

Cisco Prime NAM 2300 Series Appliances with Software Version 6.0

With wired/wireless convergence, growing complexity in application deployment architectures, rapid adoption of virtualization and cloud, and increasing network traffic rates, network teams are constantly challenged with the task of ensuring that the network performs to the rigorous needs of the business. Cisco Prime NAM 2300 Appliances deliver the performance and agility needed to tackle this challenge.

Product Overview

Cisco Prime™ NAM 2300 Series Appliances are purpose-built devices that uniquely combine application visibility and network performance analytics to help accelerate operational decisions. They help you understand who is using the network, know what applications are running on the network, assess how the applications are performing, and characterize how traffic over the network is being used. And, when there's a problem, Cisco Prime NAM Appliances can help you find it fast, reducing the time it takes to resolve the problem from days to just minutes.

Cisco Prime NAM 2300 Series Appliances take full advantage of leading-edge [Cisco Unified Computing System™ \(Cisco UCS®\) C220/240 M3](#) rack-mount server platforms to deliver unparalleled performance, reliability, and manageability. The series consists of two appliance models (Figure 1), the Cisco Prime NAM 2320 Appliance and the Cisco Prime NAM 2304 Appliance, designed to meet diverse performance analysis needs in scalable multigigabit switching and routing environments.

Figure 1. Cisco Prime NAM 2320 and NAM 2304 Appliances



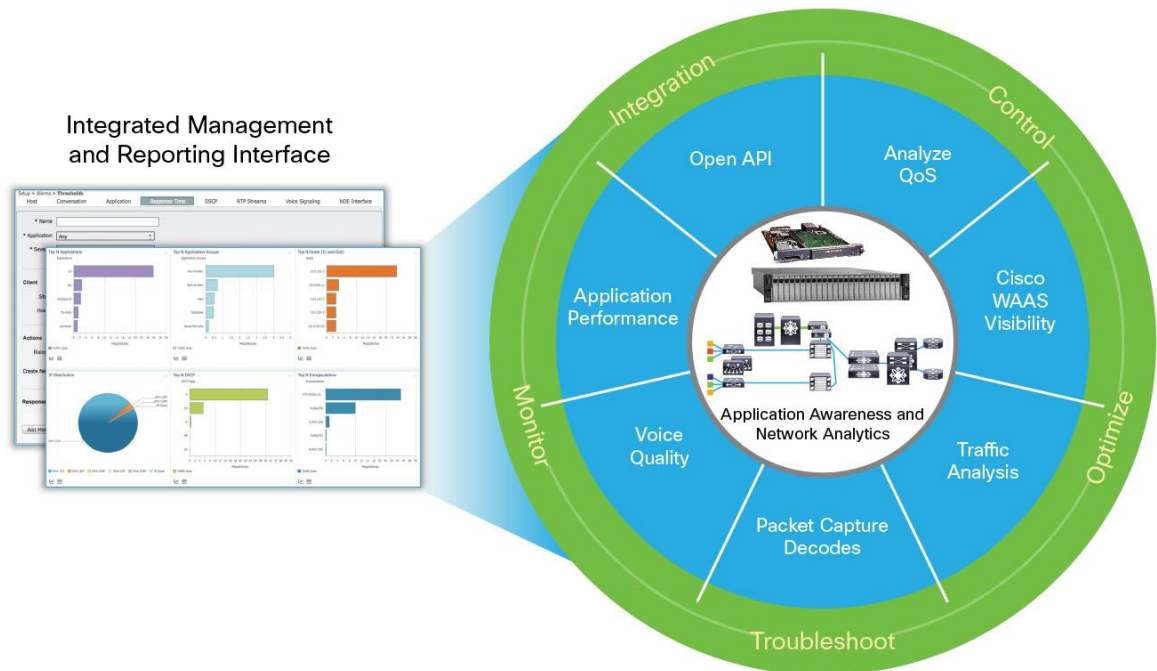
The Cisco Prime NAM 2320 Appliance includes two 10 Gigabit Ethernet monitoring interfaces and sixteen 1 TB enterprise class Serial Advanced Technology Attachment (SATA II) hard disk drives with an option to upgrade to twenty-four drives at the time of ordering. The Cisco Prime NAM 2304 includes four 1 Gigabit Ethernet monitoring interfaces and eight 1 TB enterprise class SATA II hard disk drives.

