Enterprise Strategy Group™

The Return of NetDevOps: Inside the Convergence of AI, Networking, and Automation

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ENTERPRISE STRATEGY GROUP

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Research Objectives

As IT infrastructure continuously evolves to embrace cloud and cloud-native architectures alongside the looming wave of AI technologies, the velocity of change at the application layer is accelerating. Networking is the last infrastructure domain to achieve seamless automation, creating barriers to success. NetDevOps, a concept that is over a decade old, emerged as a methodology for blending networking, development, and IT operations via a combination of automation, collaboration, and integration. NetDevOps promises streamlined workflows, more predictable change processes, better scalability, and reduced operational (and security) risks. The challenge is both accentuated and mitigated by the rise of AI technologies, but such evolution is still not always easy or streamlined, particularly for organizations that have a well-established culture.

To gain further insight into these trends, Enterprise Strategy Group, now part of Omdia, surveyed 400 networking professionals at organizations with 100 or more employees in North America (U.S. and Canada) involved with or responsible for building and managing networking solutions within their organization to gauge their levels of awareness and engagement of NetDevOps and network automation products and processes.

This study sought to:

- **Identify** the current state of network automation, including the level of automation for network tasks and functions.
- **Understand** the current state of NetDevOps deployments, including technical and business objectives.
- **Establish** the role of AI technologies within network automation and NetDevOps processes and strategies.
- **Assess** the benefits organizations seek when deploying GenAI for network automation and NetDevOps.

KEY FINDINGS

Network Automation Demonstrates Value Despite Mixed Adoption

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Network Automation and NetDevOps Are Team Sports as Collaboration Shines

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"The rate of change within IT infrastructure **is relentless**, and networking must find a way to keep pace."

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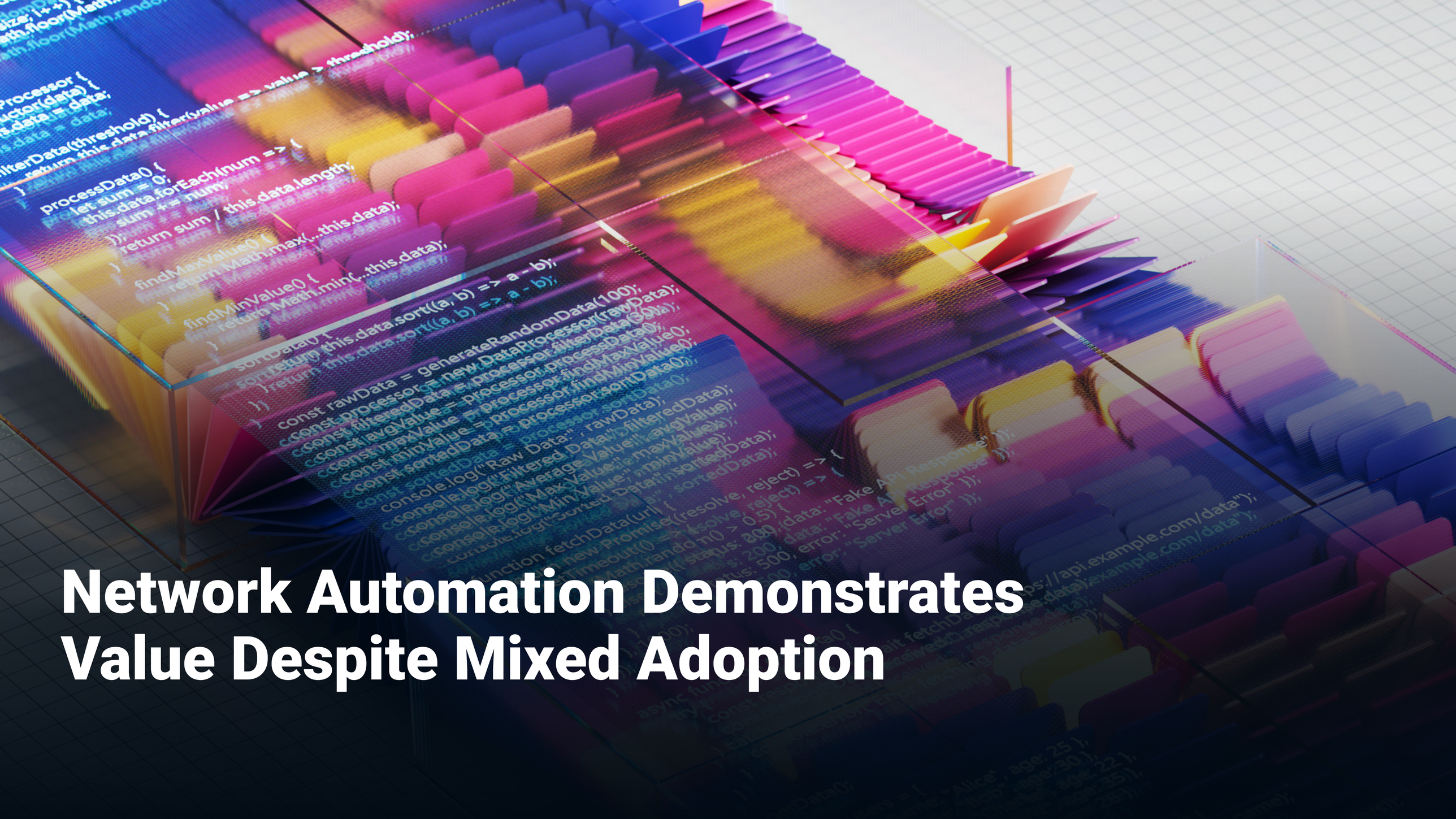


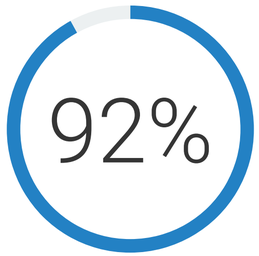
Network Automation Demonstrates Value Despite Mixed Adoption

Automation and NetDevOps Are Essential to Networking Success

The rate of change within IT infrastructure is relentless, and networking must find a way to keep pace. Organizations see network automation as an essential strategy. The technical and operational advantages of NetDevOps are also widely acknowledged, as is the criticality of AI technologies in the mix. New skills, standard network architectures, and no-code automation could be key in meeting current and future requirements.

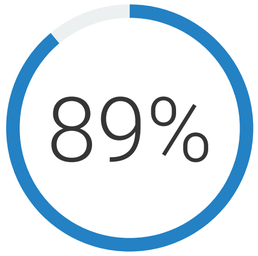
Agreement with statements regarding NetDevOps and network automation.

agree that network automation will be essential for keeping pace with future change.

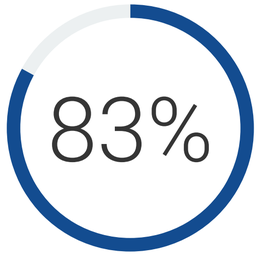


agree that NetDevOps approaches can deliver important technical advantages.

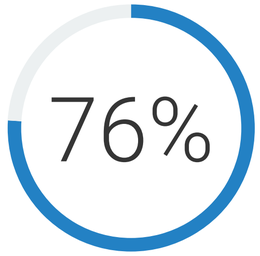
agree that network automation initiatives require new skills.



agree that networking is becoming more critical with the arrival of AI technologies.



agree that a standard network architecture (i.e., SONiC) would help their organization achieve its automation and NetDevOps goals.



agree that no-code automation platforms will accelerate their organization's NetDevOps adoption.

