

Galeria Rzeszow Upgrades Shopping Experience through DASAN Zhone Solutions' Passive Optical LAN



Summary

Customer

- Galeria Rzeszow Shopping Center in Poland

Challenges

- Differentiate the network of the mall from other similar venues scattered around the city due to complex city infrastructure
- Reliable and flexible network needed for each different shop tenant's needs

Solutions

- Fiber network solution from DZS' FTTx GPON OLTs, ONTs
- Fibrain's passive infrastructure including Fibrain LSOH Central Loose Tube Single Mode Fiber cable with Fiberglass Reinforcement

Benefits

- Extended link length compared to copper
- No need of distribution point with electrical device, or cooling and UPS
- Efficient use of fiber optic cables with less investment for more connections
- Flexible network available for any future upgrades

- Lower Power consumption of OLT, Power & Fan redundancy

Results

- High speed Internet, IPTV, VoIP Phone
- Reduced CAPEX and OPEX from efficient use of fiber cabling
- Simplified monitoring and management through a single OLT that replaced 11 switches

Background and Challenges

Galeria Rzeszow is the biggest shopping mall in the Subcarpathia region, located right in the city center of Rzeszow. The total area exceeds 135,000sqm, including some 42,000sqm of shopping area, where shoppers can find over 200 shops of different varieties. Visitors can also spend their time in the cinema multiplex or in a 4-star hotel.

Surveys indicate that Rzeszow has the most retail floor area per inhabitant of all Polish cities, therefore the biggest challenge for the investor was to differentiate the mall from other similar venues scattered around the city. The initial plan was to put in place a high throughput and high availability Ethernet copper network based on L2 switches.

However, as the construction was progressing, the telecommunication system integrator FIBRAIN was persuading

the main investor as well as the prospective shop tenants to consider a modern fiber network instead.

Solutions and Benefits

Why Fiber?

Advantages of using light and thin fiber cabling comparing to big and heavy copper soon became clear to the investors. With fiber they could overcome all major copper limitations, including the link length limitation (100 meters for UTP) or the need to have distribution point with electrical device on each floor of the shopping center. Such an argument could not be ignored by the investor and the telecommunication operator, as power is always important when defining risk to the system within an enterprise. Passive fiber network also eliminates the need for cooling and UPS, which generate heat and sometimes noise.

While comparing both technologies it was found that Fiber Optic Cable with 4-fibers is just 15% more expensive than single UTP Cat. 6 cable, but can connect up to 4 customers instead of just one. As Passive Network can be greatly simplified compared to the UTP-based network, the total CAPEX cost of fiber network was significantly lower than that of copper. The whole mall could be interconnected by using 28km of different fiber cable types: 4-fiber, 12-fiber, 24-fibers. The Investor decided to

use Fibrain LSOH Central Loose Tube Single Mode Fiber cable with Fiberglass Reinforcement.

At venues like Shopping Center where tenants change fairly often, the installed cabling must be flexible enough to meet all possible future requirements. During analysis of the tenants needs, the system integrator also showed other benefits of fiber optic cabling, amongst them the capability to transmit any type of signal, including analog & digital television, E1 or SDH link or high speed 10G data link.

Why GPON?

Most, if not all, shop tenants in a typical mall do not need to interchange data between them. They also have no need for Power over Ethernet functionality, which allows using a pure fiber optic network in all locations. On the other hand, each shop may need different Internet Speed and services. As some of the shops have own radio or even TV channels streamed from their headquarters, a reliable and high speed internet access is crucial.

With such a big number of points to connect and volumes of equipment to optimize, the operator decided to use GPON technology. The operator selected equipment from DASAN Zhone Solutions (DZS), as the most suitable for their requirements. In a new concept, the Ethernet switches have been replaced by the optical splitters and the central switch with router or BRAS have been replaced by a single OLT(Optical

Line Terminal). The operator selected DZS' [V5812G](#), an OLT with 4 GPON ports, and each port can connect up to 128 ONTs(Optical Network Terminal).

DZS OLTs offer powerful routing capabilities, thus eliminating the need of external router, as well as the possibility to rate-limit and shape customer traffic, thus eliminating the need of BRAS. A single OLT could replace all 11 fiber switches that had been initially planned and greatly simplifies management and monitoring. Worth mentioning is also lower power consumption of the OLT (around of 45W) and no need of cooling if kept at room temperature. DZS' OLT also offers power & fan redundancy.

Results

With DZS' Carrier Grade equipment, the operator could offer not only high speed Internet but also IPTV, VoIP telephone and Wi-Fi services. It is especially essential in the lower floors, where mobile phone signal is often weak. Features as like QinQ and VLAN translation enabled the operator to provide L2VPN, which is important for business.

Shop tenants could choose between various end user devices that can be installed in their shops, from 1-port ONT to a gateway with 4 Gigabit LAN ports, 2 voice ports and 300Mb/s Wi-Fi. Each ONT offers router with or without NAT capabilities as well as transparent transmission.

With its unique network Galeria Rzeszow is the showcase of GPON technology in the shopping malls segment in Central and Eastern Europe. The use of GPON technology not only decreased the CAPEX but also OPEX. The technology has been shown to be ideal not only for shopping centers but for business parks of any type, as well as for dormitories and other hospitality utilities.

“DASAN Zhone Solutions’ FTTH GPON solution has empowered us to take many advantages in terms of efficiency. We were able to minimize installing and operating costs as we upgraded our network to FTTH. Customers and shop tenants are now more satisfied with much faster Internet and we expect to increase sales and margin this year.”

General Manager at the Galeria Rzeszow



About DASAN Zhone Solutions

DASAN Zhone Solutions is a global leader in network solutions for service provider and enterprise networks, with more than 800 customers including some of the most progressive and innovative carriers in the world.

DASAN Zhone Solutions, a combined company of DASAN Network Solutions and Zhone Technologies, provides a wide array of innovative solutions including Broadband Access, Mobile Backhaul, Ethernet Switching, Passive Optical LAN and SDN(Software Defined Networks).

DASAN Zhone Solutions has been a reliable solution provider to global telecom operators and enterprises and continuously expanding global business followed by the company's success in the U.S., CALA, Middle East, Europe, and Asia. DASAN Zhone Solutions is headquartered in California, with R&D centers in the U.S., Korea, China, Vietnam, India and its products are manufactured in the U.S., Korea and China.

www.dasanzhone.com

About Fibrain

Fibrain since 1993 is Polish family owned manufacturer of passive fiber optics products and VAD of DASAN Zhone Solutions. The company owns 5 factories in Poland and totally employees 420 people. Combining know-how for both active and passive equipment Fibrain so far delivered over 125,000 DZS' GPON ONTs in Central and East Europe to over 250 ISP, Telcos and MSO. www.fibrain.com

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