Enterprise Strategy Group™

RESEARCH REPORT

Private AI, Virtualization, and Cloud

Transforming the Future of Infrastructure Modernization

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Enterprise Strategy Group

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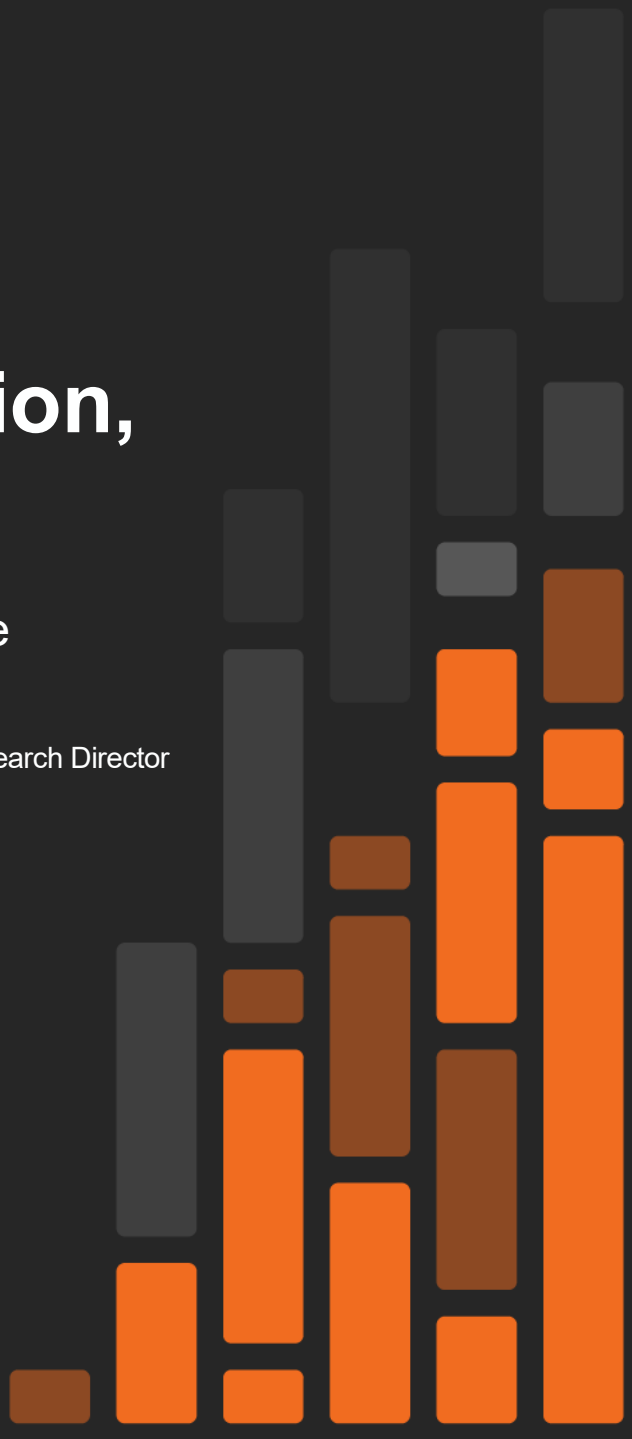

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Executive Summary

Report Conclusions

Enterprise Strategy Group surveyed 380 IT professionals at organizations in North America (U.S. and Canada) involved with or responsible for evaluating, purchasing, managing, and building application infrastructure. Based upon the data gathered, the report illustrates that:

- **AI is fueling investment decisions across an increasingly distributed application infrastructure environment**. Today, multi-cloud adoption is nearly universal and at, or very near, maturity. Among organizations allocating a greater percentage of their budget to on-premises data centers, supporting AI initiatives on premises, scaling to support data locality or compliance requirements, and supporting business growth for applications and data were the top drivers of that decision. Supporting new AI initiatives on on-premises infrastructure surpasses overall business growth as a top justification for organizations that expect to increase the number of physical data center locations that they own and operate as well. The data center 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. As a result, most organizations agree that data center modernization is a top priority. The need for greater control is also fueling investment in third-party partners that provide hosted private cloud and colocation. This sentiment rings true when those organizations planning increased budget for colocation providers or hosted private cloud providers were asked about the reasons why, with security coming in as the most cited response.
- **As private AI initiatives grow, supporting infrastructure becomes a priority**. Overall, most desire and expect AI to 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 by AI operations. For all the opportunity AI promises for the business, IT regularly anticipates or experiences challenges protecting AI data and securing the AI environment when deploying AI on on-premises infrastructure. In terms of drivers for deploying AI in private data centers, control over AI operations and infrastructure assets and data privacy concerns were most often cited. High-performance networking, data protection, and data storage represent the most common areas of investment to support private AI.
- **As virtualization environments evolve, organizations seek savings and alternatives**. Adding to the complexity of IT operations, shifting fee structures in the hypervisor market pile significant costs onto already strained IT budgets. Organizations are taking a multi-pronged approach to increases in hypervisor licensing costs, often taking more than one action to soften the impact. And 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.
- **Those undertaking on-premises modernization continue pursuing a cloud-like, as-a-service experience**. Whether organizations are increasing, maintaining, or reducing data center spending, most 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. Most organizations agree that consistency of experience across data center and cloud environments delivers significant operational benefits. However, nearly half of organizations prioritize best-of-breed tooling over consistency when selecting new tools or infrastructure for their hybrid cloud environment. Even organizations that prefer consistency are willing to explore alternatives, especially for compute and infrastructure observability. Given the scale of digital initiatives, applications, and data, organizations see the benefits of consolidation for experiences, systems, and vendors. In terms of the technologies and approaches that are key to helping organizations create a cloud-like experience in their data centers, IT leaders said that on-premises hyperscale solutions, hyperconverged infrastructure (HCI), and on-premises as-a-service infrastructure options are important.

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Introduction

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 surveyed 380 IT professionals at organizations in North America (U.S. and Canada) involved with or responsible for evaluating, purchasing, managing, and building application infrastructure.

This study sought to answer the following questions:

- Approximately how many unique public cloud infrastructure service providers (IaaS and/or PaaS) do organizations currently use?
- Will organizations allocate a greater percentage of their budget to infrastructure-as-a-service (IaaS)/platform-as-a-service (PaaS) providers in 24 months?
- How many data centers do organizations operate today and expect to operate in five years?
- Will organizations allocate a greater percentage of their budget to colocation providers and/or hosted private cloud providers in 24 months?
- How much of an increase in hypervisor per-licensing costs have organizations encountered? How do organizations plan to address the increased cost?
- What factors will play the largest role in the selection of an alternative hypervisor partner?
- What are organizations' biggest concerns with transitioning to an alternative hypervisor?
- What will be organizations' strategy for on-premises data center environments over the next three years?
- How do organizations create a consistent management experience across their hybrid cloud environments?
- What technologies or approaches are key to helping organizations create a cloud-like experience in their data centers?
- Have organizations considered privatizing their AI initiatives (i.e., deploying AI initiatives or processes to be managed by the organization within its own data center)?
- What are organizations' top current or anticipated challenges when deploying AI on on-premises infrastructure?
- What are organizations' current or planned investment areas to support AI workloads on on-premises infrastructure?

