Cisco Prime Network Analysis Module Software 6.0

Virtualization and cloud create exciting business transformation opportunities, innovative service delivery models, and improved economics. At the same time, they introduce a new dimension of service delivery challenges. To take advantage of the new paradigm it is essential to have operational agility and real-time visibility to maintain effective service delivery.

Knowing how traffic over the network is being used and how it is performing is essential for managing and improving the delivery of your business-critical applications. It is the foundation for establishing and verifying quality of service (QoS) policies, implementing overlay networks (OTV, LISP, VXLAN), 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.

Cisco Prime™ Network Analysis Module (NAM) Software offers integrated network and application visibility (Figure 1) that empowers network administrators to optimize network resources, troubleshoot performance issues, and help ensure a consistent end-user experience. The software delivers 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® enterprise and data center networks.

Figure 1.   At-a-Glance View of Network and Application Performance

The Cisco Prime portfolio of IT and service provider management offerings supports integrated lifecycle management of Cisco architectures and technologies based on a service-centered framework. Built on an intuitive workflow-oriented user experience, Cisco Prime products help increase IT productivity and reduce operations costs through innovative management solutions for network services, infrastructure, and endpoints.

Product Family

The Cisco Prime NAM product family is designed to deliver consistent visibility across the network. It includes purpose-built form factors (Figure 2) for monitoring needs specific to data center, campus, and remote sites. The products within the NAM product family are listed in Table 1.

Figure 2.   Cisco Prime NAM Product Family


Table 1.   Cisco Prime NAM Product Family

Cisco Prime NAM Products	Description
Cisco Nexus® 7000 NAM (NAM-NX1)	As a high-performance solution, this integrated service module delivers application visibility and performance analytics in the physical and virtual data center.
Cisco Prime NAM 2300 Series Appliances (NAM 2304, NAM 2320)	As purpose-built appliances, they offer deployment flexibility to address monitoring and packet analysis needs in data center, campus, WAN edge, and service provider networks.
Cisco Prime Virtual NAM (vNAM)	Unshackled from hardware constraints, this virtual form factor delivers the versatility to help rapidly tune network operations whenever required to respond to new business demands.
Cisco Prime NAM for Cisco Nexus 1100 Series	Integrated with the Cisco Nexus 1100 Series and Cisco Nexus 1010 Appliances, this virtual service blade offers visibility into the virtual machine (VM) network with Cisco Nexus 1000V switch deployments.
Cisco Prime NAM for ISR G2 SRE	This software, integrated with Cisco ISR second-generation (G2) SM-SRE-700 and SM-SRE-900 platforms, offers multiservice visibility, traffic analysis, and troubleshooting at remote sites in Cisco enterprise networks.
Cisco Catalyst® 6500 Series NAM (NAM-3)	Addressing the application visibility need in enterprises, this integrated service module enables high throughput traffic analysis, application performance monitoring, and detailed troubleshooting.

Cisco Prime NAM Software Features

Cisco Prime NAM Software helps improve operational agility. It helps enable you to quickly access critical network information to accelerate application performance troubleshooting and advance optimization decisions. The key features of the software include:

- **Interactive reports:** Offers prepackaged reports (Figure 3) with integrated workflows and capabilities such as advanced filters, contextual navigation, and one-click packet captures to streamline analysis and accelerate troubleshooting.

Figure 3.   Host Traffic Analysis View
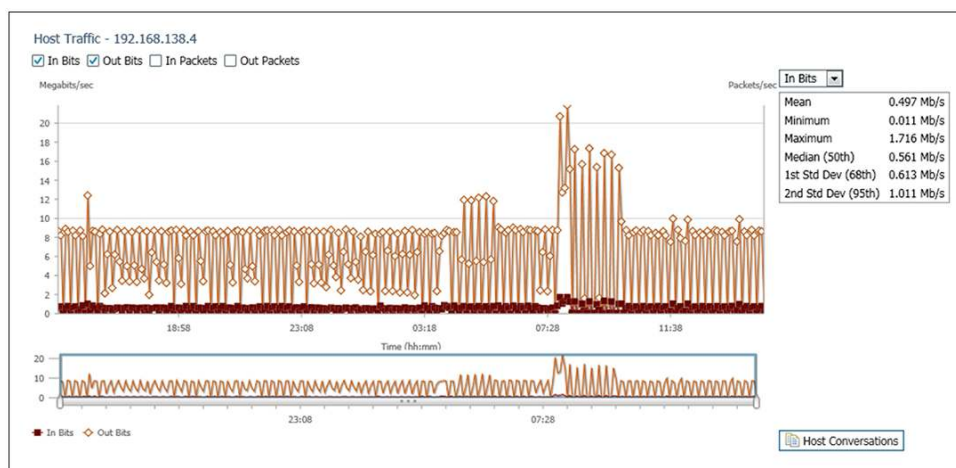
- **Site-based monitoring:** Allows you to view network and application performance by logical groupings or sites that you can create to mirror your network topology. For example, you can create sites by geographic locations, departments, or even managed customer networks and view performance data on a per site basis. The feature facilitates tracking site-specific service-level objectives, resolving performance issues, or enforcing optimization policies.

