

Cisco N9300 Series Smart Switch

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The Cisco N9300 Series Smart Switches transform data-center networking and security by integrating Data Processing Units (DPUs) alongside networking ASICs in a compact form factor. These switches integrate advanced features such as stateful segmentation, and other services with core networking functions, promoting scalable, sustainable, and secure data-center operations. This ensures optimal performance and robust security for next-generation infrastructures while also lowering the total cost of ownership.

Enterprise data-center challenges

Today's enterprise data centers are facing a multitude of challenges stemming from constantly changing business needs, complex applications, and evolving user expectations. Enterprise data-center teams are increasingly adopting complex hybrid-cloud strategies to meet the changing demands of their businesses and applications. This makes it extremely challenging to secure their critical applications and infrastructure.

The adoption of multi-cloud models and complex application policies forces data-center infrastructure teams to manage security with a fragmented set of tools, including agents, probes, and physical and virtual firewalls. This complex environment makes it prone to errors and opens doors to security breaches. Existing physical firewall appliances are limited in capacity and are not scalable, creating bottlenecks for security as traffic grows. Furthermore, disparate tools hinder SecOps teams' ability to have a unified view of their data-center policies, limiting their access to telemetry and actionable insights, which slows incident response and impacts business continuity. Rising government regulations and the critical need to protect sensitive customer data amid ongoing threats make segmentation an urgent priority.

Solution: Cisco N9300 Series Smart Switches

Modern data centers require a hardware and software solution that offers the flexibility and agility of software-based solutions while ensuring the robustness of physical services appliances. These hyper-distributed data centers need a solution that natively integrates networking and security and other services, is simple and cost-effective to deploy and can automate policy creation and management at scale to ensure uptime and advanced protection at scale.

Data center switches with P4 programmable ASICs and integrated DPUs provide the optimal solution, by bringing the best-in-class hardware acceleration and the flexibility of software-based solutions. By offloading services tasks such as layer-4 segmentation, policy enforcement as well as compute intensive networking services to the data processing units, these switches enable faster threat detection and enhanced network efficiency. Unlike traditional firewalls, the distributed security architecture of these switches provides scalable, distributed policy enforcement across workloads and network nodes. Advanced telemetry and management tools simplify operations while enabling real-time monitoring and actionable insights, making them essential for addressing the complexity and scalability needs of modern data centers.

Cisco N9300 Series Smart Switches enable customers to unlock the value of DPU acceleration through security functions today and other services in the future. First and foremost, Cisco Smart Switches enable customers to integrate network, security, and other functions into a compact fixed form factor. Cisco N9300 Series Smart Switches enable customers integrate network, security, and other services such as Carrier-Grade NAT, IPsec, telemetry, Encapsulated Remote SPAN (ERSPAN), and load balancing into a compact fixed form factor that greatly reduces the total cost of ownership for customers and simplifies operations.


Key benefits of Cisco N9300 Series Smart Switches:


- **Architectural simplicity and scalability:** Streamline operations with a unified approach to networking and security. Cisco Nexus® Dashboard simplifies centralized management and monitoring, while Hypershield fortifies hyper-distributed data centers with scalable and automated security.
- **Consistent policy:** Consistent network services and security policy for containers, bare-metal and VMs.
- **Cost optimization:** Reduce complexity and operational costs by consolidating networking, security, and telemetry functions into a single physical form factor. This integration lowers hardware, power, and maintenance expenses while enhancing operational efficiency.
- **Unmatched performance:** Harness real-time, low-latency processing capabilities powered by DPUs, optimized for hybrid-cloud environments and AI/ML workloads.
- **Scalable, high-speed security:** Deliver robust security at scale with multi-terabit speed enforcement of micro segmentation policies. Protect east-west traffic and ensure compliance with modern cybersecurity standards without compromising performance.
- **Make data centers future-ready:** Design infrastructure investments with flexibility to support evolving technologies and workloads. Unlock advanced DPU-enabled applications such as firewalling, dynamic segmentation, high-performance load balancing, and real-time telemetry over the next five to seven years, ensuring long-term value and adaptability.

