

Enterprise networks today are dynamic as organizations increasingly rely on hosted applications, a more distributed workforce, and high-bandwidth, low-latency connections. Enterprises are also realizing they need advanced management tools to help securely and efficiently manage modern enterprise networks.

Using Cloud-Based, AI-Driven Management to Improve Network Operations

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Introduction

Organizations are facing a variety of challenges as they continue to execute their digital transformation (DX) initiatives. There is an ongoing need to maintain and grow existing businesses while innovating rapidly to support future growth and expansion. The network is a critical enabler of these transformational efforts, and enterprises and service providers are increasingly looking to advanced network management platforms that integrate AI capabilities to accelerate their DX strategies.

A variety of trends are coalescing to create a dynamic time in enterprise networking. First, enterprises are relying more heavily on cloud-based applications. While the enterprise campus may be less dense for now, as workers return to the office, the amount of high-bandwidth traffic on the network is expected to increase. Workers will continue to rely heavily on voice and video collaboration platforms to support in-office and remote workers. CIOs are focused on delivering business outcomes and improved experiences for demanding internal and external customers.

The network is the connectivity fabric that connects users and devices to the increasingly distributed applications they rely on — those hosted internally and externally. As enterprises support hybrid work environments, the network is, again, the fabric that extends the enterprise IT to wherever the edge of the modern network and workloads reside.

Network infrastructure remains a critical element of maximizing business and IT capabilities across the enterprise. One key to a successful network is having access to advanced AI platforms that can securely and efficiently manage the network. Recent advancements in the use of AI-enhanced network automation — particularly for proactive insights, assisted operations, and support functions — have proven to be critical enablers of DX initiatives, and they should be adopted if the company expects to stay on the leading edge of transformation.

AT A GLANCE

KEY STAT

68% of enterprises use proactive, preventive, and/or predictive support technologies to help identify potential problems before they affect critical systems.

WHAT'S IMPORTANT

Organizations that reported using advanced AI-driven support technologies estimated preventing an average of 201 downtime hours per year.

KEY TAKEAWAYS

AIOps is one way to reduce complexity by automating certain operational tasks and limiting the time to locate and determine "needle in the haystack" problems that generally consume precious time from IT teams.

Network Complexity Continues to Increase, Complicating IT Operations

Enterprise networks today are incredibly complex. Organizations are looking to more cohesively manage disparate parts of their network, from the enterprise campus (LAN and WLAN) and branch (SD-WAN) to the edge of the enterprise network, made up of increasingly distributed users and devices accessing applications hosted in multiple clouds. Meanwhile, the number of mobile and Internet of Things (IoT) devices continues to soar. IDC forecasts that by 2025, there will be 12 billion non-IoT devices and another 39 billion IoT devices in the world. Enabling a secure and highly performant network across multiple domains with a growing number of users and devices accessing higher-bandwidth applications that are increasingly distributed requires that organizations have advanced management platforms.

