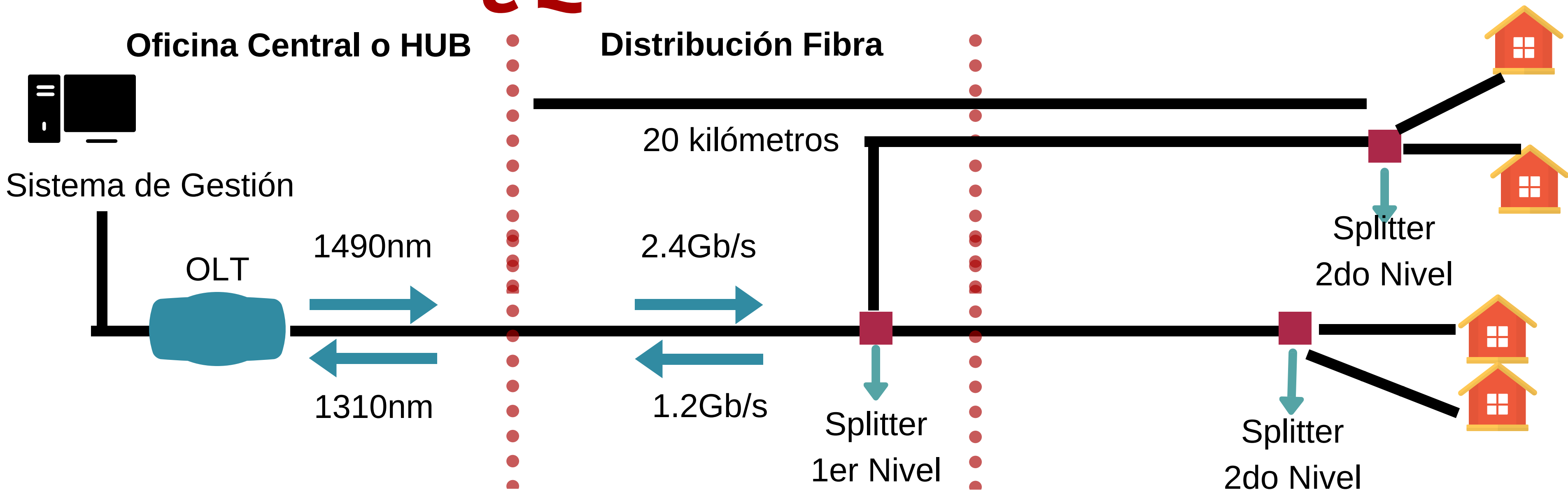


SOLUCIÓN Y PORTAFOLIO DE PRODUCTOS FTTX

¿Que es GPON?



GPON :Gigabit Passive Optical Network (GPON)

VOZ, DATOS y VIDEO (IPTV, Digital, Analogo)

Cada puerto puede ser dividido en 32, 64 y 128 servicios

Una OLT de 32 puertos puede abastecer 2048 usuarios en divison de 64 por acceso

GPON soporta velocidades de 2.488Gbps Downstream y 1.244Gbps Upstream

GPON soporta SFP de 10Gbps

¿Por que GPON?

Redes Pasivas Ópticas (PON)

Menor Mantenimiento

Alta Confiabilidad/ Menor Ruido

Ahorro en Gastos de Operación (OPEX)

