Aggregation Switch as 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 .

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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 .

An Aggregation or "Top-of-Rack" switch is designed to connect everything in a rack at high speeds, then have an even bigger pipe

In a large enterprise, the core switch aggregates data from multiple distribution switches and routes it rapidly across

There are so many kinds of switches in the market, which one should we buy? For most companies, they only need to

You may think that the access layer switch, the aggregation layer switch, and the core layer switch belong to the

The core layer provides the high-speed packet switching backplane for all flows going in and out of the data center.

FS Community

What is an Aggregation Switch and How Does it Work? An aggregation switch consolidates data traffic from multiple

What is a Core Switch? A core switch is the primary switch installed at the backbone of a layered or hierarchical network. These data

Discover the crucial differences between core, aggregation, and access switches. Find out which type can best

I need to add multiple new stacks of 2960-X to the existing network. However, two existing 4500-X Core switches (in

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

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

traffic from

Data Center Core Layer The data center core layer provides a fabric for high-speed packet switching between

It is also called an aggregation switch which functions as a bridge between the core layer switch and the access layer switch. In

As the aggregation point of access switches, the aggregation switch is required with the ability to process the access layer

Similarly, switches deployed at the aggregation layer are called The core layer switch is a three-layer switch, high

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