COMMSCOPE®

RUCKUS®

Mountain-top Jaypee University connects with peak performance

CUSTOMER

Jaypee University of Information Technology (JUIT)

COUNTRY

India

OVERVIEW

At northern India's Jaypee University of Information Technology (JUIT), advanced fiber-optic networking is integral to a world-class learning environment. Founded in 2000, JUIT's sprawling three-tiered Waknaghat campus encompasses over 7,000 square meters of challenging terrain in need of a robust network to support campus venues and users. The campus ranges from student classrooms and laboratories to dormitories and a sports center—from administrative offices, auditoriums and a library to faculty residences and a large civil engineering department.

To provide the connection speed and network security vital to this diverse landscape, the university's IT team turned to CommScope for a uniquely powerful, comprehensive mixed fiber and Wi-Fi solution.

CHALLENGES

- The rugged topography underlying the extensive school grounds resulted in spotty connectivity at many locations across the campus.
- Mobile network performance and quality were chronically inadequate for users attempting to access educational material and submit assignments wirelessly while on and off campus.

- To build a new benchmark in emerging technologies like IT and biotechnology, the campus community required a future-proof network that could easily scale almost without limit.

SOLUTIONS

- Over 160 RUCKUS® indoor access points (APs) were installed throughout the campus without needing to run new power lines.
- Two ICX® 7650 switches provided a collapsed aggregation/core layer to ensure efficient network management and maintenance.
- A mix of ICX 7150 and ICX 7250 PoE and non-PoE switches were installed at the access layer.
- SmartZone 100 wireless LAN controller monitors real-time performance so the IT team knows when to scale capacity up or down.
- Four kilometers of six-fiber singlemode armored CST fiber-optic cables were installed.

BENEFITS

- The fiber network combines with wireless connectivity to deliver ubiquitous accessibility and reliable performance for more than 5,000 students and faculty.
- With the growing prevalence of multimedia, the network can seamlessly scale to support the university's growing data and voice traffic, IP camera transmissions, wireless devices and other connected services.
- The cost-effective, scalable infrastructure enables an automated ERP system that has transformed operational efficiency across the university's 18 major functions.

For more information, visit commscope.com

CommScope fiber-optic networking scales the heights to serve more than 5,000 students and faculty

TEAMING WIRED WITH WIRELESS IS KEY TO THE MODERN CAMPUS

Declared Best Private University by Dialogue India and ranked first under the category "value for tuition" by *India Today*, Jaypee University is a perennial incubator of young innovators in biotech, civil engineering, computer science, mathematics and physics. JUIT researchers have published more than 2,900 research articles and 59 books. To sustain this leading-edge intellectual development, the school has built state-of-the-art laboratories, workshops and computer systems. But something else is just as vital to its success. In a learning environment where "white-board" teaching has been replaced by 24x7 engagement with smartphones, laptops and mobile devices, interconnectivity has become a gating factor. It dictates not only the speed of learning, but the vibrancy of the overall academic institution itself.

Recently, JUIT administrators made the decision to leave behind an inflexible Wi-Fi infrastructure whose spotty coverage, inadequate performance, and limited security capability could not meet the demands of a modern digital student body. The goal was to implement an advanced, cost-effective solution that could handle JUIT's unique networking challenges today, while keeping up with future needs. The team turned to CommScope, a technology innovator hailed by educational institutions worldwide for practical infrastructure advancements that deliver outstanding functionality.

CommScope's RUCKUS Wi-Fi connectivity product line is synonymous with high availability, reliability, legendary reception and signal strength complemented by simple system administration. For JUIT, the RUCKUS wireless platform and AP portfolio was the key to covering dorms, faculty housing, academic spaces and outdoor areas across their entire mountain slope community. It took more than 160 APs to deliver secure, reliable connections. RUCKUS indoor and outdoor wireless APs are perfect for deployment scenarios with high user density, Wi-Fi-unfriendly buildings, and extreme topographies. For JUIT's challenging physical layout, this versatility was the ideal answer. RUCKUS APs are packed with patented optimization technologies like BeamFlex® adaptive antennas, which maximize indoor coverage and mitigate RF noise. ChannelFly® machine learning technology automatically reconfigures signal flow to create congestion-free bandwidth.

"We heavily bank upon CommScope's passive and non-passive networking capabilities to help us deploy the university's automated ERP system seamlessly. Any downtime can backlog important processes—disrupting day-to-day management of the university. Since our partnership with CommScope, we have experienced negligible break-outs."

