Cisco Branch Routers Series Network Analysis Module with Software 5.0

It all comes down to knowing. Knowing who is using the network, knowing what applications are running on the network, knowing how the network is performing, knowing how traffic over the network is being used and how it is performing are the foundation for managing and improving the delivery of your business-critical applications. Knowing is the foundation for establishing and verifying quality of service (QoS) policies, undertaking WAN optimization projects, and 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 Branch Routers Series Network Analysis Module (NAM) helps you know. It is your source for unparalleled network and application visibility, analyzing traffic flows between users and their critical applications to help you ensure that the network performs to the rigorous demands of the business. And, when there's a problem, the Cisco NAM can help you find it fast, reducing the time it takes to resolve it from days to just minutes.

Figure 1. Cisco Branch Routers Series NAM, NME-NAM

As a member of the Cisco NAM portfolio of products, the Cisco Branch Routers Series NAM provides granular traffic analysis, rich application performance metrics, comprehensive voice analytics, and deep insightful packet captures to help you manage and improve how your users experience the delivery of applications and services in your Cisco Borderless Network. Its unique design combines embedded data collection and analysis capabilities with a remotely accessible, web-based management and reporting console, all of which reside on a single blade that is installed into the Cisco Integrated Services Routers (ISR) and ISR Generation Two (G2) family of routers.

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Figure 2. Cisco NAM Traffic Summary Dashboard

The Cisco Branch Routers Series NAM includes a snappy graphical user interface (GUI) with dashboards (Figure 2) to give you an immediate view of network performance and workflows to help you simplify problem detection and resolution. It also uses a rich set of Cisco infrastructure features as sources of data, such as Cisco Express Forwarding copies of packet data and NetFlow, giving you more ways to see and understand what's happening on your network. And, with an array of vital features and functions, such as a new Performance Database, which preserves historical data, allowing you to understand what happened in the past when an event that affected network performance occurred, the Cisco NAM makes it easier than ever before to manage and improve network and application performance anytime and anywhere.

The Cisco Branch Routers Series NAM is the glue binding your Cisco Borderless Network deployments, providing application visibility within the branch, between branches, and between the branch and data center. Cisco NAM deployed in the branch provides end-to-end visibility for branch-to-branch applications, such as voice, and for TCP-based applications hosted in the data center, driving application delivery consistency and efficiency across the network.

NAM Software 5.0 Innovations

NAM Software 5.0 means agility - agility that allows you quickly to know what is happening on the network and see where trouble is lurking. NAM Software 5.0 offers new and enhanced capabilities that help enable you to get to the right data fast, whether it is data that helps you respond to a help desk call on slow application performance, understand application performance before and after deploying Cisco Wide Area Application Services (WAAS), confirm that VoIP performance is rock solid at one of your international sites, or learn whether application performance has also made the leap with your server centralization and consolidated branch-office project.

