

Multiple switches connected in two network segments



AI Overview

Two network segments connected to a switch can communicate only if the switch supports Layer 3 routing or a router is used to route traffic between the segments.

Layer 2 vs Layer 3 Switches

A Layer 2 switch operates at the data link layer and forwards frames based on MAC addresses. It cannot route traffic between different IP subnets, so devices on separate network segments connected to a Layer 2 switch cannot communicate directly without a router or a Layer 3 device configured for inter-VLAN routing. A Layer 3 switch, however, can perform routing functions. It can assign IP addresses to VLAN interfaces, set default gateways, and route packets between different network segments, enabling communication between devices on separate subnets.

Using VLANs and Routing

When connecting two network segments:

- Create VLANs for each network segment on the switch (e.g., VLAN10 for 192.168.1.0/24 and VLAN20 for 192.168.2.0/24).
- Assign IP addresses to the VLAN interfaces on the Layer 3 switch. These IPs act as gateways for devices in each segment.
- Set the default gateway on each host to the corresponding VLAN interface IP.
- Enable routing on the Layer 3 switch to allow traffic to flow between VLANs.

If a Layer 2 switch is used, a router or a host with two NICs can be configured to route traffic between the segments. This involves enabling IP forwarding and setting static routes on both network segments.

Special Cases

Devices in the same VLAN but different subnets may sometimes ping each other if subnet masks overlap in certain ways, but this is not standard practice and can lead to inconsistent connectivity. For temporary or resource-constrained setups, a Linux host or firewall with interfaces in both segments can act as a router to enable communication.

Summary

To enable communication between two network segments connected to a switch: Use a Layer...

Article Content

Network Segmentation: Everything You Need to Know

A single switch can have multiple VLANs to segment connected devices into logical subnets. Layer 3 network segmentation assigns devices IP

How to Connect Multiple Ethernet Switches

Cascade vs Stack vs Cluster: Learn how to connect multiple Ethernet switches, compare the key differences, and choose the best setup to boost your network

How to Connect Two Switches Together: A Comprehensive Guide

Connecting switches can be achieved through two common methods: cascading and stacking. In this guide, we will explore these two approaches and provide you with the necessary

Can you have two switches on the same network?

You can, and often should, have multiple network switches on the same network. In fact, most modern networks, from your home setup to enterprise-level infrastructures, rely on a

Linking of multiple Ethernet switches

Thus, multiple Ethernet switches are connected together using different techniques, primarily switch cascading, switch stacking, and switch clustering. In this comprehensive guide, we'll

Can Switches Interconnect Different Network

Layer 2 switches work at the data link layer and forward data frames based on MAC addresses, and they must use routers to realize the

8 Best Portable Network Switches for LAN Party Setups (April 2026)

The best portable network switches for LAN party setups combine gigabit speeds with fanless operation and durable construction. After testing dozens of switches across countless gaming

networking

We have a existing network setup where we have two D-Link switches,connected to each other. IPs are manually assigned in the range of 192.168.0.x on PCs directly and unassigned ones get IP from the

2 separate networks connected to one switch?

In my organization, we have 2 networks. A network for staff and another network for public Wi-Fi. I will have to use a switch, because there is a computer that has to be connected to the

Linking of multiple Ethernet switches — cascading,

Switch cascading is a traditional method to interconnect multiple Ethernet switches. This technique involves various network topologies and

How To Connect A Network Switch To Another Network

Learn how to connect a network switch to another network switch with this comprehensive guide. Understand the process and optimize your

two different networks through one switch

Hello, First time poster here. I am trying to solve an issue where I need two different networks/subnets communicating between my Juniper firewall and my Cisco 2950 switch. On the

Linking of multiple Ethernet switches — cascading,

Therefore, the best way to connect multiple Ethernet switches depends on your specific network configuration and requirements. Deep Dive: A

Ways to connect two network segments

Are these ADSL connections in the same location? If so, it's relatively easy, just stick everything behind a (sufficiently intelligent) firewall, on a single ethernet broadcast domain

What is a network switch and how does it work?

Switches connect network segments, providing full-duplex communication, valuable network performance data and efficient use of network bandwidth.

Can Switches Interconnect Different Network Segments? (With

Layer 2 switches work at the data link layer and forward data frames based on MAC addresses, and they must use routers to realize the interconnection between different network

How to Connect Two Switches Together: A Comprehensive Guide

How to connect two switches together? Are you looking to expand your network infrastructure and connect multiple switches together? Connecting switches can be achieved through

Methods of Connecting Multiple Ethernet Switches | Versitron

As we've seen, there are three main methods for connecting multiple Ethernet switches: cascading, stacking, and clustering. The table below summarizes the key differences between these

Example for Configuring Communication Between Different Network ...

In addition to configuring an IP address for a VLANIF interface, you need to configure a static route or a dynamic routing protocol when PCs on different network segments across several switches need to

Can switches interconnect different network segments?

In network communication, the interconnection between different network segments is crucial. As one of the core equipments in the network, if the

How To Connect Multiple Switches

Normally, we combine several Ethernet switches together to meet our needs (port number, certain functions, etc.) when one switch can't. Then how to connect

How to Connect Multiple Switches together

The post introduces how to connect multiple switches together by three methods including cascade, stack, and cluster.

Best Way to Connect Multiple Switches

How to connect multiple switches in a network with clear steps and tips for effective setup and configuration.

Building a Multi-Switch VLAN Network: A Successful

Recently, I built a multi-switch VLAN network in Cisco Packet Tracer, connecting different departments while ensuring seamless communication within

Can switches interconnect different network segments? (with ...

To sum up, Layer 2 switches need to be paired with routers to realize the purpose of interconnection between different network segments, while Layer 3 switches do not need to build

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