

National Standards for Access Layer Switches



AI Overview

Access layer switches must comply with NIST, DoD STIG, and NSA security guidelines to ensure secure, reliable, and manageable network access.

Overview of Access Layer Switches

Access layer switches operate at the network edge, connecting end-user devices such as PCs, IP phones, printers, and wireless access points. They are typically Layer 2 devices, though some support Layer 3 features for inter-VLAN routing. Key characteristics include high port density, cost-effectiveness, PoE support, and edge security features. Their primary role is to provide secure and reliable network access while enforcing policies at the edge of the network.

Security Standards and Guidelines

Access layer switches in national or government networks must adhere to security standards derived from NIST 800-53 and related DoD STIGs. Key requirements include:

- Endpoint Authentication:** Switches must uniquely identify all connected devices before granting network access, often implemented via 802.1x authentication to prevent unauthorized connections.
- Disabling Non-Essential Features:** Any unused or non-critical capabilities should be disabled to reduce attack surfaces.
- VLAN and Trunk Security:** VLAN Trunk Protocol (VTP) or similar features must authenticate messages using strong cryptographic algorithms to prevent unauthorized VLAN changes.
- Bandwidth and DoS Protection:** Switches must manage excess bandwidth to mitigate packet flooding and denial-of-service attacks.
- Configuration Compliance:** Switches should follow STIG checklists to ensure proper configuration, patching, and monitoring, supporting confidentiality, integrity, and availability of sensitive information.
- Deployment Considerations**

Layer 2 Topology: Provides VLAN extension, NIC teaming, and high availability for clustered applications, ensuring servers remain in the same broadcast domain.

Service Modul...

Article Content

Campus LAN Access Switches

Cisco Catalyst and Cisco Meraki campus LAN access switches combine wired and wireless to help you drive digital transformation, reinforce security, and simplify

What Is a Network Switch?

Network switches enable the most basic functions of a network, such as the ability to compute, print, server, file storage, Internet access, and more.

Access Layer Compact Switch Deployment Guide

rt for these additional access layer ports. The Cisco Catalyst Compact Switch family supports a common feature set with the networking platforms that are a ready a part of your Cisco SBA access layer.

Enterprise Switches: Everything You Should Know

Distribution switches act as intermediaries between core and access layer switches and are often called aggregation switches. They ensure packets

Layer 2 Switch Security Requirements Guide

This Security Requirements Guide is published as a tool to improve the security of Department of Defense (DOD) information systems. The requirements are derived from the National

Access vs. Distribution vs. Core Switch Comparison Guide

Compare Access, Distribution, and Core switches: understand their roles, features, and differences in enterprise network hierarchy. Make informed network design decisions.

Standards

Find out how ETSI standards are developed, approved and maintained to ensure their enduring value and relevance in a fast-changing European and global

What Is an Access Layer Switch? Guide complet

Learn what an access layer switch is, how it works in enterprise networks, and how to choose the right Cisco access switch for your SMB.

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 include the efficient and secure transport of data, high scalability, and high

Choose access layer switch for the access layer network

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? This post tells you everything.

Network Switch Hardware Standard

Network Switch Hardware Standard - Access Layer Background Information There are currently 81 different models of network switch hardware in use on the University of Michigan–Ann Arbor campus.

Layer 2 Switch Security Requirements Guide

Layer 2 Switch Security Requirements Guide Save this STIG to your library: build custom lists, collaborate with your team, and access full data via API.

Network Infrastructure Security Guide

Implement access restrictions on the internal routers, switches, or firewalls to allow only those ports and protocols that are required for network operations or valid mission need.

Software-Defined Access Solution Design Guide

Instead of using arbitrary network topologies and protocols, the underlay implementation for SD-Access uses a well-designed Layer 3 foundation

Understanding Access Switches: Key Components of

Explore the role of access switches in your LAN setup. Understand their key components, functions in the access layer, and how they integrate into

Datacenter Core and Aggregation Design

Introduction Layered Datacenter Architecture Datacenter Core Layer Datacenter Aggregation Layer Datacenter Access Layer Related Information

Core Switch vs. Distribution Switch vs. Access Switch

The access layer consists of layer 3 switches, which take routed and switched data packets from the distribution switches and then route them to the access devices

Network Switch

This document describes the protection switching protocols and algorithms for optical interfaces referred to as SONET. The SONET optical interface standard is specified in American

Mastering Switch Port Configuration: Avoiding Common Pitfalls in ...

Why Port Settings Can Become a Deployment Bottleneck Although access layer switches are generally perceived as straightforward compared to core or aggregation switches, they are often

ITPro Today, Network Computing, IoT World Today combine

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American National Standards Institute

Review the latest domestic and international standards proposals, documents for public comment, new initiatives, and other opportunities for U.S. stakeholders to get involved.

Cisco Core vs Access Switches: Key Differences

Compare Cisco core switches and access switches. Learn key differences for network design and performance.

Data Center Access Layer Design

Overview of Access Layer Design Options Access layer switches are primarily deployed in Layer 2 mode in the data center. A Layer 2 access topology provides the following unique capabilities

The layer 2 switch must have Root Guard enabled on all switch ports ...

Review the switch topology as well as the switch configuration to verify that Root Guard is enabled on all switch ports connecting to access layer switches and hosts.

Access layer | FortiSwitch 7.6.0 | Fortinet Document Library

Introduction Campus architectures Wired local area network basics Secured LAN Reference architectures Network design principles Core layer Aggregation layer Access layer Management AI

How to Choose the Right Access Layer Switch?

Learn 8 key factors—ports, PoE, speed, security & TCO—to choose the right access layer switch and future-proof your network. Read the guide now.

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