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 combine stateful segmentation, and other advanced services with core networking functions, promoting scalable, sustainable, and secure data-center operations. The result is strong performance and robust security, and lower total cost of ownership for next-generation infrastructure.

Enterprise data-center challenges

Enterprise data centers face mounting pressure from shifting business needs, complex applications, and rising user expectations. To keep pace, data-center teams increasingly adopt hybrid-cloud strategies, which makes securing critical applications and infrastructure far more difficult. Multicloud models and complex application policies force data-center infrastructure teams to manage security with a fragmented toolset of agents, probes, and physical and virtual firewalls. This complexity invites errors and opens doors to security breaches. Traditional physical firewalls have limited capacity and do not scale, creating bottlenecks for security as traffic grows. Disparate tools also deny SecOps teams' a unified view of data-center policies and limit 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 with the robustness of physical services appliances. These hyper-distributed data centers need a solution that natively fuses networking and security and other services, is simple and cost-effective to deploy, and can automate policy creation and management at scale.

Data-center switches with P4 programmable ASICs and integrated DPUs meet this need by pairing the best-in-class hardware acceleration with software flexibility. By offloading service tasks such as Layer-4 segmentation, policy enforcement, and compute-intensive networking services to the DPUs, these switches enable faster threat detection and improve network efficiency. Unlike traditional firewalls, the distributed security architecture of these switches enforces policy across workloads and network nodes at scale. Advanced telemetry and management tools simplify operations while enabling real-time monitoring and actionable insights.

Cisco N9300 Series Smart Switches let customers unlock DPU acceleration through security functions today and additional services in the future. They integrate network, security, and other functions into a compact fixed form factor. Cisco N9300 Series Smart Switches enable customers to 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 reduces the total cost of ownership for customers and simplifies operations.

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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 Cisco Hypershield™ fortifies hyper-distributed data centers with scalable, automated protection.
- **Consistent policy**: provide consistent network services and security policy for containers, bare-metal servers and VMs.
- **Cost optimization**: consolidate networking, security, and telemetry functions into a single physical form factor. This lowers hardware, power, and maintenance costs while improving 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 multi-terabit speed enforcement of microsegmentation policies. Protect east/west traffic and ensure compliance to meet modern cybersecurity standards without compromising performance.
- **Future-ready data centers**: 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 for long-term value.

The Cisco N9300 Series Smart Switch family consists of 25G and 100G switches with 800G DPU acceleration. Future releases may add other form factors, port speeds, and service capabilities.

Table 1. Cisco N9300 Series Smart Switches

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

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

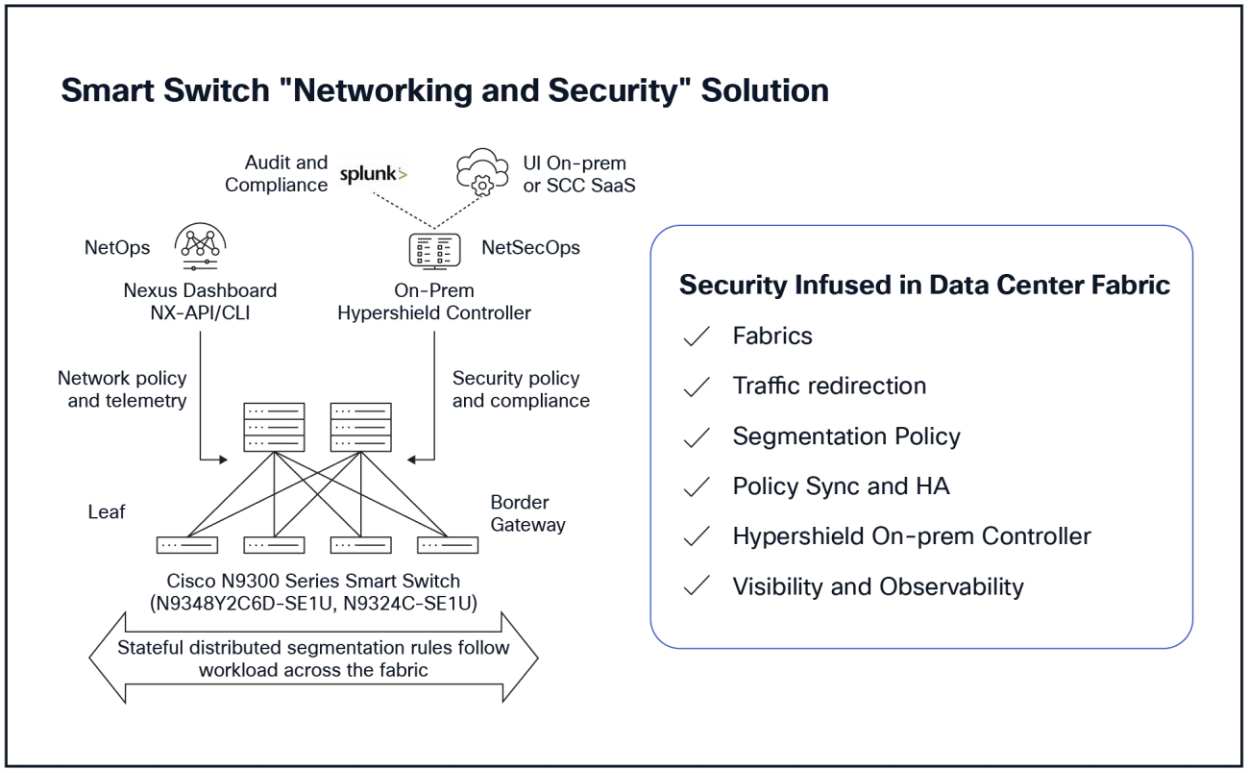
Cisco N9300 Series Smart Switches use Cisco® Silicon One® E100 ASIC for switching and AMD DPUs for security and other services. This brings together the industry-leading programmability, power efficiency, and flexibility of Cisco Silicon One ASICs and AMD DPUs.

