

Case Study

Optical Networking

Simplifying Hospitality Networking:
A Single FS OLT Powers 100-Room
GPON Deployment

A 100-room hotel in Florida, USA, adopted the FS GPON solution powered by a single OLT, enabling stable Gigabit fiber access and cutting deployment costs by over 30% with a compact, efficient architecture.

FS One OLT Delivers Scalable GPON Solution for 100-Room Hospitality Deployments

Country

 United States

Industry

 Hotel

Network Type

 PON Network

Solutions

 Optical Networking

Key Stats

- One OLT delivers Gigabit fiber access to 104 guest rooms.
- Total deployment and maintenance costs reduced by over 30%.
- All core GPON equipment fits within a compact 1U footprint.
- Supports seamless upgrades to 10G, and higher speeds.

Highlight

- OLT 3611-04GP4S and ONU1710-1G units deliver full Gigabit coverage across 100+ rooms at significantly lower cost.
- DBA dynamically allocates bandwidth in real time, ensuring zero congestion during peak occupancy and multi-service usage.
- End-to-end AES-128 encryption, MAC binding, and QoS isolation safeguard guest privacy and protect critical hotel services.
- Supports multi-device interoperability with seamless XG(S)-PON upgrades, enhancing long-term network scalability.
- Dedicated technical support reduces troubleshooting to hours, accelerating deployment and ensuring uninterrupted hotel operations.

Overview

To support its growing digital services, a boutique hotel in Florida sought a modern network architecture capable of delivering stable Gigabit connectivity while keeping long-term operational costs under control. Compared with traditional Ethernet deployments, a passive optical network offers lower cabling and equipment expenses, greater efficiency in large-scale room coverage, and the ability to upgrade to higher-speed standards without rebuilding the ODN.

By deploying FS OLT 3611-04GP4S together with compact ONU1710-1G units, the hotel established reliable GPON fiber access for more than 100 guest rooms—creating a clean, efficient network foundation with ample room for future service expansion.

Challenges

Faced with high IT upgrade costs, limited rack space, and a lack of skilled technical personnel, the hotel struggles to complete a large-scale network modernization project that is technically complex and has a high total cost of ownership (TCO).

Furthermore, the customer faces stringent guest privacy requirements. The shared network for guest Wi-Fi, front desk management, and monitoring systems poses a significant risk of data breaches and unauthorized access. Achieving robust signal isolation and long-term stable operation has become another core challenge.

