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Configuration of Core and Aggregation Switches



Overview

This single core switch is now getting replaced by 2 Huawei core switches, both in active-active mode.

Key Takeaways

Core switches provide high-speed Layer 3 routing and redundancy, while aggregation switches consolidate access switch traffic and provide Layer 2/3 services.Understanding Roles
• Core Switches: Serve as the backbone of the network, handling high-speed packet switching, Layer 3 routing, and connectivity to aggregation switches. They are designed for high throughput, low latency, and fault tolerance .

• Aggregation Switches: Aggregate traffic from multiple access switches, provide Layer 2 and some Layer 3 services, support VLANs, QoS, and link aggregation, and often connect to firewalls or other network services .

• Access Switches: Connect end devices like PCs, IP phones, and APs, often with PoE support, and forward traffic to aggregation switches .
Core Switch Configuration
• Redundancy and High Availability:
• Deploy core switches in pairs using technologies like VSX, MC-LAG, or VPC to ensure continuous connectivity .

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• Configure inter-switch links (ISL) using link aggregation (LAG) for the VSX or MC-LAG setup .

• Routing and Layer 3 Services:
• Enable dynamic routing protocols such as OSPF or EIGRP for campus or data center connectivity .

• Configure VLANs for management, transit, and external network routing. Assign SVI interfaces for Layer 3 termination .

• Management VLAN and Subnet:
• Set up a management VLAN and assign a gateway IP on the core switch. Enable DHCP for aggregation and access switches if needed .

• Enable management VLAN auto-negotiation to allow downstream switches to automatically join the management network .

Aggregation Switch Configuration
• VLAN and Layer 2/3 Setup:
• Configure VLANs to aggregate access switch traffic. Enable Layer 2 multi-pathing using vPC or LACP for redundancy .

• Optionally enable Layer 3 routing for inter-VLAN traffic if the aggregation switch supports it .

• Link Aggregation:
• Use LACP to bundle multiple physical links between aggregation and core switches for load balancing and failover .

• For higher resilience, consider MC-LAG to allow two aggregation switches to act as a single logical unit .

• Integration with Core Switches:
• Connect aggregation switches to core switches using redundant uplinks.

• Ensure VLANs and routing configurations match the core switch to maintain seamless traffic flow .

Deployment Best Practices
• Layered Approach: Use a three-tier architecture (core, aggregation, access) for scalability and performance .

• Plug-and-Play Management: For large deployments, import device and Eth-Trunk information into a network controller to enable automatic provisioning .

• Redundancy and Failover: Always configure dual uplinks, LAGs, and VRF/HSRP where applicable to prevent single points of failure .

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• Monitoring and Maintenance: Enable LLDP for link discovery and ensure proper monitoring of core and aggregation switches for proactive management . By following these steps, you can configure a robust, scalable, and highly available network where core switches handle routing and aggregation switches efficiently consolidate access traffic.

Article Content

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Discover the crucial differences between core, aggregation, and access switches. Find out

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This guide explains the differences between core, aggregation, and access switches from a practical enterprise design

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Two-Tier Core

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An aggregation switch is a network switch that sits between the access layer (edge

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What is an Aggregation Switch? | Features and Practical Benefits

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Core Switch vs. Distribution Switch vs. Access Switch

Comprehensive guide to Core, Distribution, and Access Switches. Roles in the network and important parameters explained.

FortiSwitchOS Large Campus Switching Deployment Guide

The distribution-level switches interconnect to the core-level switches and aggregate multiple access switches. In the deployment

Understanding the Core Switch: Key Differences and Uses

A: Core switches add value to the aggregation layer of the network by effectively merging the output of several

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Compare core, aggregation and access switches. Learn their roles, port speeds, PoE, Layer 3 routing, redundancy,

core dist,access

Hi, If I have core, aggregation, access . Access is layer 3 (vlan interface on access switch). In that case what is the

Two-Tier Core

Two-Tier Core Configure Two-Tier core switches as a VSX pair for Layer 2 aggregation of the data center access

Understanding Switch Aggregation: A Comprehensive Guide

A: The aggregation switch receives data traffic from multiple access switches and forwards it to the core layer for

Chassis Aggregation

Chassis aggregation is a Cisco technology to make two switches operate as a single logical switch. It is similar to stacking but meant

How to configure Link Aggregation with NETGEAR switches by Derek ...

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Using the Netgear switch web administration interface to perform link aggregation between two netgear switches by

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Everything You Need to Know About Aggregation Switch

What is an Aggregation Switch and How Does it Work? An aggregation switch consolidates data traffic from multiple

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Recommended Platform and Modules In a large data center, a single pair of data center core switches typically

Core Switch Vs Distribution Switch Vs Access Switch□What

What''s more, there''s generally only one (or two for redundancy) core switch used in a small and midsize network, but multiple

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