
Network and Systems Management in Today's Business: The User's Perspective

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Executive Summary

April 2004

Effectively managing the health and availability of enterprise systems is critical for quickly identifying problems before they result in costly downtime or loss of network availability. Network and systems management can be performed through agents (software installed on managed elements) or without agents, using a simple polling mechanism.

To gain insight into the particular strategies businesses use to perform network and systems management, TechRepublic conducted a survey to identify current practices and the challenges associated with managing enterprise systems. Specifically, we explored the following areas:

- *Current practices and strategies used for network and systems management*
- *Challenges in managing enterprise systems*
- *Key drivers for selecting specific monitoring solutions*

The most compelling findings indicate that:

- Surprisingly few organizations have a network and systems monitoring solution that enables automated and integrated network and systems management across the enterprise. Less than 25 percent of respondents are able to identify problems as they arise and automatically repair them before incurring costly losses of network and systems functioning. Moreover, the majority of those surveyed use a policy-based monitoring strategy, which is oriented more toward damage control than problem prevention.
- The greatest challenges in managing networks and systems are three-fold: the inability to visualize operational status and to identify problems early, the lack of automation of management tasks and not being able to divert resources to more critical operations when problems arise; and the absence of a unified management solution that enables end-to-end performance optimization.
- The principal business drivers behind the decision to adopt centralized, agentless network and systems management solutions include lower maintenance requirements, lower impact on CPU and memory overhead, and shorter deployment times than for monitoring technologies that reside at the device level.

The findings of this study underscore the importance of increasing the efficiency of monitoring network and systems components in order to avoid unnecessary and costly service downtimes. These data also highlight the importance of solutions that reduce the level of maintenance required for network and systems management, and the need for easy-to-deploy solutions that minimize the overall impact on CPU and memory overhead. Further, these results confirm that IT organizations seek monitoring technology that will allow them to automate, unify and integrate the management of enterprise networks and systems across a host of products, platforms and locations.

Introduction

Network and systems management solutions offer a variety of ways to manage the health and availability of systems and network devices. Monitoring the performance and availability of enterprise systems can be performed through agents (software installed on component devices which delivers real-time information without querying the component) or with agentless technology (remote monitoring which delivers information upon querying the component). The absence of early detection of network or system failure and the lack of IT staff to adequately monitor critical resources have emerged as growing concerns for the enterprise. These troubles are compounded by budget shortages, the difficulty in managing decentralized systems, as well as the need to juggle support for multiple business initiatives.

In order to more fully explore the strategies and challenges associated with network and systems management, TechRepublic conducted a survey to identify current practices and concerns associated with managing enterprise systems. Specifically, we investigated:

- Current practices and strategies used for network and systems management
- Challenges in managing enterprise systems
- Key drivers for selecting specific monitoring solutions

The results of the study are highlighted in the following sections.

Research Methodology

A survey invitation was sent to registered TechRepublic members between February 26, 2004 and March 15, 2004. The Web-based survey was designed to explore and identify the key issues surrounding network and systems monitoring and management. The results reported here are based on 651 surveys collected during the study.

Respondent Demographics

Survey respondents were selected from among TechRepublic members who met certain selection criteria, specifically those who:

- Are from a cross-section of industries (for example, manufacturing, healthcare, finance, and government).
- Are affiliated with organizations with 500 employees or more in the U.S. and Canada.
- Are primarily IT and business managers and directors, as well as other technical professionals.

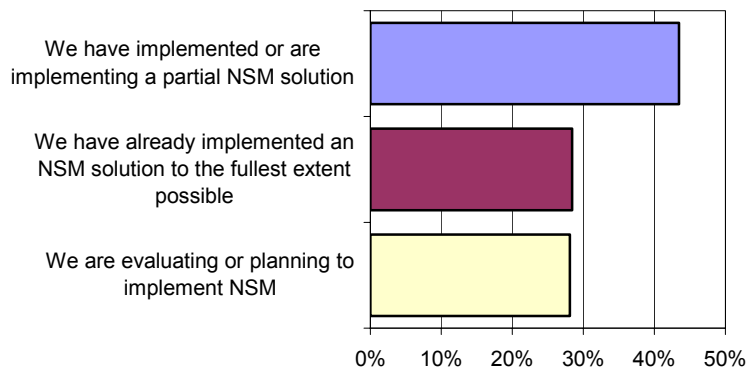
A summary of the sample demographics is provided in the appendix.