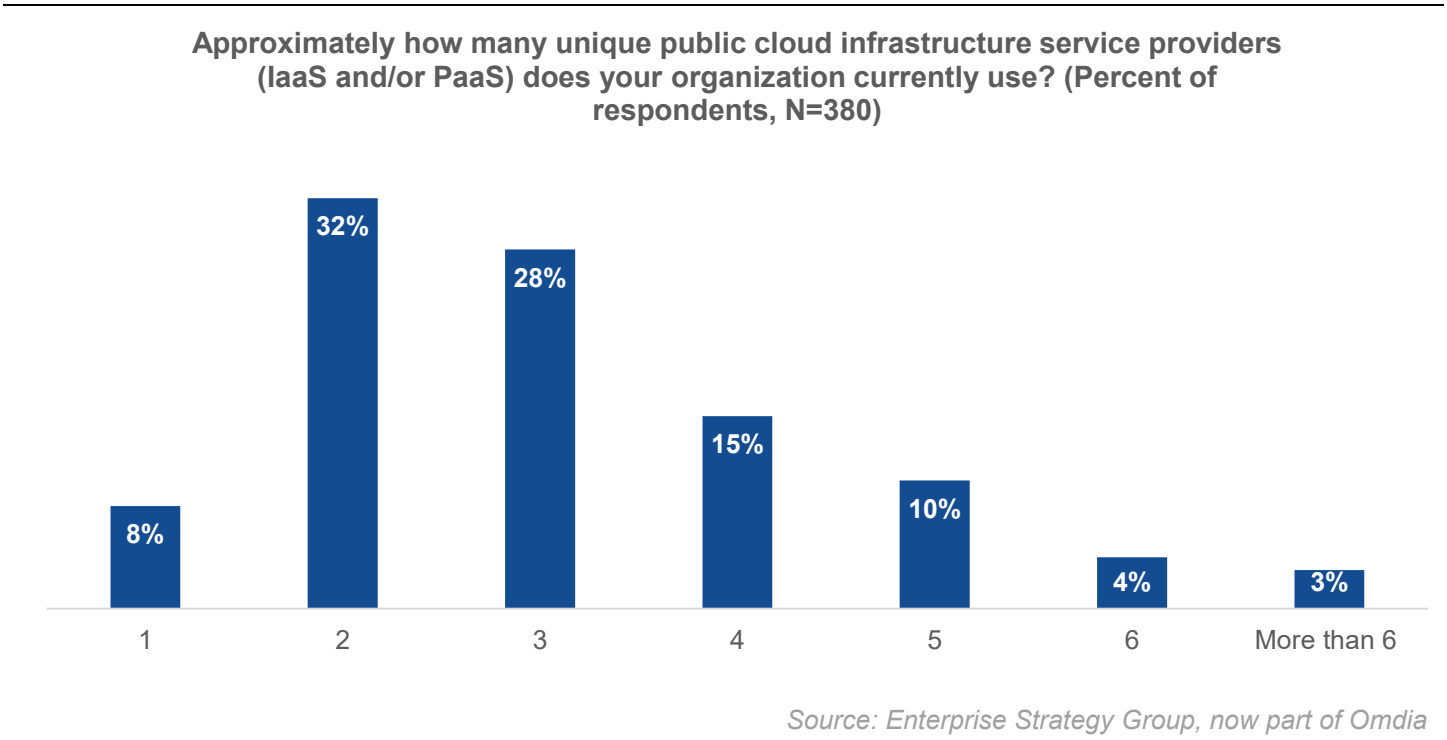
Survey participants represented a wide range of industries, including retail/wholesale, healthcare, financial, technology, and others. For more details, please see the "Research Methodology" and "Respondent Demographics" sections of this report.

Research Findings

AI Is Fueling Investment Decisions Across an Increasingly Distributed Application Infrastructure Environment

Today, multi-cloud adoption is nearly universal, with 92% of respondents using more than one public cloud infrastructure service provider (see Figure 1). Clearly, the cost optimization, business continuity, reduced vendor lock-in, specialized capabilities, and other benefits of using multiple clouds are proving valuable for most teams.

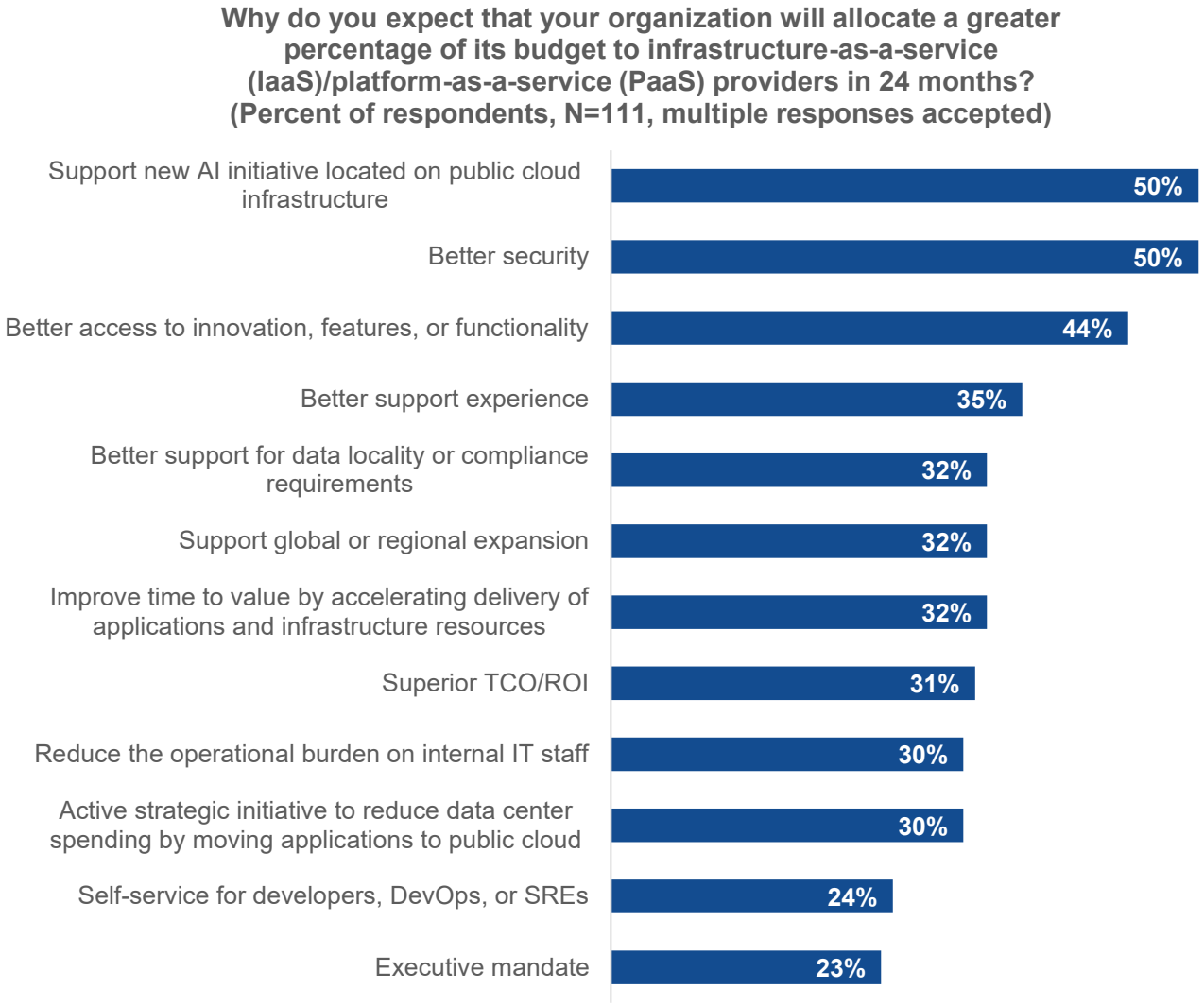
Figure 1. Multi-cloud Infrastructure Is Commonplace



Source: Enterprise Strategy Group, now part of Omdia

As such, nearly a third (29%) of organizations reported expecting to shift a greater share of their IT spending to the public cloud over the next two years. Support for AI initiatives (50%), better security (50%), and improved access to innovation (44%) top the list of reasons why (see Figure 2), highlighting that many organizations are continuing to prioritize competitive differentiators with all-important strong cybersecurity practices.

