

Making a Business Case for Investing in Network Performance Management

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Executive Summary

Network performance management tools can drive operational efficiency and improve network uptime, but many network managers haven't adopted such tools. The potential benefits of a performance management tool are substantial, but network managers must make a business case for such investment. This white paper reveals why network operations teams should invest in network performance management solutions, and how they can justify to IT management and CIOs that the tool will deliver a substantial return on investment, along with improving IT's ability to support business goals.

Network Operations Must Manage Performance

In today's digital economy, network performance often determines business performance. Unfortunately, many network managers lack the right tools to manage performance. Instead, they manage infrastructure, relying on availability monitoring tools that report on the up-down status of individual infrastructure elements.

A network performance management (NPM) solution will monitor traffic, usually in real time. An application-aware NPM tool will reveal how network performance affects application performance and end-user experience. These insights can streamline workflows and improve uptime, since network managers are no longer wasting time deducing performance from less direct views into the network, like availability monitoring.

NPM tools can enhance operations in several other ways. They can integrate with service management platforms to automate ticket routing. Performance insights can help network managers find ways to optimize existing assets and infrastructure, such as discovering traffic bottlenecks and routing inefficiencies. By tracking performance over time, NPM tools can also support capacity planning use cases.

Many network managers either fail to recognize the necessity of NPM tools, or they fail to make a business case for investment. They are left with more basic availability monitoring tools, which focus on the health of individual infrastructure elements. An availability monitoring dashboard populated by green lights does not guarantee performance or provide accurate insight into the end user's perspective of performance. Even if a server is up, the application running on it can still perform poorly and negatively impact end-user experience. They may provide a multitude of information, but without the depth and perspective needed to find and fix problems.

These tooling strategies lead to trouble. The number-one challenge faced by network operations teams is a lack of end-to-end network visibility, according to Enterprise Management Associates (EMA) research.¹ The teams have an incomplete picture, especially as networks scale and grow in complexity and as applications start to migrate to the cloud. Device health, ping tests, traceroute, and mining the command line interface (CLI) aren't enough. Network managers ultimately have no baseline for what is normal and acceptable.

Network teams comprise highly-skilled, knowledgeable people who are good at their job, but they lack the right tools. They are unable to manage the network for business impact because without insight into performance and end-user experience, business impact is invisible. EMA research reveals that network teams spend 36 percent of their work week fighting fires in reactionary troubleshooting mode, and they spend another 35 percent of their week proactively preventing problems. This means that the typical enterprise devotes only 29 percent of its network engineering talent to strategic projects and other tasks not associated with fixing the plumbing.²

¹ EMA, "Network Management Megatrends 2016: Managing Networks in the Era of the Internet of Things, Hybrid Clouds, and Advanced Network Analytics," April 2016.

² Ibid.

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This misallocation of talent isn't only about efficiency. It has a business impact. Network operations teams detect only 60 percent of IT service problems before end users experience them and open a help desk ticket. Thus, 40 percent of problems are already disrupting users and customers and hurting the business before network operations has a chance to respond. Often, these user-reported problems are vague complaints, such as "the network is slow" or "I can't access my files." An NPM solution can address these issues, giving network operators a proactive tool for managing and optimizing performance instead of fighting fires.

What to Look for in an NPM Solution

When evaluating NPM tools, network managers should establish their own requirements. However, EMA research consistently finds some features and functions that are essential. Traffic volume analysis, end-user experience insight, and performance data trending are the three most important and valuable features of NPM tools. Many network managers also identify response time metric analysis, route analysis, and packet analysis as important.³

EMA research also found that customizable reporting, visibility into virtual server environments, and visibility into the cloud are very important requirements for network management tools in general, not just NPM tools. Network managers should keep all of these requirements in mind while evaluating NPM products. Once you identify the right tool for you, be prepared to demonstrate a return on the NPM investment.

