

## Cisco Network Analysis Module 2200 Series Appliances 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 NAM 2200 Series Appliances help you know. They are 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, they can help you find it fast, reducing the time it takes to resolve it from days to just minutes.

**Figure 1.** Cisco NAM Traffic Summary Dashboard



As a member of the Cisco NAM family of products, the Cisco NAM 2200 Series Appliances deliver granular traffic analysis, rich application performance metrics, comprehensive voice analytics, and deep insightful packet captures to help you manage and improve the operational effectiveness of Cisco Borderless Networks and the Cisco data center. They include an embedded graphical user interface (GUI) with dashboards (Figure 1) that give you an immediate view of network performance and workflows that help you simplify problem detection and resolution. They also include a new Performance Database that preserves historical data, allowing you to understand what happened in the past when an event that affected network performance occurred. All of this can be remotely accessed from anywhere so that you can know how the network is performing at any time.

**Figure 2.** NAM 2220 and NAM 2204 Appliances



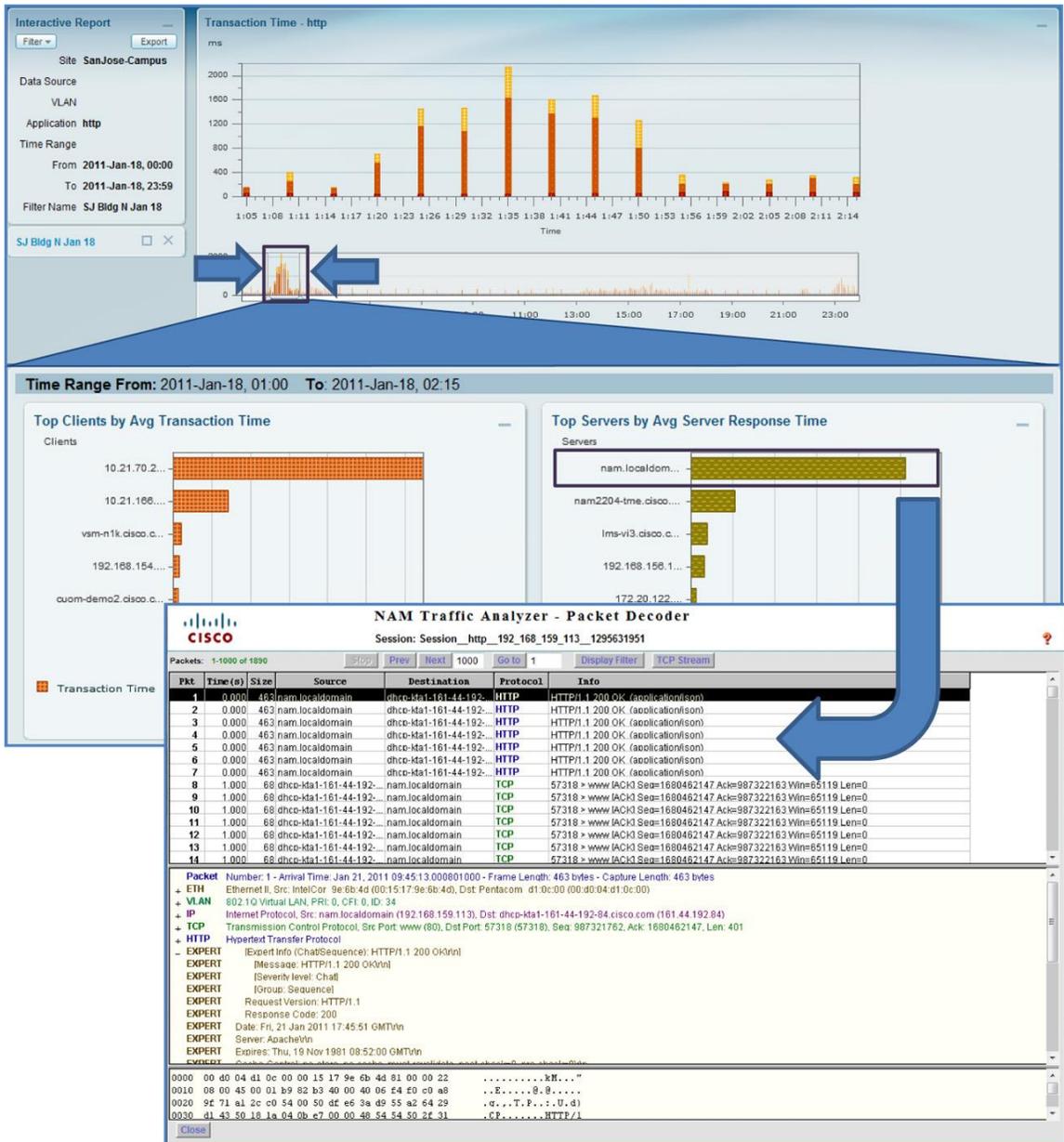
Cisco offers two appliances models (Figure 2), the Cisco NAM 2220 Appliance and the Cisco NAM 2204 Appliance. The Cisco NAM 2220 Appliance includes two 10 Gigabit Ethernet monitoring interfaces and six 146 GB Serial Attached SCSI (SAS) hard disk drives with RAID for application monitoring in high-speed, high-density environments. The Cisco NAM 2220 comes with an option for redundant power. To extend uptime, both the hard disk drives and the power supplies are hot-swappable. The Cisco NAM 2204 includes four 1 Gigabit Ethernet monitoring interfaces and two 250 GB Serial Advanced Technology Attachment (SATA) hard disk drives to meet diverse performance analysis needs in scalable multigigabit switching and routing environments.

