

Solution Brief

Transform Your Data Center with Cisco's Nexus Switching Portfolio



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The data center is the heart of the network, delivering business agility and promoting IT transformation. As your business evolves and you look toward new technologies and applications to grow the business, the data center switching architecture that underpins the delivery of enterprise-wide applications and services must provide the scalability, convergence, and intelligence that will enable your business to thrive.

The Cisco Nexus Family of Data Center switches, part of Cisco's Unified Fabric, provides you with industry leading products and innovations that enable you to transform your data center through key capabilities that create a simpler, smarter, more scalable and resilient network.

“The converged Ethernet and SAN networks reduced our upfront capital outlay by 50 percent, or \$600,000, when compared to our previous architecture.”

Derek Masseth
Senior Director for Infrastructure
Services, University of Arizona

Delivering Architectural Flexibility and Choice

Data center functionality, space, and architectures can differ from business to business and even from location to location. The Cisco Nexus® family of data center switches provides a comprehensive product portfolio that can be deployed at the aggregation, core, top of rack, middle, or end of row and as an embedded virtual switch integrated into your server hypervisor. By delivering a flexible architecture we address the requirements of various designs, cabling, and environmental requirements.

The Power of Cisco NX-OS Software Innovations

Cisco® NX-OS Software, a proven, purpose-built data center operating system, provides you with an intelligent and scalable network operating system that offers continuous availability and sets the standard for mission-critical environments. Cisco NX-OS Software delivers exceptional operational flexibility through a single operating system that is also used on the Cisco MDS 9000 family of storage switches and the Cisco UCS 6100 Series Fabric Interconnects of the Cisco Unified Computing System™ for consistent operations across physical, virtualized, and converged environments. This allows you to implement a single operating system across network, storage, and compute infrastructures, thus simplifying data center operations, resulting in a positive effect on operational costs.

Industry-Leading Network Convergence

The Cisco Nexus family of data center switches allows you to build an infrastructure that allows you to decrease your total cost of ownership through the simplification of your data center architecture. Through the convergence of the LAN and storage networks, Cisco's Nexus portfolio delivers a high-performance, highly scalable, lossless solution that can carry Ethernet, Fibre Channel, Fibre Channel over Ethernet, iSCSI, and NAS traffic. This allows you to reduce the number of devices you manage and maintain, reduce your cabling requirements, and deliver efficient resource utilization leading to lower power and cooling costs.

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Delivering Scalability with Simplicity

The Cisco Nexus family of data center switches offers multi dimensional scalability for the data center network in switch performance, system scale and geographic span allowing your data center to support more servers and more applications when you need them. Cisco Fabric Extender (FEX) Technology enables network fabric extension, with a single point of management on the access switches across large number of ports, thereby delivering operational flexibility with simplified management. The Nexus portfolio also offers high density Gigabit or 10 Gigabit high-density Gigabit or 10 Gigabit Ethernet future-proofed solution that can scale to 40/100 Gigabit Ethernet. This, when combined with our award-winning technologies such as Overlay Transport Virtualization (OTV), Locator/ID Separation Protocol (LISP), and FabricPath, enables you to transparently extend the network to encompass all network locations into a single extended environment, allowing resources to be efficiently accessed and effectively utilized regardless of size or scope without the need of more complex and inefficient technologies such as spanning tree.



Virtualization-aware Networking

The Cisco Nexus family of switches delivers virtualization-aware capabilities that allow you to fully utilize the power of a virtualized environment beyond traditional connectivity. Through secure, policy-based workload mobility within and across geographically dispersed data centers through OTV, LISP, and Nexus 1000V technologies, you can provide on-demand application workloads to users that retain their network and security policies across a highly scalable flat Layer 2 domain.

Consistent Networking across Physical, Virtual and Cloud

The Cisco Nexus 1000V virtual switch and a suite of virtual service nodes provide functional and operational consistency across physical, virtual and cloud environments. The Nexus 1000V brings the network edge to the virtual machine within the application server, running the NX-OS operating environment with a fully functional control plane to mirror the functional capabilities of Nexus physical switches.

“With any other design, we would have spent US\$1.3 million for copper cabling, overhead racks, and patch panels. With the Cisco Nexus family, cabling cost \$190,000, an 85 percent savings. The money we saved paid for the Cisco Nexus equipment implementation.”

Mike Shandraw

Enterprise Data Center Manager
St. Joseph Health System

“Cisco products have three major technical advantages... they can deliver virtualization functions... can support 10 Gigabit Ethernet ports, the highest density in the industry, provide high availability through ISSU.”

Yasuyuki Asai

A specialist in the Infrastructure Modernization Department, ICT Services Division, Nihon Unysis, LTD

“Our collaboration with Cisco gives us a roadmap to move forward with our data center evolution. It means that we have the scalability and advanced technology necessary to succeed today and in the future.”

Sanzio Bassini
Director of Systems and Technology
Cineca

From a security perspective, the ASA 1000V Cloud Firewall provides equivalent security services and policy management to the ASA portfolio of data center security appliances, including virtual private network (VPN), intrusion prevention (IPS), and network address translation (NAT) capabilities. The Nexus 1000V portfolio and virtual service nodes, including the Nexus 1010 virtual services appliance, also preserves operational roles and responsibilities by ensuring networking teams access and manage the virtual network policies and security policies, and can deploy new services VM's in application servers or dedicated service appliances.

Continuous Data Center Operations

Beyond network-based availability, the combination of the Cisco Nexus hardware architecture redundancy and the Cisco NX-OS process modularity and self-healing capabilities, you can take full advantage of a highly available architecture with zero service disruption. Through our ability to ensure continuous up-time for planned or unplanned maintenance, upgrades, and software certification, and through key technologies such as Cisco's In-Service Software Upgrade (ISSU) capabilities, you can quickly integrate new features, enhancements, and problem fixes providing you with a solution that makes zero-effect operations a reality.

An Evolutionary Approach to Transformation

With the Cisco Nexus portfolio of data center switches, you don't have to worry about losing the existing infrastructure and operational investments you've already made in the data center. Cisco Nexus offers transparent integration with the Cisco Catalyst® switching portfolio as it shares a common management interface that allows your network architects to easily integrate a Cisco Catalyst and Cisco Nexus solution, delivering operational consistency and minimal requirements for staff training, ensuring your investments are protected.

Learn More

With the Cisco Nexus family of data center switches, you can enable your data center to become a center of innovation, nonstop application delivery, and revenue generation that can extend beyond geographical boundaries through a solution that offers a simpler, smarter, more scalable and resilient architecture today.

To learn more about:

- Cisco Nexus family of data center switches, go to www.cisco.com/go/nexus
- Cisco Unified Fabric go to: www.cisco.com/go/unifiedfabric



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