Aggregation Layer Switch Model Selection

Overview

Which Aggregation Switch to Choose?

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

Key Takeaways

Selecting an aggregation layer switch requires evaluating port types, throughput, redundancy, Layer 2/3 features, and network scalability to ensure efficient traffic aggregation between access and core layers. Key Considerations for Choosing an Aggregation Switch1. Port Types and Density The aggregation switch connects access layer switches to the core layer, so the uplink and downlink port types are critical.

For example, uplinks to the core may require 100G ports, while downlinks to access switches may use 10G, 25G, or 40G ports. The number of ports should match the number of devices or access switches you plan to connect, with higher port density reducing the need for additional switches and simplifying network architecture. 2.

Throughput and Performance Choose a switch with sufficient switching capacity to handle peak traffic without bottlenecks. Aggregation switches in data centers or large campuses often require multi-terabit throughput to accommodate thousands of devices passing through the layer. 3.

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Layer 2 and Layer 3 Capabilities Aggregation switches typically operate at Layer 2 and Layer 3, supporting VLANs, routing, and link aggregation protocols like LACP. Layer 3 features are important for routing between VLANs and for advanced traffic management. 4.

Redundancy and Reliability High availability is essential. Look for switches with dual hot-swappable power supplies and redundant fans to ensure continuous operation even if one component fails. Many designs deploy switches in pairs using MCLAG to provide resiliency and failover.

5. Scalability and Network Design Consider the size and growth of your network. Aggregation switches should support expansion, either by adding more switches in blocks or by providing sufficient uplink capacity to the core.

Avoid connecting end devices like IP phones or wireless access points directly to the aggregation layer to maintain performance and simplify management. 6.

Additional Features

Quality of Service (QoS) for traffic prioritizationSecurity features such as ACLs and port securitySupport for virtualization (e.g., VDCs in Cisco Nexus switches) for multi-tenant environments Practical ExampleA typical aggregation switch for a campus network might include 48x 25G SFP28 ports for access layer connections and 8x 100G QSFP28 ports for uplinks to the core, providing high throughput and redundancy in a 1 RU rack-mounted form factor.

Summary

To select the right aggregation layer switch, evaluate: Port types and density for uplinks and downlinksSwitching capacity to handle peak trafficLayer 2/3 features for routing and VLAN managementRedundancy with dual power supplies and fansScalability for future network growthAdvanced features like QoS, security, and virtualization By carefully considering these factors, you can choose a switch that ensures efficient traffic aggregation, high availability, and simplified network management.

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Article Content

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.

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) –

Data Center Multi-Tier Model Design

In a large data center, a single pair of data center core switches typically interconnect multiple aggregation modules using 10 GigE Layer 3 interfaces. The recommended platform for the

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

Cisco Switch Selection Guide for Enterprise Campus Networks

Select Cisco campus switches by network role first, then by model. Access switch selection depends on endpoint count, PoE demand, mGig readiness, closet growth, and uplink

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

What is Switch Aggregation, Its Role and Selection Advice

This article wraps up "what is switch aggregation" and suggestions for choosing an aggregation switch. By considering these factors, network administrators can make informed

How to Choose Best Aggregation Switch?

Aggregation layer switches typically accept all traffic from the access layer and forward it to the core, so to ensure a high performance and secure operation of the network, we should usually

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Datacenter Core and Aggregation Design

Introduction Datacenter design is based on a proven layered approach. The layered approach is the basic foundation of the DC design that seeks to improve scalability, performance,

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Chapter 2

Designing the Core and Aggregation Layers The data center architecture is based on a three-layer approach. The core layer provides a high-speed Layer 3 fabric for packet switching. The aggregation

Data Center Aggregation Layer Design and Configuration with ...

Introduction 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

How to Choose Best Aggregation Switch?

When selecting an aggregation switch, several critical factors must be considered to ensure optimal performance. These factors may include but are not limited to speed, features, and

Data Center Multi-Tier Model Design

Data Center Core Layer The data center core layer provides a fabric for high-speed packet switching between multiple aggregation modules. This layer serves as the gateway to the campus core where

Data Center Access Layer Design

In a Layer 2 looped access topology, a pair of access layer switches are connected to the aggregation layer using 802.1Q trunks. Looped access

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

Access vs. Distribution vs. Core Switch Comparison Guide

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Distribution Layer Switches: Positioned between the access and core layers, distribution switches aggregate traffic from multiple access switches. They are typically Layer 3 devices responsible for

Multiple FortiSwitches in tiers via aggregate interface with MCLAG ...

Multiple FortiSwitches in tiers via aggregate interface with MCLAG enabled only on distribution This example provides a recommended configuration of FortiLink where multi-tier

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