gakuin University hoped to find a solution that could provide reliable wireless access under a limited IT budget.

The Institute of Information and Media, which is in charge of the operation and support of the IT infrastructure on campus, came up with a comprehensive proposal. Since the last equipment renewal in 2009, the institute has been asked to improve the wireless network on campus. Mr. Mishima, an Assistant Professor of the Institute of Information and Media, recalls the situation:

“There were strong demands from faculty members regarding the expansion of the wireless LAN. Some even made comparisons between us and other schools. The equipment renewal of the school takes place every 5 years. Last time in 2009, we deployed some wireless access points (AP), but only in certain public areas such as cafeterias and common rooms where lots of students gather. Since professors and students have been increasingly using notebooks or tablets in lectures, they want a wireless LAN environment with high performance.”

In order to address these issues, the university moved forward the wireless infrastructure upgrade that was originally scheduled for 2014. However, there were several concerns regarding the implementation, such as the total cost of the equipment and how the APs would be distributed to provide optimal coverage. “There are some buildings or floors without Ethernet cabling, causing restrictions for wireless LAN deployment. We thought about the possibility of laying Ethernet cables, but were forced to abandon that idea due to limited budget.”

Despite the concerns, the project had to proceed and a solution was needed. Therefore, Mr. Sakata, a Research Associate from the Institute of Information and Media and a close associate of Mishima's, consulted with NTT Advanced Technology Corporation (NTT-AT), one of the companies selected as a candidate for the wireless LAN deployment. According to Sakata, the responses from NTT-AT were extremely surprising.

SOLUTION

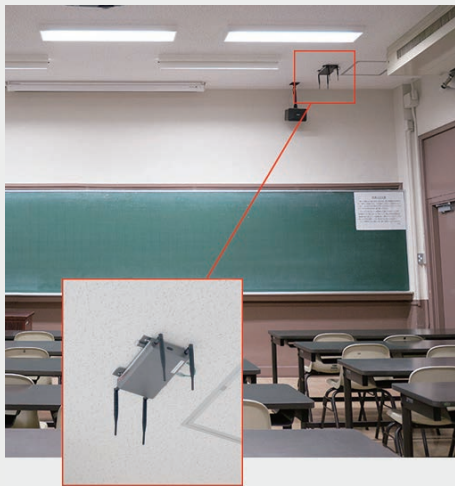
The following were deployed in Aoyama Gakuin University:

- **WHG711** Wireless LAN Controller
- **EAP320** Indoor Access Point

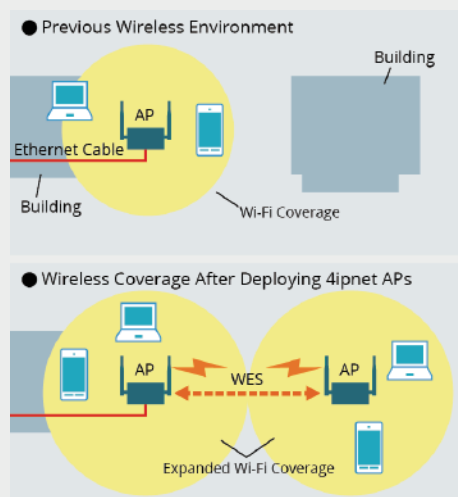
BENEFITS

- Browser-based user authentication supporting all types of mobile devices
- Separate Internet access rights for faculty, students and guests
- Extensive logging and reporting features for security and troubleshooting purposes
- Scalability for future deployment

DEPLOYMENTS



The deployed EAP320 in one of the classrooms.



*1: In old buildings without Ethernet cabling, wireless links are established through WES to enable Wi-Fi connectivity in the areas.

“Firstly, I asked about the deployment in classrooms. The number of APs and the plan given in their timely reply really amazed me! The floor plans of the buildings were available on the school website for reference, and they made full use of them, not only simulating the structures of the buildings, but even calculating radio wave interference to decide where the APs should be deployed. I never imagined that this was possible! Of course there was an on-site investigation, but the results were almost the same as the original suggestions. We felt that when compared with other vendors, NTT-AT really distinguished itself by demonstrating the know-hows of wireless LANs.”

After consulting NTT-AT, Aoyama Gakuin University felt more optimistic about the deployment. Therefore, the last remaining issue was how to increase wireless coverage while staying within the budget limit. Once again, NTT-AT had a fitting solution. “The proposed 4ipnet wireless APs [EAP320] were very attractive in terms of cost performance. Therefore, we were able to increase the number of APs without exceeding the budget, and extend the Wi-Fi coverage expansion beyond what we had originally imaged. Moreover, in the locations without wired cabling, the APs can be connected to each other via wireless links^{*1}. Lastly, we realized that it is possible to deploy more APs when necessary, as the network is very scalable.” After NTT-AT was asked to carry out the deployment, the project proceeded smoothly – by the spring of 2013, the wireless LAN deployments on both Aoyama and Sagami-hara campuses were completed. What did the students and staff think of the wireless network? A smile appeared on Mishima’s face as he continued:

“Across the entire Aoyama campus, the wireless coverage has increased to over 90%, while the Sagami-hara campus also enjoys Wi-Fi coverage in selected academic buildings. Compared to what it was before, the pressure from students and faculty members has been substantially relieved. The achievement was not only due to the high performance of deployed APs, but also the optimized placement locations, which is attributed to NTT-AT’s expertise.”

Wrapping up the interview, Mishima talked about the university’s future vision for its network infrastructure. “In order to make Wi-Fi widely accessible across the entire campus, we plan to deploy more wireless APs, starting from science laboratories, where initial deployment was postponed due to relatively lower user density. Perhaps with the increase of wireless APs, radio interference might occur again, but we don’t feel worried as we are strongly confident about NTT-AT’s expertise. With their advanced technology and knowledge, NTT-AT is capable of deploying optimized wireless LANs for us without any resources being wasted. They help us think in the shoes of the actual Wi-Fi users, and provide us with accurate, concise, and flexible feedback. That is the most important reason why we can rely on them.”

Through its partnership with NTT-AT, 4ipnet has successfully delivered a fully-featured and competitively-priced wireless LAN solution to Aoyama Gakuin University. After the deployment, the number of Wi-Fi related complaints and issues have also drastically decreased, reflecting both the reliability of 4ipnet’s solution as well as the high quality of initial deployment planning. With BYOD becoming ubiquitous and mobile usage rising rapidly, institutes of higher education will find that 4ipnet offers a flexible and effective managed wireless network, catering to all types of needs and situations.