Cisco WAAS Network Analysis Module (NAM) Virtual Service Blade 4.2

Overview

Q. What is the Cisco® WAAS Network Analysis Module (NAM) Virtual Service Blade?

A. Cisco WAAS NAM Virtual Service Blade is the first offering of NAM as a software platform that offers customers integrated application management and deployment flexibility on the Wide Area Application Services (WAAS) appliances. The NAM software runs as within a virtual environment of the WAAS appliances and provides embedded performance management capabilities for WAN optimization deployments. The WAAS NAM virtual blade provides consistent functionality with other hardware-based NAM offerings and is a powerful network-aware performance monitoring solution that delivers unparalleled insight into application performance and network traffic to help ensure the consistent and efficient delivery of applications and services to end users. It provides visibility into how applications are performing and how users are experiencing the services being delivered over the network. It enhances the performance of the empowered branch with integrated manageability, improved service quality, and operational effectiveness.

The unique design of Cisco WAAS NAM Virtual Service Blade combines a rich set of embedded data collection capabilities and performance analytics with a remotely accessible, web-based management console. Cisco WAAS NAM Virtual Service Blade includes a Traffic Analyzer GUI, which provides quick access to the configuration menus and both real-time and historical performance reports.

Q. What are the key features and benefits of the Cisco WAAS NAM Virtual Service Blade?

A. Table 1 lists the key features.

Table 1. Key Features of Cisco WAAS NAM Virtual Service Blade

Feature	Benefit
Application Performance Monitoring	Offers intelligent application performance monitoring and real-time visibility that improve the operational efficiency of IT organizations by helping enable them to proactively detect performance degradation, quickly identify its source, and troubleshoot the underlying issues.
Transaction-Aware Application Response Time Monitoring	Analyzes TCP-based application packets as they travel from the client through the network to the data center and out again, providing insight into network round-trip time, server response time, data transfer time, transaction time, and so on to monitor application performance.
Comprehensive Flow-Based Monitoring	Automatically identifies hundreds of protocols and provides real-time and historical performance reports on hosts, conversations, and applications using critical network resources.
LAN and WAN Monitoring in One Solution	Provides visibility into traffic from local and remote switches and routers for comprehensive traffic monitoring.
Anytime, Anywhere Access	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 over WAN links to the central site.
Pre- and Postdeployment Metrics to Quantify Business Changes	Provides valuable "before and after" traffic analytics to help plan for and verify changes in network resources, such as new application rollouts, WAN optimization, server consolidation, segmenting the network, and understanding passthrough (or nonoptimized) traffic patterns.
Secure Solution	Offers TACACS+, Secure Sockets Layer (SSL), and Secure Shell (SSH) Protocol-based security.
Deployment Flexibility	Cisco WAAS NAM Virtual Service Blade provides a zero hardware footprint and complements the hardware-based NAM platforms that include a blade form factor in Cisco Catalyst® 6500 Series Switches, Cisco 7600 Series Routers, and Cisco Integrated Services Routers, and as multigigabit Cisco NAM 22xx appliances. This complement of blades and appliances allows NAM instrumentation to be broadly deployed in the network for comprehensive performance monitoring.

Q. What are the business benefits of deploying the Cisco NAM products?

A. Table 2 summarizes the business benefits that the Cisco NAM products offer.

Table 2. Business Benefits of the Cisco NAM Products

Benefit	Description
Gain Comprehensive Visibility into Network Services and Applications	Help ensure consistent and efficient delivery of applications and services. The visibility provided allows effective use of control and optimization mechanisms such as quality of service (QoS) and Cisco WAAS to improve the application performance.
Enhance Service Levels Delivered to the End User	Preempt performance issues with threshold-based proactive alerts. Reduce downtime and failures.
Increase Operational Efficiency	Accelerate problem isolation and minimize the amount of time IT dedicates to constantly troubleshooting problems. Enhance productivity with remote management.
Maximize the Value of IT Investment	Optimize the use of network resources.

