Uplink ports of the aggregation switch

Overview

Port Aggregation Configurations Port aggregation is useful for implementing load balancing and provides a redundant link backup. To allow port aggregation.

Key Takeaways

Aggregation of switch uplink ports combines multiple physical links into a single logical link to increase bandwidth, provide redundancy, and enable load balancing.

Overview of Uplink Port Aggregation

Uplink port aggregation, also known as Link Aggregation or LAG (Link Aggregation Group), allows multiple physical Ethernet ports to function as a single logical interface. This approach increases the effective uplink bandwidth between switches and provides redundancy, so if one link fails, traffic continues over the remaining links. Key Protocols and ModesLACP (Link Aggregation Control Protocol): An industry-standard protocol (IEEE 802.

3ad) that dynamically manages link aggregation, ensures both ends agree on aggregation settings, and provides automatic failover. Static (ON) Mode: Ports are manually added to an aggregation group without LACP negotiation. All ports must have consistent configurations, including speed, duplex, VLANs, and STP settings.

Active/

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Passive LAC

P Modes: Active mode initiates LACP negotiation, while passive mode responds to LACP requests. Both require compatible LACP support on the connected device.

Configuration Considerations

Consistency Across Ports: All member ports in a LAG must have the same speed, duplex, VLAN membership, and STP settings to avoid misconfigurations. Load Balancing: Traffic is distributed across aggregated links based on hashing algorithms, typically using source/destination MAC, IP, or TCP/UDP ports. Uneven traffic patterns may result in some links being more utilized than others.

Redundancy: Aggregated uplinks provide failover. If one physical link fails, the LAG continues to carry traffic over remaining links, minimizing downtime. Supported Speeds: Aggregation can combine links of the same speed (e.g., 10GbE, 40GbE, 100GbE).

Mixed speeds are generally not recommended for load balancing. Topology Planning: Configure aggregation starting from downstream switches toward upstream devices to ensure proper negotiation and minimal disruption.

Practical Deployment

Uplink Between Switches: Multiple uplink ports can be aggregated to increase bandwidth between switches. For example, four 40GbE uplinks can theoretically provide 160Gbps of aggregated bandwidth, but actual throughput per flow depends on the load-balancing algorithm. Redundant Server Connections: When connecting servers with multiple NICs, distribute LAG members across server NICs to maintain balanced traffic and avoid bottlenecks.

MC-LAG (Multi-Chassis LAG): For higher resilience, two switches can act as a single logical unit, allowing devices to connect to both switches simultaneously while maintaining load balancing and redundancy. LimitationsPer-Flow Bandwidth: Aggregation increases total bandwidth but does not guarantee line-rate for individual flows; multiple flows are needed to fully utilize all links. Traffic Reordering: Improper hashing or mixed-speed links can cause packet reordering, which may affect latency-sensitive applications.

Hardware Support: Ensure both switches support the same aggregation protocol and hashing options for optimal performance. By carefully planning uplink aggregation, configuring consistent port settings, and using LACP or MC-LAG where appropriate, network administrators can achieve higher bandwidth, redundancy, and efficient traffic distribution between switches.

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Article Content

Port Aggregation Configurations

Port aggregation is useful for implementing load balancing and provides a redundant link backup. To allow port aggregation, the basic configuration on all the ports must be consistent. The following list

How to Aggregate Ports on UniFi Switch

Aggregating ports on a UniFi switch combines multiple physical links into a single logical link, increasing bandwidth and providing redundancy. Follow these steps to create and assign

Uplink Port on a Switch: vs Normal, Sizing & VLANs

The port that carries traffic up that chain is the uplink, and its job is aggregation: a 48-port switch gathers the traffic of up to 48 devices and funnels it through one or two uplinks.

What Is an Aggregation Switch and How to Choose?

When selecting an aggregation switch, you need to consider the uplink port type and number of the network access switches, as well as the downlink port type of the core switch.

Aggregation Switch

It enables high-bandwidth aggregation ports to be switched or routed to even higher bandwidth uplink ports, allowing for efficient data transfer. These switches are typically designed with modular

Aggregation Switch

An Aggregation or "Top-of-Rack" switch is designed to connect everything in a rack at high speeds, then have an even bigger pipe out to the rest of the network. The Pro Aggregation does this with it''s

Medium Branch Switch Configuration | Validated Solution Guide

this section of the guide will demonstrate how to configure a Aggregation switch with dual purposes, providing power and layer 2 access to wired devices and access points, while also

Uplink Port vs Normal Port on Network Switch

Discover the meaning and key differences between uplink ports and normal ports and how they work in modern Ethernet switches.

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port aggregation VS uplinks

It depends whether uplink ports are "special", and if they are, do you need the "special". For example, on the 3750 series, the uplink ports are often modular transceiver ports, so if you need

The 9 Best Enterprise Network Switches for 2026

Generally speaking, enterprise-level switches are rack-mounted. When used as a backbone switch, it can support over 500 information points. According to the three-layer network

L2 SWITCHES

L2+/Lite L3 10G Multi-Gigabit Ethernet Switch The Edgecore ECS5500-12P switch is a 10G Ethernet access switch with 8 x 10GBASE-T ports and 2 x 10G SFP+/2

S3410L-24TF-P, 24-Port Ethernet L2+ PoE+ Switch, 24 x PoE+ Ports

Overview The S3410L-24TF-P is a Layer 2+ Ethernet switch equipped with 24 x 10/100/1000Mbps PoE+ ports and 4 x 1Gb SFP uplink ports. Designed for access-layer deployment, this switch utilizes a

Ubiquiti UniFi Pro Aggregation Switch USW-PRO-AGGREGATION

Ubiquiti UniFi Pro Aggregation Switch Build and expand your network with the UniFi ® Switch, part of the Ubiquiti Networks ® UniFi Enterprise System. The UniFi Switch, model USW-Aggregation-Pro, is

ProductDatasheet 18-port2.5GUplinkPoESwitch

OVERVIEW The ONV-POE37016PF is a 2.5G uplink PoE switch independently developed by ONV, nsity PoE power supply and optic uplink requirements. It provides 16*10/100/1000Base-T adaptive

2026 Enterprise Switching Trends: 1G to 10G/25G

Summary The 2026 enterprise "default upgrade" is no longer just faster access ports-it''s a balanced plan: 10G as a common access baseline,

48-Port 10G SFP+ with 6-Port 100G QSFP28 Layer 3 Managed

Product Overview The B1-S6750-48X6CQM-AC is a high-performance Layer 3 managed data center switch designed for aggregation, Top-of-Rack (ToR), leaf, enterprise, telecom, security, and private

Switches Archives

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Hikvision DS-XS06-P 4-Port Fast Ethernet Unmanaged PoE Switch with 2 uplink ports, 35W PoE budget, long-range transmission up to 300m, and metal housing for durability.

ICX7550 | RUCKUS ICX 7550 Switches | RUCKUS

The RUCKUS ® ICX ® 7550 series of midrange stackable switches are purpose-built to provide wired connectivity at the edge of the network for the latest

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This document is for preliminary research. Verify specifications against current standards, product documentation and project requirements.

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