Aggregation Switch and Core Switch



Overview

Discover the crucial differences between core, aggregation, and access switches. Find out which type can best transform your network''s performance in 2025.

Key Takeaways

Aggregation switches consolidate traffic from access switches, while core switches serve as the high-speed backbone connecting aggregation switches and other network layers.

Aggregation Switch

An aggregation switch operates as an intermediary between access switches and the core network. Its primary role is to collect and consolidate traffic from multiple access switches, wireless access points, servers, or other edge devices, and forward it to core switches or routers, ensuring efficient traffic flow and reducing bottlenecks in high-traffic environments. Aggregation switches typically support Layer 2 and Layer 3 functions, including VLAN segmentation, Quality of Service (QoS), routing, load balancing, and traffic filtering.

They also support link aggregation protocols like LACP or static link aggregation, which combine multiple physical links into a single logical connection to enhance bandwidth, redundancy, and failover capability. Aggregation switches are widely deployed in enterprise backbones, data centers, and large campus networks, where they bridge the access and core layers.

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Core Switch

A core switch forms the high-speed backbone of a network, connecting aggregation switches and providing ultra-low latency, high reliability, and maximum throughput. Core switches are typically Layer 3 managed switches with advanced routing capabilities, fault tolerance, and high availability. They handle massive volumes of traffic and are designed to ensure continuous network performance even under heavy load.

In large-scale deployments, core switches may support 10G or higher interfaces to accommodate aggregated traffic from multiple aggregation switches, while smaller networks may use simpler core switches with fewer ports. The core switch is critical for maintaining network stability, scalability, and redundancy, as it connects all aggregation switches and often links to storage servers, monitoring platforms, and external networks. Key DifferencesFeatureAggregation SwitchCore SwitchRoleAggregates traffic from access switchesConnects aggregation switches and forms the network backboneLayerLayer 2/Layer 3Primarily Layer 3FunctionTraffic consolidation, VLAN segmentation, QoS, load balancingHigh-speed routing, fault tolerance, high availabilityDeploymentBetween access and core layersCore layer of the networkBandwidthMedium to highVery high, designed for massive trafficRedundancySupports link aggregation and failoverAdvanced redundancy and high availability featuresSummaryIn a hierarchical network, aggregation switches act as the bridge between end-user devices and the core network, optimizing traffic flow and providing scalability, while core switches serve as the backbone, ensuring high-speed connectivity, reliability, and fault tolerance.

Proper deployment of both switch types is essential for building efficient, scalable, and resilient networks.

Article Content

Core, Aggregation, or Access Switches? Choose the Perfect Fits

Discover the crucial differences between core, aggregation, and access switches. Find out which type can best transform your network''s performance in 2025.

What Is an Aggregation Switch and How to Choose?

Discover the role of aggregation switches. Explore differences between aggregation, access, and core switches, and choose the right model for

Core Switch vs. Distribution Switch vs. Access Switch

There are different types of enterprise switches that perform various roles in these layer-based or hierarchical ethernet networks. This white paper introduces the following three types of network

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The Features and Differences Between Core Switches and

The biggest difference between core switch and aggregation switches is that, core switch is required to always be fast, highly available and fault tolerant since it connects all the aggregation switches.

What is an Aggregate Switch?

What is the difference between an aggregate switch and a core switch? An aggregate switch consolidates traffic from access switches, while a core switch forms the backbone of the

Aggregation Switch vs Core Switch: Choose the Best 10G Switch

This article offers a comprehensive explanation of the definitions and functions of aggregation switches and core switches.

Understanding Core Switch: What It Is and How to Choose the

It''s advisable to choose a core switch with link aggregation capabilities to ensure efficient transmission of traffic from the aggregation switch to the core switch.

Access, Distribution, and Core Layers Explained

A distribution switch provides an aggregation point for access switches. If the core switches exist, the distribution switches connect the access

Access vs. Distribution vs. Core Switch Comparison Guide

This guide provides a comprehensive comparison of Access, Distribution, and Core switches, detailing their functions, characteristics, and deployment scenarios.

HPE Aruba Networking CX switches

HPE Aruba Networking CX 6400 Switch Series High-availability modular chassis and line card switches for versatile edge aggregation, core, and data center

Aggregation Switch vs Core Switch: Choose the Best 10G Switch

In contrast, an aggregation switch operates at the intermediate layer, aggregating traffic from multiple access layer switches. Core switches and aggregation switches serve different

Aggregation Switch

An aggregation switch refers to a type of switch used to connect multiple ToR switches to a core switch/router in a cloud data center network. It enables high-bandwidth aggregation ports to be

Data Center Multi-Tier Model Design

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The recommended platform for the enterprise data center core layer is the Cisco Catalyst 6509 with the Sup720 processor module. The high switching rate, large switch fabric, and 10 GigE

What is a Core Switch | Functions and Difference over Normal Switch

Network aggregation switches, on the other hand, connect many networks over a single link. As a result, it increases the network''s bandwidth. This article explained the question of what is

Access vs. Distribution vs. Core Switch Comparison Guide

Distribution Layer Switches: Positioned between the access and core layers, distribution switches aggregate traffic from multiple access switches. They are typically Layer 3 devices responsible for

SMB Network Design: Core vs. Distribution vs. Access Switches

Core Layer: The high-speed backbone, often connecting multiple distribution switches. Distribution Layer: The middle ground that aggregates access layer traffic, applying routing and

What Is Distribution Switch and Why Do We Need It?

Simply put, an aggregation switch in between functions a bridge between core layer switch and access layer switch. This is also the reason why we call distribution switch as aggregation

The Features and Differences Between Core Switches and Aggregation Switches

Core switch is the important part of the digital monitoring system, it is the connect bridge of aggregation switch,monitoring platform and storage server etc. It is suggested to choose L3 full gigabit core

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