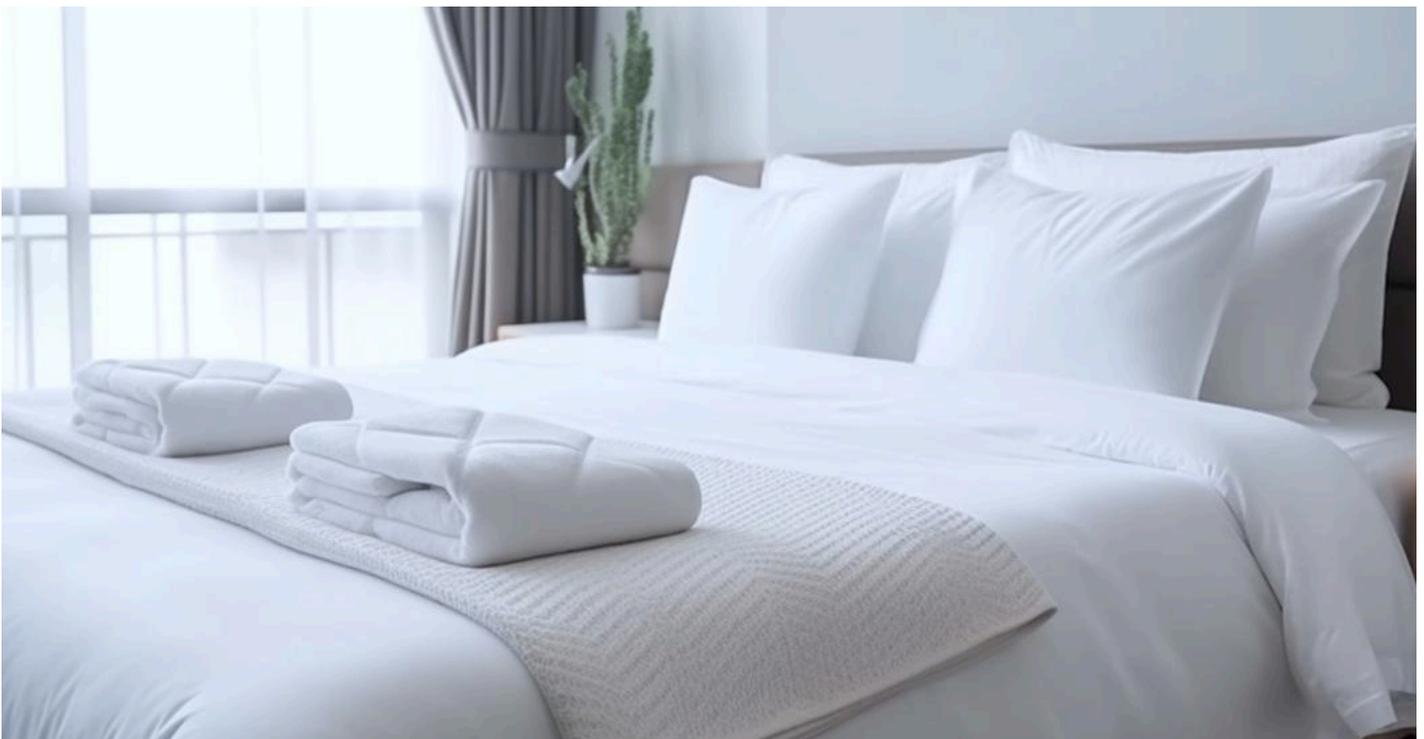
As smart room control, IPTV, and other connected devices continue to grow, the hotel needed a fiber

solution capable of accommodating diverse systems under unified management while supporting seamless evolution to future high-speed standards, ensuring long-term reliability and scalability.

Solutions

After evaluating multiple upgrade approaches, the hotel selected a compact and flexible GPON architecture centered on the 4-port OLT 3611-04GP4S.

Each OLT connects to multiple mini wall-mounted ONU1710-1G terminals, forming a point-to-multipoint structure that delivers 2.5 Gbps downstream and 1.25 Gbps upstream to 104 guest rooms. Core devices are



consolidated within 1U of rack space, freeing valuable room in the cabinet and maintaining a clean aesthetic in guest areas.

Building on this architecture, the OLT provides centralized remote management for all ONU1710-1G devices as well as a variety of routing units, enabling unified configuration, automated device discovery, and real-time monitoring. This ensures that diverse service devices interoperate efficiently over the same fiber infrastructure, simplifying hotel-wide operations and maintenance.