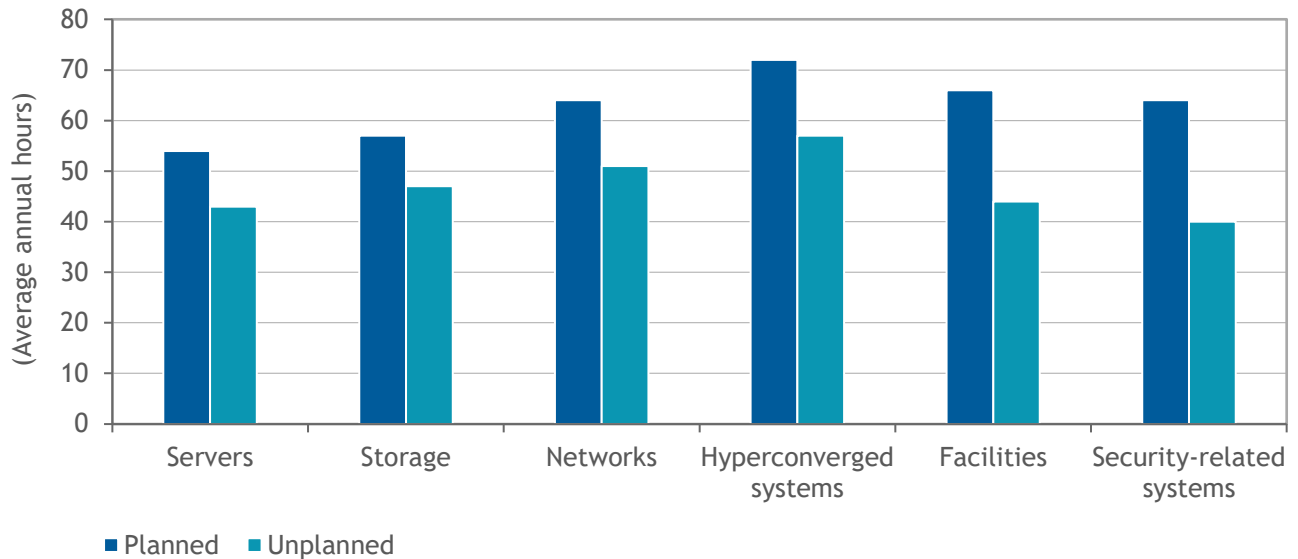
Improving network operations and maintaining business continuity across disparate IT environments of on-premises and cloud solutions are key priorities for many CIOs. Network and security must come together too: Security must be built into network architecture design from the ground up, not bolted on. Resilient network infrastructure and streamlined networking operations remain key strategic imperatives to achieving desired business outcomes. Although some are skeptical, adopting AI to help automate ongoing support and management of the network environment is critical to getting the most out of the network and network resources. AIOps can improve operational efficiency, freeing IT staff and partners to focus on business-enabling tasks rather than the nondifferentiated day-to-day operations of the network. IDC has also found that using a managed network services provider is an alternative to the DIY approach, allowing enterprises to shift management and operations to a partner well versed in reducing this complexity. According to a recent IDC study of companies that contract with providers, 40% said that they use them to help tackle the challenge of increasing resolution time. More importantly, 47% said they use these contracts to "improve hardware performance and overall satisfaction with the device." Most of these service providers rely heavily on AI automation to streamline their internal operations, enabling them to support many clients.

CIOs and IT Organizations Look to Technology and Service Providers for Help

To improve network performance and ensure resiliency across the IT environment, even the most skeptical CIOs and IT managers are employing a robust practice of AI-enabled tools, utilities, and processes — paired with relevant metrics to track and ensure IT service delivery. While most IT organizations monitor a wide variety of metrics, high availability remains a key measure of overall network performance. In IDC's recent *Cost of Downtime and the Value of Support Contracts Survey*, respondents indicated that downtime is critically important to their enterprise — reporting measurable impacts on finances, productivity, and employees when unplanned downtime occurred. Respondents also reported that despite advanced technologies for monitoring and notifications to improve operations, enterprises continue to see unplanned downtime across their systems (see Figure 1).

FIGURE 1: **Average Annual Hours of Planned and Unplanned Downtime***Annual downtime hours by datacenter asset*

Q In a typical year, how many hours of planned and unplanned downtime does your organization experience across the following factors?



n = 615

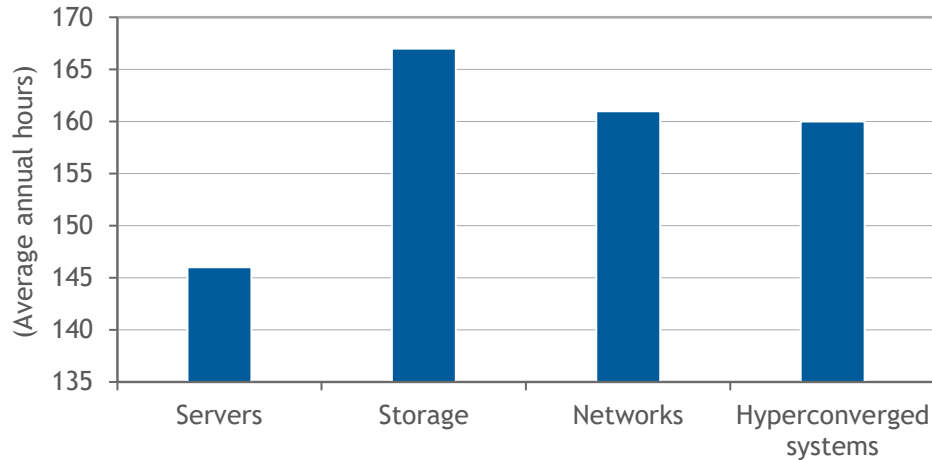
Source: IDC's Cost of Downtime and the Value of Support Contracts Survey, 2020

