# Cisco Nexus 7000 Series Network Analysis Module (NAM-NX1) with Software 6.0

## Overview

**Q.** What is the Cisco Nexus® 7000 Series Network Analysis Module (NAM-NX1) and what does it do?

**A.** Integrated with the Cisco Nexus 7000 Series Switches, the Cisco® NAM-NX1 is a high-performance service module that delivers comprehensive application awareness, performance analytics, and network intelligence to simplify data center operations. The module empowers network administrators with actionable details to improve application performance, optimize network resources, and enhance operation efficiency.

Comprehensive application awareness in combination with performance analytics allows administrators to quickly focus on business-critical applications and help ensure that applications are getting adequate network resources and performing at optimal levels.

The extension of network visibility to virtualization and overlay technologies such as Cisco Overlay Transport Virtualization (OTV), Locator/ID Separation Protocol (LISP), and Virtual Extensible LAN (VXLAN) enables administrators to optimize the network for distributed and efficient services delivery. For instance, in OTV environments, the NAM can look inside each overlay to provide traffic statistics and application performance metrics, categorized by host, application, and conversation. This approach allows administrators to effectively use network overlays and troubleshoot deployment problems.

The Cisco NAM-NX1 combines comprehensive data collection and analytics and a remotely accessible, web-based management console on a single blade that is installed in Cisco Nexus 7000 Series Switches. The console provides predesigned reports, workflows, and contextual navigation to expedite problem resolution and optimization decisions. It also includes an embedded performance database that preserves historical data, allowing you to understand what happened in the past when an event that affected network performance occurred.

**Q.** What are the business benefits of deploying the Cisco NAM-NX1?

**A.** The Cisco NAM-NX1 delivers comprehensive application awareness, performance analytics, and network intelligence to simplify data center operations. Table 1 provides an overview of the business benefits.

**Table 1.** Business Benefits of Deploying Cisco NAM-NX1

| Benefit | Description |
|---|---|
| **Improved application performance** | • Characterize application performance.<br>• Improve the application experience with effective use of control and optimization techniques such as quality of service (QoS) and Cisco Wide Area Application Services (WAAS).<br>• Preempt performance problems with threshold-based proactive alerts and reduce downtime and failures. |
| **Enhanced operation efficiency** | • Rapidly troubleshoot performance problems with predesigned reports, visual correlation, contextual navigation, and one-click packet captures.<br>• Use the packet capture scan feature to identify observed protocol- and packet-level anomalies, accelerating complex root-cause analysis.<br>• Combine packet and flow data sources to gather noteworthy and actionable information to expedite troubleshooting. |

| Benefit | Description |
| --- | --- |
| **Optimized network resources** | • Identify the applications that consume the most network bandwidth and top talkers and conversations.<br>• Analyze traffic trends to improve optimization decisions.<br>• Extend visibility to overlay network technologies such as OTV, LISP, and VXLAN, to permit optimal design of the network for distributed and efficient services delivery. |
| **Reduced total cost of ownership (TCO)** | • Integrated with Cisco platforms, the Cisco NAM-NX1 delivers a reduced network footprint, lower operating costs, and simplified manageability.<br>• Deploy cost-effective form factors to address location-specific network instrumentation needs.<br>• Integrate an open standards-based API (Representational State Transfer [REST] and XML) to preserve investment in existing management assets. |

**Q.** Why is Cisco introducing an integrated solution?

**A.** As an extension to Cisco Unified Fabric and integrated with Cisco Nexus 7000 Series Switches, the Cisco NAM-NX1 delivers intelligence from both application and network perspectives that allows administrators to take full advantage of the fabric for efficient service delivery in a distributed environment. Today, virtualized data centers are dynamic, making it even more important to ensure service availability and consistent application experience for end users. Because it is an integrated solution, the Cisco NAM-NX1 can gather the packets from the backplane continuously or on demand, look more deeply into the packet, and deliver application performance and network analytics in real time. It empowers network administrators with actionable visibility to improve application performance, optimize network resources, and enhance operation efficiency. Additional benefits of integration include a reduced network footprint, lower administrative costs, simplified manageability, and tighter data integration with the switch.

**Q.** How does the Cisco NAM-NX1 simplify data center operations?

**A.** Today, virtualized data centers are dynamic, making it even more important to ensure service availability and consistent application experience for end users. The Cisco NAM-NX1 delivers comprehensive application awareness and deeper network analytics to help simply data center operations in many ways:

- Performance Analytics: Monitor the application experience and isolate the cause of latency to the network, server, or application in the event of performance degradation. Preempt performance problems with threshold-based proactive alerts to reduce downtime and failures.
- Workload mobility: Gain deeper insight into virtualization and overlay technologies such as OTV, LISP, and VXLAN to optimally design the network for distributed and efficient services delivery.
- Operation agility: Improve operation productivity with a service-focused approach, analyzing data in the context of the specific application, site, client, and server and transparently extending visibility across physical and virtual environments. Interactive reports, contextual navigation, and other features help accelerate resolution of performance problems.
- Security: Validate Cisco TrustSec® policy by evaluating endpoints and hosts, applications, and conversations in one or more security groups. Also, analyze traffic-flow patterns to isolate suspected security problems.

