

Supplement

ITU-T G Suppl. 82 (07/2024)

SERIES G: Transmission systems and media, digital systems and networks

Supplements to ITU-T G-series Recommendations

Enhanced optical line termination with information technology functions

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Supplement 82 to ITU-T G-series Recommendations

Enhanced optical line termination with information technology functions

Summary

Supplement 82 to the ITU-T G-series Recommendations describes the enhanced optical line termination (eOLT) with information technology (IT) capabilities, such as computation and storage. It describes the application scenarios and use cases, together with the eOLT architectures. Requirements for capabilities, services and systems of the eOLT are also illustrated in this Supplement.

History*

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Enhanced optical line termination with information technology functions

1 Scope

This new project intends to study use cases, deployment issues, system architectures, and the requirements of enhanced optical line terminations (eOLTs) with information technology (IT) functions. The project acts as a supplement to realize optical line terminations (OLTs) that support IT functions, such as content delivery networks (CDNs) or edge computing. Both integrated OLT and distributed OLT systems are considered.

2 References

None.

3 Definitions

3.1 Terms defined elsewhere

This Supplement uses the following terms defined elsewhere:

3.1.1 information technology equipment [b-ITU-T K.136]: Equipment having a primary function of either (or a combination of) entry, storage, display, retrieval, transmission, processing, switching, or control of data and/or telecommunication messages and which may be equipped with one or more ports typically for information transfer.

3.1.2 TWDM PON [b-ITU-T G.989]: A multiple wavelength PON system in which each wavelength channel may be shared among multiple ONUs by employing time division multiplexing and multiple access mechanisms.

3.2 Terms defined in this Supplement

This Supplement defines the following term:

3.2.1 eOLT: Enhanced optical line termination in hardware with information technology (IT) functions such as computation or storage capabilities.

4 Abbreviations and acronyms

This Supplement uses the following abbreviations and acronyms:

10G-PON	10 Gbit/s Passive Optical Network
5G	Fifth Generation
AI	Artificial Intelligence
AN	Access Network
AP	Access Point
API	Application Programming Interface
App	Application
AR	Augmented Reality
BNG-U	Broadband Network Gateway – User plane
BRAS	Broadband Remote Access Server

CDN	Content Delivery Network
CNF	Cloud-native Network Function
CO DBA	Cooperative DBA
CPN	Customer Premises Network
CPU	Central Processing Unit
CR	Core Router
CT	Communications Technology/Channel Termination
DB	Database
DBA	Dynamic Bandwidth Allocation
DC	Data Centre
DN	Data Network
EE	Energy Efficiency
EML	Electro-absorption Modulated Laser
eOLT	enhanced Optical Line Termination
FAN	Fixed Access Network
FIE	Fixed Access Network (FAN) Intelligent Engine
FIP	Fibre In the Premises
FMC	Fixed-Mobile Convergence
FPGA	Field Programmable Gate Array
FTTA	Fibre To The Antenna
FTTB	Fibre To The Building
FTTC	Fibre To The Curb/Cabinet
FTTH	Fibre To The Home
FTTx	Fibre To The x
GPU	Graphics Processing Unit
HD	High Definition
HGU	Home Gateway Unit
ID	Identifier
IoT	Internet of things
IP	Internet Protocol
IPFIX	IP Flow Information Export
ISP	Internet Service Provider
IT	Information Technology
KAP	Keep Alive Proxy
KPI	Key Performance Indicator
KQI	Key Quality Indicator
L2	Layer 2

MAC	Media Access Control
MDU	Multi-Dwelling Unit
ME	Mobile Equipment
MEC	Multi-access Edge Computing
MEP	Multi-access Edge Platform
MFU	Main Fibre Unit
ML	Machine Learning
MTU	Multi-Tenant Unit
NAS	Network Attached Storage
NETCONF	Network Configuration protocol
NE	Network Element
NFV	Network Function Virtualization
NMS	Network Management System
O&M	Operation and Maintenance
OAM	Operation, Administration and Maintenance
OAN	Optical Access Network
ODN	Optical Distribution Network
oDSP	Optical Digital Signal Processing
OLT	Optical Line Termination
OMCI	ONU Management and Control Interface
ONT	Optical Network Termination
ONU	Optical Network Unit
OPEX	Operating Expense
PON	Passive Optical Network
QoD	Quality of Demand
QoE	Quality of Experience
QoS	Quality of Service
RAN	Radio Access Network
RNIS	Radio Network Information Service
SBU	Single Business Unit
SDN	Software-Defined Networking
SDO	Standards-Development Organization
SFU	Single Family Unit/Sub Fibre Unit
SLA	Service-Level Agreement
SNMP	Simple Network Management Protocol
SR	Service Router/Status Reporting
STB	Set-Top Box