

Cisco Branch Routers Series Network Analysis Module with Software 5.0

Q. What is Cisco® Branch Routers Series Network Analysis Module (NAM)?

A. Cisco Branch Routers Series NAM is an integrated performance monitoring solution that delivers unparalleled insight into the operational performance of the borderless access network to help improve the delivery of applications and services to end users. Its unique design combines a rich set of embedded data collection capabilities with a remotely accessible, web-based management and performance reporting console, all of which reside on a single network module that is installed into Cisco 3900 Series, Cisco 2900 Series, Cisco 3800 Series or Cisco 2800 Series Integrated Services Routers (ISRs), or Cisco 3700 Series Multiservice Access Routers (MSRs). With software 5.0, the Cisco Branch Routers Series NAM introduces a next generation graphical user interface (GUI) with pre-packaged reports, workflows and contextual drill-downs to expedite problem resolution and optimization decisions.

Q. What are the key features and benefits of Cisco Branch Routers Series NAM?

A. Table 1 lists the key features and benefits.

Table 1. Key Features of Cisco Branch Routers Series NAM

Feature	Benefit
Integrated Performance Visibility	Deployed in the ISR and ISR G2 branch routers, the Cisco NAM provides greater investment protection, lower total cost of ownership, and reduced footprint to save premium rack space.
Application performance intelligence	Analyze transaction-aware analytics to help characterize the end-user experience and isolate application response time problems to the network, server, or the application itself.
Comprehensive voice quality monitoring	View Mean Opinion Score (MOS) along with key performance metrics for each Real Time Protocol (RTP) stream to help ensure delivery of committed service levels to the end user.
Historical analysis using the NAM's Performance Database	Supports historical data analysis to accelerate problem resolution and advance optimization decisions.
Visibility into WAN-optimized networks	Obtain proof points demonstrating how Cisco Wide Area Application Services (WAAS) has improved application delivery.
Granular Flow- and Packet-based traffic analytics	View short- and long-term performance data on hosts, conversations, and applications that use critical network resources.
LAN and WAN monitoring in one solution	Obtain visibility into traffic from local and remote switches and routers for comprehensive traffic monitoring.
Web-based captures for deep, insightful data analysis	Capture the packets to help resolve acute problems before they affect users. Perform captures using a web browser from any desktop, and view packet capture decodes through the Traffic Analyzer GUI while the data is still being captured. Quickly pinpoint and resolve problem areas using trigger-based captures, decodes, filters, and packet capture error scan.
Pre- and post-deployment metrics	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.
Secure solution	Use TACACS+, Secure Sockets Layer (SSL), and Secure Shell (SSH) Protocol - based security.
Standards-based northbound interface	Ease NAM configuration and export of computed NAM data using standards-based APIs (REST/XML for configuration, NetFlow v9 for data export). Facilitate integration with customer in-house managed applications or third-party reporting application of choice.
Anytime, anywhere access	Access the embedded Traffic Analyzer 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.
Deployment flexibility	Cisco NAM can be deployed in blade form factor in Cisco Catalyst 6500 Series Switches, Cisco 7600 Series Routers, and Cisco Integrated Services Routers as multigigabit appliances, and as virtual service blades residing directly on WAAS devices or on the Nexus 1010 Virtual Service Appliance. The complement of physical and virtual blades and of appliances allows NAM instrumentation to be broadly deployed in the network for comprehensive performance monitoring.

Q. What are the business benefits of deploying Cisco Branch Routers Series NAM?

A. Table 2 summarizes the business benefits that Cisco Branch Routers Series NAM offers.

Table 2. Business Benefits of Cisco Branch Routers Series NAM

Benefit	Description
Improve operational efficiency with faster problem resolution and greater productivity	• Rapid problem isolation with pre-packaged reports, visual correlation, contextual drill-downs and one-click packet captures • "Packet Capture Scan" feature highlights observed protocol/packet level anomalies, accelerating complex root cause analysis • Combined packet and flow analysis reduces time to noteworthy and actionable information to expedite troubleshooting • Remote management eliminates the need to travel to remote sites
Enhance service levels with consistent application performance visibility across the network	• Accurate characterization of performance with advanced analytics for Voice and TCP applications • Consistent application recognition using new application classification architecture • Improved end-user experience with effective use of control and optimization techniques such as QoS and Cisco WAAS • Preemption of performance issues with threshold-based proactive alerts reduces downtime and failures
Reduce total cost of ownership	• Integrated with Cisco platforms, NAM delivers reduced network footprint, lower operational cost and simplified manageability • NAM form-factors offer cost-effective options and deployment flexibility to address location-specific network instrumentation needs • Open standards-based API preserves investment in existing management assets

