

Ethernet Layer 3 Core Switch



AI Overview

A Layer 3 core switch is a high-performance network device that combines switching and routing capabilities to serve as the backbone of an enterprise network.

Overview and Function

A Layer 3 core switch operates at the network layer (Layer 3) of the OSI model, integrating traditional switching with IP routing intelligence. It connects multiple distribution switches, providing high-speed backbone connectivity across buildings, server farms, or data centers, and ensures ultra-low latency and maximum throughput for large volumes of traffic. Unlike standard edge routers, core switches often use ASIC-based hardware to process routing tables at wire speed, enabling faster packet forwarding and improved network performance.

Role in Network Architecture

In a three-tier hierarchical network model, the core switch sits at the top tier:

- Core Layer:** Acts as the high-speed backbone, connecting distribution switches and ensuring fault tolerance. If the core fails, the entire network can be disrupted.
- Distribution Layer:** Aggregates traffic from access switches, applies routing policies, VLAN boundaries, and security ACLs before forwarding to the core.
- Access Layer:** Connects end-user devices like laptops, VoIP phones, and Wi-Fi access points, often providing PoE.

Core switches are essential for scalable, predictable, and high-performance networks, especially in large enterprises or data centers.

Key Features

- High port density:** Supports multiple 1GbE, 10GbE, or higher-speed uplinks for aggregation.
- Layer 3 routing:** Supports static routes, dynamic routing protocols (OSPF, EIGRP, BGP), and inter-VLAN routing.
- Redundancy and reliability:** Dual power supplies, fan redundancy, and stacking capabilities ensure continuous operation.
- Advanced management:** VLAN management, QoS, security features, and automation support for modern enterprise networks.
- Scalability:** Modular uplinks and stacking allow network growth without replacing the core switch.

Examples of Layer 3 Core Switches

Cisco Catalyst 9200 C9200L-24P-4G: 24 Gigabit Ethernet ports, 4 uplinks, s...

Article Content

Fixed Port L3 Managed Ethernet Switches

These fully managed, stackable Layer 3 switches deliver enterprise-grade features without the complexity or high cost. With CW 2150 series, you get seamless

HPE Aruba Networking 2930F 24G PoE+ 4SFP+ Switch Managed L3

The Aruba 2930F Switch Series is designed for customers creating digital workspaces designed for mobile users with an integrated wired and wireless approach. Easily deployed and managed with

Fixed Port L3 Managed Ethernet Switches

Optimieren Sie Ihr Netzwerk mit Web Managed Ethernet Switches mit festem Port L3 von HPE. Entdecken Sie erstklassige Layer-3-Ethernet Switch Modelle für

ECS4620-28F

ECS4620-28F is a compact but high-performance Gigabit Ethernet Layer 3 switch featuring 28 ports; with 22 100/1000 SFP ports, 2 x 10/100/1000 Combo Ports, 2

Cisco Switch Selector

The Catalyst 3750 Series are energy-efficient, Layer 3 Fast Ethernet stackable switches. These switches support Cisco EnergyWise technology, which helps

Ethernet Port Status LEDs: Meanings, Colors, and Network ...

Ethernet port LEDs are physical feedback from the PHY (the physical layer chip) on your network interface or switch. They indicate whether the device senses an electrical or optical link

RUGGEDCOM | Siemens

RUGGEDCOM offers Ethernet Layer 2 rack and compact switches, Layer 3 routers and multi-service platforms, media converters, serial device servers, software,

Layer 3 Switches

One of the primary advantages of a layer 3 core switch is its ability to handle routing internally through specialized hardware, which significantly reduces latency and eliminates common bottlenecks found

S3410-24TS-P, 24-Port Gigabit Ethernet L2+ PoE+ Switch, 24 x PoE

Overview The S3410-24TS-P is a high-performance Layer 2+ Gigabit Ethernet switch designed for campus network environments. It features 24 ports of 10/100/1000BASE-T RJ45 with support for

100 Gigabit Ethernet

40 Gigabit Ethernet (40GbE) and 100 Gigabit Ethernet (100GbE) are groups of computer networking technologies for transmitting Ethernet frames at rates of 40 and 100 gigabits per second (Gbit/s),

Arista Platforms 400GbE

Arista Networks is the leader in building scalable high-performance and ultra-low latency Ethernet Switches and Network Switch Platforms 400GbE - 100GbE - 40GbE - 25GbE - 10GbE

L3 SWITCHES

The L3 switch is ideal for service provider edge aggregation, enterprise wiring closets, data center aggregation, and network core deployment. These switches

What is Ethernet?

4. Switch Ethernet Uses network switches for dedicated connections Each device gets a separate collision domain Supports speeds from 10 Mbps to 10 Gbps How Ethernet Works Ethernet

Network Switches

Cisco network switches deliver performance, flexibility, and security. Cisco switches are scalable and cost-efficient and meet the demands of hybrid work.

7 Best Enterprise Core Switches for 2026 That Power Your Network

Looking for a reliable core switch that delivers high-speed performance and robust reliability? The Cisco C9500-16X-A Catalyst 9500 offers 16 10Gb SFP+ ports, perfect for enterprise

What is a Network Switch and How Does it Work?

What is an Unmanaged Switch? A basic, plug-and-play network device called unmanaged switch permits automatic communication between Ethernet devices. Where the network design is

Huawei 24-Port Switch Buying Guide

Current market trends indicate a strong shift toward high-speed Ethernet (valued at \$22.22 billion by 2026) with a focus on Layer 3 management, PoE+ stability, and reduced operational costs through

Contact Us

For more information, pricing, or custom solutions, please contact us:

Website: <https://umele-pestovani.eu>

Email: info@umele-pestovani.eu

Phone: +49 152 287 6349

Address: Neue Mainzer Straße 66-68, 60311 Frankfurt am Main, Germany

This document is for informational purposes only. Specifications subject to change without notice.

