

Prepared for



Chart a Path to Digital Transformation with Application-Aware, AIOps-Driven Network Performance Management

April 2022 EMA White Paper
By Shamus McGillicuddy, Vice President of Research

Executive Summary

Prepared for IBM, this white paper draws on years of industry research by Enterprise Management Associates to explain why network operations teams must modernize their network performance management tools to support digital transformation. It explores the new requirements that IT organizations have for their tools and provides a step-by-step guide for choosing a new solution.

Only 35% of network operations teams believe they are fully successful at fulfilling their missions.

Digital Transformation Requires a New Approach to Network Performance Management

Digital transformation demands excellence in network operations (NetOps) because digital products must traverse networks to deliver value to customers and partners. Unfortunately, many NetOps teams are not prepared to deliver on this excellence because their network performance management (NPM) solutions are not modernized.

According to Enterprise Management Associates' (EMA's) market research,¹ only 35% of network operations teams believe they are fully successful at fulfilling their missions, an unacceptable situation for any company that relies on digital operations. Why do so many NetOps teams think they could be doing better?

For one thing, they are supporting next-generation technology with yesterday's NPM tools.

- **IoT:** The Internet of Things (IoT) is invading enterprise networks, adding new devices and sensors that require secure and reliable connectivity.
- **Hybrid and multi-cloud:** Companies are migrating applications and data to the public cloud. In recent years, EMA research repeatedly found that most enterprises are operating in multiple public cloud providers. Enterprises are also embracing hybrid cloud architectures, with frontend applications living in the cloud and backend systems remaining in private data centers. Network connectivity between public and private clouds is essential.
- **New network technology:** Network teams are adopting new network technology, such as Wi-Fi 6, software-defined networking (SDN) in data centers, software-defined WAN (SD-WAN), and secure access service edge (SASE).

¹ EMA, "Network Management Megatrends 2020," April 2020.

Legacy NPM tools are not ready for this transformation. Only 36% of NetOps teams believe their NPM tools are fully capable of monitoring cloud networks.² Also, while 91% of NetOps teams monitor their SD-WAN environment with a third-party NPM tool, only 48% of them are fully satisfied with this monitoring capability.³

Moreover, the adoption of IoT, cloud, and other new technology forces network teams to increase their collaboration with other silos, such as SecOps and DevOps. Unfortunately, many NPM tools are siloed and aim at delivering value to networking personnel, especially highly skilled engineers. Other than static reports, legacy NPM tools don't facilitate collaboration with these groups. For example, complex service problems are tricky to fix. EMA asked NetOps pros to identify the root cause of the last three problems that required them to collaborate with other groups. The network was the top response (46%), but plenty of domains outside their control were also frequent culprits, such as client devices and user error (36%), misconfigured SecOps devices (35%), and security breaches (35%).⁴ NPM tools facilitate cross-silo collaboration, but they also must provide visibility up and down the digital stack.

With outmoded NPM tools, the result is a NetOps team that is struggling to serve the business. EMA research found that 33% of all network trouble is detected by end users first and reported to IT. Thus, one-third of all problems are likely impacting end-user productivity and customer satisfaction before NetOps can even act on them. Troubleshooting issues once they are detected is also difficult, with 35% of network managers saying that their NPM tools are very ineffective at problem isolation and another 36% saying their tools are very ineffective at supporting root-cause analysis.⁵

With outmoded NPM tools, the result is a NetOps team that is struggling to serve the business.

² EMA, "Network Management Megatrends 2020," April 2020.

³ EMA, "Enterprise WAN Transformation," December 2020.

⁴ EMA, "Network Management Megatrends 2020," April 2020.

⁵ Ibid.

How to Choose a Next-Generation Network Performance Management Solution

NetOps teams should be modernizing their NPM toolsets with new solutions that have rich visibility and awareness across applications, infrastructure, and network environments. These solutions must also be integrated with and enriched by an AIOps toolchain. With these enhancements, tools can do more than detect and isolate the most significant problems. Application awareness and AIOps provide intelligent and actionable insights that matter most when NetOps teams need to accelerate the mean time to repair a problem and support their organization's transition to next-gen technologies, which includes proactively preventing problems from reaching the end user or even occurring in the first place.

Seek Application Awareness

Very few network teams have NPM tools that can correlate application insights intrinsically. Instead, network engineers must correlate insights across multiple tools to understand how the network impacts application performance. In these situations, engineers often find themselves investigating events, only to find that the event has no impact on application performance.