Q. Why deploy Cisco NAM in the branch?

A. The value propositions of deploying Cisco Branch Routers Series NAM include:

- Characterizing the end-user experience in the borderless access network, the place in the network closest to the end users. Deployed in the branch, Cisco NAM can provide full visibility into the traffic entering or leaving the branch, offering comprehensive views of how users are experiencing the delivery of voice, video, and TCP-based applications.
- Profiling all traffic in and out of the branch to help plan for and verify changes in network resources, such as new application rollouts, WAN optimization, server consolidation, VoIP and video deployments, and so on. Cisco NAM deployed in the branch singularly offers visibility into both branch-to-data-center traffic and branch-to-branch traffic.
- Performing VoIP quality and video stream analysis. Deployed in the branch, Cisco NAM analyzes both Real-time Transport Protocol (RTP) streams and associated signaling traffic to facilitate both timely and comprehensive reporting of voice and video quality.
- Troubleshooting application performance issues locally and remotely. The Cisco Branch Routers Series NAM provides extensive packet capture features, including trigger-based captures, decodes, error scans, and filters, to help quickly pinpoint and resolve problem areas. The feature can be used remotely to troubleshoot a branch from a centralized location, eliminating the need to send personnel to the branch or haul large amounts of data over WAN links to a central site.

Q. How does Cisco Branch Routers Series NAM work?

A. Cisco Branch Routers Series NAM receives copies of packets in a passive or promiscuous mode from the router backplane or from an external Gigabit Ethernet interface. The NAM parses the packets to gather relevant data and then stores the processed information in the new Performance Database. The database provides valuable traffic information on voice, video, and data traffic, VLANs, DiffServ configurations, hosts, conversation pairs, application usage, and application response times. The information is presented in the NAM's Traffic Analyzer GUI in easy-to-read interactive reports. It can also be exported to third-party or in-house reporting applications using NetFlow v9.

Q. What is Cisco NAM Traffic Analyzer?

- A.** The Cisco NAM comes with the Traffic Analyzer application. This embedded application offers an intuitive web-based graphical user interface (GUI) that includes pre-packaged reports, workflows and contextual drill-downs to expedite problem resolution and optimization decisions. The GUI also provides quick access to the configuration menus and interactive performance reports on voice, video, and TCP-based traffic. In addition, the Traffic Analyzer application hosts an embedded web server that enables remote access from anywhere so that network performance can be viewed, managed, and improved at any time, eliminating the need to travel to remote sites or haul large amounts of data over WAN links to a central site.

Q. Where is Cisco Branch Routers Series NAM deployed?

- A.** Cisco Branch Routers Series NAM is deployed in the Cisco 2800, 2900, 3700, 3800, and 3900 Series Routers at WAN edges or at remote branch offices. It uses features of both local and remote switches and routers to provide combined visibility into WAN and LAN traffic in the borderless access network. Traffic from selected WAN ports can be copied by the router using a special packet-monitoring feature in Cisco IOS® Software and then sent by an internal backplane interface to Cisco NAM for analysis. Traffic from LAN ports in the router or from nearby switches can be sent to Cisco NAM through an external Gigabit Ethernet interface. By using the web-based Traffic Analyzer embedded in Cisco NAM, network managers can perform remote traffic analysis, performance monitoring, and troubleshooting without having to send personnel to remote offices or haul large amounts of data across the WAN to the central site.

