Private AI, Virtualization, and Cloud:
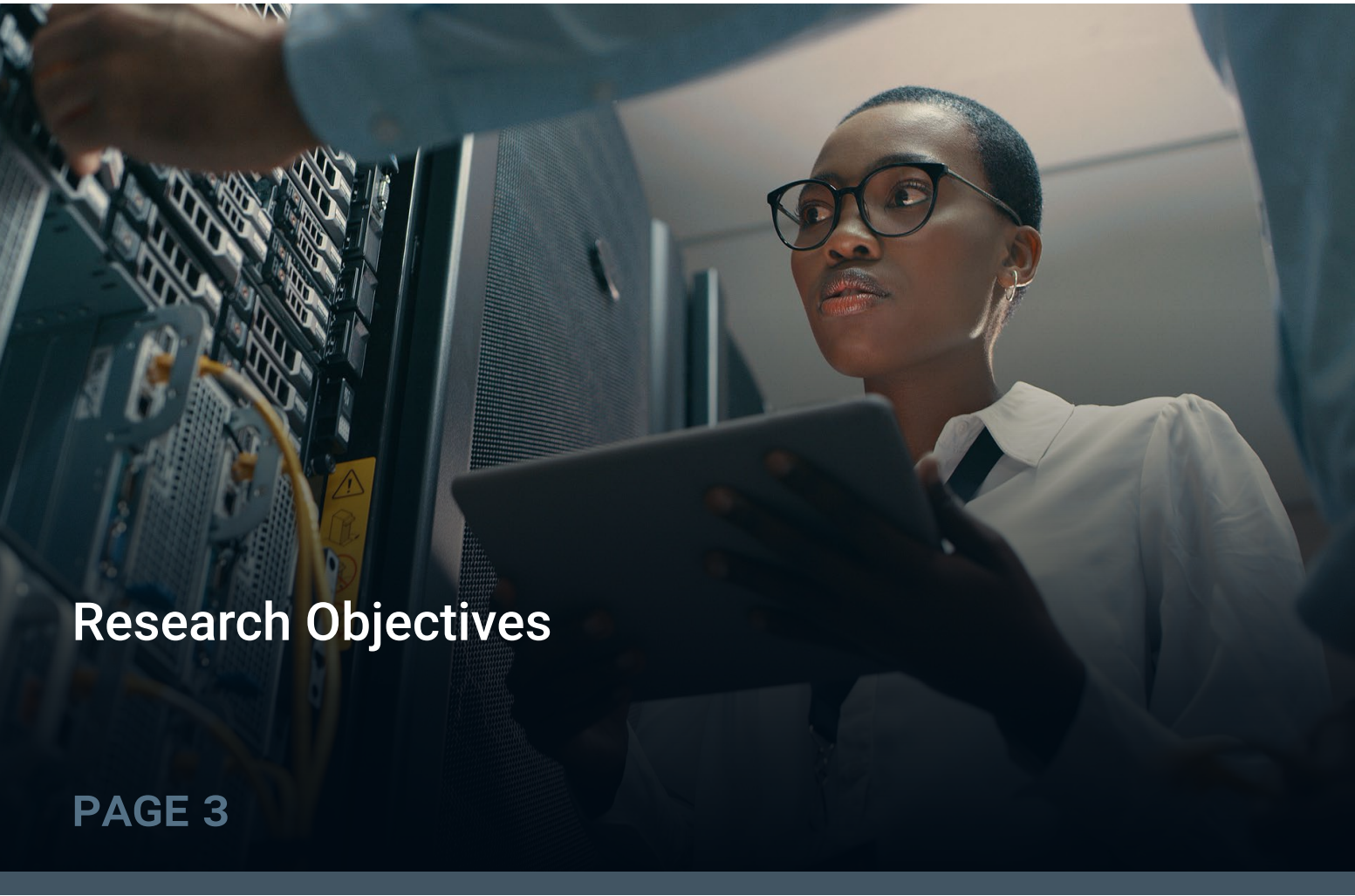## Transforming the Future of Infrastructure Modernization

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Key Findings

Research Objectives

AI Fuels an Increasingly Distributed Application Infrastructure Environment

As Virtualization Environments Evolve, Organizations Seek Savings and Alternatives

Those Undertaking On-premises Modernization Continue Pursuing a Cloud-like, As-a-service Experience

As Private AI Initiatives Grow, Supporting Infrastructure Becomes a Priority

Research Demographics

Research Objectives

Recent technological shifts, including the widespread adoption of AI and shifts in the cost of licensing for hypervisor technology, are forcing IT decision-makers to reevaluate their preconceptions in hybrid cloud architecture and design. Cost increases in hypervisor technology have emerged across the IT world, leading to the exploration of alternatives. The prioritization of AI has fueled an increased focus on both the importance of private data and the need for greater control of infrastructure, reaffirming the significance of data centers, colocation, and hosted private cloud options for private AI.

To gain further insight into how these trends are impacting the future of on-premises infrastructure investments, architecture, and design, Enterprise Strategy Group, now part of Omdia, surveyed 380 IT professionals at organizations in North America (US and Canada) involved with or responsible for evaluating, purchasing, managing, and building application infrastructure.

THIS STUDY SOUGHT TO:

Identify how AI, changing hypervisor prices, and perceptions of cloud are changing infrastructure strategy.

Determine whether decision-makers are embracing a platform approach.

Establish the impact of private AI on investment.

Monitor how cloud and on-premises innovation affects experience preferences.

Note: Totals in figures and tables throughout this eBook may not add up to 100% due to rounding or organizations choosing more than one answer to select questions.

AI Fuels an Increasingly Distributed Application Infrastructure Environment

Multi-cloud Infrastructure Is Commonplace

With multi-cloud adoption already nearly universal, AI, better security, and improved access to innovation top the list of reasons nearly a third (29%) of organizations expect to shift a greater share of their IT spending to public cloud over the next two years.

Unique public cloud infrastructure providers in use.

92%
use more than **one** public cloud provider

60%
use more than **two** public cloud providers

Providers	Percentage
1	8%
2	32%
3	28%
4	15%
5	10%
6	4%
More than 6	3%

Drivers of increased investment in public cloud.

Driver	Percentage
Support new AI initiative located on public cloud infrastructure	50%
Better security	50%
Better access to innovation, features, or functionality	44%
Better support experience	35%
Better support for data locality or compliance requirements	32%
Support global or regional expansion	32%
Improve time to value by accelerating delivery of applications and infrastructure resources	32%
Superior TCO/ROI	31%
Reduce the operational burden on internal IT staff	30%
Active strategic initiative to reduce data center spending by moving applications to public cloud	30%
Self-service for developers, DevOps, or SREs	24%
Executive mandate	23%

Businesses Are 3x More Likely to Add Data Centers Than Remove Them

As investment in public cloud services continues, on-premises investment persists as well. The percentage of businesses that support six or more data centers is expected to increase from 25% to 41% in five years. Given the cost of public cloud infrastructure and increased importance of private data, organizations are rethinking the significance of data center modernization, making it a top priority.

On-premises data centers in operation.

- ■ Number of data centers five years ago
- ■ Number of data centers today
- ■ Number of data centers five years from now

	0	1	2	3 to 5	6 to 10	More than 10	Don't know
Five years ago	1%	12%	29%	46%	8%	2%	1%
Today	0%	8%	24%	42%	20%	5%	0%
Five years from now	0%	7%	19%	32%	26%	15%	1%
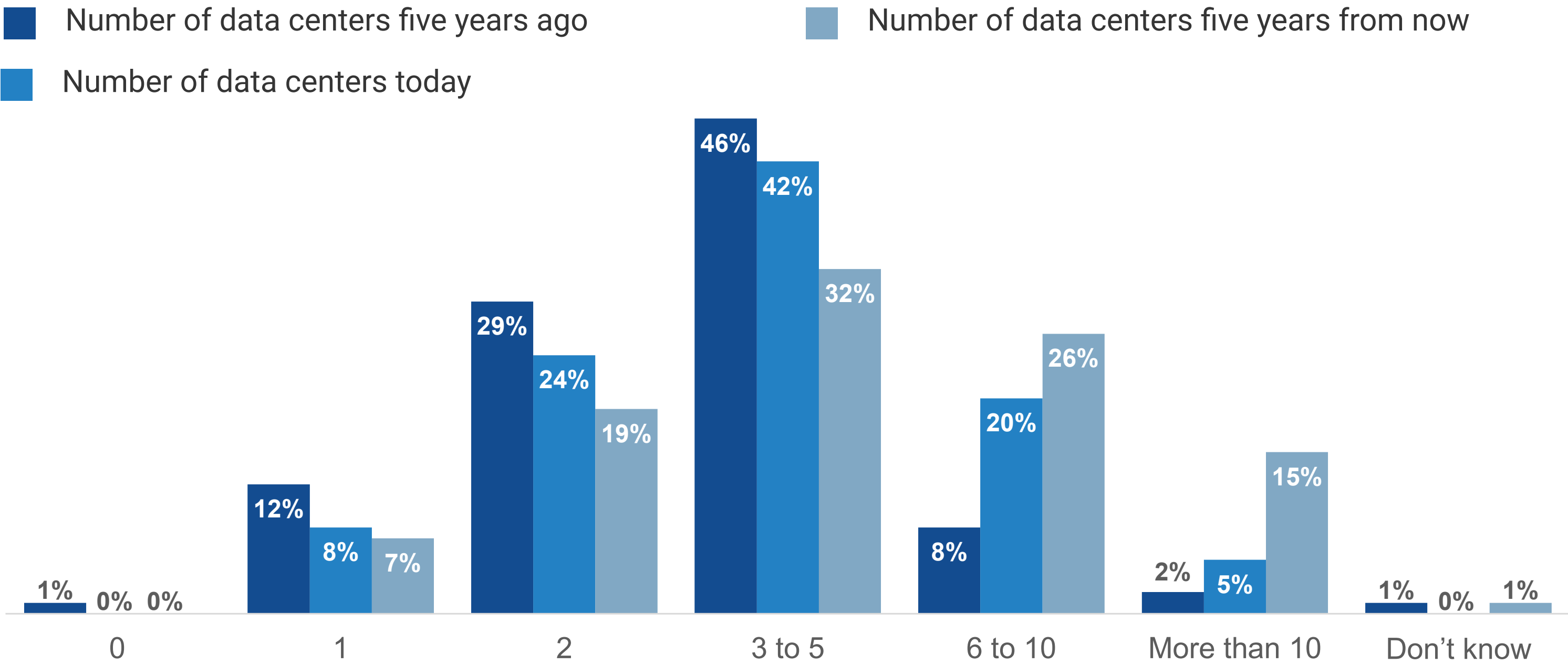
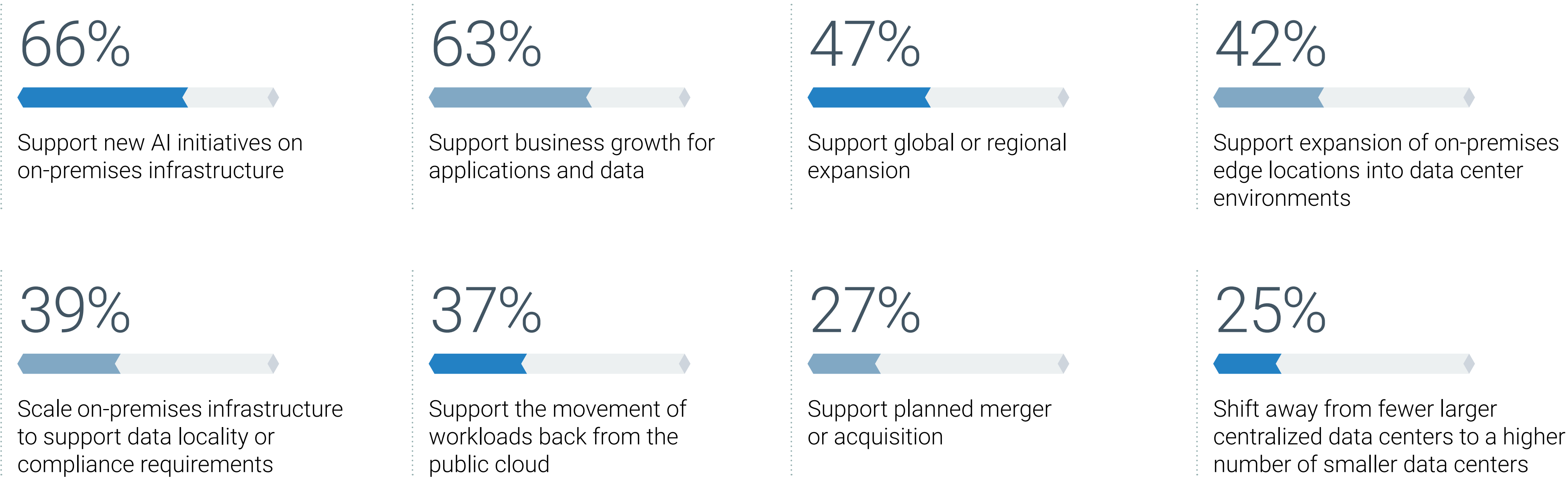**84%** say data center modernization is a **top IT priority.**

