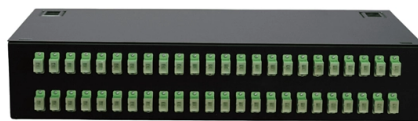


Switch VLAN partitioning core and aggregation



AI Overview

VLAN partitioning in a hierarchical network involves using aggregation switches to consolidate access-layer VLANs and core switches to route or forward traffic efficiently across the network.

Hierarchical Network Overview

In a typical three-tier network design, access switches connect end devices, aggregation (distribution) switches consolidate traffic from multiple access switches, and core switches form the high-speed backbone connecting aggregation layers and external networks. This structure allows for modularity, scalability, and high availability.

VLAN Partitioning Strategy

Access Layer VLANs: Each access switch typically hosts multiple VLANs for end devices, such as PCs, IP phones, or wireless APs. VLANs at this layer isolate broadcast domains and enforce security policies locally.

Aggregation Layer VLAN Handling: Aggregation switches consolidate VLAN traffic from multiple access switches. They often perform inter-VLAN routing, enforce QoS, ACLs, and support link aggregation protocols like LACP to combine multiple physical links into a single logical connection for higher bandwidth and redundancy.

VLAN aggregation or super-VLANs can be used to group multiple sub-VLANs under a single Layer 3 interface, allowing different broadcast domains to share the same subnet while maintaining isolation.

Core Layer VLAN Handling: Core switches act as the backbone, connecting aggregation switches and providing ultra-low latency, high-throughput forwarding. They typically handle Layer 3 routing between VLANs and external networks, and may implement VSX or VPC configurations for redundancy and seamless failover.

VLANs from aggregation switches are mapped to routed interfaces or transit VLANs on the core, ensuring consistent connectivity even if one core switch fails.

Best Practices

Use hierarchical design: Avoid connecting access switches direct...

Article Content

Huawei Data Communication Switching Technology: Detailed

1. Overview of VLAN Aggregation Technology VLAN aggregation is an innovative network virtualization technology that effectively addresses the low utilization of IP addresses in traditional

VLAN Aggregation

The VLAN aggregation technology, also known as the super-VLAN, provides a mechanism that partitions the broadcast domain using multiple VLANs in a physical network so that

Overview of VLAN Aggregation

VLAN aggregation, also called super-VLAN, partitions a broadcast domain on a physical network into multiple VLANs (sub-VLANs) and aggregates them into a single logical VLAN (super-VLAN).

Mastering VLAN Segmentation: Six Effective Methods

3.VLAN division based on network layer protocol: VLANs are divided according to protocols such as IP, IPX, DECnet, and AppleTalk, allowing

Data Center Design with Cisco Nexus Switches and Virtual

As Figure 3 shows, client-to-server traffic coming from the core would be first distributed based on Layer 3 Equal Cost Multipath (ECMP) to the two aggregation layer Cisco Nexus 7000 Series Switches,

Understanding VLAN Aggregation

S1720, S2700, S5700, and S6720 V200R011C10 Configuration Guide - Ethernet Switching This document describes the configuration of Ethernet services, including configuring link aggregation,

Re: Layer 3 VLAN design for Aggregation to Core Routing

I am new to Extreme, coming from the Cisco world. I have read that there are no "routed" ports on EXOS/Switch Engine but you create a vlan and assign only that vlan to the ports. I have a

Catalyst 2948G-L3 Sample Configurations

This document provides three sample configurations for the Catalyst 2948G-L3. The configurations are a single-VLAN network, a multi-VLAN

Routing Between VLANs Overview [Networking

VLANs address scalability, security, and network management. Routers in VLAN topologies provide broadcast filtering, security, address summarization, and

3-Layer Enterprise Switching Architecture: Core vs Access

Explore enterprise switching architecture and see how core, aggregation, and access layers integrate with PoE, oversubscription, and design examples.

VLAN Aggregation Configuration

VLAN aggregation, also called super-VLAN, partitions a broadcast domain on a physical network into multiple VLANs (sub-VLANs) and aggregates them into a single logical VLAN (super-VLAN).

Data Center Access Layer Design

Access layer switches are primarily deployed in Layer 2 mode in the data center. A Layer 2 access topology provides the following unique capabilities

Core Switch Vs Distribution Switch Vs Access

It is also called an aggregation switch which functions as a bridge between the core layer switch and the access layer switch. In addition, the distribution switch

Data Center Aggregation Layer Design and Configuration with ...

This chapter covers the design recommendations for a data center design deployment consisting of a Cisco Nexus® 7000 Series Switch at the aggregation layer and a Cisco Nexus 5000 Series Switch at

VLAN How To: Segmenting a small LAN

The goal of this article is to explain and discuss VLANs, including why you should consider using VLANs in a smaller network. I'll also walk through a configuration

What Is an Aggregation Switch and How to Choose?

Discover the role of aggregation switches. Explore differences between aggregation, access, and core switches, and choose the right model for your network.

Link Aggregation and LACP Explained

Improve your network performance with Link Aggregation and LACP! Learn what they are, the benefits, and the differences. Discover QSPTEK's LACP link aggregation switches and

Core, Aggregation, or Access Switches? Choose the Perfect Fits

Discover the crucial differences between core, aggregation, and access switches. Find out which type can best transform your network's performance in 2025.

Port Aggregation Configurations

Port Aggregation Port aggregation allows you to group multiple physical ports into one unit. Port aggregation is useful for implementing load balancing and provides a redundant link backup. To

Access vs. Distribution vs. Core Switch Comparison Guide

This guide provides a comprehensive comparison of Access, Distribution, and Core switches, detailing their functions, characteristics, and deployment scenarios.

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

Data Center Basic Layered Design of Core, Aggregation, and Access The data center network design is based on a proven layered approach, which has been tested and improved over

Understanding Switch Aggregation: A Comprehensive

In an aggregation network, distribution switches connect end devices to the core layer, managing data traffic from access switches. They implement

LAN Topologies

In most designs, the aggregation layer of the LAN limits cable distance to access devices, isolates the network core from Layer 2 traffic, and provides Layer 3 services to access VLANs.

All About VLANs: A Simple Guide to Network Segmentation

If you've ever wondered how large networks manage to operate efficiently without data packets colliding into a digital traffic jam, the answer often lies in a clever networking technique called

What is VLAN? How to Implement, Secure, and Manage

What are the differences between VLAN and WLAN? Virtual Local Area Network (VLAN) is a logical subnetwork that segments a larger physical network into smaller, isolated networks. This

Segmenting a Network Using VLANs

s are assigned to a switch port. However, when a network is separated using VLANs, the devices are logically separated by Switches with VLAN capability can assign the tagged frames to specific

What Is an Aggregation Switch and How to Choose?

An aggregation switch is a network device that consolidates traffic from multiple access switches, wireless access points, or other edge devices and

Two-Tier Core

Configure Core Switch MC-LAGs Configure Routing Services Configure Routing Components Configure Host VLAN SVIs Two-Tier Multicast

Contact Us

For more information, pricing, or custom solutions, please contact us:

Website: <https://www.sky-connect.co.za>

Email: info@sky-connect.co.za

Phone: +44 20 7946 0958

Address: 1 Cornhill, London EC3V 3ND, United Kingdom

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