Table 2. Switching ASIC and DPU hardware capabilities

Cisco Silicon One E100 ASIC	Data Processing Unit (DPU)
• Programmable ASIC that supports a rich assortment of networking features and services • High-speed connectivity and scalable performance • Optimized for latency and power efficiency • Capable of supporting all L2/L3/VXLAN networking functions including routing and switching, and line-rate MACSec and 800G IPSec encryption	• Software-defined stateful services • Programmable at all layers: new services can be added without changing hardware • Seamlessly scale-out services • Capable of supporting services such as CG-NAT, IPsec encryption, distributed L4-segmentation, and DoS protection

Cisco N9300 Series Smart Switches support Cisco NX-OS and Nexus Dashboard for network management and a Cisco Hypershield on-premises controller for security management. The Cisco Hypershield controller offers an on-premises software appliance that also integrates with Cisco Cloud Control, giving customers the flexibility to use the on-premises controller or the cloud-operating model for configuration and 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.

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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 Layer-4 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.

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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**	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, cross-tier visibility, policy verification and digital-twin capabilities empower organizations to securely adapt to evolving workloads and architectures. Key benefits: • Provides secure inter/intra-data center segmentation with policy staging and testing. • Integrates distributed stateful segmentation and policy enforcement in every port. • Simplifies hybrid-cloud connectivity and eliminates DMZ traffic tromboning. • Reduces costs through scale-out architecture and lowers TCO for brownfield fabrics.
Networking and DPU platform	
Networking	Cisco N9300 Series Smart Switches support Cisco NX-OS VXLAN EVPN, and IP routed and Ethernet switched Layer-2 fabrics, using a comprehensive set of unicast and multicast IPv6/IPv4 and Ethernet protocols. • 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	Cisco N9300 Series Smart switches offer DPU lifecycle management capabilities to enable Hypershield and other services that run on DPUs. • DPUs can be turned off to conserve power when Hypershield or other DPU services are not activated. • Visibility, health, analytics and troubleshooting for DPUs.

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Feature	Description/benefits
Extensive programmability	• 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	Cisco Nexus Dashboard is a platform that transforms data-center and cloud-network operations through simplicity, automation and analytics. • 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	64 GB (Expandable up-to 96GB)	64 GB (Expandable up-to 96GB)
SSD storage	240 GB	240 GB
Packet buffer	64MB fully shared on-die packet buffer	64MB fully shared on-die packet buffer
DPUs		
DPU service throughput	800G	800G
DPUs	AMD	AMD
DPU memory	128 GB	128 GB
Management ports		
1x USB 3.0	1	1
1x RJ45	1	1

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Feature	Cisco 9324C-SE1U	Cisco 9348Y2C6D-SE1U
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)
Typical power	794W	829*
Maximum power	966W	1036*
Fans	6	6
Power Supply	1400W AC input voltage: 100 to 240V AC hot-swappable	1100W AC input voltage: 100 to 240V AC hot-swappable
Operating temperature (port-side intake)	32 to 104F (0 to 40C)	32 to 104F (0 to 40C)
Operating temperature (port-side exhaust)	NA (future)	32 to 86F (0 to 30C)
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

Both (N9324C-SE1U and N9348Y2C6D-SE1U) switches offer 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.

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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-SFAN-35CFM-PI	Nexus single fan - 35CFM, port-side intake airflow
NXA-SFAN-35CFM-PI=	Nexus single fan - 35CFM, port-side intake airflow spare
NXA-SFAN-35CFM-PE	Nexus single fan, 35CFM, port-side exhaust airflow
NXA-SFAN-35CFM-PE=	Nexus single fan (spare), 35CFM, port-side exhaust airflow
Power Supplies for N9324C-SE1U	
NXA-PAC-1400W-PI	Cisco 1400W AC power module with port-side intake
NXA-PAC-1400W-PI=	Cisco 1400W AC power module with port-side intake spare
Power Supplies for N9348Y2C6D-SE1U	
NXA-PAC-1100W-PI2	Cisco 1100W AC power module with port-side intake
NXA-PAC-1100W-PI2=	Cisco 1100W AC power module with port-side intake spare
NXA-PAC-1100W-PE2	Cisco 1100W AC power module with port-side exhaust
NXA-PAC-1100W-PE2=	Cisco 1100W AC power module with port-side exhaust spare

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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.

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Footnote:

* Indicates initial estimated power; measured power data will be updated in the future.

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

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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