



Success Story

Empire Square Delivers High-speed, Wide-Network Coverage with Zyxel GPON Solution



Real Estate



Empire Square



India



Zyxel GPON Solution

Overview

Challenges

- Deliver full wired and wireless coverage over large housing development
- Ensure high-speed multi-site network access
- Provide scalable and future-proof solution for future expansion

Results

- High-speed and cost-optimal deployment of optical access networks
- Connect internet, voice, surveillance, wireless and gate system solutions over the same fiber backhaul
- Stable networking access and streamlined network connectivity
- Smooth, wide-area wireless connectivity for multiple devices
- Simplified deployment and easy management of network infrastructure

Solution

- Zyxel GPON Solution

“All the application was running smoothly which helped us to keep our tenants and owners happy. The users could choose their favourite service providers as multiple ISP links terminated to the OLT. The OLT with multiple uplink ports provide us flexibility to connect our switching and PON network directly to the OLT. Besides, monitoring cameras becomes much more efficient as there is no more bandwidth issue. In the beginning, we experienced some issues during implementation. When Zyxel’s technical team evaluated the passive infrastructure, it suggested us to re-designed our passive splitter ratio. After the redesign and rectification, we have experienced efficiency of the newly deployed network.”

Shailesh Bhingare
Network Manager, tech-BOX (Maintenance partner at Empire Square)

Background

Empire Square is part of India's leading real estate brand, Sukhwani Agarwal Group, located in the rapidly developing Chinchwad, Pune area. The group has dedicated its business to the pursuit of innovation alongside stable and quality construction. By striving for a modern approach to home construction, the company has developed ground-breaking construction methods to improve

Challenges

Empire Square's new residential development was composed of separate areas that included apartments, shops, gardens, a club, and maintenance office. The company also plans to establish a school on with a future expansion of the project. Empire Square was looking for wired and wireless network solutions that could deliver wide-area coverage over its extensive premises. The network infrastructure needed to provide the residents with seamless, fast network access throughout the properties. In addition, the community was equipped with numerous IP cameras, alarm sensors

Solutions and Benefits

Empire Square SI partner Blossom worked with Zyxel to deploy a state-of-the-art GPON solution in the new construction site to address the customer's network infrastructure needs. Zyxel's optical line terminal (OLT), optical network terminals (ONT) and switches were selected to enable fast and reliable wired and wireless connectivity over the broad area at an affordable price. GPON is a cost-effective solution that can deliver long-distance data transmission over 100 meters, unlike the traditional LAN. In addition to the wide coverage, fast data transmission and stable wireless networking, secure data communication was also a key concern.

The heart of the solution is the **1U Pizza Box GPON OLT(OLT1408A)**. The robust fiber line branches out to the **Zyxel Wireless N GPON HGU with 4-port GbE Switch (PMG5317-T20A)** for routing, NAT, VoIP and WiFi connectivity, and to the **28-Port Gigabit L3 Managed Switch with 4 SFP+ Uplinks(XGS4600-32)**, which provides VLAN, routing and RSTP features.

OLT1408A features VLAN that separates the internet, VoIP, IP cameras, and wireless devices to streamline connectivity while enabling interconnectivity among the house owners and security staff. The residential development didn't need to deploy another switch to segregate services via VLAN.

Furthermore, the OLT supports address resolution protocol (ARP) proxy services to secure data communication and enable port-bridge to optimize bandwidth utilization. The OLT can prevent ARP spoofing and allows the residential community to deploy devices over the same network without disclosing MAC address details, preventing attacks on servers. To enable connectivity between the two devices over the same PON port,

housing quality. The group has attracted over 5,000 families to take up residence in their apartments by creating properties that support a regal and elegant lifestyle. Their exceptional properties contribute to the area's aesthetic and eye-catching skylines, becoming both landmarks in the city and benchmarks for the industry.

and a gate entry system, and the security staff uses wireless devices to monitor them all. The selected solution had to be able to connect with IP cameras and alarm sensors over the same GPON network and provide stable WiFi connectivity to smoothly stream data and voice. Seamless WiFi signals extending to each corner of the community without dead spots is another essential requirement. Reliability as well as the ability to customize and resolve the client's problems quickly and effectively were also major concerns for Empire Square when choosing system partners.

Zyxel's OLT is available with the port-bridge option. Intercoms from homes can be connected to the same PON port. Also, the IP cameras and client devices can be mapped with the same VLAN.

Zyxel's OLT1408A provides additional advantages. Using an unpowered splitter, the product separates fiber connections to each end location without the need for an additional cable cabinet. In addition to saving space, the product provides scalability and future-proof advantages as well as excellent return on investment. Since there's less hardware to worry about, the infrastructure doesn't require significant IT maintenance and saves on utility costs like power and air conditioning.

The **28-Port Gigabit L3 Managed Switch with 4 SFP+ Uplinks (XGS4600-32)** is designed for bandwidth-intensive applications and can handle the critical responsibilities of serving as the network backbone. The switch was used to provide to route traffic among different VLANs.

Residents also required wireless connectivity in their individual apartments. Zyxel proposed a multi-functional GPON ONT **PMG5317-T20A**, which provides high-speed fiber access and wireless IEEE 802.11 b/g/n connectivity. The product delivers fast and reliable WiFi internet connections for PCs, TVs, game consoles, NAS, phones (PSTN phone line and intercom), and IP STB. In the maintenance office, the PMG5317-T20A CPEs were used to connect with PCs and phones (PSTN phone line and intercom) via WiFi. WiFi access points are also deployed in the garden, playground, club, and lobby. The project's success led the company to choose **PMG5317-T20A** ONTs to furnish students with wireless access to the internet in the school that is planned as part of a future expansion project.