Key Findings

Section I: Current practices in network and systems management

This section of the study provides information on how organizations are currently performing network and systems management. We asked participants to describe their organizations' current status with respect to network and systems management. Here's what they told us:

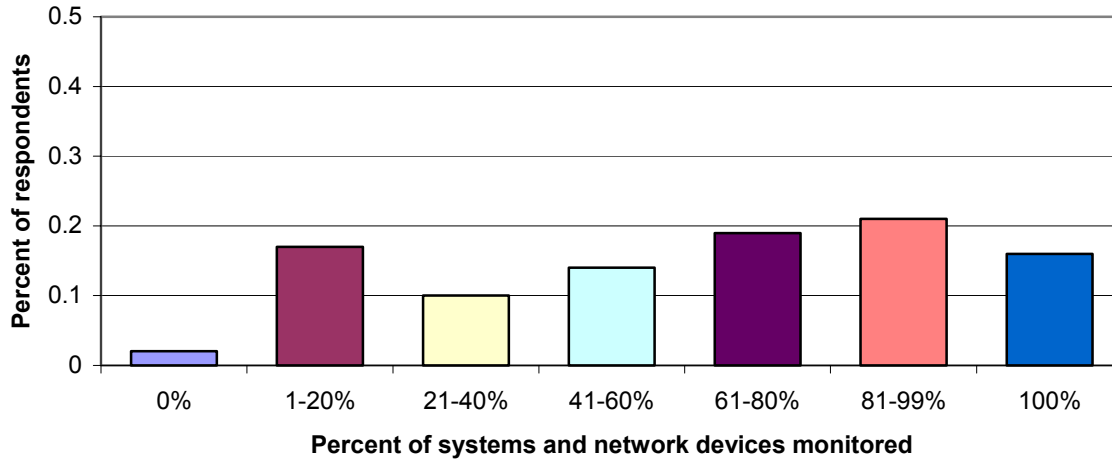
Which best describes your organization's current state of network and systems management?



Nearly 30 percent have already implemented a full network and systems management solution while over 40 percent have either implemented at least a partial network and systems management solution or are in the process of implementing a partial solution. Roughly another 30 percent are either evaluating network and systems management solutions or are already planning to implement one.

We also wanted to learn what percentage of systems and network devices are currently being monitored. These data are shown below.

Using your best estimate, what percentage of your organization's systems and network devices are monitored for health and availability?

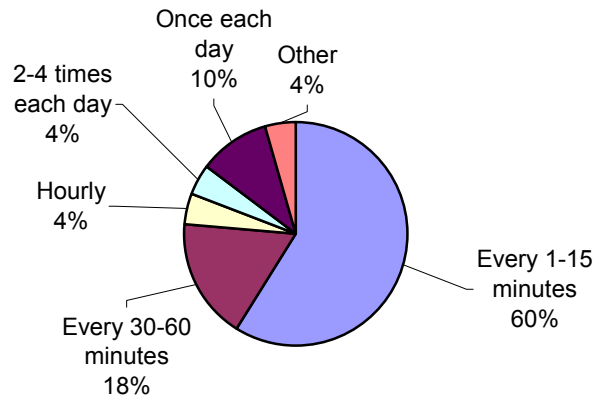


Over one-third of those organizations surveyed monitor most (81-100%) of their systems and network devices, and nearly another third occupy the opposite end of the spectrum, routinely monitoring less than half (40% or less) of their systems and devices for health and availability.

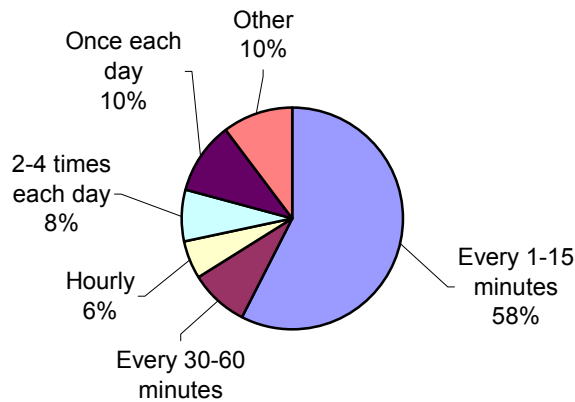
We further inquired about current practices surrounding the polling of enterprise systems and network devices. These data are presented below.