Winning the Argument: Your Business Case for NPM

Through its research and interactions with IT professionals, EMA believes that effective NPM solutions will improve a network team's overall operational success. Network operations (NetOps) success delivers tangible business benefits to an enterprise, which network managers can use to build a business case for NPM. EMA research identified reduced downtime, improved end-user experience, reduced operational expenses, reduced capital expenses, and improved support of new business initiatives as the top five benefits of network operations success.⁴

Once the network team selects an NPM tool based on NetOps success, the next step is to secure funding. The aim is to educate the CIO's office on the value of an NPM solution. Qualitative arguments about the soft benefits of the tool will carry some weight, but a quantitative analysis of benefits will win the day. IT executives and CIOs will listen to a network team with a competent analysis of the potential return on investment (ROI).

There are two key areas where an NPM solution can deliver ROI: reduced operational expenses and improved uptime. Operational savings come when network administrators and engineers can streamline workflows and improve collaboration. NPM tools can accelerate troubleshooting and root-cause identification reducing the mean time to repair (MTTR) the network and restore service (MTRS). By fixing problems rapidly, the network team is able to devote more time to work that has strategic value to the business. Improved uptime comes when network managers gain better visibility into the network. With a depth of understanding into how the network is performing, network managers can decrease the mean time between failures (MTBF) and avoid the costs associated with a network failure or slowdown.

³ Ibid.

⁴ Ibid.

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Reduced Operational Expenses

Network engineers are highly skilled and highly compensated, but not every organization maximizes the value of these people. As noted earlier, network teams spend 71 percent of their time fixing problems, which severely restricts the value that these skilled people can deliver to the business in the form of strategic projects.

NPM solutions can reduce the full-time equivalent (FTE) hours a network team devotes to network triage and troubleshooting. The FTE hours saved can translate to money returned to the business for new business initiatives, addressing strategic projects on the CIO's to-do list, and so on. To calculate this value as a cost figure, a network team should evaluate how it spends its time.

What are the most time-consuming aspects of troubleshooting? Many network managers find both problem isolation and root-cause analysis to be major time sinks. It should be possible to calculate this number in terms of total hours per year. NPM tools excel at shortening these tasks. By talking to reference customers from NPM vendors or peers in other IT organizations with NPM tool experience, the network management team can roughly estimate the number of FTE hours it could return to the business through improved efficiency. Then, it can assign a value to this efficiency by considering the total cost of employing a network engineer. For instance, a typical CCIE engineer costs a business \$158,000 annually. A junior-level, non-certified network engineer costs \$101,000 per year.⁵

Improved Uptime

Downtime costs businesses money. When the network fails or slows down, companies lose revenue, experience customer churn, and lose productivity. In May 2018, Salesforce.com suffered a day-long outage that cost \$20 million.⁶ The following July, Amazon.com experienced a 63-minute outage that cost the company \$99 million. In August, Delta Airlines' operations center experienced five hours of downtime, resulting in \$150 million in losses.⁷

Estimates on the true cost of downtime vary wildly, depending on the size of a company, geography, vertical industry, and countless other factors. Based on a review of many estimates offered by multiple third parties, EMA's network management practice conservatively estimates that network downtime costs the average company \$100,000 per hour.

It might be useful for network teams to calculate their own number, because they might find their own figures are much higher. Business leadership will be able to pinpoint key applications that are tied directly to revenue and can help determine how much revenue would be lost to a single hour of downtime.

Depending on how well they document events, network teams should have a deep understanding of any major IT service outages their business typically experiences in a year. That insight will help them to understand how much downtime costs the company each year. By speaking to reference customers and peers, the network team can estimate how much of that downtime can be avoided, since NPM tools can identify problems before they impact the business. For instance, NPM tools can reveal a spike in video conference calls, allowing engineers to manage QoS to prevent poor call quality or bandwidth constraints on other applications.

⁵ Based on an EMA analysis of salary data at www.Payscale.com

⁶ <https://www.upguard.com/blog/inside-salesforces-20-million-dollar-firmware-bug>

⁷ <https://www.upguard.com/blog/how-much-are-service-outages-costing-airline-industry>

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Other Potential ROI Factors

If operational savings and uptime aren't compelling enough, security risk reduction and capital expense savings can further strength an ROI analysis.

