# Aggregation Links of Switches

Article Overview

Aggregation links, or Link Aggregation Groups (LAGs), combine multiple physical switch ports into a single logical link to increase bandwidth, provide redundancy, and improve network performance.

What is Link Aggregation?

Link aggregation is the process of bundling multiple Ethernet connections between switches, servers, or other network devices so they function as a single logical link, known as a Link Aggregation Group (LAG) or bundle . This allows traffic to be balanced across multiple links, effectively increasing total bandwidth while providing failover capability if one link fails . Aggregation links are also referred to as port trunking, port teaming, Ethernet trunking, or link bundling .

Benefits of Aggregation Links

o Increased Bandwidth: Multiple physical links act as one logical link, combining their throughput for higher overall capacity .
o Redundancy and Fault Tolerance: If one member link fails, traffic continues over the remaining links, minimizing downtime .
o Load Balancing: Traffic is distributed across all member links using hashing algorithms based on MAC or IP addresses, ensuring efficient utilization .
o Scalability: Aggregation allows networks to grow without immediately upgrading to higher-speed single links .

Standards and Protocols

o IEEE 802.3ad / 802.1AX: The standard for Ethernet link aggregation, defining how multiple links can be combined and managed .
o Link Aggregation Control Protocol (LACP): A protocol that dynamically manages LAGs, allowing devices to detect and configure aggregation automatically .
o Static Aggregation: Links are manually configured without LACP, suitable for simple or legacy setups .

Aggregation Switches

An aggregation switch consolidates traffic from multiple access switches or edge devices and forwards it to core switches or routers . These switches typically operate at Layer 2 or Layer 3, supporting LAGs to enhance bandwidth, redundancy, and failover. They are commonly deployed in enterprise backbones, data centers, and campus networks to reduce bottlenecks and improve network efficiency .

# Aggregation Links of Switches

Configuration Considerations

o Port Consistency: All member ports in a LAG must have the same speed, duplex settings, and VLAN configuration .
o Number of Links: Most devices support a limited number of ports per LAG (commonly 2, 4, or 8), with even numbers preferred for better load balancing .
o Physical Path Diversity: For redundancy, cables should follow different physical paths to avoid simultaneous failures .
o Mixed Speeds: Some platforms allow mixed-speed links, but load balancing may not function correctly if speeds differ .

Practical Use Cases

o Switch-to-Switch Links: Aggregating multiple uplinks between switches to increase backbone bandwidth .
o Server Connections: Connecting servers with multiple NICs to a switch for higher throughput and redundancy .
o Data Center Networks: Aggregation switches act as intermediaries between access and core layers, optimizing traffic flow and reducing congestion . Aggregation links are a key tool for building resilient, high-performance networks, enabling both scalability and fault tolerance while maximizing the utilization of existing infrastructure .

Network-Switch  can help you pick the right switches, design the right topology, and

One of the really interesting ways of deploying an aggregated link is to connect a device to a redundant pair of central

Link Aggregation Group and Link Aggregation Control Protocol Configuration Procedures Cost savings resulting from use of existing

However, our network organization does not support link teaming/aggregation between switches for switches they don"t

Introduction Link Aggregation is a feature that aggregates physical ports of a switch into a logical link, allowing it to accommodate

Learn more about how switch stacking and link aggregation serve different purposes, but they are often used together to build

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

access

Link Aggregation and Link Aggregation Switch Basics Link aggregation allows one to combine multiple network

Aggregation and core switches Aggregation switches are typically used to connect a number of ToR switches to a core switch/router.

Link aggregation increases total bandwidth beyond what a single connection could sustain, and provides

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

Learn all about the differences (and similarities) between Dual-WAN and Link Aggregation,

This article provides a comprehensive explanation of link aggregation -- covering LACP,

I"m concerned that I"m misunderstanding how aggregators work in the scenario below: I have a project where I need 40 Gbps links

Link aggregation, also known as port aggregation or link bundling, is a networking technique that combines multiple

Link aggregation is a method of joining multiple network connections in parallel to create a single, high-capacity logical link. Network

Web: https://www.in-au.co.za