

Cisco Catalyst 2960-X Series Migration Guide - Official Technical Overview & Hardware Datasheet

SYSTEMS ENGINEERING TECHNICAL REFERENCE MANUAL: CISCO CATALYST 2960-X SERIES MIGRATION GUIDE

EXECUTIVE SUMMARY

The networking landscape is undergoing a significant transformation, driven by the proliferation of connected devices, the demand for higher bandwidth, and the imperative for robust security. With 68% annual growth in connected devices and 73% of organizations identifying aging network hardware as their top operational risk (IDC 2024), the migration from legacy switching platforms to modern, high-performance infrastructure is a strategic necessity. This document serves as the official technical reference for the Cisco Catalyst 2960-X Series Migration Guide . It provides a comprehensive overview of the platform's architectural advantages, hardware specifications, and migration strategies, positioning the Catalyst 2960-X Series as the ideal solution for enterprises seeking to modernize their network foundations. As a leading-edge, fixed-configuration Gigabit Ethernet switch stack, the 2960-X series delivers enterprise-class functionality with a lower total cost of ownership (TCO), ensuring reliable and secure business operations for medium and large enterprises and branch offices.



ARCHITECTURE & CHASSIS DESIGN

The Cisco Catalyst 2960-X Series is engineered for scalability, resilience, and operational simplicity. Its architecture is built around a high-performance ASIC that enables wire-speed forwarding and advanced security features . The platform is available in a variety of fixed-configuration models, offering 24 or 48 Gigabit Ethernet ports with options for Power over Ethernet Plus (PoE+), providing up to 740W of power budget to support IP phones, cameras, and wireless access points .

A key differentiator is the support for FlexStack-Plus stacking technology, which allows up to eight switches to be interconnected in a single, logical unit. This architecture provides up to 80 Gbps of stack throughput, ensuring high

scalability and simplified management through a single IP address . The stacking architecture also introduces control-plane redundancy across all switches in the stack, minimizing traffic disruption in the event of a component failure . The Catalyst 2960-XR models enhance this further by offering field-replaceable, redundant power supply modules, delivering carrier-grade availability for critical network segments .

HARDWARE FEATURES & PERFORMANCE METRICS

The Catalyst 2960-X Series provides a substantial performance upgrade over legacy platforms such as the Catalyst 3560 series. The platform features a forwarding capacity of 216 Gbps and a switching latency as low as 3.2 microseconds, a 75% reduction compared to legacy 12.8µs switches . This significant increase in throughput is complemented by advanced power efficiency, consuming only 0.28W per Gbps, a 70% reduction compared to its predecessors, which positions it as one of the most energy-efficient switches in the industry .

Security is a cornerstone of the platform. The Catalyst 2960-X Series integrates comprehensive IPv4 and IPv6 First Hop Security (FHS) features, including DHCP Snooping, Dynamic ARP Inspection (DAI), IP Source Guard, and RA Guard, to prevent man-in-the-middle attacks, IP spoofing, and rogue router

advertisements . The hardware-based MACsec (IEEE 802.1AE) encryption capability ensures that traffic is secured at line rate, which is vital for protecting sensitive data across the access layer . In conjunction with Cisco TrustSec, the platform enables role-based policy enforcement, independent of network topology, allowing for granular access control based on user, device, and location .

COMPLIANCE & STANDARDS

The Cisco Catalyst 2960-X Series is designed to meet rigorous industry standards, making it suitable for global enterprise deployment. It supports Energy Efficient Ethernet (EEE) and Cisco EnergyWise, enabling significant power savings . The platform also integrates with Software-Defined Networking (SDN) environments, allowing customers to create applications that automate various services across the campus network . The switches fully support Device Sensor functionality, which profiles connected endpoints by capturing protocol information (CDP, LLDP, DHCP) and communicating with Cisco Identity Services Engine (ISE) for centralized policy management and automated port configuration via Auto SmartPort macros .

TECHNICAL SPECIFICATIONS

Parameter	Specification
Form Factor	Fixed-configuration, 1RU chassis
Switching Capacity	216 Gbps (Stacking: 80 Gbps)
Forwarding Rate	Up to 107.1 Mpps
Port Density	24 or 48 x 10/100/1000 PoE+ ports; 4 x 1G SFP or 2 x 10G SFP+ uplinks
Power Supply	2960-X: Fixed internal; 2960-XR: Field-replaceable, 1+1 redundant
Security	MACsec-256, DHCP Snooping, DAI, IP Source Guard, RA Guard, Cisco TrustSec
Latency	3.2 microseconds (Gigabit Ethernet)
Energy Efficiency	0.28W per Gbps (EnergyWise and EEE support)

ORDERING OPTIONS & MIGRATION STRATEGIES

The Catalyst 2960-X Series offers a wide range of models, including the standard 2960-X with a fixed power supply and the advanced 2960-XR with dual field-replaceable power supplies and Layer 3 routing capabilities . As the recommended replacement for the legacy Catalyst 2960-X Series for future

network needs, the Cisco Catalyst 9200 Series is the primary successor. For customers on older legacy platforms like the 2950 or 3560 series, this migration guide provides a clear framework .

The migration process is structured into three key phases :

1. ****Pre-Migration Assessment:**** A thorough audit of the legacy infrastructure, including traffic pattern analysis and power validation, ensures readiness for the new deployment. This phase includes configuration translation from legacy Cisco IOS to modern templates using conversion tools.
2. ****Staged Deployment:**** The new switches can be deployed via direct hardware replacement or in a hybrid operation alongside legacy equipment. This ensures that services remain operational while new configurations are validated.
3. ****Post-Migration Validation:**** After deployment, rigorous testing of interoperability, QoS policies, and security features like MACsec is conducted to guarantee a seamless transition.

For organizations aiming to modernize their network, the Cisco Catalyst 2960-X Series offers a strategic and cost-effective pathway. The financial impact is substantial: a 50-switch deployment over five years can achieve up to 76% in total cost of ownership (TCO) savings when compared to maintaining legacy

equipment, primarily through reduced maintenance, energy, and security breach costs .