- **Application Performance Intelligence:** Recognizes and analyzes TCP-based application packets as they travel from the client through the network to the data center and out again, providing transaction-aware analytics to help characterize the end-user experience and isolate application response time problems to the network, server, or the application itself.

- **Voice quality analysis:** Mean Opinion Score (MOS) and other key performance indicators (KPIs) such as jitter and packet loss to understand and improve how the end user experiences the delivery of voice services. MOS is computed based on ITU-T Recommendation G.107, offering accurate characterization of voice quality. Combine monitoring with real-time troubleshooting using prepackaged dashboards to improve end-user service levels.

- **Overlay network awareness**: Eliminates blind spots associated with overlay technologies such as OTV, LISP, VXLAN, and Cisco TrustSec®. Ability to decode packet headers and offer deeper insight into overlay networks helps to optimize use of network resources for efficient delivery of distributed applications.

- **Wireless access visibility**: Deployed at remote site or campus, visibility into CAPWAP tunnels unveils a wealth of information that helps to improve service delivery over wireless access network. Reports on performance and usage statistics on a per access point or a per endpoint basis help to quickly identify network bottlenecks and application performance issues.
- **Flow- and packet-based traffic monitoring:** Identifies what applications are running over the network, how much network resources are consumed, and who is using these applications and resources. Provides real-time and historical reports offering traffic statistics related to applications, hosts, conversations, differentiated services code point (DSCP), VLANs, and VXLANs.
- **Web-based captures for deep, insightful data analysis:** Captures the packets to help resolve acute problems. Captures can be performed and analyzed using a web browser from any desktop. Extensive capture features, including trigger-based captures, scheduled captures, specialized decodes, advanced capture and display filters, Capture Error Scan, and so on, help to quickly pinpoint and resolve problem areas.
- **Standards-based API:** Facilitates integration with customer in-house managed applications or third-party reporting vendor of choice. Eases configuration and export of computed NAM data, building up additional value and building out existing investments. It offers Representational State Transfer (REST)/XML-based API for configuration and data export.
- **Anytime, anywhere access:** Enables web-based access 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.

Benefits Summary

Cisco Prime NAM expedites the ability to get relevant and meaningful information quickly, whether it is data that helps you to respond to a help desk call on slow application performance, to analyze overlay technologies in a cloud deployment, to confirm that VoIP performance is rock solid at one of your international sites, or to learn whether application performance has also made the leap with your migration from physical servers to virtual machines.

Enhance Operational Efficiency with Faster Problem Detection and Resolution

Cisco Prime NAM Software accelerates problem isolation and root-cause analysis, reducing the time it takes to resolve a performance issue from weeks and days to hours and minutes. The graphical user interface (GUI) includes interactive reports with features such as intuitive filters, contextual navigation, and one-click packet captures that help to expedite the problem resolution process. The embedded workflows allow you to isolate application problems to the network, the application, or the server. NAM identifies the client endpoints being affected by the performance degradation and the servers that could be the cause of response time delay (Figure 4). The network problems can be further investigated using comprehensive traffic analysis views with detailed information on VLANs, VXLANs, OTV instances, LISP overlays, Differentiated Services (DiffServ), hosts, conversation pairs, and application usage. Pinpointing the traffic of interest, you can use packet-based data to perform a "deeper dive" to quickly spot and address issues that affect performance. Operational productivity can be further improved with the use of the Packet Capture Error Scan feature that highlights observed packet-level anomalies, eliminating the cumbersome task of manually analyzing the entire packet capture.

