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Switch aggregation layer configuration



Overview

This chapter describes Link Aggregation Group, Link Aggregation Control Protocol, and manual load balancing.

Key Takeaways

Configuring an aggregation layer switch involves creating a Link Aggregation Group (LAG) using protocols like LACP to combine multiple physical links into a single logical interface for higher bandwidth and redundancy.Step 1: Plan Your Aggregation
• Identify member ports: Choose the physical interfaces on the switch that will participate in the aggregation. Ensure they are of the same speed and duplex settings for optimal performance .

• Determine VLANs: Decide which VLANs will traverse the aggregated link. Aggregation can carry multiple VLANs as a trunk or a single VLAN as an access port .

• Select protocol: Use LACP (Link Aggregation Control Protocol) for dynamic aggregation, which provides automatic failover and prevents misconfigurations. Static aggregation is possible but lacks automatic negotiation .
Step 2: Configure the Aggregated Interface
• Create the LAG: On most switches, this involves defining a logical interface (e.g., ae0 on Juniper or Port-channel 1 on Cisco) and assigning member ports to it .

• Assign VLANs: Configure the aggregated interface as a trunk or access port depending on your network design. For trunking, include all relevant VLANs .

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• Set link speed and minimum links: Ensure all member links have the same speed. Optionally, define the minimum number of active links required for the LAG to be operational .
Step 3: Configure LACP (if using dynamic aggregation)
• Enable LACP on each member port.

• Set the LACP mode to active or passive depending on whether the switch initiates negotiation or waits for the peer .

• Verify that both ends of the link agree on the aggregation settings to prevent misconfigurations .
Step 4: Verify and Test
• Check LAG status: Use commands like show lacp or show etherchannel summary to confirm all member ports are active and forwarding traffic .

• Test redundancy: Disconnect one member link and ensure traffic continues over the remaining links.

• Monitor load balancing: Ensure traffic is distributed across all member links according to the configured hashing algorithm.
Step 5: Best Practices
• Configure downstream first: Apply aggregation settings on the access or downstream switch before upstream switches or core aggregation switches .

• Avoid conflicting port settings: Remove port security, MAC authentication, or 802.1X from member ports before adding them to a LAG .

• Consider MC-LAG for high availability: Multi-Chassis LAG allows two switches to act as a single logical unit, providing redundancy and load balancing across chassis . By following these steps, you can configure an aggregation layer switch to increase uplink bandwidth, provide redundancy, and ensure efficient traffic distribution across multiple physical links.

Article Content

Understanding Switch Aggregation: A Comprehensive

This blog post briefly explains the primary function of aggregation switches, particularly

What Is an Aggregation Switch and How to Choose?

Discover the role of aggregation switches. Explore differences between aggregation, access, and core switches, and

How to configure the link aggregation on layer 3 switch?

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Configuring Link Aggregation Group and Link Aggregation

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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

Link aggregation

Aggregation at layer 3 (network layer) in the OSI model can use round-robin scheduling, hash values computed from fields in the

Designing and Configuring the Aggregation Layer

The aggregation switches are configured to act as multi-function EAPS nodes to provide L2 connectivity services. After EAPS and L2

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Aggregation layer Aggregation layer The aggregation (sometimes also called distribution) layer is a real crossroad. Its primary goal is

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

Layer-2 Link Aggregation Configuration

Link aggregation, also called trunking, is an optional feature available on the Ethernet switch and is used with Layer 2 Bridging. Link

Layer 2 Configuration Guide, Cisco IOS XE 17.14.x (Catalyst 9200 Switches)

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Defining switch aggregation and its role in network architecture Switch aggregation, also

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Link Aggregation and Multi-layer switches

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Designing and Configuring the Aggregation Layer

Designing and Configuring the Aggregation Layer The network switches in the aggregation layer provide additional resiliency

U S W-A ggregation

The Switch Aggregation is a fully managed, Layer 2 switch with (8) 10G SFP+ ports designed to enhance your network''s switching

How to Configure EtherChannel Link Aggregation Control Protocol

Manual Etherchannel Configuration - Without using any negotiation protocol listed above Link Aggregation Control Protocol (LACP)

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

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You can also configure more than one LAG on the same switch, or add more than two Ethernet links to the same LAG

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Link aggregation

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