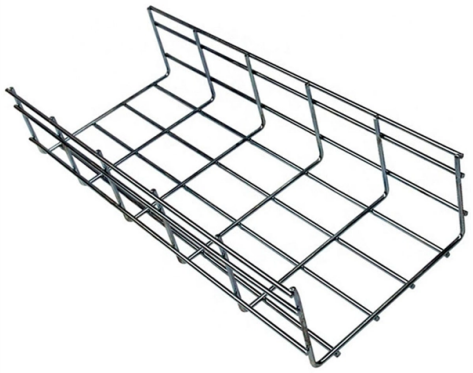
Fiber Optic Transmission Parent-Slave Routers



Overview

What Is FTTR And FTTR All-optical Network Solution?

Compared with the router cascading solutions, the biggest change in this solution is to change the casca.

Key Takeaways

FTTR networks use a master (parent) ONU connected via fiber to multiple slave ONUs, delivering gigabit Wi-Fi to every room with low latency and seamless roaming.

Overview of Parent-

Slave Router Architecture

In FTTR (Fiber to the Room) networks, the master ONU (parent router) connects to the external fiber network, such as an OLT in a GPON or EPON system, and serves as the central hub for distributing optical signals within the home.

Slave ON

Us (child routers) are installed in individual rooms and connect to the master via indoor fiber optic cables, providing high-speed internet access to devices in their coverage area. This setup replaces traditional Ethernet or Wi-Fi-only cascades, ensuring lossless gigabit speeds and minimal interference. Connection TopologiesFTTR networks typically use two main topologies for parent-slave connections: P2P (Point-to-Point) Scheme: Each slave ONU is connected to the master ONU via a dedicated fiber optic cable.

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This approach is simple, cost-effective, and provides high bandwidth, but scalability is limited to the number of available optical ports on the master ONU. P2MP (Point-to-Multipoint) Scheme: Based on GPON technology, the master ONU functions as a mini OLT, and a 1: 5 optical splitter allows one fiber to serve multiple slave ONUs. This topology supports cascading multiple levels and can accommodate up to 16 slave ONUs, making it suitable for larger homes or multi-room deployments.

Advantages of Fiber Optic Parent-

Slave Networks

High Bandwidth and Speed: Each room can achieve gigabit speeds (up to 1200 Mbps with Wi-Fi 6), ensuring smooth streaming, gaming, and remote work. Low Latency and Seamless Roaming: Devices automatically switch to the strongest slave ONU with minimal delay (less than 20 ms), providing uninterrupted connectivity throughout the home. Reduced Interference: Fiber optic transmission is immune to electromagnetic interference (EMI), unlike traditional copper cables or Wi-Fi-only solutions.

Scalability and Flexibility: P2MP topologies allow multiple slave ONUs to be added without extensive rewiring, while P2P ensures dedicated high-speed links for critical rooms. Simplified Management: Intelligent network management tools, such as Huawei's NCE and LinkHome app, allow real-time monitoring, parental controls, and remote troubleshooting.

Implementation Notes

Indoor fiber cables connect the master and slave ONUs, often using micro-optical fibers for easy installation and minimal space usage. Optical splitters and panels manage signal distribution and protect fiber cores, ensuring long-term reliability.

FTT

R networks are compatible with Wi-Fi 6, enabling high concurrency and low-latency performance for multiple devices in each room. In summary, parent-slave router architecture in FTTR networks leverages fiber optics to deliver gigabit Wi-Fi to every room, overcoming the limitations of traditional router cascades and providing a future-proof solution for high-bandwidth home networking.

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Article Content

What Is FTTR And FTTR All-optical Network Solution?

Compared with the router cascading solutions, the biggest change in this solution is to change the cascading RJ45 interface to an optical interface, so

FTTH Solution

Huawei''s FTTR solution extends fibers to rooms and provides various gigabit Wi-Fi 6 master/slave FTTR units, all-optical components, and optical cable routing tools, allowing users to enjoy stable gigabit Wi

Fiber to The Room (FTTR) Solution

It supports power over fiber (PoF) cables to supply power to slave FTTR units (SFUs) and works with SFUs to provide gigabit Wi-Fi coverage for enterprises. The product applies to small- and medium

FTTR ELEMENTS & INSTALLATION – White Pearls

Whitepearl''s fiber to the room (FTTR) solution extends fibres to rooms and provides various gigabit Wi-Fi 6 master/slave FTTR units, all-optical components, and optical cable construction tools, enabling

What Is FTTR (Fiber to The Room)

It adopts a master and slave optical router integrated machine, supports the latest Wi-Fi 6 technology, and can directly deliver high-speed

WFG130 10G FTTR Main Gateway | GPON/xGSPON

It is a new networking scheme based on FTTH (gigabit optical fiber to the home) and enables the users to achieve gigabit speed through the 10GbE Optical Cat 1-to-N

FTTR Network: The Ultimate Solution for Home Gigabit

The FTTR network solution is to carry out home networking through optical fiber media, deploy FTTR main gateways in distribution boxes or

FTTH Essentials: How OLT, ONT, and Routers Power Your

Fiber-to-the-Home (FTTH) technology has revolutionized internet connectivity, offering high speeds and reliability. Let''s delve into the key components and their functions:

Optical Path Device Planning In FTTR Scenarios

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Whether in the corridor or in the room, all optical fiber connections are used. It has strong transmission capacity, higher transmission rate, and longer life than network cables.

WO2025103372A1

Provided in the embodiments of the present disclosure are a communication method and system for a master device and a slave device for a fiber to the room (FTTR).

What Is Optical Networking? Complete Explanation

Optical networking is a technology that uses light signals to transmit data through fiber-optic cables. It encompasses a system of components,

What is fttr, and its advantages?

The biggest change in this scheme compared to the router cascade scheme is that the cascaded RJ45 interface has been changed to an optical

Optical Fiber Transmission

Optical fiber transmission is defined as the process of transporting light signals through a dielectric waveguide, known as an optical fiber, which consists of a core surrounded by cladding. This method

Fiberoptic Communication System Architectures And Topologies

We provided an overview of the key characteristics of fiber optic communication system architectures and common fiber optic network topologies. The ring, star, mesh, tree, and bus

Fiber to The Room (FTTR) Solution

Huawei OptiXstar K662d Huawei OptiXstar K662d is a desktop slave FTTR that works with the master FTTR in the Huawei FTTR for Home solution. It supports ultra-broadband access through optical

Fiber-optic communication

The transmission distance of a fiber-optic communication system has traditionally been limited by fiber attenuation and by fiber distortion. By using optoelectronic

Optical Fiber Explained and Demystified

Compared to singlemode fibers, multimode technology is usually cheaper to implement, not so much because of the fiber cable itself, but because multimode transceivers for your switches or routers are

PCB Interfaces and Communication Protocols | Sierra

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PCB interfaces are categorized into wired interfaces, like UART, I2C, and PCIe, and wireless interfaces, such as 5G, Wi-Fi, and LoRa.

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