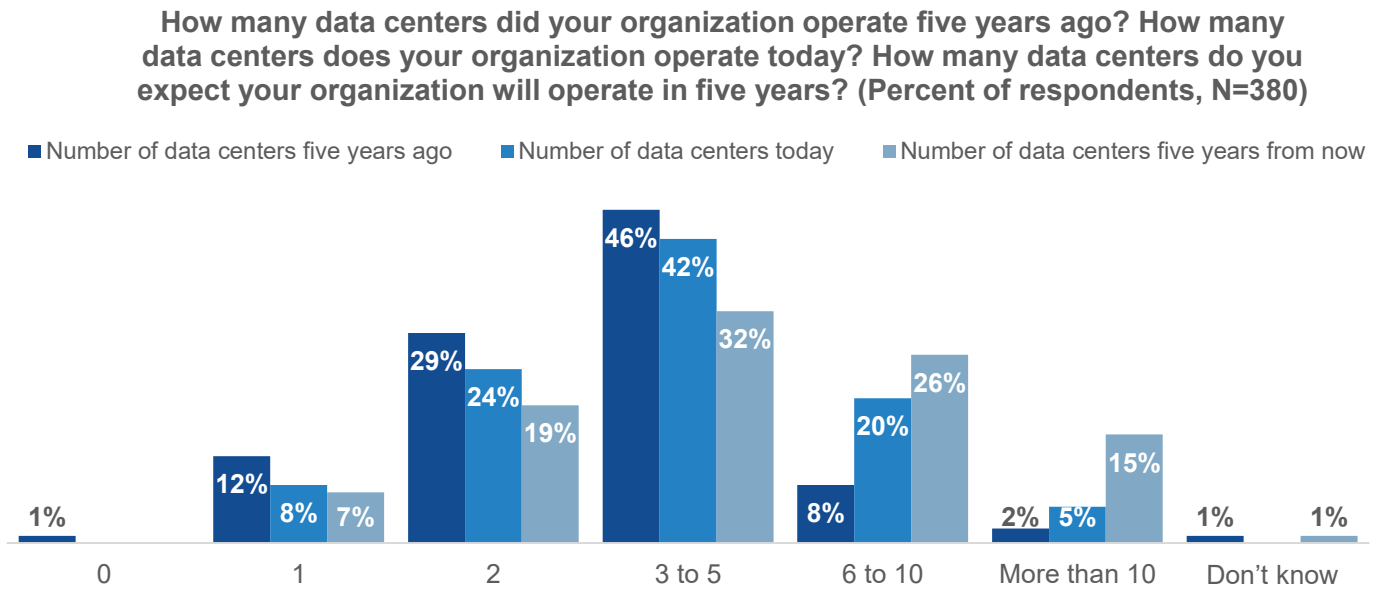
Figure 2. Teams Are Expecting to Spend More on Cloud Providers to Support AI Initiatives, Cybersecurity, and Innovation



Source: Enterprise Strategy Group, now part of Omdia

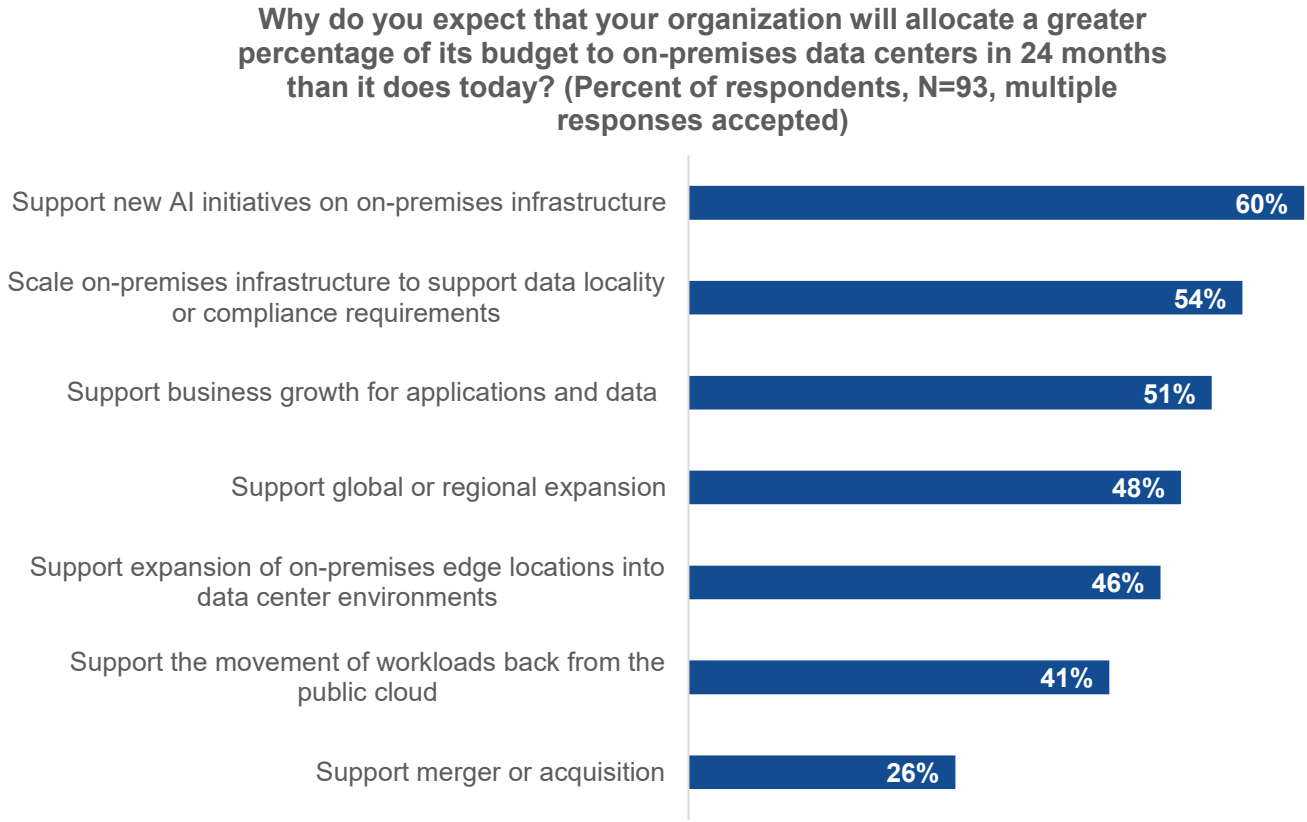
As investment in public cloud services continues, on-premises investment persists as well. The percentage of businesses that support six or more data centers is expected to increase from 25% to 41% in five years (see Figure 3). Organizations most often said that supporting AI initiatives on premises, scaling to support data locality or compliance requirements, and supporting business growth for applications and data were drivers for allocating a greater percentage of budget to on-premises data centers in 24 months (see Figure 4). AI and proper data handling are and will likely continue to be the centerpiece of many infrastructure strategies for the foreseeable future as businesses and teams organize themselves for the next era of business transformation.