The NAM 2320 Appliance is well suited for deployments in the data center, enterprise campus core, and service provider networks. The NAM 2304 Appliance caters well to the needs in enterprise unified access and campus, WAN edge, and managed remote sites.

Cisco Prime NAM Improves Operational Efficiency

Cisco Prime NAM 2300 Appliances exploit their high-performance packet acquisition capability, line-rate hardware filters, and advanced analytics to deliver granular traffic statistics, application performance indicators, voice quality metrics, and deep, insightful packet captures (Figure 2). Extensive storage allows you to go back in time to understand what happened in the past when an event that affected network performance occurred. The capability can be utilized at critical observation points across the network to improve the operational effectiveness of [Cisco® Enterprise Networks](#) and the [Cisco Data Center Fabric Path solution](#) architectures. For example, Cisco Prime NAM can help you get the most from your WAN optimization investment, assess the impact of virtual machine (VM) mobility, or troubleshoot network bottlenecks in the data center.

Figure 2. Cisco Prime NAM 2300 Series Appliances Functional Overview



Cisco Prime NAM includes integrated dashboards (Figure 2) that provide an at-a-glance view of network and application performance and intuitive workflows that help you speed up problem detection and resolution. Using techniques such as contextual navigation, interactive reports, and one-click packet captures you can get to the root cause of the issue highlighted on the dashboard. All of this can be remotely accessed from anywhere so that you can know how the network is performing at any time. The visibility helps to accelerate troubleshooting, advance resource optimization decisions, and deliver consistent end-user experience.

Cisco Prime NAM 2300 Series Appliances Features and Benefits

The Cisco Prime NAMs offer an extensive set of features (Table 1) that provide a multilayer view of network performance to help you successfully navigate the labyrinth of application delivery challenges in today's hyperconnected world. Detailed descriptions of software feature and benefits can be obtained from the [Cisco Prime NAM Software data sheet](#).

Table 1. Cisco Prime NAM 2300 Series Appliances Features and Benefits

Feature	Benefit
High performance solution	Meet the rigorous performance demands of today's data center with a high-performance and scalable traffic analysis.
Application performance analytics	Track up to 400,000 concurrent client-server transactions to characterize end-user experience and isolate application latency issues to the network, server, or the application to minimize any triage process.
Application traffic analysis	View short-term and long-term network utilization by application, host, conversation, differentiated services code point (DSCP) group, and various overlay network technologies so you can make better network resource allocation decisions.
Insight into data center protocols	Design data center overlay networks for optimal delivery of distributed applications. Supported protocols include OTV, LISP, MPLS, VXLAN, and so on.
Cisco TrustSec® policy validation	Validate Cisco TrustSec policy by using security group tags (SGTs) and evaluating the endpoints and hosts, applications, and conversations participating in one or more security groups.
Voice/video monitoring and troubleshooting	Monitors up to 20,000 concurrent Real-Time Protocol (RTP) streams to troubleshoot voice quality issues in real time. Mean Opinion Score (MOS) is computed based on ITU-T Recommendation G.107, which offers accurate characterization of voice quality.
Deep, insightful packet analysis	Solve complex performance problems with trigger-based captures, scheduled captures, filters, decodes, and error scan features. Packet captures can be triggered based on performance thresholds, allowing you to focus on specific performance concerns. In addition, you can use external storage to collect extensive packet captures for offline analysis.
Combined flow and packet analytics	Gains multidimensional perspective by analysis of NetFlow and packet data in the same solution.
WAN optimized network visibility	Obtain end-to-end proof points demonstrating how Cisco Wide Area Application Services (WAAS) has improved application delivery (for example, decreased application transaction times and improved WAN bandwidth utilization). Accelerate return on investment (ROI) by assessing the best site and application candidates for optimization as part of a phased rollout plan.
Site-based monitoring	Tracks site-specific performance data for troubleshooting, optimization, or capacity decisions. A site can be used to represent geographic locations, departments, or even managed customer networks.
Monitoring of Virtual Switching System (VSS) or Virtual Port Channel (vPC) deployments	Monitors both virtual switches in VSS or vPC environments, reducing management overhead while improving operational efficiency.
Open interface (REST/XML)	Preserve investment in existing management assets through integration based on a standards-based (REST/XML) API.

