

How to connect a front-end switch to an aggregation switch

Article Overview

Front-end (access) switches connect to aggregation switches to consolidate traffic, increase bandwidth, and provide redundancy using link aggregation or multi-chassis setups.

Role of Each Switch

Front-end (access) switches serve as the entry point for end devices such as computers, IP phones, and wireless access points. They operate at the edge of the network and forward traffic upstream. Aggregation switches sit between access switches and the core network, consolidating multiple access switch connections into high-bandwidth uplinks to the core layer, improving traffic flow and reducing bottlenecks .

Physical and Logical Connections

- o Direct Links: Each access switch typically connects to one or more aggregation switches using high-speed links (e.g., 10GbE or 25GbE SFP+ ports) to ensure sufficient bandwidth .
- o Redundant Links: To enhance reliability, access switches often maintain multiple connections to aggregation switches. These can be configured as Link Aggregation Groups (LAGs) using LACP (802.3ad), which combines multiple physical links into a single logical link for load balancing and failover .
- o Multi-Chassis Link Aggregation (MC-LAG): In larger networks, two aggregation switches can operate as a single logical unit, allowing access switches to connect to both simultaneously. This provides both redundancy and load balancing without creating loops .

Layer 2 vs Layer 3 Considerations

- o Layer 2: Access switches can connect to aggregation switches in a VLAN-based Layer 2 topology, where the aggregation switch forwards traffic to the core while maintaining VLAN separation .
- o Layer 3: In routed networks, access switches may use point-to-point Layer 3 interfaces to aggregation switches, with routing protocols like OSPF or EIGRP handling load balancing and failover . This approach is common when aggregation switches are not part of a virtual switch link (VSL) or stack.

Best Practices

- o Use high-speed uplinks between access and aggregation switches to prevent bottlenecks.
- o Implement LACP for automatic link aggregation and failover. Avoid static LAGs unless necessary, as they are prone to misconfiguration .
- o Distribute traffic evenly across aggregated links to maximize throughput. Ensure all member links have the same speed and duplex settings .
- o Plan redundancy: Connect each access switch to multiple aggregation switches or MC-LAG pairs to

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maintain connectivity during failures .

- o Configure downstream first: Apply configuration changes on access switches before moving upstream to aggregation switches to avoid network disruption .

By following these principles, the connection between front-end and aggregation switches ensures high performance, scalability, and network resilience, forming a robust backbone for enterprise or campus networks.

To totally unlock this section you need to Log-in Login As devices are added to a small network, more switch ports are

Need more bandwidth or failover on UniFi switches? What LACP link aggregation does, which devices

Understand how link aggregation (LACP, MLAG, static vs dynamic) improves bandwidth

Link aggregation is a way of bundling a bunch of individual (Ethernet) links together so they

We strongly recommend you should firstly configure LAG feature on switch before other functions like VLAN, STP,

A link aggregation can only exist between a pair of neighboring switches, where the switch ports that are aggregated on one switch

Switch aggregation, also known as link aggregation or trunking, is a method used in computer networking to combine

What Is LAG and How Does It Work? Link Aggregation Group (LAG) is the practical implementation of link

You can configure LAGs to connect a QFX Series product or an EX4600 switch to other switches, like aggregation switches, servers,

This model allows the aggregation switches to easily accommodate thousands of devices passing through this layer while simplifying

this section of the guide will demonstrate how to configure a Aggregation switch with dual purposes, providing power

MC-LAG (Multi-Chassis Link Aggregation Group) allows two switches to work together as a single logical

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unit, providing both load

Solved: 1. Use Packet Tracer to put up the topology above. Connect the two multi-layer switches (MLS) with a Gigabit

Both ends of the link need to understand this vlan packet. If you do this on both ends it will connect the vlan3 ports on

By establishing a Link Aggregation Group (LAG), you can bundle two or more physical ports--such as connecting separate switches

Link aggregation lets a switch treat multiple physical links between two endpoints as a single logical link. All the

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