Figure 3. The Number of Data Centers Under Operation Will Increase for Many Organizations



Source: Enterprise Strategy Group, now part of Omdia

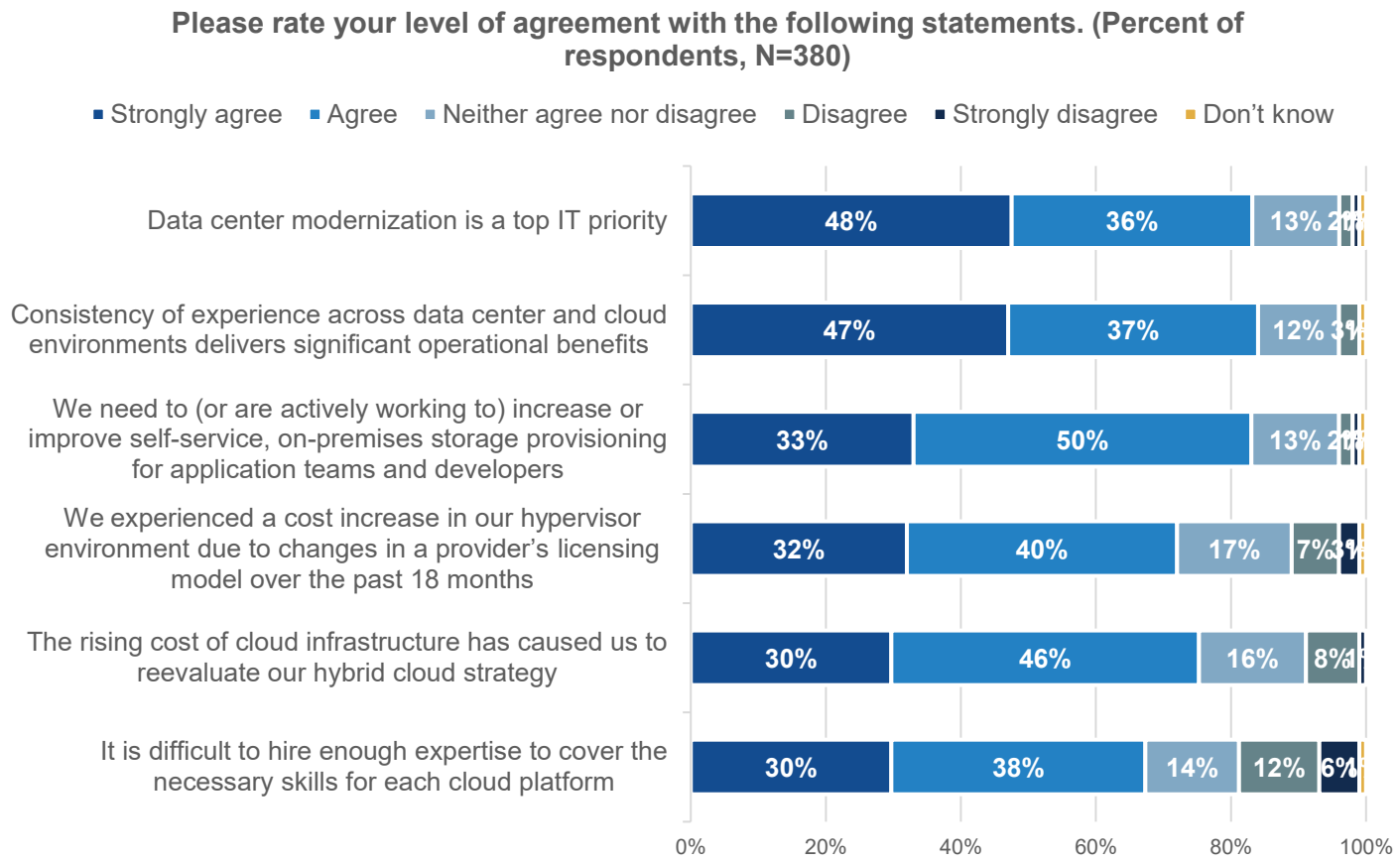
Figure 4. AI and Data Drive On-premises Data Center Budget Increases



Source: Enterprise Strategy Group, now part of Omdia

Given the cost of public cloud infrastructure and increased importance of private data, organizations are rethinking the significance of data center modernization, with 84% agreeing that it is a top priority (see Figure 5). It's interesting to note that a consistent experience across data centers and public clouds delivers benefits for the same percentage of respondents (84%), indicating that vendors with strong integration and partnerships can best help them maximize data center modernization benefits.

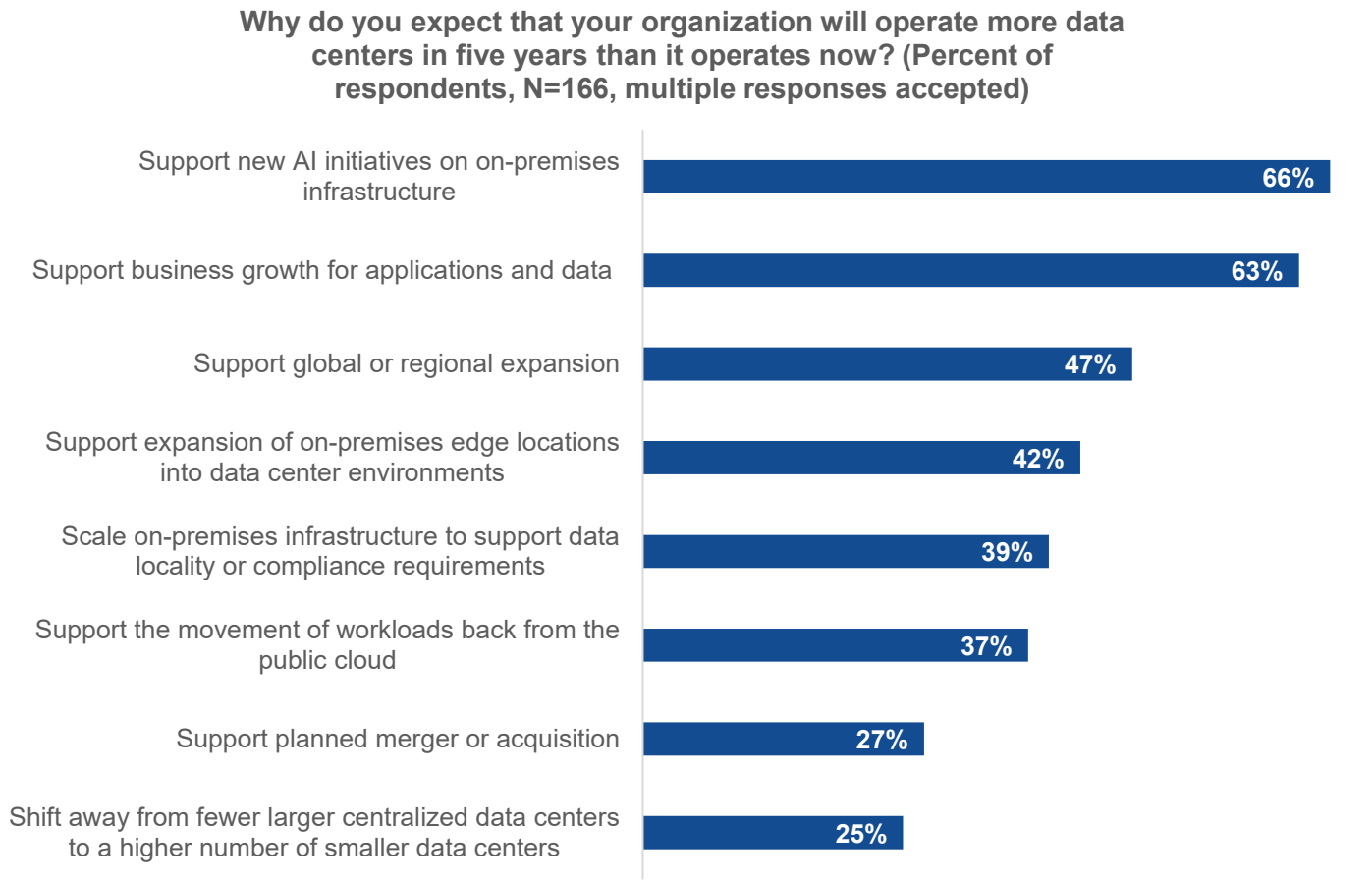
Figure 5. Data Center Modernization Is Front and Center



Source: Enterprise Strategy Group, now part of Omdia

Supporting new AI initiatives on on-premises infrastructure (66%) surpasses overall business growth (47%) as a top justification for organizations that expect to increase the number of data centers they own and operate over the next five years (see Figure 6). 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.