Q. What branch router models support the second-generation Cisco Branch Routers Series NAM?

- A.** The second-generation Cisco Branch Routers Series NAM, NME-NAM-80S and NME-NAM-120S, is supported on the branch router models indicated in Table 3. An NM Adapter Card is required to successfully integrate the NME-NAM into Cisco 2900 Series and Cisco 3900 Series ISRs.

Table 3. NME-NAM Supported Router Models

Router Models	NM Adapter Card Required
Cisco 3945 ISR	Yes
Cisco 3925 ISR	Yes
Cisco 2951 ISR	Yes
Cisco 2921 ISR	Yes
Cisco 2911 ISR	Yes
Cisco 3845 ISR	No
Cisco 3825 ISR	No
Cisco 2851 ISR	No
Cisco 2821 ISR	No
Cisco 2811 ISR	No
Cisco 3745 MSR	No
Cisco 3725 MSR	No

NAM 5.0**Q. What feature innovations does NAM Software 5.0 offer?**

- A.** The key Cisco NAM 5.0 feature innovations are described in Table 4.

Table 4. New Features in Cisco NAM Software 5.0

Feature	Benefit
Re-inspired User Experience	NAM software 5.0 introduces a next-generation GUI that helps accelerate troubleshooting and optimization decisions by providing access to critical information at your finger tips. It offers "out-of-the-box" dashboards to give you a comprehensive graphical overview of network performance. It also includes pre-packaged interactive reports with helpful features such as contextual drill-downs, advanced filters and one-click packet captures. The new GUI not only reduces the time it takes to solve problems, but also the time it takes to learn the product giving you more time to spend on advancing new business initiatives.
Flexible Site-based monitoring	This feature allows you to view network and application performance by logical groupings or sites that you can create to mirror your network topology. For example, you can create sites by geographic locations, departments, or even managed customer networks and view performance data on a per site basis making it easier to obtain both a global and local view of how your applications are performing.
Historical analysis with embedded Performance Database	The Cisco NAM's new Performance Database stores computed data so you can go back to the past to troubleshoot un-anticipated performance issues, or to analyze optimization needs.
Pre-packaged Analysis Workflows	Pre-packaged workflows help to streamline and accelerate problem resolution. Not only do they improve operational efficiency, they also validate and improve optimization decisions.
NetFlow and Packet Data analysis in one box	NetFlow and packet data complement each other to provide a powerful monitoring solution, all in one box. With expanded NetFlow reporting capabilities, you can obtain an extensive view of the traffic to see who is using your network, what applications they're using, and how much bandwidth is being consumed. Pinpointing traffic of interest, you can use packet-based data to perform a "deeper dive" to quickly spot and address performance-impacting issues.
NBAR-based application recognition	The Cisco NAM now supports standardized application identifiers generated by Network-based Application Recognition (NBAR) to help deliver consistency to application recognition across the network.
Packet Capture Error Scan	The new packet Capture Error Scan automatically highlights packet-level anomalies to accelerate root cause analysis and avoid having to manually inspect the packet data to find the "needle in the haystack".
NetFlow v9 Data Export	By exporting analytics in a standardized format, this new capability allows you to use computed NAM data to feed in-house or third party reporting applications that you already own, building-up additional value and building-out existing investments.

Q. When is NAM software 5.0 available?

- A.** Starting in late January 2011 current Cisco NAM customers can download Cisco NAM 5.0 software from the Cisco.com Software Center at no charge using their Cisco SMARTnet[®] contract access privileges. NAM 5.0 is available in Feb 2011 as part of NAM blade orders.

Q. Which NAM hardware platforms support NAM 5.0 software?

- A.** NAM 5.0 software is supported on the hardware platforms listed in Table 5. All of the platforms in the list include a minimum of 1 GB memory. NAM 5.0 requires that the platform include this minimum. In addition, the platforms marked by an asterisk (*) include memory configurations above the 1 GB minimum. These memory configurations optimize NAM 5.0 performance.

