How the aggregation function of a switch works



Overview

What Is an Aggregation Switch and How to Choose?

An aggregation switch is a network device that consolidates traffic from multiple access switches, wireles.

Key Takeaways

Yes, many network switches support aggregation functions, allowing multiple physical links to be combined into a single logical connection for higher bandwidth, redundancy, and load balancing.

What Switch Aggregation Means

Switch aggregation, also called link aggregation or trunking, is a method where a switch combines multiple network connections in parallel. This allows the network to increase throughput beyond a single link, provide redundancy if one link fails, and balance traffic loads across all aggregated links, improving overall network performance and reliability.

Aggregation in Network Architecture



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In enterprise or campus networks, switches are often organized in a three-tier hierarchy: access, aggregation (or distribution), and core. Aggregation switches sit between access switches and the core network, consolidating traffic from multiple access switches and forwarding it efficiently to the core. This centralization simplifies network management, reduces congestion, and allows for policy enforcement, such as inter-VLAN routing, security filtering, and quality of service (QoS) prioritization.

Key Functions of Aggregation Switches

Link Aggregation: Combines multiple physical links into a single logical link using protocols like LACP (Link Aggregation Control Protocol) or static aggregation, enhancing bandwidth and providing failover capability. Load Balancing: Distributes traffic evenly across aggregated links to prevent bottlenecks. Redundancy and Failover: Maintains network connectivity if one link fails by rerouting traffic over remaining links.

Traffic Management: Handles routing, VLAN segmentation, QoS, and security policies, offloading processing from core switches. Scalability: Allows additional links to be added to the aggregation group without disrupting the network, supporting growth in high-traffic environments.

Benefits

Increased Bandwidth: Aggregated links provide higher throughput than individual connections. Improved Reliability: Redundant links reduce downtime and maintain network availability. Simplified Management: Aggregation switches act as a central point for monitoring and controlling multiple access switches.

Enhanced Performance: Optimized traffic flow reduces latency and network congestion. In summary, switches—especially aggregation or distribution switches—do have aggregation functions that are critical for high-capacity, resilient, and efficiently managed networks. These functions are widely used in enterprise backbones, data centers, and large campus networks to ensure scalable and reliable connectivity.

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Article Content

What Is an Aggregation Switch and How to Choose?

An aggregation switch is a network device that consolidates traffic from multiple access switches, wireless access points, or other edge devices and forwards it to core switches or routers.

What is an Aggregate Switch?

An aggregate switch is a high-capacity network switch that consolidates connections from multiple access switches, acting as a central point for managing network traffic and providing

What is Switch Aggregation, Its Role and Selection Advice

When an aggregation switch receives data from access switches, it performs local routing, filtering, load balancing, and QoS priority management. It also handles security mechanisms,

What Is an Aggregation Switch and How It Works

The aggregation switch connects to multiple access switches and consolidates their traffic. Rather than having every access switch connect directly to the network backbone, the aggregation

Understanding Switch Aggregation: A Comprehensive

In the context of network architecture, switch aggregation is an essential element, particularly in building high-capacity, resilient networks. It

What Is an Aggregation Switch?

An aggregation switch sits between access layer switches and the core network, acting as an intermediary. It collects traffic from multiple access switches, aggregates it, and then forwards

Everything You Need to Know About Aggregation Switch

What is an Aggregation Switch and How Does it Work? An aggregation switch consolidates data traffic from multiple network access

Aggregation Switch

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

What is an Aggregation Switch?

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As the physical entity of the aggregation layer, the aggregation switch''s primary function is to aggregate the data of the access layer switch and forward it to the core switch to reduce the

What is an Aggregation Switch? | Features and Practical Benefits

It is a networking tool called an aggregation switch that enables the consolidation of several network connections into a single link. This makes it possible to boost bandwidth and

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

Link aggregation is a way of bundling a bunch of individual Ethernet links together so they act like a single logical link. Learn more on the Auvik blog

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

What are Link Aggregation Groups (LAGs) and how do they work with

Link aggregation lets a switch treat multiple physical links between two endpoints as a single logical link. All the physical links in a Link Aggregation Group (LAG) must operate in full-duplex

What Is an Aggregation Switch and How It Works

An aggregation switch sits in the middle tier of a network, collecting traffic from multiple smaller access switches and funneling it upward to the core. In a traditional three-tier network

Aggregation Switch

The aggregation switch supports to execute aggregation function (such as SUM, MAX or TOP-K operation) at the granularity of packets. Compared to primitive aggregation process, INA takes full

Link Aggregation: Static vs Dynamic, LACP, and MLAG

Understand how link aggregation (LACP, MLAG, static vs dynamic) improves bandwidth and redundancy. Learn configuration steps on Cisco and

What is Switch Aggregation, Its Role and Selection Advice

4. Functional management: Unlike core switches, aggregation switches can be either Layer 2 or Layer 3 switches. When a Layer 2 switch is used as the aggregation switch, routing and

Excel SUBTOTAL function | Exceljet

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Excel inserts the SUBTOTAL function automatically, and you can use a drop-down menu to switch behavior and show max, min, average, etc. Excel uses SUBTOTAL for calculations in the

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