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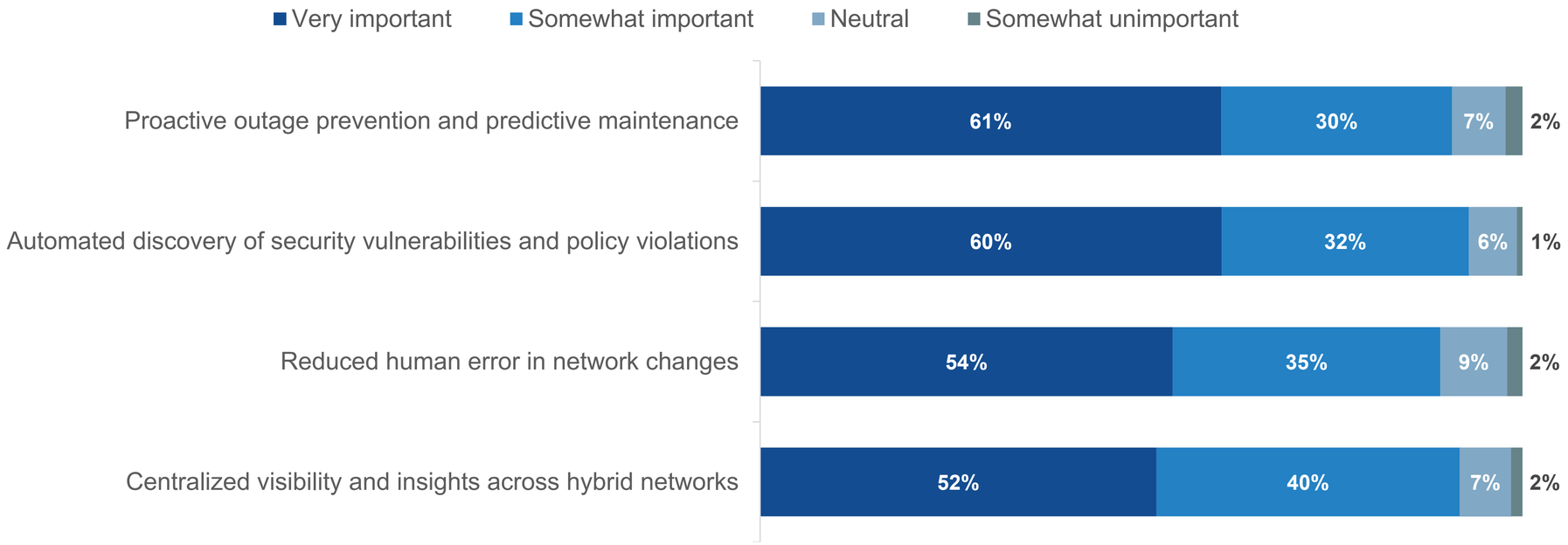
Proactivity, Security, Visibility, and Error Reduction Are All Seen as Key Capabilities for Network Automation

Objectives are many when it comes to network automation, but which are most important? All of them, it turns out. Organizations assigned high degrees of importance for all major capability categories, with a slight lean toward proactive outage prevention and network security. Given the strong responses, these capabilities should be among core objectives and expectations of any network automation project.

Importance of capabilities to network automation projects.



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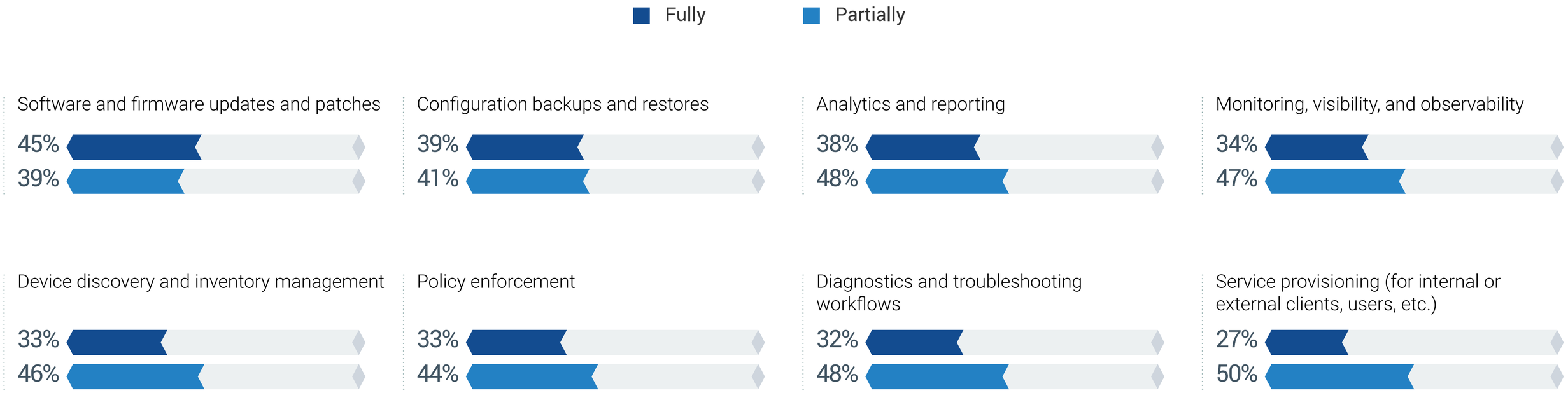
Network Configuration, Monitoring, and Analytics Deliver the Strongest Automations to Date

The strongest traction among automation use cases can be found in traditional configuration tasks such as updates, patches, and backups, followed by analytics and monitoring. From a broader perspective, all areas are at least partially automated by a majority of organizations, showing promise for those seeking to expand current automations into more areas.

Have fully/partially automated key network tasks and functions.



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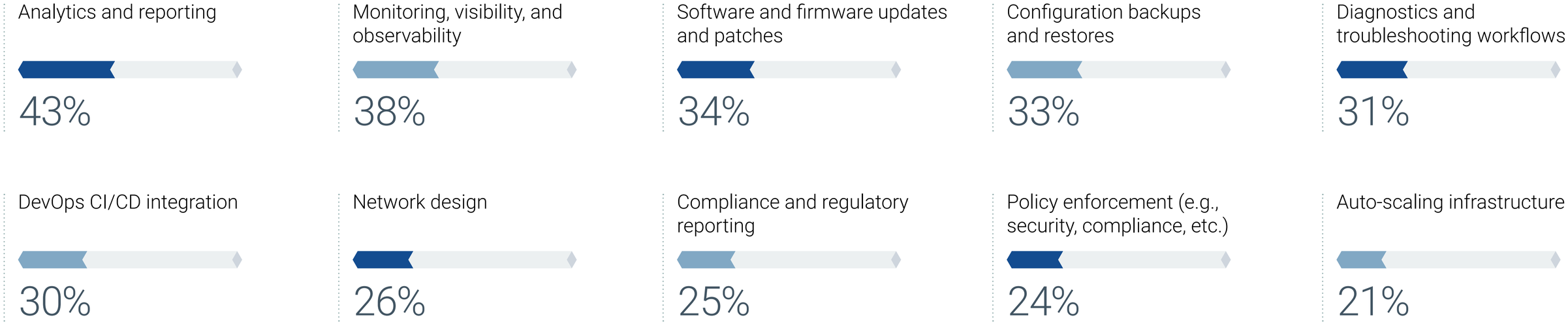
Analytics and Monitoring Are Key Drivers Behind Automations

While any type of automation can be beneficial to operations or the business, some rise to the top in terms of significance and true impact. Those automations delivering the greatest benefits are similar to those that have seen the highest levels of full or partial automation, but with a slight twist. While software updates and configuration tasks have been more fully automated, monitoring and analytics are delivering the greatest benefits.

