How AI expectations can overcome enterprise network hurdles

Foundry research shows that IT leaders have high AI aspirations, but their approach is key to delivering results.

CIO

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ARTIFICIAL INTELLIGENCE (AI) may well hold the key to a long-standing struggle for networking groups: freeing up time for strategic initiatives while providing a superior experience for end users. But it depends on IT groups getting AI right when it comes to networking, and that requires an "AI-Native" approach to enterprise networking.

IT leaders believe that AI can deliver a transformational impact on their networks, holding benefits for employees and customers alike, a recent Foundry survey found. And most respondents expressed confidence that they understand the benefits AI brings to networking.

But a deeper dive shows that their objectives for implementing AI in networking infrastructure are quite varied, raising questions about how well those objectives match AI networking reality. The survey also uncovered variations in the approach IT leaders are taking toward AI in networking, with most favoring either a hybrid, integrated, or bolt-on approach — a choice that can directly affect the results.

This paper examines the thinking behind the numbers and explains why an AI-Native approach to networking gives IT leaders the best chance of realizing two key benefits: freeing up time for network staff while ensuring quality network performance for end users.

Expectations for AI in networking

For CIOs, the promise of AI in networking is that it can help eliminate issues that cause downtime.

Sharon Mandell, CIO, Juniper Networks

"I shouldn't have to take a phone call about the network. It should just work," says Sharon Mandell, CIO of Juniper Networks. Historically, when problems arise, network staff may treat the symptom rather than the cause. "The hope is AI helps you see not just the symptoms but gives you insights to understand root cause," she says.

Figure 1 | **Respondents expect highly significant transformational benefits from AI in networking**

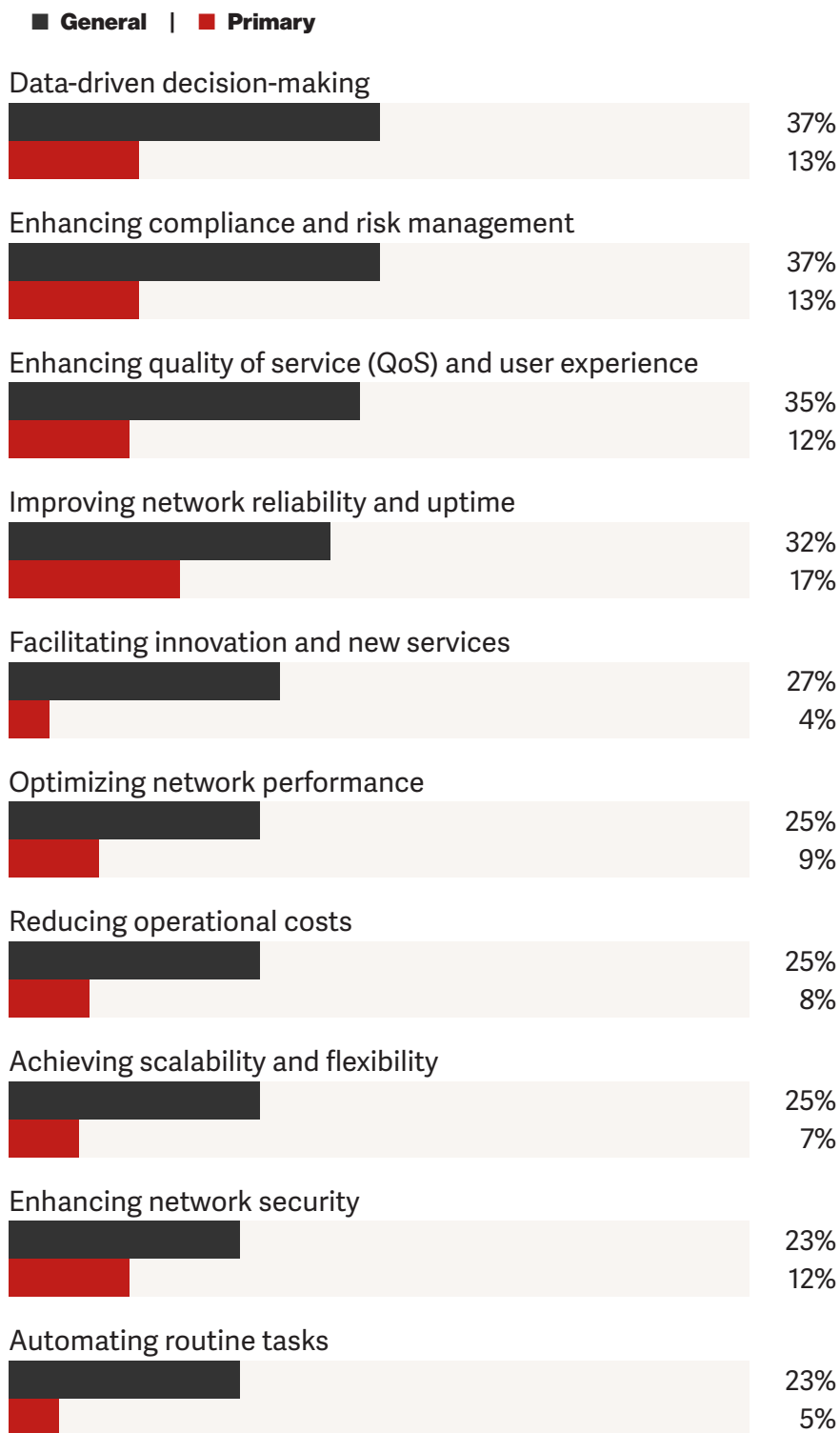| Benefit	Significance, on a 1–5 scale	Expect "transformational" benefit
Enhanced employee experience through more reliable network performance	4.36	47%
Improved customer experience through higher network uptime and responsiveness	4.20	45%
Increased productivity via reduced trouble tickets	4.25	43%
Minimized downtime through proactive anomaly detection and resolution	4.17	39%
Proactive, real-time network testing to identify and mitigate potential issues	4.18	42%

