# Managing Networks Today

Network Management Megatrends
2014 Research Highlights

An ENTERPRISE MANAGEMENT ASSOCIATES® (EMA™) White Paper
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**EMA**™

IT & DATA MANAGEMENT RESEARCH,
INDUSTRY ANALYSIS & CONSULTING

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## Executive Summary

The increasingly critical role that IT plays in enabling business is driving renewed focus on the network, which provides the essential connectivity between customers and end users and the datacenters hosting applications and services, as well as within those data centers. But establishing and maintaining the upper hand in ensuring highly reliable, high-performing networks means that network managers and operators need to keep up with new technology introductions while ensuring that they are using the best tools, technologies, and practices at all times. Enterprise Management Associates (EMA) published "Managing Networks in the Age of Cloud, SDN, and Big Data: Network Management Megatrends 2014," a landmark study documenting the latest needs and requirements for excellence in network management. This paper reviews several key findings and recommendations.

## Finding: Root Causes Are Many and Varied

Understanding the root causes of performance degradations is often difficult because so many contributing factors can come into play, from the application itself to back-end data systems to general network congestion. EMA asked research participants what was at the root of their most recent performance degradation issues. Figure 1 indicates that despite the fact that the top two most common root causes were networking related, a range of non-networking sources such as servers, security, application design/health, and end client system or user are prevalent. Part of effective diagnosis and troubleshooting is triaging to quickly rule out what is not the problem. EMA recommends tools that go beyond network element views so that all possible root causes can be identified and examined.
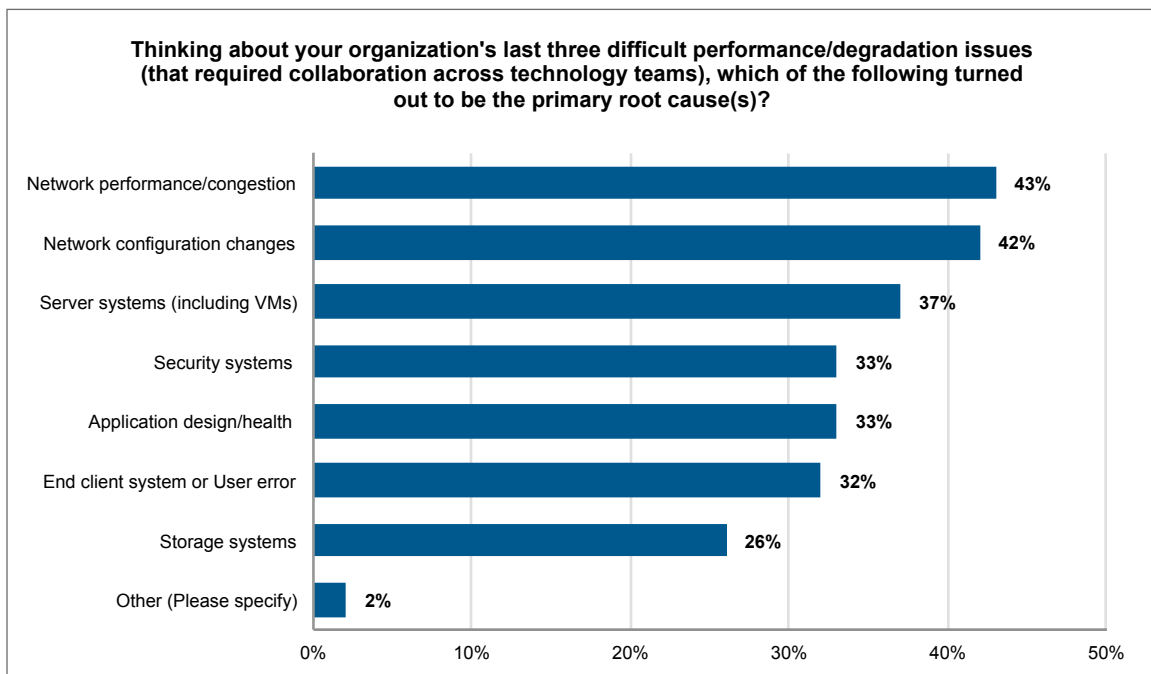
**Thinking about your organization's last three difficult performance/degradation issues (that required collaboration across technology teams), which of the following turned out to be the primary root cause(s)?**

| Category | Percentage |
|---|---|
| Network performance/congestion | 43% |
| Network configuration changes | 42% |
| Server systems (including VMs) | 37% |
| Security systems | 33% |
| Application design/health | 33% |
| End client system or User error | 32% |
| Storage systems | 26% |
| Other (Please specify) | 2% |

Figure 1. Primary root causes of performance/degradation issues

## Finding: Too Many Tools

How can you be effective at network management if you don't know which tools to use or trust? EMA investigated just how many tools are being actively used for network monitoring and troubleshooting. Our results indicate that the majority of smaller shops (250 to 999 employees) use three to five tools while the majority of medium organizations (1000 to 4999) use four to 10 tools. In large organizations (5000+ employees), the majority use six or more, but a full quarter are using 16 or more tools and 10% report more than 25 tools in use! More tools mean process inefficiencies since most function independently and don't share data directly. Also, each tool must be individually installed, configured, and maintained. EMA recommends working toward tool consolidation and greater integration wherever possible in order to reduce the time spent maintaining the tools and leave more time for managing the network.

