

Fiber optic leased line connecting two local switches



Overview

I would like to run a approximately 300ft-360ft fiber cable from building A to B to connect these two switches.

Key Takeaways

A fiber optic leased line provides a dedicated, private, point-to-point connection between two local switches with guaranteed bandwidth and symmetrical full-duplex communication.

A leased line is a private telecommunications circuit that connects two locations, such as local switches in different offices, over a dedicated fiber optic link. Unlike shared broadband, a leased line ensures exclusive access to the full bandwidth, providing consistent upload and download speeds without interference from other users . The connection is typically full-duplex, allowing simultaneous two-way data transmission .

How It Works

- **Point-to-Point Connection:** The leased line creates a direct pathway between the two switches, often running underground fiber cables from one site to the other or via the ISP's network infrastructure .
- **Network Equipment:** Each end of the leased line terminates at a network device such as a switch or router. These devices manage traffic, enforce security policies, and ensure reliable data transfer .

- **ISP Role:** The Internet Service Provider (ISP) provisions the leased line, often using Optical Network Terminals (ONTs) at the customer premises and Optical Line Terminations (OLTs) at the ISP's facility. The ISP may use technologies like Dense Wavelength Division Multiplexing (DWDM) or Synchronous Digital Hierarchy (SDH) to transmit data efficiently over long distances .

- **Service Level Agreements (SLAs):** Most leased lines come with SLAs guaranteeing uptime, latency, and repair response times, making them suitable for mission-critical operations .

Advantages

- **Guaranteed Bandwidth:** Full access to the allocated bandwidth ensures stable performance for applications like VoIP, video conferencing, and cloud services .

- **Symmetrical Speeds:** Upload and download speeds are equal, unlike typical broadband connections .

- **Low Latency and High Reliability:** Dedicated fiber reduces packet loss and jitter, which is critical for real-time applications .

- **Scalability:** Bandwidth can be upgraded as business needs grow without affecting other users .

Typical Architecture

In a typical setup connecting two local switches:

- Switch A at Branch A connects to the leased line.

- Switch B at Branch B connects to the other end of the leased line.

- The line may pass through the ISP's network, but it remains a dedicated, private circuit.

- Data flows directly between the two switches, bypassing public internet congestion, ensuring secure and consistent communication .

Use Cases

- Connecting branch offices for private WAN communication.

- Linking data centers or colocation facilities.

- Supporting high-bandwidth applications like video streaming, large file transfers, or cloud-hosted services. A fiber optic leased line is therefore the most reliable and high-performance option for connecting two local switches in a business environment, providing dedicated bandwidth, low latency, and guaranteed service quality.

Article Content

Fiber connection between 2 switches in 2 separate buildings

At this point, I have a separate "dumb" switch to do this and separate cabling, but at our new location, this isn't easy

Connecting two buildings with fiber

I would like to run an approximately 300ft-360ft fiber cable from building A to B to connect these two switches. I

Linking two sites with fiber on cisco switch

First of all, we have two sites in two different locations, and we are planning to implement fiber between them. I

Connect Multiple Switches with Fiber Optic Cables

In this video, we'll delve into the world of fiber optics, exploring the reasons behind their

Fiber-optic communication

An optical fiber patching cabinet. The yellow cables are single-mode fibers; the orange and blue cables are multi-mode fibers:

Tips For Connecting Two Switches Through Fiber Ports

Tips For Connecting Two Switches Through Fiber Ports Can two switches with fiber ports be directly connected

Connecting Two Cisco Switches Using a fiber cable.

Hi Experts, I have a basic knowledge of network and need some help. I need to connect 4 Floor Building with 4 Cisco

Media Converter Application #shorts # shorts #network

Media converter can convert optical signals into electrical signals, plug-and-play, no additional configuration is

Build A 10G LAN with 2 Fiber Switches | Step-by-Step Guide

In this video, we'll guide you through building a high-speed 10G LAN by connecting two fiber switches.

Connecting two switches through a fiber cable

I have a basic knowledge of network and need some help. I need to connect a single 3750G - 48 ports switch to a

How to connect 2 parts of a facility using fiber optic cable?

Contact a local cabling contractor and explain the situation. This is all very routine and normal. They would likely run

Two identical fiber optic broadband lines working as one

I am looking for a way I could combine two 100Mbit fiber optic lines into a single connection for our office. I assume it

What Is a Leased Line and How Does It Work

Fibre optic technology forms the backbone of modern point-to-point connectivity. The physical fibre runs directly between connection

Solved: connect 2 switch with fiber

Hi everybody, I´m trying connect two catalyst 3560 Catalyst switch through fiber. I have a network in the office, it is

What is a leased line?

Typically, a leased line uses technologies like fibre optic connectivity and Ethernet to deliver high-speed access to data

How to link two switches with dedicated Fibre Link?

A new Dedicated fibre link has been installed between both sites and we have been informed that we should be able

Routers and layer 3 switches for connecting two buildings on ...

If distance between two buildings are above 100 meters then use fiber cable for connecting layer3 switch to 2 building

Optical fiber connector

An optical fiber connector is a device used to link optical fibers, facilitating the efficient transmission of light

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This document is for preliminary research. Verify specifications against current standards, product documentation and project requirements.

