DALIAN NEUSOFT UNIVERSITY OF INFORMATION

Reliable and Secure Digital Learning Environment Elevates the Student Experience

CASE STUDY

OVERVIEW

Dalian Neusoft University of Information is a private university founded in 2000 by Neusoft Holdings in the province of Liaoning in northeast China. The university is located at Dalian Software Park, with a gross floor area of 399,000 square meters. It focuses on engineering as a core discipline, with over 14,000 students in total.

REQUIREMENTS

- Improve and expand reliable, high-speed wireless network services across the entire campus for both teachers and students
- Provide a highly flexible network that not only supports multiple applications, but also keeps pace with the evolving needs of students and technology
- Support the university in implementing more value-added services, such as big data analytics, as well provide for the overall management of the university

SOLUTION

- 1,530 Ruckus wireless access points (AP)
- Ruckus SmartZone virtual wireless LAN controller
- 65 Ruckus ICX 7150 Ethernet switches

BENEFITS

- Achieved gigabit data transmission speeds and stable network performance for the most demanding services including videos, unified communications and VDI
- Differentiated access strategies for effective operations and management
- Streamlined both user and IT staff onboarding processes
- Gained the ability to visualize student traffic flow, making it more efficient to record student attendance
- Paved the way for a variety of new applications, as well as big data analysis of traffic on the system

ESTABLISHING A SMART CAMPUS AND ONBOARDING WITH BETTER WI-FI

Wi-Fi has become a crucial component in the educational infrastructure available on today's campuses. However, issues with network disconnections, slow download speeds and recurring login interface screens, are a constant source of frustration for students on those networks.

THE CHALLENGE

Dalian Neusoft University is a private university located in the province of Liaoning in northeast China. The university has 14 teaching institutions spread over a gross floor area of 399,000 square meters and serves over 14,000 students. The university first deployed its wireless network several years ago, and due to limited budgets, only provided fundamental wireless network access at the 802.11n/g standard. On average, one to two access points (APs) were shared by over 180 mobile devices, serving 60 to 90 users from 15 dormitory rooms on the same floor. Furthermore, it had been difficult to ensure a stable Wi-Fi signal and fast network speeds for mobile devices separated by walls. The Wi-Fi network came under great strain especially in the peak hours at night, while students on campus frequently used high-bandwidth applications, including streaming video.

"We had an urgent need to improve our network services for our teachers and students, and support our university to implement more value-added services, run analysis on big data, and provide vital reference points for the optimal management of the university," said Zou Xiang, director of the Network and Information Center of Dalian Neusoft University of Information.

THE SOLUTION

Looking to find the right solution to meet all the needs of the university, Dalian Neusoft University was recommended by Jrunion (Beijing) Technology Co., Ltd, partner and solutions provider of the project, to consider the Ruckus portfolio because of superior RF performance with offerings that include built-in BeamFlex+ Adaptive Antenna Technology that focuses RF signals toward each associated client, making it ideal for high-density environments. The university also found the potential for lower total cost of ownership (TCO) appealing.

Yan Feng, general manager of Jrunion (Beijing) Technology Co., Ltd., said, "Compared with other providers, Ruckus provides a more competitive wired and wireless solution. Ruckus' wired switching and wireless network solutions can bring more comprehensive experience to customers in the education industry."

Ruckus' network upgrade and reconstruction program at the Dalian Neusoft University of Information covered all 25 dormitory buildings, as well as some public spaces including classrooms, library and dining halls.

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A total of 1,530 of a variety of Ruckus APs were deployed, which allow a higher density of devices due to Ruckus technology and optimized design. This makes them particularly suitable for high-density environments, where both students and teachers typically have multiple devices on campus. Managing these APs is a virtual SmartZone (vSZ) controller for simple, centralized management, and a backup vSZ for redundancy to deliver the high availability needed for online learning. A total of 65 Ruckus ICX 7150 wired Ethernet switches were deployed, ensuring optimal throughput for demanding classes of service such as video, unified communications and VDI, as well as high bandwidth mobile applications.

As a result, the university network achieved not only gigabit data transmission speeds, as well as reliable network performance for both teachers and students. In addition, 802.1X was used as the user authentication standard for students to achieve a more secure campus wireless network.

"The network upgrade allows the university to offer expanded high-speed wireless Internet access across our entire campus and paves the way for a variety of new applications and big data analysis of traffic on the system, in order to improve the learning experience."

ZOU XIANG
Director for the Network and Information Center, Dalian Neusoft University of Information

THE BENEFITS

The Ruckus RF planning service enabled more effective AP placement across the deployment locations, while patented BeamFlex+™ adaptive antenna technology helped mitigate interference, optimize performance, and expand coverage. The project also resulted in reduced costs for both operations and maintenance.

Lei Tao, head of the operation and maintenance department, Network and Information Center of Dalian Neusoft University of Information, confirmed the robust connectivity and ultra-high data rates of the Ruckus APs through extensive quantitative monitoring on signal performance. Presently, the network upgrades accommodate around 3,000 concurrent clients, with this number expected (and able to) scale to up to 8,000 concurrent clients in the future.

The Ruckus Cloudpath Enrollment System will be deployed in the second phase of network updates, freeing users and IT staff from tedious authentication processes for both wired and wireless devices. The Cloudpath security and policy management software also lets the IT department apply access policies to eliminate unauthorized access to the Internet, as well as to internal networks.

The Ruckus SPoT real-time Wi-Fi location engine and analytics software, which is also due to be deployed in the second phase, will enable IT administrators to visualize students' traffic flow according to the heat maps of different regions, floors and sites. Introducing this technology to the school's attendance system makes it more convenient to record attendance. Students can also conveniently access information on library peak hours or study room availability, for example.

"Previously our network relied heavily on the operator. With Ruckus, we can provide a better user experience for teachers and students, and simultaneously achieve independent operation," said Lei.

"Wi-Fi networks have become a fundamental infrastructure in the higher education sector," said William Ho, vice president, Asia Pacific and Japan, Ruckus Networks. "Ruckus is constantly innovating wireless and wired technology to meet users' new demands for robust networks, as well as developing value-added services solutions for customers. This helps simplify and streamline management processes, while letting users enjoy simply better connections."

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