## Finding: Look to Existing Tools to Manage SDN

Though software-defined networking (SDN) solutions are still evolving, the appeal of automated, policy-compliant provisioning of network resources is a powerful draw, and EMA research confirms very strong interest in the technology. While our research indicated that few organizations (<20%) had reached actual deployment stage at the time of the study, over 50% of those surveyed were either researching or evaluating SDN technologies, with the greatest portion of that group in the evaluation stage. In short, SDN is rapidly maturing, finding initial successful uses, and on almost every organization's radar screen.

But how will these new technologies be monitored and managed? Our study results revealed that while organizations as a whole (all stages of SDN adoption) were not certain if existing tools could do the job or new tools would be needed, those with actual deployment experience (in pilot or production stage) lean heavily towards existing management tools as the way to go. In some cases, existing tools will need additional enhancements or modules that may or may not be fully available today, but in general this sentiment indicates the desire and intent to prevent SDN from becoming yet another silo requiring its own independent management tools stack. EMA recommends that networking pros make sure existing network management tools are ready when/if SDN becomes part of their operating infrastructure.

## Finding: No Single "Source of Truth"

Which types of data are the most common, and which are most valuable for network availability and performance monitoring? Our research findings, shown in Figure 2, indicate that there is no one single data source to satisfy the needs. Further, there is great diversity in approaches. Only log data achieved a majority use level, and then only barely so. Further, the size of the managed network had a strong influence on preferences. For example, while log files are highly relevant across networks of all sizes, management system APIs are most preferred for managing very large networks. Also, smaller networks tend to require less data diversity. EMA recommends network management strategies that take advantage of as many data sources as possible to ensure completeness of visibility and effective issue recognition.
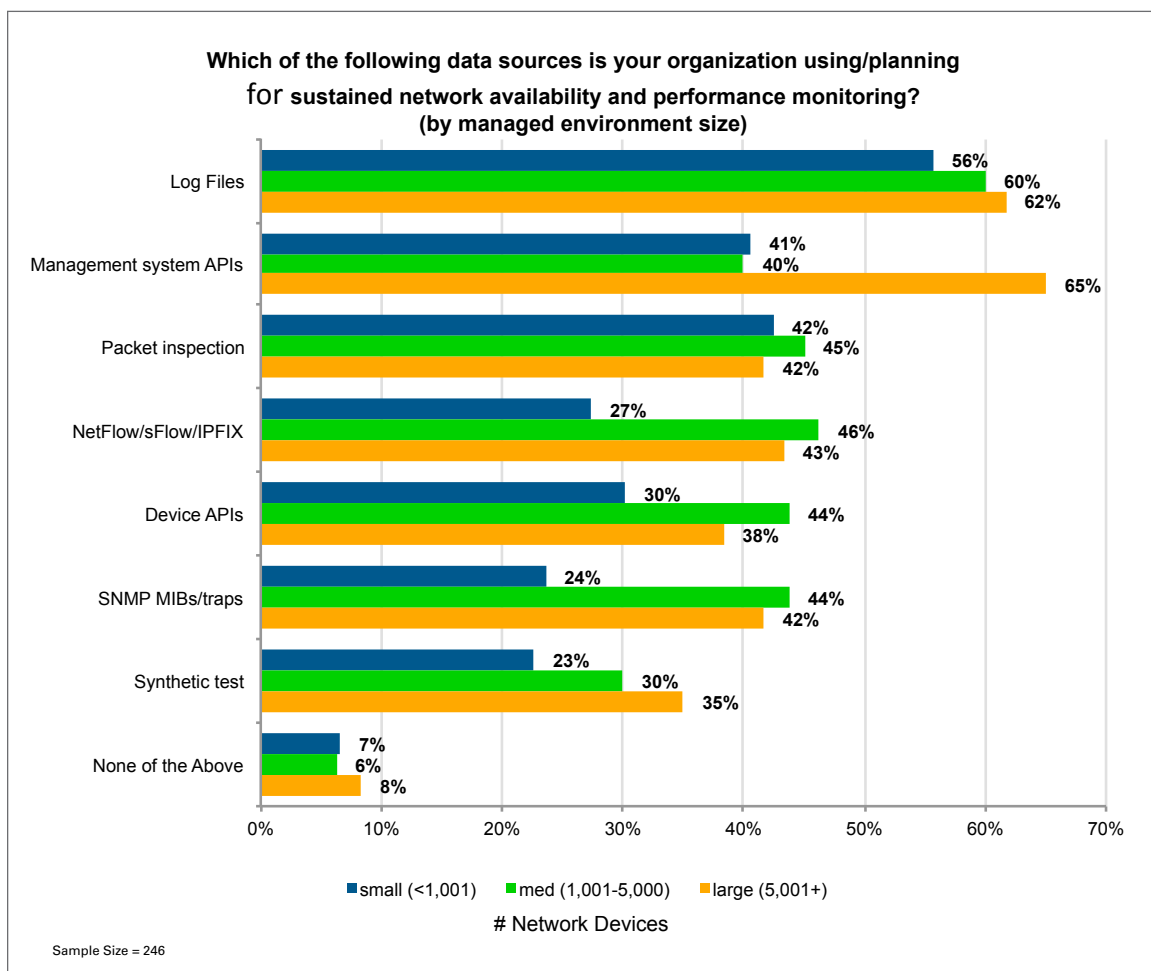