The Foundry survey of 110 senior IT leaders found that they do expect exactly such significant "transformational" benefits from AI in networking with respect to employee and customer experience, IT staff productivity, reduced downtime, and more (see Figure 1 above).

Respondents are confident in their convictions, with nearly two-thirds saying the benefits are "well understood." Yet, on the whole, their core objectives for implementing AI in networking are varied, suggesting that they may not understand the issue quite as well as they think they do.

When the respondents were asked to pick their top three objectives from a list of 10, the four most popular were: data-driven decision-making, compliance/risk management, enhancing quality of service (QoS) and user experience, and improving network reliability and uptime, each chosen by 30% or more.

Nearly a quarter or more of the respondents noted other objectives, including facilitating innovation and new services, optimizing network performance, reducing operational costs, achieving scalability and flexibility, enhancing network security, and automating routine tasks.

Figure 2 | Objectives vary for implementing AI in networking

■ **General** | ■ **Primary**

Data-driven decision-making

37%

13%

Enhancing compliance and risk management

37%

13%

Enhancing quality of service (QoS) and user experience

35%

12%

Improving network reliability and uptime

32%

17%

Facilitating innovation and new services

27%

4%

Optimizing network performance

25%

9%

Reducing operational costs

25%

8%

Achieving scalability and flexibility

25%

7%

Enhancing network security

23%

12%

Automating routine tasks

23%

5%

AI, IT leaders may be overstating their degree of deployment of AI in networking.

"Twenty-six percent at full deployment seems high to me," Mandell says. She suspects that respondents may not fully appreciate how AI applies to networking, noting that achieving the full benefit involves far more than efforts such as "applying Splunk to read logs." Although a small percentage of organizations may have fully implemented AI in their networks, "another percentage doesn't understand how much the world is changing and how much is left to do," she says.

Spending on AI in networking

Whatever their motivations, organizations are budgeting for AI in networking.