76% say the **rising cost of cloud infrastructure** has caused them to reevaluate their hybrid cloud strategy.

AI and Business Growth Fuel the Proliferation of Data Center Environments

AI surpasses overall business growth as a top justification for organizations that expect to increase the number of data centers they own and operate over the next five years.

The data center is and will remain a foundation of digital business, with the desire for greater control over data, infrastructure, and resources driving the importance and consistent presence of on-premises infrastructure in the years ahead.

Drivers for increasing number of data centers.

66%
Support new AI initiatives on on-premises infrastructure

63%
Support business growth for applications and data

47%
Support global or regional expansion

42%
Support expansion of on-premises edge locations into data center environments

39%
Scale on-premises infrastructure to support data locality or compliance requirements

37%
Support the movement of workloads back from the public cloud

27%
Support planned merger or acquisition

25%
Shift away from fewer larger centralized data centers to a higher number of smaller data centers
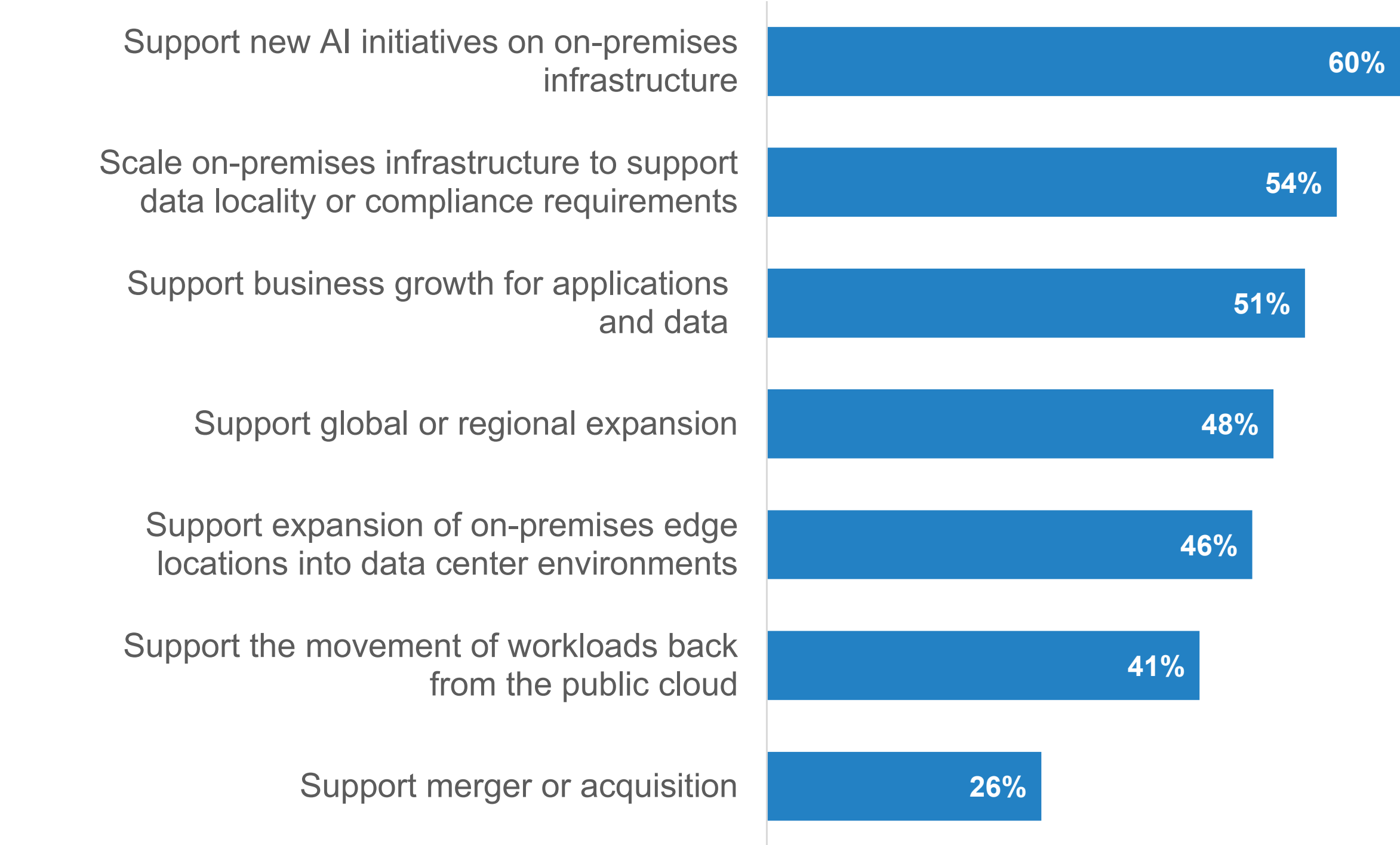
IT Budgets Are Shifting for AI and Greater Control

The need for greater control is fueling the construction of data center facilities for organizations as well as investment in third-party partners that provide hosted private cloud and colocation. Nearly half (47%) of organizations expect their spending with colocation or hosted private cloud providers to outpace their spending with public cloud and on-premises data center environments. When combined with the 24% of businesses planning to increase their data center spending relative to other locations, this represents significant movement to shift spending to infrastructure deployment options that offer greater control for both infrastructure and data as AI initiatives ramp up.

Drivers of increased investment in colocation and hosted private cloud.

Driver	%
Better security	54%
Support new AI initiative located at colocation facility	42%
Better support experience	42%
Reduced operational burden on IT staff	38%
Better support for data locality or compliance requirements	35%
Better control over infrastructure resources	34%
Provider expertise for our specific industry	30%
Closer proximity to multiple public cloud providers for applications and/or data	30%

Drivers of increased investment in data centers.

| Driver	%
Support new AI initiatives on on-premises infrastructure	60%
Scale on-premises infrastructure to support data locality or compliance requirements	54%
Support business growth for applications and data	51%
Support global or regional expansion	48%
Support expansion of on-premises edge locations into data center environments	46%
Support the movement of workloads back from the public cloud	41%
Support merger or acquisition	26%

As Virtualization Environments Evolve, Organizations Seek Savings and Alternatives

"72% experienced **a cost increase in their hypervisor environment due to changes in a provider's licensing model** in the past 18 months."

Nearly Three-quarters of Organizations Were Hit With an Increase in Hypervisor License Fees

Adding to the complexity of IT operations, shifting fee structures in the hypervisor market pile significant costs onto already strained IT budgets. The impact forces IT leadership teams to reevaluate existing strategies, partners, and investment priorities. This also prompts organizations to explore options for reducing costs in the short term while implementing strategies to reduce partner lock-in over the long term.

Extent of increase in hypervisor per-licensing costs over the past 18 months.