The Cisco N9300 Series Smart Switch family consists of 100G and 25G switches with DPU 800G acceleration. This may be extended to include other form factors, port speeds and services capabilities in the future.

Table 1. Cisco N9300 Series Smart Switches

Product	Description
Cisco Smart Switch N9324C-SE1U	24p 100G switch with 800G DPU service throughput

A photograph of the Cisco Smart Switch N9324C-SE1U, a 24-port 100G switch. The device is a rack-mountable unit with a silver-colored metal chassis. The front panel features a series of 24 RJ45 ports, each labeled with a port number and a speed indicator (e.g., '100G'). To the left of the ports are several status LEDs and a small display area. The top of the unit has a recessed area for a label or handle.

Product	Description
Cisco Smart Switch N9348Y2C6D-SE1U	<p>48p 25G + 2p 100G + 6p 400G switch with 800G DPU service throughput</p> 

Cisco N9300 Series Smart Switches use Cisco® Silicon One® E100 ASIC for switching and AMD DPUs for security and other services. This brings together the industry-leading programmability, power efficiency, and flexibility of Cisco Silicon One ASICs and AMD DPUs.

Table 2. Switching ASIC and DPU capabilities

Cisco® Silicon One® E100 ASIC	AMD DPUs
<ul style="list-style-type: none"> • Programmable ASIC that supports a rich assortment of networking features and services • High-speed connectivity and scalable performance • Optimized for latency and power efficiency • Support for all networking functions including routing and switching, and line-rate encryption 	<ul style="list-style-type: none"> • Software-defined stateful services • Programmable at all layers: new services can be added without changing hardware • Seamlessly scale-out services • Enables services such as CG-NAT, IPsec encryption, distributed L4-segmentation, DoS protection

Cisco N9300 Series Smart Switches will support Cisco NX-OS and Nexus Dashboard for network management and Hypershield with Cisco Security Cloud Control for security management. NX-OS and Hypershield will be integrated into a single software image to simplify the deployment and will have the ability to upgrade independently to ensure operational flexibility.

[Cisco Hypershield](#) is a distributed, AI-native security architecture with a vision to put security wherever it needs to be—in every software component of every application running on the network, server, and public or private cloud deployments. Hypershield uniquely combines security and networking by taking the network security functions that used to come in dedicated boxes and integrating them into the network. It provides AI-powered management that automates security policy lifecycles and security infrastructure upgrades.

Cisco Hypershield with the Cisco N9300 Series Smart switches offers a groundbreaking approach to data center security by integrating advanced network segmentation and zero-trust capabilities directly into the DPU architecture. Hypershield leverages the DPU's ability to offload and accelerate security functions, ensuring real-time stateful segmentation, and policy enforcement without compromising performance. This ensures that sensitive workloads are isolated, protected, and compliant with stringent security standards, all while enabling high-throughput, low-latency communication across the network.

Features and benefits

Cisco N9300 Series Smart Switches unlock a variety of network and security use cases for data centers. The following table describes its key networking and security capabilities and their benefits.

