

Western Academy of Beijing

Enhancing the learning experience at a top international school in Beijing



Country

China

Overview

The Western Academy of Beijing (WAB) is a top international school in Beijing, China, with a 1,400-strong student body accompanied by world-class facilities. WAB places great emphasis on the overall student learning experience, investing significantly on campus infrastructure, including computers and network, in order to drive their campus digital education initiatives. To better cater to the increasing demands on network connectivity by both students and teaching staff, WAB decided that upgrading the overall campus network experience was necessary.

Requirements

- High-performance wired and wireless network to improve teaching efficiency



- A wireless network able to support greater numbers of connected clients in both public areas and crowded theatres on campus
- A stable and reliable wireless network to support the day-to-day needs of the school administrative staff
- Simplified network setup and management for minimized troubleshooting, as well as upgrades to network security

Solution

- 20+ units of CommScope Ruckus ICX switches
- 150+ units of CommScope Ruckus 802.11ac Wave 2 access points

Benefits

- WAB staff, students, and visitors are able to connect to the campus network using SMS authentication to enjoy a secure, high-speed, and stable wireless connection
- Robust wireless network throughout the campus enables sharing and access of teaching resources, as well as video streaming, even in high-density areas
- The network utilizes access points (APs) that can comfortably accommodate over 3,000 connected devices simultaneously in total



The WAB campus features a fusion of both traditional and modern Chinese architecture to reflect the institution's values, and their deep connection with their host country.

Revamped Network Architecture to Support Transformation to Digital Learning Practices

The Western Academy of Beijing (WAB) was founded in Beijing in 1994, at a time of increasing demand for quality education from a growing expatriate community. With over 20 years of operations under their belt, WAB has become a top international school in China, offering world-class facilities for the benefit of a student body of about 1,400 students representing over 51 nationalities from around the world. The institute also has the privilege of being recognized by the International Baccalaureate (IB) as one of just seven IB Preferred Training Schools worldwide.

WAB is an International Baccalaureate (IB) World School, offering the Primary Years, Middle Years and Diploma Programmes. The school also offers a variety of extra-curriculum activities to students so they can explore their passions.

The WAB campus features a fusion of both traditional and modern Chinese architecture to reflect the institution's values, and their deep connection with their host country. Campus buildings are creatively planned and executed to deliver a lively and connected learning environment, all purpose-built to enhance the student learning experience. The Elementary, Middle and High Schools are situated on a campus covering 99,000 square meters, with six buildings in all. Student classrooms are flexible learning spaces to support a variety of educational experiences. Other features of the campus include, among others, three well-resourced libraries, three theatres, an indoor swimming pool, a number of science and computer labs, suites designed to accommodate photography, editing and recording work, the

Tiger L'Air sports dome, and a FIFA-approved full-length football field with a track.

WAB attaches great importance to the campus teaching infrastructure, which includes both computers and network. The school offers a 1:1 laptop environment for students from Grade 3-12, while students in Grade 6 and above are required to bring their own laptop. On top of that, an estimated 1,200 computers are provided for students and teaching staff to use.

WAB utilizes an open-source teaching platform and a number of applications which include Moodle, PowerSchool, and blogging software. On campus, students use the network to both upload and download teaching resources and homework, to run live discussions from anywhere on campus, as well as to access the Internet for research, learning, and streaming videos. Students are also involved in managing and participating on WAB-owned public news websites and community portals running on the Drupal platform.

WAB's previously-deployed network wasn't able to properly meet the needs of both students and staff, who had to contend with issues of limited Wi-Fi coverage, low performance, and basic levels of management control. What's more, network access was seriously impacted when various high-bandwidth applications were connected to the network.

"We needed a stable, reliable and cost-effective wireless network to support teaching and administrative activities throughout the campus," said Kinston Chen, Director of Information & Communications (IT, Server and Network), Western Academy of Beijing.

The wireless network also needs to ensure seamless connectivity across classrooms, libraries, laboratories, theaters, restaurants, and even technically challenging environments like the swimming pool, where the high humidity usually impacts wireless signal strength.