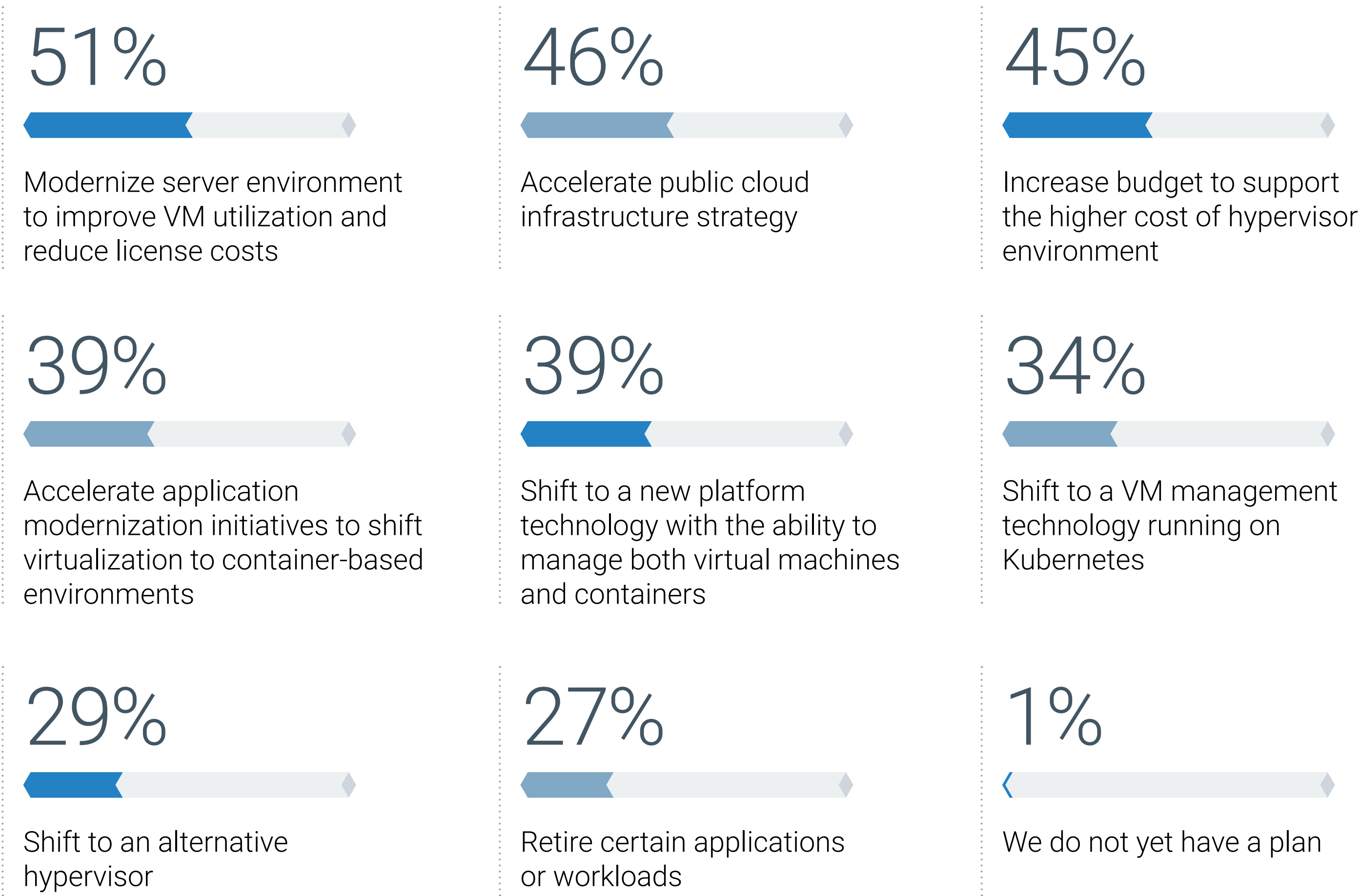| 14%	54%	31%	0%
10% or less	**11% to 50%**	**51% to 100%**	**More than 100%**
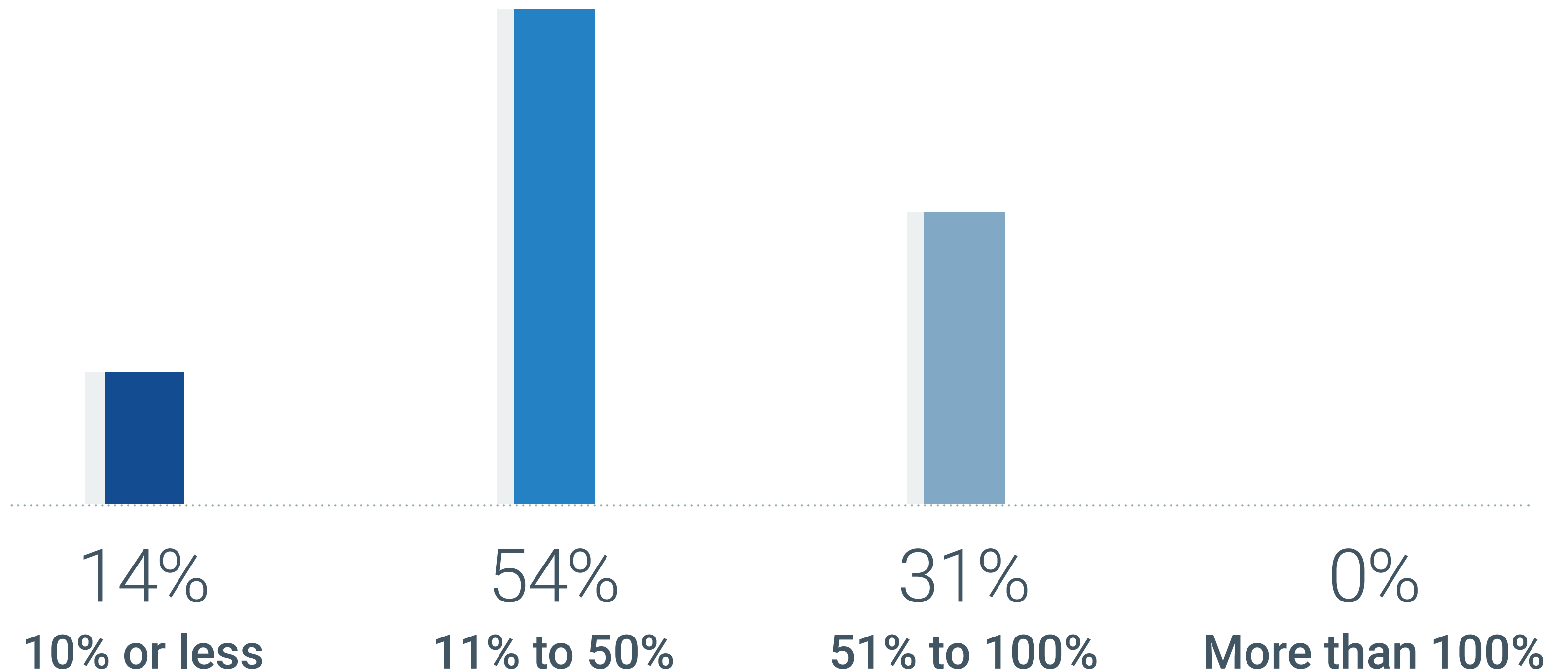
Organizations Balance Cost Realities With Exploration of Alternatives

Organizations are taking a multi-pronged approach to increases in hypervisor licensing costs, often taking more than one action to soften the impact. The most common actions focus on optimizing the environment, either through server or cloud adoption, to reduce the overall cost of the hypervisor environment. While container-based modernization initiatives comprise a second tier of options, the data highlights that organizations are exploring multiple alternatives to their existing provider.
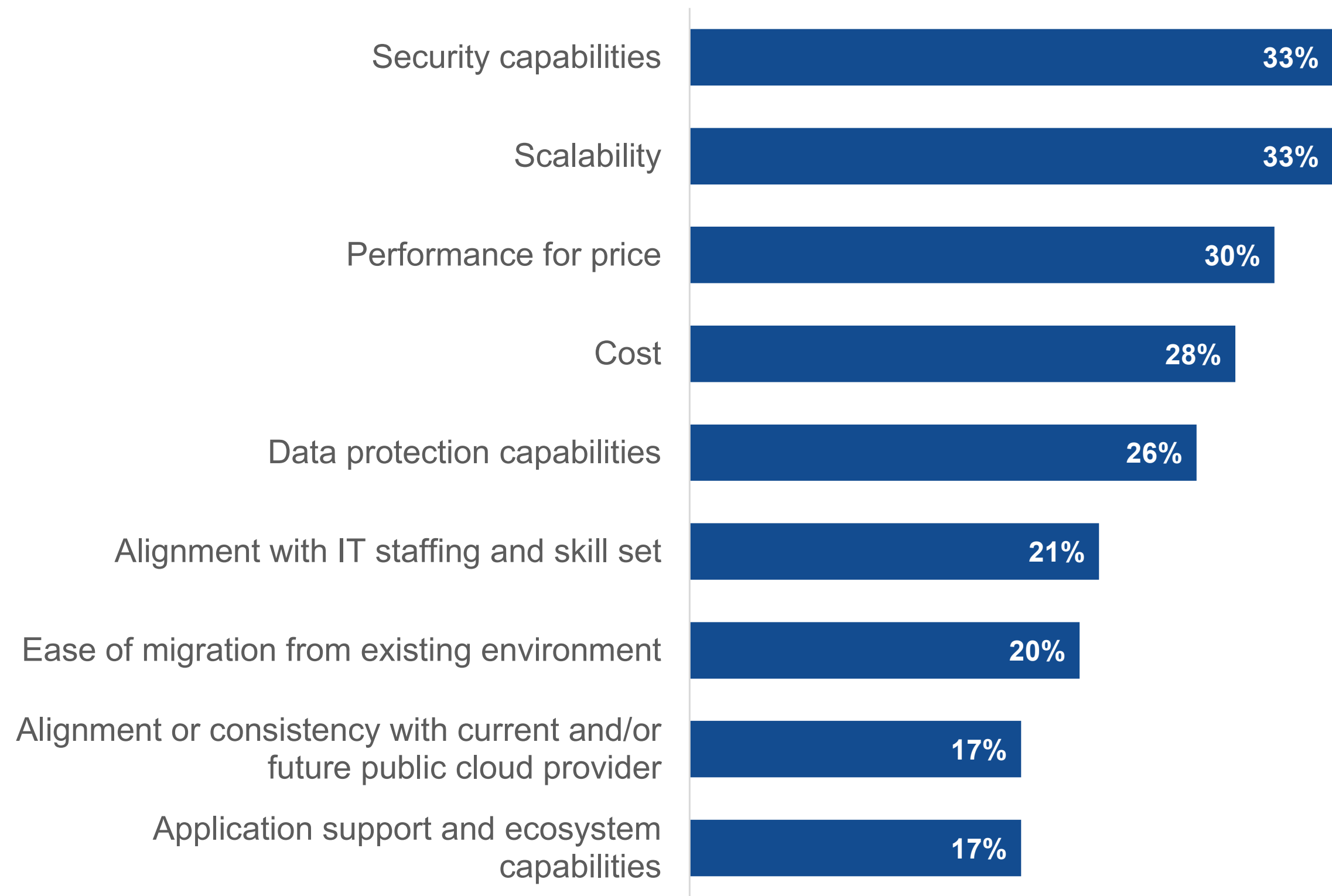
Actions prompted by increase in hypervisor licensing costs over the past 18 months.

51%

Modernize server environment to improve VM utilization and reduce license costs

46%

Accelerate public cloud infrastructure strategy

45%

Increase budget to support the higher cost of hypervisor environment

39%

Accelerate application modernization initiatives to shift virtualization to container-based environments

39%

Shift to a new platform technology with the ability to manage both virtual machines and containers

