DATACOM

GPON

Gigabit Passive Optical Network

A comprehensive product portfolio for high demand networks. Datacom products meet the various requirements for fiber optical network solutions, providing outstanding performance, supporting real-time voice, data and video applications.

Overview

GPON (Gigabit Passive Optical Network) is a solution for optical access networks, offering high speed, cost-effective broadband applications and Triple Play services (voice, video and data). This technology allows sharing fiber optics among customers, reducing cost and maximizing the use of bandwidth.

Datacom has a range of GPON products that enables complete solutions of any size and cost-effective to provide FTTx services. The GPON product line is compliant with ITU-T G.984 and ITU-T.988. Each GPON link supports downstream rates of 2.488 Gbit/s Upstream rates of 1.244 Gbit/s and offers dynamic bandwidth allocation (DBA).

GPON solutions from Datacom include a complete set of equipment, including the central optical line terminal (OLT) and optical network units (ONUs). OLTs provide high throughput and capacity. ONUs are customer premises devices that are available in several models that fit to different kind of user requirements.

A comprehensive portfolio

Datacom's DM4610 GPON OLT is a compact (1RU) and cost-effective OLT to provide FTTx services. The DM4610 has 4 and 8 GPON port models, supporting respectively 512 and 1024 subscribers. Both models have 10GbE and 1GbE uplinks.

The DM984 ONU family provides low-cost connectivity delivering triple-play services to business and residential users. Ethernet data is transported transparently over the GPON link and delivered to a line termination unit (OLT), such as the DM4610. The ONUs offer L2 bridge or L3 router modes, Gigabit Ethernet interfaces, FXS voice ports (VoIP), wireless 802.11b/g/n with two internal antennas and integrated DIO.

Generating revenue and saving costs

Datacom products are the key to impact positively the total cost of ownership (TCO) of the access network. The GPON technology provides cost advantages to service providers that need to deliver profitable solutions to their clients. Using the latest technology, Datacom products are developed for long lifetime and with an additional high flexibility of deployment, provided by a complete portfolio, they are a great arrangement between capital expense and revenue generation. Therefore, the investments are future-proof, maximizing the return of investment.

GPON significantly reduces the power consumed in operations becoming long term sustainable. However, it is not only power requirements that affect the operational expenses. GPON networks also have lower maintenance costs due to the absence of active components. These advantages result in fewer interventions for maintenance of the network, and thus a much more efficient network, reflecting in a lower OPEX.

Optical Line Terminal (OLT)

DM4610

- Compact design with only 1U chassis for 19" rack installation
- Up to 8 GPON interfaces in SFP, supporting up to 1024 users in 1:128 split ratio
- 2 10GbE SFP+ and up to 12 1GbE interfaces (8 x SFP + 4 x RJ45)
- Supports GPON SFP Classes B+ and C+
- AC or DC redundant power supply
- Fan and power supply modules are hot-swappable
- High capacity L2 switching
- Supports DATACOM Operational System (DmOS)

OLT Model	GPON Ports (SFP)	10Gbase-X Ports (SFP+)	1000Base-X Ports (SFP)	10/100/1000Base-T Ports (RJ45)
DM4610 4GPON	4	2	4	0
DM4610 8GPON	8	2	8	4

DM4610 4GPON

DM4610 8GPON

PSU 120 AC

PSU 120 DC

Optical Network Unit (ONU)

DM984

- Up to 4 1GbE (10/100/1000Base-T) ports
- Up to 2 FXS Interface (POTS)
- WLAN compliant with 802.11. b/g/n
- Bridge and Router mode
- Supports burst mode of 1.244 Gbit/s Upstream
- Supports reception of 2.488 Gbit/s Downstream
- Laser type B+, according to ITU-T G.984.2 Amd. 1
- Dying gasp support
- ITU-T G.984 compliant
- Uses OMCI protocol for management, according to ITU-T G.988
- Allows remote firmware upgrade and firmware rollback
- Supports SIP protocol
- Optional integrated DIO

ONU Model	10/100/1000 Base-T	FXS	Router	WLAN
DM984 – SFP 100B *	1	–	–	–
DM984 – 100B	1	–	–	–
DM984 – 420	4	2	✔	–
DM984 – 422	4	2	✔	✔

* *Product presented in SFP format to be used together with switches, routers, etc.*

