

Article Overview

A Layer 3 switch can provide dual-network access by configuring SVIs for each VLAN, setting appropriate default gateways, and enabling inter-VLAN routing locally to avoid backhauling traffic to a core router.

Layer 3 Switch Basics

A Layer 3 switch combines traditional switching with routing capabilities, allowing it to forward traffic between different IP subnets or VLANs at line rate. Unlike a Layer 2 switch, which only forwards frames within a single VLAN, a Layer 3 switch can act as the default gateway for multiple VLANs, enabling devices on separate networks to communicate directly through the switch without requiring a separate router .

Configuring Dual-Network Access

- o Create VLANs and SVIs: Assign each network to a VLAN and configure a Switched Virtual Interface (SVI) for each VLAN on the Layer 3 switch. Each SVI will have an IP address that serves as the default gateway for devices in that VLAN .
- o Set Default Gateways: Devices in each VLAN should use the corresponding SVI IP as their default gateway. For example, VLAN 10 might use 192.168.10.1, and VLAN 20 might use 192.168.20.1. This ensures that intra-VLAN traffic is routed locally by the switch .
- o Enable Inter-VLAN Routing: Ensure that routing is enabled on the Layer 3 switch so that traffic between VLANs is handled internally. This avoids sending traffic to a core router for local communication, improving efficiency and reducing latency .
- o Redundancy and High Availability: For networks requiring resilience, implement first-hop redundancy protocols such as HSRP, VRRP, or GLBP between Layer 3 switches. This allows one switch to take over if the other fails, maintaining network connectivity for both VLANs .
- o Trunk Ports to Access Switches: Configure uplink ports to access switches as trunk ports to carry multiple VLANs. Ensure VLAN tagging is consistent across all switches to prevent mismatches .
- o Static or Dynamic Routing: If multiple Layer 3 switches are deployed, configure static routes or a routing protocol to advertise VLAN subnets between switches. This ensures that each switch knows how to reach networks connected to other switches .

Example Scenario

- o VLAN 10 (Data) -> SVI IP: 10.10.10.1
- o VLAN 20 (Voice) -> SVI IP: 10.10.20.1
- o Access switch ports configured as trunk to carry both VLANs
- o Layer 3 switch routes traffic between VLANs locally
- o HSRP configured with a partner switch for gateway redundancy In this setup, devices on VLAN 10 and VLAN 20 can communicate through the Layer 3 switch without sending traffic to the core router. If the core

Dual-network access via Layer 3 switch

switch fails, local inter-VLAN communication continues as long as the Layer 3 switch remains operational .

Key Considerations

- o Keep Layer 2 domains small to reduce spanning-tree issues if using routed uplinks .
- o Ensure firewall or upstream devices have static routes to downstream VLANs if the Layer 3 switch is acting as the gateway .
- o Avoid IP conflicts by assigning unique SVI addresses and maintaining consistent VLAN configurations across switches . By following these steps, a Layer 3 switch can efficiently provide dual-network access, local inter-VLAN routing, and redundancy, improving network performance and resilience.

The best network switch will be a necessity for anyone looking to add more wired connections and gain greater

Layer 2 vs. layer 3 switch: Understanding the differences that impact IT Switch ports are essential components of network

Now we want to deploy two ISP connections in a Layer3 switch. and have to create policies like that one ISP to certain

I have a Access point connected to a Layer 3 switch which is on a static ip of 192.168.0.X and i have a pc who is also

UPDATED: 2020 - Cisco Catalyst switches equipped with the Enhanced Multilayer Image (EMI) can work as Layer 3 devices with

In this section, you configure inter-VLAN routing using Layer 3 switches. Modern enterprise networks rarely use router-on-a-stick

This article will cover a basic example of how layer 3 routing functionality on MS series switches could be implemented. Before

Hi there, I am a electronics engineer, not a network engineer. but I have done some basic cisco course, so I can

When planning an enterprise access network, one of the most common dilemmas is whether to deploy Layer 2 (L2)

Network Diagram The diagram above shows one Layer 3 switch used for Aggregation, three Layer 2 switches used for access

Dual-network access via Layer 3 switch

Devices on those VLANs communicate with each other via the router. Apart from that, a more convenient way is

InterVLAN routing using Layer 3 switch In this lesson, we will learn to configure a multilayer switch (also called Layer 3 switch) to

VLAN interface or a switch virtual interface (SVI) is a virtual routed interface that connects a VLAN on the device to the Layer 3 router

What is a Layer 3 switch? Learn the definition, how it works, use cases, pros and cons, and

Can you setup two layer 3 switches and still pass vlan information between the two. Example, lets say the metro e

If all your devices (those with static IPs and those with dynamic IPs) are within the same subnet (192.168.0.0/24), the

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