Products Used

OLT1408A • 1U 8-port Pizza Box GPON OLT



- 8 ITU-T G.984-compliant GPON ports; each port supports up to 128 ONT
- 4 x 10G/2.5G/1G port (SFP+/SFP, fiber)
- 8 x GE 1/2.5G port (SFP, fiber) and 8 x 100/1G port (RJ-45, copper)
- Dual power module plus battery charger
- Temperature-hardened

PMG5317-T20A • Wireless N GPON HGU with 4-port GbE Switch



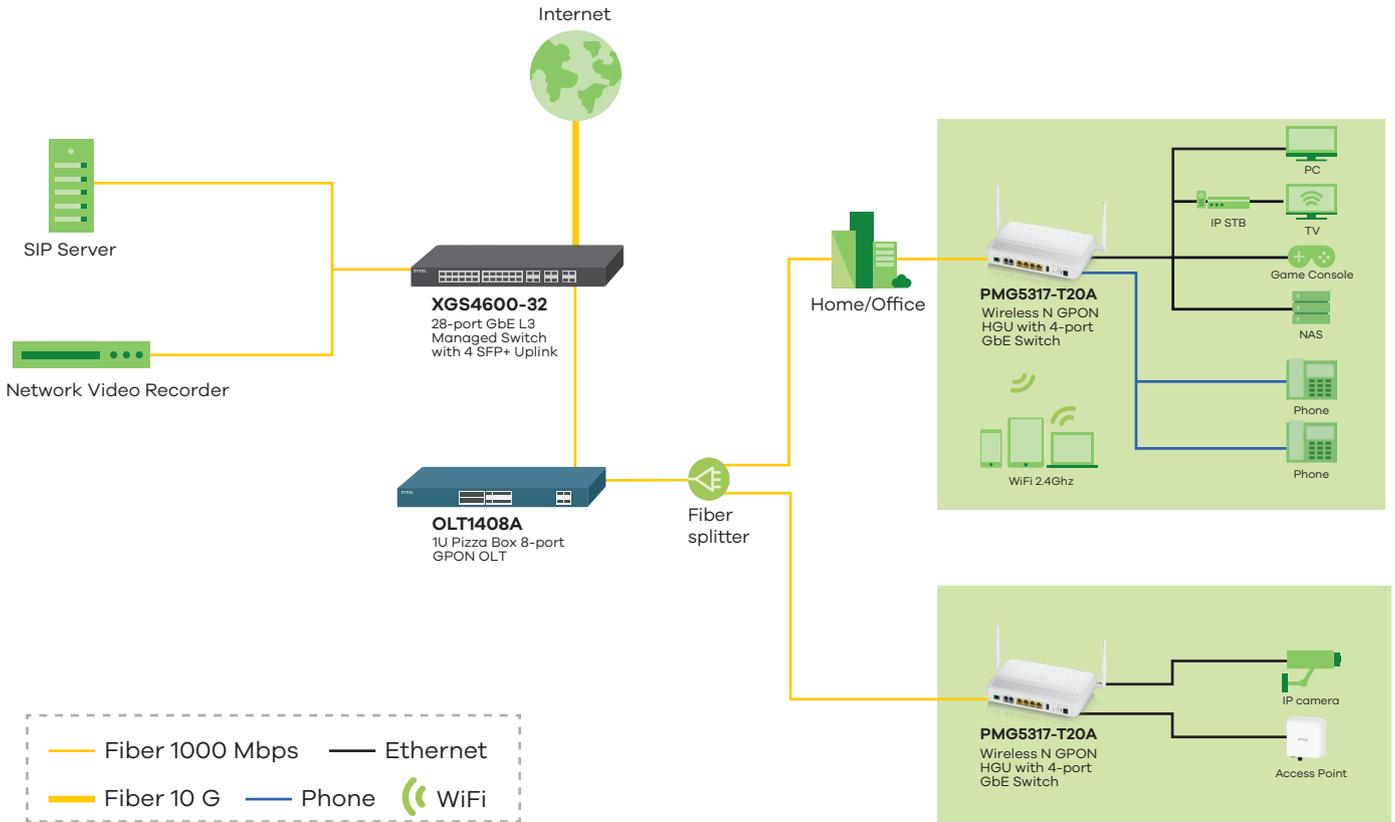
- Integrated Internet services through fiber optics
- 2.4 GHz 11 b/g/n (2x2) for superior performance and coverage
- Advanced QoS ensures quality of triple-play services
- Provisioning and Management

XGS4600-32 • 28-Port GbE L3 Managed Switch with 4 SFP+ Uplinks



- Four built-in 10G SFP+ uplinks enable smooth, congestion-free data delivery for high-bandwidth applications
- Provides high bandwidth with true physical stacking of up to four units and 112 Gigabit ports
- New ID design with carbon fiber-style name plate delivers a modern look and feel
- High resiliency with redundant power supply units

Diagram



About Zyxel

Focused on innovation and customer-centricity, Zyxel has been connecting people to the Internet for nearly 30 years. Our ability to adapt and innovate with networking technology places us at the forefront of creating connectivity for telcos and service providers, business and home users. Zyxel is building the networks of tomorrow, unlocking potential, and meeting the needs of the modern workplace — powering people at work, life, and play. Zyxel, Your Networking Ally.

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