



# Cisco NX-OS - Networking Software

## Network Software Overview

The foundation of the data center network is the network software that runs the switches in the network. Customers are facing significant challenges, with exponentially increasing amounts of data, growing complexity, and new operating models such as full virtualization and public and private cloud. Network software is critical to helping ensure efficiency and investment protection in the data center.

## Cisco NX-OS Software

Cisco® NX-OS Software is the network software for Cisco MDS 9000 Family and Cisco Nexus® Family data center switching products. Cisco NX-OS is designed to meet the needs of a variety of customers, including midmarket, enterprise, and service providers and a range of specific industries. Cisco NX-OS allows customers to create a stable and standard switching environment in the data center for the LAN and SAN. Cisco NX-OS is based on a secure, stable, and standard Linux core, providing a modular and sustainable base for the long term. Built to unify and simplify the data center, Cisco NX-OS provides the networking software foundation for the Cisco Unified Data Center.

Delivering the critical features for next-generation networks, Cisco NX-OS is designed around four main attributes:

### Resilience

Cisco NX-OS is built from the foundation to deliver continuous, predictable, and highly resilient operations for the most demanding network environments. With fine-grained process modularity, automatic fault isolation and containment, and tightly integrated hardware resiliency features, Cisco NX-OS delivers a highly reliable operating system for operation continuity.

Cisco NX-OS resiliency includes several features. Cisco In-Service Software Upgrade (ISSU) provides problem fixes, feature enhancements, and even full OS upgrades without interrupting operation of the device. Per-process modularity allows customers to restart individual processes or update individual processes without disrupting the other services on the device. Cisco NX-OS also allows the separation of the control plane from the data plane; data-plane events cannot block the flow of control commands, helping ensure uptime.

### Efficiency

Cisco NX-OS includes a number of traditional and advanced features to ease implementation and ongoing operations. Monitoring tools, analyzers, and clustering technologies are integrated into Cisco NX-OS. These features provide a single point of management that simplifies operations and improves efficiency.

Having a single networking software platform that spans all the major components of the data center network creates a predictable, consistent environment that makes it easier to configure the network, diagnose problems, and implement solutions.

Cisco Data Center Network Manager (DCNM) is a centralized manager that can handle all Cisco NX-OS devices, allowing centralization of all the monitoring and analysis performed at the device level and providing a high level of overall control. Furthermore, Cisco NX-OS offers the same industry-standard command-line environment that was pioneered in Cisco IOS® Software, making the transition from Cisco IOS Software to Cisco NX-OS Software easy.

### Virtualization

Cisco NX-OS is designed to deliver switch-level virtualization and enable server virtualization.

With Cisco NX-OS, switches can be virtualized in many logical devices, each operating independently. Device partitioning is particularly useful in multi-tenant environments and in environments in which strict separation is necessary due to regulatory concerns. Cisco NX-OS provides VLANs and VSANs and also supports newer technologies such as VXLAN, helping enable network segregation. The technologies incorporated into Cisco NX-OS provide tight integration between the network and virtualized server environments, enabling simplified management and provisioning of data center resources.

### Extensibility

Performance and feature scalability is an integral part of Cisco NX-OS. Cisco NX-OS is designed to support current and future multiprocessor hardware platforms, helping ensure scalability well into the future. With its modular building-block approach, Cisco NX-OS allows quick and easy integration of new technology innovations. Customers can be assured of strong investment protection because of the modular flexibility of the Cisco NX-OS design. This design approach also helps ensure simplified portability for consistent deployment across multiple platforms.

### True Modern Network Software

Cisco NX-OS is true modern network software that spans the data center, bringing with it the consistency, flexibility, and reliability that organizations need to operate the data centers of today and tomorrow.

### For More Information

[http://www.cisco.com/en/US/products/ps9494/Products\\_Sub\\_Category\\_Home.html](http://www.cisco.com/en/US/products/ps9494/Products_Sub_Category_Home.html)