



Success Story

ZyXEL GEPON Solution Offers an Advanced and Future Proof Network for IASR, India Penta-play Services on ZyXEL GEPON Solution

Overview

Customer Name

Indian Agricultural Statistics Research Institute, India

Customer Industry

Government

Challenges

- Super-fast performance and high bandwidth
- Providing a network to deliver penta-play services
- Provide a cost-effective network

Solutions

- ZyXEL OLT-1308S-22, ONU-6100B and ONU-6040BF

Benefits

- Powerful Gigabit connectivity
- Fail-free connectivity
- A scalable network for future growth
- A network ready for voice, video, surveillance and data services
- Saving costs on cabling via optical fibre transmission

Challenges

As a central organization in charge of agricultural research, new technique developing and data analysis, ICAR needs a powerful network that is fast enough to transmit massive data among more than 1,000 users, departments and buildings at the same time. Also, to be ready for the trend triggered by advanced Internet applications involving bandwidth-intensive audio and video multimedia contents, ICAR needs a single solution with the integrated capability to offer penta-play services of voice, video, data, surveillance and building with a single management system. The other challenge is that with a limited budget, ICAR requires a value-added, effective deployment without any extra cost on cabling.

Background

The Indian Agricultural Statistics Research Institute is an institute under the Indian Council of Agricultural Research (ICAR) with the mandate for developing new techniques to design agricultural experiments as well as to analyze agricultural data. As the existing Internet infrastructure is still 100 Mbps-based and fails to respond to the demand for fast Internet transmission, ICAR decided to upgrade their network and increase the bandwidth.

Solutions and Benefits

After evaluation on both switching and GEPON solutions, the ZyXEL GEPON solution was chosen for its high security (thanks to port physical isolation feature), unlimited bandwidth and cost-effective natures.

ICAR's network architecture consists of a Central Office ZyXEL OLT-1308S-22, which is a mini Layer-2 Optical Line Terminal GEPON chassis switch compliant with IEEE 802.3ah; it supports link fault detection, performance monitoring and loop discovery that greatly improve broadband performance of the very first mile. It is connected with a single fiber to an optical power splitter that supplies optical signal to as many as 512 sets of Optical Network Units (ONUs). In the deployment scenario, the OLT-1308S-22 was connected to a total of 91 ONU-6100Bs and 71 ONU-6040BFs via splitters. Both ZyXEL ONU-6100B Series and ONU-6040BF Series support a transmission distance of up to 20 km that allows a flexible, scalable deployment as demanded and brings high-speed broadband Internet to the individuals.

As the implementation of ZyXEL GEPON solutions completed, the Internet service has been significantly improved by the Gigabit bandwidth, and ICAR also enjoys the additional benefits from:

- Cost-effective operations: GEPON networks use splitters to allow minimal fiber deployment in local loops. In addition, it requires no power between CO and network's termination as such the maintenance costs is lowered.
- Flexible Internet access: featuring point-to-multipoint connectivity, the GEPON solutions help customers to connect multiple PC at different locations with a single fibre cable.

- Disruption-free Internet service: with the redundant path feature of ONU connection, users will get an alternate path if one fails, which prevents the network from Internet disruption.

After the success establishment of ZyXEL GEPON solution, ICAR subsequently deployed the ZyXEL x6004 (Private Branch Exchange) PBX to build its voice system on the passive optical network. ICAR is satisfied by the performance and it is planning to float an RFP for the voice integration with ZyXEL devices.

Products Used



OLT-1308S-22 8-port GEPON Optical Line Terminal with 4-port GbE Switch

- 8 GEPON SFP open slots with DDMI support
- 1000BASE-PX20 SFP for 20 km distance support
- 2 Gigabit combo + 2 GbE SFP uplink ports compliant with IEEE 802.3/u/ab
- Up to 4 trunking ports for uplinks
- Support up to 64 ONUs per PON interface
- Support FEC
- Support AES or Triple Churning Encryption
- Support 4 LLIDs per ONU
- 16K MAC addresses table
- Management through console, Telnet, SNMP or Web management
- FTP for firmware upgrades
- Configuration saving and retrieving
- Overheat detection
- LED indicators for link status
- AC/DC power input for redundancy
- PON port redundancy
- Hot swappable fan module and PON modules