Figure 4.   Application Performance Troubleshooting
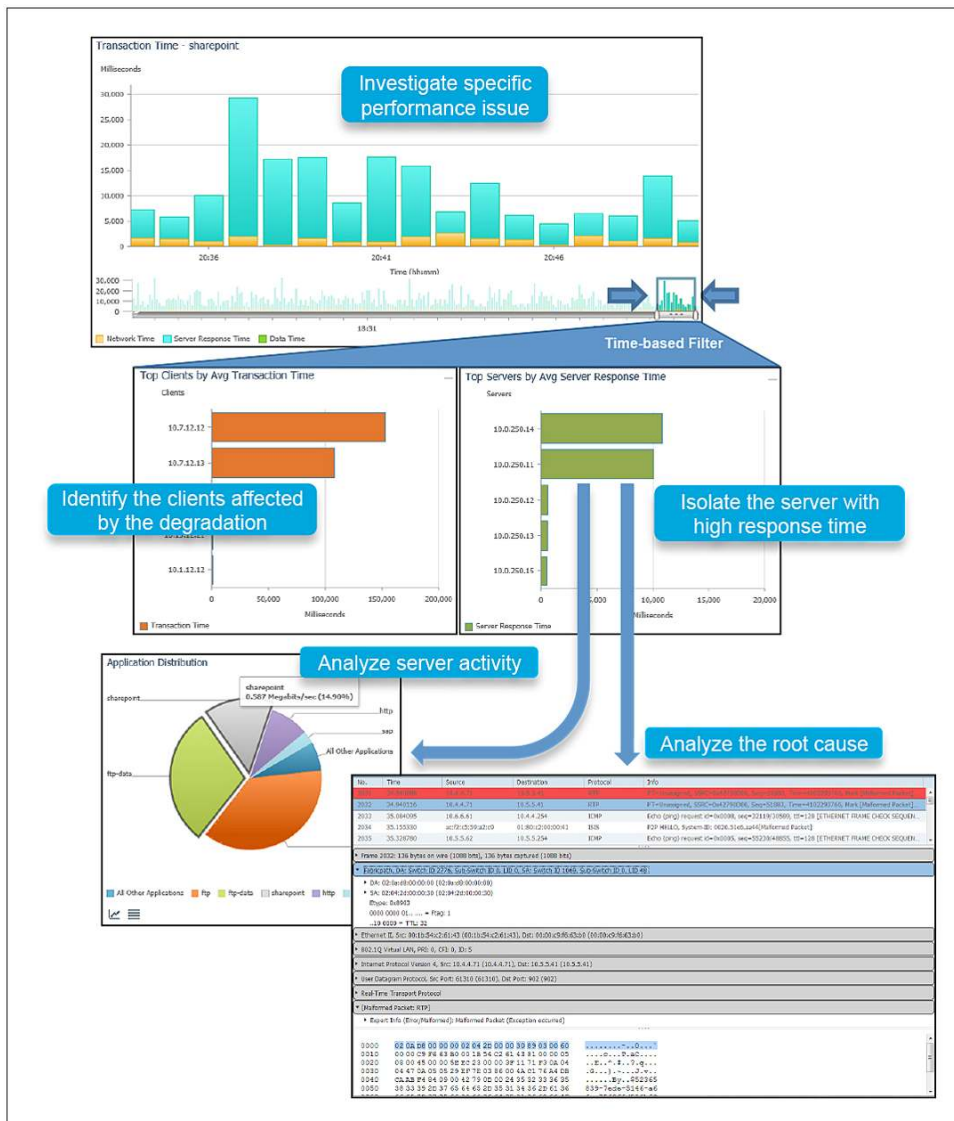
Simplify the Delivery of Applications and Services

Managing application performance entails full visibility across all stages of application delivery, such as profiling, baselining, control, optimizaton, and troubleshooting. Cisco Prime NAM Software implements application performance analytics that can not only characterize the end-user experience but also provide performance visibility across the entire application delivery cycle. It offers you a comprehensive set of transaction-based statistics such as response time, transaction time, data transfer time, and retransmission time. It allows you to monitor and analyze application performance trends for TCP-based business applications and preempt performance issues by enabling threshold-based proactive alerts. The performance data can be rolled up and segregated on the basis of sites that you can create to mirror your network topology.

