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Success Story

University of Buenos Aires Grateful for Zyxel's High-Speed, Low-Cost Network Solution

INDUSTRY	CUSTOMER	COUNTRY	SOLUTION
Education	University of Buenos Aires	Argentina	GPON and Nebula Solutions

Overview

Challenges

- Provide high-speed wired and wireless networks
- Integrate the new communications infrastructure with existing systems
- Reduce complicated cable deployment and the cost of Ethernet infrastructure

Solution

- Zyxel GPON Solution
- Zyxel Nebula Solution

Results

- Speedy, stable, and secure dual-band WiFi service throughout the building
- High-speed, cost-optimized wired connectivity through end-to-end GPON deployment
- Simplified deployment and management of all APs via smart cloud management

Summary

It's fair to say that for staff at the University of Buenos Aires' Faculty of Dentistry, using the internet used to be like pulling teeth. They were in dire need of faster connections and, just as critically, a more secure network to protect the privacy of the school and its patients. Any new solution, however, needed to be suited to the high-density environment within the faculty building and stay within a tight budget. Also on the blacklist were complex access points requiring a tech genius to install them. Read on to learn how we delivered exactly what was wanted by combining fiber access with the cloud.

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Background

Founded in 1821, the University of Buenos Aires is not only Argentina's largest school but is one of the most renowned centers of learning anywhere in South America. The Faculty of Dentistry, one of 13 faculties, was established in 1947 and currently has more than 2,000 students. It provides 24-hour services such as dental health inspections, dental emergencies, and patient orientation. Its multi-functional building with 18 floors contains offices and workspaces including intervention rooms, operating rooms, a laboratory, a dining room, and a library.

Challenges

Network performance was poor and data transfer speeds were slow – and the situation was growing ever more untenable with the increasing number of mobile devices, both of staff and students and visitors alike. The writing was on the wall and the faculty knew it needed to upgrade from its Ethernet network, the messy and complicated cable deployment of which made maintaining old equipment and adding new equipment difficult and costly.

In addition to the new network having to come in within a somewhat tight budget, the school also required secure and separate network services for its IT administrators, faculty, students, patients, and visitors.

Solutions and Benefits

Working with Zyxel and its local system integrator, the school chose to upgrade its network infrastructure to fiber broadband, which provides multiple benefits over Ethernet.

With fiber cables able to transmit data across distances of over 100 meters, a fiber broadband network can use splitters to connect directly to each end point, providing a long reach without repeaters or additional cable cabinets. This avoids messy cable deployments as well as saves considerable amounts of time and money.

Zyxel's **OLT1408A 1U Pizza Box 8-port GPON Optical Line Terminal**, the backbone of the dental faculty's new infrastructure, was installed in the data center on the building's 18th floor and connects to fiber splitters on every floor. Supporting multiple interfaces, the OLT1408A can integrate multiple services through one central active equipment. For the university, this meant it didn't need to purchase switches. It also eliminated the need for Ethernet switches on each floor and reclaimed the space previously taken up by racks for cables and servers. And because of this, it also greatly reduced the required maintenance by IT staff. In addition, the OLT can support up to 512 pieces of customer-premises equipment (CPE), thus the building's infrastructure can be easily expanded at minimal cost.

The OLT1408A connects to **PMG5671GA Dual-Band Wireless AC/N GPON Home Gateway Units with 4-port GbE LAN** and **PMG1005-T20B GPON SFU with 1-port GbE LAN.** The PMG5617GA optical network terminals connect to professors' PCs, providing stable, high-speed wired and wireless connectivity in their offices. The PMG1005-T20B terminals, meanwhile, connect to **NWA1123-ACv2 802.11ac Dual-Radio Ceiling Mount PoE Access Points**. Meeting the 802.11ac standard for rapid WiFi speeds, these APs were deployed in public areas throughout the building, such as waiting rooms and classrooms, to provide seamless wireless connectivity to students, patients, and visitors.

In addition to its infrastructure's speed and stability as well as its ability to bring the project in on budget, ease of installation was another reason Zyxel was selected for the case. In contrast to the previous Ethernet network, Zyxel's GPON solution features far simpler cable deployment. But just as crucially, Zyxel's Nebula solution makes it possible – and easy – to remotely deploy and manage supported access points, like the NWA1123-ACv2 APs selected in this project.

With the old network, installing and configuring APs was a time-consuming and difficult process for IT staff. Not anymore. Nebula features zero-touch provisioning that automatically configures and deploys an AP once it is connected to the internet. Then, all APs can be remotely monitored and managed anytime, anywhere via the browser-based Nebula Control Center – no port openings, VPNs, or other complementary equipment necessary.

Last but not least, the school wanted its new network to come with a better means of managing guest WiFi usage. Nebula again delivered. It supports multiple WiFi SSIDs and can be used to customize captive portals for different SSIDs within just a few minutes. Now students, teachers, and patients are enjoying better security when using the building's WiFi services.

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Products Used

OLT1408A • 1U Pizza Box 8-port 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

PMG5617GA • Dual-Band Wireless AC/N GPON HGU with 4-port GbE LAN

- Integrated internet services through fiber optics
- Dual-band 5G Hz 11ac (2x2) & 2.4 GHz 11n (2x2) for superior performance and coverage
- Zyxel OPAL firmware offers better flexibility and faster time to market
- Provisioning and remote management through TR-069 along with OMCI

PMG1005-T20B • GPON SFU with 1-port GbE LAN

- Supports Gigabit data access via passive fiber
- Compact size and simple bridge design for easy installation and deployment
- Remote management via OMCI

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Products Used

NWA1123-ACv2 • 802.11ac Dual-Radio Ceiling Mount PoE Access Point

- NebulaFlex™ gives you the flexibility to switch between standalone and Nebula cloud management
- Nebula cloud management allows easy deployment, real-time configurations, and access to all your access points at anytime
- 802.11ac 2x2 supports a combined data rate of up to 1.2 Gbps
- Compact ceiling-mount design with optimized RF performance
- Robust build quality including solid-state capacitors to ensure long life and operational reliability

Nebula Control Center (NCC)

- Responsive web design and intuitive user interface
- Multi-tenant, multi-site view
- First time setup wizard
- Role-based administration privileges
- Real-time and historical monitoring/reporting
- Rich site-wide management tools
- Powerful organization-wide management tools
- Configuration changing alerts
- Misconfigure protection against disconnecting NCC
- Configure login auditing

About Zyxel

Focused on innovation and customer-centricity, Zyxel has been connecting people to the Internet for over 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.