IDC notes that survey respondents reported fewer hours of unplanned downtime than planned downtime across all technologies, an indication that targeted efforts to reduce unplanned downtime can help. One of the key capabilities for reducing unplanned downtime is proper management of planned downtime, and prioritizing systems that support business-critical processes is imperative. In addition, over 50% of survey respondents reported decreases in the amount of downtime over the past two years — underscoring that organizations relying on IT systems to drive critical business processes also understand the importance of improved IT.

IDC research finds that enterprises often look to support providers when faced with operational challenges in the IT environment, and IDC's *Cost of Downtime and the Value of Support Contracts Survey* confirms these results. The majority of respondents reported purchasing support contracts for the systems in their IT environments, ranging from low-level support agreements to highly detailed customer contracts for specific system configurations. Respondents credited these support agreements with helping them realize considerable value in the form of fewer downtime hours across key elements in their datacenter (see Figure 2).

FIGURE 2: **Value of Support Contracts***Hours of downtime saved per year due to support contracts across datacenter assets*

Q By having these support contracts on your system, in a typical year, how many hours of downtime do you think were prevented?



n = 615

Source: IDC's Cost of Downtime and the Value of Support Contracts Survey, 2020

In addition, 68% of survey respondents indicated their organizations are using more AIOps models that include proactive, preventive, and/or predictive support technologies to help identify potential problems before they affect critical systems. Notably, organizations that reported using more AIOps-based technologies and methodologies estimated preventing an average of 201 downtime hours per year — most commonly across servers, storage, networks, and security systems. Organizations that are using preventive support are more likely to report fewer downtime hours overall; therefore, 47% of respondents expect to purchase more advanced support contracts to provide additional services and improve system performance and availability.

The Power of Cloud-Based, AI-Enhanced Network Management and Support

As enterprises look to manage multiple domains of their network more cohesively (edge, core, campus, datacenter network), they need a centralized platform that can extend to all these points in the network. Modern cloud-based platforms provide this extensibility while enabling a variety of other advantages, including:

- » **Scalability and performance.** As enterprises and service providers need to manage additional sites, the cloud-based platform provides easy scalability with high performance, especially in contrast to an on-premises management platform that may require additional provisioned capacity to support.
- » **Location and identification services.** A critical aspect of infrastructure is asset management; providing up-to-date information on the location and status of equipment is still an issue in most companies. Enabling intelligence within the device to proactively provide information about itself is of tremendous value to IT.

- » **Agility to enable rapid access to new features/functions.** Cloud-based management platforms have the added benefit of being constantly updated by the networking vendor. In this way, customers get access to the latest features and functions of the cloud-based platform as soon as they are available, as opposed to having to download or update an on-premises management system.
- » **The use of artificial intelligence (AI) and machine learning (ML) to proactively identify and remediate problems, optimize the network, and automate support.** The use of these advanced management features allows the cloud-based platform to manage the network more efficiently in order to fix problems before they impact users and ensure high service levels.