34%

Shift to a VM management technology running on Kubernetes

29%

Shift to an alternative hypervisor

27%

Retire certain applications or workloads

1%
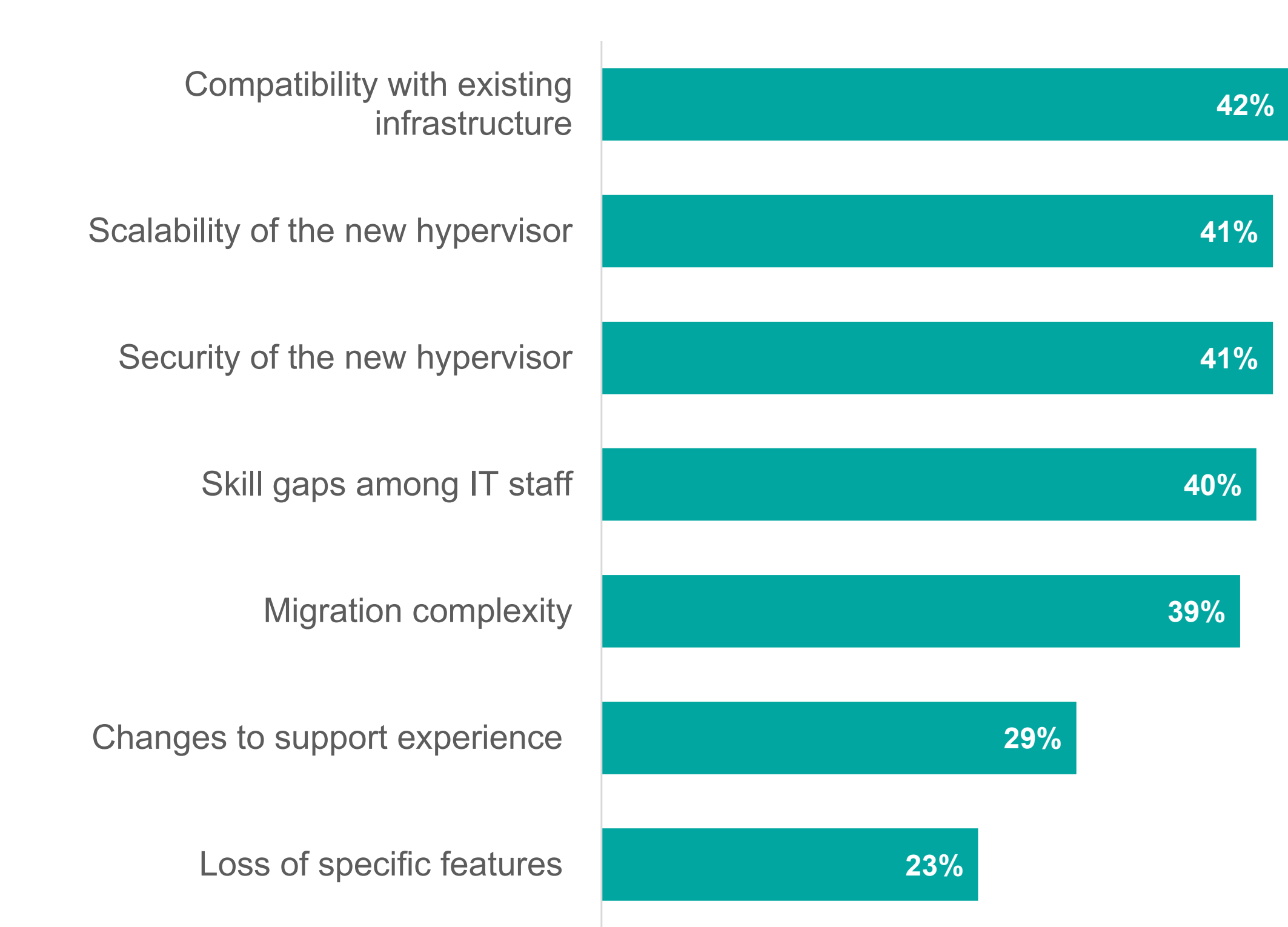
We do not yet have a plan

When Evaluating Hypervisor Alternatives, Security and Scale Matter Most

When it comes to reducing investment in or replacing primary hypervisor partners, five core hypervisor requirements outpace others: security, scalability, performance for price, cost, and data protection. While familiarity benefits such as alignment with existing skills and ease of migration are powerful, organizations are focused on ensuring providers can efficiently scale with the demands of the business.

Selection factors for alternative hypervisors.

Factor	Percentage
Security capabilities	33%
Scalability	33%
Performance for price	30%
Cost	28%
Data protection capabilities	26%
Alignment with IT staffing and skill set	21%
Ease of migration from existing environment	20%
Alignment or consistency with current and/or future public cloud provider	17%
Application support and ecosystem capabilities	17%

Concerns about transitioning to alternative hypervisors.

| Concern	Percentage
Compatibility with existing infrastructure	42%
Scalability of the new hypervisor	41%
Security of the new hypervisor	41%
Skill gaps among IT staff	40%
Migration complexity	39%
Changes to support experience	29%
Loss of specific features	23%

Those Undertaking On-premises Modernization Continue Pursuing a Cloud-like, As-a-service Experience

Hybrid Takes Over Behind a Desire for On-premises Environments to Change

While only 3% of organizations want to abandon data centers, just 7% want to keep everything the same. Whether organizations are increasing, maintaining, or reducing data center spending, two-thirds want to modernize their on-premises infrastructure to provide a more cloud-like experience. As organizations increasingly understand that the future of IT is hybrid, the desire to modernize infrastructure for on-premises environments becomes a priority.
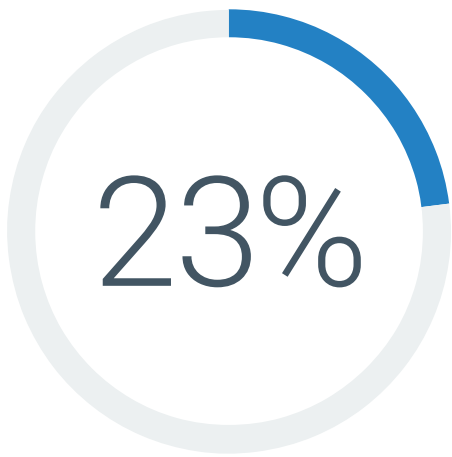
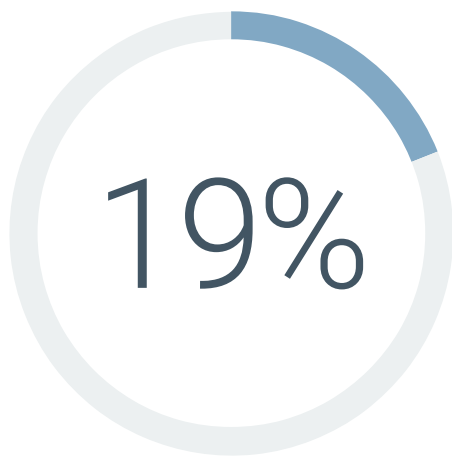**Strategy for on-premises data center environments over the next three years.**
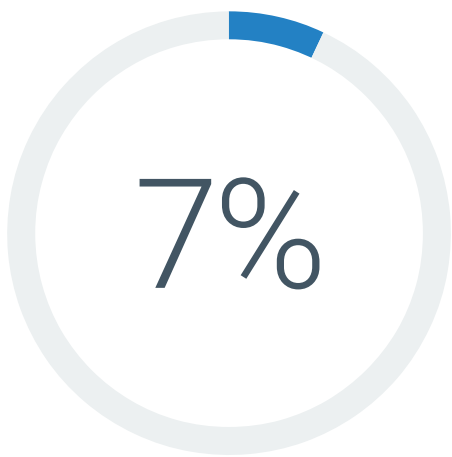
7% Maintain or increase on-premises infrastructure investment for the foreseeable future

19% Increase on-premises infrastructure investments with a focus on an on-premises cloud-like experience
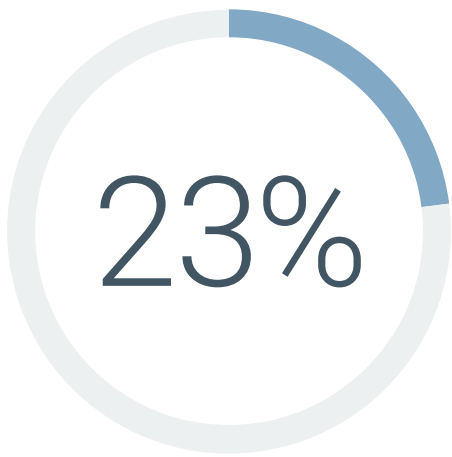
**23%** Maintain on-premises infrastructure investments while shifting toward an on-premises cloud-like experience

25% Reduce on-premises infrastructure investments in favor of migration to or consumption of public or hosted cloud services, while also investing in technologies that provide an on-premises cloud-like experience

23% Reduce on-premises infrastructure investments in favor of migration to or consumption of public or hosted cloud services
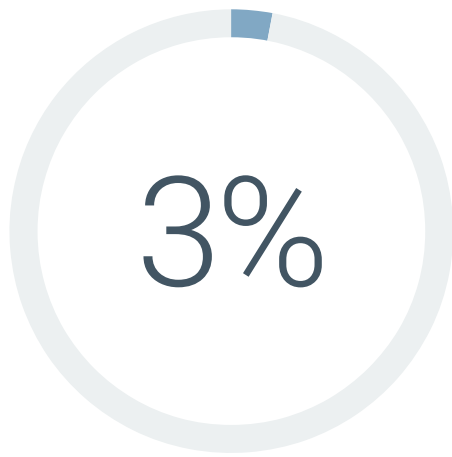
3% Exit on-premises data centers completely

> "84% say consistency of experience across data center and cloud environments **delivers significant operational benefits**."

Organizations Prioritize Consistency Across Hybrid Cloud Environments

Most organizations agree that consistency of experience across data center and cloud environments delivers significant operational benefits. Despite widespread understanding of the value of hybrid cloud consistency, nearly half of organizations prioritize best-of-breed tooling over consistency when selecting new tools or infrastructure for their hybrid cloud environment, suggesting a perceived trade-off between consistency and capability.

Approach to creating a consistent management experience across hybrid cloud environments.
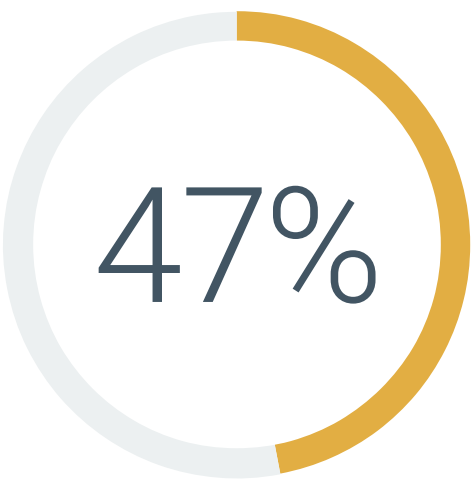
47%   **We prioritize the best tools or infrastructure** for specific sites with minimal prioritization of management consistency or tools across locations
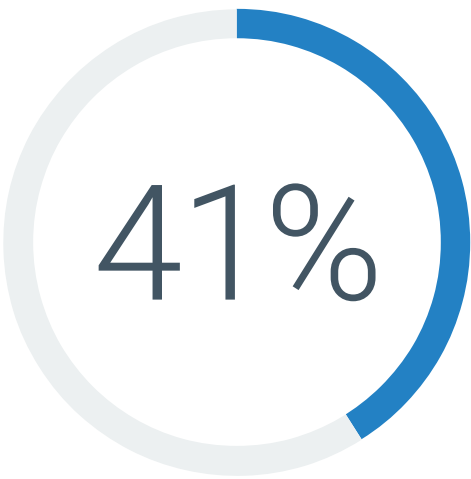
41%   **We prioritize solutions that deliver a consistent experience across locations** as long as capabilities, cost, and other key factors are comparable
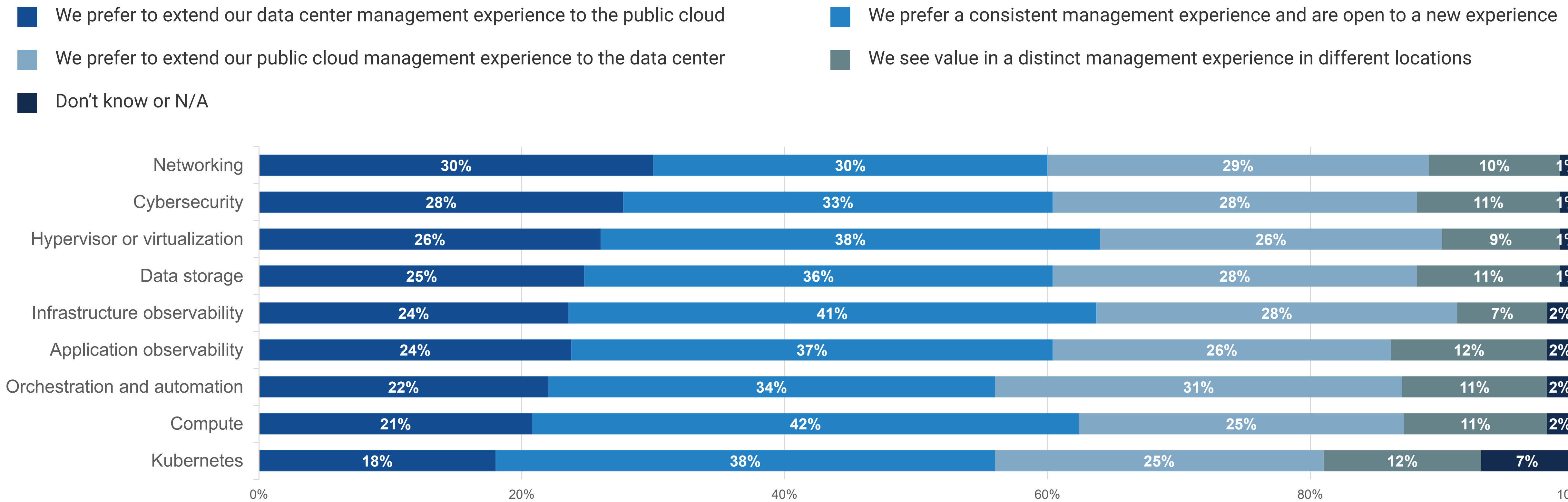
12%   We actively pursue technologies that provide cross-cloud or cross-hybrid-cloud consistency