Application awareness allows NetOps teams to focus on tasks that matter. As one infrastructure and operations director of a large financial services company told EMA, “My mindset is, I don’t manage the network. I manage the applications that run on it. I need to look down the stack into the network itself. We take a top-down approach rather than a bottom-up approach. I don’t start with the network and build my way up to the application. When I have a network with 4,000 ports going down, I don’t care about them unless there is traffic running on them. Networks are unstable by their very nature. If something is broken but not affecting anything, it’s not important.”

NPM solutions should be able to recognize business-critical commercial applications out of the box and correlate network health and performance with these applications. NPM tools must discover and monitor application dependencies on the network so they can understand application service delivery. They should also be flexible enough for NetOps teams to configure them to monitor custom and homegrown applications.

“My mindset is, I don’t manage the network. I manage the applications that run on it.”

-Infrastructure and operations director, large financial services company.

Embrace AIOps

AIOps (artificial intelligence for IT operations) involves the application of machine learning (ML) and AI technology to IT management tools and processes. Vendors can train these AI and ML algorithms to detect patterns in network data and derive insights that enhance and automate network operations.

EMA research found that AIOps has transformative potential in network operations. More than 90% of network teams believe that AIOps-driven network management leads to better business outcomes for companies. One of the biggest opportunities with AIOps is operational efficiency. When NPM tools can provide insights rather than just data, engineers and administrators can focus on critical events, act more quickly, and even proactively prevent issues before they impact business operations and end-user experiences. In fact, 72% of network teams trust AIOps to proactively make automated changes to the network to address IT performance problems.⁶

Enable Next-Generation Networking

Network teams are adopting a variety of new technologies to support digital transformation. Naturally, they will need their NPM solution to evolve with these new networks.

For instance, 35% of network teams say that data center SDN is driving their network management strategy.⁷ SDN networks introduce virtual overlays that are highly dynamic. An NPM solution must be able to deliver visibility across underlays and overlays.

WAN transformation is pervasive. More than 37% of enterprises have SD-WAN in production today, and nearly every other enterprise is either planning to implement or is implementing SD-WAN. The underlay that SD-WANs traverse is also becoming more complex, with 45% of enterprises investigating 5G as a primary source of WAN connectivity in remote sites. While SD-WAN is known for offering native, centralized monitoring capabilities, 91% of enterprises say they are monitoring or planning to monitor their SD-WAN overlays with a third-party NPM tool. Unfortunately, only 48% are fully satisfied with their NPM tool's ability to do this SD-WAN monitoring.⁸ SD-WAN vendors vary in the quality, granularity, and formatting of the telemetry they produce. NPM vendors must be able to adapt to this variability.

90% of network teams believe that AIOps-driven network management leads to better business outcomes for companies.

⁶ EMA, "Revolutionizing Network Management with AIOps," April 2021.

⁷ EMA, "Network Management Megatrends 2020," April 2020.

⁸ EMA, "Enterprise WAN Transformation," December 2020.

Work from anywhere is also a major disruption to NetOps. Ninety-three percent of IT organizations observed an increase in working from home during the pandemic, and 50% told EMA that this increase is permanent. Also, 95% of IT organizations have observed growth in traffic related to real-time communications (voice, video, and meetings) applications during the pandemic. NPM solutions must be able to adapt to work-from-home operations. It starts with scaled up monitoring of VPN gateways, but NetOps teams should also expect to see network hardware deployed to some home offices, which will enable collection of telemetry from a more distributed network edge.

Scale Digital Change with Speed and Accuracy

This paper revealed that networks are becoming larger and more complex, which will require scalability. Still, digital transformation is also about continuous rollouts of new applications and services across network infrastructure. NPM tools must be able to support this paradigm shift by being quick to scale out and adapt, without reduction in quality or accuracy.

First, scalability requirements for today's NPM solutions are dynamic. "NPM solutions must scale their data collection and reporting functions to meet ever-increasing network size and speed requirements. The scalability bottleneck in most solutions is the central reporting server. No matter how big a server is used, it can never scale to keep up with the demands of an increasing number of data collectors, storage, and reporting demands," an IT analyst with a large government agency told EMA.

The cloud allows digital infrastructure to scale out and change rapidly. Only 36% of NetOps teams are fully satisfied with the cloud visibility their NPM tools offer. The two top requirements that NetOps teams have for cloud monitoring are scalability (38%) and adaptability (32%). Moreover, 38% of NetOps teams say their network management strategy is influenced by cloud-native application platforms.⁹ Cloud monitoring requirements can explode unexpectedly, from 10 to 1,000 VPCs at the click of a button. Also, enterprises are moving toward multi-cloud architectures, which will require NPM tools that can integrate with and collect telemetry from multiple proprietary cloud providers.

⁹ EMA, "Network Engineering and Operations in the Multi-Cloud Era," February 2019.