The Cisco NAM Appliances can be deployed anywhere. They are the glue binding your Cisco Borderless Network deployments, providing application visibility between and within disparate places in the network. Deployed within your Cisco data center, they help drive application delivery consistency and efficiency in both physical and virtual environments.

### **NAM Software 5.0 Innovations**

NAM Software 5.0 means agility - agility that allows you to know quickly 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 correct 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 migration from physical servers to virtual machines.

**Figure 3.** Application Performance Troubleshooting Workflow



- Redesigned GUI simplifies monitoring and troubleshooting:** The Cisco NAM's new GUI includes preconfigured dashboards that provide a comprehensive graphical overview of network performance so you can immediately grasp if all is well or if 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 performance-affecting issues.

- **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 application 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 your Cisco 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 manually to inspect the packet data to find the "needle in the haystack."

### Cisco NAM 2200 Series Appliances Features and Benefits

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

**Table 1.** Cisco NAM 2200 Series Appliances Features and Benefits

Feature	Benefit
<b>Deployment flexibility</b>	As a self-contained device, you can deploy the Cisco NAM Appliances anywhere within the network to monitor your critical application traffic. They also can be redeployed to support new requirements, thus offering lasting investment protection.
<b>Application performance intelligence</b>	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.
<b>Granular traffic analytics</b>	View short- and long-term performance data on hosts, conversations, and applications that use critical network resources.
<b>Comprehensive voice quality monitoring</b>	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.
<b>Historical analysis</b>	Look back to the past with the Cisco NAM Performance Database to understand what happened when a network performance-affecting event occurred to accelerate problem resolution.
<b>WAN optimized network visibility</b>	Obtain end-to-end proof points demonstrating how WAAS has improved application delivery (for example, decreased application latency).
<b>Deep, insightful packet captures</b>	Use capture features, such as trigger-based captures, filters, decodes, and a packet capture error scan, to increase troubleshooting agility.
<b>Monitor Virtual Switching System (VSS) deployments</b>	Monitor both virtual switches in VSS environments, reducing management overhead while improving operational efficiency.
<b>Nexus 1000V deployment visibility</b>	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.
<b>Pre- and postdeployment metrics</b>	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.

Feature	Benefit
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.

## Product Specifications

Table 2 lists the product specifications.

