

What type of aggregation layer switch is used



Overview

What Is an Aggregation Switch and How to Choose?

These aggregation switches typically operate at Layer 2 or Layer 3 of the OSI model, depending on the network.

Key Takeaways

Aggregation layer switches should be high-performance Layer 2/3 switches with high port density, uplink capacity, and redundancy features to efficiently consolidate traffic from access switches and forward it to the core layer. Key Considerations for Aggregation Layer Switches



Layer Functionality: Aggregation switches can operate at Layer 2 or Layer 3. Layer 2 switches handle traffic forwarding and VLAN segmentation, while Layer 3 switches provide routing between VLANs, inter-VLAN routing, and policy enforcement such as QoS and ACLs . Choosing Layer 3 switches is recommended for larger networks requiring routing and advanced traffic management.

Port Density and Types: Aggregation switches must support connections from multiple access switches. Common configurations include 24-port or 48-port switches with a mix of 10/25/40 GbE ports for downstream access switches and 100 GbE ports for uplinks to the core layer . SFP/SFP28 or QSFP28 ports are often used for fiber connectivity to ensure high-speed links .

Redundancy and Reliability: Aggregation switches are typically deployed in pairs using MLAG or similar technologies to provide resiliency. Features like dual hot-swappable power supplies, redundant fans, and failover support are essential to maintain network uptime . This ensures traffic continues to flow even if one switch or link fails.

Performance and Scalability: Aggregation switches should have high switching capacity and throughput to handle aggregated traffic from multiple access switches without bottlenecks. They should also support link aggregation protocols like LACP to combine multiple physical links into a single logical connection, enhancing bandwidth and redundancy .

Additional Features: Aggregation switches often include QoS, multicast and broadcast control, IP address translation, and security mechanisms to manage traffic efficiently and enforce network policies . These features help optimize performance and maintain network stability.

Recommended Deployment

- Deploy aggregation switches in pairs for redundancy and high availability .
- Use high-speed uplinks (100 GbE or higher) to the core layer to prevent bottlenecks .
- Ensure port types match access switch connections (fiber or copper) and provide sufficient downstream ports for all access switches .
- Consider Layer 3 switches if inter-VLAN routing or advanced policy enforcement is required . By selecting aggregation switches with these characteristics, networks can achieve efficient traffic consolidation, high reliability, and scalable performance between the access and core layers.

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