Figure 2. Data sources in use or planned for sustained network availability and performance monitoring

## Finding: Heightened Awareness of What the Network Delivers

As IT organizations change and evolve, so too does the way in which network operations teams see their own priorities shift. EMA found that the majority of network management teams are increasing focus on higher-level objectives beyond simply network availability and performance (see Figure 3). Current top of mind issues are service quality and end user experience—issues that closely support a broader organizational shift toward service orientation. EMA recommends seeking network management solutions that go beyond network-specific metrics and measures to also address service-related measures.
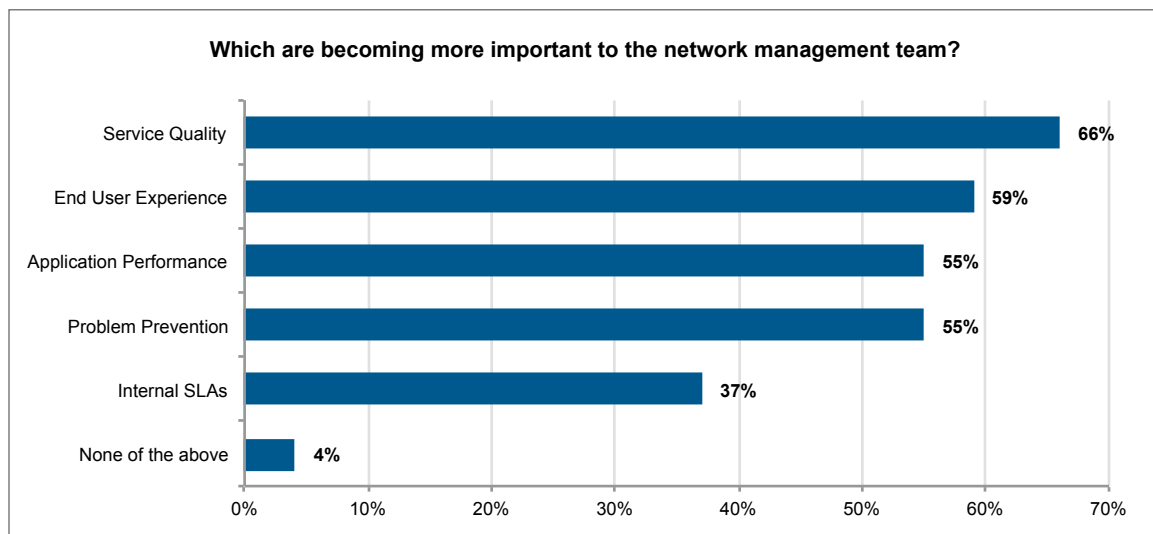
**Which are becoming more important to the network management team?**

- Service Quality: 66%
- End User Experience: 59%
- Application Performance: 55%
- Problem Prevention: 55%
- Internal SLAs: 37%
- None of the above: 4%

Figure 3. Higher-level topics of importance to network managers

## EMA Perspective

New trends and technologies such as cloud, SDN, and big data are driving change across all aspects of IT, and the network is no exception. In fact, reliable and high-performing networks have never been more important, increasing the need for clear visibility and steady controls. EMA recommends that network managers, engineers, and operators seek and embrace a consolidated/reduced set of management solutions that span multiple data sets, adapt to and support new technologies, and provide insights into service-related outcomes.

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## 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 blogs.enterprisemanagement.com. You can also follow EMA on Twitter, Facebook or LinkedIn.

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