Cisco ONE for Data Center Networking

Cisco® ONE Software helps customers purchase the right software capabilities to address their business needs. It helps deliver reduced complexity, simplified buying, and the peace of mind that today's software investments will last into the future. These products offer a greater value to customers with more features at "better together" pricing.

Cisco ONE Software provides customers with four key benefits:

- Access to updates, upgrades and new technology from Cisco through Cisco Software Support Service (SWSS)
- Investment protection of software purchases through software services-enabled license portability
- Software suites that address typical customer use case scenarios at an attractive price
- Flexible licensing models to smoothly distribute customer's software spending over time

Table 1 outlines the common IT challenges and how Cisco ONE Software helps customers deal with these challenges.

Table 1.   IT Management Challenges and Cisco ONE Software Benefits

IT Management Challenges	Cisco ONE Software Benefits
Shrinking IT Budgets CTOs know that IT budgets are shrinking while IT demands continue to accelerate. As the costs of IT (and downtime) skyrocket, companies want to deploy networks as easily as possible while maintaining operational efficiency.	**Deliver more value for the money** with software suites that address typical customer use cases scenarios at an attractive "better together" price, making it easier to deploy complete solutions. **Increase investment protection** through software services-enabled license portability that enables your software licenses to stay current through hardware upgrades and replacements at no additional cost.
Infrastructure Inflexibility IT organizations lack an automated way to keep pace with changing business needs and demands for more resources. It often takes weeks to procure and provision a new network service.	**Enhance business agility** through a complete package that not only offers business solutions but also provides IT the tools to deploy, maintain, and manage the provided software.
Lack of Buying Options Companies are looking for more options to buy software while improving flexibility, reducing risks and cutting cost.	**Supply flexible licensing models** to smoothly distribute customer's software spend over time with subscription and other flexible purchasing models.
Implementation Obstacles Deploying software and implementing new use cases can often cause major disruptions to your current operations.	**Reduce risk and downtime.** Cisco's technical and professional services provide the expertise, smart tools, and proven processes that reduce risk and lower downtime.
Excessive Time and Costs for Maintenance The majority of your IT budget and most of your workloads are focused on routine maintenance, limiting your ability to innovate and grow your business.	**Accelerate ROI and time-to-value.** Optimize the performance of your networks to get the most out of your technology investments. Accelerate your business outcomes with expert guidance from Cisco technical and professional services.

Product Overview

What Is Cisco ONE for Data Center Networking?

Cisco ONE for Data Center Networking provides rich networking functionality and innovations for physical, virtualized, and cloud-based data centers. Offered for the Cisco Nexus® Family data center switching portfolio, Cisco ONE Foundation for Networking and Cisco ONE Data Center Fabric offer you a wide variety of capabilities that help you build a highly scalable, resilient, simplified, and more efficient data center network architecture (Figure 1).

Figure 1.   Cisco ONE Software

*Foundation suite required
Note: Infrastructure software (e.g., operating system) is included with each device. Not sold as a Cisco ONE bundle, but included with the device.

Benefits of Cisco ONE for Data Center Networking

Cisco ONE Foundation for Networking

Build a scalable, resilient, high-performance physical and virtual network that provides workload mobility across multiple data centers.

- Deliver highly fault-tolerant applications with a scalable, high-performance physical and virtual network.

- Increase operational efficiency with an architecture that's simpler to manage with fewer devices and intelligent power consumption management.

- Take advantage of innovations designed for Internet scale and global reach for organizations within and across data centers.

- Simplify management through integration with automation and orchestration tools.

- Enhance visibility and operational consistency across physical and virtual networking deployments across all hypervisors with consistent Cisco NX-OS Software features.

- Reduces TCO, automates IT tasks, and accelerates data center application deployments using a business-relevant software-defined networking policy model across networks with Cisco Application Centric Infrastructure (Cisco ACI™).

Cisco ONE Data Center Fabric

Create a highly secure converged LAN-SAN multitenant data center network.