Table 5. NAM Hardware Platforms Supported with NAM 5.0 Software

Hardware Part Number	Description
NAM2204-RJ45*	Cisco NAM 2200 Series Appliances
NAM2204-SFP*	
NAM2220*	
WS-SVC-NAM-1-250S*	Cisco Catalyst 6500 Series and Cisco 7600 Series NAM-1
WS-SVC-NAM-1 with MEM-C6KNAM-2GB=*	
WS-SVC-NAM-2-250S*	
WS-SVC-NAM-2 with MEM-C6KNAM-2GB=*	Cisco Catalyst 6500 Series and Cisco 7600 Series NAM-2
WS-SVC-NAM-2	
NME-NAM-120S	
	Cisco Branch Routers Series NAM

Q. If the NAM platform that I have is not supported, what options exist to enable me to use NAM 5.0 Software?

- A.** As indicated in the Answer above, NAM Software 5.0 is supported on NAM hardware platforms that include at least 1 GB of memory. If you have either of the two End of Sale NAM hardware platforms indicated below that include less than 1 GB of memory, Cisco recommends the following:
- For WS-SVC-NAM-1 (Cisco Catalyst 6500 Series NAM-1): Consider upgrading the memory to 2 GB by purchasing the field-installable Cisco Catalyst 6500 Series NAM-1 and NAM-2 Memory Upgrade Kit, MEM-C6KNAM-2GB=.
 - For NME-NAM-80S (Cisco Branch Routers Series NAM): Consider taking advantage of the Cisco Technical Migration Program (CTMP) to trade-in your NME-NAM-80S NAM for a NME-NAM-120S NAM and protect your existing investment. The -120S NAM platform, which replaces the -80S, is available on supported Cisco ISR and ISR G2 routers.

Q. Will I be able to perform software upgrade from NAM 4.x to NAM 5.0 or do I need to freshly install NAM software 5.0?

- A.** NAM software 5.0 introduces a new embedded performance database and a new internal data schema. As a result, a fresh install will be needed.

Q. Will I lose any data when I migrate from NAM 4.x to NAM software 5.0?

- A.** Since NAM software 5.0 introduces a new “backend”, installing NAM software 5.0 will result in loss of data and configuration settings. The configuration settings can be exported prior to upgrade and re-imported after the upgrade to minimize the loss. The “config upload” and “config network” commands to perform these tasks are documented in the command reference guide. Note that some of the configuration settings are no longer applicable.

Hardware Features

Q. How does the router send traffic to the Cisco Branch Router Series NAM internal interface?

- A.** The host router forwards traffic from user-selected interfaces to Cisco NAM using the router’s internal PCI bus. Both inbound and outbound traffic are forwarded to Cisco NAM.

Q. Can Cisco Branch Routers Series NAM monitor traffic on multiple LAN or WAN interfaces simultaneously?

- A.** Yes, it can be used to monitor traffic from multiple interfaces within the router. Traffic statistics are processed and displayed using the following data sources on the module: NetFlow-based data sources and the two Cisco NAM interfaces - internal and external.

Q. Can packets be sent to the NAM before the traffic is encrypted (that is, IP Security [IPsec]) on the interface that I wish to monitor?

- A.** Yes. Packets are copied to the NAM by Cisco Express Forwarding. If the router is the endpoint of the IPsec tunnel, the packets will be decrypted before they reach Cisco Express Forwarding; the outgoing packets will be processed by Cisco Express Forwarding before they’re encrypted. In this scenario Cisco Express Forwarding can copy the decrypted packets to the NAM for analysis.

Q. Is Cisco Branch Routers Series NAM restricted to a particular slot in the branch router chassis?

- A.** No. Cisco NAM can be inserted into any of the network module slots in the branch router chassis. Only one Cisco NAM is supported in each chassis.

Q. Is Cisco Branch Routers Series NAM compatible with all other network modules that can reside in the branch routers?

A. Yes. Cisco NAM is compatible with the other network modules offered for the Cisco 2800, 2900, 3700, 3800, and 3900 Series Routers.