Automations delivering or promising to deliver the most significant operational or business benefits.



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Commercial Network Automation Solutions Lead Network Automation Tool Deployment

Organizations turn to several categories and sources of tools for their network automation needs, and with most using more than one, the common experience is mixed and multi-tool. Generally, commercial tooling from network equipment and third-party vendors is finding more favor than open source or in-house approaches, likely due to the need for reliability and support, overcoming skill gaps, and a desire to avoid creating new points of technical liability due to custom development.

Tools and technologies in use or planned for use for network automation.

74%	Tools provided by network equipment vendors
66%	Tools provided by third-party vendors
61%	Open source systems or components
50%	Self-built tools (scripts and/or code)

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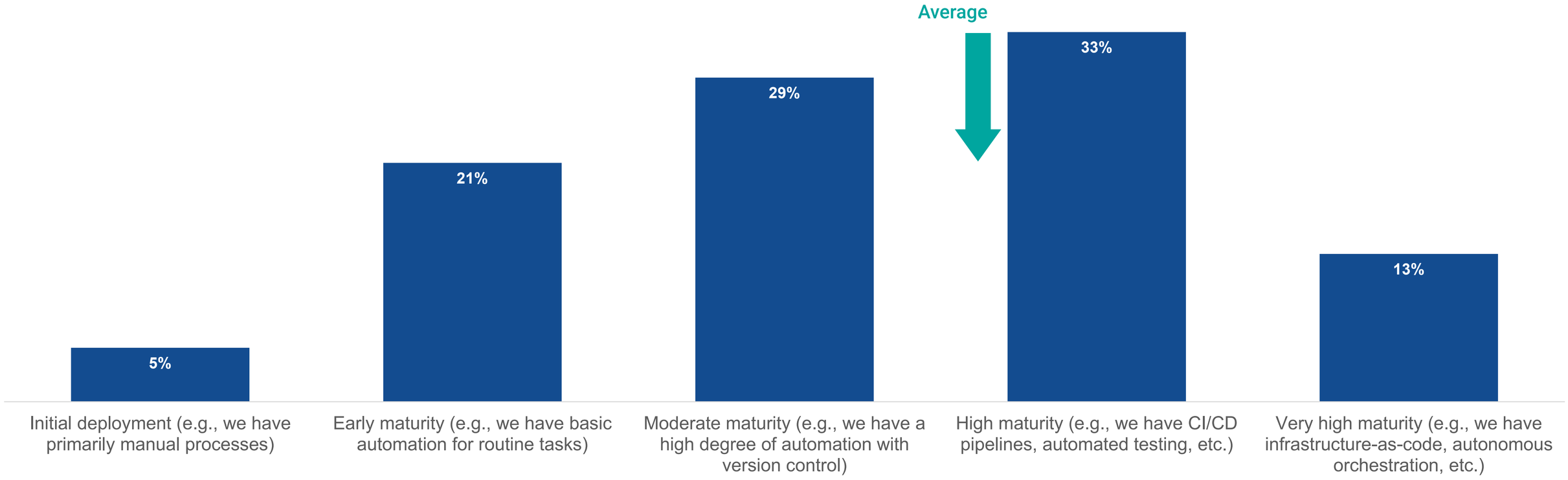
NetDevOps Is Steadily Moving Toward Deeper Maturity

Maturity Rises as Organizations Move Forward With NetDevOps

NetDevOps is the application of DevOps principles and practices to network infrastructure management, combining network engineering with software development methodologies to create a more agile, efficient, and collaborative approach to network operations. Organizations are at various points along their NetDevOps journeys, but most report practices that are moving steadily ahead and reaching substantial levels of maturity in terms of capability and degree of automation. There is still much progress to be made by the majority, but there is hope, as a portion have reached very advanced levels.

Maturity level of NetDevOps practices.



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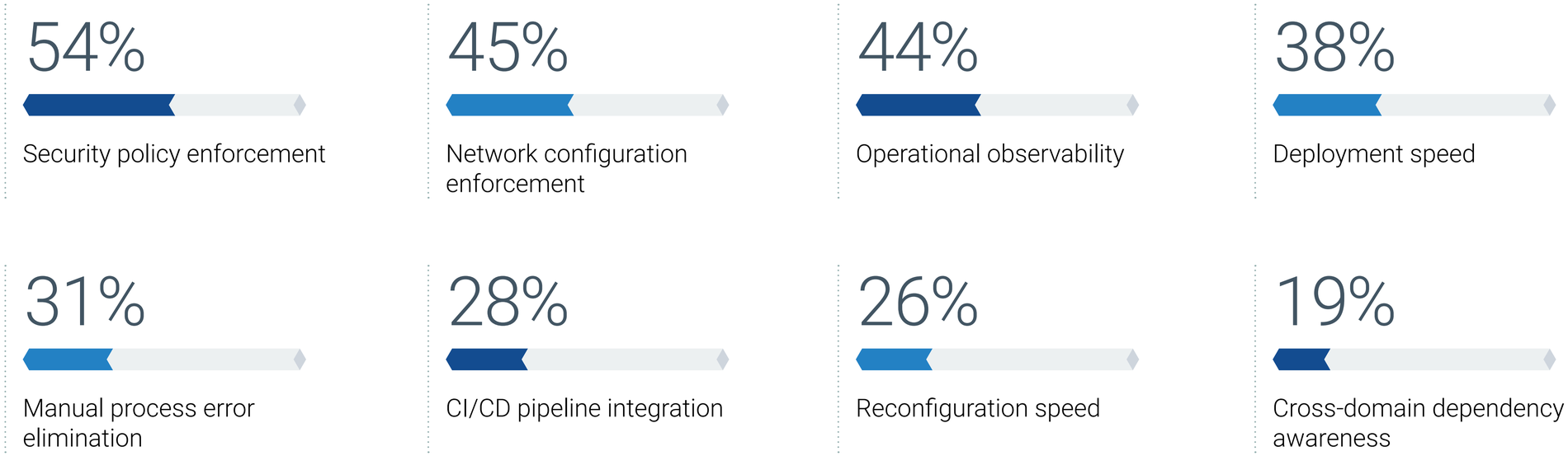
Enforcement Drives Technical Objectives as Organizations Seek Better Security and Network Configuration

Those embracing NetDevOps initiatives have a range of specific technical objectives in mind. Most common are those related to enforcement of security policies and network configuration, but improvements in operational observability are also common. While not as broadly popular, a range of efficiency and accuracy objectives are related to speed, error elimination, and integration. Those embarking on a NetDevOps journey, or planning to expand an existing one, should consider these as viable and potentially impactful.

Top technical objectives for NetDevOps.



