Setting up the core routing switch environment



Overview

Understand how Cisco''s intelligent routing and switching infrastructure is evolving to meet future customer needs, drive revenue, and increase operational efficiency.

Key Takeaways

A core routing switch environment is established by configuring Layer 3 switches for inter-VLAN routing, high availability, and scalable connectivity to distribution and WAN layers.

Core Switch Selection and Hardware Considerations

When setting up a core switch, choose a Layer 3 switch capable of handling high throughput and multiple routing functions. Key factors include: Number of slots and module types: Ensure sufficient slots for interface modules (RJ-45, SFP, 10Gbps) and functional modules (IP voice, security, monitoring) to support scalability. Backplane bandwidth: A higher backplane bandwidth ensures faster inter-port communication and prevents bottlenecks in large LANs.

Redundancy: Dual-homed connections to distribution switches and redundant power supplies prevent single points of failure.

Initial Configuration Steps

Physical setup: Verify hardware integrity, connect power, and check indicator lights. Console access: Use a rollover cable and terminal software (e.g., PuTTY) to access the switch console at 9600 baud. Erase previous configurations: Delete any existing VLAN database (e.g., flash:vlan.dat) to start fresh.

© 2026 AK OPTICAL SYSTEMS - All rights reserved

Set hostname and domain name: Follow company naming conventions for clarity and management. Assign management IP: Configure an IP address on the management VLAN for remote administration.

VLA

N and Inter-VLAN RoutingCreate VLANs for each subnet or department on the core switch. Configure Switch Virtual Interfaces (SVIs) for each VLAN to act as default gateways for connected hosts. Enable routing on the Layer 3 switch to allow inter-VLAN communication.

Static or dynamic routing: Configure static routes to upstream routers or use dynamic routing protocols (e.g., OSPF, EIGRP) for WAN connectivity. High Availability and RedundancyHSRP/VRRP: Implement HSRP (Hot Standby Router Protocol) in active-active or active-standby mode to provide gateway redundancy. Dual-homing: Connect each distribution switch to multiple core switches to avoid single points of failure.

Link aggregation: Use EtherChannel or port-channeling to increase bandwidth and provide failover between switches. Advanced ConsiderationsVTP (VLAN Trunking Protocol): Ensure consistent VLAN propagation across switches by setting the correct VTP domain and revision numbers. Quality of Service (QoS): Prioritize critical traffic such as voice or video.

Security: Implement ACLs, port security, and monitoring modules to protect the core network. Scalability: Plan for future growth by selecting switches with sufficient slots, module types, and backplane capacity. By following these steps, a core routing switch environment can provide high-speed, reliable, and scalable connectivity between VLANs, distribution layers, and WAN routers, ensuring robust enterprise network performance.

Article Content

CORE ROUTING AND SWITCHING Executive Learning Module

Understand how Cisco''s intelligent routing and switching infrastructure is evolving to meet future customer needs, drive revenue, and increase operational efficiency.

8 Steps to configure your network switch

Follow these simple best practices to set up a new network switch. Still fuzzy? Just like riding a bicycle, nobody''s born knowing how to setup a network switch. And this process is a little more advanced

Introduction to Core Switch Configuration

© 2026 AK OPTICAL SYSTEMS - All rights reserved

The most important purpose of the layer 3 switch is to speed up the data exchange within the large LAN, and the routing function is also for this purpose. It can do one route and multiple forwarding.

Switching and Routing Core Configurations and Redundancy

Learn to build scalable, highly available switching and routing infrastructures. In this course, Switching and Routing Core Configurations and Redundancy, you will see how to design and implement

How to Configure a Cisco Switch (step by step)

If you''re looking to configure a switch for the first time, this post is for you. Learn step-by-step configuration commands for Cisco IOS Switches.

how to configure cisco core switch HSRP active active

In this video we will learn how to configure cisco core switch active active using HSRP step by step.

How to setup special routing of internet traffic in Layer 3 switch?

Hello, At my work, I want to change the way our internet traffic routes through our core switch at the main office and eventually the satellite offices, but I''m unsure on exactly how to do this.

New core switches configuration | Wired Networks

We were looking to get some external help to install and configure these switches but seeing how simple or hard it is to do this ourselves. Hope this makes sense.

Adding a Core Switch with Layer 3

On the core switch you can use a single static route sending everything to the firewall. The static route will be superseded by the core switch''s local routes to the vlans.

Routing and Switching Essentials 6.0 Instructor Materials

Configure a switch using security best practices in a small to medium-sized business network. Configure the management virtual interface on a switch. Configure the port security feature

Meraki Campus LAN; Planning, Design Guidelines and Best Practices

This document provides best practices and guidelines when deploying a Campus LAN with Meraki which covers both Wireless and Wired LAN.

How to Configure a Cisco Switch in 10 Steps

© 2026 AK OPTICAL SYSTEMS - All rights reserved

The process of configuring a Cisco switch involves several key steps, including setting up basic switch parameters, VLANs (Virtual Local Area Networks), port configurations, spanning tree

how to configure cisco core switch HSRP active active

In this video we will learn how to configure cisco core switch active active using HSRP step by step. In this LAB we practice on creating vlan, distribute vlan to other switch in our network ...

Configure IPv4 Static Routes on an SMB Switch via CLI

This article provides instructions on how to configure IPv4 static routes on the switch through the Command Line Interface (CLI).

Routing and Switching

Routing and Switching – Past, Present and Future ... Core Routing & Switching – Business Value Snapshot • Latency minimized through “shortest path” any-to-any topology, enhancing end- user

Introduction to Core Switch Configuration

A switch that functions as part of a router and operates at the third layer of the OSI network standard model, the network layer. The most important purpose of the layer 3 switch is to speed up the data

Basic Switch Configuration Guide with Examples

A Cisco switch is different from a regular plug-and-play switch. It comes with an IOS. An IOS is a Cisco proprietary operating system. It allows you to configure, customize, and use Cisco

Inter-VLAN routing on Core vs Distribution switches

We''re currently upgrading our flat L2 switch topology to a three-tier design using SG-class switches in a building servicing approximately 400 devices. The core switches will be a stacked pair

Related Video Reference

This video was associated with the source search result. Verify technical details against current product documentation and project requirements.

© 2026 AK OPTICAL SYSTEMS - All rights reserved

Contact Us

Continue your research online:

Website: https://aboutkitchens.biz
Technical inquiry: https://aboutkitchens.biz/project-desk.html
North American project location: Research Triangle Park, North Carolina, United States

This document is for preliminary research. Verify specifications against current standards, product documentation and project requirements.

© 2026 AK OPTICAL SYSTEMS - All rights reserved