ONU-6100B Series GEPON Optical Network Unit

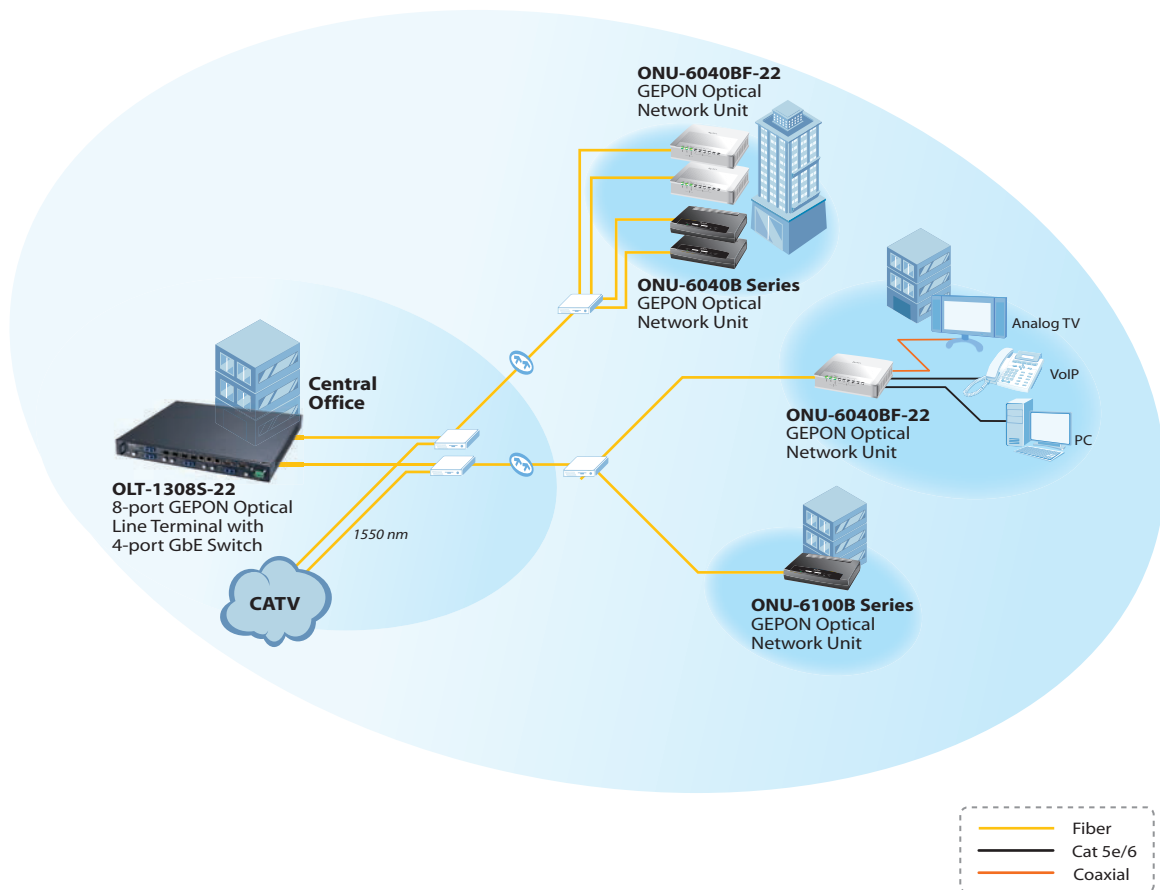
- 1 GEPON interface with SC type connector (IEEE 802.3ah)
- LAN interface: 1 auto MDI/MDI-X 10/100/1000 Mbps port
- Wavelength: 1310 nm for upstream and 1490 nm for downstream
- Power: 12 VDC @ 1.5A



ONU-6040BF Series GEPON Optical Network Unit

- 1 GEPON interface with SC type connector (IEEE 802.3ah)
- LAN interface: 4 auto MDI/MDI-X 10/100Mbps port
- Wavelength: 1310 nm for upstream & 1490 nm for downstream
- Power: 12 VDC @ 1.5 A

Diagram



About ZyXEL Communications

ZyXEL Communications Corp., founded in 1989 and headquartered in Taiwan, is the leading provider of complete broadband access solutions. As one of the early modem manufacturers, ZyXEL has undergone many transformations in the fast-paced networking industry. Today, ZyXEL is one of the few companies in the world capable of offering complete networking solutions of Telco, SME/Enterprise, and Digital Home for a wide range of deployment scenarios. Telco solutions include wired and wireless access network equipments, networking customer premises equipments, and Carrier Switches. SME and Enterprise solutions include Unified Security Gateway, LAN Switches and WLAN. Digital Home solutions include network connectivity devices and multimedia solutions.

The company has 3200 employees and distributors in 70 countries, reaching more than 150 regional markets. The ZyXEL Communications Corp. includes 33 subsidiaries and sales offices and two research and development centers worldwide. For more information, visit the company's Website, <http://www.zyxel.com>.

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