Cisco Catalyst 6500 Series Network Analysis Module (NAM-3) with Software 6.0

Network administrators need multifaceted visibility into the network and application to help ensure consistent and cost-effective delivery of service to end users. Understanding who is using the network, knowing what applications are running on the network, assessing how the applications are performing, characterizing how traffic over the network is being used are the foundation for managing and improving the delivery of your business-critical applications. It is the foundation for establishing and verifying quality of service (QoS) policies, undertaking converged wired-wireless access projects, or rolling out voice over IP (VoIP). It is also the foundation for recognizing when a configuration change has unintentionally degraded application performance or for providing proof points that it is the application and not the network that is causing one of your business planning systems to perform poorly so that the appropriate actions can then be taken.

Product Overview

The Cisco® Catalyst® 6500 Series Network Analysis Module (NAM-3) provides unparalleled network and application visibility to simplify operational manageability of network resources in multi-Gigabit Ethernet enterprise campus, data center, and WAN deployments. Integrated with Cisco Catalyst 6500 Series and Catalyst 6807 Switches, it empowers you to optimize network resources, deliver consistent application performance, and ensure that the network performs to the rigorous demands of the business. And, when there's a problem, the Cisco NAM-3 can help you find it fast, reducing the time it takes to resolve it from days to just minutes.

Figure 1. Cisco Catalyst 6500 Series Network Analysis Module (NAM-3)

This integrated service module (Figure 1) combines application visibility, rich performance analytics, and insightful packet captures, embracing a service-centered approach to network analysis. It helps you to:

- Lower total cost of ownership with reduced network footprint and savings in operational expenses
- Enhance operational efficiency with prepackaged interactive reports and intuitive workflows
- Accelerate problem resolution with advanced hardware and software filters, intelligent packet captures, and historical data analysis
- Improve end-user service levels with accurate characterization of application performance and assessment of impact due to control and optimization techniques
- Preserve investments in your existing network switching infrastructure and management assets

The Cisco Catalyst 6500 Series NAM-3 has been purpose-designed to deliver high performance traffic monitoring, taking advantage of backplane integration, advanced hardware filters, best-in-class performance analytics combined with remotely accessible web-based management, and the reporting console. It supports Cisco Prime™ Network Analysis Module Software that implements a snappy graphical user interface (GUI) with prepackaged dashboards (Figure 2) to give you an immediate view of network performance and workflows to streamline your troubleshooting and optimization decisions.

Figure 2. Cisco NAM Traffic Summary Dashboard

Cisco Catalyst 6500 Series NAM-3 Features and Benefits

The NAM-3 offers an extensive set of features (Table 1) that provide a multidimensional view of network performance to help you successfully navigate the labyrinth of application delivery challenges in today's hyperconnected world. Detailed description of software features and benefits can be obtained from Cisco Prime NAM Software data sheet.

Table 1. Cisco Catalyst 6500 Series NAM-3 Features and Benefits

Feature	Benefit
Infrastructure integration	Deployed in the Cisco Catalyst 6500 Series or Catalyst 6807 Switch, the NAM-3 takes advantage of backplane integration. It provides greater investment protection, lower total cost of ownership, and a reduced footprint, saving premium rack space. Backplane integration allows collection of packets right from the source, helping to ensure high reliability and precision analytics.
Application performance intelligence	Characterize the end-user experience for TCP-based applications and isolate application response time problems to the network, server, or the application, minimizing any triage process.
Comprehensive voice quality monitoring and real-time troubleshooting	Gather real-time reports on Mean Opinion Score (MOS) and other key performance indicators (KPIs) such as jitter and packet loss to understand and improve how the end user experiences the delivery of voice services. MOS is computed based on ITU-T Recommendations G.107, offering accurate characterization of voice quality. Combine monitoring with real-time troubleshooting using prepackaged dashboards to improve end-user service levels.
Detailed traffic analytics	View short- and long-term performance data on hosts, conversations, and applications that use critical network resources.
Insight into CAPWAP traffic	Visibility into CAPWAP tunnels unveils a wealth of information that helps to improve service delivery over wireless access network. Reports on performance and usage statistics on a per access point or per endpoint basis help to quickly identify network bottlenecks and application performance issues.
Monitor Virtual Switching System (VSS) deployments	Monitor both virtual switches in VSS environments, reducing management overhead while improving operational efficiency.
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, improved WAN bandwidth utilization). Accelerate the return on investment (ROI) by assessing the best site and application candidates for optimization as part of the phased rollout plan.
IEEE 1588 hardware time-stamping	Packet capture from the backplane combined with a precise hardware time stamp results in accurate performance measurements with metrics such as application response time and jitter. The IEEE 1588 hardware time stamps also facilitate accurate packet capture analysis.
Advanced hardware and software filters	Reduce the time to get to the critical data to accelerate troubleshooting and analysis of network traffic behavior.
Deep, insightful packet captures	Solve complex performance issues with triggered or scheduled captures, display filters, decodes, and error scan features. Packet captures can be triggered based on performance thresholds, allowing you to focus on specific performance issues. In addition, utilize external storage to collect extensive packet captures for offline analysis.
Historical analysis	Look back to the past with the embedded Performance Database to understand what happened when an event that affects network performance occurred to accelerate root-cause analysis and prevent any reoccurrence. Use historical analysis for advancing optimization and capacity decisions.
Pre- and postdeployment analysis	Glean valuable before and after traffic analytics to help plan for and verify changes in network resources, such as introducing new applications, establishing QoS policies, consolidating servers, and deploying VoIP.
Open interface	Ease NAM configuration and export of computed NAM data using REST/XML-based APIs.
Anytime, anywhere access	Access the web interface from any desktop, eliminating the need to send personnel to remote sites or haul large amounts of data over WAN links to the central site.

