

Network port of the aggregation switch



Overview

What Is an Aggregation Switch and How to Choose?

When selecting an aggregation switch, you need to consider the uplink port type and number of the network.

Key Takeaways

Aggregation switch ports are physical interfaces that can be combined into logical links using port aggregation to increase bandwidth and provide redundancy. Overview of Aggregation Switch Ports

An aggregation switch consolidates traffic from multiple access switches, servers, or edge devices and forwards it to core switches or routers, often operating at Layer 2 or Layer 3 of the OSI model. The ports on an aggregation switch can be grouped into logical channels using port aggregation (also called Link Aggregation or LAG), which allows multiple physical ports to function as a single high-bandwidth link.

Port Aggregation Methods

- Static Aggregation (ON mode)
- Ports are manually grouped into a logical channel.
- No negotiation protocol is required.
- Provides redundancy and load balancing but requires consistent configuration across all ports, including VLANs, speed, duplex, and link type.
- Typically supports up to 8 ports per static aggregation group.

- Dynamic Aggregation (LACP)
- Uses Link Aggregation Control Protocol (LACP, IEEE 802.3ad) to automatically negotiate aggregation between devices .
- Ports can operate in active (initiates negotiation) or passive (responds to negotiation) modes.
- Dynamic groups can include up to 12 ports, with 8 active and 4 in backup state for failover .
- Ensures both ends of the link agree on aggregation settings, reducing misconfiguration risks .

Port Configuration Considerations

- VLAN consistency: All aggregated ports must have identical VLAN settings and PVIDs .
- Speed and duplex: Only full-duplex mode is supported, and all ports must match in speed .
- Link type: Ports can be configured as trunk, hybrid, or access links .
- Sequential port numbering: Some devices require aggregated ports to be sequential .
- Cable type: For high-throughput connections, SFP+ or equivalent high-speed interfaces are recommended .

Use Cases

- Switch-to-Switch Aggregation: Increases bandwidth and redundancy between aggregation and access switches .
- Switch-to-Server Aggregation: Provides higher throughput for servers or storage devices that exceed a single port's capacity .
- MC-LAG (Multi-Chassis LAG): Advanced setup where two aggregation switches act as a single logical unit, offering load balancing and minimal downtime .

Summary

The network ports of an aggregation switch are designed to be flexible and scalable. By using port aggregation, either static or dynamic with LACP, multiple physical ports can be combined into a single logical interface, enhancing bandwidth, redundancy, and failover capabilities. Proper configuration of VLANs, speed, duplex, and link type is essential to ensure reliable operation and optimal network performance .

Article Content

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For example, if the aggregation switch needs to connect to an access switch with SFP optical ports, an aggregation

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