About one-third of the respondents said they are making a "significant investment" in upgrading infrastructure to support AI integration, and another third said their budget is about evenly split between acquiring AI software and solutions and training staff.

Market Pulse

When the respondents were asked to pick their single most important objective, results were similarly varied; "improving network reliability and uptime" was No. 1, chosen by 17% (see Figure 2 on previous page).

Respondents may also be overstating their AI deployment status. More than a quarter (26%) said they've already achieved full deployment, and 30% said their organization is partially deployed.

By contrast, a broader 2023 Foundry AI study of nearly 1,000 IT leaders found that only about one in five had implemented any form of AI in their business unit (13%) or companywide (8%). If fewer than 20% in a more extensive survey have implemented any form of

Nearly one-quarter reported that they're maintaining a flexible approach to take advantage of AI opportunities as they arise. Others are investing in AI partnerships as well as research or pilot projects.

Big plans for time savings from AI

Companies are spending because they expect the return on investment to make it worthwhile, by freeing up time previously spent troubleshooting network issues.

"It starts with not having things break," Mandell says. "You don't get to do the cool stuff in IT until the core functions work well enough not to be a distraction."

Once they get to that point, IT leaders have plenty of projects in mind for newly unburdened staff to work on. No. 1, not surprisingly, is digital transformation efforts, chosen by more than half of the respondents (55%). Other projects include:

Data analytics and business intelligence	**49%**
Cybersecurity enhancements	**47%**
Expansion into new markets	**42%**

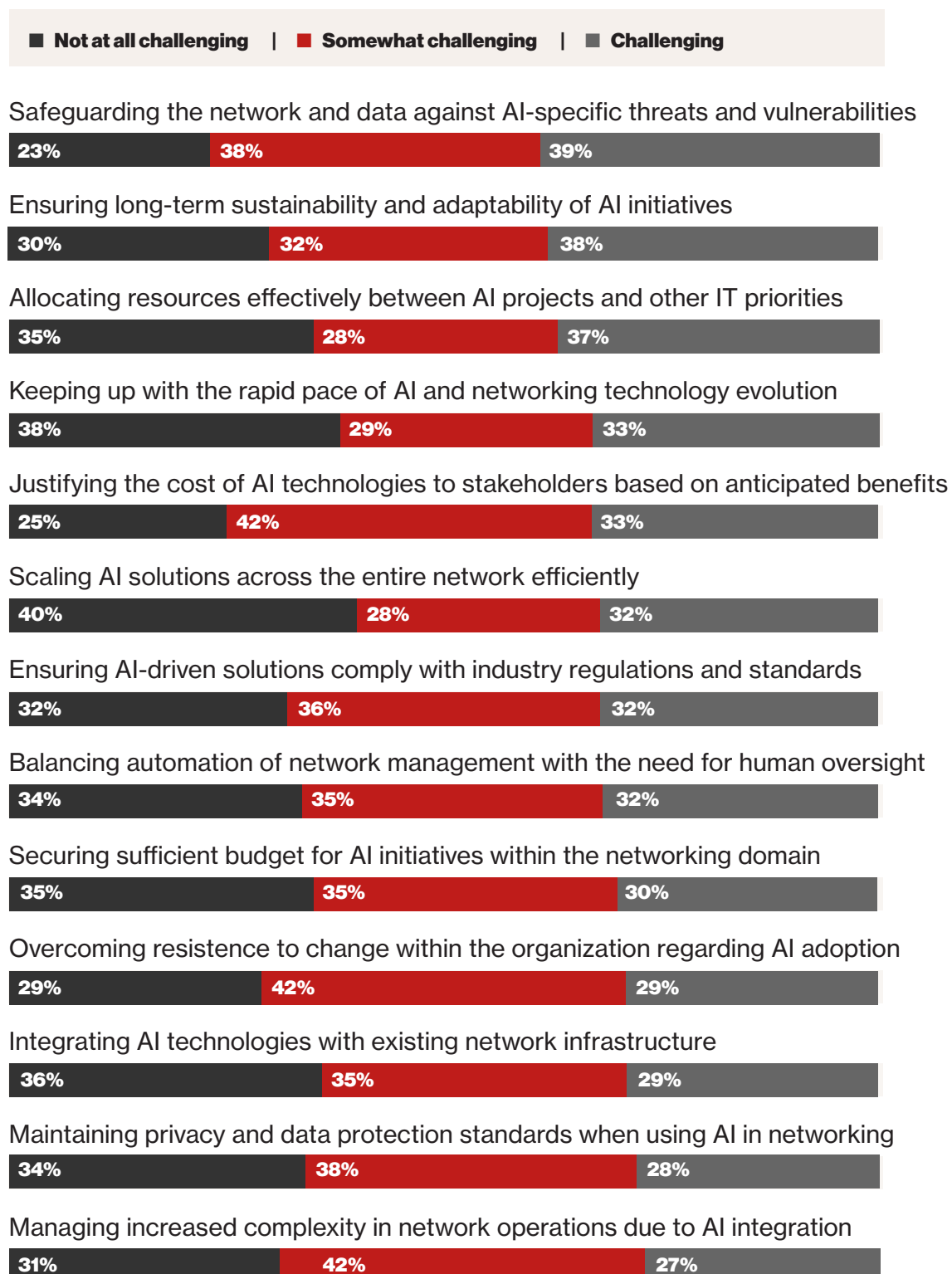|	
Customer experience enhancements	**39%**
Employee skills development and training	**39%**
Sustainability and social responsibility projects	**34%**