Q. Is Cisco Branch Routers Series NAM hot-swappable?

A. Yes, on online insertion and removal (OIR) - capable router platforms.

Q. Should Cisco Branch Routers Series NAM fail, will network traffic be affected?

A. No. Failure of Cisco NAM will not affect network traffic.

Q. What are the hardware specifications of Cisco Branch Routers Series NAM?

A. Table 6 lists the hardware specifications for Cisco Branch Routers Series NAM.

Table 6. Hardware Specifications of Cisco Branch Routers Series NAM

Hardware Feature	Specifications
Processor	1.0 GHz Intel Celeron M CPU
Synchronous dynamic RAM (SDRAM)	1 GB
Internal disk storage	120 GB 24x7 SATA hard disk drive
Network interfaces	One internal Gigabit Ethernet port to router backplane, plus one external Gigabit Ethernet port
Flash memory	64 MB internal

Software Features

Q. What release of Cisco IOS Software is required to support Cisco Branch Routers Series NAM?

A. The minimum Cisco IOS Software required will depend on the router model in which the NME-NAM is installed. Table 7 summarizes the Cisco IOS Software requirements to support NME-NAM.

Table 7. Cisco IOS Software Requirements to Support NME-NAM

NME-NAM Installed in:	Minimum Cisco IOS Software Version Required
Cisco 3945 ISR	Cisco IOS Software 15.0(1)M
Cisco 3925 ISR	Cisco IOS Software 15.0(1)M
Cisco 2951 ISR	Cisco IOS Software 15.0(1)M
Cisco 2921 ISR	Cisco IOS Software 15.0(1)M
Cisco 2911 ISR	Cisco IOS Software 15.0(1)M
Cisco 3845 ISR	Cisco IOS Software 12.4(9)T
Cisco 3825 ISR	Cisco IOS Software 12.4(9)T
Cisco 2851 ISR	Cisco IOS Software 12.4(9)T
Cisco 2821 ISR	Cisco IOS Software 12.4(9)T
Cisco 2811 ISR	Cisco IOS Software 12.4(9)T
Cisco 3745 MSR	Cisco IOS Software 12.4(9)T
Cisco 3725 MSR	Cisco IOS Software 12.4(9)T

Q. What Cisco NAM software version does the latest Cisco Branch Routers Series NAM, NME-NAM-120S, support?

A. The Cisco Branch Routers Series NAM, NME-NAM-120S, is first introduced in Cisco NAM Software 3.6.1b. It supports NAM Software 3.6.1b or later.

- Q. Are all of the features included in Cisco Catalyst 6500 Series and Cisco 7600 Series NAMs also included in Cisco Branch Routers Series NAM?**
- A.** All of the Cisco NAMs offer a common user experience, but some functional disparities exist because of the distinctions in the capabilities of both the host platforms and the NAM hardware platforms. For example, Remote SPAN (RSPAN) and Encapsulated RSPAN (ERSPAN) configurations are unique to the Catalyst switches and are not supported on the branch routers.
- Q. What versions of NetFlow does Cisco Branch Routers Series NAM support?**
- A.** Cisco NAM supports versions 1, 5, 6, 7, 8, and 9.
- Q. Can NetFlow Data Export (NDE) be collected from remote WAN routers?**
- A.** Yes, Cisco Branch Routers Series NAM can collect and analyze NDE from remote devices, including WAN routers.
- Q. Does the Cisco NAM perform historical traffic analysis?**
- A.** Yes, NAM 5.0 takes you back to the past to understand what happened when an event affecting network performance occurred. It supports historical data analysis to accelerate problem resolution, advance optimization and capacity planning decisions.
- Q. What is the REST/XML API and how does it help me?**
- A.** The NAM API provides a mechanism for provisioning and retrieving data from the NAM server using an eXtensible Markup Language (XML) interface. The API utilizes the Representational State Transfer (REST) methodology to execute requests (web services) over HTTP or HTTPS by sending the XML data to the API server. The REST XML interface is capable of configuring a subset of the software features through create, read, update, and delete operations mapped to a particular HTTP or HTTPS method. APIs are provided for sites, data sources, application, application groups, action, threshold, packet capture, WAAS monitored server, system info, and NetFlow data export. The interface also enables you to create an outgoing stream of exported performance data from NAM as NetFlow records.
- Q. Is SNMPv3 supported in NAM 5.0?**
- A.** With NAM 5.0, you have the ability to manage devices with SNMPv3. Note that for the WS-SVC-NAM-1 and WS-SVC-NAM-2 platforms, SNMPv3 is not required. SNMP requests and responses are communicated over an internal interface within the chassis, and SNMPv3 is not used.
- Q. How can I recognize and configure applications reported as unknown by NAM?**
- A.** NAM recognizes applications on the basis of port number, port number range or standardized application identifiers exported by Cisco platforms with NDE. If NAM is not able to recognize an application using any of these mechanisms, the application type of the traffic is reported as "unknown". You can configure the application reported as "unknown" using the Application configuration table on the Traffic Analysis dashboard (Analyze->Traffic-Application). When selecting an "unknown" application, the table will list all protocol/port combinations that were not recognized by NAM, and allow you to configure them as custom applications.
- Q. Can I define my own application or application groups?**
- A.** NAM identifies applications/protocols based on the TCP/UDP port number, thus, if there are any applications using custom ports, the NAM can be configured to identify those applications by name instead of by port number(s). Custom applications can be defined combining a select protocol with port or port-range definitions. Custom application groups can be defined as a set of existing applications that can be monitored together. Please refer to NAM software 5.0 User Guide (Chapter 2) for instructions on how to create a custom application or application group.

