

## Cisco Branch Routers Series Network Analysis Module

### Overview

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

**A.** Cisco Branch Routers Series NAM is a traffic analysis and performance monitoring solution designed to give you more visibility into your network than ever before. It shows you what applications are running on your network and how they are performing to help you ensure the consistent and efficient delivery of services to your end-users.

The innovative design of Cisco Branch Routers Series NAM combines a rich set of embedded data collection and analysis capabilities with a remotely accessible, web-based management 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). Cisco Branch Routers Series NAM includes a Traffic Analyzer GUI that provides quick access to the configuration menus and presents easy-to-read performance reports on web, voice, and video traffic.

**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
<b>Traffic analysis and performance monitoring integrated in the router</b>	Cisco NAM can be deployed in Cisco Integrated Services Routers, providing greater investment protection, lower total cost of ownership, and reduced footprint to save premium rack space.
<b>WAN and LAN monitoring all in one solution</b>	Provides visibility into traffic from local and remote switches and routers for comprehensive traffic monitoring.
<b>Easy-to-access configuration menus and performance reports</b>	Includes an embedded Traffic Analyzer web interface that can be accessed from any desktop, eliminating the need to send personnel to remote sites or haul large amounts of data to the central site.
<b>Comprehensive flow-based monitoring</b>	Automatically identifies hundreds of protocols and provides real-time and historical performance reports on the hosts, conversations, and applications using critical network resources.
<b>Web-based captures for deep, insightful data analysis</b>	Captures the packets to help resolve acute problems before they affect users. Captures can be performed using a web browser from any desktop, and the decodes can be viewed through the Traffic Analyzer GUI while the data is still being captured. Extensive capture features, including trigger-based captures, decodes, filters, and a capture analysis toolset, help to quickly pinpoint and resolve problem areas.
<b>Transaction-aware application response time monitoring</b>	Monitors TCP-based application packets as they travel from the client through the network to the data center and out again, measuring network round trip time, client response time, server response time, and transaction time to improve application performance.
<b>Voice-over-IP (VoIP) and video packet quality analysis</b>	Monitors voice and video packet quality to help assure a high rate of packet delivery so users get the quality they expect and demand.
<b>Pre- and postdeployment metrics to quantify business changes</b>	Provides valuable "before and after" traffic information to help you plan for and verify changes in network resources, such as rolling out new applications, optimizing WAN traffic, segmenting the network, and deploying VoIP and video.
<b>Secure solution</b>	Offers TACACS+, Secure Sockets Layer (SSL), and Secure Shell (SSH) Protocol-based security.
<b>Open instrumentation</b>	Enables the export of data to other tools and applications that build additional value on top of NAM.

**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 either from the router backplane or from an external Gigabit Ethernet interface. When the packet is received, Cisco NAM inspects it and retrieves certain data of interest. Cisco NAM uses this data to populate standards-based management information bases (MIBs), such as remote monitoring (RMON/RMON2) MIBs and RMON MIB extensions, included in the NAM software. Using the NAM Traffic Analyzer software, Cisco NAM presents the traffic information stored in the MIBs in easy-to-read real-time and historical reports. The information stored in the MIBs can also be accessed by a standard Simple Network Management Protocol (SNMP)-based application to build additional value for networkwide reporting, capacity planning, and so on.

**Q. What is Cisco NAM Traffic Analyzer?**

**A.** Cisco NAM includes embedded software, called Cisco NAM Traffic Analyzer, which analyzes and stores the data. It presents the data to clients using a supported web browser.

**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 empowered branch. 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 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 2. An NM Adapter Card, SM-NM-ADPTR(=), is required to successfully integrate the NME-NAM into Cisco 2900 Series and Cisco 3900 Series ISRs.

**Table 2.** 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

**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 in the purchase of maintenance services for the router in which Cisco Branch Routers Series NAM is installed.