As Mandell suggests, respondents reported that they do indeed plan to leverage the time savings AI delivers to empower their employees to do more "cool stuff." Plans include customer-centric initiatives, strategic planning and decision-making, process improvement, internal knowledge sharing, skills development and training, innovation and creative projects, and more.

Understanding AI in networking

These plans will come to fruition only if companies successfully deploy AI in their networks such that it delivers on the expected time savings. Respondents acknowledge that they face challenges in that regard (see Figure 3 on next page), including these top four:

- **Safeguarding the network against AI-specific threats**

- **Ensuring the long-term sustainability of AI initiatives**

Figure 3 | Challenges of integrating AI into the organization

■ Not at all challenging | ■ Somewhat challenging | ■ Challenging

Safeguarding the network and data against AI-specific threats and vulnerabilities

| 23% | 38% | 39% |

Ensuring long-term sustainability and adaptability of AI initiatives

| 30% | 32% | 38% |

Allocating resources effectively between AI projects and other IT priorities

| 35% | 28% | 37% |

Keeping up with the rapid pace of AI and networking technology evolution

| 38% | 29% | 33% |

Justifying the cost of AI technologies to stakeholders based on anticipated benefits

| 25% | 42% | 33% |

Scaling AI solutions across the entire network efficiently

| 40% | 28% | 32% |

Ensuring AI-driven solutions comply with industry regulations and standards

| 32% | 36% | 32% |

Balancing automation of network management with the need for human oversight

| 34% | 35% | 32% |

Securing sufficient budget for AI initiatives within the networking domain

| 35% | 35% | 30% |

Overcoming resistence to change within the organization regarding AI adoption

| 29% | 42% | 29% |

Integrating AI technologies with existing network infrastructure

| 36% | 35% | 29% |

Maintaining privacy and data protection standards when using AI in networking

| 34% | 38% | 28% |

Managing increased complexity in network operations due to AI integration

| 31% | 42% | 27% |

- **Allocating resources effectively between AI and other initiatives**

- **Keeping up with the rapid pace of AI networking technology evolution**

Keeping up with the pace of change with respect to AI in networking is indeed a challenge, but it's imperative that IT leaders understand the differences in deployment options at their disposal.

The Foundry survey shows that respondents are taking different tacks in that regard. One in five favor a bolt-on approach, meaning that they add AI solutions to their existing networking setup without significant infrastructure changes. More than a third (35%) are taking an "integrated" approach, which involves redesigning networking

infrastructure to fully integrate AI capabilities. Slightly more (37%) favor a hybrid approach that uses a mix of bolt-on and integrated AI solutions. (The rest reported that they're either still evaluating their approach or using none of the above approaches.)

