



Designing a Reliable Network From Core to Corridor for an Indian Hospital

Overview

Building the network right from the foundation of a new healthcare facility is not an afterthought. It is part of the network infrastructure that keeps people, devices, and operations connected. Maxwell Hospital needed reliable WiFi connectivity across corridors and patient rooms, a structured switching infrastructure across the facility, and centralized control of its wireless network. Just as importantly, the hospital wanted its WiFi management to remain on-premises, rather than relying on a cloud-managed platform. Before making its decision, the hospital evaluated solutions from three to four competing brands. Zyxel Networks stood out by bringing together the right combination of reliability, affordability, and an out-of-the-box network architecture that matched the hospital's requirements. The resulting deployment combines WAX510D WiFi 6 access points, L3 managed switching, PoE connectivity, 10GbE uplinks, and a USG FLEX 500 firewall with on-premises AP controller functionality.

Challenges

Hospitals are high-density network environments where clinical staff, patients, visitors, and connected medical equipment all rely on the same infrastructure at once. As a ground-up build, Maxwell Hospital had no legacy network to fall back on, so every requirement had to be designed correctly the first time, across a building with little tolerance for downtime once clinical operations began.

Network coverage had to reach every corridor and patient room across three to four floors, while switching needed to be distributed throughout the building to support current and future PoE devices such as access points, IP cameras, and nurse-call systems. At the same time, hospital leadership required that all network administration, wireless policy, access-point management, and firewall control stay on-premises strictly, ruling out cloud-hosted management platforms.

Customer

Maxwell Hospital & Research Center Pvt. Ltd.

Industry

Healthcare

Location

Siliguri, India

Customer Background

Maxwell Hospital & Research Center Pvt. Ltd. is a multi-specialty hospital in Siliguri, committed to delivering quality healthcare with compassion and care. Combining experienced doctors, modern medical technology, and a patient-first approach, the hospital provides safe and effective treatment across a range of medical needs. Serving patients from Siliguri, North Bengal, Sikkim, and surrounding regions, Maxwell Hospital brings diagnosis, advanced treatment, and comprehensive patient support together under one roof.



Solutions

Built from the ground up rather than bolted onto legacy cabling, Maxwell Hospital's network needed a design that could cover every corridor and bedside in reliable WiFi, move data fast enough for a modern diagnostic workload, and stay entirely under the hospital's own control. Zyxel Networks answered with a purpose-built architecture: a Layer 3 fiber core, PoE+ switching on every floor, WiFi 6 throughout, and one on-premises controller tying it all together.

WiFi 6 from corridor to bedside: the solution began at the wireless edge with WAX510D WiFi 6 access points, placed across patient rooms and corridors to enable WiFi coverage throughout the hospital.

The WAX510D WiFi 6 access points, built with dual-band 2x2 radios, deliver stable connectivity through corridors, nursing stations, and patient rooms. Features such as OFDMA and MU-MIMO enable the network to handle multiple simultaneous connections, from staff devices and mobile workstations to connected medical equipment, reducing network congestion and ensuring reliable coverage without dead zones. These access points are centrally managed through the on-premises AP controller ecosystem.

Layer 3 core with multi-gigabit uplinks: XGS4600-32 Layer 3 fully managed switches form the network core, each with 24 GbE ports, four GbE combo (RJ-45/SFP) ports, and four 10 GbE ports. Paired with SFP10G-LR single-mode fiber transceivers, the core switches connect the hospital's floors over long-reach fiber running at 10 Gbps, so inter-floor and inter-department traffic never becomes a bottleneck as more devices come online.

PoE+ distribution on every floor: XGS2220-30HP PoE+ switches and XGS2220-30 switches distribute Gigabit connectivity throughout the building, with the compact GS2220-10HP switches covering smaller wiring closets. Together they give every floor the PoE budget and port capacity to power access points, cameras, and future connected devices without new cabling.

One controller, complete command: the USG FLEX 500 serves as the hospital's on-premises WLAN controller and firewall in one, pre-licensed for up to multiple access points over five years of licensing.

This approach gives Maxwell Hospital a complete network architecture rather than a collection of standalone devices: high-speed aggregation at the core, high-performance WiFi at the edge, managed PoE switching throughout the facility, and centralized on-premises control at the security layer.





Product List



- WAX510D WiFi 6 Access Point



- XGS4600-32 L3 Aggregation Switch
- XGS2220-30/30HP L3 Access Switches
- GS2220-10HP L2+ Managed PoE Switch
- SFP10G-LR 10GbE Transceiver Module



- USG FLEX 500 Firewall

Results

The new infrastructure gives Maxwell Hospital a secure, stable, and fully on-premises network with every access point, switch, and firewall policy managed locally through the hospital's USG FLEX 500 firewall.

- WiFi 6 coverage across corridors, nursing stations, and patient rooms on every floor
- Complete on-premises control of wireless and wired policy via a single USG FLEX 500 firewall
- 10G fiber core with headroom for imaging, video, and future telemedicine traffic
- PoE+ switching distributed building-wide, ready for added access points and IP devices
- Licensed for multiple access points well beyond what's currently deployed, enabling low-friction expansion

