

# Network Operations Management (NOM)

## Unified management for software defined networks

Network teams require a broad solution that addresses the network management problem differently, cutting across traditional organizational structures and functional silos of fault, performance, configuration, and compliance. NOM provides visibility into your network topology, health, and configuration; optimizes it for performance, capacity and compliance; and orchestrates the configuration through automation.

### Product Highlights

#### NOM: Unified Management for SDN

To stay competitive, businesses must make smart investments in network management software. The Network Operations Management suite (NOM) from Micro Focus® delivers complete control of your modern network infrastructure. This proven product suite enables you to deliver the network foundation you need for your critical business services.

NOM brings network engineering and operations teams together as they face an increasingly complex network infrastructure, with ever changing technologies. A recent independent study of network experts predict unification of teams with many benefits.\* Unlike using a myriad of different management tools, NOM helps network teams deal with equipment outages, slowdowns, brownouts, security breaches, resource availability, and access denials. These and other issues that can be caused by anything from a bad interface connection, errant or unapproved changes, to devious hackers hijacking resources

#### Broad Solution Approach to Network Management

Unlike point-tools, NOM's comprehensive set of capabilities provide the broadest set of scenarios to identify, analyze, and solve incidents. System guided workflows lead users through the steps necessary to understand problems. As a result, your users now have the ability to work across traditional organizational teams to solve problems faster and with confidence. Staff is more knowledgeable, and mean time to remedy (MTTR) is improved. Because NOM also reduces tool sprawl, it removes conflicts that result from conflicting reports from multiple tools.

#### What Network Teams Need

Network teams require a broad solution that addresses the problem of managing complex modern networks differently, cutting across traditional organizational structures and functional silos of fault, performance, configuration, and compliance. A better way to look at this is to group capabilities into three categories, representing visibility, optimization, and action, and then enable use-cases that work across them—ultimately using automation wherever possible to maximize efficiency and save time.

##### 1. Visibility

High-level business services require fast and stable network infrastructure.  
An accurate and automatic view of

### Quick View

- **Modern networks**—Industry-leading support for physical, virtual, WiFi and SDN-enabled networks
- **Toolset reduction**—A single, collaborative toolset for both the network operations and network engineering
- **Security**—Enable network operations to put an intelligent eye on network configuration violations
- **Service impact**—Insights into network services that impact higher-level business services
- **Compliance**—Reduced costs for meeting network policy requirements
- **Automation**—Network-focused automated orchestration that speeds remediation and new service delivery
- **Work smarter**—Via intelligent root-cause analysis compressed incident lifecycle: Data on fault, health, performance, configuration, and validation to reduce MTTR
- **Extreme scale**—Industry-leading scale to reduce total cost of ownership through simplified deployment and maintenance efforts
- **Confidence**—All from an industry leader and pioneer in open network management