Q. For what kind of network use cases is the Cisco WAAS NAM Virtual Service Blade targeted?

A. In the Cisco NAM 4.2 release, the Cisco WAAS NAM Virtual Service Blade is supported on two WAAS appliances-Wide Area Virtualization Engine (WAVE) 574 and Wide Area Application Engine (WAE) 674. The Cisco WAAS NAM Virtual Service Blade is targeted for two key network use cases; these include:

- **Small data center deployments:** The virtual blade is housed within the WAAS appliances at the central site and has about 4000 optimized flows. The virtual blade can also use performance data transmitted from the branch sites to provide a central view.
- **Proof of concept/predeployment scenarios:** The virtual blade can provide a rich set of statistics, such as response time, that can help identify and qualify potential sites for WAN optimization.

Q. How does the Cisco WAAS NAM Virtual Service Blade help WAN optimization rollouts?

A. The Cisco WAAS NAM Virtual Service Blade is an integrated performance management solution for the WAN optimization solution. The key value proposition of the NAM Virtual Service Blade includes:

- Characterization of the end-user experience by providing intelligent application performance (IAP)-based metrics for pre- and post-WAN optimization. The NAM virtual blade makes use of TCP-based information to compute IAP metrics such as the response time for the server, network, and client segments. Response times have a strong correlation with the end-user experience of their applications.
- Faster rollout of WAN optimization solutions by providing immediate reporting from NAM virtual blade for predeployment or proof of concept scenarios. The NAM virtual blade reporting helps users track improvement for a large number of flows (trial with real data or with simulated or production traffic).
- Throughput analysis of LAN/WAN bandwidth in a WAN optimization deployment that helps to ascertain return on investment (ROI) in a network. Network engineers can use this critical information to better plan out future investments in WAN optimization technologies.
- Top-N reports that help to determine potential optimization candidates like servers and applications for WAN optimization. The reports help in prioritizing WAN optimization rollouts, and traffic from top talkers can be targeted, resulting in a lower cost of ownership.
- The NAM virtual blade uses embedded functionality called the WAAS Flow Agent for traffic that is optimized by the WAAS appliances. The NAM virtual blade is also able to use NetFlow-based reporting, which helps report on traffic that is not optimized and intercepted by WAAS.

Q. How does Cisco WAAS NAM Virtual Service Blade work?

A. Cisco WAAS NAM Virtual Service Blade works within a virtual environment on the WAAS appliances, WAVE-574 and WAE-674. The WAAS appliances are designed to be added inline and provide for optimization of traffic destined to the WAN bandwidth. The WAAS appliances feature an embedded instrumentation called WAAS Flow Agent. The NAM virtual blade also features the ability to handle NetFlow information as a data source. The NAM virtual blade can then provide real-time monitoring and historical reporting of application performance based on the WAAS Flow Agent and the NetFlow data sources. This information is presented in the NAM's Traffic Analyzer GUI through a regular web browser.

Q. What is the Cisco NAM Traffic Analyzer?

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

Q. Where is the Cisco WAAS NAM Virtual Service Blade deployed?

A. Cisco WAAS NAM Virtual Service Blade is deployed as part of the WAN optimization solution that includes WAAS appliances. WAE-674 is a platform that is typically used for small data centers/campus environments, while WAVE-574 is used for proof of concept/predeployment scenarios. A typical deployment of a NAM virtual blade will use WAAS Flow Agent or NetFlow-based embedded instrumentation to provide monitoring and reporting information. Consequently, a NAM virtual blade at the central site/data center provides a centralized point of application performance management. By using the web-based Traffic Analyzer embedded in Cisco NAM virtual blade, network managers can perform remote traffic analysis and performance monitoring without having to send personnel to remote offices or haul large amounts of data across the WAN to the central site.

Q. How is the Cisco WAAS NAM Virtual Service Blade installed in the network?

A. The Cisco WAAS NAM Virtual Service Blade can be installed in two ways. The first is through the WAAS Central Manager, which is part of the WAAS software. The WAAS Central Manager can configure the virtual environment on the WAVE-574 and WAE-674. The NAM virtual blade image can then be loaded using a standard TFTP/FTP mechanism. The second way to install the NAM virtual blade is the manual method, wherein a user can decide to configure and partition the virtual environment and load up the NAM virtual blade manually onto the virtual disks. Once the installation is done, the web-based Traffic Analyzer can be accessed as with any other hardware-based NAM products for application performance management.