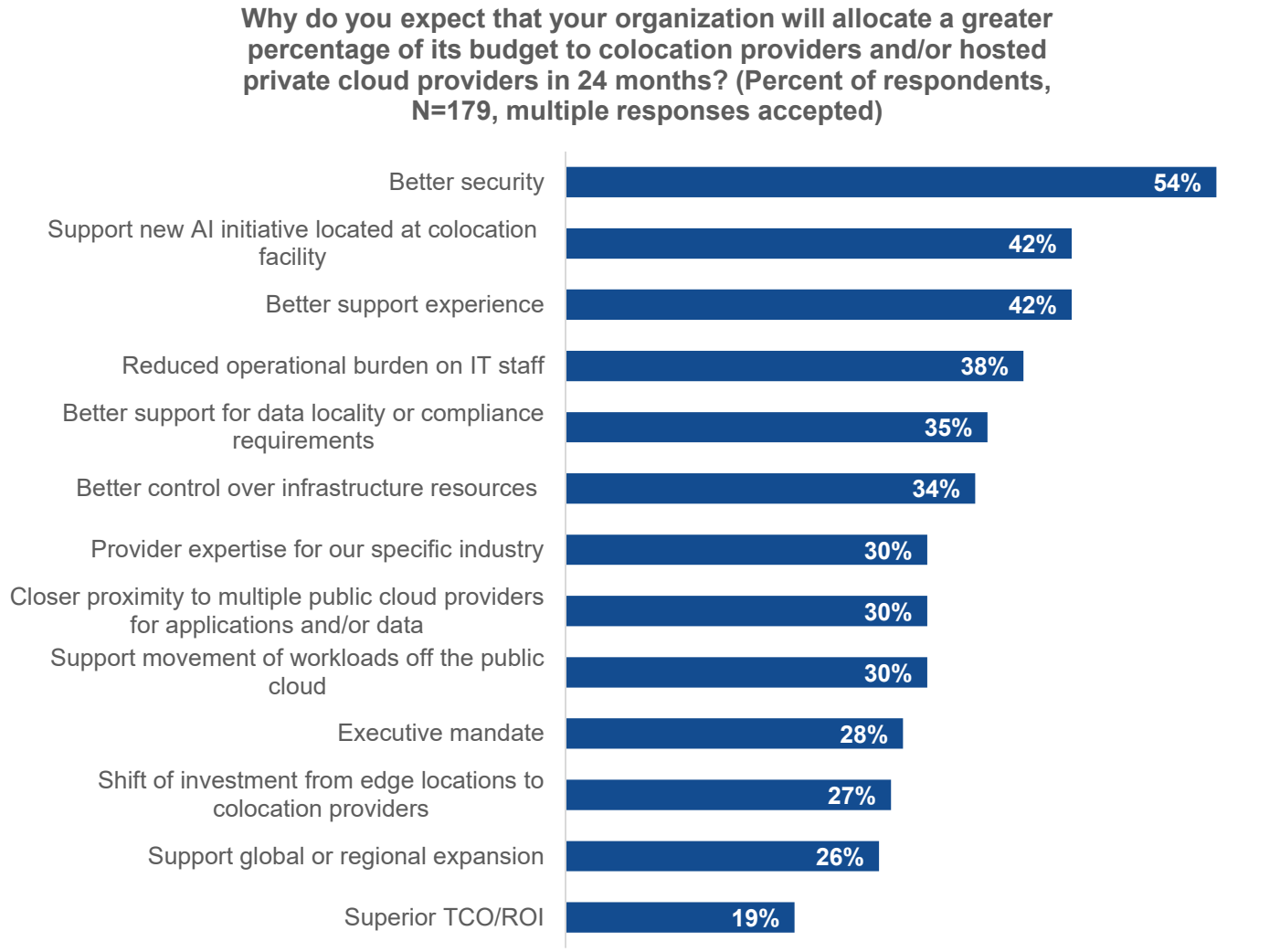
Figure 6. AI and Business Growth Fuel the Proliferation of Data Center Environments



Source: Enterprise Strategy Group, now part of Omdia

The need for greater control is also fueling investment in third-party partners that provide hosted private cloud and colocation. This sentiment rings true when those organizations planning increased budget for colocation providers or hosted private cloud providers were asked about the reasons why. Indeed, more than half (54%) cited security as the reason for doing so, making it the most cited response (see Figure 7). AI initiative support (42%), again, was also a highly popular driver.

Figure 7. Better Security Drives Increased Budget for Colocation and Hosted Private Cloud Providers



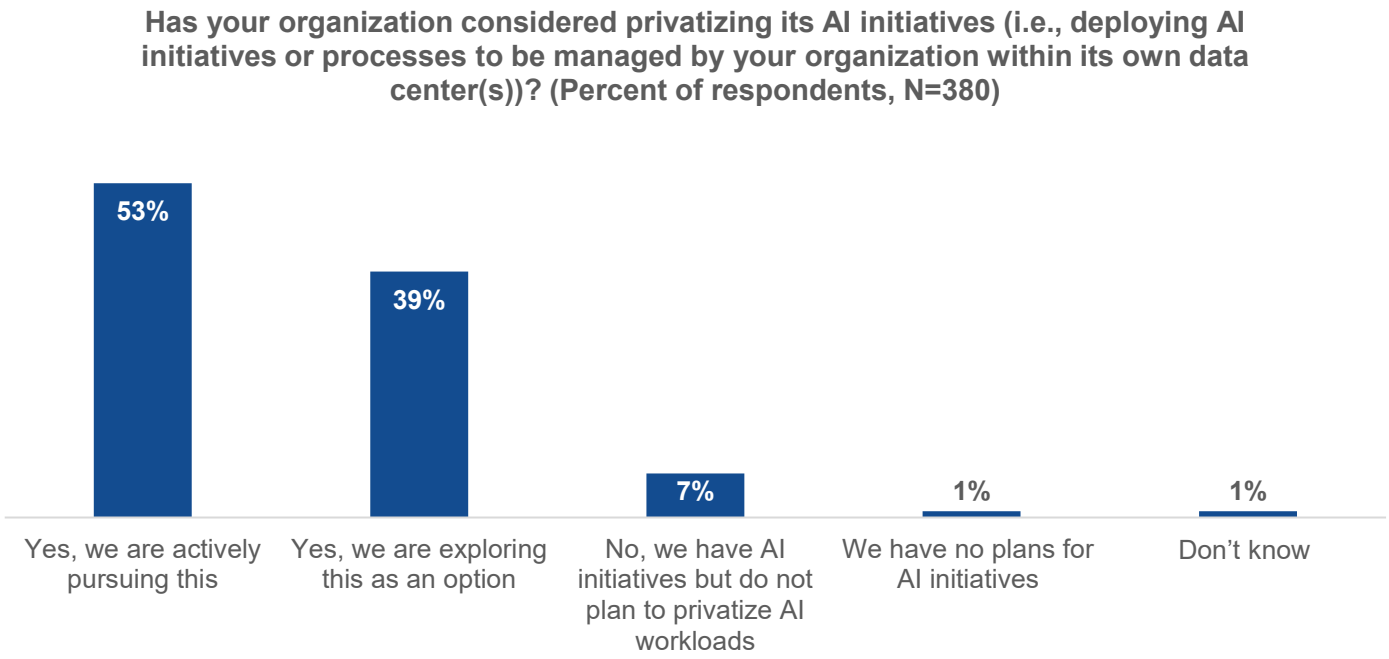
Source: Enterprise Strategy Group, now part of Omdia

As Private AI Initiatives Grow, Supporting Infrastructure Becomes a Priority

Overall, most desire and expect AI to be privately deployed on premises, with 53% actively pursuing AI initiative privatization and 39% exploring it as an option (see Figure 8). This fuels the need to modernize infrastructure and ensure overall ecosystem simplicity to better prepare data center environments for the scale required by AI operations.