What is your current polling frequency for monitoring your systems and network devices?

Systems Polling Frequency



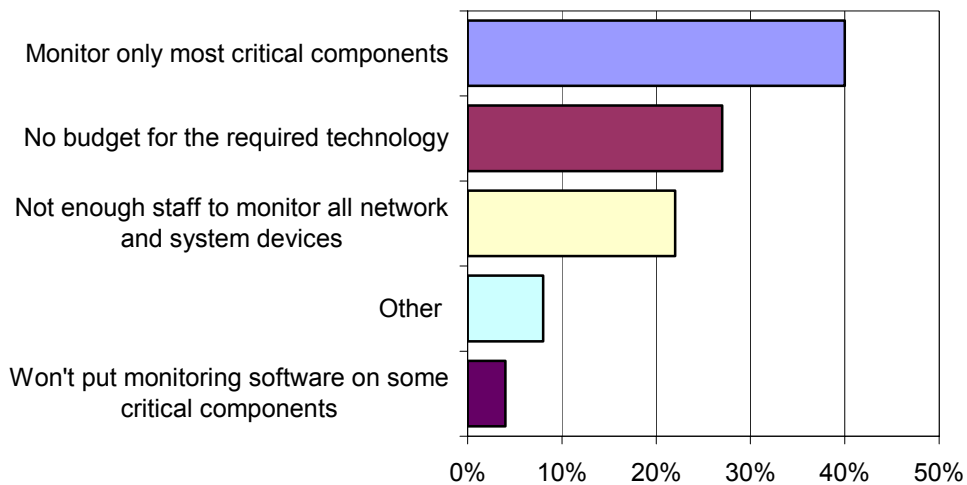
Network Device Polling Frequency



The majority of respondent organizations poll their systems and network devices at least once every 15 minutes (roughly 60 percent). Approximately one-fourth monitor a bit less frequently, polling their systems and devices from 2-4 times each day to every 30-60 minutes. Only 10 percent of organizations poll their systems and network devices only once each day.

As a follow up to the current practices questions, we asked respondents to tell us why they don't monitor all of their network and systems devices. Their responses are shown below.

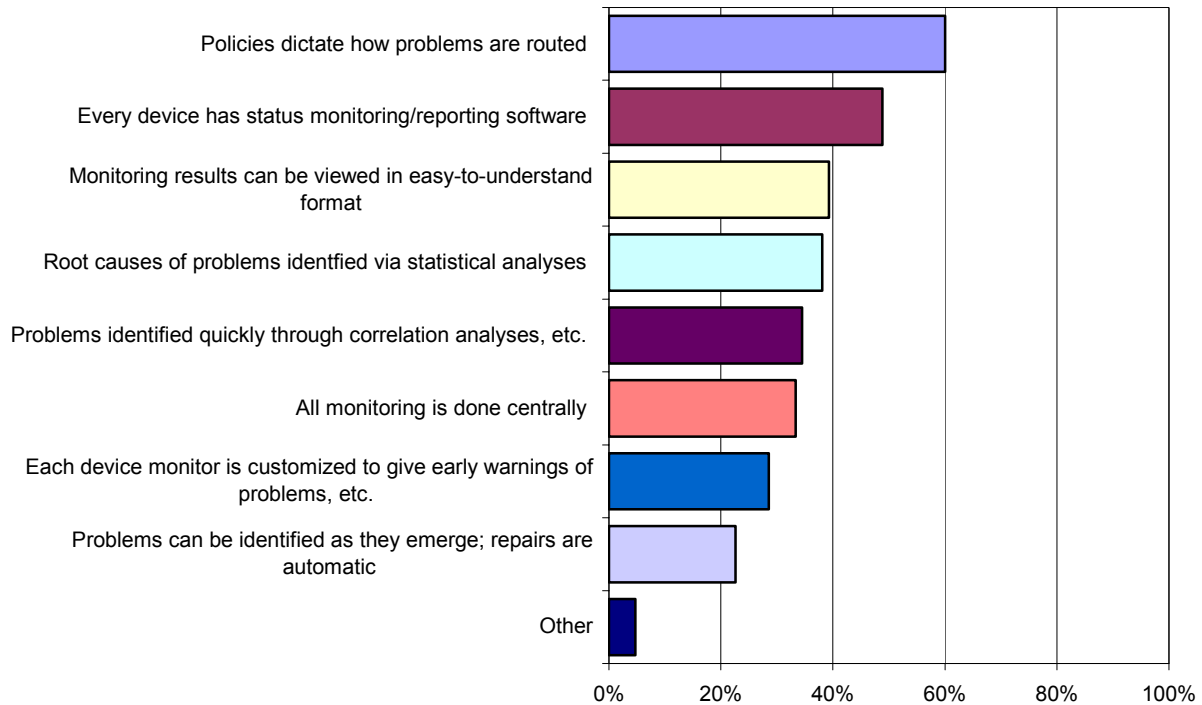
What is the main reason you don't monitor more of your network and system devices for performance and availability?



