

Access Layer Switch VLAN



AI Overview

An access layer switch is a network switch that connects end devices and segments traffic into VLANs to improve security, manageability, and performance.

Role of Access Layer Switches Access layer switches are the first point of connection for end devices such as PCs, IP phones, wireless access points, and printers within a campus LAN . They operate primarily at Layer 2, providing switching services and enforcing policies like port security, Quality of Service (QoS), and VLAN membership . By segmenting traffic into VLANs, access switches create separate broadcast domains, reducing unnecessary traffic and enhancing network security .

VLANs on Access Switches A VLAN (Virtual LAN) is a logical grouping of devices that allows them to communicate as if they are on the same physical network, even if they are connected to different switches . VLANs are configured on a per-port basis, meaning each switch port is assigned to a specific VLAN. This allows network administrators to segment departments or services (e.g., voice vs. data) into separate VLANs . Devices in different VLANs cannot communicate directly at Layer 2; inter-VLAN communication requires a Layer 3 device such as a router or a Layer 3 switch .

Key VLAN Configuration Steps

- Create VLANs:** Assign a VLAN ID and optionally a name on the switch .
- Assign Access Ports:** Configure each port to belong to a specific VLAN, connecting end devices to the correct broadcast domain .
- Configure Trunk Ports:** If multiple switches are connected, trunk ports carry multiple VLANs between switches using 802.1Q tagging .
- Verify Configuration:** Use show commands to confirm VLAN membership, trunk status, and port assignments .

Layer 2 vs Layer 3 VLAN Handling

- Layer 2 VLANs:** The switch forwards traffic within the same VLAN without routing. VLANs isolate broadcast domains but require a router or Layer 3 switch for inter-VLAN communication .
- Layer 3 VLANs:** A Layer 3 switch can route traffic between VLANs directly, combining switching and routing capabilities. This is useful for large...

Article Content

Layer 2 vs Layer 3 Switches in 2026: Optimizing

Introduction Planning a new network or upgrading an existing one inevitably raises a critical question: Should you deploy Layer 2 switches, Layer 3 switches, or a

Layer 2 vs Layer 3 Switch: Key Differences and Use Cases

In practice, Layer 2 switches fit access-layer endpoint connectivity, while Layer 3 switches are better for inter-VLAN routing, segmentation, and

L2 vs L3 switching explained (and when you need each)

Layer 2 vs Layer 3 switching in plain English — what each does, VLAN routing, and how to decide which your network needs.

Inter VLAN Routing by Layer 3 Switch

Security: Inter-VLAN routing by Layer 3 switch provides better security than other methods, as it allows for the creation of access control lists (ACLs) to restrict traffic between VLANs.

How to Configure VLAN on a Cisco Switch: Step-by

Learn how to configure VLAN on a Cisco switch with step-by-step instructions for creating VLANs, assigning access ports, configuring trunk ports,

How to Choose a Network Switch — Complete Buyer's Guide (2026)

Everything you need to know to buy the right network switch. Covers managed vs unmanaged, Layer 2 vs Layer 3, PoE budgeting, switching capacity, port count, and TCO calculations.

What Is a Layer 3 Switch? Features, Benefits, and Use

Learn what a Layer 3 switch is, how it works, and why it's a common solution for enterprise networks needing speed, scalability, and efficient routing.

How to Add Layer 3 Switch in GNS3 | A Practical Guide!

Learn how to add and configure Layer 3 Switch (L3) to the GNS3 emulator seamlessly. Follow our step-by-step practical guide for networking!

Best practice for controlling inter-VLAN access

Scenario: A layer 3 switch is handling multiple VLANs, such as Staff, IT, Guest, IoT, and CCTV. I need to define access rules to control which VLAN can access which VLAN.

What Is a Core Switch? Network Backbone Architecture

The distribution layer (or aggregation layer) is the absolute boundary between Layer 2 (switching) and Layer 3 (routing) domains. It serves as the

UniFi Switch Settings – Ubiquiti Help Center

UniFi Switch Settings UniFi Switch Settings let you configure how your network switches handle traffic, VLANs, port behavior, and Layer 3 isolation. These

Ethernet Switch Port Types Explained 2026: RJ45,

Ethernet switch port types define the performance, scalability, and architecture of modern networks. RJ45 ports serve access-layer copper connections;

Access and Trunk Ports

Access ports are typically configured to carry traffic for a single VLAN, which provides a layer of security by segregating traffic between different VLANs. Access ports are less complex than

What Is a Layer 3 Switch? Definition, How It Works,

What is a Layer 3 switch? Learn the definition, how it works, use cases, pros and cons, and when to choose a multilayer switch for enterprise LANs.

VLAN Access Control Lists

When a switch has an IP access list or MAC access list applied to a Layer 2 interface, and you apply a VLAN map to a VLAN that the port belongs to, the port ACL takes precedence over the VLAN map.

Creating Virtual Networks (VLANs) – Ubiquiti Help Center

Virtual Networks (VLANs) segment networks to improve performance, security, and traffic management. They help isolate devices and users, reducing the risk of

L2 vs L3 Switch: How to Choose for Your Access Layer

Learn how to choose between L2 and L3 switches and build an access network that's reliable, scalable, and easy to manage.

Difference between layer-2 and layer-3 switches

Conclusion Thus, Layer-2 and Layer-3 switches can be defined in terms of their functional layers and activities. In simple LAN network which

Access, Distribution, and Core Layers Explained

This tutorial provides an overview of the access, distribution, and core layers and explains two-tier and three-tier campus LAN designs.

What Is an Access Layer Switch? Guide complet

Learn what an access layer switch is, how it works in enterprise networks, and how to choose the right Cisco access switch for your SMB.

Cisco Catalyst WS-C2960X-48FPS-L 48-Port Gigabit PoE Managed Switch

Cisco Catalyst 2960X-48FPS-L — 48-Port Gigabit PoE+ Managed Switch The Cisco Catalyst WS-C2960X-48FPS-L is a 48-port Gigabit managed switch with full PoE+ across every port (740W power)

Online Course: Layer 2 Switching & VLAN's for Cisco CCNA

This comprehensive Layer 2 Switching & VLAN's for Cisco CCNA curriculum is designed to take you from foundational concepts to advanced implementation. Each module builds upon the previous,

Layer 3 Switch Example

The access switch will also need to be configured appropriately to place client traffic in the voice and data VLANs. Please see the Related KBs section for more details on how to configure switch ports.

Core Switch vs. Distribution Switch vs. Access Switch

The access layer consists of layer 3 switches, which take routed and switched data packets from the distribution switches and then route them to the access devices

Layer 2 vs Layer 3 in Access Networks: When It's Time

Each access switch (or stack) becomes a Layer 3 device, not just a Layer 2 island. End devices are still in VLANs, but the default gateway SVI lives

Understanding Layer 3 Switches: A Comprehensive Guide

Inter-VLAN Routing: Layer 3 switches are particularly effective at routing traffic between VLANs, providing a more efficient alternative to traditional routers.

Contact Us

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