Management

Cisco Integrated Management Controller (IMC) is a built-in management service with the Cisco Prime NAM 2300 Series Appliances. IMC uniquely differentiates the solution with simplified management through a web-based GUI to access, configure, administer, and monitor the appliance. Some of the IMC functions include:

- Power on, power off, power cycle, reset, and shut down the appliance
- Toggle the locator LED to locate the NAM appliance with blinking blue LED in the lab
- Manage remote presence with the keyboard, video, and mouse (KVM) console. The console is an interface accessible from IMC and emulates a direct KVM connection to the appliance. The KVM console allows you to connect to the appliance from a remote location. It also provides the virtual media feature that is used for recovery/ISO install

Cisco Prime Integration

Cisco Prime supports integrated lifecycle management of networks, services, and endpoints for Cisco enterprise network, data center, and collaboration architectures with end-to-end assurance. Cisco Prime Infrastructure can centrally manage the Cisco Prime NAM appliance with functions such as inventory, configuration, and image and fault management. It can also roll up the performance intelligence from NAMs deployed across the network into a consolidated dashboard.

Product Specifications

Table 2 lists the product specifications.

Table 2. Product Specifications

NAM 2304 Feature	Description
Chassis	One rack unit (RU)
Processor	Two Intel Xeon E5-2609 processors
Memory	48 GB (6 x 8 GB) industry-standard double data rate (DDR3) main memory
Hard disk drive	8 TB (8 x 1 TB) hot-swappable, enterprise class SATA II; RAID 1 on two drives (hosting the operating system and embedded performance database) and RAID 5 on the rest of the drives used for packet capture storage
Monitoring ports	Four 1 Gbps 10/100/1000Base-T RJ-45 or four 1 Gbps Small Form-Factor Pluggable (SFP) including multimode 850 nm SR, single-mode 1310 nm LR, 1000BASE-T, 10/100/1000BASE-T
Management port	10/100/1000 RJ-45
Monitoring and capture performance	Traffic monitoring throughput (sustained) [*] : 3.8+ Gbps Full packet capture to disk (sustained) [*] : Up to 1.9 Gbps Number of monitored RTP streams (concurrent): 20,000 Number of monitored client-server transactions (concurrent): 400,000 [*] Characterized based on typical traffic conditions simulated on the test bed
Physical dimensions (H x W x D)	One RU: 1.7 x 16.9 x 28.5 in. (4.32 x 43 x 72.4 cm)
Temperature: Operating	32 to 104°F (0 to 40°C) (operating, sea level, no fan fail, no CPU throttling, turbo mode)
Temperature: Nonoperating	-40 to 158°F (-40 to 70°C)
Humidity: Operating	10 to 90 percent noncondensing
Humidity: Nonoperating	5 to 93 percent noncondensing
Altitude: Operating	0 to 10,000 ft (0 to 3000 m); maximum ambient temperature decreases by 1°C per 300 m)
Altitude: Nonoperating	0 to 40,000 ft (12,000 m)
NAM 2320 Feature	Description
Chassis	Two RU
Processor	Two Intel Xeon E5-2640 processors
Memory	48 GB (6 x 8 GB) industry-standard double data rate (DDR3) main memory
Hard disk drive	24 TB (24 x 1 TB) or 16 TB (16 x 1 TB), hot-swappable, enterprise class SATA II; RAID 1 on two drives (hosting the operating system and embedded performance database) and RAID 5 on the rest of the drives used for packet capture storage
Monitoring ports	Two 10 Gbps Small Form-Factor Pluggable plus (SFP+) including multimode 850 nm SR, single-mode 1310 nm LR, single-mode 1550 nm ER, passive direct attach copper CR
Management port	10/100/1000 RJ-45