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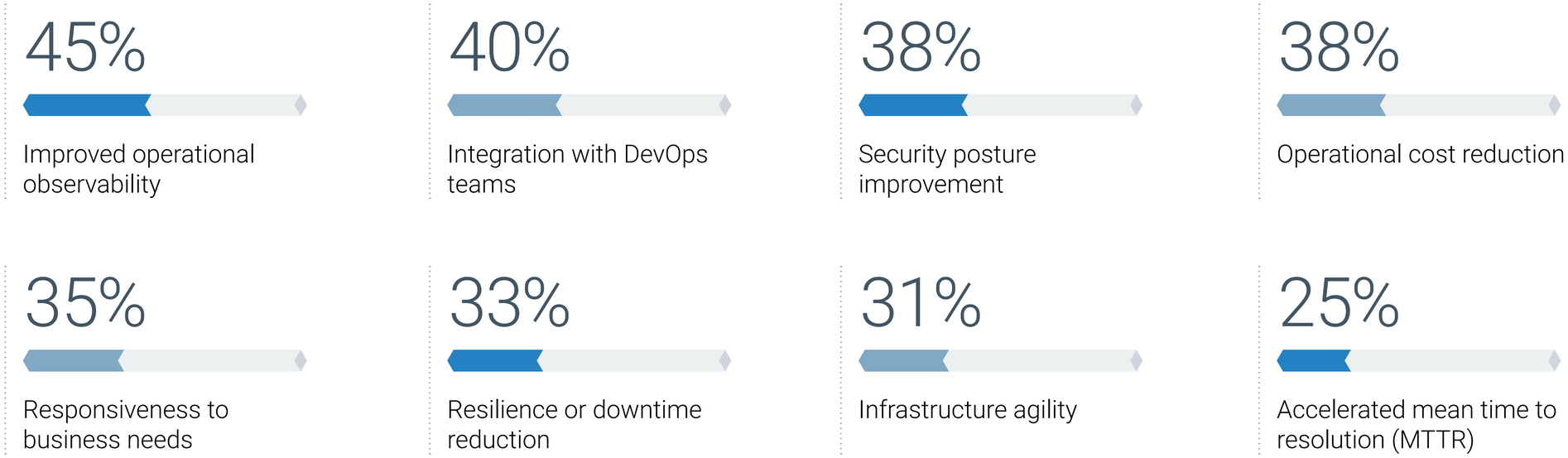
Observability Is Crucial to NetDevOps as Organizations Seek Improved Efficiency

In addition to technical objectives, NetDevOps initiatives should be defined by expected outcomes in terms of business value. This can range from cost factors to various dimensions of risk reduction. Those organizations embracing NetDevOps place particular value on operational observability and DevOps integration in terms of business objectives. Improvements in security posture were also important, as was operational cost reduction. Other operational efficiency and resilience goals are also common, indicating that a wide range of objectives have solid relevance and should be considered valid and appropriate for NetDevOps projects.

Top business objectives for NetDevOps.



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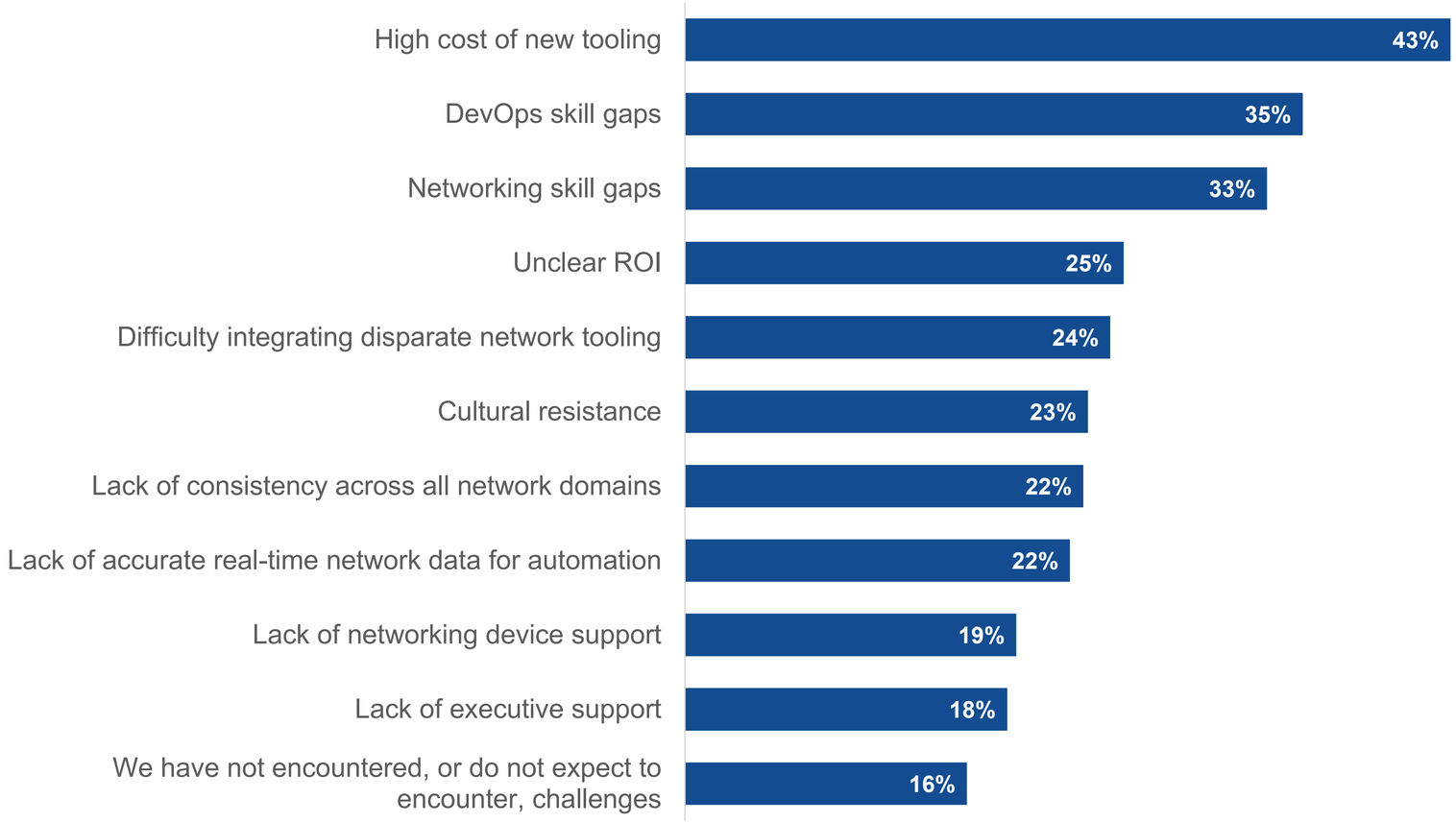
NetDevOps Challenges Are Driven by Both Business and Team Factors

NetDevOps initiatives are neither simple nor easily implemented. For the fortunate few (roughly one in eight), all goes well without significant problems. For the rest, there is a diverse set of real-world challenges, indicating that individual organizational and business context plays a significant role. With that said, tooling costs and skill gaps are the most common.

Top challenges of NetDevOps adoption.