Q. Does heavy CPU usage on the NAM virtual blade adversely affect the host WAAS?

A. No. In testing, we found that the KVM infrastructure prioritizes CPU usage so that the host gets priority, and a heavily loaded virtual blade had little effect on the host WAAS.

Q. What WAAS platforms support the Cisco WAAS NAM Virtual Service Blade?

A. The Cisco WAAS NAM Virtual Service Blade is supported on the Cisco WAVE-574 and WAE-674 appliances. Table 3 highlights the details of the WAAS appliances.

Table 3. Virtualization-Capable Cisco WAAS Appliances

Platform	Hardware	Deployment Scenarios	Images
Cisco WAVE-574	• 3 or 6 GB DRAM • 500 GB hard disk drive • RAID-1 optional • 2- and 4-port inline card options • WAAS Software 4.1.1 and later	• Edge deployments at enterprise branch offices • Core deployments at small data centers	
Cisco WAE-674	• 4 or 8 GB DRAM • 600 GB hard disk drive • RAID-5 optional • 4-port inline card optional • WAAS Software 4.1.1 and later	• Edge deployments at large enterprise branch offices • Core deployments at medium-sized data centers	

Note: More information about the Cisco WAE-674 can be found at http://www.cisco.com/en/US/prod/collateral/contnetw/ps5680/ps6474/product_data_sheet0900aecd80329e39.html. More information on the Cisco WAVE appliances can be found at http://www.cisco.com/en/US/prod/collateral/contnetw/ps5680/ps6474/data_sheet_c78-495801.html.

Q. How does the Cisco WAAS NAM Virtual Service Blade compare with other hardware-based NAM offerings?

A. The Cisco WAAS NAM Virtual Service Blade is designed to deliver consistent functionality with other hardware-based NAM offerings, like the Cisco Branch Series Integrated Services Router NAM, Cisco Catalyst® 6500/7600 NAM service module, and the Cisco NAM 22xx appliances. However, since the Cisco WAAS NAM Virtual Service Blade is targeted for the WAN optimization solution, it does not support packet analysis and voice/video monitoring. Typical deployments will use a combination of NAM products based on the deployment flexibility and zero hardware footprint of the Cisco WAAS NAM Virtual Service Blade vis-à-vis the superior performance capabilities of the hardware-based NAM offerings.

Latest Release: NAM 4.2

Q. What features does NAM software 4.2 offer?

A. Cisco NAM 4.2 offers the features described in Table 4.

Table 4. New Features in Cisco NAM 4.2

Feature	Benefit
Cisco Nexus 1000V NAM Virtual Service Blade	Integrated with Cisco Nexus 1010 Virtual Service Appliance, the Cisco Nexus 1000V NAM Virtual Service Blade reduces the network footprint and protects your network investment. As a dedicated solution, it offers operational visibility into the Nexus 1000V Switch environment.
Visibility into Nexus 1000V Deployments	NAM 4.2 simplifies manageability of Cisco Nexus 1000V Switch environments by extending operational visibility into the virtual machine (VM) network, interaction across virtual machines, and virtual interfaces. It offers combined network and application performance visibility essential to address service delivery challenges in next-generation data centers.

Q. When is NAM Software 4.2 available?

A. Starting in mid-April 2010, current Cisco NAM customers can download Cisco NAM Software 4.2 from the Cisco.com Software Center at no charge using their Cisco SMARTnet® contract access privileges.

Q. Which NAM hardware platforms support NAM 4.2?

A. NAM 4.2 is supported on the hardware platforms listed in Table 5. The platforms marked by an asterisk (*) include memory configurations that optimize NAM 4.2 performance.