- Choose from multiple options for building a highly scalable, intelligent network that delivers a wide variety of advanced, value-added services over a single infrastructure for multitenant environments.
- Simplify your data center architecture with LAN and SAN convergence for Cisco Nexus 5000 & 7000 Series Switches.

Software Components of Cisco ONE for Data Center Networking

Cisco ONE Foundation for Networking includes the following integrated products to help you deploy an architecturally flexible data center network:

- **Cisco Enhanced Layer 2:** Create a highly scalable network fabric with Cisco FabricPath and enable a highly scalable Layer 2 and Layer 3 multipath network to improve business agility through workload flexibility.
- **Cisco Enterprise Layer 3 Services (LAN):** The Layer 3 Enterprise features license provides advanced Layer 3 routing technologies and Virtual Extensible LAN (VXLAN) capabilities.
- **Cisco Virtual Device Context (VDC):** Cisco VDC is a virtualization technology that enables a single physical switch to act as multiple virtual switches, in effect multiplying the capability of one switch into multiple virtual switches. This feature is only applicable to Cisco Nexus 7000 series.
- **Cisco Transport Services (TRS):** Cisco TRS enables Layer 2 extension over an IP-based data center interconnect (DCI) solution with Cisco Overlay Transport Virtualization (OTV) and Location ID Separation Protocol (LISP) technologies. This feature is only applicable to Cisco Nexus 7000 series.
- **Cisco Prime™ Infrastructure, Cisco Prime Data Center Network Manager (DCNM), and Cisco Energy Management (JouleX):** Cisco Prime Infrastructure is network management that connects the network to the device to the user to the application - end to end and all in one. Its capabilities permit simplified deployment of Cisco value-added features and single pane of glass management. It increases application visibility and serves as the core management solution for wireless and wired lifecycle management and assurance. Cisco Energy Management (JouleX) suite includes software and services that help you measure and manage the energy use of all the connected devices across data center environments. Cisco Prime DCNM automates configuration and data center network management.
- **Cisco ACI with the Cisco Nexus 9000 Series** Switches is a comprehensive SDN architecture. This policy-based automation solution supports a business-relevant application policy language, greater scalability through a distributed enforcement system, and greater network visibility. These benefits are achieved through the integration of physical and virtual environments under one policy model for networks, servers, storage, services, and security.
- **Cisco Remote Integrated Service Engine (RISE)** provides faster integration of Cisco and ecosystem partner service appliances with Cisco Nexus switches. In addition, it provides simplified provisioning and configuration through auto discovery and bootstrap capabilities, together with optimized data paths with application-aware traffic visibility. This feature is enabled in the EL2 license and applicable only to Nexus 7000).
- **Cisco Intelligent Traffic Director** is an embedded feature of Nexus platforms that allows customers to build a highly scalable and flexible solution for hardware-based L3/L4 load balancing and traffic steering. This feature is enabled in the EL2 license and applicable only to Nexus 7000.

- **Cisco Nexus Fabric Manager (NFM)** for Nexus 9000 Series: NFM provides intelligent fabric lifecycle management and has a Fabric-wide focus with auto-configuration and management of fabric.
- **Cisco Nexus Data Broker** offers scalable, cost-effective, and programmable network taps and Switched Port Analyzer (SPAN) aggregation. Our software-defined packet broker approach, used with Cisco Nexus 3000 and 9000 Series Switches, gives more visibility into changing business and application needs.

Cisco ONE Advanced for Networking

Cisco ONE Data Center Fabric extends the foundation for data center networking and adds:

- **Cisco MPLS stack for Cisco Nexus 7000 Series:** Cisco MPLS is a high-performance packet-forwarding technology that integrates the performance and traffic management capabilities of data-link-layer (Layer 2) switching with the scalability, flexibility, and performance of network-layer (Layer 3) routing to let enterprises and service providers provide differentiated services without sacrificing their existing infrastructure.
- **Cisco Storage Service for Cisco Nexus 5000, 6000 & 7000 Series:** This service supports FCoE, universal ports (Ethernet and Fibre Channel), and Inter-VSAN Routing (IVR – applicable only to Nexus 7000), depending on the platform used. It allows data centers to fully integrate LAN and SAN networking.
- **Cisco VDC for Cisco Nexus 7000 Series:** As part of the Data Center fabric, Cisco VDC functionality builds on the foundation VDC licenses by adding four additional VDC licenses. These additional licenses allow the Cisco Nexus 7000 Series Supervisor 2 Enhanced module to support eight VDCs.
- **Cisco Scalable Services for Cisco Nexus 7000 Series:** The XL license is a single license per system enables all XL-capable I/O modules (M series modules) to operate in XL mode. The license increases the performance of the following features:
  - IPv4 routes
  - IPv6 routes
  - ACL entries