DM984 and its integrated DIO
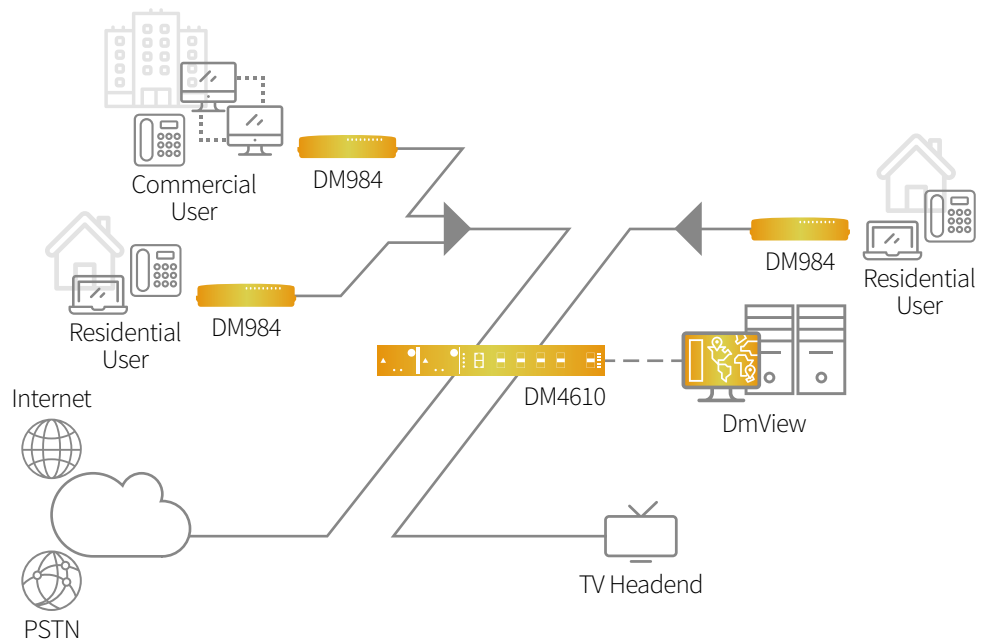

Rear view of DM984

DM984 – SFP 100B

Applications

TRIPLE PLAY SERVICES

Datacom GPON solution provides passive optical access based on standardized GPON technology that allows operators to deploy fiber-based services to the home, business or curb. In GPON networks, users can share a single fiber connection. This makes GPON a great choice for service providers wanting to expand service network coverage or replace already deployed copper networks with fiber, particularly in high-density urban areas.

The high-speed data access enabled the developing of richer services such as voice and video over IP (VoIP and IPTV). This bundle of services, called Triple Play, became an important part of the service provider's revenue. However, the demand for HDTV with IPTV is growing, creating a greater bandwidth requirement with higher performance in the access network. GPON is seen as the right technology to deliver Triple Play applications by the telecom companies because it can provide higher bandwidth, optimal quality of experience for the subscriber and enhanced scalability when compared to other access technologies.

SMART CITIES INFRASTRUCTURE

Cities are the center of modern society and they are becoming more complex every day. Technology can make life better and easier, empowering the universalization of public services. However, the government should not only pay attention to a network for digital inclusion but it also should deploy a high-performance network that promotes the city development.

Datacom's GPON deployment associated to the Datacom Ethernet Switches is a valuable cost-effective solution for smart cities, easily fitting to citizens and public office's needs. It avoids restrictive solutions mainly regarding to features, management and performance.
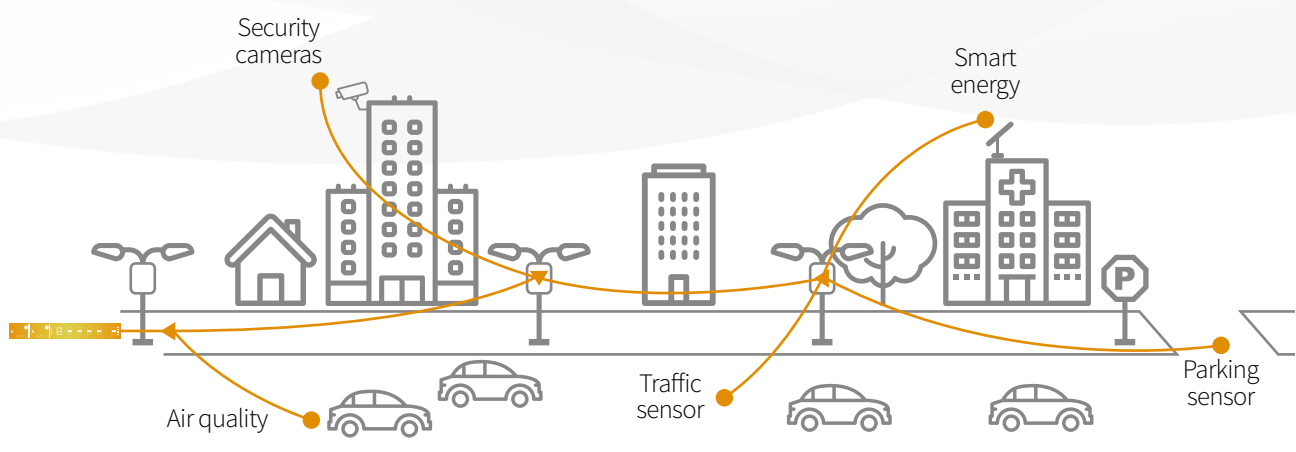
METRO ETHERNET INTEGRATION