Collectively, almost 50 percent of respondents indicated their organization doesn't have sufficient resources to adequately monitor their systems and devices. In addition, another 40 percent report they have to limit monitoring to only the most critical components of their systems. Other responses included a combination of budget constraints and lack of clear understanding of what is needed, not enough time to monitor, and decentralized systems that prohibit monitoring more of their organizations' systems and network devices.

We asked participants to identify the particular monitoring technologies or monitoring tool features they use to manage their systems and network devices.

Which technologies or features do you currently use to monitor your systems and network devices?



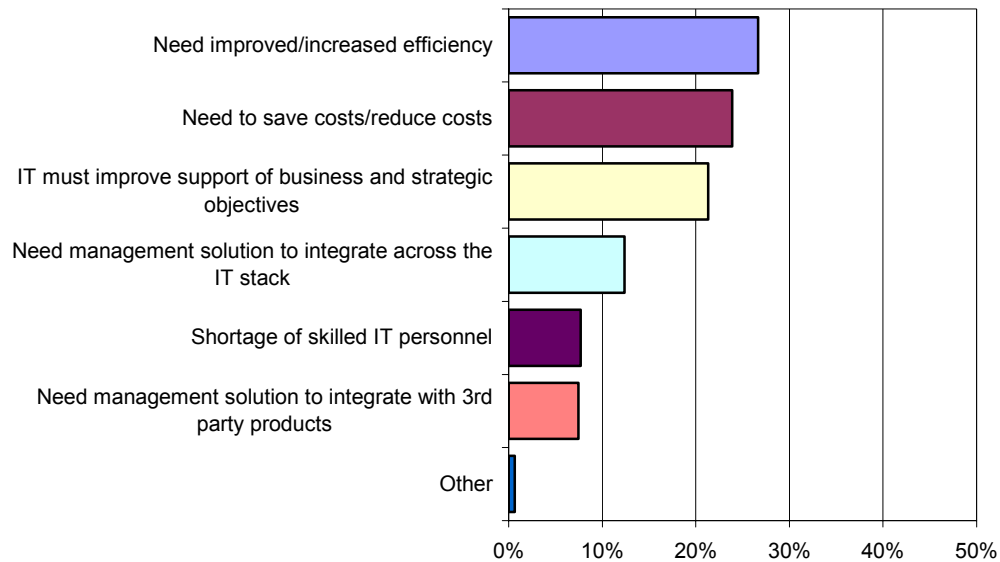
Currently, organizations employ a variety of tools and technologies to manage their networks and systems. These fall into three tiers according to how widely used the tools or technologies are:

- Tier 1—used by 50 percent or more of respondent organizations:
 - Policy-based response
 - Monitoring agents installed on each device
- Tier 2—used by 30 to 40 percent:
 - Easy-to-understand status reports
 - Ability to identify root causes of problems
 - Early identification of potential problems
 - Monitoring is conducted centrally rather than at the device level
- Tier 3—used by less than 30 percent:
 - Monitoring agents are customized at the device level
 - Problems are automatically repaired

Other business drivers include using an alarm system, or a mixture of various tools.

We also thought it important to explore factors that influence decisions to adopt network and systems management solutions. We asked respondents what business drivers are most influential for their organizations' decisions to adopt network and systems management solutions.