While Organizations Prioritize Consistency, They Often Want Something New

Even organizations that prefer consistency are willing to explore alternatives, highlighting opportunities for alternatives and new entrants to deliver significant value. This finding was most prominent for compute infrastructure and infrastructure observability. Well over a third (37%) of organizations are open to new experiences despite their preference for consistency when it comes to application observability.

Approach that best aligns with management experience per technology.

- ■ We prefer to extend our data center management experience to the public cloud
- ■ We prefer to extend our public cloud management experience to the data center
- ■ Don't know or N/A
- ■ We prefer a consistent management experience and are open to a new experience
- ■ We see value in a distinct management experience in different locations

Technology	Extend data center to public cloud	Consistent, open to new	Extend public cloud to data center	Distinct experience	Don't know/N/A
Networking	30%	30%	29%	10%	1%
Cybersecurity	28%	33%	28%	11%	1%
Hypervisor or virtualization	26%	38%	26%	9%	1%
Data storage	25%	36%	28%	11%	1%
Infrastructure observability	24%	41%	28%	7%	2%
Application observability	24%	37%	26%	12%	2%
Orchestration and automation	22%	34%	31%	11%	2%
Compute	21%	42%	25%	11%	2%
Kubernetes	18%	38%	25%	12%	7%

Consolidation Is Beneficial in Modernization Plans

Given the scale of digital initiatives, applications, and data, traditional infrastructure can quickly become unsustainable. As a result, organizations see the benefits of consolidation, with over a third making consolidation a priority for experiences and systems and 32% doing so for vendors. In addition, that nearly four out of 10 organizations actively seek to reduce the number of data copies illustrates how much the rapid growth of data has impacted cost and operations. As businesses pursue consistency, the deployment of self-service capabilities for infrastructure resources becomes a priority.

Status of IT infrastructure strategies in data centers.

■ Actively working toward this goal

■ Not a priority and likely provides little benefit

■ Don't know

■ Beneficial but not a top priority

■ Hinders operations or creates a disadvantage

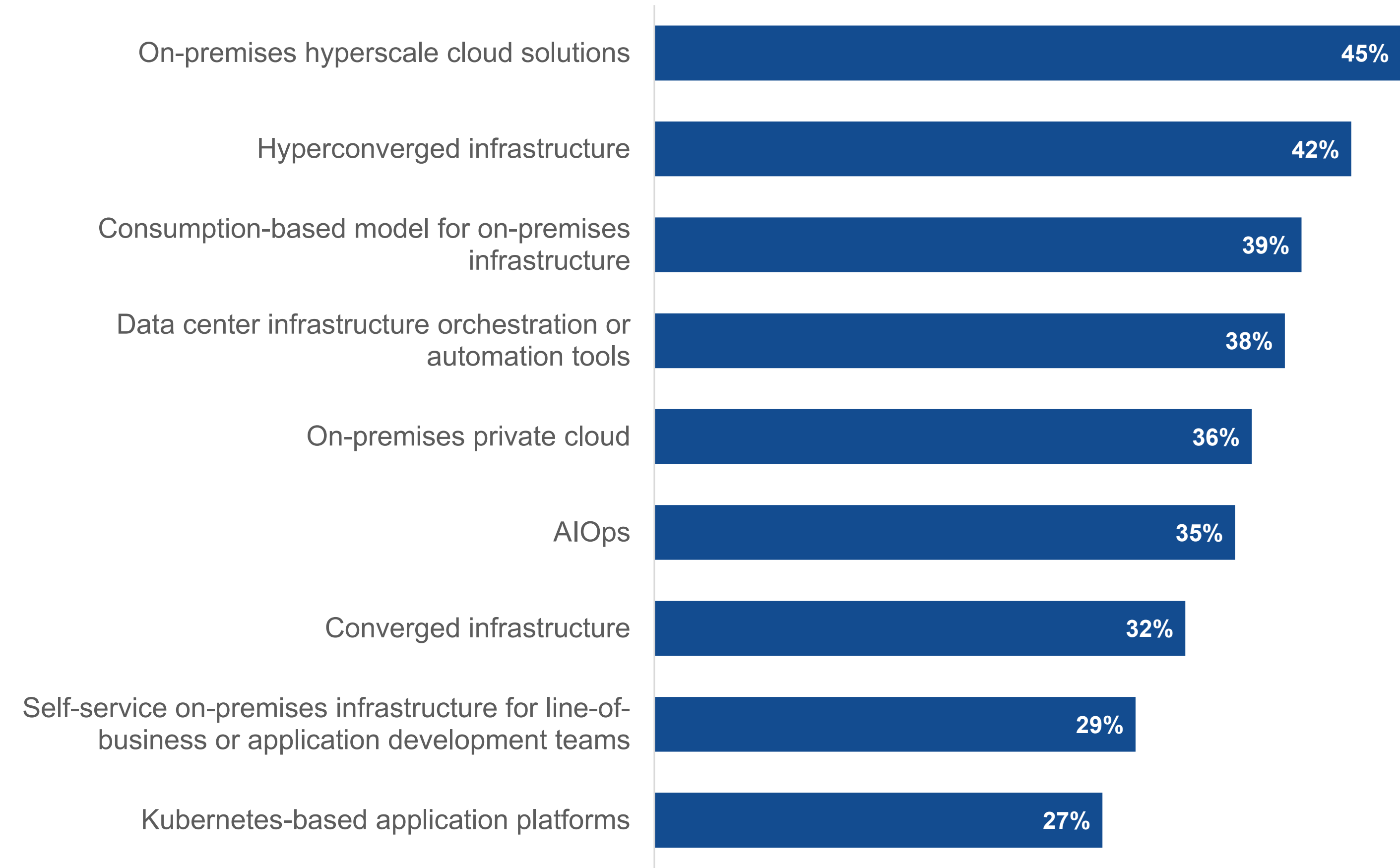|	Actively working toward this goal	Beneficial but not a top priority	Not a priority and likely provides little benefit	Hinders operations or creates a disadvantage	Don't know
Reduce the number of disparate management experiences	39%	39%	16%	5%	2%
Reduce the number of physical systems	39%	36%	21%	5%	
Reduce the number of data copies	38%	39%	16%	7%	
Reduce the power or cooling impacts	37%	36%	20%	6%	1%
Reduce the number of vendors	32%	40%	21%	7%	1%

0%   20%   40%   60%   80%   100%
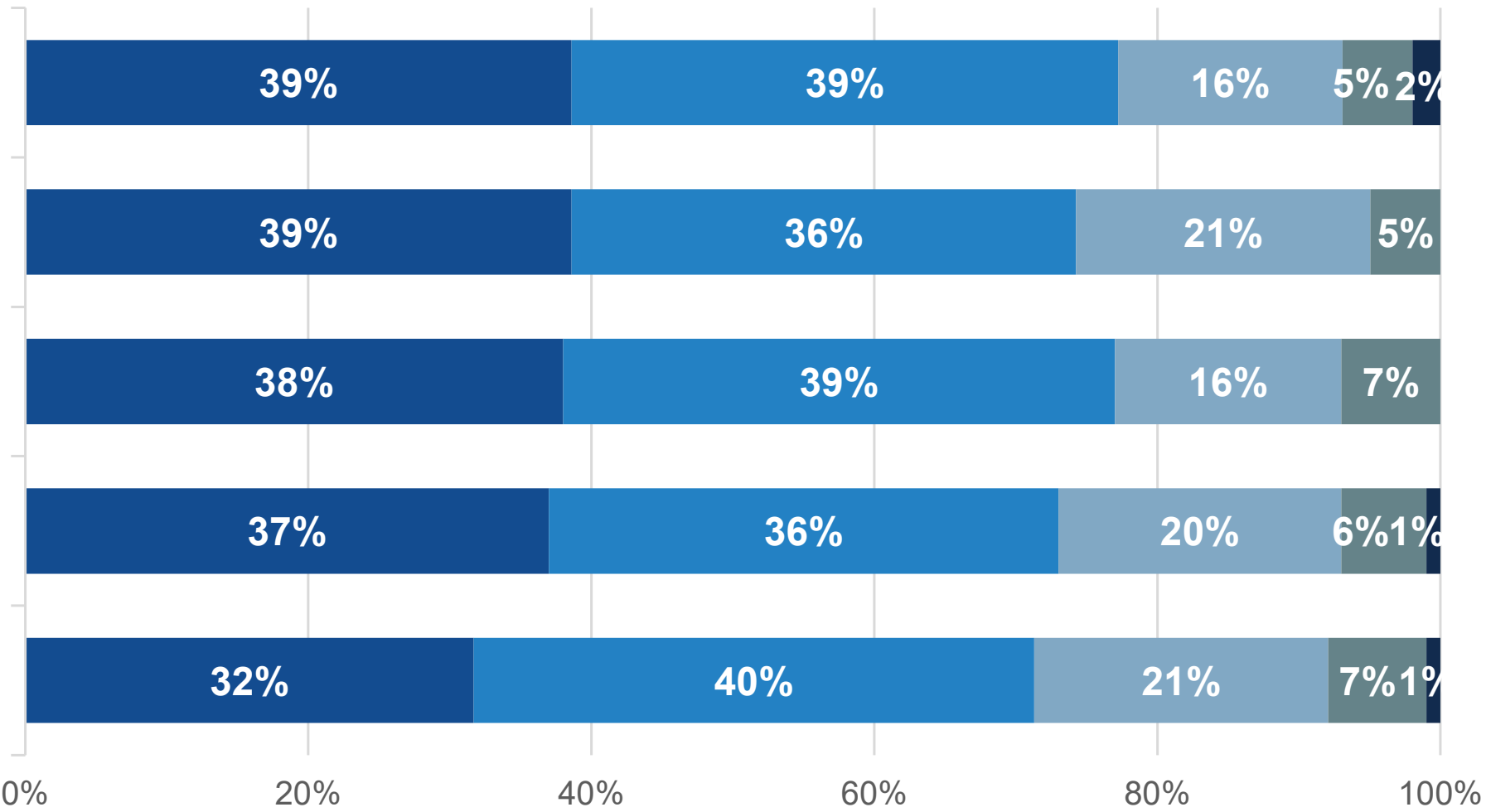
Organizations Seek Cloud-like Experiences From Public Cloud Providers, HCI, and As-a-service Offerings

