

WHITE PAPER

Application Performance is Business Performance. Is Your Network Ready?

Survey Report on Challenges and Opportunities



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Executive Summary

For the teams tasked with managing network performance, the job at hand continues to grow more important to the business, and more challenging. More applications continue to come online, and compete for network resources. It grows increasingly vital, yet difficult, to parse which applications are running on the network, and even harder to ensure that the highest priority applications continue to perform optimally. This paper draws on a market survey to provide a current look at network performance management, outlining network teams' current approaches, challenges and opportunities. In addition, the paper offers a look at some of the key strategies that need to be employed to contend with today's realities.

Introduction: The Context

Now more than ever, there's a lot riding on the performance of the network. If outages or poorly allocated network resources should compromise the performance of vital business services—whether those associated with e-commerce, VoIP, or a number of other critical applications—even brief outages can have long-lasting repercussions.

Managing networks to ensure that critical applications perform optimally is vital, but it is also increasingly difficult. At any given point, an increasingly large number and diverse range of applications may be traversing the corporate network.

While traditional network management approaches enable administrators to track and manage performance by basic protocol and port information, those tactics aren't sufficient today. Given so many different applications share common ports, administrators can't gain detailed visibility into the specific applications going through the network, how they are performing and so on.

To examine how IT teams are contending with these challenges, CA Technologies recently commissioned a market survey. This paper offers a high level review of the findings. In addition, the paper then follows up by offering insights for how IT teams can address some of the most pressing challenges and priorities the survey uncovers.

The Priorities

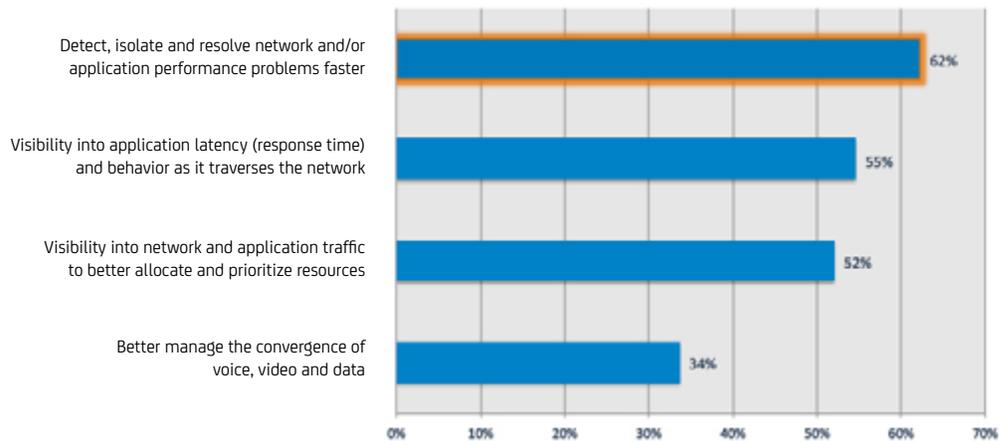
Survey respondents were asked about their top-rated objectives in network performance management, and it appears many have several priorities: Three categories received a 50% response rate or higher. Following are the responses for each of these categories:

- 62% want to detect, isolate and resolve network or application performance problems faster.
- 55% would like to improve visibility into application latency and behavior as it traverses network.
- 52% need to gain better visibility into network and application traffic so they can more effectively allocate and prioritize resources.

Figure A.

Solving network and application performance problems faster is the top priority in network management.

In what areas would you like to improve your current network performance management?



The Challenges

What's keeping respondents from meeting their top objectives? Respondents were also queried on the challenges they're wrestling with. Following are a few of the top themes the survey uncovered:

- **Lacking the application-level visibility required.** For the majority of respondents, it is difficult to determine which applications are running on the network and how they are performing, and, not surprisingly, it is difficult to ensure they perform optimally. When asked about the challenges they were currently experiencing in managing their network infrastructures, the highest rated category was “visibility into application response time”, which received a 69% response rate. Further, ensuring optimal application performance was the second highest rated challenge, receiving a response rate of 61%. Not coincidentally, many are struggling with insufficient capabilities for tracking application traffic: 28% of respondents indicated that their capabilities for application identification and mapping were inadequate.
- **Struggling with voice and video.** For a significant percentage of respondents, real-time applications like voice and video over IP are exacerbating the challenges of managing networks, and prompting future investment. Managing voice over IP was cited as a challenge by 39% of respondents, and a similar portion, 37%, listed video over IP as a challenge. In addition, more than half, 52%, said they would be likely to invest in quality of experience monitoring for voice and video.

