

RIVO MULTITRADE OPTICAL SYSTEMS

Central Switch and Access Switches



Overview

Different types of Ethernet switches perform different roles in the layers of high-capacity networks.

Key Takeaways

Access switches connect end-user devices to the network, while central (core) switches form the high-speed backbone that interconnects distribution and access layers.

Access switches operate at the network edge, directly connecting end-user devices such as computers, IP phones, wireless access points, cameras, and IoT devices to the network. They are typically located in the access layer of a hierarchical network and provide:

- High port density to accommodate multiple devices.
 - Power over Ethernet (PoE) for devices like IP phones and cameras.
 - VLAN support and local traffic forwarding, enabling efficient communication within subnets.
 - Security features such as port security, DHCP snooping, and MAC address filtering.
- Access switches are often Layer 3 capable, meaning they can perform routing between VLANs or subnets, but their primary role is to provide network access to end devices and forward traffic upstream to distribution or core switches.

Central (Core) Switches

Central switches, also called core switches, operate at the top layer of a hierarchical network and form the backbone that interconnects distribution switches and, indirectly, access switches . Their key characteristics include:

- High-speed data forwarding to handle large volumes of traffic with minimal latency .
- Scalability and fault tolerance, often using multiple core switches to prevent congestion and ensure network reliability .
- Centralized routing and switching, supporting advanced features like inter-VLAN routing, policy enforcement, and integration with security appliances . Core switches are critical for network performance, as the efficiency of the entire network depends on their ability to route and switch traffic between distribution and access layers .

Hierarchical Network Context

In a three-tier network model:

- Access Layer: Access switches connect end devices and handle local traffic.
- Distribution Layer: Distribution switches aggregate traffic from multiple access switches, enforce policies, and provide redundancy.
- Core Layer: Central/core switches form the high-speed backbone, connecting distribution switches and ensuring fast, reliable data transfer across the network . This hierarchy improves network manageability, scalability, and performance, compared to flat networks where all devices connect to a single switch.

Summary

- Access switches: Edge devices, connect end-users, provide PoE, VLANs, and security at the subnet level.
- Central/core switches: Backbone devices, high-speed, aggregate distribution traffic, ensure network reliability and low latency.
- Together, they form a structured, hierarchical network that balances performance, security, and manageability .

Article Content

Core Switch Vs Distribution Switch Vs Access Switch□What

Different types of Ethernet switches perform different roles in the layers of high-capacity networks. Core switches, distribution

HPE Aruba Networking CX switches

HPE Aruba Networking CX 6300L Switch Series Layer 3 stackable access and aggregation switches with Multi-Gigabit Ethernet,

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