

How to use an access switch as a Layer 2 switch

Article Overview

An access switch can connect to another Layer 2 switch to extend VLANs, provide additional ports, and maintain Layer 2 adjacency for end devices.

Role of Access Switches

An access switch is a network edge device that connects end-user devices such as PCs, IP phones, wireless access points, cameras, and IoT devices to the broader network. It typically provides high port density, Power over Ethernet (PoE), and forwards traffic upstream to distribution or core layers . Access switches operate primarily at Layer 2, forwarding frames based on MAC addresses within the same VLAN .

Layer 2 Connectivity Between Switches

When an access switch connects to another Layer 2 switch, the connection can be configured as either an access port or a trunk port:

- o Access Port: Carries traffic for a single VLAN. This is suitable when the connected switch is extending the same VLAN to additional devices.
- o Trunk Port: Carries traffic for multiple VLANs, allowing VLANs to span across multiple switches. This is essential for maintaining consistent VLAN segmentation across the network . The Layer 2 connection ensures that MAC address tables are dynamically learned and maintained, allowing frames to be forwarded efficiently between switches without routing . If a frame's destination MAC address is unknown, it is flooded to all ports within the VLAN, ensuring connectivity for new devices.

Benefits of Connecting Access Switches to Layer 2 Switches

- o VLAN Extension: VLANs can be extended across multiple switches, allowing devices on different access switches to communicate within the same broadcast domain .
- o Port Expansion: Connecting multiple Layer 2 switches increases the number of available ports for end devices without requiring Layer 3 routing.
- o Layer 2 Adjacency: Certain applications, such as NIC teaming, high-availability clusters, and database clusters, require devices to be in the same Layer 2 domain. Connecting access switches at Layer 2 preserves this adjacency .
- o Simplified Management: Layer 2 connections reduce the need for IP routing at the access layer, simplifying configuration and minimizing latency .

Considerations

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- o Spanning Tree Protocol (STP): To prevent loops in Layer 2 topologies, STP or Rapid STP should be enabled.
- o Broadcast Domains: All devices in the same VLAN share the broadcast domain, so careful VLAN planning is necessary to avoid excessive broadcast traffic.
- o Trunk Configuration: When multiple VLANs are required, trunk ports must be properly configured to carry all necessary VLANs between switches. In summary, connecting an access switch to another Layer 2 switch is a common practice in enterprise and data center networks. It allows VLAN extension, port expansion, and maintains Layer 2 adjacency for end devices, while relying on MAC-based forwarding and optional trunking to manage multiple VLANs efficiently .

In a Layer 2 looped access topology, a pair of access layer switches are connected to the aggregation layer using

A layer-3 switch is first a layer-2 switch. You can configure physical interfaces to be either routed or layer-2 interfaces.

Explore the crucial role of an access switch in your network. Learn how it connects end-users and devices via

Explore the role of access switches in your LAN setup. Understand their key components, functions in the access layer,

In this layer, the layer 2 switches are installed to distribute the data packets to the addressed group of access devices. The layer 2

Solved: kindly explain me how access list works in layer 2 switches, though layer 2 switch will forward traffic based

The loop-free U topology design provides a Layer 2 access solution with active uplinks and redundancy via an inter-switch link

Core Layer: The high-speed backbone, often connecting multiple distribution switches. Distribution Layer: The middle

You can configure Layer 2 switching ports as access or trunk ports. Trunks carry the traffic of multiple VLANs over a single link and

A Layer 2 switch is a network device that operates at the data link layer (Layer 2) of the OSI model. Learn

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A Layer 2 switch is a network device that operates at the Data Link layer (Layer 2) of the OSI model. It uses MAC

Layer 2 vs. layer 3 switch: Understanding the differences that impact IT Switch ports are essential components of network

As far as the design goes I will try to use Cisco's hierarchical internetworking model (Distribution, Aggregation and Access Layers)

What is the Access Switch? A typical enterprise hierarchical LAN campus network design includes an access layer, distribution layer,

One simple and popular switch design scenario will be shown in the following tutorial. This scenario will fit most SMB networks (or

Step 2: Set up management IP Unlike with that punny name you gave your home Wi-Fi network, when setting up the hostname for

Web: <https://www.kremgroup.co.za>

