

What is the aggregation link of a switch



Overview

On interfaces, channel bonding requires assistance from both the Ethernet and the host computer's, which must of frames across the network interfaces in the same manner that I/O is striped across disks in a array. For this reason, some discussions of channel bonding also refer to (RAIN) or to redundant array of independent network interfaces.

Key Takeaways

Link aggregation is the process of combining multiple physical network ports on a switch into a single logical link to increase bandwidth, provide redundancy, and enable load balancing.What Link Aggregation Is

Link aggregation, also known as LAG (Link Aggregation Group), trunking, bonding, or port-channeling, allows multiple Ethernet connections between switches or between a switch and a server to operate as a single logical link . This logical link behaves like a single high-capacity connection, with a total bandwidth equal to the sum of the individual physical links. For example, combining four 1 Gbps links results in a 4 Gbps aggregated link .

Benefits of Link Aggregation

- Increased Bandwidth: Traffic is distributed across multiple links, improving overall throughput and network performance .
- Redundancy and Resilience: If one physical link fails, traffic automatically reroutes over the remaining links, maintaining connectivity .



- **Load Balancing:** Network traffic can be efficiently spread across all aggregated links, preventing any single link from becoming a bottleneck .
- **Simplified Management:** Multiple physical connections can be managed as a single logical interface, reducing administrative complexity .

How It Works

Link aggregation can be implemented using vendor-independent standards like the Link Aggregation Control Protocol (LACP), defined in IEEE 802.1AX, or through proprietary protocols . LACP allows switches to negotiate which links are active in the aggregation and ensures consistent configuration across devices.

- **Active Mode:** The port actively sends LACP packets to establish and maintain the LAG.
- **Passive Mode:** The port responds to LACP packets but does not initiate aggregation . All links in a LAG must be of the same type (e.g., all 1 Gbps or all 10 Gbps) and configured identically, including duplex settings and VLAN assignments . Typically, a LAG can include up to 8 active links, though some devices may allow fewer .

Use Cases

- **Switch-to-Switch Connections:** Common in data centers to provide high-speed, redundant backbone links.
- **Server Connections:** Deliver high-bandwidth, fault-tolerant connectivity to critical servers or storage systems.
- **Network Expansion:** Additional links can be added to the LAG without disrupting existing traffic, allowing scalable network growth . In summary, link aggregation in a switch is a key technique for enhancing network performance, reliability, and scalability by combining multiple physical connections into a single logical interface while supporting redundancy and load balancing.

Article Content

Link aggregation

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On Ethernet interfaces, channel bonding requires assistance from both the Ethernet switch and the host computer's operating system, which must stripe the delivery of frames across the network interfaces in the same manner that I/O is striped across disks in a RAID 0 array. For this reason, some discussions of channel bonding also refer to Redundant Array of Inexpensive Nodes (RAIN) or to redundant array of independent network interfaces.

What are link aggregation and LACP and how can I use them in my

Link aggregation allows you to combine multiple Ethernet links into a single logical link between two networked devices.

Link Aggregation and Ethernet Bonding Feature Overview and ...

What is link aggregation? Link aggregation is a key component in resilient network design, since it increases the available bandwidth

What is “link aggregation” and how does it benefit your network?

Using Link Aggregation it is simple to have these multiple Ethernet connections to act as one logical connection,

Network Basics: What Is Link Aggregation & 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.

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