Fibra Óptica

Ancho de Banda

Permite enviar diferente información en distintas longitudes de onda

Redes del Futuro: Elimina la necesidad de cambiar planta externa

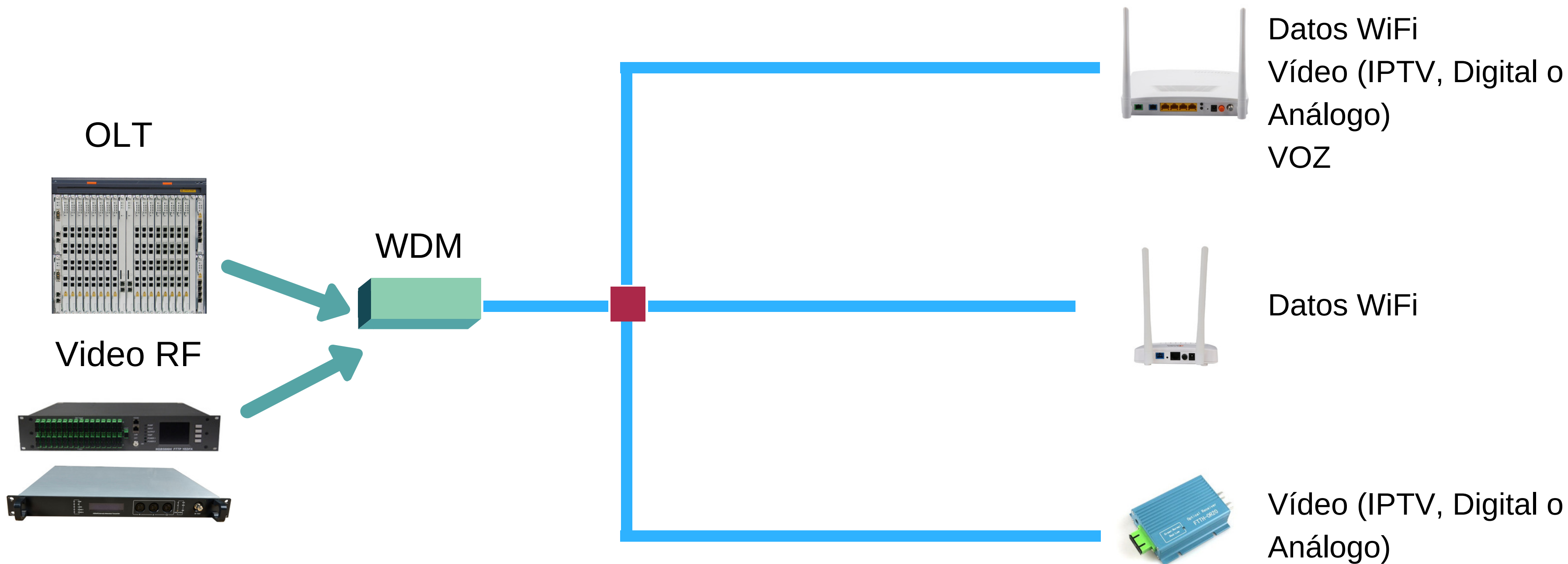
Redes Pasivas Ópticas (PON)

Estructura de Red de Punto a Multipunto (P2MP)

Solución escalable acorde a las necesidades de los proyectos

Puedes proveer INTERNET, DATOS, VÍDEO y otros servicios

Red Típica de FTTH



GPON Linea OLT



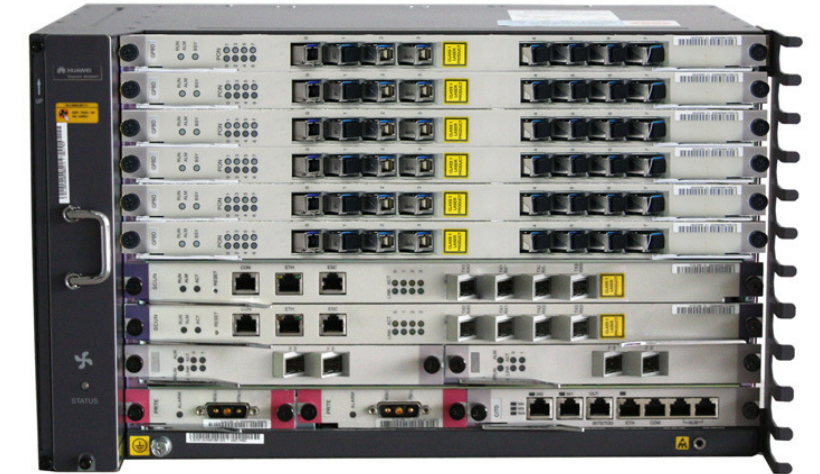
C300

14 Tarjetas = 14336 usuarios
4*10GE uplink per card
Completamente Redundante



C320

2 Tarjetas = 2048 usuarios
1*10GE uplink per card
2 Unidades de Rack
Perfecta para comenzar



MA5603T

6 Tarjetas = 3072 usuarios
1*10GE uplink per card
6 Unidades de Rack
Completamente Redundante

GPON OLT C300



- *14 slots for universal line cards**
- *2 slots for switch& control cards**
- *2 slots for power cards**
- *2 slots for uplink and cascading interfaces**
- *1 slot for environment detecting card**

