Enabling inter-VLAN communication on the core switch



Overview

Configuring inter-VLAN routing typically involves setting up VLAN interfaces, assigning IP addresses to each VLAN, and enabling routing on the network device.

Key Takeaways

Inter-VLAN communication on a core switch is enabled by configuring Layer 3 routing using Switch Virtual Interfaces (SVIs) or routed ports, allowing traffic to flow between VLANs while maintaining segmentation. OverviewVLANs segment a network into separate broadcast domains, improving performance and security, but by default, devices in different VLANs cannot communicate. Inter-VLAN routing allows these VLANs to exchange traffic by routing packets at Layer 3, either through a router or directly on a Layer 3 switch (multilayer switch) that supports routing functionality.

Methods for Inter-VLAN RoutingRouter-on-a-Stick: A single physical router interface is configured with multiple subinterfaces, each assigned to a VLAN. This method is suitable for networks without Layer 3 switches but can create a single point of failure and potential performance bottlenecks. Layer 3 Switch (Multilayer Switch): Modern core switches can perform routing internally.

Each VLA

N is assigned a Switch Virtual Interface (SVI) with an IP address that acts as the default gateway for that VLAN. Traffic between VLANs is routed directly on the switch, providing high performance and scalability. Configuration Steps on a Layer 3 SwitchCreate VLANs: Define VLANs on the switch and assign ports to the appropriate VLANs.

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Code

Copyvlan 10name Engineeringvlan 20name Finance Configure SVIs: Assign an IP address to each VLAN interface to serve as the default gateway.

Code

Copyinterface vlan 10ip address 10. 10. 10.

1 255. 255. 255.

0no shutdowninterface vlan 20ip address 10. 20. 20.

1 255. 255. 255.

0no shutdown Enable IP Routing: Activate routing on the switch to allow inter-VLAN traffic.

Code

Copyip routing Configure Trunk Ports: Ensure uplinks between switches carry multiple VLANs using 802. 1Q trunking.

Code

Copyinterface gig0/1switchport mode trunkswitchport trunk allowed vlan 10,20 Verify Connectivity: Test inter-VLAN communication by pinging devices across VLANs and ensure hosts use the SVI IP as their default gateway.

Best Practices

Use a dedicated management VLAN separate from VLAN 1 for switch management. Ensure native VLAN consistency across trunk links. Map one VLAN per IP subnet for clarity and easier troubleshooting.

Consider HSRP or VRR

P for gateway redundancy in critical environments. Save configurations after changes to prevent loss on reboot. By following these steps, a core Layer 3 switch can efficiently route traffic between VLANs, maintaining network segmentation while enabling secure and scalable inter-VLAN communication.

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Frequently Asked Questions

What is inter-VLAN routing?

You can forward traffic from one virtual LAN to another and this technique is called inter-VLAN routing.

What is the benefit of inter-VLAN routing?

VLANs can be used to enforce security, creating different zones of security levels for different users or applications. However, in many cases, it...

What are the three methods for inter-VLAN routing?

There are three types of inter-VLAN routing and these are: Legacy Inter-VLAN routing Uses a router with several Ethernet sockets, linking each to a...

Article Content

Inter-VLAN Routing Configuration

Configuring inter-VLAN routing typically involves setting up VLAN interfaces, assigning IP addresses to each VLAN, and enabling routing on the network device.

Inter-VLAN Communication

This document describes the configuration of Ethernet services, including configuring link aggregation, VLANs, Voice VLAN, VLAN mapping, QinQ, GVRP, MAC table, STP/RSTP/MSTP, SEP, and so on.

inter-vlan communication by core switch

enable "IP forwarding" in the switch. on the DHCP server, define scope for VLAN 10 and 20 and set the "default router" to the IP address you configured on the core switch.

Inter-VLAN Routing | LogicMonitor

Learn why inter-VLAN routing is required, understand the different models used for implementing it, and follow examples to configure it.

InterVLAN Routing

In this lesson, I''ll explain the different options and I''ll show you how to configure interVLAN routing. Router on a Stick uses a single router interface with sub-interfaces and 802.1Q trunking. Ideal for

How to Configure VLANs and SVIs on Cisco Switches | NSC

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Understanding how to configure VLANs (Virtual Local Area Networks) and SVIs (Switched Virtual Interfaces) on Cisco switches is crucial for network engineers aiming to optimize security and

Inter-VLAN Routing Configuration 2026 Guide

Learn how to configure inter-VLAN routing for efficient and secure communication between VLANs in a step-by-step guide.

Inter-VLAN Communication on a Multilayer Switch Through a Switch ...

Rather than using an external router to provide inter-VLAN communication, a multilayer switch can perform the same task through the use of a switched virtual interface (SVI).

Inter VLAN Routing by Layer 3 Switch

In the Router on the stick method, both switch and router are needed but while using layer 3 switches, a single switch will perform inter-VLAN routing as well as the layer 2 functions (Vlan),

Inter-VLAN Routing using Layer 3 Switches (4.3)

Enterprise campus LANs use Layer 3 switches to provide inter-VLAN routing. Layer 3 switches use hardware-based switching to achieve higher-packet processing rates than routers.

InterVLAN Routing

InterVLAN routing means routing packets between VLAN. When we want to send packets from one VLAN to another, we need routing. Without routing, VLANs are

How to Configure VLAN and Inter-VLAN Routing on Cisco Switches

Learn how to configure VLAN and inter-VLAN routing on Cisco switches using CLI. Step-by-step VLAN setup, trunking, router-on-a-stick, and SVI configuration for small to medium-sized business networks.

Cisco Layer 3 Switch InterVLAN Routing Configuration

A simple approach in understanding how to configure Cisco Layer 3 switch interVLAN routing to enable routing capabilities among them.

Inter-VLAN Communication on a Multilayer Switch Through a Switch ...

Inter-VLAN Communication on a Multilayer Switch Through a Switch Virtual Interface NOTE Rather than using an external router to provide inter-VLAN communication, a multilayer switch can perform the

VLAN AND INTER VLAN ROUTING. This report covers VLANs and

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VLANs are logical networks that partition a physical network into multiple virtual networks, and inter VLAN routing is necessary for communication between devices on different VLANs.

Inter-VLAN Routing Configuration Guide 2026

What is Inter-VLAN Routing? In simple words, inter-VLAN routing is the process of forwarding network packets from one VLAN to another. As a result, it enables communication

Inter VLAN Routing Explained for Network Pros.

Inter-VLAN routing allows devices in different VLANs to communicate with each other using a router or Layer 3 switch.

Inter-VLAN Communication

Inter-VLAN Communication Through the Same Switch As shown in Figure 5-14, Host_1 (source host) and Host_2 (destination host) connect to the same Layer 3 switch, are located on different network

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