Prof. (Dr.) Vinod Kumar

Vice Chancellor
Jaypee University of Technology

"The outdoor fiber optical ring helped us to build a scalable backhaul infrastructure that ensured the whole campus was Wi-Fi enabled."

Prof. (Dr.) Vinod Kumar

Vice Chancellor
Jaypee University of Technology

To ensure excellent throughput for the most demanding video and mobile applications, JUIT's APs connect to CommScope's ICX family of stackable switches, which provide an optimized wired underlay for the wireless traffic. The ICX line is designed to meet the challenges of multi-gigabit wireless demand and future-proof deployments of next-generation infrastructure. Its fixed form-factor combines the capabilities of a chassis with the flexibility and cost-effectiveness of a stackable switch. JUIT's ICX 7000-series switches deliver low-latency non-blocking performance and scalable multi-gigabit Ethernet access, as well as 40/100 GbE uplink options. The switch's high-output power over Ethernet (PoE) capability powers all the RUCKUS APs, as well as voice and video devices, without requiring electrical cabling.

ENTERING THE SMARTZONE: UBIQUITOUS AUTOMATION AND UNIFIED POLICIES

JUIT found the CommScope implementation to be as straightforward as the outcome was extraordinary—delivering rock-solid performance that far outpaced other technology options they evaluated. A significant advantage came from CommScope's powerful yet simple-to-operate SmartZone 100 controller.

SmartZone network controllers deliver enough scalability, flexibility and openness for the most sophisticated deployment scenarios, but with much simpler network setup and management, less troubleshooting and more advanced security. The JUIT team uses SmartZone 100 to gauge the real-time performance of access points and ICX switches. Before the deployment of SmartZone 100, the university lacked a centralized controller. Now the team receives alerts automatically that indicate when gear should be upgraded or the network scaled down. The ability to quickly detect issues on specific APs in need of attention has resulted in a dramatic decrease in administrative cost and time.

SmartZone manages all access points—providing auto-discovery and auto-configuration of APs to minimize manual administration. It also ensures unified policy enforcement across wired and wireless networks. Active/active clustering delivers higher availability and resiliency than traditional N+1 standby. To simplify troubleshooting, Visual Connection Diagnostics uses "super-KPIs" (key performance indicators) to help staffers detect and solve issues long before they degrade the user experience. With granular policy rule creation, network segmentation can be based on JUIT's specific security and policy needs rather than a one-size-fits-all approach. Additional advanced features include rogue AP detection, interference detection and mitigation, band steering, airtime fairness, hotspot and guest networking services.

FULL WIRELESS ACCESS TO EDUCATION, WITH EFFICIENT NETWORK MANAGEMENT AND MAINTENANCE

One of the prime reasons JUIT adopted CommScope's industry-leading passive and non-passive networking solution was to support the deployment of an automated ERP system to alleviate the operational burden of running the university.

This goal was accomplished with a custom, scalable network infrastructure solution aligned perfectly to the IT team's mission blueprint.

Since the implementation, the 18 modules of JUIT's automated university management system have transformed every aspect of school administration, including: human resources, payroll, student registration and fees, managing exams and fixed assets, handling security systems, purchasing, transportation, accounting and the university library. Therefore, network downtime can disrupt the management of the university's critical functions. JUIT has found that the CommScope solution delivers the reliability and high performance needed to keep operations running smoothly—without interruption.

A CLEAR WINNER IN THE UNIVERSITY WI-FI SPACE

RUCKUS quality, reliability and flexibility let JUIT extend high-performance wireless network coverage into campus areas inadequately served by traditional wired networks. The outdoor fiber-optic ring provides high-speed data connections between the campus's three physical tiers. The scalable backhaul infrastructure supports Wi-Fi access points throughout the community without the need to run new power lines.

This resilient network solution flawlessly handles the university's current demand for connectivity and bandwidth for all students and faculty across the campus, as well as supporting an ERP software suite that unites critical operations. Best of all, JUIT has the power to scale the network's reach and capacity as needed, no matter how high the demand for connectivity.

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY
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CommScope pushes the boundaries of communications technology with game-changing ideas and ground-breaking discoveries that spark profound human achievement. We collaborate with our customers and partners to design, create and build the world's most advanced networks. It is our passion and commitment to identify the next opportunity and realize a better tomorrow. Discover more at commscope.com.

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