- *224 Puertos de GPON**
- *Redundancia Total**
- *14336 Usuarios con Divison de 64**
- *4*10GE uplink por Tarjeta**
- *2240Gbps Switching Capacity**

GPON OLT C300

***Subscriber Card Density**

GPON card: 8/16 ports per card

P2P card: 24/48 ports per card

XG PON1 card: 8 ports per card

- Uplink interface card**

4*10GE uplink per card

2*10GE+2*GE uplink per card

4*GE uplink per card

1*STM-4/OC12 or 2*STM-1/OC3 TDM uplink per card

32* E1/T1 uplink card (balanced and unbalanced)

- Environment detecting card**

2 * Hz/Bit external clock interfaces

5 * Environment detecting interface

Support 1550nm for third party CATV

GPON compliant with ITU G.984.x

P2P compliant with ITU G.985/G.986

XG-PON1 compliant with ITU G.987.x and G.988

Support OLS (Optical Laser Supervising)

Physical reach: 20km

Highly-efficient DBA: NSR-DBA,SR-DBA

GPON Transceiver power: Class C+

XG PON1 Transceiver power: Class N1 and N2a

Type B and type C optical link protection

Support FEC

Support AES128

Support SCB

GPON MCM(Multi-Copy Multicast)

L2/L3 Features

4K VLAN

1:1/N:1 VLAN

802.1ad, SVLAN, Selective QinQ,

VLAN stacking

Line-speed forwarding

STP/RSTP/MSTP compliant with IEEE

802.1d/802.1w/802.1s

Link aggregation IEEE 802.3ad

DHCP server, DHCP Relay (option 60/82),

DHCP proxy

IPv4/IPv6 dual stack

L3 routing:

Statistic routing for IPv4 and IPv6

OSPFV2, RIPv1/v2, BGPV4

GPON OLT C300

RMON II

Multicast – IPTV

1K Multicast groups

IGMP Snooping and proxy (v1/v2/v3)

MLD V1/V2, snooping/proxy

MVLAN: 256 Multicast VLAN

Channel Access Control (CAC),

Preview (PRV) and Call Detail Record (CDR) for IPTV

Less than 50ms channel zapping delay

QoS

8 queues per port

Queue & scheduling mechanism: SP, DWRR, SP+DWRR

DSCP labeling and relabeling

Stream classification, rate limiting, shaping and priority setting

Traffic statistics

Service based rate limit

WRED and triple color

SLA: CIR, PIR, EIR

Security

L2- L4 ACL

IP and MAC source guard

Resistance against DOS attacks

MAC/IP anti-spoofing (MAC binding, IP binding, DHCP snooping)

Anti-flooding: broadcast packet

suppression, IGMP packet

suppression, DHCP packet

suppression

MAC address number limit based on VLAN or GEM-port or xGEM-port

Port mirroring

User port identification such as PPPOE+ and DHCP Option 82

O&M

Operator security, Multi-privileged operator, SSH v1/v2, FTP/TFTP, ACL

Management protocol and interface: CLI, Telnet ,SNMP V1/V2C/V3, MIBII

Remote firmware download and upgrade

Environment detecting, control and alarm

Performance statistics

Over-heat protection

GPON OLT MA5603T



- *6 slots for universal line cards**
- *2 slots for switch& control cards**
- *2 slots for power cards**
- *2 slots for uplink and cascading interfaces**
- *1 slot for environment detecting card**

- *96 Puertos de GPON**
- *Redundancia Total**
- *3072 Usuarios con Divison de 64**
- *1*10GE uplink por Tarjeta**
- *960Gbps Switching Capacity**