As WAB explored options to upgrade their wireless network, in 2012, Xiamen C&D Corporation Limited, the appointed IT integrator for WAB, turned to CommScope's Ruckus products to form the backbone of WAB's Smart Campus program.

A typical WAB classroom accommodates 25 students in an area of 30-50 square meters, with each student equipped with either an iPad or a desktop computer. WAB was especially interested in a wireless solution that would be able to support the streaming of uncached videos on up to 50 devices simultaneously.

"We tested the performance of various APs from different brands under a classroom environment, with a number of devices trying to load uncached streaming videos at the same time," said Cheng Yuan, Manager of Ruckus Business Department of Xiamen C&D Corporate Limited. "CommScope was the only vendor presenting a solution able to support the streaming of video on 60 devices simultaneously. The Ruckus AP was the top choice, without any doubt."

Industry Leading Wi-Fi and Edge Switching Performance Enables Seamless Connectivity Throughout the Campus

Ruckus APs were deployed at WAB in 2012 for the first time. A positive experience led to several further network upgrades, with other Ruckus portfolio products including ICX switches being deployed over time. Today, a complete CommScope Ruckus enterprise-grade wired and wireless network infrastructure has



Ruckus 802.11ac Wave 2 APs were deployed to take care of campus wireless connectivity needs.

been implemented, which includes over 150 indoor 802.11ac Wave 2 access points, and more than 20 Ruckus ICX switches.

"In our experience with CommScope so far, the total cost of ownership is relatively low yet providing enterprise-grade wireless LAN that is secure, reliable and scalable," said Chen. "The CommScope pre-sales and after-sales teams have also been providing full support throughout the upgrade process. We are very satisfied with overall quality of products and services provided by CommScope."

WAB also decided to deploy Microsoft Office 365 as the single platform for office administration. School schedules, budgets, student records, and logistics were to be managed under the Office 365 platform, thus reliable and low-latency network access became a critical requirement for the supporting network infrastructure.

Another big challenge for the IT team was the need to support high-bandwidth applications on campus, such as video tutorials,

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Cheng Yuan
Manager of Ruckus Business Department of Xiamen C&D Corporate Limited

video conferences, and cloud services management. WAB also hoped to be able to use the least number of APs possible, while being able to support high-bandwidth requirements in high-density areas such as the publicly accessible parts of the campus, as well as crowded theaters on-site.

Ruckus 802.11ac Wave 2 APs were deployed to take care of campus wireless connectivity needs, with each AP able to accommodate up to 512 clients. With four-stream MU-MIMO connectivity, these APs can also simultaneously transmit to multiple Wave 2 clients in the widest available channels, drastically improving radio frequency (RF) efficiency without having to add additional switch ports, or to run new (and expensive) Ethernet cabling. Deploying the Ruckus APs also meant that backhaul capacity more than doubled as a result. The low-latency, non-blocking architecture of Ruckus ICX switches also ensured reliable throughput even for the most demanding applications.

As a whole, the Ruckus APs, switches, and controllers work together seamlessly to simplify network set up, management and upgrades, enhancing security, and minimizing troubleshooting.

Today, visitors, students, teachers and staff at WAB can log on to the campus network using simple SMS authentication. A smart

network design enables different levels of permissions and access to be assigned to different users, thus ensuring security, and that access to the right assets are only provided to the individuals with the correct credentials. The network is also now able to accommodate an estimated 3,000 clients at any one time.

“Connect, Inspire, Challenge: Make a Difference” is WAB’s mission, and the school is committed to regularly updating its teaching systems to enhance the learning experience.

“As Wi-Fi 6 becomes more popular, we are planning to upgrade our network with Ruckus’ latest wired and wireless technologies to ensure that our teaching staff and students have access to the most innovative study platforms,” said Chen.

“Smart schools and digital education have changed the nature of education dramatically. Nowadays, students are required to access to materials online, while teachers sharing class resources and driving online discussions have become very popular,” notes Kelvin Wang, CommScope’s Ruckus Business Sales Director of China. “CommScope has extensive experience in deploying campus networks. We are delighted to work with the Western Academy of Beijing to support to their smart campus network for seven consecutive years,” he added.

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