

Core Switch of Campus Network



AI Overview

A campus network core switch serves as the high-speed backbone connecting distribution switches, ensuring scalability, redundancy, and high-performance traffic forwarding across a campus LAN.

Role and Function The core switch is the backbone of a campus network, aggregating traffic from multiple distribution switches and providing high-speed connectivity to data centers, WANs, or other campus areas . Unlike access or distribution switches, core switches primarily focus on fast, reliable forwarding rather than providing services to end devices. They handle large volumes of traffic, reduce cabling complexity, and maintain predictable network performance .

Key functions include:

- Aggregating distribution-layer traffic
- Providing high-speed uplinks (10G, 25G, 40G, 100G, or 400G)
- Supporting Layer 3 routing protocols (OSPF, IS-IS, EIGRP, BGP)
- Ensuring redundancy and high availability with dual power supplies, redundant supervisors, and chassis-level failover
- Enabling network virtualization and segmentation (VRF-Lite, MPLS, SD-Access)

Design Considerations When selecting a core switch, consider:

- Bandwidth and port density:** Ensure sufficient uplinks to distribution switches and future growth .
- Redundancy:** Dual supervisors, power supplies, and chassis-level failover improve reliability .
- Scalability:** Modular chassis (e.g., Cisco Catalyst 9600, H3C S10500X-G) allow line-card expansion and long-term growth .
- High-speed uplinks:** Support for 40G, 100G, or 400G Ethernet ensures the network can handle increasing traffic demands .
- Layer 3 capabilities:** Core switches often perform routing between VLANs and distribution blocks, supporting IPv4/IPv6, multicast, and QoS .
- Security:** Features like MACsec, ACLs, and trusted computing modules protect traffic at the core .

Vendor Examples

- Cisco Catalyst Series:** Catalyst 9500 (fixed core), Catalyst 9600 (modular core) for high-speed aggregation and long-term expansion .
- HPE Aruba CX Series:** CX 10000, CX 9300, and CX 8400 provide high-performance, modular, and fixed options with intelligent automation and analytics

Article Content

What Is a Core Switch? Network Backbone Architecture Guide

This guide breaks down exactly what a core switch does, how it fits into the three-tier network model, and the exact device-count thresholds that dictate when your business actually

LAN Topologies

Use HPE Aruba Networking CX switches with sufficient ports of appropriate speeds to service the full bandwidth demands of the campus aggregation layer. A 4:1 oversubscription ratio is

Native AC Solution: Core Switches Function as the Gateway for Wired

Networking Requirements Core switches set up a CSS that functions as the core of the entire campus network to implement high network reliability and forwarding of a large amount of data. In addition,

Access, Distribution, and Core Layers Explained

This tutorial provides an overview of the access, distribution, and core layers and explains two-tier and three-tier campus LAN designs.

Ethernet Switch Port Types Explained 2026: RJ45,

A complete engineering guide to Ethernet switch port types: RJ45, SFP, SFP+, SFP28, QSFP+, QSFP28, Combo, Stack, PoE, access/trunk/hybrid

Campus Switches RG-S6150-24VS8CQ-X 24-Port 25GE All-Optical

RG-S6150-24VS8CQ-X 24-Port 25GE All-Optical Layer 3 Managed Core & Aggregation Switch, 100G Uplink Core or aggregation switch for small and medium-sized networks, supporting the smooth

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 and becoming more complex, with high-capacity WANs now being

Multi-Branch Network Solution

Ruijie Enterprise Multi-Branch Network Solution is designed for enterprises with multiple branches. The headquarters can leverage a core device that integrates switching, wireless, routing, and basic

Switches-H3C

Switches Campus Network Switches Services integration and intelligent access H3C has been deeply engaged in the campus network for many years with various product levels. It can provide users with

Network Switches | Huawei Enterprise

Data Center Switches CloudEngine data center switches — Ethernet switches widely used in diverse applications and in different network sizes, in both data

Campus LAN Core and Distribution Switches

Cisco Catalyst and Meraki Campus LAN core and distribution switches are scalable, secure network switches with exceptional intelligence.

Introduction to Campus Network Design and Multilayer Architectures

I am dedicated to enabling the field, partners, and customers in their transition to intent-based networking, leveraging Software-Defined Access and Cisco Catalyst Center.

Aruba CX 6400 Review | Enterprise Core Switch | 2026

Short answer — yes, for campus cores and enterprise aggregation, but with specific design considerations. The CX 6400 is a modular, high-performance chassis switch built for large campus

Selecting Campus Switches and Routers

– Focus on scalability, sufficient CPU to ensure current and immediate future needs – Router or “L3 Switch” is often appropriate, as routing needs in the Core are not onerous

HPE expands self-driving networks across edge, campus, data center,

LAS VEGAS – HPE Discover Las Vegas 2026 – June 16, 2026 – HPE (NYSE: HPE) today announced major advancements that expand its self-driving networking strategy across AI

Arista 750 Series Campus Switch from Arista Networks

Arista 750 Series Campus Switch delivers multi-gigabit PoE+ and PoE++ for dense Wi-Fi 6/6E and future Wi-Fi 7 office deployments in the US. Anyone holding Arista Networks stock (NYSE:

S3410-24TS-P, 24-Port Gigabit Ethernet L2+ PoE+ Switch, 24 x PoE

OverviewThe S3410-24TS-P is a high-performance Layer 2+ Gigabit Ethernet switch designed for campus network environments. It features 24 ports of 10/100/1000BASE-T RJ45 with support for

What Is an All-Optical Ethernet Switch?

All-optical Ethernet switches are a type of switch that provides optical uplink and downlink ports, making them an ideal choice for building an all-optical campus network. They can function as

UniFi Switching

Switching evolved. High-performance switches designed to scale and optimize performance of any network with a magical management experience.

Selecting Campus Switches and Routers

Two 1Gbps/10Gbps uplink ports (copper or fibre) Only connects to the building distribution switch 1Gbps uplink may be a bottleneck, 10Gbps is better Fibre installation allows future growth to 10Gbps from

Technical overview | Juniper Networks

Core switches, when acting as a border router, interconnect the campus fabric with the outside network. Service block devices that interconnect the campus fabric with the outside network.

Configuring Interconnection Interfaces and Routes for the Core Switch ...

In this example, Internet access traffic of users passes through the BRAS, and then reaches the egress network of the firewall through the core switch. Traffic passing through the BRAS is classified into

Cisco C9610 Series Smart Switches Data Sheet

Cisco C9610 Series Smart Switches have flexible interface types and port densities that allow you to mix and match network configurations to meet the specific needs of campus networks.

Campus LAN and Wireless LAN Solution Design Guide

The design uses multiple physical switches that act as a single logical switch, such as switch stack or Cisco StackWise Virtual Pair (SVP), or the less

BRKENS-1501

Collapsed Core (Tier 2) focuses on connecting multiple Access layers and the WAN/Edge layer. The StackWise Virtual (SVL) Core PIN focuses on combining Core and/or Distribution into a single virtual

PLANET Technology 2025–2026 Switch Lineup: Six Models for Every Network ...

PLANET Technology continues to expand its managed switching portfolio with solutions that span the full spectrum of modern network requirements — from compact multi-gigabit PoE+ +

Cisco Campus Network Design Basics

This lesson explains the basics of Cisco Campus Network Design and the three layer model with the Core, Distribution, and Access layers.

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