

Performance Requirements of Access Switches



AI Overview

Access switches must deliver high port density, sufficient throughput, PoE support, uplink capacity, security, and scalability to meet modern network demands. Key Performance Considerations

1. Port Density and Types Access switches should provide a high number of ports to connect end-user devices such as PCs, IP phones, Wi-Fi access points, cameras, and IoT devices efficiently. Modern switches often support 10/100/1000 Mbps Ethernet ports, with some offering multigigabit (2.5G/5G/10G) ports to accommodate high-bandwidth devices and Wi-Fi 6/7 access points. High port density reduces cabling complexity and optimizes space in wiring closets.
2. Throughput and Packet Forwarding Switches must handle the expected network traffic without bottlenecks. Performance metrics include switching capacity, forwarding rate, and latency. Enterprise-grade access switches, such as Cisco C9350, can support up to 1.6 Tbps of mixed stacking and high-speed uplinks to ensure smooth traffic aggregation.
3. Power over Ethernet (PoE) Many access switches provide PoE to power edge devices. Performance requirements include:
 - PoE (802.3af): up to 15.4W per port for basic devices
 - PoE+ (802.3at): up to 30W per port for standard Wi-Fi APs and IP cameras
 - PoE++ (802.3bt): up to 60-90W per port for PTZ cameras, smart lighting, and high-performance Wi-Fi 7 APsThe total power budget must be sufficient to support all connected devices simultaneously.
4. Uplink and Expansion Capacity Access switches should provide uplinks to distribution or core layers with sufficient bandwidth, often 10G, 25G, 40G, or 100G, to prevent congestion. Some switches support stacking or modular uplinks for future scalability.
5. Security and Policy Enforcement Access switches are the first point of contact for end devices, so they must support port-based security, MAC address filtering, DHCP snooping, IE...

Article Content

What is an access switch and how to select access switches?

Selecting access switches is not only a technical decision, but also a crucial step in shaping the future network infrastructure of your enterprise. When making your choice, consider

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.

Cisco Catalyst 9300 Series Switches Architecture White Paper

It uses 28-nanometer technology and single/dual cores capable of switching either 160GB, 240GB or 500GB of data at line rate based on ASIC versions, and is specifically optimized for next

Choose access layer switch for the access layer

What is the main function of an access layer? What does an access layer switch do? How to choose the right network switch for the access layer?

Choosing the Right Network Switch for Your IT Team

Matching network switch capabilities to business requirements Network switches serve as the central connection points for devices in your local

How to Choose the Right Access Layer Switch?

Selecting the optimal access layer switch requires evaluating several critical factors. Your choice directly impacts network reliability, security, and

Understanding the Role of an Access Switch in Your

Explore the crucial role of an access switch in your network. Learn how it connects end-users and devices via Ethernet, enhancing overall

Understanding Access Switches: Key Components of

The access layer switches within an enterprise should allow for the number of devices one wishes to connect and offer performance and features

Products

These switches provide superior high availability and unmatched security features for the next generation of enterprise network designs, with wired and wireless security and application

U.S. Access Board

The U.S. Access Board is a federal agency that promotes equality for people with disabilities through leadership in accessible design and the development of

9 Best Network Switches for 2024: Speed and Features

Network switches can increase your network's connectivity speeds, give you access to more ports, and cut your infrastructure costs. Find the right

What is access switch and how to choose the right one

The cost of an access switch depends on the number and rate of interfaces, supported features, and brand, among others. The performance requirements of an access switch are not as

Access vs. Distribution vs. Core Switch Comparison Guide

While access switches provide end-device connectivity, distribution switches aggregate traffic and enforce policies, and core switches form the high-speed backbone.

Choose access layer switch for the access layer network

The port speed of the access switch is the primary concern to end-users. Most access switches come with 10/100/1000Mbps ports. Whether to use Fast Ethernet or Gigabit Ethernet

How to Evaluate LAN Switch Performance: A Guide

Learn how to evaluate the performance of LAN switches based on types, metrics, methods, criteria, and best practices. Find out how to choose the best switches

Core Switches and Normal Switches: A Practical Comparison

Core switches and normal switches (also known as access switches) serve distinct purposes within a network. This article explores their key differences, helping you make informed

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

What is the Access Switch?

As the physical entity of the access layer, access switches are responsible to connect both to the distribution layer switches and the end devices as well as

Key Features of Access Switches Explained

The essential features of access switches, including high port density, PoE, Layer 3 capabilities, security, and QoS for efficient networks.

What is an access switch and how to select access switches?

Performance specifications: Check the capacity and packet forwarding rate of the switch to ensure they meet the demands of network traffic. Security: Choose a switch that supports

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How To Analyze Network Switch Performance: 7 Key Metrics

Learn how to analyze network switch performance with 7 key metrics. Compare throughput, latency, packet loss & more to choose the right switch for your needs.

Core Switch vs. Distribution Switch vs. Access Switch

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

What Defines Optimal Access Switching? Can Your Enterprise

The access layer serves as the frontline of any network infrastructure, handling the constant traffic flow between user devices and network resources. These switches must balance ...

Network Switches

Cisco network switches deliver performance, flexibility, and security. Cisco switches are scalable and cost-efficient and meet the demands of hybrid work.

FS Access Switches Selection Guide for Your Networks

In today's interconnected world, choosing the right access switch is crucial for ensuring efficient network performance. This guide will help you understand what an access switch is, explore

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