On-premises hyperscale solutions (leveraging technology from the major public cloud providers), hyperconverged infrastructure (HCI), and on-premises as-a-service infrastructure options eclipse more software-centric management and orchestration technologies and approaches, highlighting interest to couple improved management experience with infrastructure modernization.
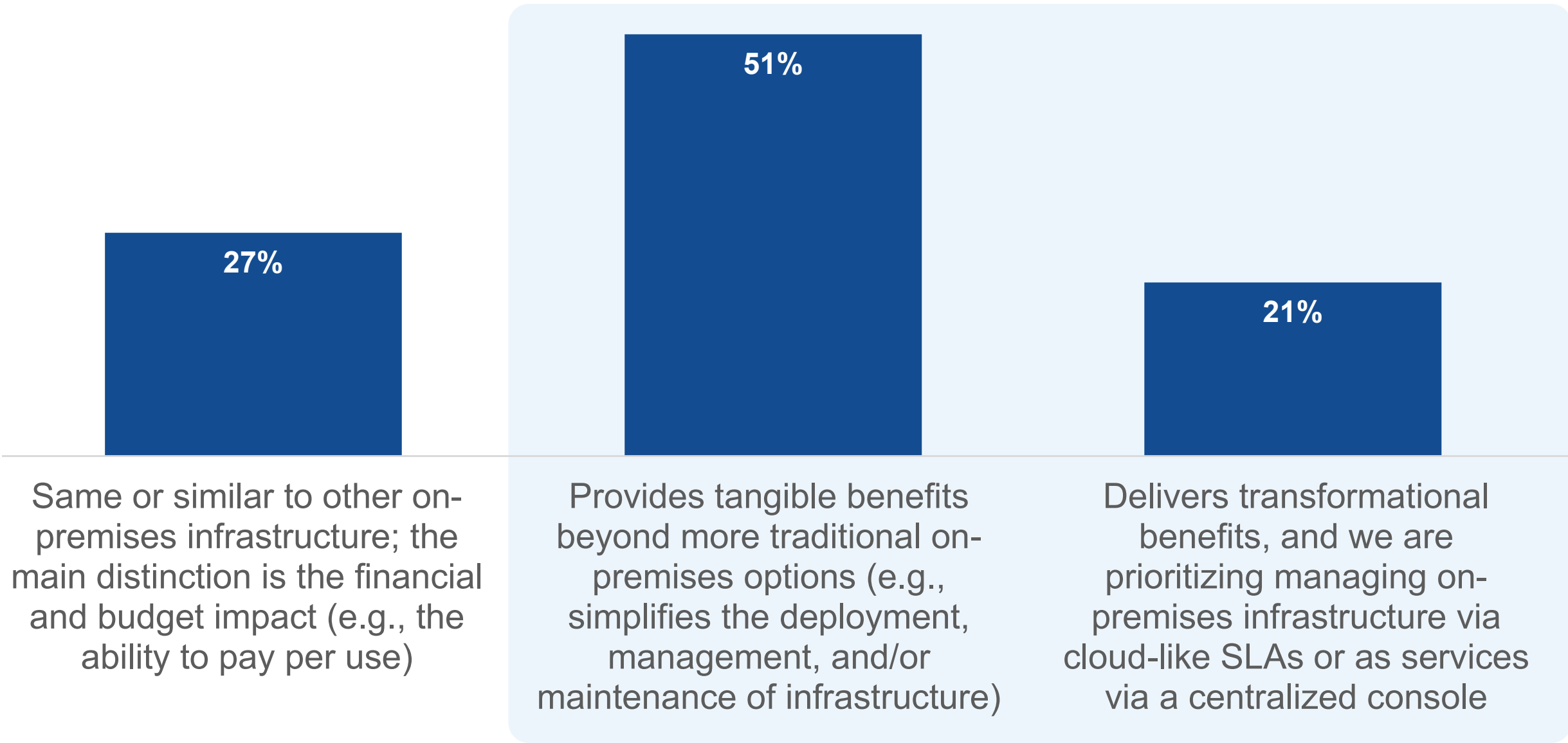
Technologies or approaches helping to create a cloud-like experience in data centers.

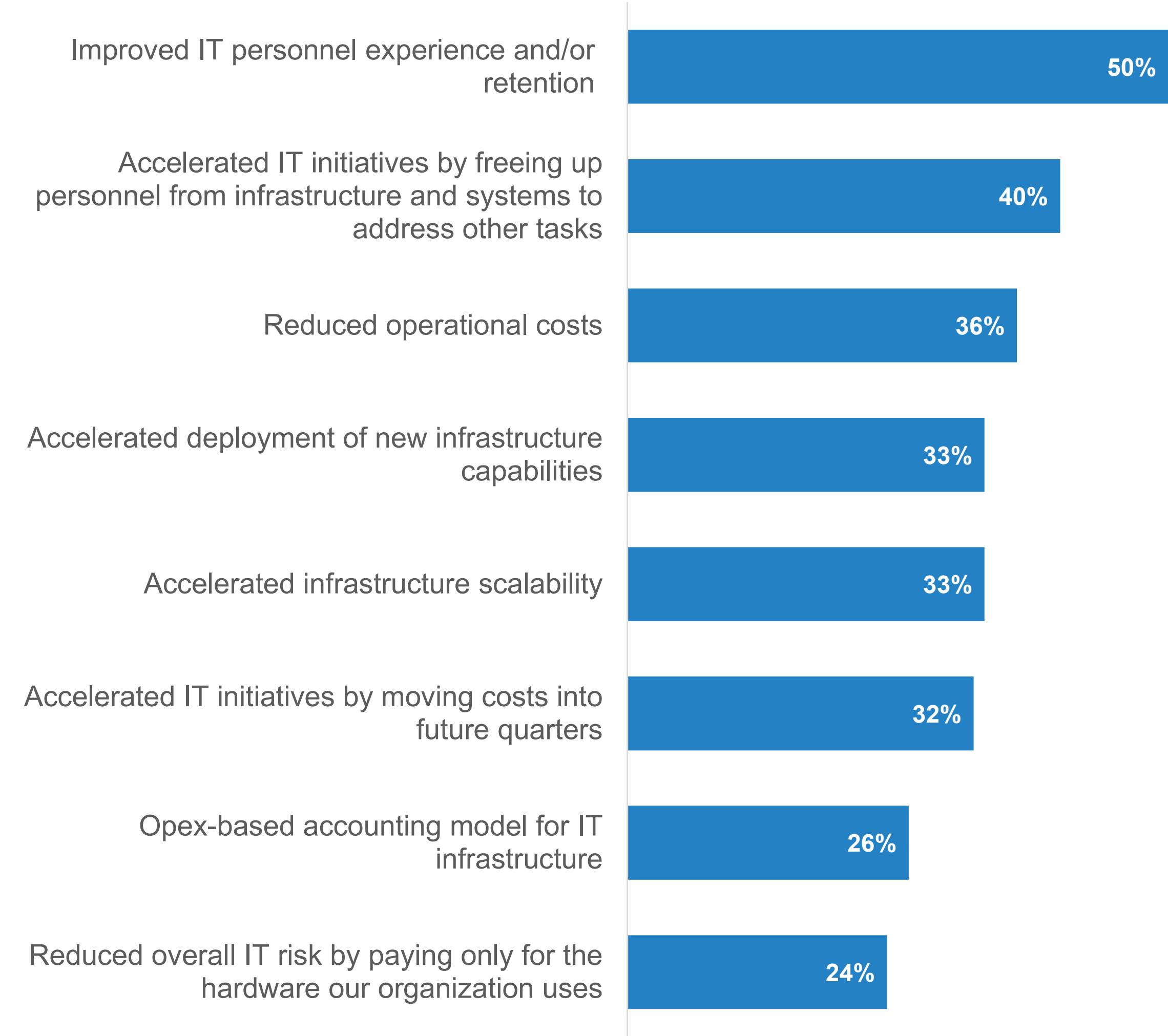| Category	Value
On-premises hyperscale cloud solutions	45%
Hyperconverged infrastructure	42%
Consumption-based model for on-premises infrastructure	39%
Data center infrastructure orchestration or automation tools	38%
On-premises private cloud	36%
AIOps	35%
Converged infrastructure	32%
Self-service on-premises infrastructure for line-of-business or application development teams	29%
Kubernetes-based application platforms	27%

On-premises Consumption-based Solutions Improve IT Experiences, Accelerate Operations, and Become Strategic to the Business

Once considered primarily a financial option, on-premises consumption (pay-per-use) and as-a-service offerings have evolved as a strong option to reduce the burden on internal personnel while improving the experience and retention of IT team members. A majority of organizations now value on-premises infrastructure solutions that leverage a consumption or as-a-service model, as these deliver tangible or transformational benefits beyond those of traditional on-premises infrastructure solutions.

Perceptions of consumption-based or as-a-service models.

27%	51%	21%
Same or similar to other on-premises infrastructure; the main distinction is the financial and budget impact (e.g., the ability to pay per use)	Provides tangible benefits beyond more traditional on-premises options (e.g., simplifies the deployment, management, and/or maintenance of infrastructure)	Delivers transformational benefits, and we are prioritizing managing on-premises infrastructure via cloud-like SLAs or as services via a centralized console

Benefits of on-premises infrastructure delivered via a consumption-based model or as a service.