Table 3. Key features of Cisco N9300 Series Smart Switches

Feature	Description/benefits
Security	
Layer-4 stateful segmentation*	<p>The Cisco N9300 Series Smart Switches offer a comprehensive 1RU solution to simplify cloud-edge connectivity, secure inter/intra-data center segmentation, and deliver consistent zone-based security. This versatile solution replaces traditional multi-RU firewalls, enabling seamless integration of security zones, business entities, and hybrid-cloud environments while ensuring scalability, cost efficiency, and operational simplicity. Hypershield's intelligent policy enforcement and dual-data plane capabilities empower organizations to securely adapt to evolving workloads and architectures. Key benefits:</p> <ul style="list-style-type: none">• Simplifies hybrid-cloud connectivity and eliminates DMZ traffic tromboning.• Provides secure inter/intra-data center segmentation with policy staging and testing.• Integrates distributed stateful segmentation and policy enforcement in every port.• Reduces costs through scale-out architecture and lowers TCO for brownfield fabrics.
Networking and DPU platform	
Networking**	<p>Cisco N9300 Series Smart Switches support Cisco NX-OS VXLAN EVPN, and IP routed on Ethernet switched Layer-2 fabrics, using a comprehensive set of unicast and multicast IPv6/IPv4 and Ethernet protocols.</p> <ul style="list-style-type: none">• Purpose-built Cisco NX-OS Software operating system with comprehensive, proven innovations. The operating system is modular, with a dedicated process for each routing protocol – a design that isolates faults while increasing availability.• Support for standards-based VXLAN EVPN fabrics, inclusive of hierarchical multisite support (Refer to VXLAN network with MP-BGP EVPN control plane for more information).• Three-tier BGP architectures, enabling horizontal, nonblocking IPv6 network fabrics at web scale.• Comprehensive protocol support for Layer-3 (v4 and v6) unicast and multicast routing protocol suites.
DPU management	<p>Cisco N9300 Series Smart switches offer DPU lifecycle management capabilities to enable Hypershield and other services that run on DPUs.</p> <ul style="list-style-type: none">• DPUs can be turned off to conserve power when Hypershield or other DPU services are not activated.• Visibility, health, analytics and troubleshooting for DPUs.
Extensive programmability	<ul style="list-style-type: none">• Day-0 automation through Power On Auto Provisioning (POAP), drastically reducing provision time.• Industry-leading integrations for leading DevOps configuration management applications, such as Ansible, Extensive Native YANG, and industry-standard OpenConfig model support through RESTCONF/NETCONF/gNMI.• REST API interacting with Data Management Engine (DME).• Model-driven telemetry, which enhances network observability.• Third-party application-hosting using Cisco IOx Application Framework (CAF).
Cisco Nexus Dashboard	<p>Cisco Nexus Dashboard is a platform that transforms data-center and cloud-network operations through simplicity, automation and analytics.</p> <ul style="list-style-type: none">• Cisco Nexus Dashboard is included with all Cisco Nexus 9000 switch tiered licenses.

Product specifications

Table 4. Product specifications

Feature	Cisco 9324C-SE1U	Cisco 9348Y2C6D-SE1U
Switching		
Ports	24-port 100G	48-port 25G + 2-port 100G + 6-port 400G switch
Breakouts	4x 25G and 4x 10G breakouts	4x100, 4x 25G, and 4x 10G breakouts
ASIC	Silicon One E100	Silicon One E100
CPU	16 Core Intel CPU	16 Core Intel CPU
System memory	96 GB	96 GB
SSD storage	480 GB	480 GB
Packet buffer	64MB fully shared on-die packet buffer	64MB fully shared on-die packet buffer
DPU		
DPU service throughput	800G	800G
DPU	AMD	AMD
DPU memory	128 GB	128 GB
Management ports		
1x USB 3.0	1	1
1x RJ45	1	1
SFP	1 x 1G SFP	2 x 10G SFP+
Physical and environmental		
Weight	36.8lbs	
Dimensions	Height: 1.72 in (43.7 cm); 1RU Width: 17.29 in (439.4 mm); fits standard 19-inch square-hole rack Depth Back of Chassis: 29.96 in (761.02mm); Depth back of Fan Handle: 31.42 in (798.24mm)	Height: 1.72 in (43.7 cm); 1RU Width: 17.29 in (439.4 mm); fits standard 19-inch square-hole rack Depth Back of Chassis: 24 in (609.63mm); Depth back of Fan Handle: 22.61 in (574.42mm)
Maximum power	1400W	
Fans	6	6

Feature	Cisco 9324C-SE1U	Cisco 9348Y2C6D-SE1U
Power Supply	1400W AC input voltage: 100 to 240V AC hot-swappable	1400W AC input voltage: 100 to 240V AC hot-swappable
Operating temperature	32 to 104F (0 to 40C)	32 to 104F (0 to 40C)
Nonoperating (storage) temperature	-40 to 158F (-40 to 70C)	-40 to 158F (-40 to 70C)
Acoustics	5 to 95% (non-condensing)	5 to 95% (non-condensing)
Networking features		
Encryption	Line-rate MACsec on all ports	Line-rate MACsec on all ports
Switch mode support	Cisco NX-OS	Cisco NX-OS

For security features supported by Cisco Hypershield, please visit [Cisco Hypershield product overview](#).