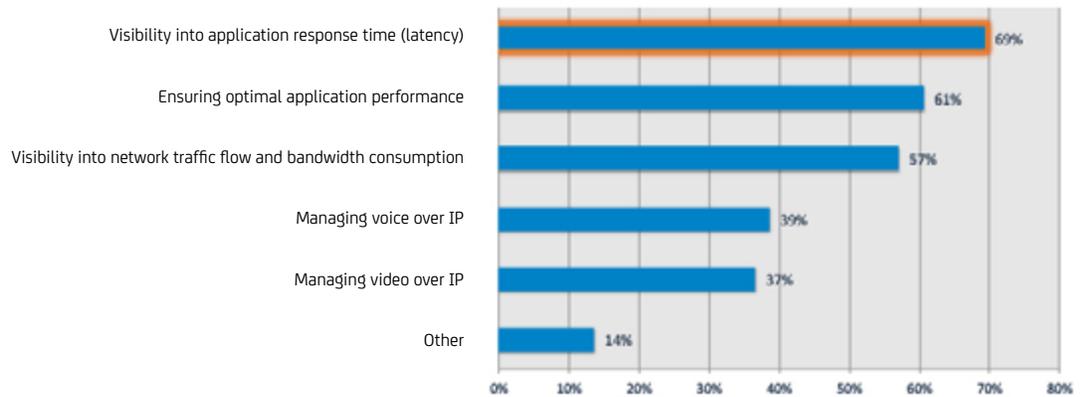
- **Contending with poor network visibility.** Gaining a comprehensive vantage point for tracking the network continues to be a challenge for many. For 57% of respondents, the top challenge was gaining visibility into network traffic flow and bandwidth consumption. In addition, a significant percentage of respondents lack the insights they need to identify the source of network performance issues. For example, almost one-third, 29%, say their ability to “understand the who, what and where of network congestion” is inadequate.
- **Battling inefficiency and insufficient automation.** The reality for many respondents is that they continue to find themselves operating in a reactive, “fire-fighting” mode. When respondents were asked about their ability to automate investigation into performance issues, 37% say their capabilities were inadequate, and only 7% say they were superior. Further, 28% say their anomaly detection and alerting capabilities are inadequate. Fundamentally, these respondents can’t automate investigation and identification of the anomalies that warn of issues before hand, so they only discover issues after the fact.

In the following section, we’ll examine how a new approach can help organizations address many of these challenges.

Figure B.

69% experience challenges with sufficient visibility into application response time.

What challenges are you experiencing in managing your network infrastructure?



The Opportunity: Application-driven Network Performance Management

Given the demands and challenges confronting today’s network teams, it is growing increasingly clear that a new category of capabilities is required. In this context, application-driven network performance management (ANPM) is emerging as a critical demand. With ANPM, administrators can realize the following objectives:

- **Focus your efforts and network resources on optimizing the performance of business-critical applications.** With a robust ANPM platform, you gain enhanced visibility into how application traffic and behavior affects end-user experience. Administrators can make decisions regarding network resource allocation and prioritization in order to advance targeted business objectives.
- **Detect, isolate and resolve performance problems faster.** ANPM helps you detect anomalous patterns and behavior on the network, quickly determine the problem domain so the right team can be engaged, collect the additional details needed to determine root cause and resolve performance problems before they affect the end-user experience.
- **Optimize existing network resources and effectively plan for application rollouts.** With strong ANPM capabilities, infrastructure managers can gain visibility into network capacity utilization, trending patterns and real-time and historical perspectives in order to make informed, cost-effective and business-aligned investments.

To realize these objectives, ANPM implementations need to deliver the following key capabilities:

Enhanced Application Visibility and Control

One fundamental challenge the survey reveals is the lack of application visibility for many respondents. Manually identifying applications by port number is very inefficient, and fails to provide sufficient visibility. Now, network teams can take advantage of network equipment-enabled capabilities to gain enhanced visibility. For example, Cisco's NBAR2 standard enables automatic identification of more than 1,000 applications. By leveraging these capabilities, your administrators can get a snapshot of applications traversing a given interface, along with traffic rate and volume.

By using network monitoring that simplifies application identification and mapping, your administrators can start to gain the capabilities they need to do more intelligent traffic routing and network capacity management. As a result, they can more effectively control and optimize the user experience. For example, this makes it possible for your IT team to set per-application policy controls, such as limiting traffic rates for consumer-focused applications like Netflix, Pandora and iTunes, or guaranteeing bandwidth for business applications like WebEx, Office 365 and SharePoint.

The network is often the first target of blame when application performance degrades. While traditional application performance monitoring tools provide highly detailed information, including visibility into actual application code, they were not designed to provide an overview of performance from a network perspective.

To further enhance application visibility, an effective ANPM platform must enable detailed tracking and analysis of application response time metrics, which the survey shows many are currently lacking. Through this visibility, administrators can get the insights they need to track performance from the end-user's perspective, which is a critical first step in optimizing the end-user experience. With these capabilities, you can isolate performance bottlenecks and verify the performance of applications delivered over the network. To realize maximum deployment and administration efficiency, look for an ANPM platform that provides end-to-end application response time measurements, without relying on synthetic tests, probes or agents.

