Wiring up a dual-core switch



Overview

The wiring process begins by connecting the incoming hot wire (the line from the breaker panel) to the common terminal on the double switch.

Key Takeaways

The optimal wiring method for dual-core switches involves using both Layer 2 trunk connections for VLAN traffic and Layer 3 routed links for inter-core communication, often aggregated via EtherChannel for redundancy and bandwidth.

Core Wiring Overview

When connecting two core switches, the goal is to ensure high availability, redundancy, and efficient traffic flow. The recommended approach combines Layer 2 and Layer 3 connections: Layer 2 Trunks: Use a dedicated VLAN (e.g., VLAN4) for the point-to-point link between the core switches. This trunk carries access VLANs and provides a backup path for traffic in case of link failure.

Trunks can be aggregated using EtherChannel to increase bandwidth and provide redundancy. Layer 3 Routed Links: Establish a routed VLAN interface (SVI) on each core switch for inter-core communication. This allows routing protocols like EIGRP or OSPF to exchange routes efficiently without relying solely on Layer 2 paths.

VLAN and HSRP Considerations

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Access VLA

Ns: Interfaces connecting core switches to access switches should generally be passive in routing protocols to prevent unnecessary route advertisements.

HSR

P Alignment: Ensure that HSRP active gateways align with the spanning tree topology. This prevents suboptimal routing and ensures that traffic from access switches follows the most efficient path. Redundancy and TopologyEtherChannel Bundles: Combine multiple physical links between cores into a single logical link to increase bandwidth and provide failover capability.

Spanning Tree Protocol (STP): Use Rapid-PVST and define primary and secondary root bridges on each core switch to maintain loop-free Layer 2 topology.

Alternative Methods

For non-core or smaller networks, switches can also be connected using: Cascading: Simple twisted-pair connections to expand port count; each switch is managed independently. Stacking: Requires compatible switches from the same manufacturer; multiple switches act as a single managed device with shared backplane bandwidth. Clustering: Similar to stacking but may involve multiple switches forming a logical unit for management and redundancy.

Summary

For dual-core switches in a production network: Use Layer 2 trunk links for VLAN traffic between cores. Establish Layer 3 routed links for inter-core routing. Aggregate links with EtherChannel for redundancy and bandwidth.

Configure HSRP and ST

P carefully to align active gateways and root bridges. Keep access VLANs passive in routing protocols to avoid unnecessary route propagation. This setup ensures high availability, optimal traffic flow, and simplified management while providing redundancy in case of link or switch failure.

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