

Configuration of Layer 3 Switches in IUV Core Data Center



Overview

All Ethernet ports are switched interfaces by default. You can change this default behavior with the CLI setup script or through the system default switchport command.

Key Takeaways

Layer 3 switches in the IUV Core Data Center should be configured to provide high-speed interconnects, VLAN routing, redundancy, and scalable aggregation for multiple server and access modules.

Core Layer Design

The core layer in a data center serves as the high-speed backbone connecting multiple aggregation modules and linking to the campus core, WAN, and Internet edge. It typically uses 10 Gigabit Ethernet (10GE) interfaces, often bundled in 4-8 link EtherChannels for high throughput and redundancy. Core switches are configured at Layer 3, enabling inter-VLAN routing and CEF-based load balancing to optimize traffic distribution.

The core layer should support scalability for multiple aggregation modules and provide burst traffic adaptability. Layer 3 Switch Configuration Steps
Enable Layer 3 Mode on Interfaces
Each interface connecting to aggregation modules or other core switches should be switched to Layer 3 mode. On Cisco Catalyst switches, this is done using: `CodeCopyinterface GigabitEthernet0/1no switchportip address 10.`

`0. 0. 1 255.`

255. 255. 0 no shutdown For multiple interfaces, EtherChannel (LACP) can be configured and switched to Layer 3 mode to increase bandwidth and redundancy.

Configure VLA

Ns and SVIs Create VLANs for each functional zone or server farm and assign Switched Virtual Interfaces (SVIs) for routing: CodeCopyvlan 10name Server_Farm_Ainterface Vlan10ip address 10. 10. 10.

1 255. 255. 255.

0 no shutdown SVIs act as default gateways for devices in each VLAN, enabling inter-VLAN routing. Routing Protocols Deploy dynamic routing protocols such as OSPF or EIGRP to propagate routes between core and aggregation layers: CodeCopyrouter ospf 1network 10. 0.

0. 0 0. 255.

255. 255 area 0 This ensures fast convergence and redundancy in case of link failures. Redundancy and High Availability Core switches should be deployed in pairs with HSRP or VRRP for gateway redundancy.

Ether

Channels between core and aggregation switches provide link-level redundancy.

Advanced Features

Enable CE

F hashing for Layer 3 load balancing across multiple links.

Implement Qo

S policies to prioritize critical data center traffic. Configure access control lists (ACLs) for inter-VLAN security and traffic segmentation.

Best Practices

Use dedicated Layer 3 interfaces for core-to-aggregation links rather than relying on Layer 2 trunks. Test hash algorithms for load balancing before production deployment to ensure even traffic distribution. Maintain high port density and oversubscription planning to accommodate server farm growth.

Integrate value-added services (firewalls, load balancers, SSL offload) at the aggregation layer while keeping the core layer optimized for high-speed packet switching. By following these steps, the IUV Core Data Center can achieve a scalable, high-performance, and resilient Layer 3 switching environment that supports inter-VLAN routing, redundancy, and efficient traffic management across multiple aggregation modules.

Article Content

Configuring Layer 3 Interfaces

All Ethernet ports are switched interfaces by default. You can change this default behavior with the CLI setup script or through the system default switchport command. You can assign an IP address to the

Inter-VLAN Routing using Layer 3 Switches (4.3)

In this post, we'll explore how to configure a Layer 3 switch to handle Inter-VLAN routing, turning your flat network into a high-performance routed architecture.

Data Center Architecture Overview

The access layer network infrastructure consists of modular switches, fixed configuration 1 or 2RU switches, and integral blade server switches. Switches provide both Layer 2 and Layer 3 topologies,

InterVLAN routing using Layer 3 switch | NetworkAcademy.IO

In this lesson, we will learn to configure a multilayer switch (also called Layer 3 switch) to perform inter-VLAN routing, which was previously done using an actual router.

Data Center Connectivity Design

A Two-Tier data center network implements aggregation and Layer 3 services in a data center core layer, and endpoint connectivity in a Layer 2 access layer. All access switches are Layer

Layer 3 Switches Explained: Architecture, Routing Logic, Use Cases,

A Layer 3 switch is a network device that combines Layer 2 switching and Layer 3 routing. It can forward traffic based on MAC addresses inside the same network and route traffic based on IP

Modern Data Center Network Architecture: Leaf-Spine

A 3-tier architecture uses three layers of switches: access, aggregation (distribution), and core, where access switches connect servers, aggregation switches

MS Layer 3 Switching and Routing

To start using layer 3 routing, navigate to the Switching > Configure > Routing & DHCP page. Alternatively, you could go to Switching > Monitor > Switches and click on the switch to be

Data Center Design: Basic 3 Layers, Core, Aggregation, and Access

The layering is mainly based on the principle of internal and external partial flow, and the data center network is divided into a standard three-layer structure of core layer, aggregation layer

Connecting Multiple switches to core : r/networking

I think you may be underwhelmed by how much data you're not moving. I've worked in large manufacturing facilities where the Core is connected to Distribution switches and they connect the

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Secure VLAN configuration: a practical guide and best practices

Network architecture and design with VLANs In medium and large networks it is common to use a three-layer topology Core, distribution, and access layers. Each layer has a role,

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