Introducing the Cisco Nexus 7000 Series Data Center–Class Switches

PB441413

Cisco® is pleased to announce the Cisco Nexus 7000 Series Switches, the first series of switches designed specifically to meet data center–class requirements and scalable to 15 terabits per second (Tbps). The Cisco Nexus 7000 Series Switches comprise a modular data center–class product line designed to provide highly scalable 10 Gigabit Ethernet networks with future support for 40 and 100 Gigabit Ethernet interfaces. Purpose built to meet the requirements of the most mission-critical data centers, it delivers continuous system operation and virtualized, pervasive services. The Cisco Nexus 7000 Series is based on a proven operating system (Cisco NX-OS), with enhanced features to deliver real-time system upgrades with exceptional manageability and serviceability. Its innovative design is built to support end-to-end data center connectivity, consolidating IP, storage, and interprocess communication (IPC) networks on a single Ethernet fabric.

Cisco Nexus 7000 Series Hardware Features

The first in the next generation of data center–class switch platforms, the Cisco Nexus 7000 Series 10-Slot Chassis (Figure 1) provides modularity, high availability, and integrated resilience specifically for mission-critical data centers.

Figure 1.   Cisco Nexus 7000 Series 10-Slot Chassis

The Cisco Nexus 7000 Series includes the following new features:

- Support for up to 256 10 Gigabit Ethernet or 384 10/100/1000 Ethernet ports in a single 10-slot chassis
- A fully modular and fully redundant 10-slot chassis with front-to-back airflow and integrated cable management
- Dual dedicated supervisor modules, providing exceptional high-availability features with no service interruptions even during hardware and software upgrades
- Highly scalable fabric architecture supporting up to five fabric modules for load-balanced, fault-tolerant operation and designed to deliver 230 Gbps per slot of bandwidth at release, with future support for more than 500 Gbps per slot
- Virtual output queuing and Fabric Arbitration, deliver quality of service (QoS) and fairness across all ports, even during congestion, and provide the basis for future unified I/O
- Integrated security hardware support for Cisco TrustSec, providing data confidentiality while simplifying and scaling access control
- Fully distributed forwarding engines, providing scalable packet processing and forwarding
- Three load-sharing power supply modules, allowing either 110V or 220V AC inputs. With 220V AC inputs these power supplies will deliver fault tolerance for a fully loaded chassis with worst-case N+1 and grid redundancy

The Cisco Nexus 7000 10-Slot Fabric Module (Figure 2) delivers the fault-tolerant fabric that provides parallel fabric channels to each I/O and supervisor module slot. Up to five simultaneously active fabric modules can work together delivering 230 Gbps per slot of bandwidth.

Figure 2. Cisco Nexus 7000 Series 10-Slot Chassis 46-Gbps/Slot Fabric Module

The Cisco Nexus 7000 Supervisor Module (Figure 3) delivers scalable control plane and management functions for the chassis. The fully virtualized and distributed forwarding architecture of the Cisco Nexus 7000 Series performs all data plane processing on the I/O modules, freeing the supervisor to focus exclusively on scaling the control plane. Dual supervisors deliver a fully redundant system that provides high availability and continuous operation even during hardware and software upgrades. The supervisor incorporates an innovative dedicated connectivity management processor (CMP) to support remote management and troubleshooting of the complete system for lights out management.
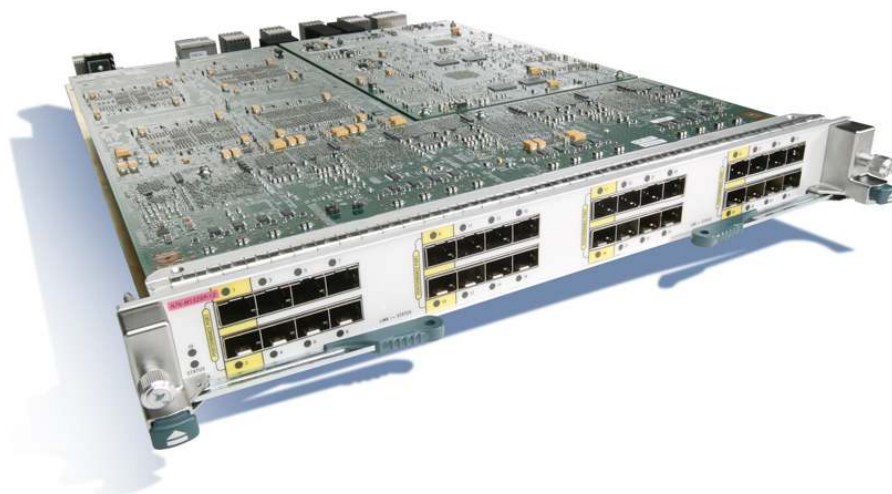
Figure 3. Cisco Nexus 7000 Supervisor Module

Two Cisco Nexus 7000 Series I/O modules (Figure 4) are available:
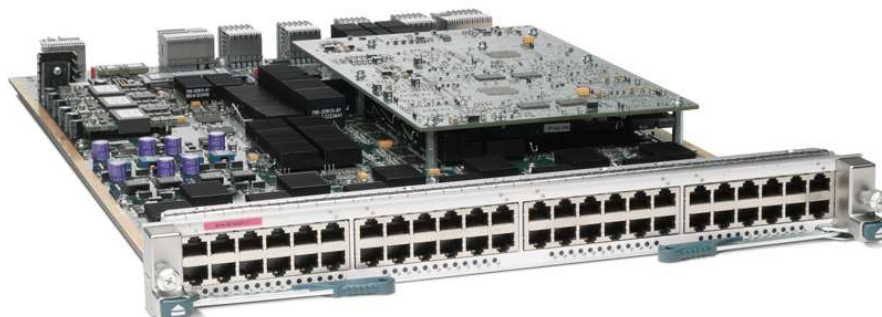
- 32-Port 10 Gigabit Ethernet Module
- 48-Port 10/100/1000 Ethernet Module