As the scale of the enterprise network grows, relying on advanced AI/ML and the automation it enables becomes a critical way to efficiently manage the network. Key advantages of enhanced automation include:

- » **Baseline monitoring.** An AI system dynamically understands what the baselines are for normal and abnormal behavior, and automatic alerts are sent when there is a performance issue or a security issue.
- » **Reduction in mean time to resolution (MTTR).** An AI-driven system can automatically determine what steps need to be taken to resolve an issue and either recommend those steps or automatically implement them, enabling a reduction in incident MTTR.
- » **Automated support.** AI can be used to notify customers and partners proactively when issues arise and generate a ticket in both customers' systems and vendors' systems, which will significantly expedite problem resolution. If the issue persists and live support is required, the trouble ticket is automatically routed to the appropriate technical support experts along with the data required to investigate and resolve. This automated process can extend to generating a return merchandise authorization (RMA) to scheduling an engineer to go onsite.

CIOs and IT managers looking to improve operations in complex IT environments are increasingly relying on support providers for help. For IT organizations looking to improve network operations through support, IDC recommends considering technology providers that can demonstrate the following:

- » Dedicated engineering teams to continue expanding network automation technologies and capabilities, particularly for support
- » Robust predictive and preventive support tools to help customers adopt more proactive support capabilities to improve network performance
- » Support functionality that can use ongoing operational data, such as telemetry and protected data collection, to continually optimize network operations
- » Multiple channels for support contact and delivery
- » Access to technology experts to answer questions quickly when problems occur
- » Modern, updated online portals with intuitive user interfaces that can accelerate self-help and self-healing adoption for network infrastructure

IDC also recommends looking for technology providers that offer a platform enabling service providers to easily, and through open APIs, use these same advanced technologies to optimize delivery and simplify operations for their turnkey managed service offerings. Vendors that can offer comprehensive coverage through integrated, seamless support are well positioned to serve the needs of the modern datacenter.

Considering Juniper, Driven by Mist, AI for Operations and Support

Juniper Networks' Mist is a cloud-based, AI-driven advanced network management platform. It has been built on a cloud-native, multicloud-homed (i.e., on AWS and GCP), microservices-based architecture with API-based programmability. The Juniper Mist platform provides proactive network insights and automates day 0 (planning), day 1 (deployment), and day n (ongoing management) operations. The Juniper Mist platform extends across multiple points in the network, from the enterprise campus (wired and wireless LAN) to the network edge (routing and SD-WAN) and multiple cloud platforms.

These AI capabilities combined with support resources can help enterprises increase critical network availability and reduce downtime across Wi-Fi, wired, and WAN using native assurance tools, available in the form of SaaS. The Marvis Virtual Network Assistant (VNA) uses natural language processing (NLP) and offers a conversational interface assistant to enable network managers to ask general questions on documentation and get real-time guided remediation of how to fix the issues.

Challenges

While Juniper has significant opportunities to increase utilization of the Juniper Mist AI support features, the company will also face some challenges in the dynamic and competitive market of software support. As complexity in network operations continues to grow, CIOs and IT organizations will expect support providers to stay ahead of the technology curve in capabilities and service delivery. IDC believes Juniper will need to continue its investments to help grow adoption and full utilization of the Mist AI support features, in terms of both back-end tools that can integrate across technology solutions and direct, hands-on resources that are necessary to help customers when problems occur.

In addition, IDC expects that Juniper will have to continue maintaining and improving service delivery when customers reach out directly for support, whether in the form of simple usage questions or complex network operations problems. While the extensive use of AI and automation offers many significant operational advantages, these efforts must be combined with exceptional service when customers reach out directly for assistance. As support becomes more predictive, preventive, and automated, the importance of each interaction when customers contact Juniper directly increases substantially. Continuing to deliver a high-quality customer experience on demand is critical to helping customers achieve the desired business outcomes from their technology purchases and improving the overall customer experience with Juniper technologies and solutions.

Conclusion

As enterprises plan for their digital transformation initiatives, the increasingly complex mix of technology solutions required to meet the needs of business users will only complicate IT operations. As more CIOs and IT managers look to AI and automation to improve IT resiliency and optimize the network, they will need service providers that can help them take full advantage of these technologies and make significant contributions to network operations. IDC expects that support providers with comprehensive advanced AIOps tools that can deliver robust preventive and predictive support will be well positioned to help IT organizations deliver ongoing value to the business.

About the Analysts

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