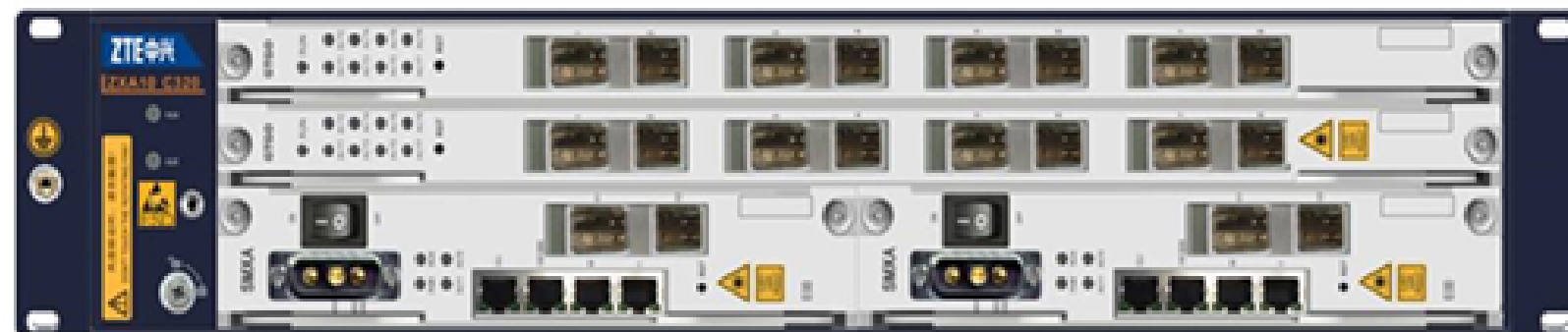
GPON OLT MA5603T

Flash Memory: 8 MB
SDRAM: 4GB (DDR3)
MAC Table: 32K (MAX 288K)
Routing Table: 16K (IPv4) / 8K (IPv6)
MAX: 120K (IPv4 / 60K (IPv6)
VLAN: 4K
Switching Capacity: 960 Gbps
96 x GPON or 48 x XG-PON Port
Management Interface:
1 port RS-232 console (RJ45)
1 port GTX MGMT (RJ45)
1 port microSD interface
Switch Fabric Unit (SFU)
Network Interface Unit (NIU)
Power Supply

Serial, Telnet, SNMPv1/v2/v3, RMON
Layer 2 / Layer 3:
Bridge, VLAN, Spanning Tree, 802.3ad
IPv4 / IPv6 routing
RIPv1/v2, OSPFv2, BGPv4, VRRP
Multicast:
IGMPv1/v2/v3, PIM-SM/SSM
IGMP snooping, MVR
ITU-T G.984
Support up to 64 (max 128) connection
per port
Remote ONT/MDU management
Automatic ONT ranging
Multiple T-CONT per ONT
MPLS
RSVP-TE, EXP-based QoS

Dimension (W x H x D)
442 x 238 x 263.9 mm
19-inch 6RU
Environment:
- Operating Temperature: -25 o 55°C
Power Supply:
48 V or
60 V DC powering via redundant
power feeds, working voltage range:
-38.4 V to -72 V

GPON OLT C320



- *2 slots for universal line cards**
- *2 slots for switch& control cards**
- *1 slot for fan module**
- *Ideal para pequeñas y medianas Operaciones**

- *32 Puertos de GPON**
- *2048 Usuarios con Divison de 64**
- *1*10GE Uplink**
- *272Gbps Switching Capacity**

GPON OLT C320

GPON card: 4/8 ports per card
EPON card: 4/8 ports per card
P2P card: 8/16 ports per card
10G EPON card: 2 ports per card
4*10GE uplink per card
4*GE uplink per card
1*STM-4/OC12 or 2*STM-1/OC3 TDM uplink per card
32* E1/T1 uplink card (balanced and unbalanced)
2 * Hz/Bit external clock interfaces
5 * Environment monitoring interfaces
EPON compliant with IEEE 802.3ah
GPON compliant with ITU G.984.x
10GEPON compliant with IEEE 802.3v

Support up to 1:128 optical split ratio for GPON, 1:64 optical split ratio for EPON and
1:256 optical split ratio for 10GEPON
Support OLS (Optical Laser Supervising)
Physical reach: 20~60km
Highly-efficient DBA: NSR-DBA, SR-DBA
1PPS+TOD, IEEE 1588V2
Transceiver power: Class B+ or class C+
Type B and type C optical link protection
FEC
AES128
SCB
4K VLAN
1:1/N:1 VLAN

Line-speed forwarding
STP/RSTP/MSTP compliant with IEEE 802.1d/802.1w/802.1s
Link aggregation IEEE 802.3ad
DHCP server, DHCP Relay (option 60/82),
DHCP proxy
L3 routing:
Statistic routing
RIP V1/V2, OSPF v2, IS-IS, BGP
Multicast routing: PIM-SM, PIM-DM
RMON II
Multicast IPTV
1K Multicast groups IGMP V1/2/3,
IGMP Snooping and proxy (v1/v2/v3)
MVLAN: Multicast VLAN

