Side Router and Core Switch

Overview

Difference between a Core Switch and RouterWhether you can use them the same way you would an edge router really depends on the specific model of core Diff.

Key Takeaways

A core switch serves as the high-speed backbone of a network, while a side router (edge router) connects the network to external services like the internet or VoIP systems.Core Switch Overview

A core switch is a high-capacity, high-performance Layer 3 switch positioned at the backbone of an enterprise network. It aggregates traffic from distribution or aggregation switches and provides ultra-low latency and maximum throughput across the LAN or data center, ensuring uninterrupted packet forwarding . Core switches are optimized for reliability, redundancy, and scalability, often supporting high port speeds (10G–400G+), large buffers, and advanced routing protocols. They form the central nervous system of the network, connecting multiple distribution layers and enabling communication between VLANs, subnets, and security zones .

Side Router (Edge Router) Overview

A side router, often referred to as an edge or internet router, connects the internal network to external networks such as the internet or VoIP services. It handles routing between the internal LAN and external networks, applies security policies, and may manage NAT, firewall rules, or VPN connections. Unlike the core switch, which focuses on high-speed internal traffic, the side router manages traffic entering or leaving the network.

Connecting Core Switch to Side Router

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Best practices for connecting a core switch to a side router include:

• Routed Layer 3 Link: Establish a direct Layer 3 connection between the core switch and the router. The core switch can have a default route pointing to the router, while the router maintains static routes to reach internal VLANs .

• VLAN Management: If multiple VLANs need external access, you can configure subinterfaces on the router and corresponding SVIs (Switched Virtual Interfaces) on the core switch. This allows segmented traffic for internet and VoIP while maintaining security and routing efficiency .

• Separate Links for Security: For sensitive traffic like VoIP, consider separate L3 links or VRFs (Virtual Routing and Forwarding) to isolate traffic and improve control .

• Trunk vs Access Ports: Avoid using access ports for interconnection unless only a single VLAN is required. Trunk links with allowed VLANs are preferred for multi-VLAN environments .
Key DifferencesFeatureCore SwitchSide RouterPrimary RoleHigh-speed internal backboneConnects network to external networksLayerLayer 3 switchLayer 3 routerTraffic FocusInternal LAN/data centerInternet, VoIP, WANPerformanceUltra-low latency, high throughputRouting, NAT, firewall, VPNRedundancyHigh (dual PSU, hot-swappable modules)Moderate, depends on deploymentSummary

In a hierarchical network, the core switch ensures fast, reliable internal communication, while the side router manages external connectivity. Proper configuration, including routed links, VLAN segmentation, and optional VRFs, ensures efficient, secure, and scalable network performance .

Article Content

Why does a core switch need to be behind a router? : r/ccna

I noticed in most topologies there is a L3 switch at the distribution layer and the core layer. why would it need to run to a router after if

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