*What is the business driver that **most** influences your organization's decision to adopt a network and systems management solution?*

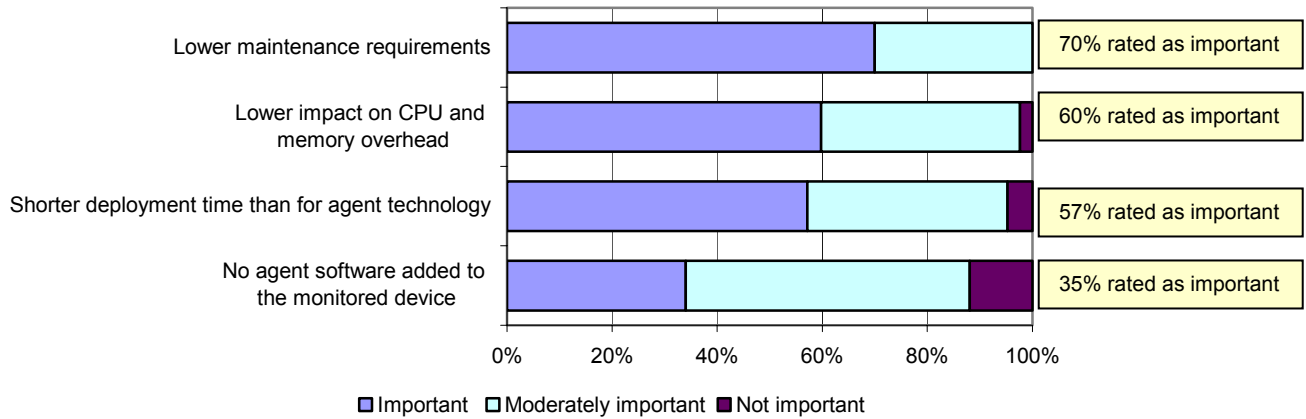


The key business drivers behind decisions to adopt network and systems monitoring management are:

- Need for increased efficiency (27 percent of responses)
- Need to reduce costs (24 percent)
- Improving support of business initiatives and strategic objectives (21 percent)

Finally, we asked study participants to rate a number of criteria in terms of the weight the factors carry in the decisions to use remote or agentless monitoring verse device- or agent-based monitoring. Their ratings are shown below.

Rate each criteria according to how important each are in deciding whether to use agentless monitoring of your systems' health and availability?



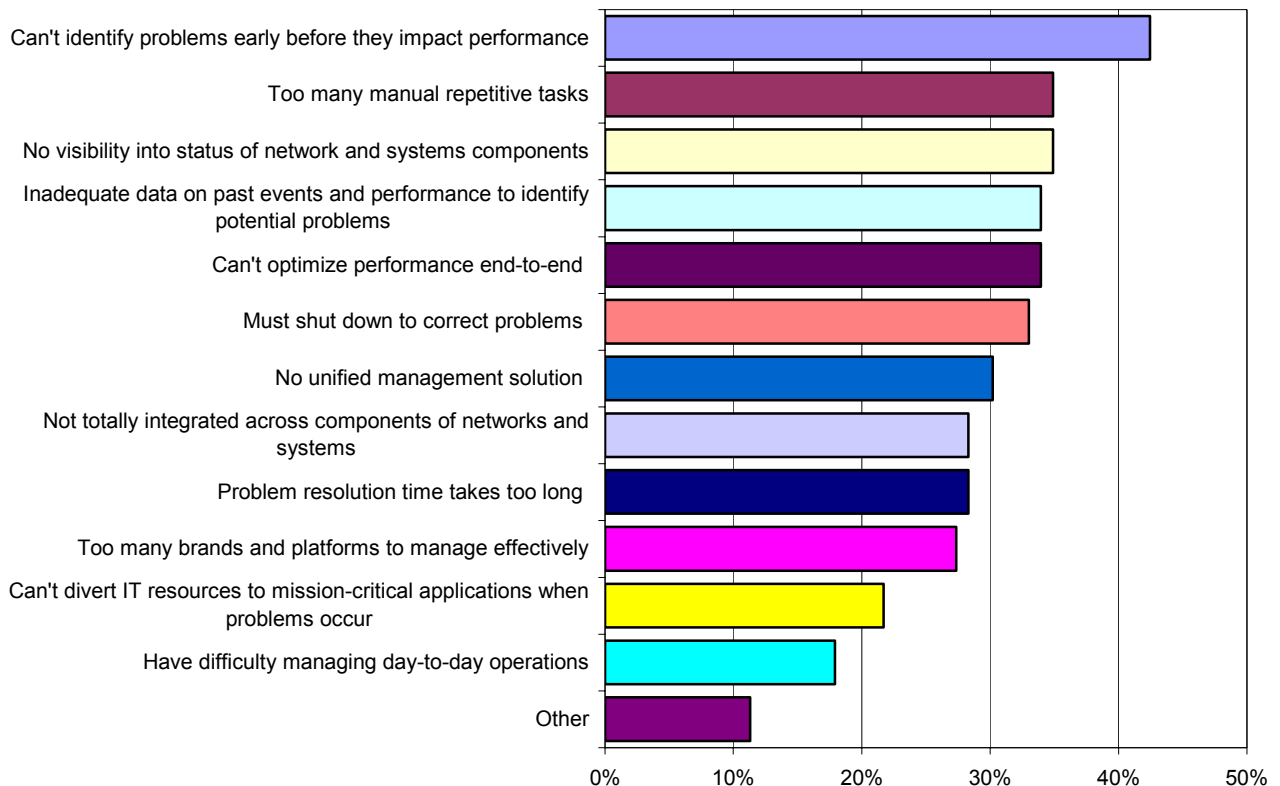
The main criteria that lead respondents to select agentless monitoring solutions are:

