Transforming Large University Campus into Digital-Ready Learning Environment

Overview

A prestigious state university in Gorakhpur, spread across 190 acres and home to over 12,000 students, is a beacon of academic excellence in Eastern Uttar Pradesh, Bihar, and Nepal. With eight faculties and 40 departments, the university holds an A ++ NAAC accreditation and continues to advance its mission of delivering holistic, future-ready education. As part of its digital transformation, the university adopted Zyxel Networks' cost-effective, cloud-managed networking solution, where the WAX610D WiFi 6 Dual-Radio Access Points played a pivotal role in enabling high-speed, campus-wide wireless connectivity. With Zyxel Networks' scalable and affordable infrastructure in place, the university now stands as a model for digital transformation in education, ensuring that students, faculty, and administration benefit from seamless connectivity and enterprise-grade security.

Challenges

Deploying an institution-wide network of this scale posed significant challenges. High user density demanded uninterrupted wireless coverage capable of handling multiple devices per user without congestion. The campus also required secure web-based authentication to ensure safe access and protect sensitive information. At the core, the network needed centralized, cloud-based management to reduce IT overhead and streamline troubleshooting. The university was also cost-conscious and required a solution that delivered enterprise-grade performance without inflating capital expenditure. Lastly, addressing rising cybersecurity risks with a next-gen firewall solution was non-negotiable to protect users and infrastructure.

Solutions

Zyxel Networks deployed a fully integrated and cost-effective infrastructure tailored to the university's scale and needs. To provide high-performance wireless connectivity, 125 WAX610D WiFi 6 Dual-Radio Access Points were deployed across the campus. Designed for high-density environments, the WAX610D offers faster speeds, improved coverage, and enhanced capacity, enabling uninterrupted access to digital resources and collaboration tools.

Customer
State University in UP

Industry
Education

Location
Uttar Pradesh, India

Customer Background
Established in 1950, this prestigious state university in Gorakhpur has earned an A++ NAAC accreditation for its commitment to academic excellence, holistic education, and cultural inclusivity. Spanning over 190 acres with eight faculties and 40 departments, it serves more than 12,000 students from Eastern Uttar Pradesh, Bihar, and Nepal. Known for its robust research, innovation, and vibrant campus life, the university blends traditional values with modern scientific education to drive regional and national development.

The wired backbone was built using 43 GS1920-24HPv2 and 8 GS1920-8HPv2 Smart Managed PoE Switches, delivering reliable connectivity and PoE power to access points and endpoints. These switches offer intuitive web management, high flexibility, and support NebulaFlex, allowing the IT team to choose on-premises or cloud control. At the core, two Zyxel XGS4600-32F 28-port L3 Aggregation Fiber Switches with 4 SFP+ uplinks enabled high-speed fiber aggregation between buildings and departments. These switches delivered Layer 3 functionality for efficient routing, traffic management, and scalability. The deployment also included 95 SFP-LX fiber transceivers for stable long-distance connectivity across campus zones.

To safeguard the university's growing digital footprint, 2 ATP800 Firewalls were implemented. These next-generation firewalls provide multi-layered protection, including sandboxing, intrusion detection and prevention, content filtering, and application control. Integrated with Nebula cloud management, the firewalls allow real-time threat analytics, alerts, and centralized security orchestration. All devices were centrally managed through Nebula, the powerful cloud-based platform.

Results

With Nebula, the IT team can monitor network health, configure devices remotely, and respond to issues faster, anytime from anywhere. The university now operates a truly smart campus backed by secure, seamless connectivity across every corner. Students and faculty benefit from high-speed internet access, while the IT team enjoys full control and flexibility through the cloud.

- 100% WiFi coverage across academic and residential buildings
- 70% reduction in threat exposure with firewall protection
- Up to 60% faster deployment and configuration time with Nebula
- 50% lower maintenance efforts thanks to centralized network management
- Future scalability ensured with modular, fiber-based architecture

Product List

- WAX610D WiFi 6 Access Point

- XGS4600-32F L3 Aggregation Fiber Switch
- GS1920-8HPv2/24HPv2 Smart Managed PoE Switch
- SFP-LX-15 Fiber Transceiver

- ATP800 Security Firewall