### **NAM 3.6.1b**

**Q. What is NAM 3.6.1b?**

**A.** NAM 3.6.1b introduces the following:

- New Branch Routers Series NAM, NME-NAM-120S
- New Catalyst® 6500 Series and Cisco 7600 Series NAMs, WS-SVC-NAM-1-250S and WS-SVC-NAM-2-250S
- Bug fixes

**Q. What do the new NAMs offer?**

**A.** The new NAMs offer higher memory (DRAM) and larger onboard storage. The higher memory improves the performance of the NAM software. The disk drive upgrade offers larger capacity to permit the storage of more reports and captures.

**Q. Do I need to order a new part number to obtain a new NAM?**

**A.** Yes. To readily distinguish the updated NAMs from the existing ones, new part numbers (SKUs) have been assigned. These part numbers are provided in Table 3.

**Table 3.** Part Numbers for the New NAMs

Part Number	Description
NME-NAM-120S	Cisco Branch Routers Series NAM
WS-SVC-NAM-1-250S	Cisco Catalyst 6500 Series and Cisco 7600 Series NAM-1
WS-SVC-NAM-2-250S	Cisco Catalyst 6500 Series and Cisco 7600 Series NAM-2

**Q. Will the current NAMs still be available?**

**A.** No, not in the longer term. The updated NAMs will replace the current ones as per Table 4.

**Table 4.** NAM Replacement Part Numbers

SKU of Existing NAM	SKU of Replacement NAM
NME-NAM-80S	NME-NAM-120S
WS-SVC-NAM-1	WS-SVC-NAM-1-250S
WS-SVC-NAM-2	WS-SVC-NAM-2-250S

**Q. Why will the current NAMs be replaced?**

**A.** The new NAMs will offer:

- Increased memory and larger disk capacity
- NAM software feature parity
- System software (Cisco IOS Software) parity
- Price parity

As a result, we believe that our customers will be best served by the new product offerings.

**Q. What are the capacity increases for the memory and disk drive?**

**A.** For Cisco Branch Routers Series NAM, the increases are as follows:

- Memory: From 512 MB to 1 GB
- Disk drive storage: From 80 GB to 120 GB

**Q. NAM 3.6 comprises three separate releases, NAM 3.6.1, NAM 3.6.1a, and NAM 3.6.1b. Could you summarize the key features found in each release?**

**A.** Yes. Table 5 summarizes the key features. The most recent NAM 3.6 release, NAM 3.6.1b, is accumulative. It also includes features delivered in NAM 3.6.1a and NAM 3.6.1.

**Table 5.** New Features in Cisco NAM 3.6

Feature	Release	Benefit
Upgraded NAMs with new part numbers	NAM 3.6.1b	Refreshes two key hardware components, offering increased memory to improve software performance and a larger capacity hard disk drive to store even more captures and reports
Field-installable memory upgrade kit	NAM 3.6.1b	Available for WS-SVC-NAM-1 and WS-SVC-NAM-2, enhances software performance while providing investment protection
Virtual switch system (VSS) support	NAM 3.6.1a	Analyzes traffic from both virtual switch members to increase operational manageability and improve application performance in VSS environments
Campus segmentation support	NAM 3.6.1a	Identifies the applications being delivered to users and the server ports delivering the applications to help establish security policies supporting network resource segmentation
Second-generation Cisco Branch Routers Series NAM	NAM 3.6.1	Offers high-performance WAN traffic monitoring, large onboard storage, and a Gigabit Ethernet external interface to provide application performance analytics in the empowered branch
Transaction-aware application response time monitoring	NAM 3.6.1	Delivers intelligent information on client, server, and application latency to help enterprises assure the effective and reliable delivery of the applications that make up the business
Live reporting	NAM 3.6.1	Provides highly granular visibility into network traffic to expose potential problems that can disrupt business operations

**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. 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, WAN interface cards (WICs), and advanced integration modules (AIMs) that can reside in the branch routers?**

**A.** Yes. Cisco NAM is compatible with the other network modules, WICs, and AIMs 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.** Cisco Branch Routers Series NAM, NME-NAM-120S, is first introduced in Cisco NAM Software 3.6.1b.