NPM solutions often facilitate collaboration with security operations. Network teams can see traffic patterns that are indicative of malicious behavior or a breach. NPM tools can help identify the scope of a security incident and the assets affected simply by tracking the path malicious traffic takes through a network. Network teams use this insight to help the security group protect the business and minimize the impact of a breach and the associated financial costs.

An NPM tool's ability to support capacity management and network engineering can translate into capital savings. NPM tools reveal how the network is used, allowing network managers to project traffic growth and identify non-essential applications that are consuming too much bandwidth. Armed with this insight, network managers can optimize quality of service settings (QoS) and throttle non-business critical applications. With judicious management, the network team can avoid or delay upgrades to MPLS links, LAN switches, and Wi-Fi.

Closing the Case: Do the Math

Creating an ROI model for a new investment boils down to a math problem. There are multiple approaches, but here is a general guide. Start with timeframe. Most enterprises calculate ROI for technology over a three-to-five-year period.

Then, calculate the total cost of ownership (TCO) during the ROI period. NPM tools will involve a combination of capital costs (perpetual software licenses, appliance procurement) and/or operational costs (software subscription). Also consider overhead associated with the investment, including professional services, training, and ongoing maintenance. Vendors should be able to supply these figures.

Finally, calculate the financial benefits of the investment. This includes operational expense savings and improved uptime, as described above.

The final calculation should be: $(\text{annual OpEx savings} + \text{annual MTBF improvement})(\text{time}) - \text{TCO} = \text{ROI}$.

As an example, let's assume a network team estimates that a team of two CCIE engineers (\$316,000 FTE cost) will improve their efficiency by 20 percent and reduce overall downtime from three hours per year to one. If the expected five-year TCO for that NPM investment is \$150,000, the following table reveals the expected ROI.

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Annual OpEx Savings (CCIE Efficiency)	Annual MTBF Benefits (Downtime Reduction)	Total Financial Benefits Over Five Years	TCO	ROI
\$316,000 x 0.2	2 x \$100,000	(OpEx savings + MTBF benefits) X 5 years	Five-Year Costs	Five-Year Return
\$63,200	\$200,000	\$1,316,000	\$150,000	\$1,166,000

If the result is better than zero, the network management team has made its case. The higher it is, the more value it will deliver to the business.

The CIO may also want to know the payback period for this investment. That is the time it will take the NPM tool to pay for itself. This figure will involve the initial cost of the NPM tool divided by the financial benefits per year.

Using the example above, let's say the tool costs \$150,000. The payback period calculation would look like:

$$\$150,000 / (\$200,000 + \$63,200) = 0.57 \text{ years}$$

Thus, the NPM tool would pay for itself in less than 7 months.

EMA Perspective

EMA advocates that every network operations team have an NPM solution in its core toolset. This paper offers guidance on how to make a business case for an NPM tool. The NPM vendor can be an important partner for assembling that business case.

EMA has reviewed the VIAVI NPM solution. Its core capabilities, including its Observer and GigaStor platforms, align with the payback benefits outlined above. GigaStor is an enterprise-class packet capture appliance that collects a high-fidelity record of network traffic for analysis. The Observer suite of analytics products includes Observer Apex and provides real-time and forensic analysis of packets, providing insight into network and application performance and end-user experience. VIAVI is a good example of a proven NPM vendor. When building a case for investment, ask your VIAVI sales rep for help on calculating potential ROI.

About Viavi

VIAVI (NASDAQ: VIAV) is a global provider of network test, monitoring, and assurance solutions to communications service providers, enterprises, network equipment manufacturers, and civil, government, military, and avionics customers supported by a worldwide channel community including VIAVI Velocity Partners. They deliver end-to-end visibility across physical, virtual, and hybrid networks, enabling customers to optimize connectivity, quality of experience, and profitability. VIAVI is also a leader in high-performance thin film optical coatings, providing light management solutions to anti-counterfeiting, consumer electronics, automotive, defense, and instrumentation markets. Learn more about VIAVI at www.viavisolutions.com.

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 or blog.enterprisemanagement.com. You can also follow EMA on [Twitter](#), [Facebook](#), or [LinkedIn](#).

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