Optimize Use of Overlay Networks with Deeper Visibility

Overlay networks are now an integral part of the data center/cloud architecture. Visibility into overlay networks such as VXLAN, OTV, and LISP helps enable administrators to optimally design the network for distributed and efficient service delivery. NAM discovers these networks, helps to perform deeper packet analysis and reports on statistics specific to each instance of overlay network. For example, in OTV environments, NAM can look inside the overlay to provide traffic statistics, application performance metrics, traffic trends, and breakdown by host, applications, and conversations.

Figure 5.   Profile ARP Traffic over DCI Link

Improve Voice Service Levels

Convergence of voice and data over a shared network infrastructure offers a new set of challenges in managing voice quality. Voice is a real-time application and is highly sensitive to network parameters such as packet loss and jitter. Cisco Prime NAM Software can analyze voice streams in real time to provide critical performance information, including MOS values, to monitor voice quality. The software can also quickly identify the sites, endpoints, and RTP streams with the lowest observed voice quality, providing actionable information to further investigate the performance issues. Cisco Prime NAM Software offers a number of capabilities that can be utilized for troubleshooting voice quality degradations and improving the end-user experience. For example, NAM provides visibility into QoS/DiffServ reports to help validate QoS planning assumptions and to quickly isolate voice performance degradations possibly due to the impact of other non-business-critical applications.

Figure 6.   Voice Quality Analysis
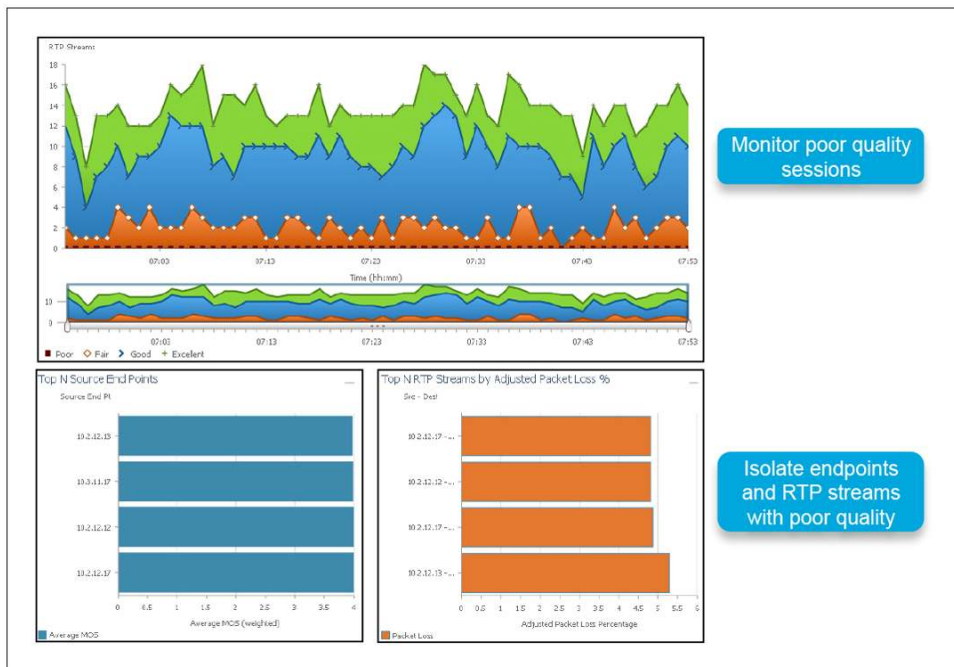
Extend Operational Visibility into the Virtual Machine Network

As mission-critical workloads migrate to virtual servers, visibility into the virtual switching infrastructure becomes critical to manage end-to-end service delivery. Cisco Prime NAM Software provides operational insight into Cisco Nexus 1000V deployments to simplify manageability of the virtual switching infrastructure. It helps enable you to troubleshoot performance issues with extended visibility into VM-to-VM traffic, virtual interface statistics, and application response times. Analyzing the network usage behavior also helps to improve effectiveness of the network to support events such as dynamic resource allocations and virtual machine migrations.