- Lower maintenance requirements (70 percent rated as important)
- Lower impact on CPU and memory overhead (60 percent rated as important)
- Shorter deployment time than that for agent-based technology (57 percent rated as important)

Section II: IT challenges

We next examined the challenges that businesses face with network and systems management, which features of network and systems management solutions they find the most valuable, and what network and systems management vendors could do to improve customer satisfaction with their current product offerings. First we present the top business and IT challenges.

Currently, what are the greatest challenges you face in managing your networks and systems?



Respondents could select more than one answer.

The greatest IT and business challenges faced by respondent organizations easily fall into 3 brackets:

- More than 30 percent have no automated or unified management solution, and are unable to track historic problems, can't visualize the current status of their networks and systems, nor identify problems early and have to shut the system down to correct them.
- Twenty to 30 percent suffer from a lack of integration across networks and systems that have too many brands and platforms to manage effectively, resulting in extended problem resolution times and no way to preferentially divert resources to more critical applications in the event of problems.
- Up to 20 percent are having difficulty just managing day-to-day network and systems operations.

Respondents also identified the one feature of their current network and systems management solution they found to be the most valuable to their operations. Overall, they desire products that:

- Can dynamically resolve issues
- Identify problems before they lead to systems downtime
- Monitor utilization of bandwidth

The following table contains a detailed analysis of the most valuable features described by study participants in their open text responses to this question.

Most valued feature	Percentage of Respondents
Early alerts	10%
More monitoring features	8%
Wide range of security features	7%
Remote monitoring capability	6%
More automation of tasks and problem identification/resolution	6%
Easy to use	6%
Visibility into utilization/availability and overall performance	6%
Reporting and trend/correlation analyses	4%
Trained technical support staff	4%
Reduced costs/cost control	2%

The responses that comprise the most valued feature categories in this table represent 59 percent of the open text answers provided by survey participants.

We also asked them to indicate how their current network and systems management vendor could improve their product offerings. They especially prefer having the ability to:

- Increase the amount of artificial intelligence (AI) capability for monitoring past server history
- Rely on AI for suggestions as to how to improve efficiency
- Reduce the amount of staff hours involved in monitoring performance
- Lower the costs of current network and systems monitoring solutions

The table below provides a more detailed analysis of the improvements suggested by the survey respondents.

Suggested improvement	Percentage of Respondents
Better integration across devices/products/platforms	13%
More/faster monitoring tools/features	7%
Better analysis, anticipation and prediction of problems	5%
Reduced costs/cost control	9%
Easy to use	8%
Better service/trained support staff	6%
Better notifications/alerts	3%
More customization	3%
Reliable and timely upgrades/patches	3%

The responses that comprise the suggested improvement categories in this table represent 57 percent of the open text answers provided by survey participants.

Key Insights

This study presents several important insights in the area of network and systems management that will provide invaluable guidance to IT decision-makers as they evaluate their organization's needs. These insights are highlighted below.

Network and systems management today

Clearly, IT management understands the need for network and systems management solutions to keep business processes running smoothly, but current practices are not necessarily state-of-the-art. Our findings reveal that:

- Among organizations that have implemented a network and systems management solution, only 16 percent currently monitor 100% of their network and systems devices.
- Only about 30 percent of respondent organizations have a comprehensive network and systems management solution in place.