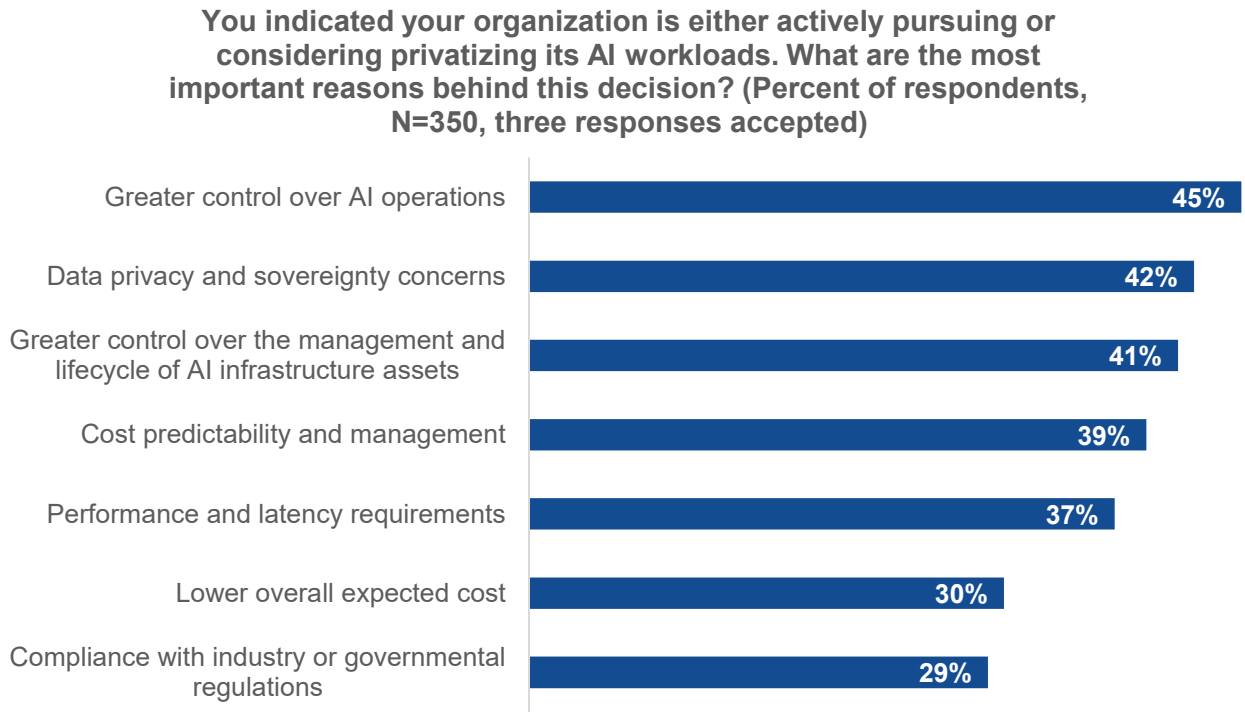
In terms of drivers of deploying AI in private data centers, control over AI operations (45%) and infrastructure assets (41%) and data privacy concerns (42%) were most often cited (see Figure 9). It is notable that relatively few (30%) expect that this option will lower costs, highlighting the mission-critical nature of greater control over AI and avoiding any data privacy breaches and penalties in today's landscape.

Figure 8. AI Is on Premises for Many and Will Be for More



Source: Enterprise Strategy Group, now part of Omdia

Figure 9. Control and Privacy Push AI Workload Privatization



Source: Enterprise Strategy Group, now part of Omdia

For all the opportunity AI promises for the business, IT regularly anticipates or experiences challenges protecting AI data (34%) and securing the AI environment (32%) when deploying AI on on-premises infrastructure (see Figure 10). It's notable that even as organizations pursue private AI primarily for control and security benefits, they *still* struggle with these tenants of responsible AI usage. Given the devastating impacts that data breaches and other successful cybersecurity attacks can have on organizations, teams should look to cutting-edge technologies and third-party services that can help them better secure their private AI operations.

Figure 10. Teams Can Struggle to Protect AI Data and Secure the AI Environments When Deploying AI on On-premises Infrastructure

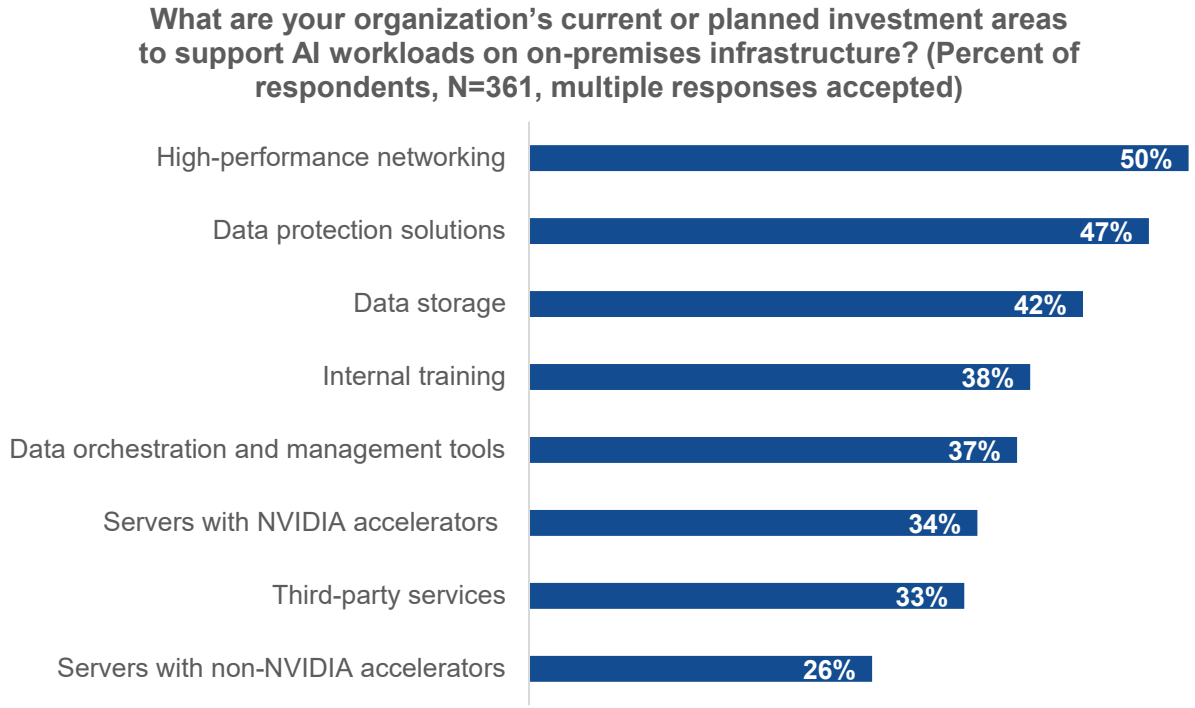


Source: Enterprise Strategy Group, now part of Omdia

For businesses pursuing private AI, the increasing maturity of operations is shifting spending to modernizing the remainder of the supporting infrastructure, with high-performance networking (50%), data protection solutions (47%), and data storage (42%) representing the most common areas of investment to support private AI (see Figure 11). These investments will be intended to support the intensive data handling, security, and protection needs of AI initiatives.

It's interesting to see that only a third (33%) of organizations plan to increase investment in third-party services for private AI, but this may increase as more teams attempt to run AI in their own data centers and run into roadblocks.