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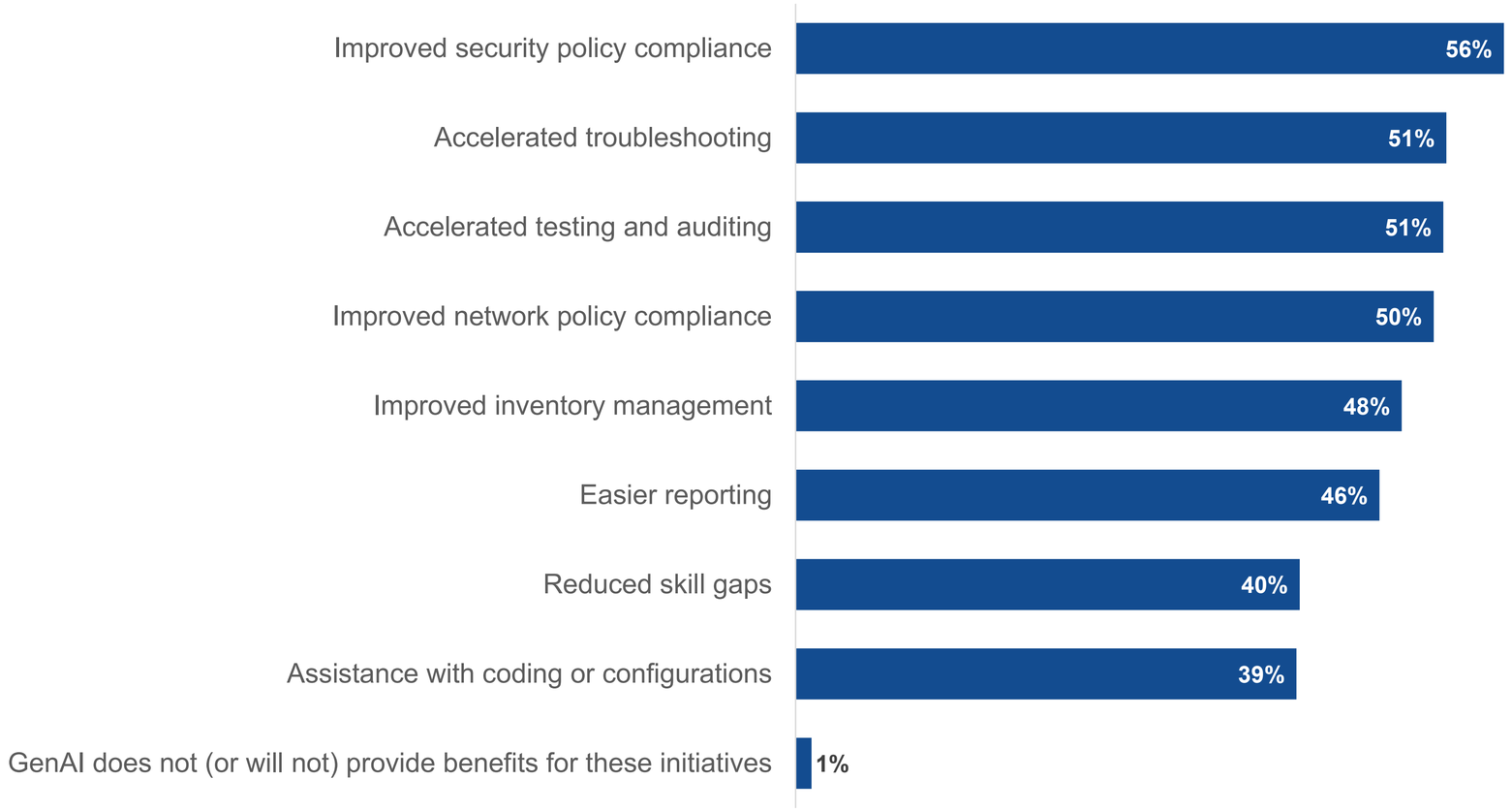
AI Technology Is Now Mainstream for Network Automation and NetDevOps

GenAI Is Delivering Manifold Benefits for Network Automation and NetDevOps

Generative AI is delivering multiple benefits as part of network automation and NetDevOps initiatives. Most promising are improvements in security policy compliance, reflecting positive traction for important high-level objectives aimed at improving cybersecurity posture and readiness. Strong traction is also seen with improved efficiencies around troubleshooting, testing, and auditing, as well as network policy compliance. These are all excellent force multipliers for the networking teams, and given the large distribution of benefit types, all these benefits should be considered achievable as part of current or planned GenAI rollouts.

Benefits GenAI technologies provide for network automation and NetDevOps.



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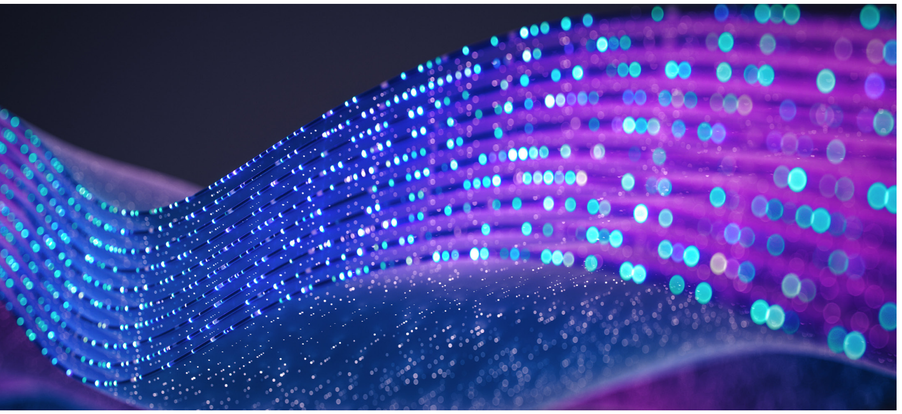
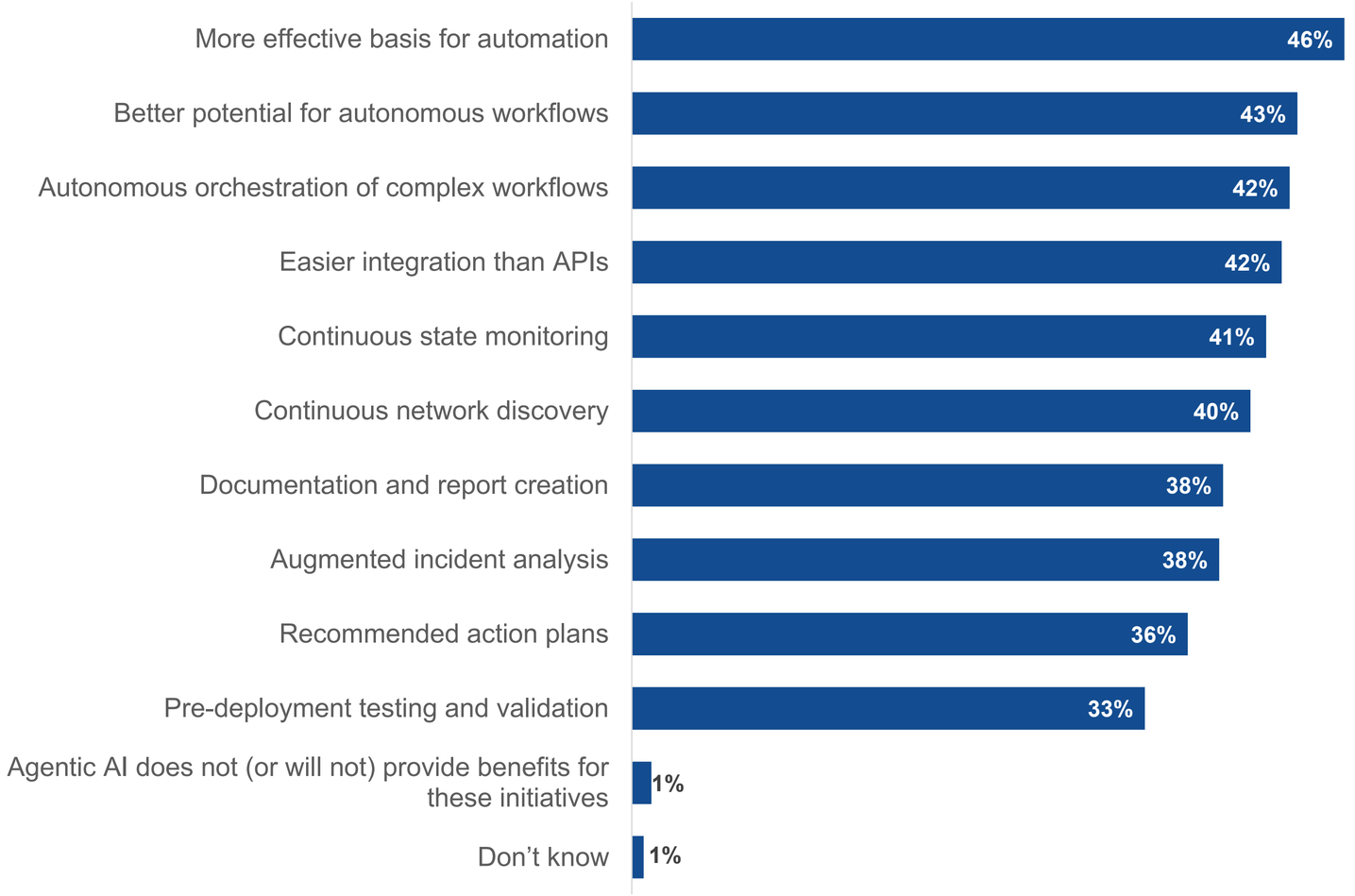
Agentic AI Is Improving Network Automation and NetDevOps Outcomes

