

Aggregation Layer Switch Selection 6



AI Overview

Aggregation layer switches consolidate traffic from multiple access switches to the core, requiring high performance, redundancy, and scalability. Role of Aggregation Layer Switches Aggregation switches, also called distribution layer switches, serve as the convergence point between access switches and the core layer. They manage traffic from multiple access devices, perform routing, filtering, load balancing, and Quality of Service (QoS) prioritization, and provide uplink connectivity to the core network. This layer is critical for network scalability, as it prevents the impracticality of full-mesh connections between all access switches. Key Selection Criteria

1. Performance and Throughput Aggregation switches must handle high traffic volumes from multiple access switches. Look for high switching capacity (e.g., 1920–4000 Gbps) and forwarding rates (e.g., 1440 Mpps) to ensure low latency and efficient traffic handling.
2. Port Types and Density Select switches with sufficient uplink ports to the core and downlink ports to access switches. Common configurations include 25G SFP28 and 100G QSFP28 ports for high-speed interconnects. Consider oversubscription ratios and future growth when determining port count.
3. Layer 2 and Layer 3 Capabilities Aggregation switches often operate at both Layer 2 and Layer 3. Layer 3 features enable routing between VLANs, inter-VLAN routing, and redistribution of routing protocols, while Layer 2 ensures efficient switching and VLAN segmentation.
4. Redundancy and Reliability Deploy switches in pairs using Multi-Chassis Link Aggregation (MCLAG) or similar technologies to provide resiliency. Dual hot-swappable power supplies and redundant fans are recommended to minimize downtime.
5. Advanced Features Link Aggregation: Supports LACP or static link aggregation for bandwidth and failover. Traffic Management: QoS for prioritizing voice, video, or critical data. Security: Access control lists (ACLs), filtering, and firewall integration.
6. Scalability and Modularity Choose switches that allow expansion thr...

Article Content

Aggregation Layer

Aggregation-layer submodule The aggregation-layer submodule plays a pivotal role in providing a highly reliable, scalable “middle layer” for bringing together the traffic from the access-layer submodule,

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

Switches Selection: 6 Key Points You Need to Know

This article introduces the six key points for choosing a switch and the configuration commands for Huawei, H3C and Ruijie switches.

Which Aggregation Switch to Choose?

In-depth discussion of the key role and selection points of aggregation switches in network architecture, and comparison of their differences with core layer and access layer switches.

What is Switch Aggregation, Its Role and Selection Advice

What is switch aggregation? Switch aggregation refers to the concept of consolidating multiple access layer switches into a single aggregation layer switch in a traditional three-tier network

What is an Aggregation Switch?

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

What is Switch Aggregation, Its Role and Selection Advice

When a Layer 2 switch is used as the aggregation switch, routing and management policies are determined by the core switch rather than the aggregation switch. This article wraps up

Cisco Switch Selector

Cisco Meraki MS400 series brings powerful cloud-managed switching to the aggregation layer. This range of 1 and 10Gbps fiber aggregation switches adopts the benefits of the cloud: simplified

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

Link aggregation groups | FortiSwitch 7.2.10 | Fortinet Document Library

Link aggregation groups This section provides information on how to configure a link aggregation group (LAG). For LAG control, the FortiSwitch unit supports the industry-standard Link

Cisco Switch Selector

This versatile modular switch is designed for high-density, end-of-row, and high-performance aggregation-layer deployments in both traditional and Cisco Application Centric Infrastructure (ACI) -

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

Link aggregation is a way of bundling a bunch of individual Ethernet links together so they act like a single logical link. Learn more on the Auvik blog

Link_Aggregation_Config_Guide

1 Link Aggregation Configuration Guide This document describes the Link Aggregation feature supported in Supermicro Layer 2 / Layer 3 switch products. This document covers the Link

Configuring Link Aggregation Group (LAG) on a Switch

Article ID:2860 Configuring Link Aggregation Group (LAG) on a Switch Objective Link Aggregation Group (LAG) multiply the bandwidth, increase port flexibility, and provide link

Core, Aggregation, or Access Switches? Choose the

Selecting between core, aggregation, and access switches is not only technical — it's strategic. Once you know what your network needs,

Understanding Switch Aggregation: A Comprehensive

Aggregation layer switches aggregate data from multiple access switches and routes it to the core layer of the network. They provide inter-VLAN

Everything You Need to Know About Aggregation Switch

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

Cisco Data Center Infrastructure 2.5 Design Guide

The recommended platform for the enterprise data center core layer is the Cisco Catalyst 6509 with the Sup720 processor module. The high switching rate, large switch fabric, and 10 GigE

Aggregation layer | FortiSwitch 7.6.0 | Fortinet Document Library

This model allows the aggregation switches to easily accommodate thousands of devices passing through this layer while simplifying the design, maintenance, and operations. The following figure

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 forwards it to core switches or routers.

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

Key Features of 3 layers design of Data Center: Data center network is divided into 3 standard three-layer structure. The layering is mainly based on the principle of internal and external

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 Ethernet ports to address the access layer and a few 100-GbE

6 New Layer 3 Aggregation & Core Switches Powered By SONiC

Asterfusion introduced five Layer 3 aggregation and core switches powered by their cutting-edge SONiC-based Enterprise operating system in 2025. These aggregation switches

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

Designing and Configuring the Aggregation Layer

Designing and Configuring the Aggregation Layer The network switches in the aggregation layer provide additional resiliency benefits. In the following example, aggregation switches are typically deployed in

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