Q. How can I understand various response time metrics and how do they help me in troubleshooting application performance issues?

A. Please refer to NAM software 5.0 User Guide (Chapter 3).

Q. Why do I need custom filters for interactive reports?

A. Interactive reports use advanced filters to enable you to focus on information of interest and create a context for further analysis. For example, when analyzing application performance, you can create a filter to focus on a select site, application, time range, client, server or a combination of the foregoing, offering a powerful mechanism to isolate performance issues. In addition, the custom filter allows you to save a specific context for on-going analysis. Typically, this is valuable when watching a recurring performance issue. In such cases, you would create a custom filter having the appropriate filter attributes. When you select the custom filter, the interactive report will load the data as per the context defined in the custom filter.

Q. Can more than one user concurrently use NAM?

A. Cisco NAM allows multiple users to access NAM concurrently. Note though that the increase in the number of concurrent users can result in a below optimal user-experience in terms of interface response times.

Q. When would I define a site using data sources or vlans?

A. NAM software 5.0 introduces the concept of logical sites as collection of network end-points. A site can be defined as a set of subnets specified by an address prefix and mask. In addition, a site can be defined using a remote device data source (such as remote WAAS device, NDE from remote network device) or VLAN(s). As examples, a site can be defined as a remote WAAS device representing the collection of end-points for which an application is being optimized, or in the case of managed service delivery, a site can be defined as a VLAN representing a customer premise. A combination of these mechanisms offers a granular way to define a site.

Q. How many simultaneous captures does the NAM support?

A. Cisco NAM can support up to 10 simultaneous packet capture sessions.

Q. How can I replicate my site definitions and application definitions across all my NAMs?

A. The REST/XML API introduced with NAM software 5.0 allows you to create, update and delete site definitions. It also allows you to retrieve all site definitions from a given NAM. Using these functions you can replicate site definitions programmatically across all NAMs deployed in the network. A similar API exists for the definitions of application and application groups.

Q. How is Cisco NAM Traffic Analyzer secured?

A. The Cisco NAM Traffic Analyzer can be secured with up to 256-bit encryption. This requires users to download a K9-designated patch for the NAM software from the Cisco.com Software Center. Cisco NAM also supports role-based user authorization and authentication locally or using TACACS+.

Q. What MIBs are supported on Cisco Branch Routers Series NAM?

A. Cisco Branch Routers Series NAM is 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 (CDP)
- EntityMIB (RFC 2737)

Q. Does Cisco NAM support voice monitoring for Cisco VoIP deployments only?

A. No. Cisco NAM monitors Real-time Transport Protocol and thus, by extension, can provide reporting on any VoIP protocol that runs on top of RTP, a Layer 4 protocol.