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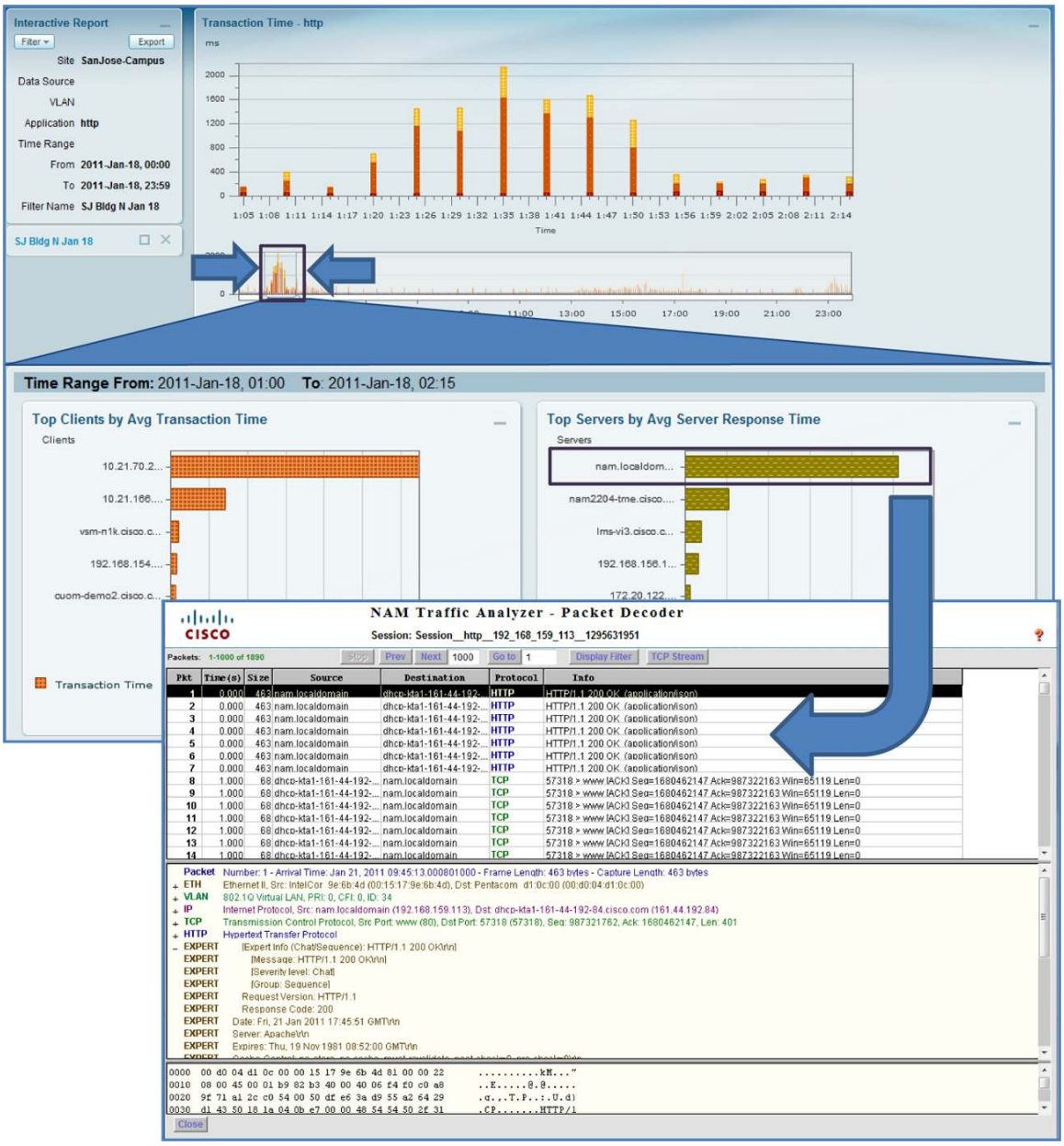
Figure 3. Application Performance Troubleshooting Workflow



- **Redesigned GUI simplifies monitoring and troubleshooting:** The Cisco NAM's redesigned GUI includes preconfigured dashboards that provide a comprehensive graphical view of network performance so you can immediately grasp whether all is well or whether a problem is emerging. It also includes workflows with helpful features such as contextual navigation, interactive reports, and one-click packet captures (Figure 3). The NAM's GUI reduces not only 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.
- **NetFlow and packet data analysis in one box offer unprecedented levels of breadth and depth:** 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 traffic usage information, such as 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 issues that affect performance.

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- **A Performance Database lets you flash back to the past:** The Cisco NAM's embedded Performance Database stores computed, historical data so you can flash back to the past to learn what happened on your network when a particular event occurred. Only too often do these anomalous events occur and are then gone. Now, with the Cisco NAM's Performance Database, you can look back, discover the facts, and solve the problem fast.
- **NetFlow Version 9 Data Export extends network reporting:** 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.
- **Site-based monitoring delivers reporting flexibility:** 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.
- **Network-Based Application Recognition (NBAR) improves application identification consistency:** The Cisco NAM now supports standardized applicaton identifiers generated by Cisco's homegrown application classification technology, NBAR, to discover and identify applications, simplifying your user experience by helping bring consistency to application recognition across the network.
- **Packet Capture Error Scan finds problems fast:** The Cisco NAM's Packet Capture Error Scan feature 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."

