Communication between two aggregation layer switches



Overview

Having 8x100-GbE ports allows for six ports to go to the core switches and two ports to connect the aggregation layer in MCLAG together (ICL) at a very high speed.

Key Takeaways

Aggregation layer switches communicate using high-bandwidth uplinks, link aggregation protocols, VLAN tagging, and routing mechanisms to efficiently manage traffic between access and core layers.

Communication Mechanisms

Link Aggregation: Aggregation switches often use Link Aggregation Control Protocol (LACP) or static link aggregation to combine multiple physical connections into a single logical link. This increases bandwidth and provides redundancy, allowing traffic to continue flowing even if one physical link fails.

LAC

P dynamically discovers compatible ports on connected switches and manages failover automatically, while static aggregation requires manual configuration.

VLA

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N and Inter-VLAN Routing: Aggregation switches handle traffic from multiple VLANs, creating virtual interfaces for each VLAN. They route traffic between VLANs using Layer 3 capabilities, ensuring that devices in different network segments can communicate securely and efficiently. Spanning Tree Protocol (STP): To prevent loops in the network, aggregation switches implement STP, which ensures that data is transmitted along the most efficient path and redundant links are available for failover.

High-

Speed Uplinks: Aggregation switches connect to the core layer using high-speed links, often 40 Gbps or 100 Gbps, while connecting to access switches with multiple 10/25/40 Gbps ports. This design allows them to consolidate traffic from thousands of devices and forward it efficiently to the core.

Policy Enforcement and Qo

S: Aggregation switches manage network policies, including access control lists (ACLs), traffic prioritization, and security filtering. They perform load balancing, IP address translation, and multicast management to optimize network performance and reliability.

Summary

Aggregation layer switches act as intermediaries between access and core layers, consolidating traffic, enforcing policies, and maintaining high-speed, reliable communication. They communicate through a combination of link aggregation, VLAN routing, STP, and high-bandwidth uplinks, ensuring scalability, redundancy, and efficient traffic management in large enterprise or data center networks.

Article Content

Aggregation layer | FortiSwitch 7.6.0 | Fortinet Document Library

Having 8x100-GbE ports allows for six ports to go to the core switches and two ports to connect the aggregation layer in MCLAG together (ICL) at a very high speed.

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 your network.

What is Switch Aggregation, Its Role and Selection Advice

The aggregation layer serves as the convergence point for multiple access layer switches and is responsible for handling all the communication traffic from the access layer devices

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Understanding Switch Aggregation: A Comprehensive

Layer 2 and Layer 3 switches play distinct roles in network aggregation setups, and understanding their differences can help in making

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

Link Aggregation and Multi-layer switches

Solved: 1. Use Packet Tracer to put up the topology above. Connect the two multi–layer switches (MLS) with a Gigabit uplink 2. Configure IP addresses where appropriate. Include the

Aggregated Ethernet Interfaces Overview | Junos OS | Juniper Networks

You can configure LAGs to connect a QFX Series product or an EX4600 switch to other switches, like aggregation switches, servers, or routers. This example describes how to configure LAGs to connect

Multi-Chassis Link Aggregation

Each top-of-rack switch is typically connected to two aggregation switches for redundancy. However, half the uplinks are blocked by spanning tree in order to avoid loops in the network; this reduces the

Link Aggregation and Load Balancing

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Link Aggregation Control Protocol

Layer 1 (Physical Layer): Combines multiple physical Ethernet links into a single logical communication channel. Layer 2 (Data Link Layer): Groups switch ports into an aggregation set and

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

This is the case, for example, if you have two routers (or Layer 3 switches) or two firewalls, or one of each talking across the link. You might be

Aggregation Switch

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An aggregation switch refers to a type of switch used to connect multiple ToR switches to a core switch/router in a cloud data center network. It enables high-bandwidth aggregation ports to be

Link aggregation

Link aggregation between a switch and a server In computer networking, link aggregation is the combining (aggregating) of multiple network connections in parallel by any of several methods. Link

Data Center Access Layer Design

Access layer switches are primarily deployed in Layer 2 mode in the data center. A Layer 2 access topology provides the following unique capabilities required in the data center: • VLAN

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

What Are Link Aggregation, LAG, and LACP?

What Is LAG and How Does It Work? Link Aggregation Group (LAG) is the practical implementation of link aggregation, where multiple physical ports are combined into a single logical

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

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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