Cisco ONE for Data Center Networking Capabilities by Platform

Table 2 lists the features and capabilities of Cisco ONE for Data Center Networking. The top part of the table lists the features for Cisco ONE Foundation for Data Center Networking across the different platforms. The bottom part of the table lists features for the Cisco ONE Data Center Fabric.

Table 2. Features and Capabilities of Cisco ONE for Data Center Networking

Features and Capabilities	Cisco Nexus 3000 Series	Cisco Nexus 5000 Series	Cisco Nexus 6000 Series	Cisco Nexus 7000 Series	Cisco Nexus 9200 & 9300 Series	Cisco Nexus 9500 Series	MDS 9100, 9200, 9300 & 9700
Cisco ONE Foundation for Networking							
Cisco Enhanced Layer 2		✓	✓	✓			
Cisco Enterprise Services (LAN): Get advanced routing technologies and increased scalability							
Advanced Layer 3 Features	✓	✓	✓	✓	✓	✓	
Cisco Prime Infrastructure, Cisco Prime DCNM, and Cisco Energy Management (JouleX): Simplify management and enhance visibility with integrated energy management							
Cisco Data Center Network Manager for LAN	✓	✓	✓	✓	✓	✓	
Cisco Prime Lifecycle**	✓	✓	✓	✓	✓	✓	✓
Cisco Prime Assurance	✓	✓	✓	✓	✓	✓	✓

Features and Capabilities	Cisco Nexus 3000 Series	Cisco Nexus 5000 Series	Cisco Nexus 6000 Series	Cisco Nexus 7000 Series	Cisco Nexus 9200 & 9300 Series	Cisco Nexus 9500 Series	MDS 9100, 9200, 9300 & 9700
Cisco Energy Management (JouleX)	✓ (1 DC end point)	✓ (1 DC end point)	✓ (1 DC end point)	✓ (1 DC end point)	✓ (1 DC end point)	✓ (1 DC end point)	✓ (1 DC end point)
Cisco ACI Fabric*					✓		
Cisco Remote Integrated Service Engine		✓		✓			
Cisco Intelligent Traffic Director		✓	✓	✓	✓	✓	
Nexus Data Broker	✓				✓	✓	
Cisco Nexus Fabric Manager					✓	✓	
Cisco Transport Services (TRS): Increase flexibility and high availability with workloads and secure data center interconnects that you can relocate							
Overlay Transport Virtualization				✓			
Locator/ID Separation Protocol				✓			
Cisco ONE Data Center Fabric							
Cisco Virtual Device Context (VDC): Protect your network with secure traffic separation provided by virtual switch instances							
Virtual Device Contexts				✓			
Cisco Data Center Network Manager for SAN				✓			✓
Cisco MPLS Stack: Provides quality of service for application performance with MPLS*							
Cisco Storage Service for Cisco Nexus Platform: For simplified operations, investment protection, and optimized architecture							
Inter-VSAN Routing (IVR)				✓			✓
SAN FC Bridging		✓	✓				
VSAN-Based Access Control				✓			✓
Fibre Channel over Ethernet		✓	✓				
Cisco Data Center Network Manager for SAN		✓	✓	✓			✓

* Cisco Nexus 9000 Series in Cisco ACI mode requires customer to purchase an APIC, available as an appliance form factor.

** Default license fulfillment is via Classic License. Customer can covert to Smart License in the License Registration Portal.