The newest frontier of AI technology can be found in agentic approaches, where systems can conduct advanced tasks like reasoning, coordination, and actions. These approaches are delivering clear value within the realms of network automation and NetDevOps. At its most foundational level, agentic AI is making these initiatives more effective and opening the door for more systemic autonomy. It is also delivering value in operational monitoring areas related to automation and NetDevOps, such as discovery, state monitoring, and documentation. As teams embrace and deploy agentic AI technologies, there should be every expectation that the benefits will grow.



Benefits agentic AI technologies provide for network automation and NetDevOps.



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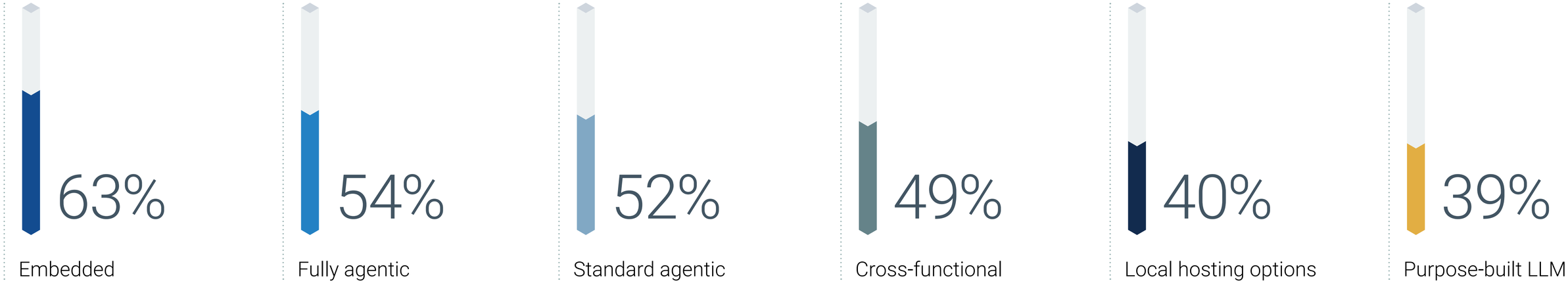
Security and Full-blown Agentic Are Seen as Crucial for Network Automation and NetDevOps Tooling

Network automation and NetDevOps are multidimensional initiatives, meaning that they involve changes in tools, technology, organization, and work practices. When it comes to tooling, these projects are driving new requirements that will be used to evaluate and select products and technologies that are best fit for their purpose. Chief among those requirements are embedded security analyses, reflecting the overarching strategic imperative of embedding cybersecurity defenses across the infrastructure. Agentic AI attributes are also highly desired, indicating that this important new technology is considered key to the future.

Capabilities identified as important when selecting tooling for network automation and NetDevOps.



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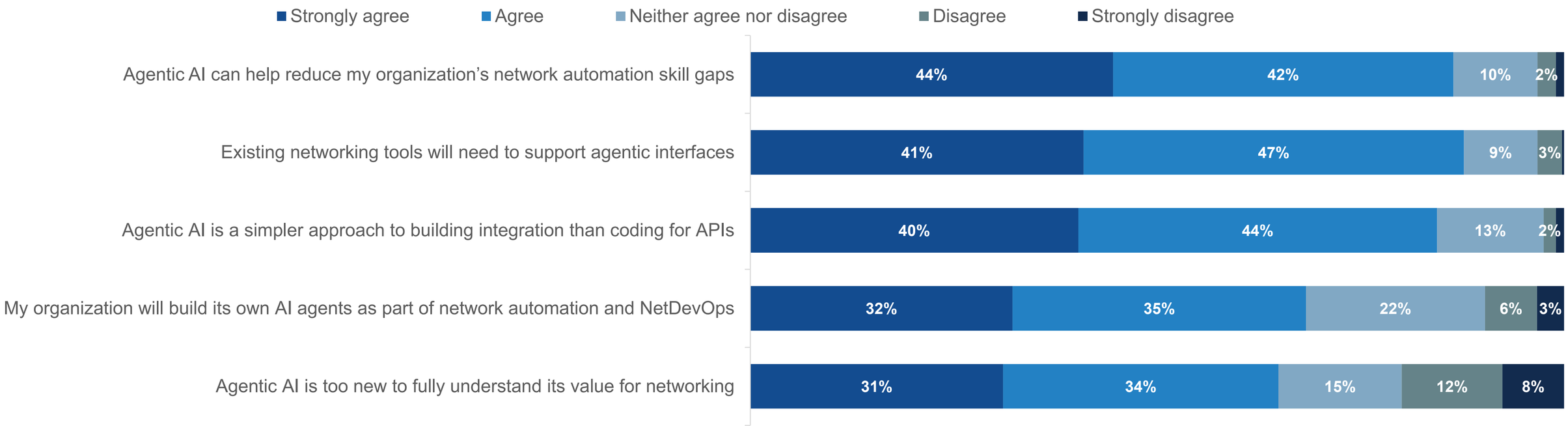
Teams Have High Expectations for Agentic AI in Network Automation and NetDevOps Despite Uncertainties

Given that agentic AI is relatively new, a majority of participants felt they lacked full understanding of its value for networking, but that did not constrain hope that it will simplify integration challenges and reduce skill gaps. With strong majorities indicating plans to build agents and needing agentic interfaces from existing tooling, agentic AI is moving quickly toward becoming a permanent fixture of the network automation and NetDevOps landscape.

Agreement with statements related to network automation and NetDevOps.