Table 5. NAM Hardware Platforms Supported with NAM 4.2

Description	Hardware Part Number
Cisco NAM 2200 Series Appliances	NAM2204-RJ45*
	NAM2204-SFP*
	NAM2220*
Cisco Catalyst 6500 Series and Cisco 7600 Series NAM-1	WS-SVC-NAM-1-250S*
	WS-SVC-NAM-1 with MEM-C6KNAM-2GB=*
	WS-SVC-NAM-1
Cisco Catalyst 6500 Series and Cisco 7600 Series NAM-2	WS-SVC-NAM-2-250S*
	WS-SVC-NAM-2 with MEM-C6KNAM-2GB=*
	WS-SVC-NAM-2
Cisco Branch Routers Series NAM	NME-NAM-120S*
	NME-NAM-80S

Functionality

Q. How does Cisco NAM support Cisco WAAS?

A. Cisco NAM uses the built-in instrumentation of the Cisco Wide-Area Application Engine 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 where optimization can result in a material increase in available bandwidth.

Q. What release of Cisco WAAS is supported for the Cisco WAAS NAM Virtual Service Blade?

A. The Cisco WAAS NAM Virtual Service Blade is supported on Cisco WAAS Software Release 4.1.1 and later.

Q. Are all of the features included in the hardware-based NAM platforms also included in the Cisco WAAS NAM Virtual Service Blade?

A. The Cisco WAAS NAM Virtual Service Blade is designed to deliver consistent functionality with the hardware-based NAM platforms for real-time monitoring and historical reporting. However, since the NAM virtual blade is targeted for the WAN optimization solution, packet analysis and video/voice monitoring are not supported. Typical deployments will use the deployment flexibility of the NAM virtual blade and the broader functionality and superior performance provided by the hardware-based NAM platforms.

Q. What versions of NetFlow does the Cisco Branch Routers Series NAM support?

A. The NAM supports versions 1, 5, 6, 7, 8, and 9.

Q. Can NetFlow Data Export (NDE) be collected from remote WAN routers?

A. Yes, the Cisco WAAS NAM Virtual Service Blade can collect and analyze NDE from remote devices, including WAN routers. However, sending NDE from remote devices over congested WAN links is not recommended.

Q. Can historical traffic analysis be performed with the Cisco WAAS NAM Virtual Service Blade?

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

Q. How is the Cisco NAM Traffic Analyzer secured?

A. The 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. The NAM also supports role-based user authorization and authentication locally or using TACACS+.

Q. What MIBs are supported on the Cisco WAAS NAM Virtual Service Blade?

A. The Cisco WAAS NAM Virtual Service Blade is standards-compliant and supports Remote Monitoring (RMON) and RMON2 MIBs, as well as several extensions. The major MIB groups supported in the 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)
- ART (Application Response Time) extension

Q. What is the Cisco NAM IAP feature?

A. The NAM intelligent application performance feature offers comprehensive performance measurements for TCP-based applications to accurately characterize the end-user experience. This NAM 4.x feature offers a number of useful application performance indicators to facilitate faster problem identification. For example, the source of network latency affecting the end-user experience can be isolated by analyzing network delay metrics, namely client network delay, server network delay, and network delay. Similarly, server resource issues can be identified by network metrics such as application delay and server response time. In addition, the administrator can configure thresholds on these metrics to proactively detect performance degradations before they affect end users.

Third-Party Reporting

Q. Does Cisco NAM include an API to allow partner reporting applications to use NAM as a data source?

A. Yes, the Cisco NAM includes multiple mechanisms, such as Simple Network Management Protocol (SNMP) and comma-separated value (CSV)/HTTP, that allow third-party management applications to retrieve data for networkwide reporting, trending, baselining, and capacity planning. The reporting application can retrieve monitoring data such as IAP, RMON, and Differentiated Services Monitoring (DSMON). To access the CSV/HTTP API, the partner must be a member of the Cisco Technology Developer Program and must apply to integrate its product with Cisco NAM.

Q. How can a partner apply for approval to use the Cisco NAM CSV/HTTP API for integration?

A. A partner can enroll in the Cisco Technology Developer Program at http://www.cisco.com/go/ctdp. During the enrollment process, the partner must select Network and Service Management as the solution technology and Cisco NAM as the network management product for integration. Once the partner is approved and has signed the nondisclosure agreement (NDA) as well as the NAM developer license agreement, the partner will receive the API for integration.

