Using the aggregation switch as the core

Article Overview

An aggregation switch can serve as a core in smaller or collapsed network designs, but it typically lacks the high throughput, low latency, and advanced redundancy features of a dedicated core switch.

Understanding Aggregation Switches

An aggregation switch consolidates traffic from multiple access switches, wireless access points, or other edge devices and forwards it to the core layer or routers, operating at Layer 2 or Layer 3 depending on the network design . It supports link aggregation protocols like LACP, enabling multiple physical links to function as a single logical connection, which enhances bandwidth, redundancy, and failover capability . Aggregation switches are widely used in enterprise backbones, data centers, and large campus networks to improve scalability and simplify network management .

Using Aggregation Switches as Core

In smaller networks or environments with limited devices, an aggregation switch can act as a collapsed core, combining the roles of aggregation and core layers . This approach reduces hardware costs and simplifies the network topology. However, there are trade-offs:

o Performance: Aggregation switches may not provide the same high throughput or low latency as dedicated core switches, which are designed to handle all network traffic efficiently .
o Redundancy and Fault Tolerance: Core switches typically include advanced redundancy features, such as dual hot-swappable power supplies and high-availability protocols, which may be limited in aggregation switches .
o Scalability: While aggregation switches can handle thousands of devices, using them as a core in large-scale networks may create bottlenecks and limit future expansion .

Best Practices

o Small Networks: For networks with fewer than 50 devices, an aggregation switch can function as the core without significant performance issues .
o Medium to Large Networks: Maintain a three-tier architecture with access, aggregation, and core layers to ensure high availability, scalability, and simplified management .
o Redundancy: If using aggregation switches as a core, deploy them in pairs with redundant power supplies and fans to improve reliability .
o Link Aggregation: Use LACP or static link aggregation to combine multiple uplinks, ensuring sufficient bandwidth and failover capability .

Conclusion

While an aggregation switch can serve as a core in small or cost-sensitive networks, it is generally recommended to use dedicated core switches in larger or high-traffic environments to achieve maximum performance, reliability, and scalability. Collapsed core designs are feasible but should be carefully evaluated for future growth and redundancy requirements .

Introduction This chapter covers the design recommendations for a data center design deployment consisting of a Cisco Nexus®

An aggregation switch sits between access layer switches and the core network, acting as an intermediary. It collects

Hier sollte eine Beschreibung angezeigt werden, diese Seite lässt dies jedoch nicht zu.

The aggregation switch conducts uploading and distributing in addition to other tasks including policy implementation,

As we just mentioned, the aggregation switch is like the project manager or director within the company. They need to

This design employs a pair of redundant Cisco Nexus 7010 switches on the aggregation and core layers. Virtual

An aggregation switch consolidates data traffic from multiple network access switches into a single high-bandwidth link

An aggregation switch is a network device that consolidates traffic from multiple access switches, wireless access

Core switches set up a CSS that functions as the core of the entire campus network to implement high network reliability and

Compare Cisco core switches and access switches. Learn key differences for network design and performance. By

Ascentoptics: Everything You Need to Know About Aggregation Switch: This

An Aggregation or "Top-of-Rack" switch is designed to connect everything in a rack at high

speeds, then have an even bigger pipe

An aggregate switch consolidates traffic from access switches, while a core switch forms the backbone of the

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

Each aggregation switch requires 5x100-GbE links to the other switches. With the use of a core layer, each aggregation switch only

What is the difference between an aggregate switch and a core switch? An aggregate switch consolidates traffic from

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