Figure 11. Teams Invest to Modernize AI-supporting Infrastructure

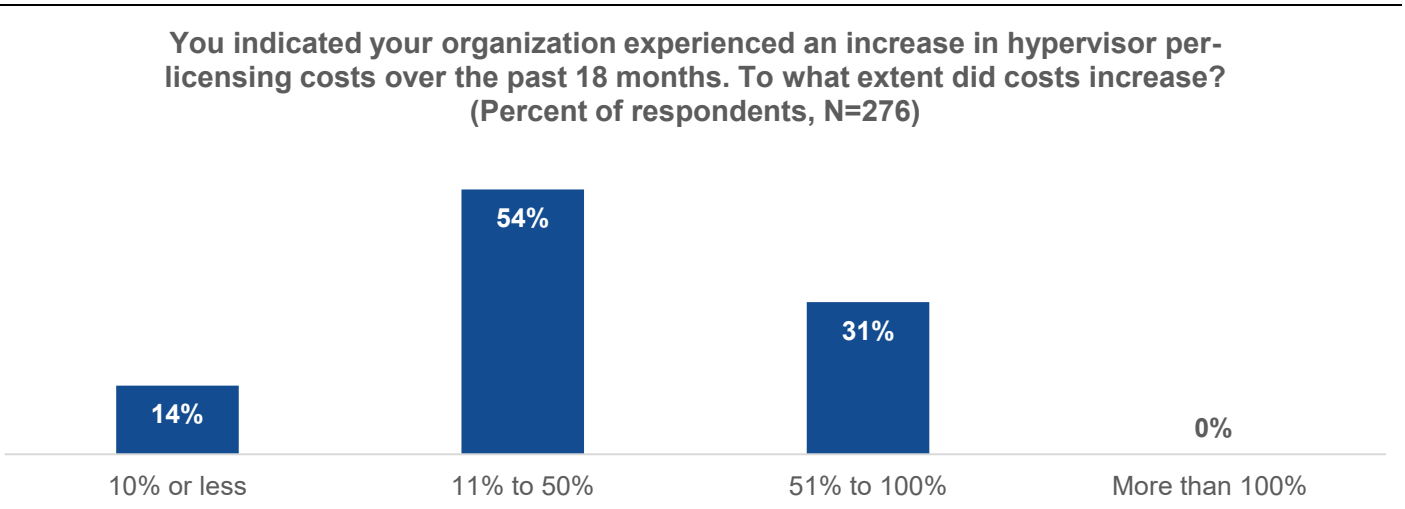


Source: Enterprise Strategy Group, now part of Omdia

As Virtualization Environments Evolve, Organizations Seek Savings and Alternatives

Adding to the complexity of IT operations, shifting fee structures in the hypervisor market pile significant costs onto already strained IT budgets. Indeed, more than half (54%) of respondents who were hit with increases in hypervisor per-licensing costs cited fee surges of 11-50%, and almost a third (31%) reported added costs of 51-100% (see Figure 12).

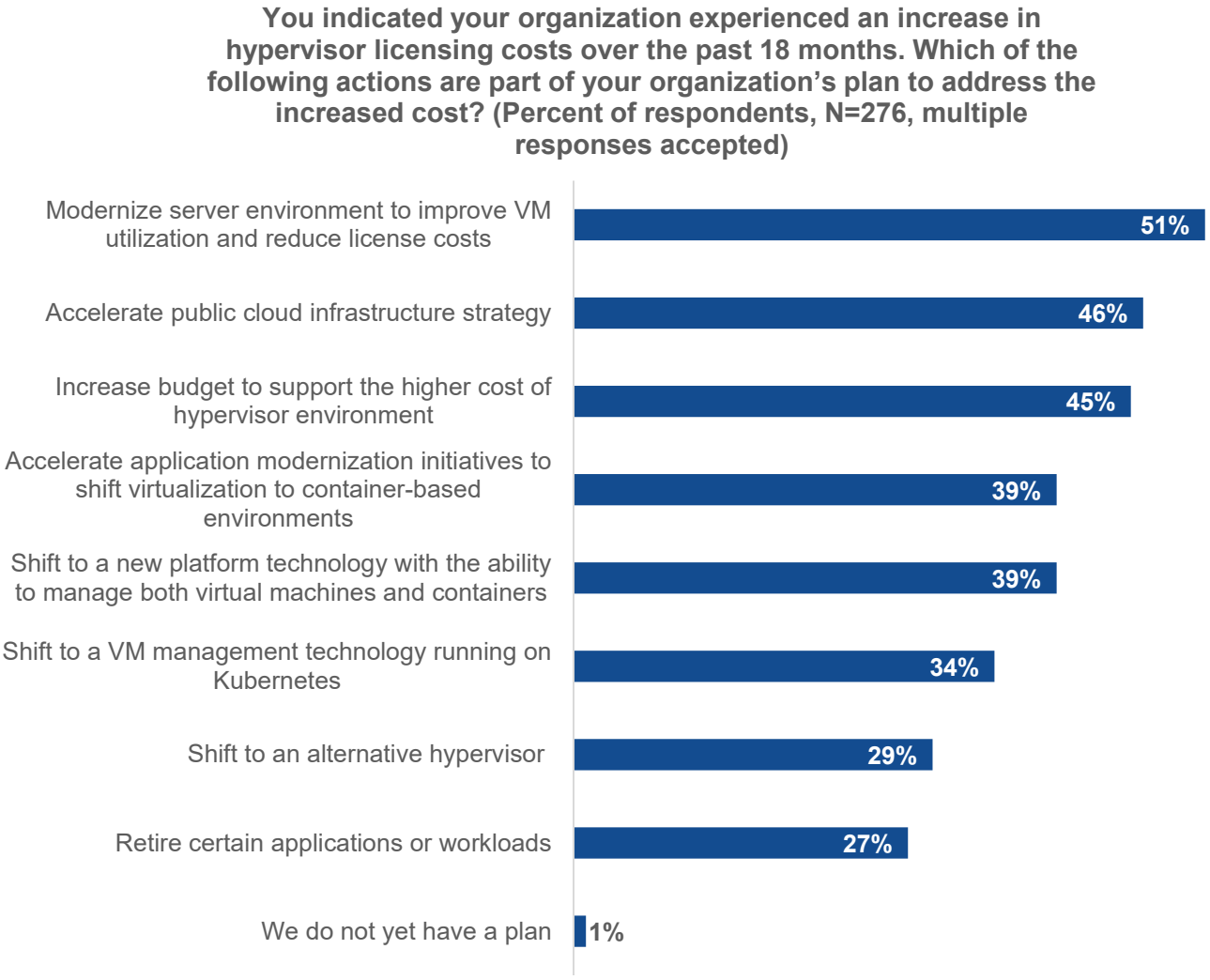
Figure 12. Hypervisor Per-licensing Costs Increase Percentages for Teams Experiencing Them



Source: Enterprise Strategy Group, now part of Omdia

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 modernization (51%) or accelerated public cloud infrastructure strategies (46%), to reduce the overall cost of the hypervisor environment (see Figure 13). While container-based modernization initiatives comprise another tier of options, the data highlights that organizations are exploring multiple alternatives to their existing provider.

