Level 4 Core Switch



Overview

Layer 2, Layer 3, and Layer 4 Switches Layer 4 switches (L4 switches) are capable of identifying which application protocols (HTTP, SNTP, FTP, and so forth.

Key Takeaways

A Layer 4 core switch is a high-performance network switch that makes forwarding decisions based on MAC addresses, IP addresses, and application-level information, designed for the core layer of enterprise networks. Overview of Layer 4 Core SwitchesA Layer 4 (L4) switch operates at the fourth layer of the OSI model, the transport layer, which allows it to inspect TCP/UDP port numbers and identify the application associated with each packet. Unlike Layer 2 switches that only use MAC addresses or Layer 3 switches that use IP addresses, Layer 4 switches can prioritize traffic, enforce application-based policies, and provide enhanced security by controlling which applications can communicate across the network.

Role in the Core LayerIn a hierarchical network design, the core layer is the backbone that interconnects distribution and access layers. Layer 4 core switches are typically deployed here to handle high-speed, high-volume traffic and ensure low-latency forwarding. They provide redundancy, resiliency, and scalability, supporting large numbers of high-speed links (e.g., 100-GbE or 400-GbE) and enabling efficient traffic aggregation from multiple distribution switches.

Key FeaturesApplication-aware forwarding: Can classify and prioritize traffic based on application type (HTTP, FTP, SNTP, etc.),. High throughput: Modern core switches, such as the Cisco Catalyst 9500X, offer up to 12. 8 Tbps full-duplex switching capacity.

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Advanced routing and services: Support MPLS, VPNs, NAT, and multicast routing for enterprise networks. Redundancy and resiliency: Core switches often operate in pairs or clusters to maintain nonstop forwarding and reduce network complexity. Deep buffering and high port density: Essential for handling bursts of traffic and connecting multiple aggregation or distribution switches.

Examples

Cisco Catalyst 9500 Series: Purpose-built for enterprise core and edge services, supporting 10, 25, 50, 100, 200, and 400 Gigabit Ethernet ports, with Layer 4 application awareness and advanced routing capabilities.

Fortinet Forti

Switch Core Layer: High-speed switches integrated with FortiGate devices, providing redundancy and large-scale 100-GbE/40-GbE connectivity for campus networks.

Benefits

Deploying a Layer 4 core switch ensures optimized traffic management, enhanced security, and efficient application delivery across the network. It is particularly valuable in enterprise campuses, data centers, and hybrid cloud environments, where multiple applications and high-speed connectivity demand intelligent traffic handling. In summary, a Layer 4 core switch combines high-speed switching with application-level intelligence, making it a critical component for modern enterprise network backbones.

Article Content

Layer 2, Layer 3, and Layer 4 Switches

Layer 4 switches (L4 switches) are capable of identifying which application protocols (HTTP, SNTP, FTP, and so forth) are included with each packet, and they use this information to hand off the packet

Access vs. Distribution vs. Core Switch Comparison Guide

This guide provides a comprehensive comparison of Access, Distribution, and Core switches, detailing their functions, characteristics, and deployment scenarios.

Understanding Core Switch: What It Is and How to Choose the

What is a Core Switch? A core switch is not merely a type of switch but rather denotes the switch that operates at the core layer (the network''s backbone).

Campus LAN Core and Distribution Switches

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Cisco Catalyst and Meraki Campus LAN core and distribution switches are scalable, secure network switches with exceptional intelligence.

Best Layer 3 Switch in 2026: Tested and Reviewed

In this guide, we''ve tested and reviewed some of the top Layer 3 switches available today to help you make an informed decision.

H3C S7500X Enterprise Core Switch Series

Hardware level encryption technology MACsec H3C S7500X switch series supports hardware level encryption technology MACsec (802.1ae), which is an industry-standard security technology that

What is a Core Switch | Functions and Difference over Normal Switch

It is a powerful backbone switch in the center of the network core layer, which centralizes multiple aggregation switches to the core and implements LAN routing.

Core Switch vs Access Switch | Definitions and Key Differences

Conclusion To wrap up the topic of core switch vs access, it can be stated that the access switch enables devices to connect to the network. The highest level of routing and forwarding is

Cisco Switch Selector

These entry-level, noiseless Gigabit Ethernet switches provide enterprise-class Layer 2 switching with basic security, quality of service (QoS), Power over Ethernet Plus (PoE+), and management simplicity.

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Core Switches: The Pillar of Network Infrastructure

Get a closer look at core switches: the nerve centers of network infrastructure that enhance performance and facilitate growth.

How to Choose the Right Core Switch for Enterprise Network?

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Learn how core switches for enterprise networks and LAN campus networks function in the hierarchical internetworking model and how to choose the right core switch for enterprise networks.

What Is a Core Switch?

A core switch is the backbone of a large-scale network, designed to handle massive volumes of traffic with ultra-low latency and maximum reliability. Sitting at the top of the hierarchical model, core

Access vs. Distribution vs. Core Switch Comparison Guide

Distribution Layer Switches: Positioned between the access and core layers, distribution switches aggregate traffic from multiple access switches. They are typically Layer 3 devices responsible for

Understanding Core Switch: What It Is and How to Choose the

In the realm of system networking, three key types of switches are frequently mentioned: access switches, aggregation switches, and core switches. The part of the network that directly

What is a Core Switch | Functions and Difference over Normal Switch

Core switches as expected are designed to be quicker than aggregation switches. This is due to the core switch''s connections with several aggregation switches. Another major difference is

Nintendo Switch 2 Leveled Up With NVIDIA AI-Powered DLSS and

The Nintendo Switch 2 takes performance to the next level, powered by a custom NVIDIA processor featuring an NVIDIA GPU with dedicated RT Cores and Tensor Cores for stunning visuals

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