Common Dashboard and Reporting

It is by centralizing performance monitoring and management efforts on a single console that your IT teams can most fully reap the benefits of ANPM. To do so, IT teams need to gain unified coverage that provides one place to view fault, availability and performance views of your infrastructure. Further, platforms should provide flexible reporting and dashboards that can be customized to the specific needs of various roles and teams and provide intelligent, guided workflows that help speed problem resolution.

Anomaly Detection and Automation

Sometimes, even seemingly minor infrastructure and configuration changes can have significant performance implications. The sooner administrators can identify when these changes are threatening to hurt network performance, the faster they'll be able to address any issues and either prevent them from having an impact on users, or minimize that impact.

It is for these reasons that anomaly detection is so vital today, representing an essential underpinning mechanism for ANPM that can help your team take a more proactive approach to managing network performance. Administrators need to be able to leverage historical benchmarks to establish customary network performance, traffic composition and traffic volumes, and then gain automated alerts when anomalous behavior occurs. This is particularly critical for the many organizations battling increasingly sophisticated cyber attacks. Sudden spikes in traffic can be a sign of malicious activity, and if those fluctuations aren't detected immediately, the consequences can be significant.

Look for platforms that can go beyond one or two common traffic patterns and harness network flow data, SNMP data, TCP application performance information and more. Optimal ANPM implementations will also leverage continuous monitoring to verify availability and performance status, and to dynamically adapt the network profile to sustain currency and accuracy. In addition, ANPM platforms should offer diagnostics that can be accessed on demand and run automatically when issues arise.

Actionable Insights

To provide maximum utility, ANPM platforms should provide capabilities for analyzing performance data within the context of network, server and application components. These capabilities enable fast identification of issues and faster, more intelligent follow up when issues arise. In addition, to further aid in remediation efforts, look for platforms that offer simple workflows for identifying, verifying and escalating issues.

Capabilities for Resource Planning

One of the major opportunities ANPM affords is the ability to more effectively understand and prepare for changing resource requirements. To capitalize on this opportunity, look for a platform that offers capabilities for customizing calculations in order to track trends surrounding applications, locations and bandwidth. It is also important to fully leverage significant amounts of historical data to gain a more complete picture of your infrastructure's traffic patterns and behaviors.

The Benefits of ANPM

By leveraging robust ANPM capabilities, organizations can address many of the challenges detailed in our survey. With ANPM, your administrators can gain the visibility and intelligence they need to understand the network within the context of applications and services running on the network. These solutions provide the visibility you need to efficiently manage complex, demanding enterprise networks. With these capabilities, your organization can realize a range of benefits:

- **Boost service levels.** ANPM platforms can deliver the immediate alerts, fast insights and intuitive workflows needed to reduce downtime and performance issues. By leveraging powerful dashboards and reports, administrators can quickly drill down to get the details they need to do root-cause analysis, so they can identify the source of issues—and address them—more quickly.
- **Better manage costs and resources.** ANPM solutions enable your network teams to make proactive, data-driven decisions regarding network capacity, quality-of-service policies, infrastructure investments and planned application and service rollouts. With powerful ANPM capabilities, your organization can better understand, predict and meet changing resource demands. These platforms also provide the insights you need to make more informed investment decisions and plans to address evolving technical and business requirements.
- **Deliver more business value.** With ANPM solutions, your managers can start making decisions based on rich data, rather than guesswork. With this information, your administrators can better prioritize resource allocation for services with the highest business impact. In addition, your teams can be both more responsive and more proactive, and eliminate the subjective guesswork and finger pointing that have historically plagued IT teams. By managing networks with a focus on optimizing applications and business services, your IT team can get out of reactive firefighting mode, and elevate the dialog with business leadership and users to focus on proactive planning, decision making and cost management. Further, these solutions can help guide investments, so managers focus on the new capabilities that deliver maximum business impact.

About the Survey

In early 2014, CA Technologies commissioned Gatepoint Research to conduct a survey on the topic of application-driven network performance strategies. More than 200 executives participated. The survey was focused on polling respondents from large enterprises who were responsible for network administration. 78% of respondents were from organizations that had annual revenues of greater than \$1.5 billion and 90% of respondents were network engineers and managers.

About ANPM Solutions from CA Technologies

CA Technologies offers a set of solutions that enable application-driven network performance management. These solutions deliver comprehensive, centralized views of all the metrics and measurements needed to understand, manage and optimize performance of critical applications running on the network.

CA Technologies delivers several robust products, including CA Network Flow Analysis, CA Unified Communications Monitor and CA Application Delivery Analysis, which can be used in tandem or individually, to address a range of technological and business imperatives. Through these integrated solutions, your organization can leverage a unified view of all the metrics being gathered, including application response times, network flow data, resource capacity, voice and video quality of service and more. Further, these offerings feature the open standards support that enables them to be effectively integrated with a range of third-party and custom IT management tools.

For more information, be sure to visit the [CA Technologies ANPM page](#).



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