Monitoring and capture performance	Traffic monitoring throughput (sustained) [*] : 17+ Gbps Full packet capture to disk (sustained) ^{**} : Up to 11.5 Gbps Number of monitored RTP streams (concurrent): 20,000 Number of monitored client-server transactions (concurrent): 400,000 [*] Characterized based on typical traffic conditions simulated on the test bed ^{**} Achieved with 24 x 1 TB HDD configuration
Physical dimensions (H x W x D)	Two RU: 3.4 x 17.5 x 28.0 in. (8.7 x 44.5 x 71.2 cm)
Temperature: Operating	32 to 104°F (0 to 40°C) (operating, sea level, no fan fail, no CPU throttling, turbo mode)
Temperature: Nonoperating	-40 to 158°F (-40 to 70°C)
Humidity: Operating	10 to 90 percent noncondensing
Humidity Nonoperating	5 to 93 percent noncondensing
Altitude: Operating	0 to 10,000 ft (0 to 3000 m); maximum ambient temperature decreases by 1°C per 300 m
Altitude: Nonoperating	40,000 ft (12,000 m)
All NAM Appliances	Description
Supported topologies and data sources	<ul style="list-style-type: none"> LAN: Switched Port Analyzer (SPAN), Remote SPAN (RSPAN), Encapsulated RSPAN (ERSPAN), VLAN access control list (VACL)-based captures, NetFlow (versions 5 and 9), and WAAS Flow Agent, Performance Agent (PA) WAN: NetFlow (versions 5 and 9) from local and remote devices, VACL-based captures for FlexWAN/Optical Service Module (OSM) and Shared Port Adapter (SPA) interfaces, and WAAS Flow Agent, Performance Agent (PA)
Managed device support	Cisco Prime NAM 2300 Series Appliances can be deployed with any network device that can be configured with a standard data source (see above) such as SPAN, RSPAN, ERSPAN, and NetFlow. The managed device feature allows Cisco Prime NAM to poll the device health and interface/port statistics using Simple Network Management Protocol (SNMP). The implementation of the managed device feature differs by the type of network device.
Time synchronization	Network Time Protocol (NTP)
Supported interfaces	<ul style="list-style-type: none"> HTTP/HTTPS with embedded web-based Cisco Prime NAM Software SNMPv1, v2c, and v3, with standards-based applications
Cisco Prime NAM Software	<ul style="list-style-type: none"> Cisco Prime NAM Software 6.0 Web-based: Requires Microsoft Internet Explorer 9.0 or later or Mozilla Firefox ESR 10.0 or later Support for SSL security with up to 256-bit encryption Role-based user authorization and authentication locally or using TACACS+
MIBs	The Cisco Prime NAMs are standards compliant and support the following major MIB groups: <ul style="list-style-type: none"> MIB-II (RFC 1213) - All groups except Exterior Gateway Protocol (EGP) and transmission RMON (RFC 2819) - Alarm and Event groups only RMON2 (RFC 2021) - trapDestTable only Cisco Discovery Protocol EntityMIB (RFC 2737)
Applications and protocols	Cisco Prime NAM identifies hundreds of unique protocols (Layers 2 through 4) and automatically detects unknown protocols. Supported protocols include, but not limited to: <ul style="list-style-type: none"> TCP and User Datagram Protocol (UDP) over IP including IPv6 HTTP and HTTPS Voice over IP (VoIP) including H.323, Skinny Client Control Protocol (SCCP), Real-Time Protocol/Real-Time Control Protocol (RTP/RTCP), Media Gateway Control Protocol (MGCP), and Session Initiation Protocol (SIP) SigTran protocols Mobile IP protocols including General Packet Radio Service (GPRS) Tunneling Protocol (GTP) Storage area network protocols Database protocols Peer-to-peer protocols Switch and router protocols Cisco proprietary protocols Unknown protocols by TCP/UDP ports, Remote Procedure Call (RPC) program numbers, and so on
Custom applications	Cisco Prime NAM supports custom applications. These applications can be defined on the basis of port, port range, server IP address, or HTTP URL.

Regulatory Standards

Table 3 lists regulatory standards compliance information.

Table 3. Regulatory Standards Compliance: Safety and EMC

Specification	Description
Safety	<ul style="list-style-type: none">• UL 60950-1 No. 21CFR1040 Second Edition• CAN/CSA-C22.2 No. 60950-1 Second Edition• IEC 60950-1 Second Edition• EN 60950-1 Second Edition• IEC 60950-1 Second Edition• AS/NZS 60950-1• GB4943 2001
EMC: Emissions	<ul style="list-style-type: none">• 47CFR Part 15 (CFR 47) Class A• AS/NZS CISPR22 Class A• CISPR2 2 Class A• EN55022 Class A• ICES003 Class A• VCCI Class A• EN61000-3-2• EN61000-3-3• KN22 Class A• CNS13438 Class A
EMC: Immunity	<ul style="list-style-type: none">• EN55024• CISPR24• EN300386• KN24

Warranty Information

Find warranty information on Cisco.com at the [Product Warranties](#) page.