Figure 7.   Eliminate Blind Spots in Virtual Machine Network
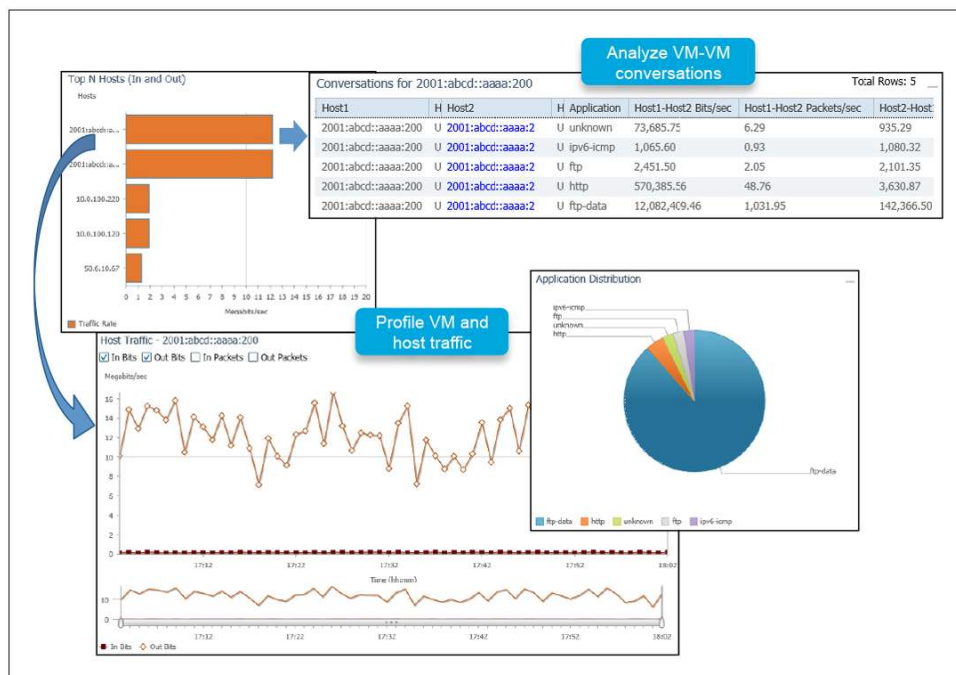
Reduce Risk and Streamline Network Operations

Cisco Prime NAM helps you in mitigating risk by providing deeper insight into the network when undertaking IT initiatives such as new application rollouts, data center consolidation, and WAN optimization. It helps you to ensure consistent performance levels, optimal use of network resources, and a minimal impact on business during such undertakings. As a result, Cisco Prime NAM helps enhance IT agility in meeting changing business needs.

Ordering Information

The ordering information related to the Cisco Prime NAM product family can be obtained from the corresponding data sheets:

- Cisco Nexus 7000 Network Analysis Module (NAM-NX1)
- Cisco Prime Virtual Network Analysis Module (vNAM)
- Cisco Prime Network Analysis Module for ISR G2 SRE
- Cisco Catalyst 6500 Series Network Analysis Module (NAM-3)
- Cisco Prime Network Analysis Module 2300 Series Appliances
- Cisco Prime Network Analysis Module for Nexus 1100 Series

To place an order, visit the Cisco Ordering Homepage. To download software, visit the Cisco Software Center.

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Table 2 shows the technical services providing hardware, OS, and application support for the Cisco Prime Network Analysis Module.

Table 2.   Cisco Technical Services for Cisco Prime Network Analysis Module

Technical Services
Cisco SMARTnet® Service • Around-the-clock, global access to the Cisco Technical Assistance Center (TAC) • Unrestricted access to the extensive Cisco.com resources, communities, and tools • Next-business-day, 8x5x4, 24x7x4, and 24x7x2 advance hardware replacement[*] and onsite parts replacement and installation available • Ongoing operating system software updates within the licensed feature set[**]
Cisco Software Application Support (SAS) • Application software maintenance and minor updates • Around-the-clock, global access to Cisco TAC engineers with specialized application software expertise • Unrestricted access to the extensive Cisco.com resources, communities, and tools
Cisco Software Application Support plus Upgrades (SASU) • Software updates and major upgrades • Global 24-hour access to Cisco Technical Assistance Center (TAC) • Access to online knowledge base, communities, and tools • Collaborative learning providing additional knowledge and training opportunities

[*] Advance hardware replacement is available in various service-level combinations. For example, 8x5xNBD indicates that shipment will be initiated during the standard 8-hour business day, 5 days a week (the generally accepted business days within the relevant region), with next business day (NBD) delivery. Where NBD is not available, same day shipment is provided. Restrictions apply; please review the appropriate service descriptions for details.

[**] Cisco operating system updates include the following: maintenance releases, minor updates, and major updates within the licensed feature set.

For More Information

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

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