**Table 2.** Product Specifications

NAM2204 Feature	Description
Chassis	One rack unit (RU) with four-post rack mounting
Processor	Intel E6400 Core 2 Duo
Memory	8 GB SDRAM
Hard disk drive	Two 250 GB SATA server grade
Monitoring ports	Four 1 Gb 10/100/1000Base-T RJ-45 or four 1 Gb Small Form-Factor Pluggable (SFP) including 1000BASE-T, SX LC connector, and LX LC connector
Management port	10/100/1000 RJ-45
Physical dimensions	Dimensions (H x W x D): 1.7 x 17.0 x 20.0 inches (4.3 x 43.2 x 50.8 centimeters); depth is without bezel or mounting hardware
Power consumption	350W (maximum output, power supply rating)
Heat dissipation	1660 BTU/hour
Weight	35.0 lb (15.9 kg)
Operating environment	<ul style="list-style-type: none"> <li>Operating temperature: 50 to 95 degrees F (10 to 35 degrees C)</li> <li>Nonoperating and storage temperature: -40 to 158 degrees F (-40 to 70 degrees C)</li> <li>Nonoperating relative humidity: 95% noncondensing at +35 degrees C</li> <li>Operating and nonoperating altitude: 2000m at 40 degrees</li> </ul>
NAM2220 Feature	Description
Chassis	Two RUs with four-post rack mounting
Processor	Two Intel Xeon E5440 Quad Core
Memory	16 GB SDRAM
Hard disk drive	Six 146 GB SAS, hot-swappable, RAID 1 on two operating system drives; RAID 0 on four capture data storage drives
Monitoring ports	Two 10 Gb XFP including 10 Gb 850 nm SR and 10 Gb 1310 nm LR
Management port	10/100/1000 RJ-45
Physical dimensions	Dimensions (H x W x D): 3.54 x 17.0 x 20.0 inches (8.8 x 43.2 x 50.8 centimeters); depth is without bezel or mounting hardware
Power consumption	600W (maximum output, power supply rating)
Heat dissipation	1200 BTU/hour
Weight	44.7 lb (20.3 kg)
Operating environment	<ul style="list-style-type: none"> <li>Operating temperature: 50 to 95 degrees F (10 to 35 degrees C)</li> <li>Nonoperating and storage temperature: -40 to 158 degrees F (-40 to 70 degrees C)</li> <li>Nonoperating relative humidity: 50-90% noncondensing at +35 degrees C</li> <li>Operating and nonoperating altitude: 3000m at 40 degrees</li> </ul>

All NAM Appliances	Description
<b>Tested platforms</b>	Tested with Cisco Catalyst 4500 Series, Catalyst 6500 Series, Cisco 7600 Series, and Cisco Nexus 7000 Series. Please read the NAM 5.0 Release Notes for any limitations that may apply.
<b>Supported topologies and data sources</b>	<ul style="list-style-type: none"> <li>LAN: Switched Port Analyzer (SPAN), Remote SPAN (RSPAN), Encapsulated RSPAN (ERSPAN), VLAN access control list (VACL)-based captures, NetFlow (versions 1, 5, 6, 7, 8, and 9), and WAAS Flow Agent</li> <li>WAN: NetFlow (versions 1, 5, 6, 7, 8, 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</li> </ul>
<b>Supported interfaces</b>	<ul style="list-style-type: none"> <li>HTTP/HTTPS with embedded web-based Cisco NAM Traffic Analyzer</li> <li>Simple Network Management Protocol Version 1 (SNMPv1), v2c and v3, with standards-based applications</li> </ul>
<b>NAM Traffic Analyzer</b>	<ul style="list-style-type: none"> <li>NAM Software 5.0</li> <li>Web-based: Requires Microsoft Internet Explorer 8.0+ or Firefox 3.6+; Supports both English and Japanese versions</li> <li>Supports Secure Sockets Layer (SSL) security with up to 256-bit encryption</li> <li>Role-based user authorization and authentication locally or using TACACS+</li> </ul>
<b>MIBs</b>	<p>The Cisco NAMs are standards compliant and support the following major MIB groups:</p> <ul style="list-style-type: none"> <li>MIB-II (RFC 1213) - All groups except Exterior Gateway Protocol (EGP) and transmission</li> <li>RMON (RFC 2819) - Alarm and Event groups only</li> <li>RMON2 (RFC 2021) – trapDestTable only</li> <li>Cisco Discovery Protocol</li> <li>EntityMIB (RFC 2737)</li> </ul>
<b>Protocols</b>	<p>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):</p> <ul style="list-style-type: none"> <li>TCP and User Datagram Protocol (UDP) over IP including IPv6</li> <li>HTTP and HTTPS</li> <li>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)</li> <li>SigTran protocols</li> <li>Mobile IP protocols including General Packet Radio Service (GPRS) Tunneling Protocol (GTP)</li> <li>Storage area network protocols</li> <li>Database protocols</li> <li>Peer-to-peer protocols</li> <li>Switch and router protocols</li> <li>Cisco proprietary protocols</li> <li>Unknown protocols by TCP/UDP ports, Remote Procedure Call (RPC) program numbers and so on</li> </ul>
<b>Approval and compliance</b>	<p>Regulatory:</p> <ul style="list-style-type: none"> <li>CE Marking (89/366/EEC and 2006/95/EC)</li> </ul> <p>Safety:</p> <ul style="list-style-type: none"> <li>UL 60950-1</li> <li>CAN/CSA-C22.2 No. 60950-1</li> <li>EN60950-1</li> <li>IEC 60950-1</li> <li>AS/NZS 60950-1</li> </ul> <p>EMC:</p> <ul style="list-style-type: none"> <li>47CFR part 15 Class A (FCC regulations)</li> <li>AS/NZS CISPR22 Class A</li> <li>CNS13438 Class A</li> <li>EN55022 Class A</li> <li>ICES003 Class A</li> <li>VCCI Class A</li> <li>EN50082-1</li> <li>EN61000-6-1</li> <li>EN55024</li> <li>EN61000-3-2</li> <li>EN61000-3-3</li> <li>CISPR2</li> </ul>