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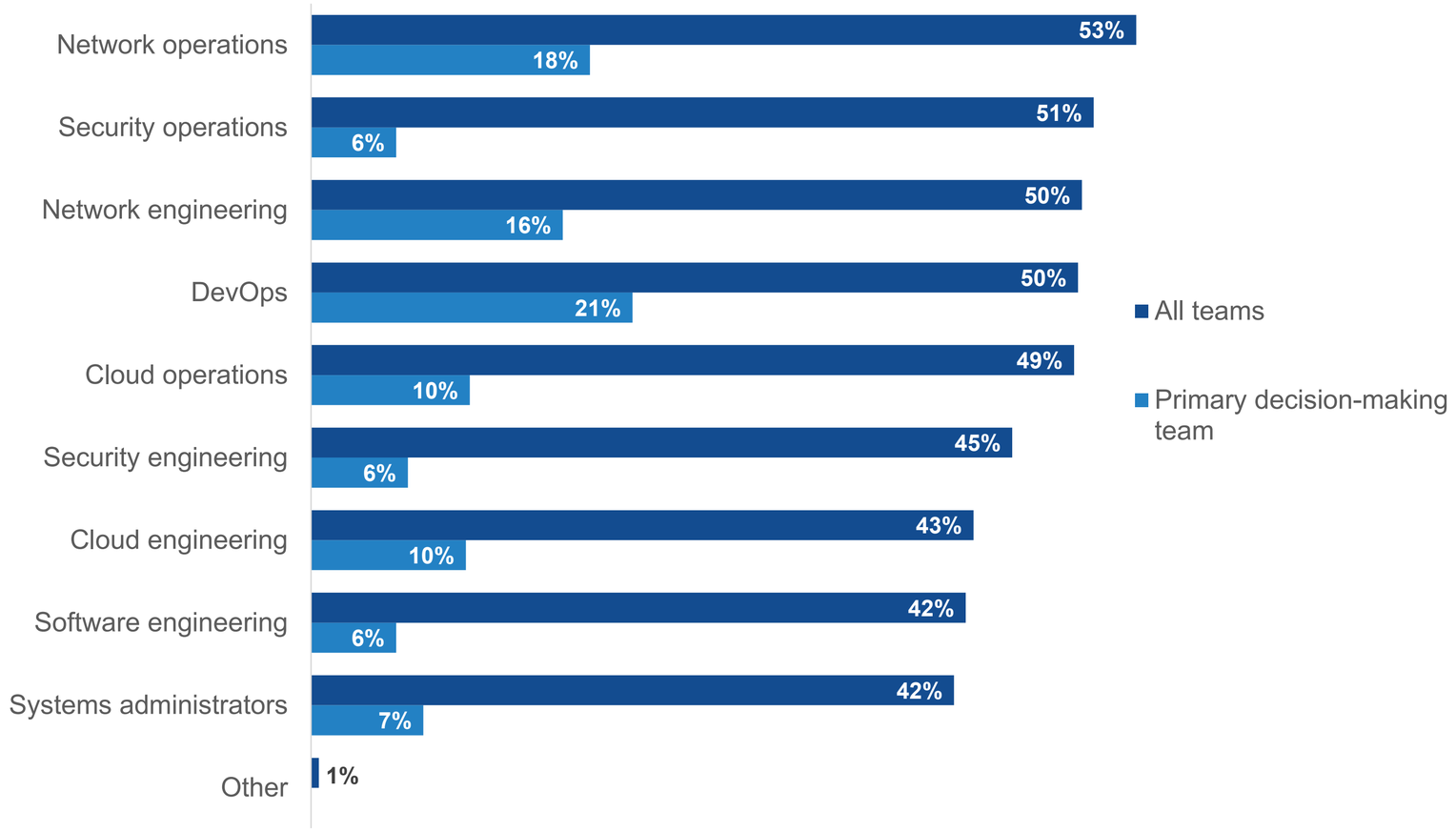
Network Automation and NetDevOps Are Team Sports as Collaboration Shines

A High Degree of Collaboration Is Evident in Network Automation and NetDevOps Projects

The nature of network automation and NetDevOps projects makes them inherently cross-domain. They are trying to solve difficult issues that regularly extend beyond the boundaries of networking. The wide range of teams influencing these projects reflects this heterogeneity. Surprisingly, there is no clear consensus on which teams are the best place to seat primary decision-making authority. The most common are networking teams (just over one in three), while one in five hand the reins to the DevOps team. This likely indicates that each organization will have its own centers of strength for automation initiatives and practices.

Teams influencing and making decisions for NetDevOps and network automation projects and purchases.



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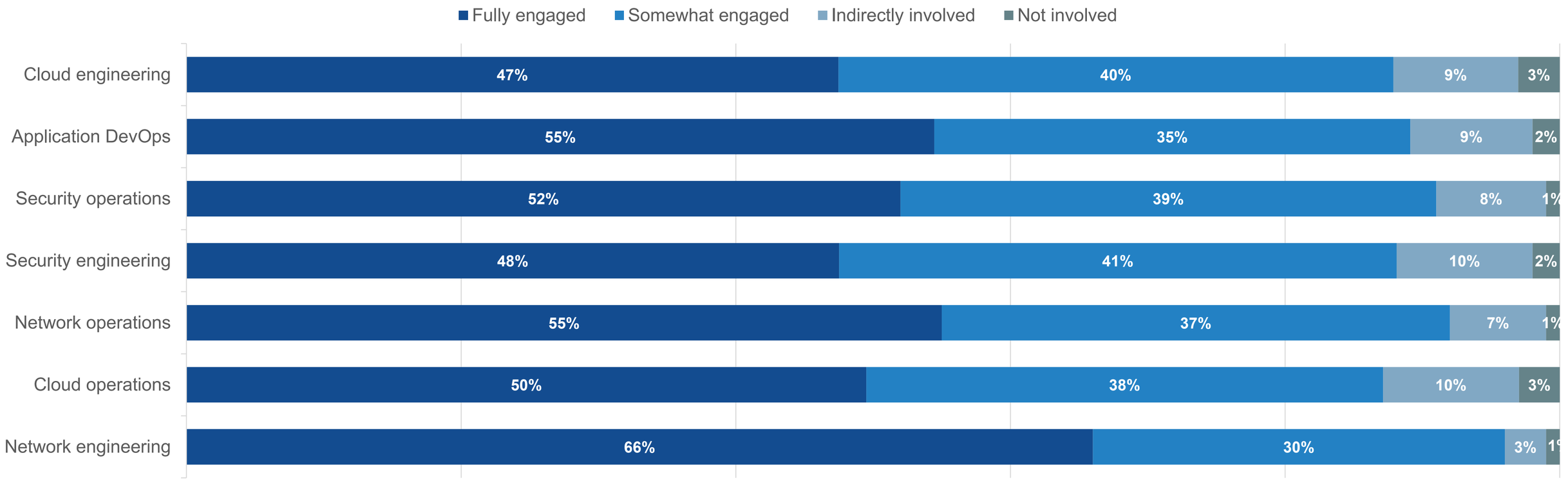
NetDevOps Builds Cross-team Bridges

NetDevOps is intended to modernize approaches to networking, but doing so requires ongoing collaboration across multiple teams and groups beyond networking. While only about half of organizations achieve full engagement across all teams (other than network engineering at two-thirds fully engaged), rates rise to a robust 85% or higher when examining partial engagement.

Level of engagement with NetDevOps initiatives.