GPON OLT C320

Channel Access Control (CAC),
Preview (PRV) and Call Detail Record
(CDR) for IPTV
Less than 50ms channel zapping
delay
8 queues per port
Queue & scheduling mechanism: SP,
DWRR, SP+DWRR
IPv4 DSCP Diffserv
Stream classification, rate limiting,
shaping and priority setting
Traffic statistics
WRED and triple color
SLA: CIR, PIR, EIR, MBS
Security
L2- L4 ACL

IEEE 802.1x subscriber authentication
IP and MAC source guard
Resistance against DOS attacks
MAC/IP anti-spoofing (MAC binding,
IP binding, DHCP snooping)
Anti-flooding: broadcast packet
suppression, IGMP packet
suppression, DHCP packet
suppression
MAC address number limit based on
VLAN or GEM-port
Port mirroring
User port identification such as
PPPOE+ and DHCP Option 82
Operator security, Multi-privileged
operator, SH v1/v2, FTP/TFTP, ACL

Management protocol and interface:
CLI,
Telnet ,SNMP V1/V2C/V3, MIBII
Remote firmware download and
upgrade
Environment monitoring, control and
alarm
Operating temperature: -5 °C ~ +45
°C
Operating humidity: 5% ~ 95%,
noncondensing
443.7mm (H) * 482.6mm (W) *
270mm (D)
(19 inch shelf)

GPON Linea ONT



W4EWCT

4 Ethernet Ports
WiFi 802.11b/g/n
IPV6
CATV



W4EW2P

4 Ethernet Ports
WiFi 802.11b/g/n
IPV6
2 POTS Telefónicos



W1EW

1 Ethernet Ports
WiFi 802.11b/g/n
IPV6

ONT W4EWCT

- Plug and play, integrated auto detecting, auto configuration, and auto firmware upgrade technology.
- Full compliance to OMCI function.
- Support 802.11n 2T2R speed up to 300Mbps.
- Support rich VLAN, DHCP Server and IGMP snooping multicast feature.
- Advantage traffic management
- Advanced Dynamic Bandwidth Allocation (DBA)
- The WAN port supports bridge or router mode.
- Advanced L2 features QinQ VLAN & QoS support.
- Support NAT, Firewall function.
- Support Console/ Telnet/ NMS management interface for ease of operation and maintenance.
- Support 2K MAC address table.
- Fully compatibility with OLT based on Broadcom/PMC/Cortina chipset.



ONT W4EW2P

- Plug and play, features auto-detecting, auto-configuration, and auto firmware upgrade, etc.
- Integrated OMCI remote configuration and maintenance function.
- Support rich QinQ VLAN functions and IGMP Snooping multicast features.
- Fully compatibility with OLT based on Broadcom/PMC/Cortina chipset.
- Support 802.11n WiFi(2T2R) function.
- Support NAT, Firewall function.
- Support IPv4 and IPv6 dual stack.
- Integrated line testing compliant with GR-909 on POTS.
- Memory 128M bytes DDR3
- 1 GPON interface, Downstream 1.25Gbps,Upstream 2.5Gbps
- 4 x 10/100/1000Mbps auto adaptive Ethernet interfaces
- 14 indicators, for status of power supply, PON, LAN and POTS .



ONT W1EW

- Plug and play, features auto-detecting, auto-configuration, and auto firmware upgrade.
- Integrated OAM remote configuration and maintenance function.
- Support rich QinQ VLAN functions and IGMP Snooping multicast features.
- Fully compatibility with OLT based on Broadcom/PMC/Cortina chipset.
- Support 802.11n WiFi(2T2R) function.
- Support NAT, Firewall function.
- Support IPv4 and IPv6 dual stack.
- The WAN port supports bridge, router and bridge/router mixed mode.
- 1 EPON interface, symmetric 1.25Gbps
- 1*10/100/1000Mbps+1*10/100Mbps auto adaptive Ethernet interfaces
- Support 128 connections.



DATOS + VIDEO

INTERNET

1490 nm



1310 nm



INTERNET + TV Señal RF

1550 nm



1490 nm



1310 nm



Downstream



Upstream



Downstream

DATOS + VIDEO