Work from home patterns turn monitoring upside down, from managing the network experience of 1,000 users on one network to managing the experience of 1,000 users on 1,000 networks. NPM tools must be able to adjust telemetry collection to this new architecture, but it must also be able to adjust dashboards and reports to present to this new network. Nearly 53% of NetOps teams need new dashboards and reporting in their NPM tools that provide insight into home remote worker network performance. More than 49% need to upgrade the scale of their NPM tools to support remote workers. Only 36% of NetOps teams are fully satisfied with their ability to support remote workers, and 22% are struggling to find network monitoring tools that provide insight into work-from-home experiences.¹⁰

IoT initiatives also drive adaptability and scalability requirements. More than 75% of NetOps teams report that IoT devices and sensors are connecting to their corporate networks, and 45% say that this IoT activity has forced them to make new investments in NPM tools.¹¹ IoT devices can quickly exceed the number of end-user devices on a network by orders of magnitude, challenging an NPM tool's ability to scale.

IBM SevOne Network Performance Management Addresses Next-Generation Requirements

IBM offers a new approach to network performance management with its IBM SevOne Network Performance Management solution. The IBM solution helps modern IT organizations address next-generation requirements and drive network performance through every stage of the digital transformation journey. IBM SevOne Network Performance Management is used by enterprise organizations, managed service providers, and communication service providers with highly complex IT environments.

Only 36% of NetOps teams are fully satisfied with their ability to support remote workers, and 22% are struggling to find network monitoring tools that provide insight into work-from-home experiences.

¹⁰ EMA, "Post-Pandemic Networking: Enabling the Work-From-Anywhere Enterprise," July 2021.

¹¹ EMA, "Network Management Megatrends 2020," April 2020.

By transforming raw network performance data from infrastructure across the entire delivery chain into actionable insights, IBM SevOne Network Performance Management delivers a comprehensive view of what's happening in the network and how that performance affects the applications driving modern businesses. IBM SevOne Network Performance Management meets the agility, reliability, and business efficiency needs of modernized organizations with insights to optimize a modern network. The product integrates with and monitors next-generation technologies, such as SDN, SD-WAN, and Wi-Fi networks across all environments that can be viewed from a single source.

Additionally, the IBM solution is AIOps-driven. IBM SevOne Network Performance Management integrates multivendor performance data with modular flexibility, allowing users to apply data-driven AI to their ITOps toolchain, like IBM Cloud Pak for Watson AIOps.

About IBM

Learn more about **IBM SevOne Network Performance Management** and how it can help your organization monitor and manage the performance of your existing and next-generation network and infrastructure resources more effectively.

Visit <https://www.ibm.com/cloud/sevone-network-performance-management>

IBM, the IBM logo, IBM Cloud Pak, and IBM Watson are trademarks or registered trademarks of International Business Machines Corporation, in the United States and/or other countries. Other product and service names might be trademarks of IBM or other companies. A current list of IBM trademarks is available on ibm.com/trademark.

It is the user's responsibility to evaluate and verify the operation of any other products or programs with IBM products and programs. THE INFORMATION IN THIS DOCUMENT IS PROVIDED "AS IS" WITHOUT ANY WARRANTY, EXPRESS OR IMPLIED, INCLUDING WITHOUT ANY WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, AND ANY WARRANTY OR CONDITION OF NON-INFRINGEMENT. IBM products are warranted according to the terms and conditions of the agreements under which they are provided.



About Enterprise Management Associates, Inc.

Founded in 1996, Enterprise Management Associates (EMA) is a leading industry analyst firm that provides deep insight across the full spectrum of IT and data management technologies. EMA analysts leverage a unique combination of practical experience, insight into industry best practices, and in-depth knowledge of current and planned vendor solutions to help EMA's clients achieve their goals. Learn more about EMA research, analysis, and consulting services for enterprise line of business users, IT professionals, and IT vendors at www.enterprisemanagement.com. You can also follow EMA on [Twitter](#) or [LinkedIn](#).

This report, in whole or in part, may not be duplicated, reproduced, stored in a retrieval system or retransmitted without prior written permission of Enterprise Management Associates, Inc. All opinions and estimates herein constitute our judgement as of this date and are subject to change without notice. Product names mentioned herein may be trademarks and/or registered trademarks of their respective companies. "EMA" and "Enterprise Management Associates" are trademarks of Enterprise Management Associates, Inc. in the United States and other countries.

©2022 Enterprise Management Associates, Inc. All Rights Reserved. EMA™, ENTERPRISE MANAGEMENT ASSOCIATES®, and the mobius symbol are registered trademarks or common law trademarks of Enterprise Management Associates, Inc.