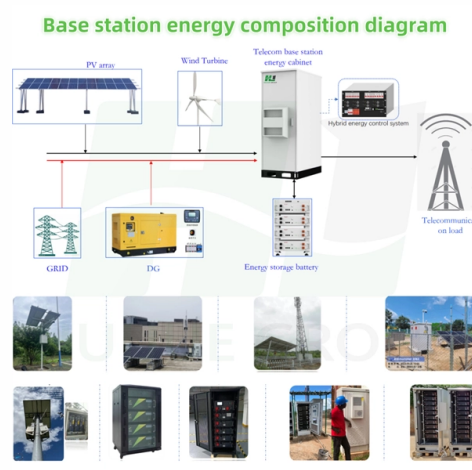


Switches are core devices in local area networks



Overview

Network Switches form the backbone of computer networks and are one of the main building blocks of a Local Area Network (LAN).

Key Takeaways

Core switches are central devices in LANs, responsible for high-speed data routing and switching at the backbone of the network, ensuring efficient communication between all connected devices.

Network switches are essential devices that connect multiple devices within a LAN, such as computers, printers, servers, and IoT devices, enabling efficient data transfer and communication. Unlike hubs, switches forward data only to the intended device using MAC addresses, reducing network congestion and improving overall performance. They operate primarily at the data link layer (Layer 2), though some advanced switches also operate at Layer 3, forwarding data based on IP addresses.

Core Switches

A core switch is installed at the backbone of a hierarchical network and serves as the primary switch for routing and switching large volumes of data. Core switches connect to distribution and access layer switches, ensuring that data flows efficiently across the network. Key characteristics include:

- **High Forwarding Rate:** Core switches handle large amounts of data and must process packets quickly to prevent bottlenecks.

- **Quality of Service (QoS):** They prioritize critical data packets to maintain network performance .
- **Redundancy:** Core switches often include swappable power supplies and cooling systems to prevent failures .
- **Scalability:** Multiple core switches can be deployed to support large networks and complex topologies .

Access and Distribution Switches

- **Access switches** connect end-user devices to the network and operate at the access layer, providing ports for devices to join the LAN .
- **Distribution switches** act as intermediaries between core and access layers, aggregating data from access switches and forwarding it to the core layer .

Benefits of Core Switches in LANs

Core switches enhance network performance by enabling full-duplex communication, reducing collisions, and providing dedicated bandwidth for each segment . They also support advanced features like VLANs for network segmentation and security, ensuring reliable and scalable LAN infrastructure . By centralizing high-speed data routing, core switches are critical for maintaining the efficiency and stability of modern LANs, especially in environments with heavy data traffic or multimedia streaming .

Article Content

10 Different Types of Network Switches used in LAN Ethernet Networks

Network Switches form the backbone of computer networks and are one of the main building blocks of a Local Area Network (LAN). A

Contact Us

Continue your research online:

Website: <https://thegalleryselfcatering.co.za>

Technical inquiry: <https://thegalleryselfcatering.co.za/contact.html>

This document is for preliminary research. Verify specifications against current standards, product documentation and project requirements.