Benefit	%
Improved IT personnel experience and/or retention	50%
Accelerated IT initiatives by freeing up personnel from infrastructure and systems to address other tasks	40%
Reduced operational costs	36%
Accelerated deployment of new infrastructure capabilities	33%
Accelerated infrastructure scalability	33%
Accelerated IT initiatives by moving costs into future quarters	32%
Opex-based accounting model for IT infrastructure	26%
Reduced overall IT risk by paying only for the hardware our organization uses	24%

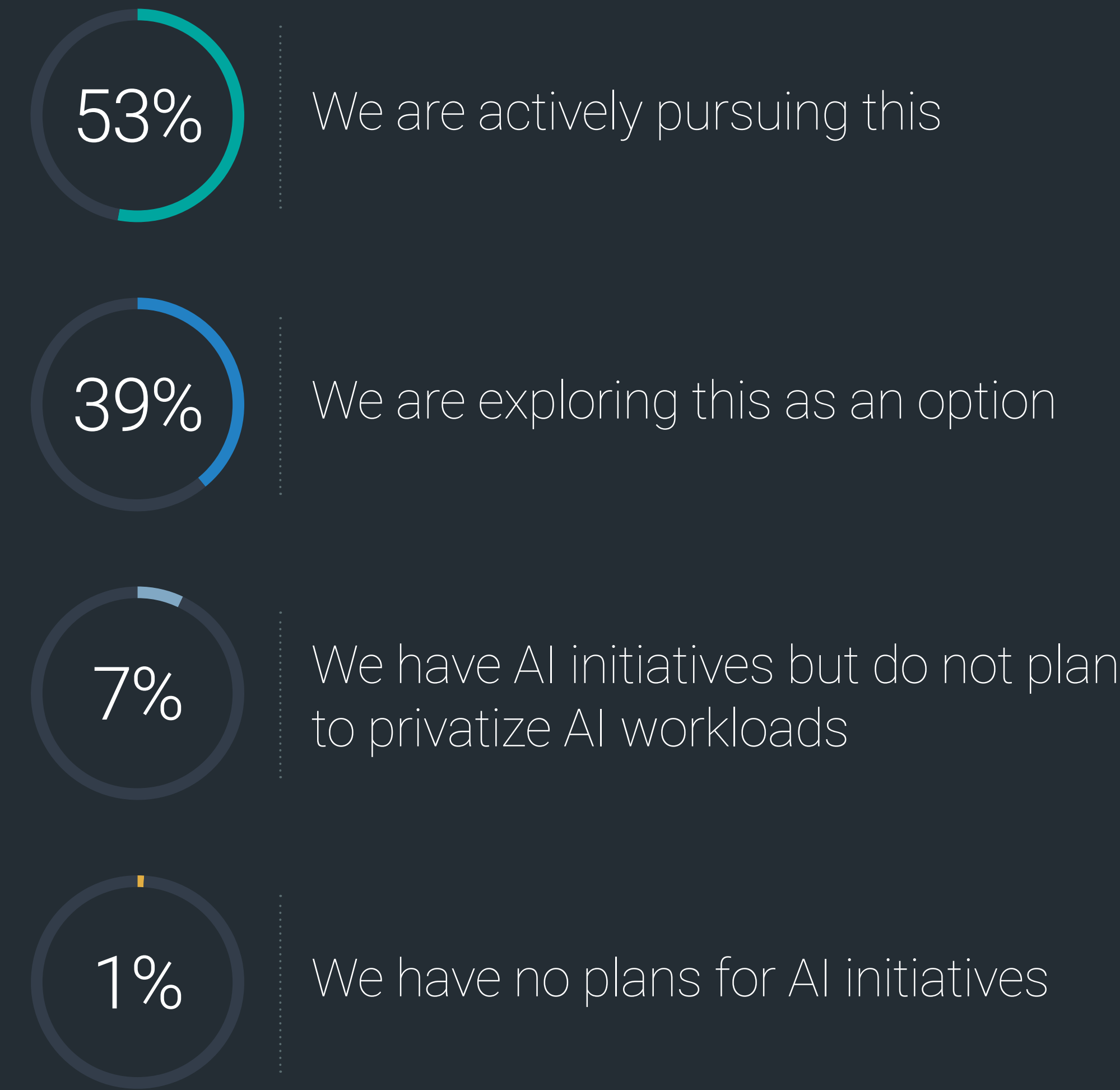As Private AI Initiatives Grow, Supporting Infrastructure Becomes a Priority

AI Is on Premises for Many and Will Be for More

True for both midmarket and enterprise organizations, the desire and the expectation is that AI will be privately deployed on premises. This fuels the need to modernize infrastructure and ensure overall ecosystem simplicity to better prepare data center environments for the scale required. Control and privacy outweigh costs in terms of reasons organizations pursue AI initiatives on premises.

Top rationale for deploying AI workloads on premises.

Greater control over AI operations	45%
Data privacy and sovereignty concerns	42%
Greater control over the management and lifecycle of AI infrastructure assets	41%
Cost predictability and management	39%
Performance and latency requirements	37%
Lower overall expected cost	30%
Compliance with industry or governmental regulations	29%
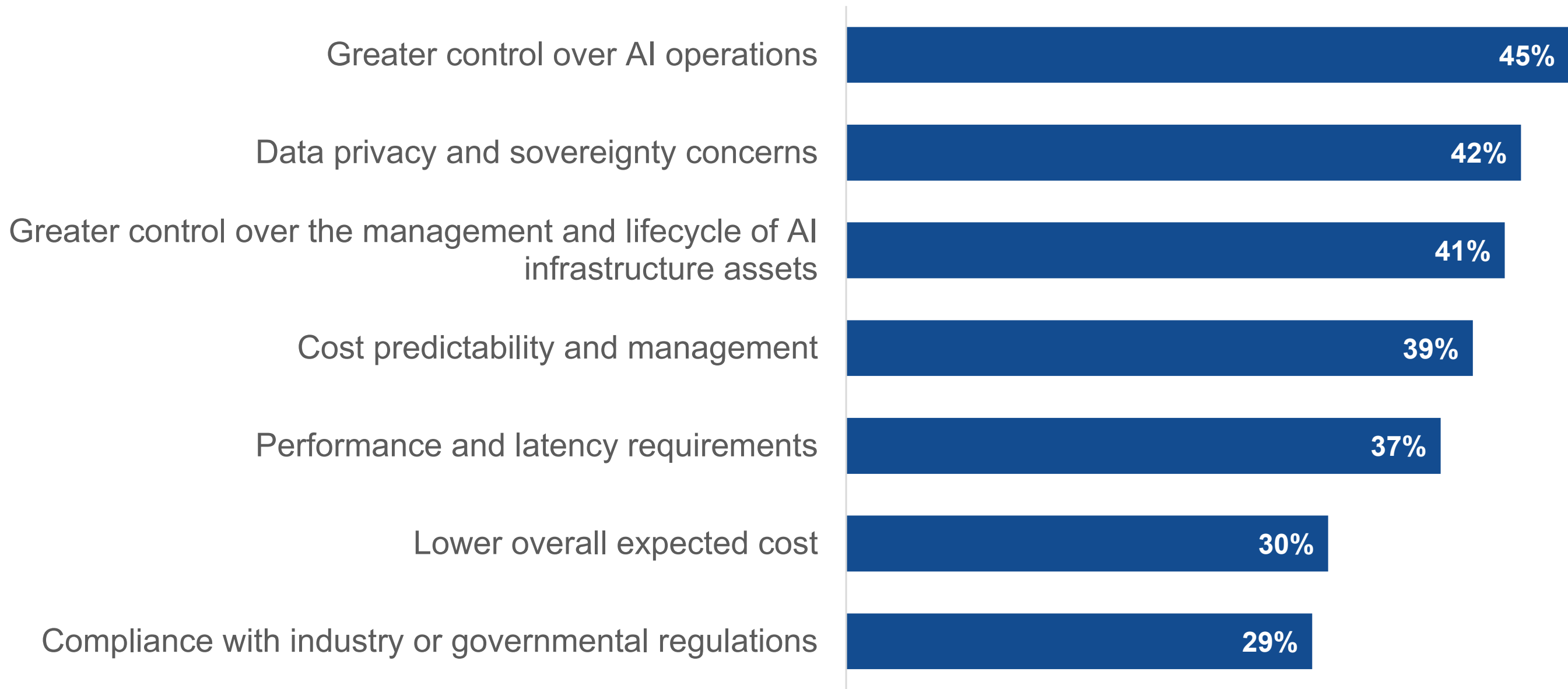
Status of privatized, on-premises AI deployments.

53% We are actively pursuing this

39% We are exploring this as an option

7% We have AI initiatives but do not plan to privatize AI workloads

1% We have no plans for AI initiatives

Organizations Invest in On-premises AI Amid Ongoing Concerns

For all the opportunity AI promises for the business, IT is often focused on mitigating the associated risk and cost of AI. These challenges remain consistent across both enterprises and midmarket organizations. For businesses pursuing private AI, the increasing maturity of operations is shifting investment to modernizing the remainder of the supporting infrastructure to support the data, security, and protection needs of AI initiatives.

Concerns with on-premises AI initiatives.

Protecting AI data	34%
Securing the AI environment	32%
High infrastructure costs	30%
Ensuring regulatory compliance for AI data	29%
Managing AI data	27%
Availability of AI-specific hardware	27%
Scalability of AI workloads	26%
Lack of in-house expertise	24%
Providing access to data and AI tooling to line-of-business and data teams	23%
Integrating new investments with existing infrastructure	21%

Investment areas to support on-premises AI.