Figure 4.   Cisco Nexus 7000 I/O Modules

Cisco Nexus 7000 Series 32-Port 10Gb Ethernet Module

Cisco Nexus 7000 Series 48-Port 10/100/1000 Ethernet Module

All Cisco Nexus 7000 Series I/O modules incorporate a dedicated forwarding engine ensuring all data plane processing resides on the I/O modules. This high-availability architecture scales and isolates the control plane and data plane, delivering continuous operation even during upgrades. The forwarding engine also delivers access control list (ACL) filtering, marking, rate limiting, and NetFlow without degrading performance.

Advanced security features are integrated into the I/O modules with hardware support for Cisco TrustSec. All ports include line-rate 128-bit Advanced Encryption Standard (AES) encryption, providing data confidentiality and integrity. Access control is enhanced using Cisco metadata headers capable of carrying security group tags (SGTs). Security group ACLs (SGACLs) use SGT information to provide hardware-based enforcement of security policies. This approach removes dependencies on IP addressing and network topology, thus improving scalability and simplifying manageability.

Availability

The Cisco Nexus 7000 Series will be available for ordering January 29th, 2008 and will be shipping in the 2nd quarter of calendar year 2008.

Ordering Information

To place an order, visit the Cisco Ordering homepage. To download software, visit the Cisco Software Center. Table 1 provides ordering information.

Table 1. Ordering Information

Product Name	Part Number
Common Equipment	
Cisco Nexus 7000 Series 10 Slot Chassis—includes cable management and Fans, does not include Power Supplies	N7K-C7010
Cisco Nexus 7000 10 Slot Fabric Module—46Gbps per slot	N7K-C7010-FAB-1
Cisco Nexus 7000 Series Supervisor Module—includes external 8GB Log Flash, does not include optional external 2GB Expansion Flash	N7K-SUP1
Cisco Nexus 7000 Series 6kW AC Power Supply	N7K-AC-6.0KW
I/O Modules	
Cisco Nexus 7000 Series 32 Port 10Gb Ethernet Module (requires SFP+ Optic Modules)	N7K-M132XP-12
Cisco Nexus 7000 Series 48 Port 10/100/1000 Ethernet Module	N7K-M148GT-11
Optional Equipment	
Cisco Nexus 7010 Front Door Kit **(Note: cable management is included as standard equipment in the chassis. The optional Front Door Kit includes the double clear doors covering the I/O and Supervisor Modules, and the bottom section framing the air intake)**	N7K-C7010-FD-MB
Cisco Nexus 7010 Air Filter	N7K-C7010-AFLT
Cisco Nexus 7000 Compact Flash Memory—2GB (Expansion Flash)	N7K-CPF-2GB
Cisco Nexus 7000 Spares*	
Cisco Nexus 7000 Compact Flash Memory—8GB (Log Flash)	N7K-CPF-8GB=
Cisco Nexus 7000 Supervisor Blank Slot Cover	N7K-SUP-BLANK=
Cisco Nexus 7000 I/O Module Blank Slot Cover	N7K-MODULE-BLANK=
Cisco Nexus 7010 Chassis Power Supply Blank Slot Cover	N7K-PS-BLANK=
Cisco Nexus 7010 Fabric Module Blank	N7K-C7010-F-BLANK=
Cisco Nexus 7000 Network Clock Module Blank	N7K-CLK-BLANK=
Cisco Nexus 7000 Rack Mount Kit	N7K-RMK=
Cisco Nexus 7000 Bottom Support Kit	N7K-BSK=
Cisco Nexus 7010—EMI Inlet Screen Kit	N7K-C7010-EMI-SC=
Cisco Nexus 7010 Front Door Top Section—Including Cable Management-Kit	N7K-C7010-FD-TOP=
Cisco Nexus 7010 Shipping Packaging	N7K-C7010-SHPPKG=
Cisco Nexus 7010 Chassis LEDs Kit	N7K-C7010-LEDs=

Cisco Nexus 7000 10 Slot System Fan	N7K-C7010-FAN-S=
Cisco Nexus 7000 10 Slot Fabric Fan	N7K-C7010-FAN-F=
SFP+ Optic Module	
10GBASE-SR SFP+ Optic Module	SFP-10G-SR

* All of the spares listed here come standard with the chassis and may be ordered if you need a spare. All the common equipment, I/O modules, and optional equipment may also be ordered as spares.

Service and Support

Cisco offers a wide range of services to help accelerate your success in deploying and optimizing Cisco Nexus 7000 Series Switches in your data center. Cisco provides innovative services delivered through a unique combination of people, processes, tools, and partners and focused on helping you increase operating 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. Cisco SMARTnet® Service helps you resolve mission-critical problems with direct access anytime to Cisco network experts and award-winning resources. With this service, you can take advantage of the Cisco Smart Call Home service capability, which offers proactive diagnostics and real-time alerts on your Cisco Nexus 7000 Series Switches. Spanning the entire network lifecycle, Cisco services help maximize investment protection, optimize network operations, perform migration, and strengthen your IT expertise. For more information about Cisco Data Center Services, visit: http://www.cisco.com/go/dcservices.

For More Information

For more information about the Cisco Nexus 7000 Series, visit the product homepage at: http://www.cisco.com/go/nexus or contact your local account representative.