

RIVO MULTITRADE OPTICAL SYSTEMS

Interconnection between core switches



Overview

Different types of Ethernet switches perform different roles in the layers of high-capacity networks.

Key Takeaways

Core switches are typically interconnected using either Layer 2 or Layer 3 links, often with redundancy and link aggregation to ensure high availability and optimal traffic flow. Layer 2 vs Layer 3 Interconnection

Layer 2 (L2) links between core switches allow VLANs to span across both switches, which can be useful for VRRP, HSRP, or GLBP clusters where virtual IPs need to be shared across devices. This setup enables firewalls or other distribution devices to communicate across the L2 domain. However, L2 links can propagate broadcast traffic and increase the risk of spanning-tree loops if not carefully managed, potentially affecting network stability. Layer 3 (L3) links provide routing between the core switches, isolating broadcast domains and allowing for network summarization. L3 interconnections are recommended when you want to prevent broadcast traffic from affecting both cores and to simplify routing. L3 links also support dynamic routing protocols like OSPF, EIGRP, or BGP, which can provide high availability and load balancing between distribution and core layers.

Redundancy and High Bandwidth



To ensure high availability, core switches are often connected with multiple links using EtherChannel or LAG (Link Aggregation). This allows multiple physical links to act as a single logical link, increasing bandwidth and providing failover in case one link fails. Redundant connections between distribution switches and cores, combined with L3 routing, allow traffic to reroute automatically if a link or device fails.

Best Practices

- Separate L2 and L3 traffic: If using L2 for VRRP/HSRP, dedicate a separate VLAN or link for cluster communication and avoid using it for transit traffic.
- Use L3 links for core-to-core routing: This isolates broadcast traffic and allows summarization of networks, improving scalability.
- Implement link aggregation: Combine multiple physical links into an EtherChannel to increase bandwidth and provide redundancy.
- Deploy dynamic routing protocols: Use OSPF, EIGRP, or BGP between cores and distribution switches to ensure fast convergence and load balancing.
- Monitor and manage spanning-tree: If L2 links are used, carefully configure spanning-tree to prevent loops and broadcast storms.

Summary

The optimal interconnection strategy often involves a hybrid approach: a dedicated L2 link for VRRP/HSRP clusters and L3 links for core-to-core routing and transit traffic. This ensures high availability, efficient routing, and isolation of broadcast traffic, while link aggregation provides the necessary bandwidth for large-scale enterprise or data center networks.

Article Content

Core Switch Vs Distribution Switch Vs Access Switch□What

Different types of Ethernet switches perform different roles in the layers of high-capacity networks. Core switches, distribution

Connecting Core to Access switches

You could also run fiber between SFP modules. I would recommend at least 2 copper runs per switch, which you can

Related Video Reference

This video was associated with the source search result. Verify technical details against current product documentation and project requirements.

Contact Us

Continue your research online:

Website: <https://rivomultitrade.co.za>

Technical inquiry: <https://rivomultitrade.co.za/contact.html>

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