Our research also highlights some of the challenges organizations face as they strive for effective network and systems management:

- Nearly half of organizations don't have sufficient resources (budget and staff) to monitor the performance of their networks and devices.
- Forty percent are limited to monitoring only the most critical components, undoubtedly related to resource constraints.

Many IT organizations use a variety of techniques to monitor network and systems performance, while surprisingly few have an automated solution that is integrated across the enterprise. Specifically, our study uncovered two important facts:

1. Around 30 percent of those surveyed have numerous limitations in monitoring their networks and systems, including no ability to visualize the current status of their networks and devices and no way to identify problems early enough to prevent a decline in performance.
2. The majority of organizations (60 percent) continue to rely on policy-based monitoring approaches, which are oriented more toward damage control than preventive maintenance.

This research also identifies the criteria technology decision-makers use most often when evaluating whether to adopt network and systems management solutions. The decision to adopt this technology is based largely on the need to:

- Increase efficiency of current monitoring and the management of networks and device performance.
- Reduce costs associated with network and systems management.
- Improve the support of business initiatives and strategic objectives.

Managing network and systems resources: Key challenges

A clear message is found among these data—technology decision-makers are most concerned with finding a network and systems management solution that allows them to overcome several key challenges. They specifically seek solutions that:

- Identify and prevent problems early.
- Offer a unified management solution that enables end-to-end management of performance.
- Shorten the time required for problem resolution and don't require shutting down the entire system to correct problems.
- Automate management tasks and allow staff to preferentially divert resources to more critical applications when problems materialize.
- Provide visibility into problems.

Network and systems management solutions that offer these capabilities and functionalities will protect businesses from suboptimal performance or costly downtime.

Agentless monitoring: Criteria that drive adoption

This study also revealed the principal criteria that are used when technology decision-makers consider whether to adopt remote, agentless monitoring solutions. These criteria can serve as a useful guide for those decision-makers who are contemplating the adoption of these solutions. Specifically, the key business and technical drivers behind these technology decisions include:

- Lowering maintenance requirements (rated important by 70 percent of respondents).
- Lowering impact on CPU and memory overhead (endorsed as important by 60 percent).
- Shorter deployment time for agentless technology compared to agent-based technology (deemed important by 57 percent).
- No additional agent software requirements (considered important by 35 percent).

In summary, this study demonstrates that while a variety of strategies and technologies are used to currently meet network and systems management needs, many of these strategies are not resulting in optimal solutions. Our data suggest that businesses seek solutions that allow for automated and integrated network and systems management across the entire enterprise, and technologies that will allow them to identify problems early—well before they result in costly loss of service or substantial interruptions in network and systems availability.

Appendix

The following tables contain the breakdown of the respondents by key demographics: organization size, job role, primary industry, and geographic location.

Organizational Size

Number of employees (all locations combined)	Percentage of respondents
500 – 999	20%
1,000 – 4,999	36%
5,000 – 9,999	14%
10,000 or more	30%

Primary Job Role

Job role	Percentage of respondents
Technical service and support	22%
IT director and manager	20%
Business management	15%
IT executive	14%
Network or systems technologist	13%
Other technical professionals	11%
Developer	5%

Primary industry

Industry category	Percentage of respondents
Government (Federal, State, local, including military)	19%
Education (colleges and universities)	12%
Manufacturing	11%
Business services (computer-related)	9%
Health care, life sciences, and pharmaceutical	9%
Retail	8%
Service provider (Web hosting, data, ASP, etc.)	8%
Finance, banking, and accounting	6%
Business services (noncomputer-related)	5%
Telecommunication and utilities	5%
Transportation, logistics	4%
Technical/Basic R&D	2%
Other	2%

Geographic location

Region	Percentage of respondents
United States	98%
Canada	2%

CNET Network's TechRepublic Community Research Programs

CNET Networks TechRepublic Community Research team conducts surveys of the CNET and TechRepublic membership on a project basis. Projects are funded by CNET Networks and in some cases by vendors who have particular interests in topical areas. In cases where the project has been sponsored by a third party, the Community Research team leads the effort in developing survey questions and has final approval of all questions. The Community Research team conducts all analyses and writes the final report that is subject to CNET Networks' editorial review. Funding for this project was provided by Computer Associates International, Inc. If you have a topic of interest for either editorial or sponsored research, please e-mail us at research@techrepublic.com.