\* SDN Survey by Dimensional Research Inc.—2018

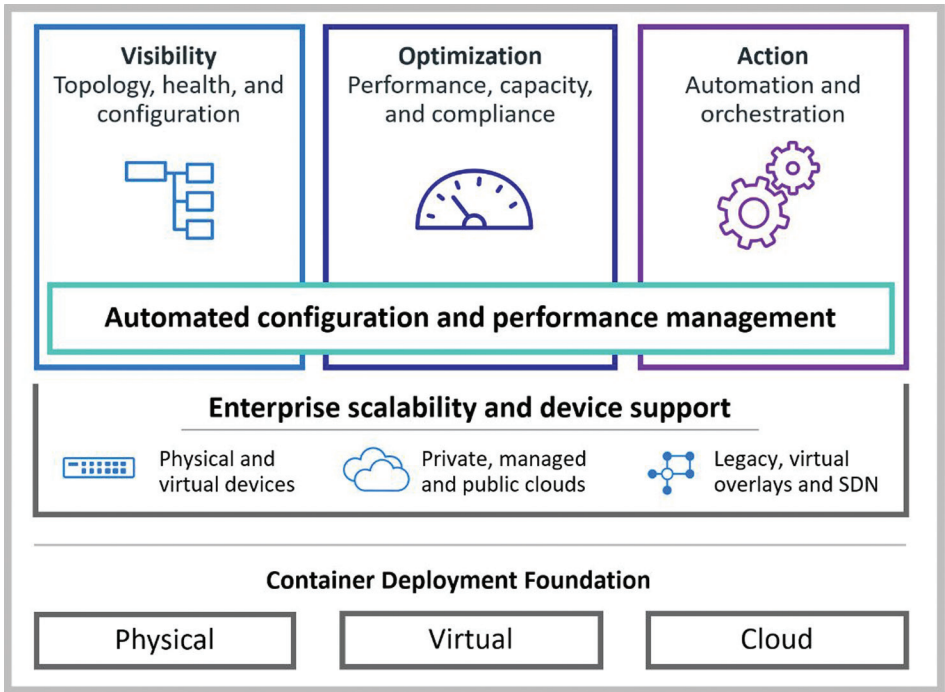


Figure 1. Micro Focus NOM environment overview

topology, health, and configuration provides visibility of the network, enabling you to understand the state of your network and troubleshoot issues with accuracy and confidence.

## 2. Optimization

Modern mission-critical applications require optimal user-experience. Deep insights across performance, capacity, and compliance give you the capability to optimize network performance and secure and stabilize the network.

## 3. Action

Constantly evolving networks transitioning to virtual/SDN require a consolidated solution to understand the big picture and deep details. Automation and orchestration based on knowledgeable insights give you the ability to refresh existing services and deliver new services to support today's dynamically changing environments.

These three categories of visibility, optimization, and action are built on a best-in-class foundation of scalability, and device support. NOM has been deployed to monitor networks on the scale of one million interfaces. And the NOM suite releases bi-monthly updates to its library of supported devices which already includes support for over 3,400 network device types from 180 vendors.

NOM is the first network management product to introduce a modern containerized deployment model known as the Container Deployment Foundation (CDF). Based on Docker containers and Kubernetes platform, the CDF brings rapid delivery of new functionality and updates. This demonstrates the commitment of Micro Focus to utilize an open foundation for NOM that accelerates deployment on premises, in the cloud or in hybrid-cloud environments.

## Key Benefits

### Unify Management of Virtual, Physical, SDN and Wireless Networks

Keeping up with the market adoption of new technologies, NOM provides a unified view into your heterogeneous network including virtual, physical, SDN and wireless devices. NOM includes unified discovery, visualization, configuration, and compliance management of all these network infrastructures in one suite. This is critical as you begin to deploy SDN in specific regions of your network and manage all networks from a single tool. Unlike device or network software vendors' point management tools, NOM consolidates connections across multi-vendor heterogeneous networks. This reduces the learning curve for both operators and engineers who use multiple management tools, and it identifies issues in one place, with a single source of truth.

### Enable Compliance through Network Device Lifecycle Management

NOM monitors the physical, virtual, SDN and wireless device configurations to maintain your organizations network compliance policies. It detects any deviation from these configurations, and sends intelligent alerts to your NOC operators. NOM understands the specific changes (for example a rogue device password change) and can manually or automatically roll back to return to a compliant configuration. NOM dashboards provide quick views for executives and department managers to understand the status of their networks.

### Advanced Security Dashboards

#### Deliver Network Risk Visibility

Perhaps the most costly deficiency of any network is sub-standard security. Recent events have demonstrated the liability associated with undiscovered security deficits. NOM's Security Risk Dashboards provide a real-time perspective into the status of your organization's security policies. Summarizing a comprehensive set of security compliance indicators—including configurations, OS and

firmware versions, run-time diagnostics, and performance metrics. NOM's Security Risk Dashboards provide visualization of all the dimensions of your network security compliance model.

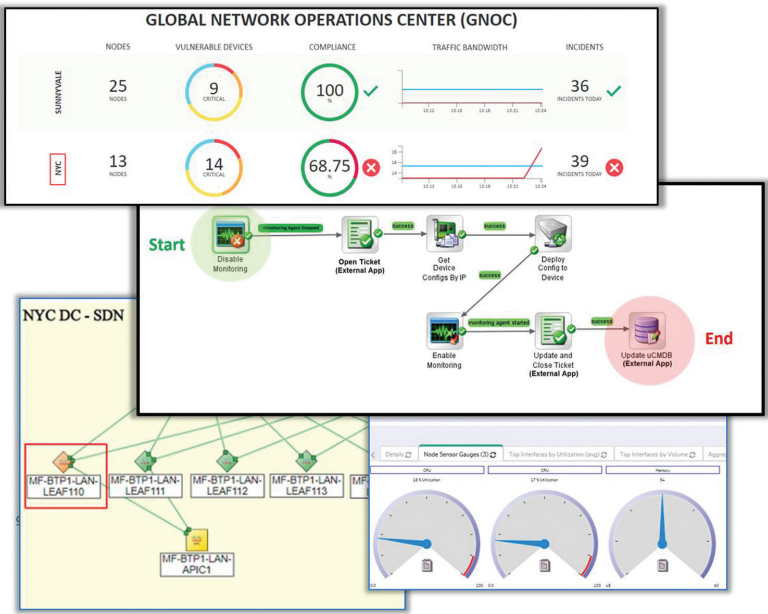
### Innovative Technologies to Help Solve Problems Faster

