Core Switch and Gateway



Overview

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

Key Takeaways

A core switch can function as the gateway for VLANs or subnets, handling routing and IP address assignment for connected devices. Role of a Core Switch as a GatewayA core switch, especially a Layer 3 switch, can serve as the default gateway for multiple VLANs or subnets in a network. It provides routing and forwarding for traffic between subnets and to external networks, effectively acting as the exit point for devices in each VLAN.

In campus or enterprise networks, the core switch often connects to aggregation and access switches, centralizing traffic management and improving reliability.

Gateway IP Configuration

For each VLAN or subnet, the core switch typically hosts a Switched Virtual Interface (SVI) with an IP address that serves as the gateway. For example, if a Layer 2 access switch has devices in the 172. 20.

10. 0/24 subnet, the core switch would have an SVI like 172. 20.

10. 1, which becomes the default gateway for all devices in that subnet. Access switches themselves do not usually act as gateways; they forward traffic to the core switch for inter-VLAN routing.

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DHCP and IP Assignment

Core switches can also function as DHCP servers, assigning IP addresses to devices in their respective VLANs. In some architectures, access controllers (ACs) or aggregation switches may handle DHCP for APs or specific segments, but the core switch remains the central routing point. This ensures consistent IP management and simplifies network troubleshooting.

Best Practices

Layer 3 Core Switch: Use a Layer 3 switch at the core to handle routing efficiently.

Separate Management and Service VLA

Ns: Avoid using VLAN 1 for management or service traffic to prevent conflicts.

SV

I per VLAN: Assign a unique SVI on the core switch for each VLAN/subnet to act as the gateway. Edge Routing: For WAN or internet access, the core switch may point to an external router as its next-hop gateway. Scalability: In large networks, placing gateways at the core simplifies expansion and centralizes traffic control.

In summary, the core switch can and often should act as the gateway for connected VLANs and subnets, providing Layer 3 routing, DHCP services, and centralized network management while subordinate switches handle local device connectivity.

Proper SV

I configuration and VLAN separation are key to maintaining network stability and performance.

Article Content

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

Core Switch vs. Distribution Switch vs. Access Switch

There are different types of enterprise switches that perform various roles in these layer-based or hierarchical ethernet networks. This white paper introduces the following three types of network

Difference between Switch and Gateway

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The roles of switches and gateways in networking are different. In a single network, the switch will be responsible for communication management, ensuring that data transmitted between

What Is a Core Switch? Network Backbone Architecture Guide

These protocols create a virtual IP gateway, ensuring that if the primary core switch suffers a hardware failure, the secondary switch takes over traffic routing instantly without

Solved: core switch and sub switch gateway

Solved: I have a Layer 3 core switch (backbone) 10.18.16.0/24, and the core switch needs to connect to multiple Layer 2 sub switches. The Layer 2 sub switches will connect to multiple

Core Switch vs. Edge Switch: What''s the Difference?

Core switches and edge switches are two essential components that play distinct roles in the functioning of a network. This article explores what they are and how they differ.

Native AC Solution: Core Switches Function as the Gateway for Wired

In this example, a CSS of core switches functions as the gateway for wired and wireless users on the entire network and is responsible for routing and forwarding of user services on the entire network.

Core, Aggregation, or Access Switches? Choose the

Discover the crucial differences between core, aggregation, and access switches. Find out which type can best transform your network''s

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

What is a Core 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. The

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

By taking these considerations into account, you can make an informed decision when selecting a core switch that aligns with your network''s demands and future growth.

ITPro Today, Network Computing, IoT World Today combine

ITPro Today, Network Computing and IoT World Today have combined with TechTarget . The page you are looking for may no longer exist.

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What is the best practices for Users Getaway! Core Switch or Firewall

It also depends on whether you have any single points of failure. If you have a single firewall, but a fully redundant core, it makes more sense for the core to be the client gateway so that

Core Switch vs Access Switch | Definitions and Key Differences

Core Switch vs Access Switch The core switch is used in the center of your network, while an access switch is placed on its edge. The main difference between these two kinds of hardware is

Core Switch Default Gateway

Probably a stupid question but when moving from a flat network to a tagged VLAN network, I know the core switch needs to have a default gateway of our firewall but what VLAN

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Solved: Why a coreswitch?

I got a simple question - and a lack of a good answer. My manager asked me if we really need a coreswitch (like a cisco 4506). Does anyone could

Solved: Connectivity from Core to Firewall

You don''t route the traffic to the firewall because the firewall IP is the default gateway of the clients in your test vlan ie. client (vlan 20) -> core switch -> firewall -> internet in the above vlan

Cisco Live US 2026: Neue Catalyst Switches, Router und WLAN-APs

Cisco hat auf der Hausmesse Live US 2026 neue Core Switches, Access Points und Router vorgestellt, die 400G-Campus-Netze, Wi-Fi 7 und mehr Sicherheit bringen.

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