High-performance networking	50%
Data protection solutions	47%
Data storage	42%
Internal training	38%
Data orchestration and management tools	37%
Servers with NVIDIA accelerators	34%
Third-party services	33%
Servers with non-NVIDIA accelerators	26%
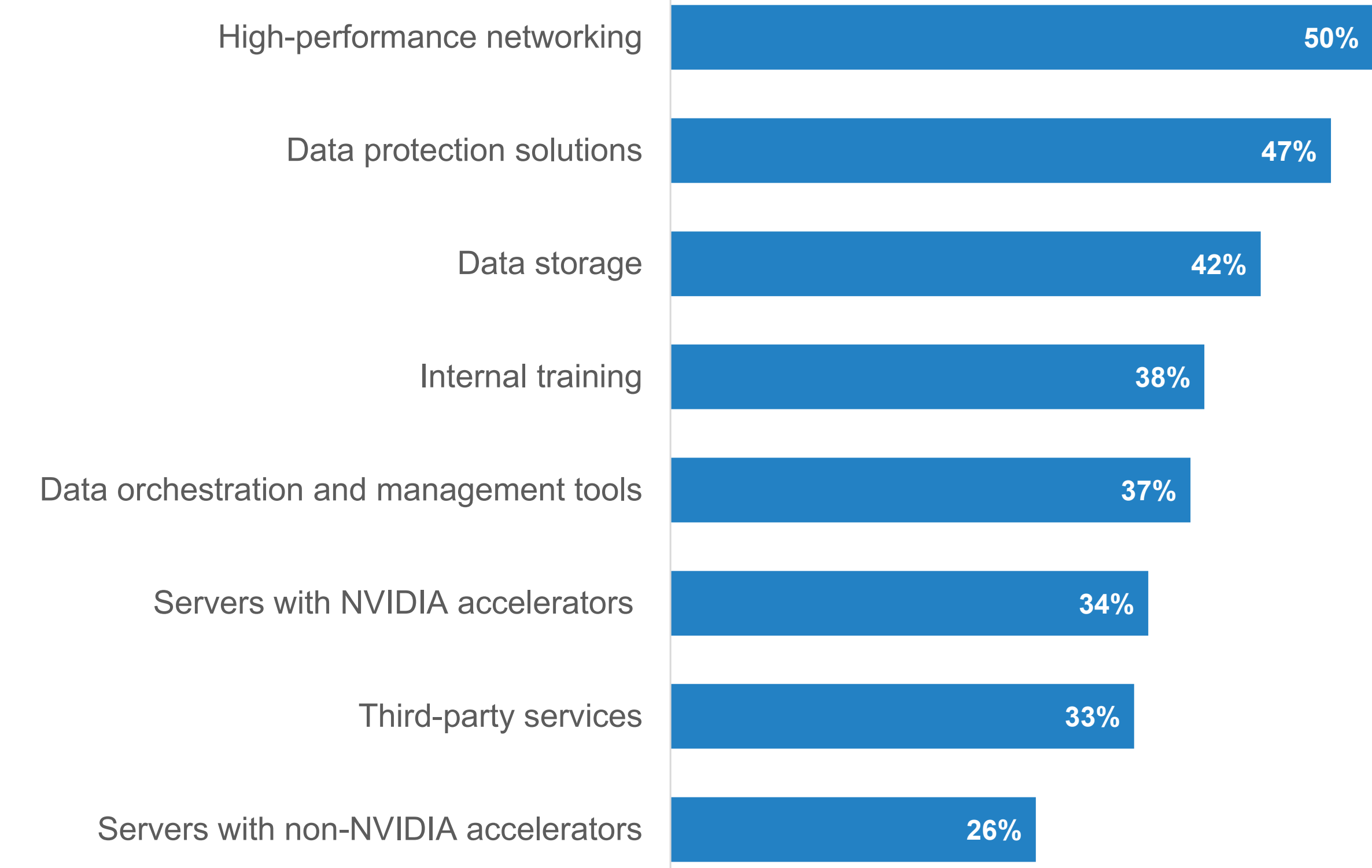
NUTANIX

ABOUT

Nutanix offers a flexible, future-ready platform with a scale-out, server-based, software-defined architecture that provides true choice and control over your IT strategy. Nutanix enables workload mobility and unified management across data center, public cloud and edge environments—all from a single management plane. With Nutanix, customers can manage existing virtualized applications with ease while advancing to cloud native and AI workloads, gaining the freedom to modernize at their own pace with lower risk, reduced costs, and the flexibility to adapt to evolving business demands. Nutanix delivers one platform to run apps and data across hybrid multicloud environments, the ideal architecture for modern business.

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RESEARCH METHODOLOGY AND DEMOGRAPHICS

To gather data for this report, Enterprise Strategy Group, now part of Omdia, conducted a comprehensive online survey of IT professionals from private- and public-sector organizations in North America (United States and Canada) between February 21, 2025 and March 5, 2025. To qualify for this survey, respondents were required to be involved with or responsible for evaluating, purchasing, managing, and building application infrastructure. 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 380 IT professionals.

Respondents' organizations by number of employees.
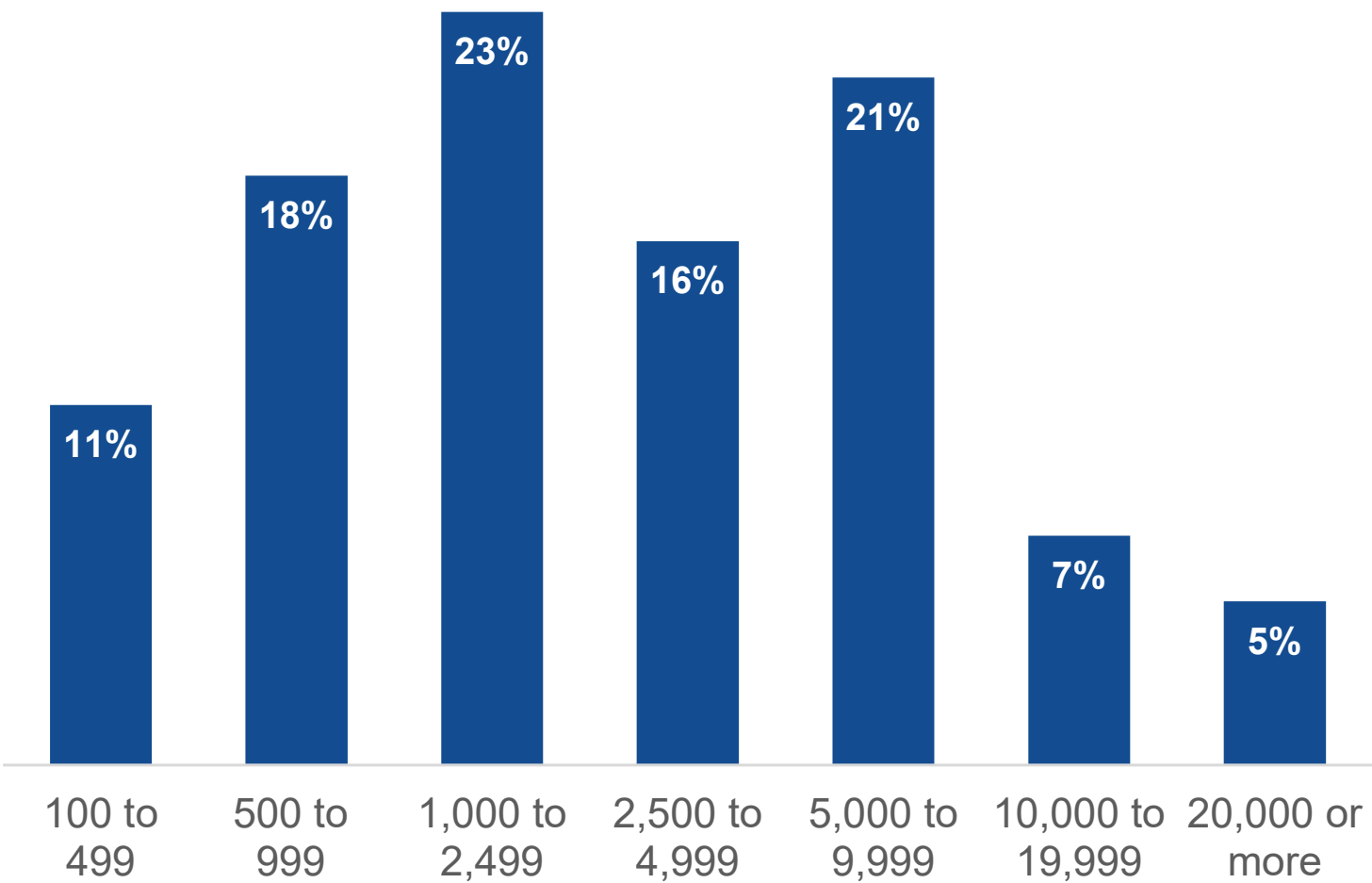
Respondents' organizations by years in operation.
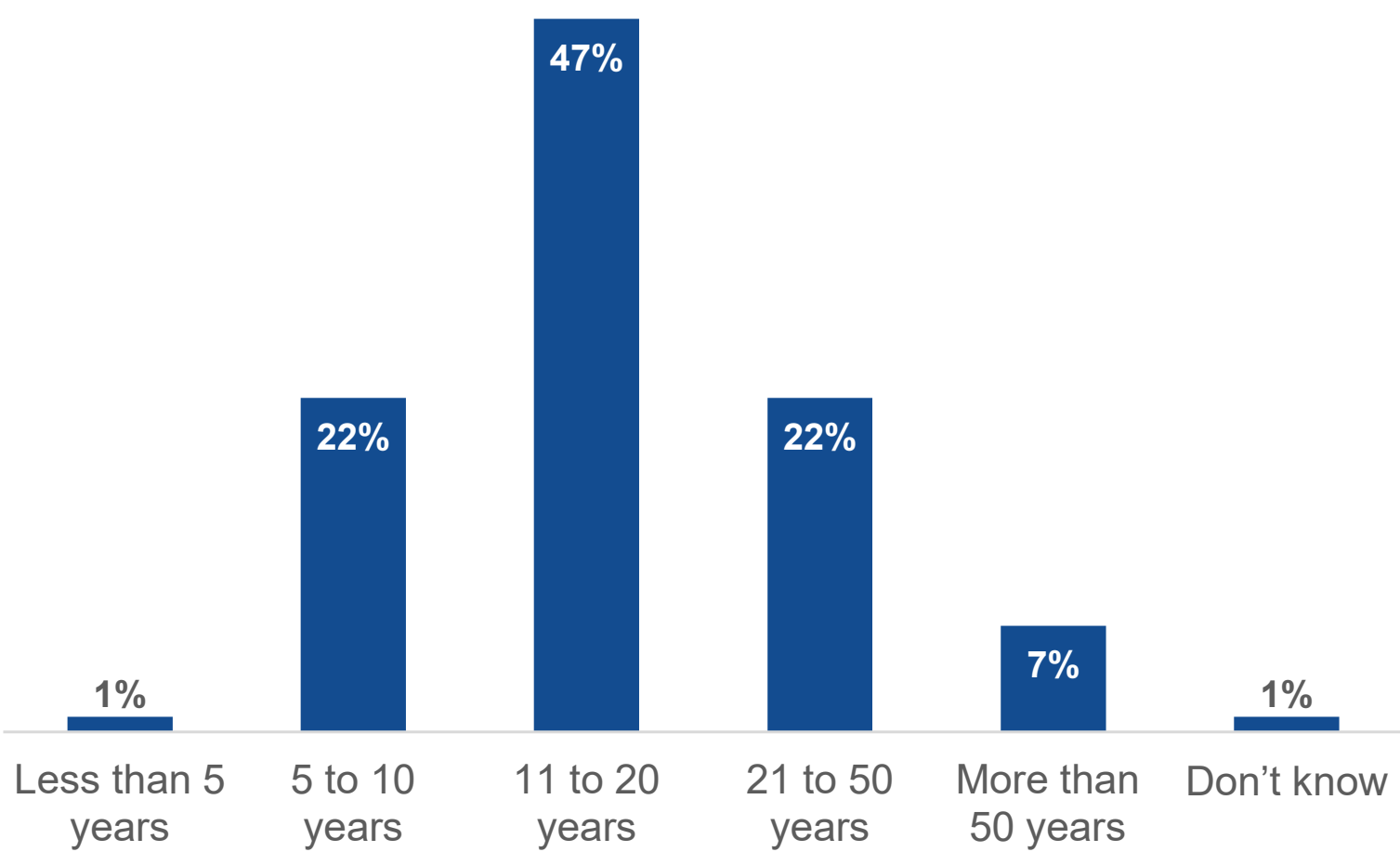
Respondents' organizations by industry.

Enterprise Strategy Group is an integrated technology analysis, research, and strategy firm providing market intelligence, actionable insight, and go-to-market content services to the global technology community.