

Core Switch Local Area Network Architecture



Summary of Content

A core switch serves as the high-speed backbone of a LAN, connecting distribution switches and ensuring ultra-low latency, high throughput, and network redundancy across the enterprise or campus network.

Role of a Core Switch

A core switch is positioned at the top tier of a hierarchical LAN, often referred to as the core layer. It aggregates traffic from multiple distribution layer switches, providing high-speed connectivity between different buildings, server farms, or data centers within a campus network. Unlike access switches, which connect directly to end-user devices, the core switch focuses on routing and forwarding large volumes of data efficiently, acting as the central nervous system of the network.

Hierarchical LAN Architecture

LANs are typically designed using a three-tier model:

- **Access Layer:** Connects end-user devices such as laptops, VoIP phones, Wi-Fi access points, and IoT devices. Access switches often provide Power over Ethernet (PoE) and high port density.
- **Distribution Layer:** Aggregates traffic from access switches, enforces routing policies, VLAN boundaries, and security ACLs, and forwards traffic to the core layer.
- **Core Layer:** The core switch provides wire-speed Layer 3 routing, connecting distribution switches and enabling fast inter-VLAN and inter-subnet communication. It prioritizes high availability, redundancy, and minimal latency.

Article Content

What is a Local Area Network (LAN)? | Definition from TechTarget

A LAN includes various network components, such as cables, switches, routers, firewalls, load balancers and wireless

What is a Local Area Network (LAN)? | Definition from TechTarget

What is a local area network (LAN)? A local area network (LAN) is a group of computers and peripheral devices that

Enterprise Network Design: Switching, Routing, and Segmentation for ...

Design enterprise networks for commercial buildings — core/distribution/access switching hierarchy, VLAN

Core Switch vs Access Switch | Definitions and Key Differences

This article focuses on the hierarchical internetworking and core switch vs access switch differences. We also

Network Architecture: Types, Components, and How Modern ...

Network architecture defines how devices, protocols, and services connect across your infrastructure. Learn about architecture

Three-Layer Model

The core is likely to see large volumes of traffic, so speed and latency are driving concerns here. Given the function of the core, here

Wired local area network basics | Switching Reference Architecture

Wired local area network basics Switched LANs provide the basic access for network devices to communicate with each other and

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

A core switch is not merely a type of switch but rather denotes the switch that operates at the core layer (the network's

Understanding the Core Switch: Key Differences and Uses

Explore the core switch's role as the backbone of your network. Discover key differences, uses, and insights into layer

LAN Topologies

Layer 3 services for wired network hosts are moved from the core to VSX pairs of aggregation switches. A pair of core

Campus LAN and Wireless LAN Solution Design Guide

The campus local area network (LAN) is the network that supports devices people use

Datacenter Core and Aggregation Design

Thus, it consolidates L2 traffic in a high-speed packet switching fabric and provides a platform for network-based

Local Area Network Architecture | LAN Architecture

Local Area Network Architecture Local area network architecture consists of various host devices or extenders like

A Comprehensive Guide: LAN Architecture in

Conclusion The architecture of a local area network plays an important role in determining its

Core Switch

Core switches are defined as high-capacity switches located at the top of a cloud data center network, connecting aggregation

Differences Between the Core Switch and Normal Switch | FiberMall

The so-called core switch is for the network architecture. If it is a small local area network with several computers, a

Access, Distribution, and Core Layers Explained

In a large, complex network, core switches reduce cabling requirements and the number of

Core vs Distribution vs Access Switch: Architecture Guide

It will analyze the required hardware specifications for each tier, detail the specific routing and switching protocols that

Cisco three-layer hierarchical model

Cisco three-layer hierarchical model Because networks can be extremely complicated, with multiple protocols and diverse

LANCOM Tech Paper Two-Tier and Three-Tier Switch Architectures

Two-tier and three-tier switch architectures When structuring the logical architecture of an enterprise network, decisive factors

Three-tier switch networks: LANCOM Systems GmbH

Efficiently plan and implement 3-tier switch architectures with core, aggregation, and access switches from LANCOM!

Core, Distribution, and Access Layer Explained with Examples ...

Access switches on each floor or department A multinational bank might have core switches in regional data centers,

What Is a Core Switch in Networking?

Unlike access switches, which connect directly to end-user devices, the core switch focuses on aggregating and

What Is a Core Switch? Network Backbone Architecture Guide

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

Wired local area network basics | Switching Reference Architecture

Switched LANs provide the basic access for network devices to communicate with each other and with resources locally adjacent (in

What Is a Core Switch?

Sitting at the top of the hierarchical model, core switches interconnect distribution layer switches and provide high-speed data

Features and Applications of Core Switches

With high performance, large capacity, and high reliability, Core Switches offer a wide range of features and play a

Core Switches: The Pillar of Network Infrastructure

Get a closer look at core switches: the nerve centers of network infrastructure that enhance performance and facilitate

Comprehensive Guide to Local Area Network Switching Architecture

Throughout this comprehensive exploration, we have outlined how LAN switching architecture forms the backbone of today's

Core Switch Vs Distribution Switch Vs Access Switch□What

Core Switch Vs Distribution Switch Vs Access Switch□What's the difference□ Ethernet networks are expanding and their designs

Core Switch vs. Distribution Switch vs. Access Switch

Core Switch vs. Distribution Switch vs. Access Switch: Understand Their Roles in Ethernet Networks Ethernet networks are growing

Contact Us

For more information, pricing, or custom solutions, please contact us:

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

Email: sales@benniedesignstudio.co.za

Phone: +27 82 391 4765

Address: The Towers, 1 St Georges Mall, Cape Town, 8001, South Africa

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