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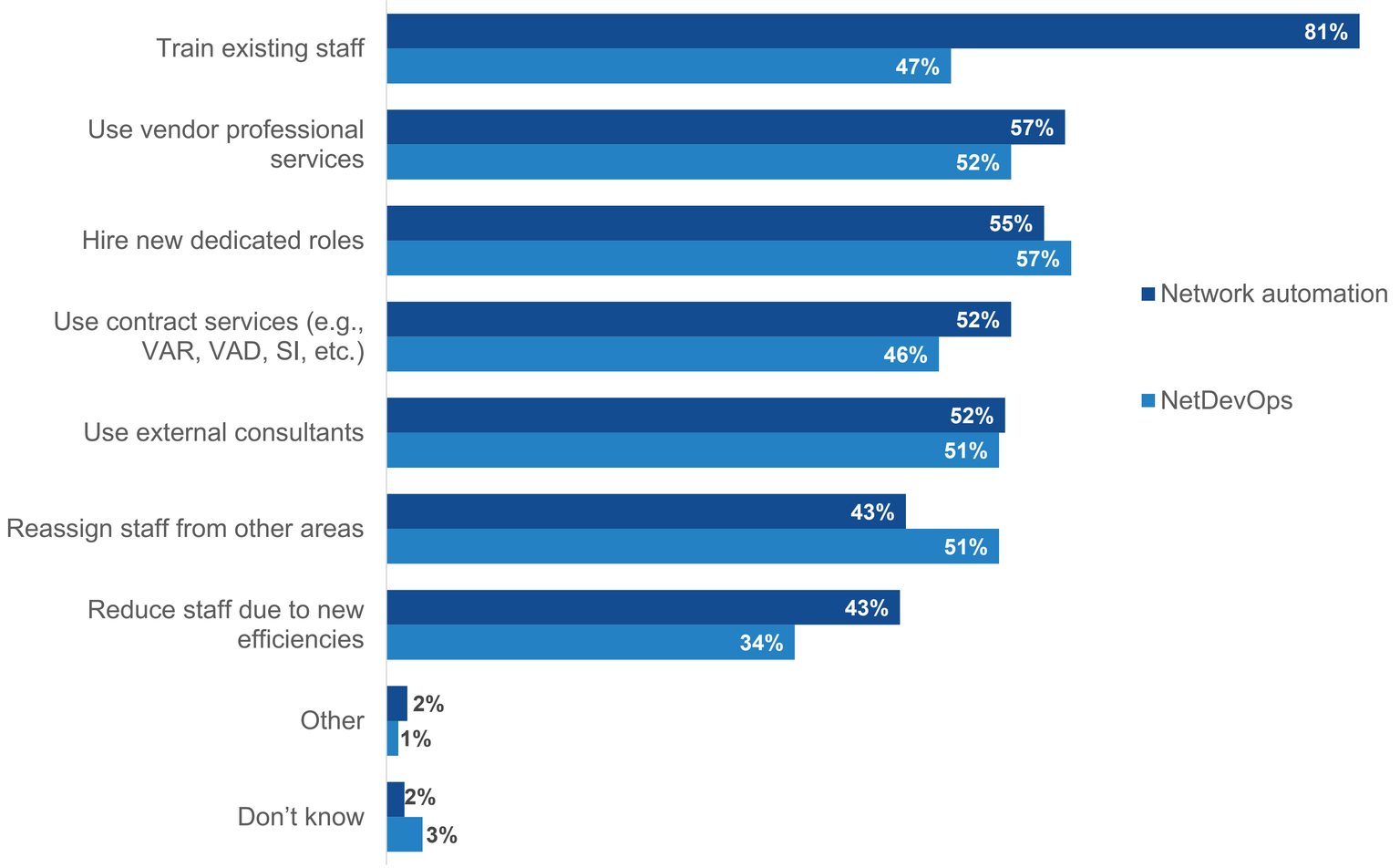
Organizations Are Open to a Wide Range of Staffing Options for Network Automation and NetDevOps

Both network automation and NetDevOps bring new technologies, processes, and methods to bear, requiring up-leveling teams to ensure success. Organizations are looking at all options, but one message is crystal clear: Existing staff will be trained for network automation, indicating that this will be considered a natural and essential evolution (and expectation) of present roles and responsibilities.

Plans to address staffing needs for network automation and NetDevOps initiatives.



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NetBrain

ABOUT

Since 2004, NetBrain has been a pioneer in network automation, empowering IT teams to transform operations by combining the power of innovative no-code and AI technology. The Next-Gen platform shifts organizations from reactive visibility to proactive observability, automating troubleshooting and change management workflows to gain operational efficiency, reduce human error, and deliver actionable insights. Powered by a real-time Digital Twin and intent-based automation, NetBrain facilitates automation creation at scale without scripting, lowers the barrier for automation adoption at all levels, and helps IT teams confidently manage their networks. NetBrain empowers IT teams to proactively manage networks, automate their workflows, and reduce human error. The platform delivers complete network observability, faster troubleshooting, and risk-free change management, helping IT teams better manage their networks and gain operational efficiency.

Try NetBrain Risk-Free and Accelerate Your Outcomes

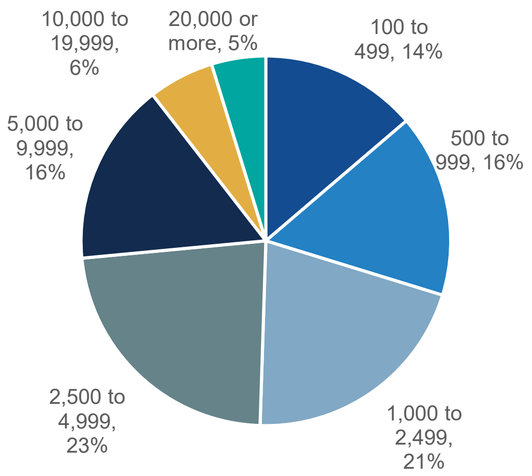
LEARN MORE

RESEARCH METHODOLOGY AND DEMOGRAPHICS

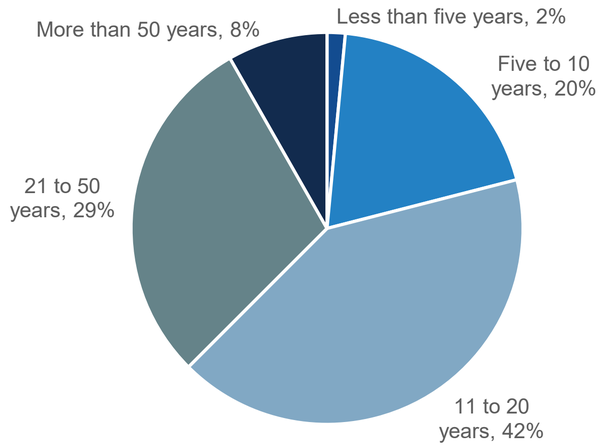
To gather data for this report, Enterprise Strategy Group, now part of Omdia, conducted a comprehensive online survey of networking professionals from private- and public-sector organizations in North America (United States and Canada) between August 22, 2025, and September 2, 2025. To qualify for this survey, respondents were required to be involved with networking or otherwise responsible for evaluating, purchasing, managing, and building network solutions at their organization. All respondents were provided an incentive to complete the survey in the form of cash awards and/or cash equivalents.

After filtering out unqualified respondents, removing duplicate responses, and screening the remaining completed responses (on a number of criteria) for data integrity, we were left with a final total sample of 400 networking professionals.

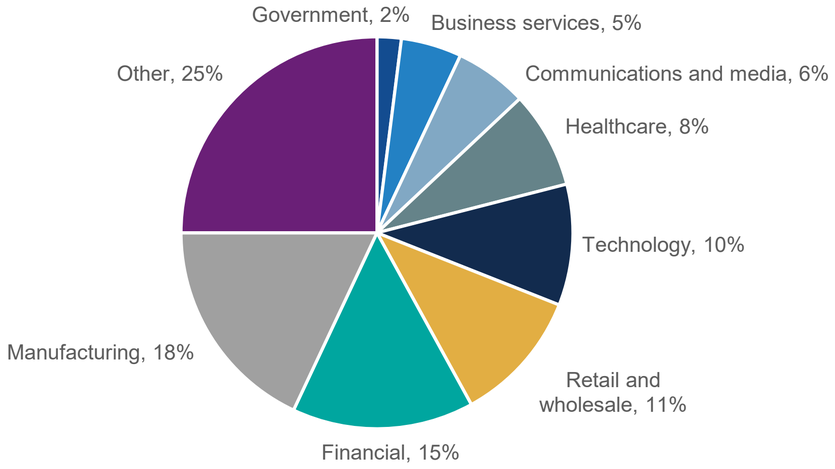
Respondents' organizations by number of employees.



Respondents' organizations by years in operation.



Respondents' organizations by industry.



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