Cisco Branch Routers Series NAM Features and Benefits

The Cisco NAM offers 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. They provide the foundation of knowing, giving you the edge in managing and improving network and application performance.

Table 1. Cisco Branch Routers Series NAM Features and Benefits

Feature	Benefit
Infrastructure integration	Deployed in the Cisco ISR and ISR G2 routers, the Cisco NAM provides greater investment protection, lower total cost of ownership, and a reduced footprint to save premium rack space.
Application performance intelligence	View transaction-aware analytics of TCP-based applications to characterize the end-user experience and isolate application response time problems to the network, server, or the application itself.
Granular traffic analytics	View short- and long-term performance data on hosts, conversations, and applications that use critical network resources.
Comprehensive voice quality monitoring	Gather granular 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.
Historical analysis	Look back to the past with the Cisco NAM's Performance Database to understand what happened when an event that affected network performance occurred to accelerate problem resolution.
WAN optimized networks visibility	Obtain end-to-end proof points demonstrating how WAAS has improved application delivery (for example, decreased application latency).
Deep, insightful packet captures	Use capture features, such as trigger-based captures, filters, decodes, and Packet Capture Error Scan, to increase troubleshooting agility.
Nexus 1000V deployment visibility	Simplify the operational management of Cisco Nexus 1000V switch environments by gaining visibility into the virtual machine (VM) network including interactions across virtual machines and virtual interfaces. Monitor the VMs uninterrupted by vMotion operations.
Pre- and postdeployment 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.
Open interface	Ease NAM configuration and export of computed NAM data using standards-based APIs (XML/REST for configuration, NetFlow Version 9 for data export).
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.

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Supported Router Platforms

The Cisco Branch Routers Series NAM, NME-NAM-120S, can be deployed in any network module slot in the Cisco router platforms indicated in Table 2. An NM adapter card is required to successfully integrate the NME-NAM into supported ISR G2 platforms. The NME-NAM supports the router platforms with NAM software version 3.6.1b or later. Only one Cisco NAM can be installed in each Cisco branch router.

Table 2. NME-NAM Supported Router Platforms

Router Platform	Minimum Cisco IOS® Software Required	NM Adapter Card Required
Cisco 3945 ISR	Cisco IOS Software 15.0(1)M	Yes
Cisco 3925 ISR	Cisco IOS Software 15.0(1)M	Yes
Cisco 2951 ISR	Cisco IOS Software 15.0(1)M	Yes
Cisco 2921 ISR	Cisco IOS Software 15.0(1)M	Yes
Cisco 2911 ISR	Cisco IOS Software 15.0(1)M	Yes
Cisco 3845 ISR	Cisco IOS Software 12.4(9)T	No
Cisco 3825 ISR	Cisco IOS Software 12.4(9)T	No
Cisco 2851 ISR	Cisco IOS Software 12.4(9)T	No
Cisco 2821 ISR	Cisco IOS Software 12.4(9)T	No
Cisco 2811 ISR	Cisco IOS Software 12.4(9)T	No

Cisco Branch Routers Series NAM Software License Options

The Cisco Branch Routers Series NAM offers two license options for monitoring voice traffic. One license allows the monitoring of 50 voice (RTP) streams; the other, the monitoring of 100 voice streams. Both license options are supported on Cisco Branch Routers Series NAM, NME-NAM-120S.

Product Specifications

Table 3 lists the product specifications for the Cisco Branch Routers Series NAM.