The Juniper approach: AI-Native

The choice in approach to AI in networking can make a profound difference. To leverage its full power, AI must be well integrated with network infrastructure. Such an approach also addresses the top challenge noted in the Foundry survey of 1,000 IT leaders, which was the integration of AI into IT infrastructure, which was cited by 51% of the respondents.

The Juniper AI-Native Networking Platform was conceived and developed with AI integration as a core component. The approach enables simpler operations, increased productivity for IT staff and end users alike, and reliable performance at scale.

Unlike other platforms, Juniper Networks' cloud-based Mist AI platform uses real-world data to recognize

network issues as they're developing and address them before they result in performance problems or downtime – with no aid from a network administrator.

AI capabilities relieve network staff of many day-to-day network management challenges while simultaneously ensuring highly reliable, measurable, and secure network connections for the entire organization. The network infrastructure is also highly adaptable and optimized for high-performance, mission-critical applications — including AI workloads.

Three pillars for effective AI networking

The Juniper AI-Native Networking Platform is built on three pillars.

First, it uses real-time data to ensure that it can identify and address granular network issues that directly affect the user experience.

Second, the platform provides the right real-time responses, including proactive issue detection and resolution. The AI-Native virtual network assistant Marvis combines generative AI with a conversational interface that uses natural-language processing and understanding (NLP, NLU). Marvis makes it simple for IT teams to understand what's happening in the network and get specific answers for how to address issues it surfaces.

Marvis can also proactively identify and resolve many network issues on its own.

Additionally, Marvis Minis AI digital twin technology uses unsupervised machine learning (ML) to simulate user connections, detect problems, and speed resolution — before users ever submit a trouble ticket.

Finally, the platform is built on the right secure infrastructure: Juniper Mist

Cloud, a cloud-native architecture that simplifies operations with no need for on-premises hardware and software additions. Juniper Mist Cloud serves as the backbone for the Juniper Mist AI engine.

Juniper customer success stories

Customers report dramatic improvements when employing the Juniper AI-Native Networking Platform.

One high-profile cloud computing company based in the U.S. moved 30 sites from a legacy network to a full-stack Juniper AI-Native wired, wireless, and software-defined wide area network (SD-WAN), with most employees on wireless networks. AI-Native insights and automated actions now keep 22,000 employees productive while reducing wireless trouble tickets by 90%, freeing up IT resources. It also dramatically reduced wired port density, helping deliver 60% cost avoidance in network capital and operational spending.

Meanwhile, one of the UK's leading providers of automotive and cycling products and services deployed a Juniper wired and wireless network at its retail stores, auto centers, and offices. Mist AI and the Juniper Mist cloud architecture provide detection and resolution of problems, eliminating 100% of network-related trouble tickets while increasing uptime, leading to an employee productivity boost of 35%.

> " The network user experience that Juniper offers **far exceeds anything else in the market.**

— CIO at a leading provider of automotive and cycling products and services in the UK

"The network user experience that Juniper offers far exceeds anything else in the market," says the CIO at a leading provider of automotive and cycling products and services in the UK. "Juniper's ease of operations and self-healing capabilities, along with the user experience metrics it provides, are outstanding."

AI offers a new network dynamic

These experiences demonstrate that AI is solving a problem that has long plagued networking groups: too

much time spent fighting fires that threaten network performance and availability, leaving too little time for strategic initiatives.

Juniper's AI-Native approach to enterprise networking changes that dynamic, by dramatically reducing time spent on operations while maintaining superior network performance, reliability, and customer experience.

The vice president of infrastructure and operations at the U.S.-based cloud computing company sums it up well, saying, "Juniper and Mist AI are helping us build the network of the future."

Learn more about how to realize the benefits that AI in networking promises: Visit juniper.net.