Implementing Router Functions in Enterprise Core Switches



Overview

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.

Key Takeaways

Enterprise core switches can perform Layer 3 routing, inter-VLAN communication, DHCP services, and gateway redundancy to manage both wired and wireless traffic efficiently. Layer 3 Routing on Core SwitchesCore switches can act as routers by enabling Layer 3 interfaces. This is typically done using Switched Virtual Interfaces (SVIs) for each VLAN or by configuring routed ports for point-to-point links.

SV

Is allow devices in different VLANs to communicate without requiring an external router, while routed ports provide a dedicated Layer 3 interface for inter-switch or router connections, offering faster convergence and simplified traffic control.

VLA

N and Inter-VLAN CommunicationTo implement routing between VLANs, configure SVIs with IP addresses that serve as gateways for each VLAN.

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Only VLA

Ns with an SVI configured can route traffic. Access Control Lists (ACLs) can be applied to SVIs or routed ports to control traffic between VLANs and enhance security.

DHCP and IP Address Management

Core switches can also function as DHCP servers to assign IP addresses to wired and wireless clients. This centralizes IP management and simplifies network administration, especially in large campus networks.

Gateway Redundancy

For high availability, implement HSRP (Hot Standby Router Protocol) or similar redundancy protocols on core switches. This ensures that if one core switch fails, another can take over as the default gateway, minimizing downtime and maintaining continuous network connectivity.

Wired and Wireless Convergence

Modern enterprise core switches often integrate native AC functions to manage access points and wireless traffic. This allows the core switch to handle both wired and wireless user traffic, providing seamless convergence and centralized control.

Best Practices

Use a three-tier architecture (core, distribution, access) for scalability and modularity. Configure stacking and link aggregation (Eth-Trunk) to increase bandwidth and provide device-level redundancy.

Standardize VLA

N numbering and IP schemes across sites to simplify management and reduce configuration errors. Monitor routed client limits on SVIs to prevent performance degradation. By following these practices, enterprise core switches can efficiently perform routing, manage VLANs, provide DHCP services, and ensure high availability for both wired and wireless users.

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Article Content

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.

Implementing and Operating Cisco Enterprise Network Core

You''ll learn how to implement recommended security principles, automation, and programmability within an enterprise network, as well as learn overlay network design using Cisco SD-Access and SD-WAN

CORE ROUTING AND SWITCHING

We''ll take a look at the evolution of routing and switching implementations at Cisco. And finally, we''ll explore the benefits Cisco has gained from its routing and switching implementations.

Implementing and Operating Cisco Enterprise Network Core

Describe the components and features of the Cisco SD-Access solution, including the nodes, fabric control plane, and data plane, while illustrating the purpose and function of the Virtual Extensible

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What Is a Core Switch?

Conclusion: Is It Time for a Core Switch? If your organization requires high-speed, always-on network connectivity, a core switch is not a luxury—it''s a necessity. Whether you''re building a data center,

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Design Zone

Audience This document is intended for customers and enterprise systems engineers who are building or intend to build an enterprise campus

Microsoft Word

5 days The Implementing and Operating Cisco Enterprise Network Core Technologies course (ENCOR) gives you the knowledge and skills needed to configure, troubleshoot, and manage enterprise wired

What Is a Core Switch in Networking?

The Role and Importance of Core Switches A core switch operates at the italic core layer italic of a hierarchical network design, typically handling a massive volume of data traffic. Its primary

What Is a Firewall?

Implementing best practices for firewalls is key to securing your network. It is critical to appropriately configure and manage firewalls, implement regular updates and patches, and monitor and audit

What Is a Router in Networking? Core Function Explained

What exactly does a router do? The primary function of a router is forwarding (or routing) data packets between networks. In networking, data packets are the fundamental information units

Selecting Network Devices (1.2) > LAN Design | Cisco Press

Selecting Network Devices (1.2) Switches and routers are core network infrastructure devices. Therefore, selecting them appears to be a fairly simple task. However, many different

Enterprise Switches: Types & Their Selection Guide Explained

Enterprise switches configured at this layer are responsible for performing the routing and switching of data. The distribution layer acts as a boundary between the access layer and the

Features and Applications of Core Switches

With high performance, large capacity, and high reliability, Core Switches offer a wide range of features and play a crucial role in enterprise networks, data centers, and large-scale

Chapter 22: Enterprise Network Architecture

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Distribution Layer The primary function of the distribution layer is to aggregate access layer switches in a given building or campus. The distribution layer provides a boundary between the Layer 2 domain of

Explore the Power of Enhanced Routing in Layer 3 Switches

Layer 3 switching technology stands as a cornerstone in modern enterprise network infrastructures, revolutionizing the way data is managed, routed, and transmitted. Within the realm of

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