

Function of Layer 3 Ports in Core Switches



AI Overview

Layer 3 ports in core switches enable high-speed routing between different subnets and VLANs, acting as the backbone for inter-network communication in enterprise networks.

Core Role of Layer 3 Ports

Layer 3 ports on core switches operate at the network layer (OSI Layer 3), allowing the switch to route traffic between different IP networks or VLANs rather than just switching within a single subnet. Unlike Layer 2 ports, which rely on MAC addresses for forwarding within the same LAN, Layer 3 ports use IP addresses and routing tables to determine the optimal path for packets across the network. This capability is essential in core switches, which aggregate traffic from distribution and access layers and provide high-speed backbone connectivity across the enterprise network.

Key Functions

- **Inter-VLAN Routing:** Layer 3 ports allow core switches to route traffic between multiple VLANs without requiring an external router, improving network efficiency and reducing latency.
- **High-Performance Routing:** Core switches often use hardware-based routing (ASICs) to forward packets at wire speed, ensuring minimal delay even under heavy traffic loads.

Article Content

Understanding Layer 3 Switches: A Comprehensive Guide

Layer 3 switches are advanced networking devices that combine the functions of both traditional switches and routers,

Role and Function of a Layer 3 switch

Role and Function of layer 3 switch: Packet Forwarding: Like traditional Layer 2 switches, Layer 3 switches forward data packets

Routers and L3 Switches | NetworkAcademy.IO

Like a regular switch, it can forward frames at Layer 2 based on MAC addresses. At the same time, it can perform Layer 3 routing

What Is a Core Switch? Network Backbone Architecture Guide

To achieve backbone speeds, a core switch must operate at Layer 3 of the OSI model, bridging the gap between

Layer-3 Switches

Routed interfaces / subinterfaces Some layer 3 switches let you configure "routed ports" – making it work exactly like a router instead

Layer 3 Switch Routing Explained – SVIs, Inter-VLAN, OSPF, EIGRP ...

A Layer 3 switch is a high-performance network device that combines the port density and wire-speed forwarding of a Layer 2 switch

Understanding Layer 3 Switches: Key Differences and Uses in

Explore the key differences between layer 2 and layer 3 switches, and discover their ideal use cases to optimize your

Layer 2, Layer 3, and Layer 4 Switches

Layer 2, Layer 3, and Layer 4 Switches What Is a Layer? A network switch connects devices and switches data between ports.

Layer 3 Switches in Cisco

It basically functions as a high-speed router that can perform other functions aside from packet switching across

Understanding Layer 3 Switches: Routing and Ethernet Insights

Discover the role of layer 3 switches in routing and Ethernet networks. Learn how they differ from layer 2 switches

Layer 2 vs Layer 3 switches — Understanding the ...

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

Core Switch vs. Distribution Switch vs. Access Switch

Layer 3 Functional Compatibility: Although the distribution switches are layer 2 switches, the compatibility of these switches with

What is Layer 3 Switch and How Does it Works?

You can group switching interfaces in various ways to allocate bandwidth and contain broadcasts, which makes Layer 3 switches a

How to Understand Layer 3 Switch? What Are Its Main Functions and ...

It can not only efficiently process layer 2 packets like a layer 2 switch but also process layer 3 packets like a router. This

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

They combine the features of Layer 2 switches and Layer 3 routers in the OSI model, making them a versatile

Cisco CCNA - Layer 3 Switches

Layer 3 Switches also known as multilayer switches can forward frames based on layer 2 address and packet based on layer 3

Layer 2 vs Layer 3 Switch: What's the Difference? | Auvik

A network switch is a fundamental piece of any network, so it's critical that you as an IT professional understand the

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

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

Typically, core switches are Layer 3 switches equipped with robust network management capabilities. They are

Comparing Layer 3 and Layer 2 Switches

This article discusses the difference between layer 2 and layer 3 switches and the appropriate use cases for each.

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Learn how routers and Layer 3 switches connect networks, route IP packets, and enable fast inter-VLAN communication in modern

An Introduction to Layer 3 Switches

Also, the name "layer 3 switch" confuses because switches normally operate from layer 2. Layer 3 switches were originally designed

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