Table 3. Product Specifications

Feature	Description
Hardware architecture	1.0 GHz Intel Celeron M CPU with 1 GB RAM and 120 GB hard disk drive.
Monitoring interfaces	Two monitoring interfaces: One internal backplane interface for receiving a copy of WAN traffic through the Cisco Express Forwarding copy packet monitoring feature in the router's Cisco IOS Software and one external Gigabit Ethernet interface for receiving traffic directly from local or remote LAN ports. Either can be used for management traffic, for receiving NetFlow data, or for receiving flow agent data from Cisco WAAS.
Performance	Using the internal monitoring interface, traffic monitoring throughput of up to 100 Mbps has been benchmarked for the NME-NAM-120S installed in Cisco 3900 Series and Cisco 3800 Series ISRs, and up to 45 Mbps in Cisco 2900 Series and Cisco 2800 Series ISRs. The external monitoring interface has been benchmarked to support up to 200 Mbps throughput monitoring. Your monitoring performance may differ based on factors such as packet size, traffic burstiness, collections enabled on the NAM, and features enabled on the router. Contact your Cisco sales representative to obtain further information about NME-NAM-120S performance characteristics.
Supported topologies and data sources	• WAN: Packets on WAN interfaces are copied by a special packet monitoring feature using Cisco Express Forwarding and sent to Cisco NAM through the internal backplane interface for analysis at the IP layer and up. NetFlow (versions 1, 5, 6, 7, 8, and 9) data from local and remote devices is sent through the internal or external interface. • LAN: An external Gigabit Ethernet interface receives packets directly from local and remote LAN ports. NetFlow (versions 1, 5, 6, 7, 8, and 9) data from local and remote devices is sent through the internal or external interface.
Supported interfaces	• HTTP/HTTPS with embedded web-based Cisco NAM Traffic Analyzer • Simple Network Management Protocol Version 1 (SNMPv1), Version 2c, and Version 3, with standards-based applications

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Feature	Description
NAM Traffic Analyzer	• Embedded NAM software version 5.0 • Supports Cisco Branch Routers Series NAM, NME-NAM-120S only • Web-based: Requires Microsoft Internet Explorer 8.0+ or Firefox 3.6+; supports both English and Japanese versions • Supports Secure Sockets Layer (SSL) security with up to 256-bit encryption • Role-based user authorization and authentication locally or using TACACS+
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 NAM identifies hundreds of unique protocols and automatically detects unknown protocols. The NAM also allows customization of the protocol engine by defining protocols on a single port or on a range of ports. Protocols supported include (this list is not all-inclusive): • TCP and User Datagram Protocol (UDP) over IP including IPv6 • HTTP and HTTPS • 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) • 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
Physical dimensions and weight	• 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 lbs (0.7 kilograms) maximum
Operating environment	• Operating temperature: 41 to 104 degrees F (5 to 40 degrees C) • Nonoperating and storage temperature: -40 to 158 degrees F (-40 to 70 degrees C) • Operating relative humidity: 5% to 85% (noncondensing) • Operating altitude: -197 ft to 6000 feet (-60 to 1800 m)
Approval and compliance	Safety: • UL 60950-1 • CSA 60950-1 • IEC 60950-1 • EN 60950-1 • GB 4943-95 • AS/NZS 60950.1 Emission: • 47CFR part 15 Class A • CISPR22 Class A • EN300386 Class A • EN55022 Class A • EN61000-3-2 • EN61000-3-3 • VCCI Class A • AS/NZS CISPR22 Class A Immunity: • CISPR24 • EN300386 • EN50082-1 • EN55024 • EN61000-6-1

Warranty Information

Find warranty information on Cisco.com at the Product Warranties page.

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Ordering Information

To place an order, visit the Cisco Ordering Homepage. See Table 4 for part numbers. To download software, visit the Cisco Software Center.

For new Cisco NAM customers, please select NAM Software 5.0, part number NME-NAM-SW-5.0, as the software option when ordering your Cisco NAM and it'll be delivered to you preloaded on your NAM hardware. For current Cisco NAM customers, NAM Software 5.0 can be downloaded from the Cisco.com Software Center at no charge using your Cisco SMARTnet® contract access privileges.

Table 4. Ordering Information

Product Information	Part Number
Cisco Branch Routers Series Network Analysis Module (Spare)	NME-NAM-120S(=)
Cisco 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 supported ISR G2 platforms (Spare)	SM-NM-ADPTR(=)

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For More Information

For more information about Cisco Branch Routers Series NAM, 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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