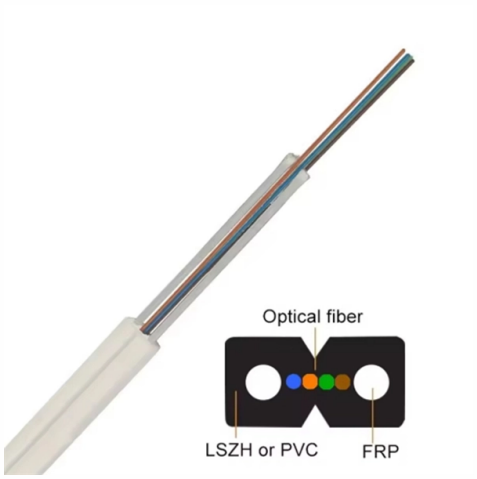
Two VLANs on the core switch are interconnected



Overview

Configure Inter-VLAN Routing with Catalyst Switches This document describes how to configure Inter VLAN routing with Cisco Catalyst series switches. Solved.

Key Takeaways

Two VLANs on a core switch can communicate through inter-VLAN routing using either Switched Virtual Interfaces (SVIs) or a router-on-a-stick configuration.Understanding Inter-VLAN Routing

By default, devices in separate VLANs cannot communicate because each VLAN is a distinct broadcast domain. Inter-VLAN routing allows traffic to flow between VLANs by using a Layer 3 device, such as a router or a Layer 3 switch, which routes packets between the VLAN subnets . Each VLAN must have its own IP subnet, and the Layer 3 device acts as the default gateway for devices in that VLAN .

Configuration Options
• Switched Virtual Interfaces (SVIs) on a Layer 3 Switch
• Create a VLAN interface for each VLAN: interface vlan

• Assign an IP address and subnet mask: ip address

• Enable the interface: no shutdown

• Enable IP routing on the switch: ip routing

• Connect access ports to the appropriate VLANs and configure trunk ports for inter-switch links using 802.1Q tagging .

• This method allows routing at wire speed and is scalable for medium to large networks .

• Router-on-a-Stick (ROAS)
• Use a single physical router interface divided into subinterfaces, one per VLAN.

• Assign each subinterface an IP address corresponding to the VLAN subnet.

• Configure the switch port connected to the router as a trunk to carry all VLAN traffic.

• This method is suitable for small to medium networks but can become limited as VLAN count increases .

Key Considerations
• Trunk Ports: Ensure that the link between switches or between switch and router is configured as a trunk (switchport mode trunk) and allows all necessary VLANs (switchport trunk allowed vlan), .

• Native VLAN: Avoid using VLAN 1 as the native VLAN on trunks; choose an unused VLAN to prevent traffic leakage and security issues .

• Routing Table: Once SVIs or router subinterfaces are configured, verify that the routing table contains connected routes for each VLAN subnet (show ip route) to ensure proper inter-VLAN communication .

• Redundancy: For high availability, consider HSRP or VRRP on Layer 3 switches to prevent a single point of failure .
Troubleshooting Tips
• Verify VLAN membership on each switch port (show vlan) and ensure the correct ports are assigned.

• Check trunk status and allowed VLANs (show interface trunk) to confirm VLAN traffic is passing.

• Ensure IP addresses and subnet masks are correctly configured on SVIs or router subinterfaces.

• Test connectivity using ping between devices in different VLANs to confirm routing is operational . By following these steps, two VLANs on a core switch can be successfully interconnected, allowing devices in separate VLANs to communicate securely and efficiently.

Article Content

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