Ordering Information

To place an order, visit the [Cisco Ordering Homepage](#). See Table 4 for part numbers. When ordering the Cisco Prime NAM 2320 Series Appliance, you have the option to upgrade the hard disk drives to maximize the performance of full packet capture to disk. The default hard disk drive configuration (16 x 1 TB) can be upgraded to 24 x 1 TB drives using the upgrade pack (8 x 1 TB) part number NAM-8PD1TBSATA.

Cisco Prime NAM Software version 6.0 will be delivered preloaded with your NAM 2300 Series Appliance. To download software and software updates, visit the [Cisco Software Center](#).

Table 4. Ordering Information

Cisco Prime NAM 2304-RJ45 Appliance	Part Number
Cisco Prime NAM 2304 Appliance, Four 1 Gb Ethernet, RJ-45	NAM2304-RJ45-K9
Cisco Prime NAM Software 6.0	NAM-APPL-SW-6.0-K9
Cisco Prime NAM 2304-SFP Appliance	Part Number
Cisco Prime NAM 2304 Appliance, Four 1 Gb Ethernet, SFP	NAM2304-SFP-K9
Cisco Prime NAM Software 6.0	NAM-APPL-SW-6.0-K9

Cisco Prime NAM 2320 Appliance	Part Number
Cisco Prime NAM 2320 Appliance (With 16 x 1 TB SATA II Drives)	NAM2320-K9
Hard Disk Drive Upgrade Pack (8 x 1 TB SATA II Drives) - Optional	NAM-8PD1TBSATA
Cisco Prime NAM Software 6.0	NAM-APPL-SW-6.0-K9

For ordering convenience, the SFP and SFP+ module part numbers (Table 5) are available on the Cisco Ordering Homepage when ordering Cisco Prime NAM 2300 Appliances.

Table 5. SFP Ordering Information

For Cisco Prime NAM 2320 Appliance

Product Name	Part Number	Ordering Information
10GBASE-SR SFP+ Module for MMF	SFP-10G-SR=	Refer to the Cisco 10GBASE SFP+ Modules data sheet for ordering information related to these Cisco SFP+ modules and related cables.
10GBASE-LR SFP+ Module for SMF	SFP-10G-LR=	
10GBASE-ER SFP+ Module for SMF	SFP-10G-ER=	

For Cisco Prime NAM 2304 Appliance with SFP Modules

Product Name	Part Number	Ordering Information
1000BASE-T Standard	GLC-T=	Refer to the Cisco SFP Modules data sheet for ordering information related to these Cisco SFP modules.
1000BASE-SX Short Wavelength; With DOM	GLC-SX-MMD=	
1000BASE-LX/LH Long-Wavelength; With DOM	GLC-LH-SMD=	

Cisco Services

Services from Cisco and Our Partners

Realize the full business value of your technology investments with smart, personalized services from Cisco and our partners. Backed by deep networking expertise and a broad ecosystem of partners, Cisco Services help enable you to successfully plan, build, and run your network as a powerful business platform. Whether you are looking to quickly seize new opportunities to meet rising customer expectations, improve operational efficiency to lower costs, mitigate risk, or accelerate growth, we have a service that can help you. For information about Cisco Services, go to <http://www.cisco.com/go/services>. Table 6 shows the technical support service recommended for NAM 2300 Series Appliances.

Table 6. Cisco Technical Services

Technical Services
<p>Cisco SMARTnet[®] provides:</p> <ul style="list-style-type: none"> • Global 24-hour access to Cisco Technical Assistance Center (TAC) • Access to online knowledge base, communities, and tools • Hardware replacement options, including 2-hour, 4-hour, and next business day (NBD)[*] • Ongoing operating system software updates^{**} • Smart, proactive diagnostics and real-time alerts on devices enabled with Smart Call Home

^{*} Advance hardware replacement is available in various service-level combinations. For example, 8 x 5 x NBD indicates that shipment will be initiated during the standard 8-hour business day, 5 days a week (the generally accepted business days within the relevant region), with next business day delivery. Where NBD is not available, same day shipment is provided. Restrictions apply; please review the appropriate service descriptions for details.

^{**} Cisco operating system updates include maintenance releases, minor updates, and major updates within the licensed feature set.

For More Information

For more information about Cisco Prime NAM 2300 Series Appliances, visit <http://www.cisco.com/go/nam>, contact your local account representative, or email the Cisco Prime NAM product marketing group at nam-info@cisco.com.




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