Cisco and Partner Services
Cisco ONE Software Services

Services from Cisco and our certified partners enable the primary features of Cisco ONE Software to help you maximize business outcomes and protect your investment. Pairing software and hardware support together provides the best set of benefits to reduce costs and keep your business on track.

Cisco ONE Software Foundation and Advanced Applications suites both use Cisco Software Support Service (SWSS) for ongoing support and maintenance. SWSS provides the technical support expertise you need to successfully navigate the rich features and functionality of Cisco ONE Software, and is required for a minimum of 12 months. SWSS protects your investments through access to new capabilities, license portability, major software upgrades, minor software updates and maintenance, access to our award-winning Technical Assistance Center (TAC), and instant access to online resources. By providing an integrated and comprehensive service, we help you quickly resolve issues while seeing cost savings and productivity gains.

Your SWSS contract provides:

- Access to the TAC for software issues 24 hours a day, 7 days a week
- Major upgrades, minor updates, and maintenance for licensed software applications
- Software license portability entitlement
- Access to updates, upgrades and new capabilities
- Investment protection
- Access to online resources

To help ensure coverage for your Cisco base OS software and hardware, Cisco Smart Net Total Care (SNTC) is highly recommended. SNTC provides 24-hour global support for the underlying hardware platforms where Cisco ONE Software is deployed.

Cisco Smart Net Total Care includes access to TAC for hardware and entitlement to smart capabilities to reduce your operating expenses and free your IT staff to focus on business innovation. Entitlement provides self-service access to the SNTC portal, free download of the Cisco collector software, and community support for the portal and collector. SNTC includes:

- Access to the TAC for hardware and base OS software issues 24 hours a day, 7 days a week
- Software updates for base OS software
- Access to online resources
- Advance hardware replacement
- Entitlement to smart capabilities

By providing an integrated and comprehensive service, we help you quickly resolve issues while seeing cost savings and productivity gains.

Professional Services for Cisco ONE Software

Professional services for Cisco ONE Software include optional Quick Start enablement services customized to domain-specific Cisco ONE software bundles and use cases. These enablement services help you to unlock and rapidly absorb software feature capabilities.

With expert guidance, processes, and tools, Cisco and our partner professional services organizations help you fully realize the technology benefits of Cisco ONE Software, reduce implementation risk, and achieve faster time to value. These fixed-scope, fixed-price services can be ordered with Cisco ONE Software products with a single click, greatly simplifying the ordering process.

Quick Start services include basic end-to-end turn-up of new capabilities, which, depending on the specific software, may include one or more of the following:

- Technology transformation and strategy workshop
- Readiness assessment of software environment
- Logical changes to underlying network, computing, or storage architecture
- Software installation, configuration, and customization
- Task automation and orchestration
- Migration and onboarding

- Feature and functionality test
- Development of operational run books
- Knowledge transfer

Cisco also offers an optional set of day-2 services for adoption, change management, and optimization for Cisco ONE Software, including ongoing support for:

- Change governance
- Continuous assessment, monitoring, and optimization of software features and capabilities
- Basic enablement and design for additional capabilities
- Basic enablement and design for system integration
- Planning for technology optimization and transformation
- Proactive bug scrubs, metrics measurement, and software reviews

The combination of day-1 (planning and deployment) and day-2 (managing, operating, and optimizing) professional services delivers optimal support for Cisco ONE Software and enhances your ability to continuously achieve your desired business outcomes.

Ordering Information for Cisco ONE Data Center Networking

For a complete list of Cisco ONE for Data Center Networking product and service part numbers, click here.

Cisco Capital

Financing to Help You Achieve Your Objectives

Cisco Capital can help you acquire the technology you need to achieve your objectives and stay competitive. We can help you reduce CapEx. Accelerate your growth. Optimize your investment dollars and ROI. Cisco Capital financing gives you flexibility in acquiring hardware, software, services, and complementary third-party equipment. And there's just one predictable payment. Cisco Capital is available in more than 100 countries. Learn more.

Find Out More

To learn more about how Cisco ONE Software can help your organization, visit the Cisco ONE website: http://www.cisco.com/go/one. If you're interested in having a conversation about Cisco ONE Software, please contact your account manager or authorized reseller.

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