The Metro Ethernet technology is a high capacity, flexibility and availability network. It is an ideal model to operate different services and traffics for service providers, with full isolation and bandwidth control. Ethernet access is part of a Metro Ethernet solution, attaching end-users to Ethernet based aggregation and core packet transport networks.

Datacom's OLTs and ONUs features and functions are compatible with Metro Ethernet networks, allowing to deliver Ethernet connectivity for residential, businesses and mobile nodes onto the same platform. With this approach, operational flexibility, improved customer access and reduced deployment capital expenditure can be achieved, becoming an attractive solution for operators and service providers.

FTTD – FIBER TO THE DESK

The traditional LAN network design consists of a structure with copper wires connecting each user equipment to an access switch, typically installed in a communication room. These access switches are connected to aggregation switches through cables or fiber. The FTTD GPON simplifies the network by replacing the switches typically by a central OLT and ONUs at the users side, reducing network infrastructure by using passive elements, optical fiber and point-multipoint topology.

Datacom's OLT provides features that enable the implementation of GPON LAN networks for various sizes and company's needs.

BUSINESS SERVICES

Datacom's OLT provides several features enabling the delivery of data, voice and video for small, medium and large businesses.

The TLS function (Transparent LAN Service) together with the hairpin feature allows offering LAN-to-LAN services without additional equipment – such as routers.
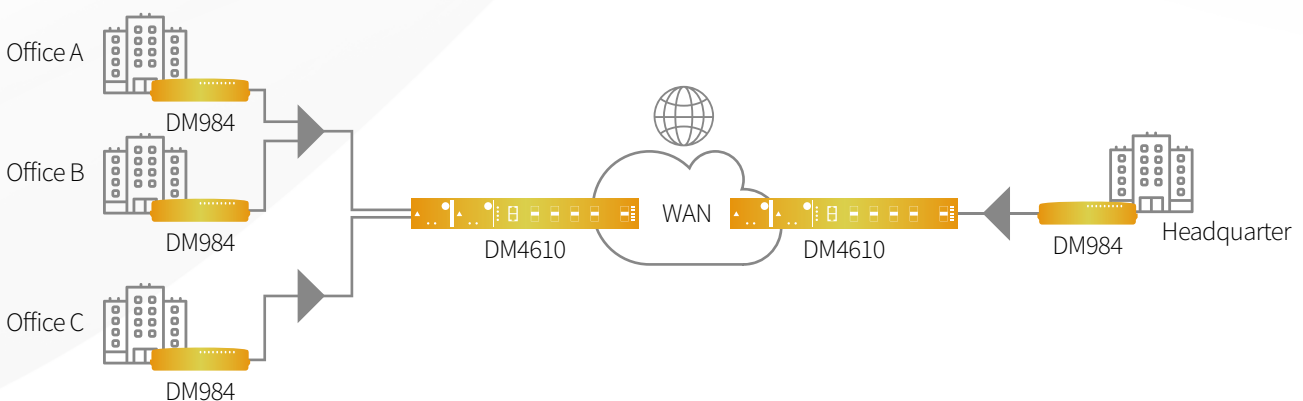
DmView – Integrated Network Management System

- User-friendly graphic interface
- Visualization of equipment through topological maps, with ease creation of sites and links
- Equipment summary visualization and monitoring, allowing a clear identification of the operation status and active alarms
- Support for high availability clusters and enterprise servers
- CLI templates support to ease and speed up common network operations
- Same day new firmware support (no need to update DmView for new firmware features)

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