Solution to "Dual-fiber CATV
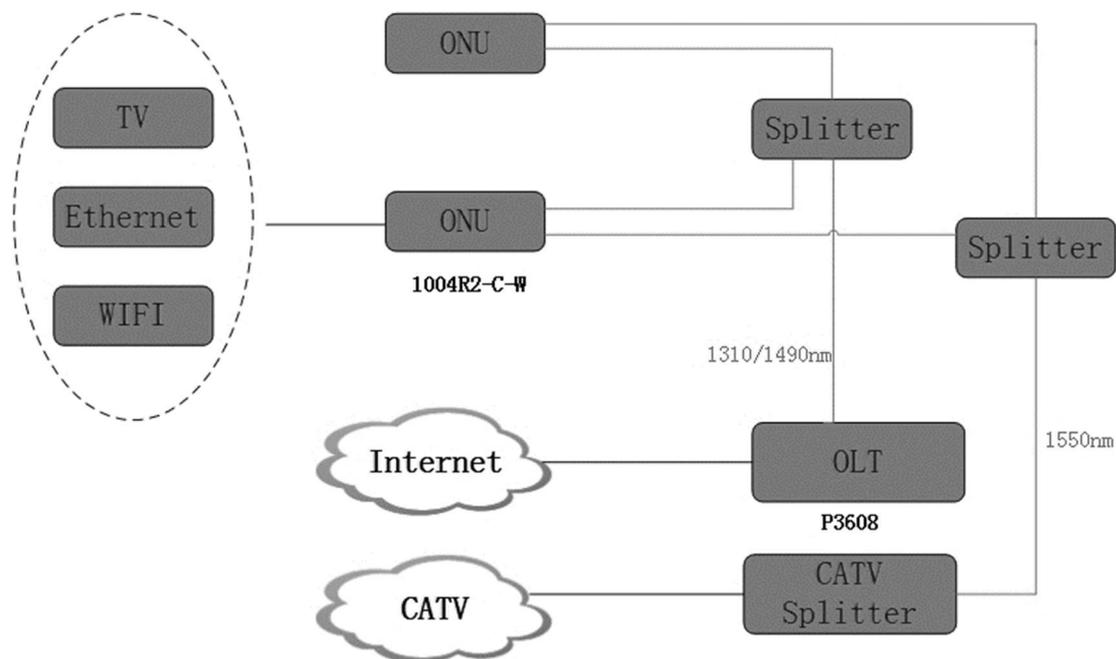
Solution to "Dual-fiber CATV"

1. Overview of the Solution

To fulfill the client's need, STEC has designed the dual-fiber CATV solution. By way of the dual-fiber, the solution provides the client (the hotel) with high-quality Ethernet coverage, WiFi coverage and CATV.

2. Description of the Solution

The solution introduces four kinds of equipment: STEC P3608 OLTs, 1:32 Splitters, CATV Splitters and STEC 1004R2-C-W ONUs.

a) Deploy one P3608 OLT in the machine room of the hotel and one CATV splitter. The eight ports of the P3608 OLT correspond respectively to each floor of the 8-storey hotel building. The CATV splitter is used to distribute signals to each floor.

b) Deploy one 1:32 splitter on each floor. The splitter uplinks to the PON port of one P3608 OLT and to one CATV splitter.

c) Deploy one 1004R2-C-W ONU in each room. The dual-fiber ONU can uplink to the PON port of an OLT and the CATV port. The ONU is also with WiFi function.

d) Deploy the NMS (Network Management System) in the machine room. The whole EPON system is in under the unified monitoring and management of NMS.

3. Recommended Product List

NO.	Device	Model	Quantity
1	OLT	P3608	1
2	ONU	1004R2-C-W	208
3	Splitter	1:32	8
4	PON module		8
5	NMS		1

4. Description of the Recommend Products

STEC P3600 High-Density Rack-Mounted OLTs

Product Overview

STEC P3600 OLT complies with IEEE802.3ah and P.R.C intercommunication standard, YD/T 1475-2006, supports CTC20/3.0, automatically discovers and works normally with ONUs of different manufacturers.

STEC P3600 OLT supports the symmetric uplink/downlink 1.25Gbps PON transmission rate, efficient bandwidth usage and Ethernet services, helping carriers to provide reliable services to their users.

Its coupling ratio, 1:64, and its support of different hybrid ONU networks minimize the carrier's investment.

STEC P3600 OLT, based on the edge-cutting technologies, is strong in functions. A few of its functions such as QoS guarantee, SLA and DBA can be easily listed out.

STEC P3608

Main Features

STEC P3600 Series has following advantages:

EPON

Abiding by IEEE802.3ah, STEC P3600 series meets relevant requirements of EPON OLT regulated in Technical Requirements of "YD/T 1475-2006 and China Telecom EPON Technical Requirements.

System Capacity

P3600 Series supports 8, 12 and 16 EPON systems.

Uplink Interface

P3600 series with 8 GE uplink interfaces (4 GE optical ports + 4 GE combo ports).

Dimensions

1U, 300mm (Depth)

Environmental Protection

Low power consumption and low operating cost.

Layer-3 Function

P3600 Series supports layer-3 routing function.

Preventing the Bus Optical Fiber:

P3600 Series supports that the link can be automatically switched to protect the optical fiber when trouble occurs in the optical fiber.

Power Characteristics:

P3600 Series supports dual-AC, dual-DC and AC/DC power supply. The power supply supports modularized design, hot-swap and EMC-3 standard. It well adapts to the environment.

