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Switches at different aggregation layers



Overview

What Is an Aggregation Switch and How to Choose?

Discover the role of aggregation switches. Explore differences between aggregation, access, and core switc.

Key Takeaways

Aggregation layer switches consolidate traffic from access switches and provide high-performance, resilient connectivity to the core layer.Role and Function

Aggregation layer switches act as intermediaries between access layer switches and core switches, collecting traffic from multiple access switches and forwarding it efficiently to the core. They handle routing, filtering, load balancing, Quality of Service (QoS), and inter-VLAN routing, while also supporting link aggregation protocols like LACP to combine multiple physical links into a single logical connection for higher bandwidth and redundancy . These switches are typically deployed in pairs to ensure resiliency, often with dual hot-swappable power supplies and redundant fans .

Key Features
• High Port Density: Supports multiple uplinks from access switches and connections to servers or storage .

• Layer 2 and Layer 3 Capabilities: Can perform switching and routing functions depending on network design .

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• Redundancy and Failover: Supports technologies like Multi-Chassis Link Aggregation (MCLAG) or Virtual PortChannel (vPC) to maintain connectivity during failures .

• Traffic Management: Implements QoS, multicast/broadcast control, and access control policies to optimize network performance .

• Scalability: Designed to handle thousands of devices and high traffic volumes, making them suitable for large campus networks or data centers .
Deployment Considerations
• Aggregation switches are not typically connected to end devices like laptops, IP phones, or wireless access points; these connect to the access layer .

• They often serve as the connection point for dual-attached servers, storage, and network services in data centers .

• In large networks, multiple blocks of paired aggregation switches can be deployed to extend coverage across multiple floors or buildings .

• Virtualization features like Cisco Virtual Device Context (VDC) allow a single physical switch to operate as multiple logical devices, providing control-plane isolation and multi-tenant support .
Examples of Aggregation Switches
• Cisco Nexus 7000 Series: Common in data center aggregation layers, supports vPC, VDC, and high throughput .

• Fortinet FortiSwitch 7.6: Deployed in campus networks with MCLAG for resiliency .

• Enterprise-grade switches from FS.com or Ruijie: Offer high port density, Layer 2/3 functionality, and link aggregation support . Aggregation layer switches are essential for scalable, high-performance, and resilient network architectures, bridging access and core layers while providing advanced traffic management and redundancy.

Article Content

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Core vs Aggregation vs Access Switches | Network Design Guide

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

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Aggregation layer | FortiSwitch 7.6.0 | Fortinet Document Library

Aggregation-layer platforms The most appropriate FortiSwitch unit to form the aggregation layer comprises many 10/25/40 gigabit

Understanding Switch Aggregation: A Comprehensive

A: An access switch is typically located at the edge of the network and connects end-user

Which Aggregation Switch to Choose?

In-depth discussion of the key role and selection points of aggregation switches in network architecture, and

Access, Distribution, and Core Layers Explained

This tutorial provides an overview of the access, distribution, and core layers and explains

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Access vs. Distribution vs. Core Switch Comparison Guide

Each layer is served by specialized switches, with the access switch connecting end-user devices, the distribution switch aggregating

3-Layer Enterprise Switching Architecture: Core vs Access

Explore enterprise switching architecture and see how core, aggregation, and access layers integrate with PoE,

Core Switch Vs Distribution Switch Vs Access Switch□What

Different types of Ethernet switches perform different roles in the layers of high-capacity networks. Core switches, distribution

Data Center Network Switch Design

This Article Applies to: All Omada switches. Design: In a large network, we will have different types of switches

Aggregation Switch

An aggregation switch refers to a type of switch used to connect multiple ToR switches to a core switch/router in a cloud data center

Everything You Need to Know About Aggregation Switch

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An aggregation switch operates at Layer 2 or Layer 3 of the OSI model, depending on the configuration and topology

The relationship between access layer switches, aggregation ...

You may think that the access layer switch, the aggregation layer switch, and the core layer switch belong to the

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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

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Link Aggregation: What is it, and How Does it Work?

Different vendors have their own terms for the concept. A LAG can also be called a port

Edge Switch vs Access Switch: Key Differences|LinkNewNet

Edge switch vs access switch: roles, features, and when to use each - plus aggregation vs core explained. Read the

UniFi Port Switch Aggregation: What Is Switch Aggregation?

An aggregation switch is a network switch that sits between the access layer (edge switches) and the core layer

Understanding Switch Aggregation: A Comprehensive

Layer 3 Switches: Layer 3 switches, or network layer switches, have routing capabilities in

Switch Network Structure: Cascading, Stacking, Aggregation And

Switches are essential devices in computer networks, used for forwarding data between local area networks (LAN) and

Data Center Multi-Tier Model Design

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

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The Features and Differences Between Core Switches and Aggregation Switches

Before get to know the differences between the aggregation switches and core switches, you should know the definition of the

How To Set Up Switch Link Aggregation

The key to setting up Link Aggregation between different brands is ensuring they both support the IEEE standard 802.3ad. The value

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Link Aggregation: Static vs Dynamic, LACP, and MLAG Configuration

Understand how link aggregation (LACP, MLAG, static vs dynamic) improves bandwidth and redundancy. Learn

Data Center Multi-Tier Model Design

The multi-tier model relies on a multi-layer network architecture consisting of core, aggregation, and access layers, as shown in

Core Switch Vs Distribution Switch Vs Access Switch□What

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What is an Aggregation Switch?

The aggregation switch is located in the middle of the network architecture, which is equivalent to a middle-level

Link Aggregation and Load Balancing

MS Series Cisco Meraki MS switches use the open standard LACP to provide Layer 2 link aggregation in the form of

What are Link Aggregation Groups (LAGs) and how do they work with

What are Link Aggregation Groups (LAGs) and how do they work with my managed switch? Link aggregation lets a

Difference and connection scheme between access layer switch and ...

The aggregation layer switch is the aggregation point of multiple access layer switches. It is used to export the access

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