Product Specifications

Table 2 lists the product specifications.

Table 2. Product Specifications

Feature	Description
NAM-3 architecture	• Two high-performance CPUs with hardware-based packet acceleration offering greater than 10 Gigabit Ethernet monitoring performance, 24 GB RAM, 600 GB SATA hard disk drive, mini SAS, and 10 Gigabit Ethernet external storage interface, and 1 Gigabit Ethernet management interface • 20 gigabit interface to backplane for Switched Port Analyzer (SPAN)/VLAN access control list (VACL) capture data sources, NetFlow, encapsulated remote SPAN (ERSPAN), Cisco WAAS, and Cisco Performance Agent

Feature	Description
	(PA) data sources
Supported platforms	• NAM-3 can be deployed in a slot in Cisco Catalyst 6500-E or Catalyst 6807 Switches with Supervisor Engine 2T (supported part numbers: VS-S2T-10G, VS-S2T-10G-XL) or Cisco Catalyst 6500-E Switches with Supervisor Engine 720 (supported part numbers: WS-SUP720-3B, WS-SUP720-3BXL, VS-S720-10G-3C, VS-S720-10G-3CXL) • Supported with Cisco IOS® Software 12.2(33)SXJ1(minimum) for Supervisor Engine 720 and Cisco IOS Software release 15.0(1)SY1 (minimum) for Supervisor Engine 2T
Supported topologies and data sources	• LAN: SPAN, RSPAN, ERSPAN, VACL-based captures, NetFlow (versions 5 and 9), Cisco WAAS, and Cisco Performance Agent • 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
Supported communication protocols	• HTTP and HTTPS with embedded web-based Cisco Prime NAM Software • Simple Network Management Protocol Version 1 (SNMPv1) and Version 2c, with standards-based applications
Cisco Prime Network Analysis Module Software	• Cisco Prime NAM Software 6.0 • Web-based: Requires Microsoft Internet Explorer 9.0 or later or Mozilla Firefox ESR 10.0 or later • Supports Secure Sockets Layer (SSL) security with up to 256-bit encryption • Role-based user authorization and authentication locally or using TACACS+ • Supported with Cisco IOS Software Release 12.2(33)SXJ1 (minimum). Refer to the Cisco Prime NAM 6.0 Release Notes for more details regarding supported system software
MIBs	The Cisco NAMs are standards compliant and support the following major MIB groups: • 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)
Protocols	Cisco Prime NAM identifies hundreds of unique protocols (Layers 2 through 4) and automatically detects unknown protocols. It also supports URL-based application definition. Supported protocols include, but are not limited to: • TCP and User Datagram Protocol (UDP) over IP, including IPv6 • HTTP and HTTPS • Voice over IP (VoIP) including 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) • SAN protocols • Database protocols • Peer-to-peer protocols • Switch and router protocols • Cisco proprietary protocols • Unknown protocols by TCP/UDP ports and Remote Procedure Call (RPC) program numbers • It allows customization of the protocol engine by defining protocols based on a single port or a range of ports. The custom application definition can be augmented by including the IP address in addition to port and port range
Physical dimensions	Dimensions (H x W x D): 1.2 x 14.4 x 16 inches (3.0 x 35.6 x 40.6 centimeters); occupies one slot in the chassis
Operating environment	• Operating temperature: 32 to 104 degrees F (0 to 40 degrees C) • Nonoperating and storage temperature: -40 to 158 degrees F (-40 to 70 degrees C) • Operating relative humidity: 10 percent to 90 percent (noncondensing) • Nonoperating relative humidity: 5 percent to 95 percent (noncondensing) • Operating and nonoperating altitude: Sea level to 10,000 feet (3050 meters)

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 3 for part numbers. To download software, visit the Cisco Software Center.

For new Cisco NAM customers, please select Cisco Prime NAM Software 6.0(2), part number SC-SVC-NAM3-6.0-K9, as the software option when ordering your Cisco NAM and it will be delivered to you preloaded on your NAM hardware. For current Cisco NAM customers, Cisco Prime NAM Software 6.0(2) can be downloaded from the Cisco.com Software Center at no charge using your Cisco SMARTnet™ contract access privileges.

Table 3. Ordering Information

Product Information	Part Number
Cisco Catalyst 6500 Series Network Analysis Module (NAM-3) (Spare)	WS-SVC-NAM3-6G-K9(=)
Cisco Prime NAM Software 6.0(2)	SC-SVC-NAM3-6.0-K9

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Table 4. Cisco Technical Services

Technical Services
Cisco SMARTnet Service • Around-the-clock, global access to the Cisco Technical Assistance Center (TAC) • Unrestricted access to the extensive Cisco.com resources, communities, and tools • Next business day (NBD), 8x5x4, 24x7x4, and 24x7x2 advance hardware replacement* and onsite parts replacement and installation available • Ongoing operating system software updates within the licensed feature set** • Proactive diagnostics and real-time alerts on Smart Call Home enabled devices

For More Information

For more information about Cisco Catalyst 6500 Series NAM-3, visit http://www.cisco.com/go/nam, contact your local account representative, or email the Cisco NAM product marketing group at nam-info@cisco.com.

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