**Q. Must Cisco NAM software be downloaded from the Cisco.com Software Center when first deploying a Cisco Branch Routers Series NAM?**

**A.** No. Cisco NAM Software 3.6 is preloaded on the Cisco NAM. There is no need to download the software when first deploying Cisco Branch Routers Series NAM.

**Q. How do I upgrade Cisco NAM software?**

**A.** Customers who have purchased SMARTnet® for the router in which Cisco NAM is installed will be entitled to download new software releases from the Cisco.com Software Center. In addition, customers who have purchased a Voice Monitoring license will be entitled to use the voice monitoring functionality included in the new software releases. Specific instructions on how to upgrade NAM software can be found in the Cisco Branch Routers Series NAM Installation and Configuration Note found on Cisco.com.

**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, NM-NAM, NME-NAM-80S, or NME-NAM-120S, running Cisco NAM Software 3.6
  - Web browser running Microsoft Internet Explorer 6.0 (minimum), Mozilla 1.7 (minimum), or Firefox 1.5 (minimum)
  - Voice Monitoring Software license for NME-NAM-120S if monitoring RTP streams (voice) 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. How can the Cisco NAM Traffic Analyzer application be obtained?**

- A.** The Cisco NAM Traffic Analyzer application is embedded in Cisco NAM.

**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. Can historical traffic analysis be performed with Cisco Branch Routers Series NAM?**

- A.** Yes. Cisco NAM Traffic Analyzer can display, store, and retrieve historical statistics on selected network traffic for up to 100 days.

In addition, historical reports can be exported either on demand or as scheduled. Cisco NAM also can serve as a rich source of data, “feeding” third-party reporting applications to provide historical analysis beyond 100 days. These applications use the data collected by Cisco NAM to perform networkwide reporting, trending, capacity planning, and baselining.

**Q. How is Cisco NAM Traffic Analyzer secured?**

- A.** Cisco NAM Traffic Analyzer can be secured with up to 168-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 supports RMON and RMON2 MIBs, as well as several extensions. The major MIB groups supported in Cisco Branch Routers Series NAM include the following:
- MIB-II (RFC 1213)
  - RMON (RFC 2819)
  - RMON2 (RFC 2021)

- DSMON (RFC 3287)
- HC-RMON (RFC 3273) (High-Capacity RMON)
- NBAR-PD
- ART (Application Response Time) extension

## Specifications

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

A. Table 8 provides the physical specifications.

**Table 8.** 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 style="list-style-type: none"> <li>• 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.</li> <li>• CSA 60950-1, Second Edition, Safety of Information Technology Equipment – Safety – Part 1: General Requirements (Canada)</li> <li>• 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</li> <li>• EN 60950-1, Second Edition, Safety of Information Technology Equipment – Safety – Part 1: General Requirements (European Union) incorporating all deviations, as applicable</li> <li>• GB 4943-95, Safety of Information Technology Equipment (Including Electrical Business Equipment) (standard for China, equivalent to IEC 60950)</li> <li>• AS/NZS 60950.1, Information Technology Equipment, Safety part 1: General Requirements (Australia)</li> </ul>
Compliance	<p>Emission:</p> <ul style="list-style-type: none"> <li>• 47 CFR Part 15 Class A</li> <li>• CISPR22 Class A</li> <li>• EN300386 Class A</li> <li>• EN55022 Class A</li> <li>• EN61000-3-2</li> <li>• EN61000-3-3</li> <li>• SD/EMI (India)</li> <li>• KN22 (Korea)</li> <li>• VCCI Class I</li> <li>• AS/NZS CISPR 22 Class A</li> </ul> <p>Immunity:</p> <ul style="list-style-type: none"> <li>• CISPR24</li> <li>• EN300386</li> <li>• EN50082-1</li> <li>• EN55024</li> <li>• SD/EMI (India)</li> <li>• KN22 (Korea)</li> <li>• EN61000-6-1</li> </ul>

## 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](mailto:nam-info@cisco.com).



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