## Warranty Information

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

## Ordering Information

To place an order, visit the [Cisco Ordering Home Page](#). See Table 3 for part numbers. To download software, visit the [Cisco Software Center](#).

For new Cisco NAM customers, please select NAM Software 5.0, part number NAM-APPL-SW-5.0, as the software option when ordering your Cisco NAM device, 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<sup>®</sup> contract access privileges.

**Table 3.** Ordering Information

Cisco NAM 2204-RJ45 Appliance	Part Number
Cisco NAM 2204 Appliance, four 1 Gb Ethernet, RJ-45	NAM2204-RJ45
Cisco NAM Software 5.0	NAM-APPL-SW-5.0
Cisco NAM 2204-SFP Appliance	Part Number
Cisco NAM 2204 Appliance, four 1 Gb Ethernet, SFP	NAM2204-SFP
1000BASE-T SFP (Spare)	GLC-T(=)
GE SFP, LC Connector SX Transceiver (Spare)	GLC-SX-MM(=)
GE SFP, LC Connector LX/LH Transceiver (Spare)	GLC-LH-SM(=)
Cisco NAM Software 5.0	NAM-APPL-SW-5.0
Cisco NAM 2220 Appliance	Part Number
Cisco NAM 2220 Appliance, two 10 Gb Ethernet	NAM2220
Hard Disk Drives, six 146 GB	NAM2220-HDD-6X146G
RAM DIMM, 16 GB	NAM2220-DIMM-16GB
Second AC Power Supply	NAM2220-AC-PS(=)
XFP, 10 GE, Short Range (Spare)	XFP-10GBASE-SR(=)
XFP, 10 GE, Long Range (Spare)	XFP-10GBASE-LR(=)
Cisco NAM Software 5.0	NAM-APPL-SW-5.0

## Cisco Services

Cisco Services make networks, applications, and the people who use them work better together. Today, the network is a strategic platform in a world that demands better integration among people, information, and ideas. The network works better when services, together with products, create solutions aligned with business needs and opportunities.

The unique Cisco lifecycle approach to services defines the requisite activities at each phase of the network lifecycle to help ensure service excellence. With a collaborative delivery methodology that joins the forces of Cisco, our skilled network of partners, and our customers, we achieve the best results.

## For More Information

For more information about Cisco NAM 2200 Series Appliances, 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](mailto:nam-info@cisco.com).



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Cisco Systems, Inc.  
San Jose, CA

**Asia Pacific Headquarters**  
Cisco Systems (USA) Pte. Ltd.  
Singapore

**Europe Headquarters**  
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