Technical Parameters

Attributes		P3608
System Capacity		Maximum coupling ratio, 1:64 128G backplane bandwidth MAC table volume: 32K
Ports	PON	8 EPON interfaces
	Uplink	8 GE interfaces (4 GE optical interfaces, 4 GE TX/SFP interfaces)
		The device can be expanded to support two extra 10G interfaces.
Attributes of the PON Interface		A 1Gbps transmission rate with downlink and uplink symmetry Average emitting power of the PON port: +2dbm ~ +7dbm Light reception sensitivity of the PON port: no less than -30dBm Security: ONU authentication mechanism
Standard		IEEE802.3ah IEEE 802.1D, Spanning Tree IEEE 802.1Q, VLAN IEEE 802.1w, RSTP IEEE 802.3ad physical link static/dynamic aggregation (LACP)

	Ethernet – II
QoS	Backpressure flow control (half duplex)
	IEEE 802.3x flow control (full duplex)
	IEEE 802.1p, CoS
	WR, SP and FIFO
	Limiting the uplink/downlink rate based on each ONU
	Supporting DBA and SLA
VLAN	Port-based VLAN
	Supporting QinQ and flexible QinQ
L3 Functions	Static route, RIPv1/v2, OSPF, etc
	Routing volume of the host: 8K
Multicast	IGMP
	IGMP Snooping
Reliability	Unidirectional Link Detection (UDLD)
	Hot swap of the EPON optical module on the expanded slot
	Optical path protection of EPON
	Check of abnormally illuminating ONU
Network Security	Limiting the maximum number of users on each port
	Port isolation
	Controlling the storm of packets
	Flow-based ACL access control function
	Transmission data encryption on the PON interface
Configuration Management	Various management modes such as CLI, SNMP and TELNET
	Conducting software upgrade through TFTP and FTP
	Command prompt in English or in Chinese
	Debug output
Physical Characters	442.5mm(W) x300mm(D) x 44mm(H)
	Installation: A 19-inch cabinet
	Weight: 2kg
Environment Requirements	Working condition: 0℃-55℃; 10%-85% non-condensing
	Storage condition: -40℃-80℃; 5%-95% non-condensing

Power Supply	Input voltage: AC90～264V, DC -36 ~ -72V
	Two power inputs, AC-DC-hybrid power inputs and hot swap of power modules are supported.
	Over-current protection and over-voltage protection are also supported.

STEC P1004R2-C Series

Product Overview

STEC P1004R2-C is a smart ONU with 4 100M ports oriented for FTTH in Broadcasting-and-TV industry. It is complied with IEEE802.3ah and relevant requirements for EPON ONU regulated in Technical Requirements of YD/T 1475-2006—Ethernet-Based EPON and China Telecom EPON Technical Requirement 2.1/3.0. STEC P1004R2-C can be well connected with OLTs from the mainstream manufacturers.

STEC P1004R2-C-W

Main Characteristics

- **High Access Capacity**

It supports the symmetric uplink/downlink 1Gbps PON transmission rate. Connected with STEC OLTs, it can realize 1:64 splitting ratio. The network covering radius can reach to 20km. The transmission distance can expand to 60km if combing the ONU with PON relay.

- **Secure Service Carrying Ability**

For ensuring the secure service carrying ability of ONU, STEC has developed techniques including VLAN, STP, port isolation, ACL, QoS and Broadcast Storm Control.

- **High Service Control Capability**

It supports functions of DBA and Rate-Limit. It supports advanced dynamic bandwidth distribution and accurate bandwidth limit, which enables users to appropriately share 1Gbps bandwidth resource. It also supports QOS function, which guarantees a reliable service quality and service priority.

- **Rich OAM Functions**

It supports standard OAM and expanded OAM defined by Chinese telecom CTC2.1/3.0, including configuration, alarm, performance monitoring, fault isolation and security management, and it also supports private OAM defined by STEC.

- **Complete Interaction Capacity**

It is complied with IEEE802.3ah and relevant requirements for EPON ONU regulated in Technical Requirements of YD/T 1475-2006—Ethernet-Based EPON *and* China Telecom EPON Technical Requirement 2.1/3.0.

■ **Advanced Energy-saving Technique**
It supports the "GreenTouch" architecture and "Smart@CHIP".

Technical Parameters

Attributes	P1004R2-C-W
User trial interface	4 fixed 10/100M auto-adaptation RJ45 interfaces, 1 RF, external WiFi antenna
PON interface	The symmetric uplink/downlink 1Gbps PON transmission rate The network covering radius: 20km Type of the optical interface: SC/UPC Hi-sensible optical receiver: ≤-27dBm Radiation power:0-4dBm
CATV parameters	Type of the optical interface: SC/APC Wavelength: 1290~1600nm Optical reception power: -18~+2dbm AGC: -9~-2dbm RF out signal level: 82dbuv Operating frequency: 47-1000MHZ
WiFi characteristics	Support 802.11b/g/n
Dimensions mm (W×D×H)	163 x 114 x 29
Environment	Operating environment: 0 ℃ ~ 50 ℃ ; 10% ~ 85% non-condensation
	Storage environment: -40℃~80℃; 5%~95% non-condensation
Power supply	DC12V/1A external adaptor power supply
Power consumption	＜10W
Hull	Plastic

Software Characteristics

➢ Supports layer-2 switching capacity and meets the requirement of uplink-downlink wire-speed forwarding;

➢ Supports to enable the Layer-2 isolation function by default, and disable it by STEC private OAM;

➢ Supports RSTP required by IEEE 802.1D;

➢ Supports ACL;

➢ Supports IEEE 802.3x flow control (full duplex) protocol;

➢ Supports IEEE 802.1Q protocol, VLAN division based on the user physical ports, VLAN, VLAN tagged/ untagged, VLAN Transmission, VLAN priority tag, VLAN filtration;