The three categories of visibility, optimization, and action require a best-in-class foundation of root-cause analysis, scalability, and device support. Armed with these capabilities, network teams can focus on the issues at hand, with confidence in the knowledge presented to them. A modern user interface means nothing without a strong core architectural foundation—and NOM has both. At the core of NOM is a patented and scalable spiral discovery to keep up with your network changes, and comprehensive root-cause analysis to make all users more knowledgeable of what's underlying network issues.

- Broad Modern Network Support Reduces Dependency on Device Vendor Point Tools**

NOM analyzes your on-premise network and its connection to private, managed, and public clouds in addition to multiple types of advanced network technology, whether legacy IP, protocol overlays, wireless and SDN network functions on virtual hosts. NOM is continually evolving to stay ahead of your network's continuing transition to new technologies.
- Deep and Accurate Analysis Adds Intelligence**

NOM's root-cause analysis uses related events, connectivity relationships of the network, and the critical protocol fabric overlays on the network. It can also automatically launch targeted investigations in the region of concern, saving operator time and effort, as well as capturing critical data before it's gone. NOM's RCA also uses powerful inference logic to identify patterns leading to fast and accurate conclusions.



**Figure 2.** Examples of NOM GUIs: Security, workflow, SDN, and performance

### Licensing Models to Fit Your Requirements

Capabilities ↓	Editions →	NOM Express	NOM Premium	NOM Ultimate
Monitoring & Diagnostics		✓	✓	✓
Configuration Backup		✓	✓	✓
Performance		✓	✓	✓
Reporting		✓	✓	✓
QA & Traffic			✓	✓
Provisioning			✓	✓
Executive Dashboards			✓	✓
Compliance				✓
Network Orchestration				✓
Advanced Services				✓

**Figure 3.** Choose the edition of NOM that works best for your network

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## System Requirements

### Minimum Hardware Requirements

- Intel / AMD 64-bit, 2.5 GHz
- Entry Tier: 2 CPU Cores, 4 GB RAM, 3 GB Disk, 10 GB DB
- Very large Tier: 12 CPU Cores, 48 GB RAM, 3 GB Disk, 80 GB DB

### Operating System Support

- Windows Server 2016\*, 2012 R2, or 2012 Datacenter or Standard Edition  
(\*Configuration management and compliance only)
- SUSE Enterprise Linux 12, 11 SP3+
- Oracle Linux Red Hat Compatible Kernel 6.4 to 6.x, or 7.x
- Red Hat Enterprise Linux Server 6.4 to 6.x, or 7.x

### Optional External Database for Configuration & Compliance Core

- Oracle RAC 12c R2, or 12c Enterprise Edition
- Oracle 12c Standard Edition
- Oracle RAC 11g R2, or 11g Enterprise Edition
- Oracle 11g Standard Edition
- Microsoft SQL Server 2014, 2012, 2008 R2 SP1, or 2008 SP3 Enterprise Edition
- Microsoft SQL Server Cluster on 64-bit 2014, or Cluster on 64-bit 2012 Enterprise Edition
- Microsoft SQL Server 2014, 2012, 2008 R2 SP1, or 2008 SP3 Standard Edition

### Optional External Database for Performance and Monitoring

- Oracle RAC 12c R1, or 12c R1 Enterprise Edition
- Oracle 12c R1 Standard Edition
- Oracle RAC 11g R2, or 11g R2 Enterprise Edition
- Oracle 11g R2 Standard Edition

### Web Browser

- Microsoft IE 11, Mozilla Firefox 52.x ESR, Apple Safari 10.x, Google Chrome
- Pop-ups, cookies, and JavaScript enabled
- Adobe Flash (for real-time graphs)

### Languages

- English, French, German, Japanese, Spanish

### Important Note

- System requirements and localization compatibility can vary. Please see the detailed support matrix for each component before installing.

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