Q. Which VoIP signaling protocols does the Cisco NAM support?

A. Cisco NAM supports a breadth of VoIP signaling protocols, namely, Skinny Client Control Protocol (SCCP), Session Initiation Protocol (SIP), Media Gateway Control Protocol (MGCP), and H.323.

Q. What are the key performance indicators for monitoring voice?

A. Cisco NAM offers real-time voice quality monitoring using standards-based Mean Opinion Score (MOS) and key performance indicators such as jitter and packet loss. It calculates MOS based on ITU-T G.107 recommendations.

Q. Can I identify the phones affected due to voice quality degradation?

A. Yes. Cisco NAM allows the administrator to pinpoint the individual RTP stream experiencing voice quality degradation. By correlating the RTP and signaling streams, Cisco NAM can report the phone numbers and alias for each endpoint.

Q. What Cisco Unified Communications Management Solutions support NAM?

A. The solutions are Cisco Unified Service Monitor and Cisco Unified Operations Manager.

Q. How do Cisco Unified Service Monitor and Cisco Unified Operations Manager support NAM?

A. Cisco Unified Service Monitor collects voice metrics from multiple NAMs to provide enterprisewide visibility into voice quality. Cisco Unified Service Monitor generates alerts on voice quality degradation that is reported by Cisco Unified Operations Manager. Based on these alerts, Cisco Unified Operations Manager helps enable the user to navigate into NAM to glean near real-time views of both voice and network performance to perform rapid troubleshooting.

Q. How does Cisco NAM support Cisco Wide Area Application Services?

A. Cisco NAM uses the built-in instrumentation of the Cisco Wide-Area Application Engine (WAE) devices as a data source to gather information on the optimized traffic to provide end-to-end application performance visibility in a Cisco WAAS environment. It measures application response time, transaction time, bandwidth usage, LAN/WAN data, and so on to provide end-to-end application performance metrics, accurately quantifying the impact of WAAS optimization and helping to validate ongoing optimization improvements. NAM is also able to identify the applications that would benefit the most from deploying Cisco WAAS. Analyzing response time data over a period of time, the administrator can identify the applications for which optimization can result in a material increase in available bandwidth.

Third-Party Reporting**Q. Does Cisco NAM include an API to allow third-party reporting applications to use NAM as a source of data?**

A. Yes, the Cisco NAM includes multiple mechanisms, such as NetFlow V9, SNMP and comma-separated value (CSV)/HTTP to enable third-party reporting applications to collect data for networkwide reporting, trending, baselining, and capacity planning. The API allows you to use computed NAM data to feed in-house or third party reporting applications that you already own, building-up additional value and building-out existing investments. NAM 5.0 introduces XML/REST-based API for NAM configuration and NetFlow v9 as a flexible and standard mechanism for data export.

Q. How can a third-party apply for approval to use the Cisco NAM API for integration?

A. A third-party can enroll in the Cisco Developer Network at <http://www.cisco.com/go/cdn>. During the enrollment process, the third-party must select Network and Service Management as the solution technology and Cisco NAM as the network management product for integration. Once approved and the nondisclosure agreement (NDA) and NAM developer license agreement signed, the third-party will receive the API for integration.

Q. Are there currently third-parties who have joined this program? How can a list of these vendors be obtained?

A. Yes. Today, reporting applications from third-parties such as NetQoS, Compuware, Infovista and others offer support for NAM. These reporting applications complement the NAM by using its rich metrics to build end-to-end views of application usage and performance and also to streamline the number of collection points in the network. A list of third-parties supporting NAM can be found at <http://www.cisco.com/go/cdn> under Find a Partner, Network and Services Management, and Network Management Services Modules.