Q. Can Cisco WAAS NAM Virtual Service Blade export application performance data to NetQoS SuperAgent 8.1 or later?

A. With software release 4.x, Cisco NAM can export application response time information to NetQoS SuperAgent for consolidated networkwide reporting.

Pricing, Licensing, and Ordering

Q. What is the Cisco NAM WAAS Virtual Service Blade pricing model?

A. The Cisco NAM WAAS Virtual Service Blade pricing is based on procuring the virtual blade license on the WAVE-574 and WAE-674. The NAM virtual blade requires the purchase of the Virtual Blade License on the WAAS appliances. Table 6 highlights the Virtual Service Blade capabilities.

Table 6. WAAS NAM Virtual Service Blade Capabilities

WAAS NAM Virtual Service Blade Service	NAM Capability	SKU
Operational Manageability	**Software:** IAP, traffic analysis, real-time monitoring, and historical reporting	NAM-WAAS-VB WAAS-VB-NAM-4.2
Virtual Blade License	**Virtual Blade License:** Required to enable virtual environment on the WAVE-574 and WAE-674	WAAS-VB-LIC

Q. Is there an evaluation version of the Cisco WAAS NAM Virtual Service Blade available?

A. Yes; the Cisco WAAS NAM Virtual Service Blade is available as a fully functional version for a period of 60 days. Existing customers of WAVE-574 and WAE-674 can download the software from the Software Center.

Q. How do I activate the feature license?

A. The evaluation license is included along with the downloadable version of the software. The permanent license for the NAM virtual blade requires that customers license their software at http://www.cisco.com/go/license.

Q. What are the part numbers for the Cisco WAAS NAM Virtual Service Blade?

A. Table 7 lists the part numbers for the Cisco WAAS NAM Virtual Service Blade.

Table 7. Cisco WAAS NAM Virtual Blade Part Numbers

Product Name	Part Number
Cisco NAM Virtual Blade on WAAS appliances (Top Level)	NAM-WAAS-VB
Cisco NAM Software 4.2 for WAAS 574/674	WAAS-VB-NAM-4.2
Cisco NAM Virtual Blade on WAAS appliances (eDelivery Top Level)	L-NAM-WAAS-VB
Cisco NAM Software 4.2 for WAAS 574/674 (eDelivery License Only)	L-WAAS-VB-NAM-4.2

Q. What is e-delivery for the Cisco WAAS NAM Virtual Service Blade?

A. The Cisco WAAS NAM Virtual Service Blade can be fulfilled using the e-delivery mechanism, in addition to the regular physical delivery of the CD kit. The e-delivery mechanism offers a quicker turnaround time for customers wishing to roll out their WAN optimization deployments.

Additional information about e-delivery can be found at http://www.cisco.com/web/partners/tools/edelivery.html.

Q. How do I obtain access to a new Cisco NAM software release?

A. Customers who have purchased a Software Application Support (SAS) contract for the Cisco WAAS NAM Virtual Service Blade are entitled to download new software releases from the Cisco.com Software Center.

Q. What components are required to implement a network monitoring solution with the Cisco WAAS NAM Virtual Service Blade?

A. The following are required to implement the Cisco WAAS NAM Virtual Service Blade:

- Cisco WAAS Appliances: WAVE-574 and/or WAE-674 running Cisco WAAS Software Release 4.1.3 or later
- Cisco WAAS Virtual Blade License
- Cisco WAAS NAM Virtual Service Blade software
- Web browser running Microsoft Internet Explorer 7.0 (and later) or Firefox 3.0 (and later)

Q. What maintenance services are available for the Cisco WAAS NAM Virtual Service Blade?

A. SAS maintenance services are available for the Cisco WAAS NAM Virtual Service Blade. The maintenance services offered include Technical Assistance Center (TAC) support and access to new NAM virtual blade software releases.

Information Resources

Q. Where is additional information about the Cisco NAM found?

A. For more information about the 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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Printed in USA C67-597297-00 04/10