

Core Switch Layer 3 Gateway



AI Overview

A core switch operating as a Layer 3 gateway serves as the high-speed backbone of a network, performing inter-VLAN routing, IP address assignment, and centralized traffic forwarding for both wired and wireless users.

Role in Network Architecture

A core switch sits at the top of the three-tier network hierarchy, connecting distribution layer switches and providing ultra-low latency, high-throughput backbone connectivity across the enterprise or campus network. Unlike access switches, which connect end devices, or distribution switches, which aggregate traffic and enforce policies, the core switch handles massive traffic volumes and ensures fast inter-segment data transfer. It bridges Layer 2 switching and Layer 3 routing, enabling efficient communication between VLANs and subnets.

Layer 3 Gateway Functions

When configured as a Layer 3 gateway, a core switch performs several critical functions:

- Inter-VLAN Routing:** It routes traffic between multiple VLANs, reducing the load on firewalls and improving local traffic efficiency.
- IP Address Management:** Core switches can act as DHCP servers for wired and wireless clients, while access points may receive IP addresses from the core or associated ACs.
- Redundancy and High Availability:** Core switches implement protocols like VRRP or HSRP to provide failover capabilities, ensuring uninterrupted network operation.
- Traffic Forwarding:** Using ASIC-based hardware, Layer 3 core switches forward packets at high speed, supporting large-scale enterprise traffic without bottlenecks.

Configuration Considerations

To deploy a core switch as a Layer 3 gateway effectively:

- Interface Setup:** Create Layer 3 interfaces for each subnet or VLAN and assign IP addresses. Remove these interfaces from the firewall if it previously handled routing.
- Routing:** Configure static or dynamic routes to ensure WAN traffic reaches the firewall while local inter-VLAN traffic is handled by the core switch.
- VLAN Management:** Avoid using VLAN 1 for management or service traffic; separate man...

Article Content

What is Core Switch and How to Choose

Discover what a core switch is and learn how to choose the right one for your network. Explore key features in selecting a core layer switch. Make informed decisions for layer 3 of the core

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

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 characterized by numerous ports and high bandwidth, offering greater

LAN Topologies

Layer 3 services for wired network hosts are moved from the core to VSX pairs of aggregation switches. A pair of core switches joins the aggregation switches together using high

Layer 3 switch as a Gateway

Good morning I have a single SG350 switch connected to a Modem-route. I want to disconnect the router from the switch and that all PC's communicate with each other using the

Basic L3 switch question about default gateway

Hi all, I'm setting up a new L3 switch and one concept has been bugging me and it's probably a stupid question. This is about the global default gateway setting. How is this different

How to configure a Cisco Layer 3 Switch-InterVLAN Routing Without

The above feature means that you can implement Layer 3 functionality in your network without using a regular router. If you don't have a Layer3 switch available, you can also configure InterVLAN routing

Best Practice for default gateway for vlans and layer 3 switch

Is it better to have the default gateway locally at each branch (the 2920 at each office) with a route to the core, or to have an interface on the core layer 3 switch acting as the default

Layer 3 Switch Example

This article outlines a basic example of how layer 3 routing functionality on MS series switches could be implemented. Before proceeding, please refer to the Layer 3 Switch Overview for general information

Adding a Core Switch with Layer 3

On the core switch you can use a single static route sending everything to the firewall. The static route will be superseded by the core switch's local routes to the vlans.

MS Layer 3 Switching and Routing

Layer 3 routing capabilities are available on most Cisco Meraki switches. This allows the switches to route traffic between VLANs in a campus

Two Fortigate firewalls and one Cisco layer 3 core switch connectivity

My client bought one Cisco layer 3 switch and two Fortigate Firewalls. His requirement is like, two firewalls will be in HA mode and they will be the uplink of a single core switch. So my plan is

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

Layer 3 Switch, with its high performance and ability to support multiple routing protocols, becomes the core device of data center networks. Campus networks: School and university campus

Den Core Switch verstehen: Wichtige Unterschiede und ...

Entdecken Sie die Rolle des Core-Switches als Rückgrat Ihres Netzwerks. Entdecken Sie wichtige Unterschiede, Einsatzmöglichkeiten und Einblicke in die Layer-3-Core-Switch-Technologie.

Which Layer Is the Core Switch Really In? 2026 L2 vs

Usually, layer 3 switches offer such features. The core switch can receive the data packets, analyze them, define their routes, and transfer them.

What is Layer 3 Switch and How Does it Works?

An introduction to Layer 3 switch and how it works within the network to further understand its benefits and capabilities.

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 in subnets. The access devices in

What Is a Core Switch? Network Backbone Architecture Guide

A core switch is a high-capacity, high-performance Layer 3 switch positioned at the physical backbone of an enterprise network. Engineered to aggregate massive volumes of data from

Cisco Three Layer / Three-tier Hierarchical Network Model

Access layer switches ensures that packets are delivered to the end devices. Benefits of Cisco Three-Layer hierarchical model The main benefits of Cisco Three-Layer hierarchical model is that it helps to

What Is a Core Switch?

Unlike access or distribution switches, a core switch is optimized for Layer 3 performance, modular scalability, and redundancy. In smaller networks, it may be combined with the distribution layer in a

Must Gateways Be Configured at the Core? A Complete

If you've ever wondered: Can aggregation switches handle VLANIF interfaces? Will using the core as a gateway overburden it? Is it secure to place

Understanding the Core Switch: Key Differences and Uses

Explore the core switch's role as the backbone of your network. Discover key differences, uses, and insights into layer 3 core switch technology.

Contact Us

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

Website: <https://adicor.eu>

Email: info@adicor.eu

Phone: +33 6 48 37 92 15

Address: 12 Rue de la Paix, 75002 Paris, France

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