Software licensing

The default system software has a comprehensive Layer-3 security and management feature set. Both switches use the XF class Cisco Data Center Networking (Cisco DCN) Premier, Advantage, and Essentials subscription licenses. The DPU acceleration feature requires customers to be on the Premier licensing tier and will require a separate Cisco Hypershield license (when available) for Layer-4 stateful segmentation capabilities and security use cases. The licensing guide illustrates the software packaging and licensing available to enable advanced features. For the latest software release information and recommendations, please refer to the release notes.

Supported optics modules

For details on the optical modules available and the minimum software release required for each supported optical module, visit [here](#).

Ordering information

Table 5. Product IDs and ordering information

Part #	Description
N9324C-SE1U	Cisco 24p 100G DPU switch w/ 800G DPU service capacity
N9324C-SE1U=	Cisco 24p 100G DPU switch w/ 800G DPU service capacity spare (excludes power supplies and fans)
N9348Y2C6D-SE1U	48p 25G + 2p 100G + 6p 400G switch with 800G DPU service capacity
N9348Y2C6D-SE1U=	48p 25G + 2p 100G + 6p 400G switch with 800G DPU service capacity spare (excludes power supplies and fans)
NXA-PAC-1400W-PI	Cisco 1400W AC power module with port-side intake
NXA-PAC-1400W-PI=	Cisco 1400W AC power module (spare) with port-side intake
NXA-SFAN-35CFM-PI	Nexus single fan, 35CFM, port-side intake airflow
NXA-SFAN-35CFM-PI=	Nexus single fan (spare), 35CFM, port-side intake airflow

Warranty, services, and support

The Cisco Smart Switches come with a 1-year limited hardware warranty. The warranty includes hardware replacement with a 10-day turnaround from receipt of a Return Materials Authorization (RMA).

Product sustainability

Information about Cisco's Environmental, Social, and Governance (ESG) initiatives and performance is provided in Cisco's CSR and sustainability [reporting](#).

Table 6. Cisco environmental sustainability information

Sustainability topic		Reference
General	Information on product-material-content laws and regulations	Materials
	Information on electronic waste laws and regulations, including our products, batteries, and packaging	WEEE Compliance
	Information on product takeback and reuse program	Cisco Takeback and Reuse Program
	Sustainability inquiries	Contact: csr_inquiries@cisco.com
	Countries and regions supported	Table: Regulatory compliance
Power and material	Power and weight	Table 4
	Product-packaging weight and materials	Contact: environment@cisco.com

Cisco and partner services

Cisco offers a wide range of services to help accelerate your success in deploying and optimizing Cisco Smart Switches in your data center. The innovative Cisco Services offerings are delivered through a unique combination of people, processes, tools, and partners and are focused on helping you increase operation efficiency and improve your data-center network. Cisco Advanced Services uses an architecture-led approach to help you align your data-center infrastructure with your business goals and achieve long-term value. The Cisco SMARTnet® service helps you resolve mission-critical problems with direct access at any time to Cisco network experts and award-winning resources.

Cisco Capital

Flexible payment solutions to help you achieve your objectives

Cisco Capital® makes it easier to get the right technology to achieve your objectives, enable business transformation, and help you stay competitive. We can help you reduce the total cost of ownership, conserve capital, and accelerate growth. In more than 100 countries, our flexible payment solutions can help you acquire hardware, software, services, and complementary third-party equipment in easy, predictable payments.

[Learn more.](#)

Footnote:

* Layer-4 zone-based segmentation capabilities are with appropriate licensing and will be coming soon.

** Initial release of NX-OS will support Layer-3 networking features. Layer-2 features and other incremental capabilities will be introduced in the future releases.

Note: For any of the products and features described herein that are not currently available, they remain in varying stages of development and will be offered on a when-and-if-available basis. The delivery timeline of any future products and features is subject to change at the sole discretion of Cisco, and Cisco will have no liability for delay in the delivery or failure to deliver any of the products or features set forth in this document.

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