Ordering Information

Q. What are the part numbers for the Cisco Branch Routers Series NAM?

A. Table 8 lists the part numbers for the NAMs.

Table 8. Cisco Branch Routers Series NAM Part Numbers

Product Name	Part Number
Cisco Branch Routers Series NAM (Spare)	NME-NAM-120S(=)
Cisco Branch Routers Series NAM Software 5.0	NME-NAM-SW-5.0
Voice Monitoring Software License for NME-NAM-120S, 50 RTP Streams (Spare)	SNAM-50VOICE(=)
Voice Monitoring Software License for NME-NAM-120S, 100 RTP Streams (Spare)	SNAM-100VOICE(=)
NM Adapter Card for integration of NME-NAM into C2900 and C3900 platforms (Spare)	SM-NM-ADPTR(=)

Q. How can the Cisco NAM Traffic Analyzer software be obtained?

A. The NAM software can be obtained in one of two ways. To obtain the latest NAM software with your new hardware order, order NME-NAM-SW-5.0 when ordering the NAM hardware NME-NAM-120S. The software will then be delivered preloaded on the hardware. If you already own the hardware, download the latest software from the Cisco.com Software Center using your SMARTnet access privileges.

Q. What components are required to implement a network monitoring solution with Cisco Branch Routers Series NAM?

A. The following are required to implement Cisco Branch Routers Series NAM, including NAM Traffic Analyzer:

- Cisco 2800, 3700, or 3800 Series Router running Cisco IOS Software Release 12.4(9)T or later, or Cisco 2900 or 3900 Series ISR running Cisco IOS Software Release 15.0(1)M or later.
- Cisco Branch Routers Series NAM NME-NAM-120S, running Cisco NAM Software 4.2 or later, Web browser running English Firefox 3.6+ or Microsoft Internet Explorer 8+ or later (Microsoft Internet Explorer 7 is not supported).
- Voice Monitoring Software license for NME-NAM-120S if RTP stream (voice) monitoring is desired. Two licenses are offered, one enabling the monitoring of 50 RTP streams; the other of 100 RTP streams.
- NM Adapter Card for integration of NME-NAM into Cisco 2900 or 3900 Series ISR.

Q. Are maintenance services for Cisco Branch Routers Series NAM purchased separately or are they included in the router's maintenance services?

A. Maintenance services for Cisco Branch Routers Series NAM are included with the purchase of maintenance services for the router in which Cisco Branch Routers Series NAM is installed.

Specifications

Q. What are the physical specifications of Cisco Branch Routers Series NAM?

A. Table 9 provides the physical specifications.

Table 9. Physical Specifications of Cisco Branch Routers Series NAM

Physical Specification	Description
Dimensions (H x W x D)	1.55 x 7.10 x 7.2 inches (3.9 x 18.0 x 18.3 centimeters)
Weight	1.5 pounds (0.7 kilograms) maximum
Operating humidity	5 percent to 85 percent (noncondensing)
Operational temperature	41 to 104°F (5 to 40°C)
Nonoperating temperature	-40 to 158°F (-40 to 70°C)
Operational altitude	-197 ft to 6,000 ft (-60 to 1,800 m)
Safety	• UL 60950-1, Second Edition Safety of Information Technology Equipment - Safety - Part 1: General Requirements (USA). Plastic materials that are exposed to the end user shall meet the requirements of fire enclosure (UL94V-1) as defined in UL 60950. • CSA 60950-1, Second Edition, Safety of Information Technology Equipment - Safety - Part 1: General Requirements (Canada). • IEC 60950-1, Second Edition, Safety of Information Technology Equipment - Safety - Part 1: General Requirements, including all national deviations as specified in the current CB Bulletin • EN 60950-1, Second Edition, Safety of Information Technology Equipment - Safety - Part 1: General Requirements (European Union) incorporating all deviations, as applicable. • GB 4943-95, Safety of Information Technology Equipment (Including Electrical Business Equipment) (standard for China, equivalent to IEC 60950). • AS/NZS 60950.1, Information Technology Equipment, Safety part 1: General Requirements (Australia).
Compliance	Emission: • 47 CFR Part 15 Class A • CISPR22 Class A • EN300386 Class A • EN55022 Class A • EN61000-3-2 • EN61000-3-3 • SD/EMI (India) • KN22 (Korea) • VCCI Class I • AS/NZS CISPR 22 Class A Immunity: • CISPR24 • EN300386 • EN50082-1 • EN55024 • SD/EMI (India) • KN22 (Korea) • EN61000-6-1

Information Resources

Q. Where is additional information about Cisco NAM found?

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



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