## Technical Overview

**Q.** How does the Cisco NAM-NX1 gather information from the network?

**A.** The Cisco NAM-NX1 supports a broad variety of data sources (Table 2) to gather information from the network. For example, the Cisco NAM-NX1 collects packets from network devices using mechanisms such as Switched Port Analyzer (SPAN), Remote SPAN (RSPAN), and Encapsulated RSPAN (ERSPAN) and traffic flow information using NetFlow Data Exports (NDE). The Cisco NAM-NX1 processes the information, extracts relevant details, and computes performance and use analytics and stores this data in the built-in performance database. This database provides valuable information about voice, video, and data traffic; VLANs; VXLANs; OTV; Differentiated Services (DiffServ); hosts; conversation pairs; application bandwidth use; etc. This information is presented in the NAM's GUI for analysis with easy-to-navigate interactive reports. In addition to the computed analytics, the Cisco NAM-NX1 can store packet captures, allowing you to resolve complex application performance problems.

**Table 2.** Cisco NAM-NX1 Data Sources

| Traffic Source | Description |
|---|---|
| **SPAN, RSPAN, and ERSPAN** | Using the SPAN, RSPAN, and ERSPAN capabilities of Cisco Nexus switches, traffic from ports and VLANs can be mirrored to the NAM. ERSPAN allows traffic to be sent to the NAM using generic routing encapsulation (GRE) tunnels from a Layer 3 network. |
| **NetFlow Data Export (NDE)** | NDE records offer an aggregate view of the network traffic. When enabled on the switch, the Cisco NAM-NX1 can be configured as the destination. In addition, the NAM can receive NDE records from remote devices for analysis. |
| **Cisco WAAS** | The Cisco NAM-NX1 uses the built-in instrumentation in Cisco WAAS to gather information about the optimized and pass-through traffic to provide end-to-end application performance visibility in a Cisco WAAS environment. The information allows the NAM to measure the application response time, transaction time, bandwidth use, and LAN and WAN data throughput to accurately monitor and quantify the impact of Cisco WAAS optimizations. |

**Q.** What version of Cisco NX-OS Software is required to support the Cisco NAM-NX1?

**A.** Cisco NAM-NX1 requires Cisco NXOS Software Release 6.2.

**Q.** How is the Cisco NAM-NX1 secured?

**A.** The Cisco NAM-NX1 can be secured with up to 256-bit encryption. The NAM also supports role-based user authorization and authentication locally or using TACACS+.

**Q.** What Nexus 7000 chassis supports the NAM-NX1 module?

**A.** All Nexus 7000 chassis supports the NAM module. It includes Nexus 7004, Nexus 7009, Nexus 7010, Nexus 1018.

**Q.** Can multiple Cisco NAM-NX1 modules be installed in a Cisco Nexus 7000 Series chassis?

**A.** Yes. Multiple Cisco NAM-NX1 modules can be installed in a single chassis. Please note that NAM-NX1 can be installed in the same VDC as M1/M1XL/M2 and F2/F2e modules; however and it cannot be installed in the same VDC with F1 modules.

**Q.** How many NAM modules are supported on a single chassis?

**A.** The number of supported NAM modules on a given chassis are indicated in Table.

| Nexus 7000 Chassis | Number of NAM-NX1 supported |
|---|---|
| 7004 | 1 |
| 7009 | 6 |
| 7010 | 7 |
| 7018 | 10 |

**Q.** What Nexus 7000 supervisors are supported with NAM-NX1?

**A.** Cisco NAM-NX1 is supported with Nexus 7000 Supervisors SUP1, SUP2 and SUP2E.

## Reporting and Management

**Q.** What integration mechanisms does Cisco NAM-NX1 offer?

**A.** Cisco NAM-NX1 offers a REST/XML API to allow an external application to configure capabilities in the Cisco NAM-NX1 and extract the computed analytics in real time for consumption as part of existing management workflows.

**Q.** What are the benefits of using Cisco Prime™ Infrastructure with the Cisco NAM-NX1?

**A.** Cisco Prime Infrastructure offers centralized management of NAMs deployed across the network. It provides functions such as inventory, configuration, and image and fault management. It can also roll up the performance intelligence from NAMs deployed across the network into a consolidated dashboard.

## Ordering

**Q.** What are the part numbers for the Cisco NAM-NX1?

**A.** For part numbers, please refer to the Cisco Nexus 7000 Series NAM (NAM-NX1) data sheet.

## For More Information

**Q.** Where can I find additional information about the Cisco NAM-NX1?

**A.** For more information about the Cisco NAM-NX1, visit http://www.cisco.com/go/nxnam or contact either your local account representative or the NAM product marketing group at nam-info@cisco.com. Information about Cisco NAM products can be found at http://www.cisco.com/go/nam.

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