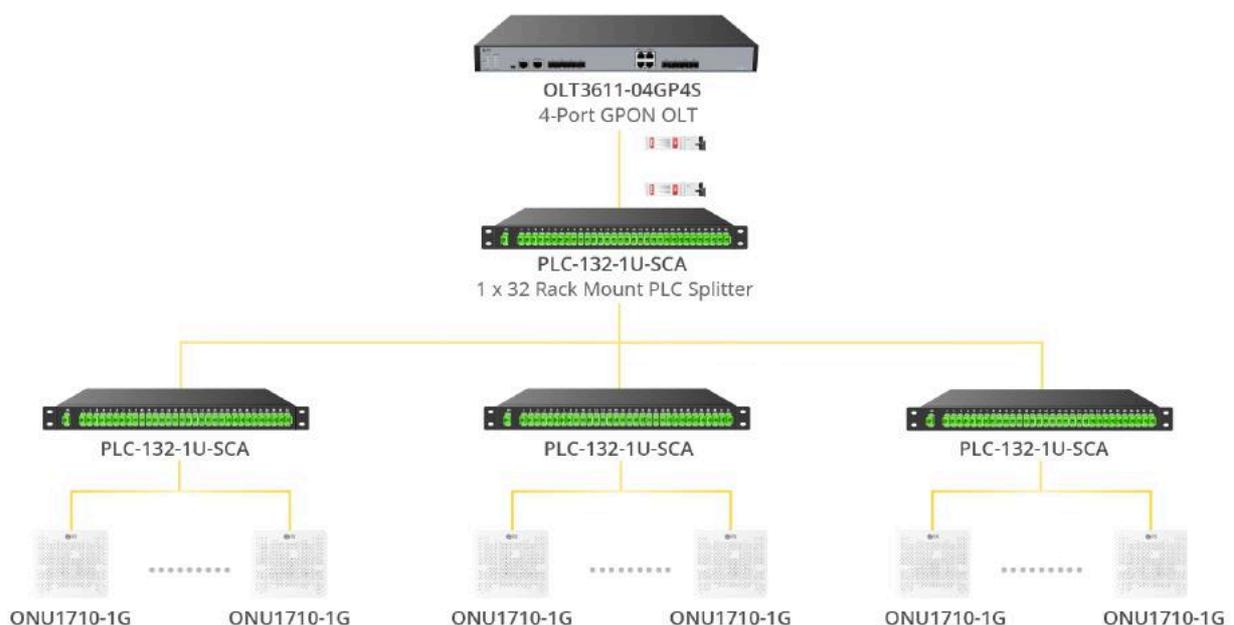
In the optical distribution layer, 4 high-uniformity 1×32 PLC splitters (PLC-132-1U-SCA) support phased network deployment and reserve capacity for future expansion. Combined with pre-terminated fiber assemblies, this design reduced overall deployment and maintenance costs by more than 30%.

With DBA and TDMA, the OLT dynamically allocates bandwidth resources in real time, ensuring smooth connectivity during peak occupancy or high-demand streaming periods—effectively eliminating instability caused by concurrent access in the legacy network.

From a security perspective, the network employs VLAN segmentation, AES-128 encryption, and MAC binding to isolate guest, IPTV, and management systems. Integrated ACL and RADIUS/TACACS+ authentication mechanisms prevent unauthorized access, ensuring that both guest and management networks operate securely within the same PON infrastructure.

Designed with long-term evolution in mind, the solution supports future upgrades through CExPON and Combo PON technologies—allowing seamless migration to XG(S)-PON, or even higher-speed standards without rebuilding the ODN.

Throughout implementation, FS provided comprehensive remote deployment support. Using predefined configuration templates, detailed installation guides, and one-on-one remote assistance, the hotel's IT team completed setup and verification independently—without outsourcing or interrupting daily operations. Troubleshooting time was reduced to hours, ensuring uninterrupted connectivity and a seamless online experience for guests.



Results

After the solution was fully deployed, the network quickly demonstrated measurable improvements in both performance and efficiency.

Deployment and maintenance costs dropped by over 30%, while the network achieved secure and stable Gigabit connectivity for both guest and management zones. Even during high-demand hours, the system maintained low latency and uninterrupted service, ensuring a seamless digital experience for every guest.

The compact 1U design minimized hardware footprint and eliminated the need for costly structural modifications. With a future-ready PON architecture that supports seamless upgrades, the solution protects long-term investment and enables the hotel to advance toward a smarter, service-centric operating model.

Customer Testimonial

Following the successful deployment, the client expressed strong satisfaction with both the network performance and the technical support provided throughout the project.

“I greatly appreciate your accommodations to get us up the learning curve and make our project successful. Maybe you can use us as a testimonial in the future.”

—Chief Executive Officer-based company



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