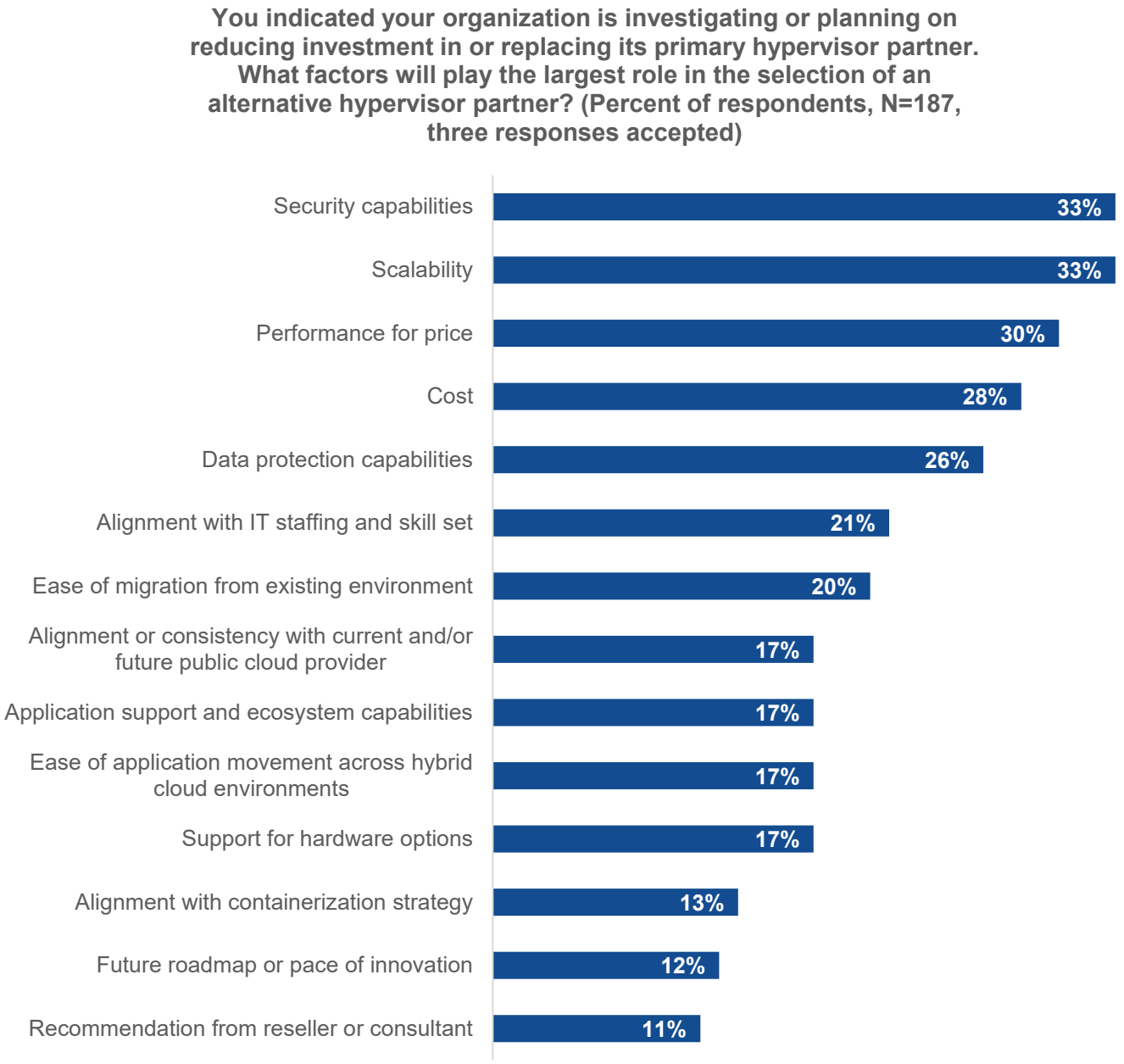
Figure 13. Organizations Balance Cost Realities With Exploring Alternatives



Source: Enterprise Strategy Group, now part of Omdia

When it comes to reducing investment in or replacing primary hypervisor partners, five core hypervisor requirements outpace others: security (33%), scalability (33%), performance for price (30%), cost (28%), and data protection (26%, see Figure 14). While familiarity benefits such as alignment with existing skills (20%) and ease of migration (21%) are powerful, organizations are focused on ensuring providers can efficiently scale with the demands of the business.

Figure 14. When Evaluating Hypervisor Alternatives, Security and Scale Matter Most

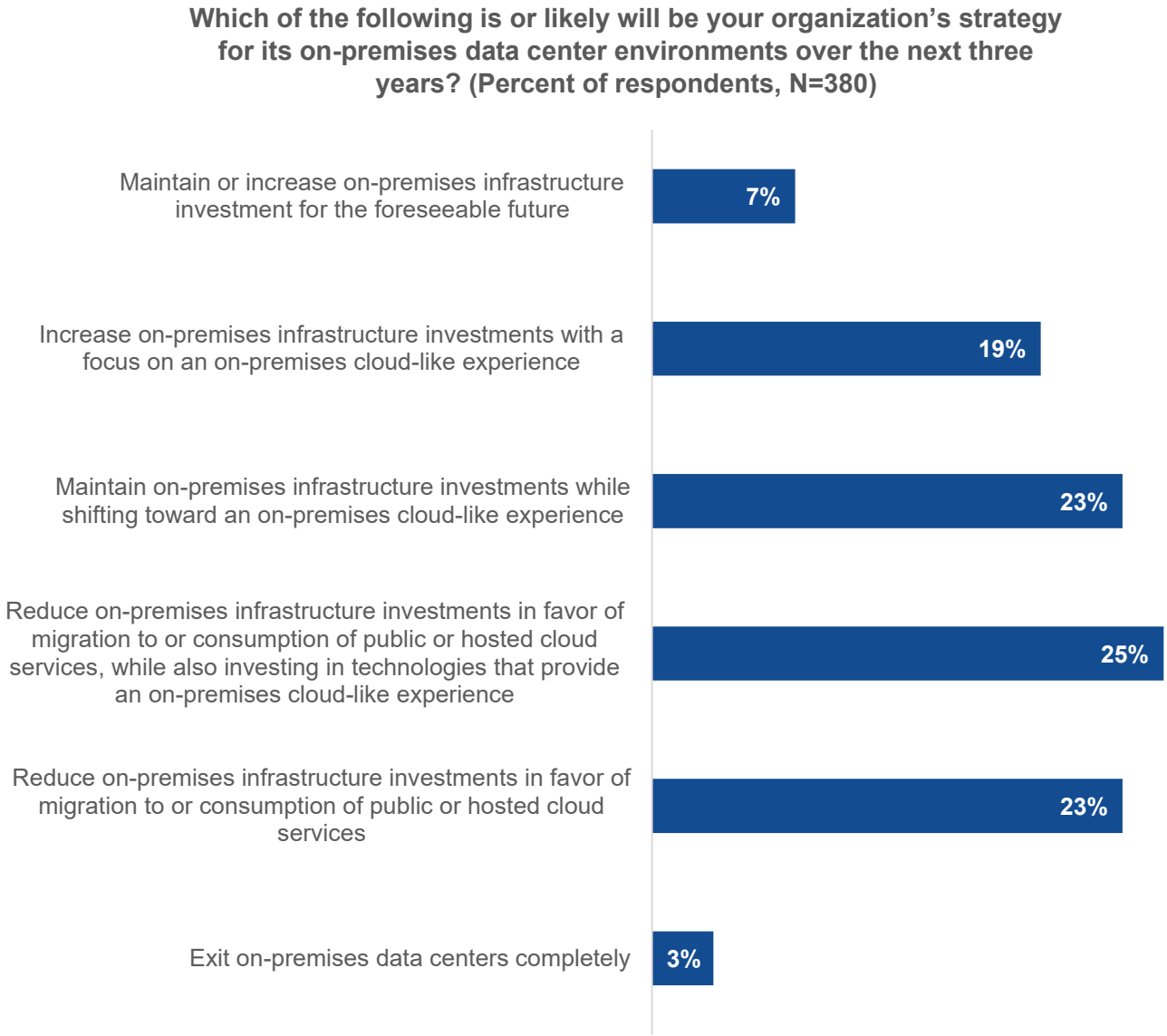


Source: Enterprise Strategy Group, now part of Omdia

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

When it comes to strategies for their on-premises data center environments over the next three years, only 3% of organizations want to abandon data centers, while just 7% want to keep everything the same (see Figure 15). Whether organizations are increasing (19%), maintaining (23%), or reducing data center spending (25%), 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.

Figure 15. Hybrid Takes Over Behind a Desire for On-premises Environments to Change



Source: Enterprise Strategy Group, now part of Omdia

Most organizations agree that consistency of experience across data center(s) and cloud environments delivers significant operational benefits (see Figure 3). However, despite this widespread understanding of the value of hybrid cloud consistency, nearly half (47%) 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 (see Figure 16).

Even organizations that prefer consistency are willing to explore alternatives, highlighting opportunities for new entrants to deliver significant value. This finding was most prominent for compute and infrastructure observability, with 42% and 41% of respondents, respectively, reporting that they are open to new experiences in these areas (see Figure 17).

Figure 16. Nearly Half Prioritize Best-of-breed Tools for Hybrid Cloud Environments



Source: Enterprise Strategy Group, now part of Omdia

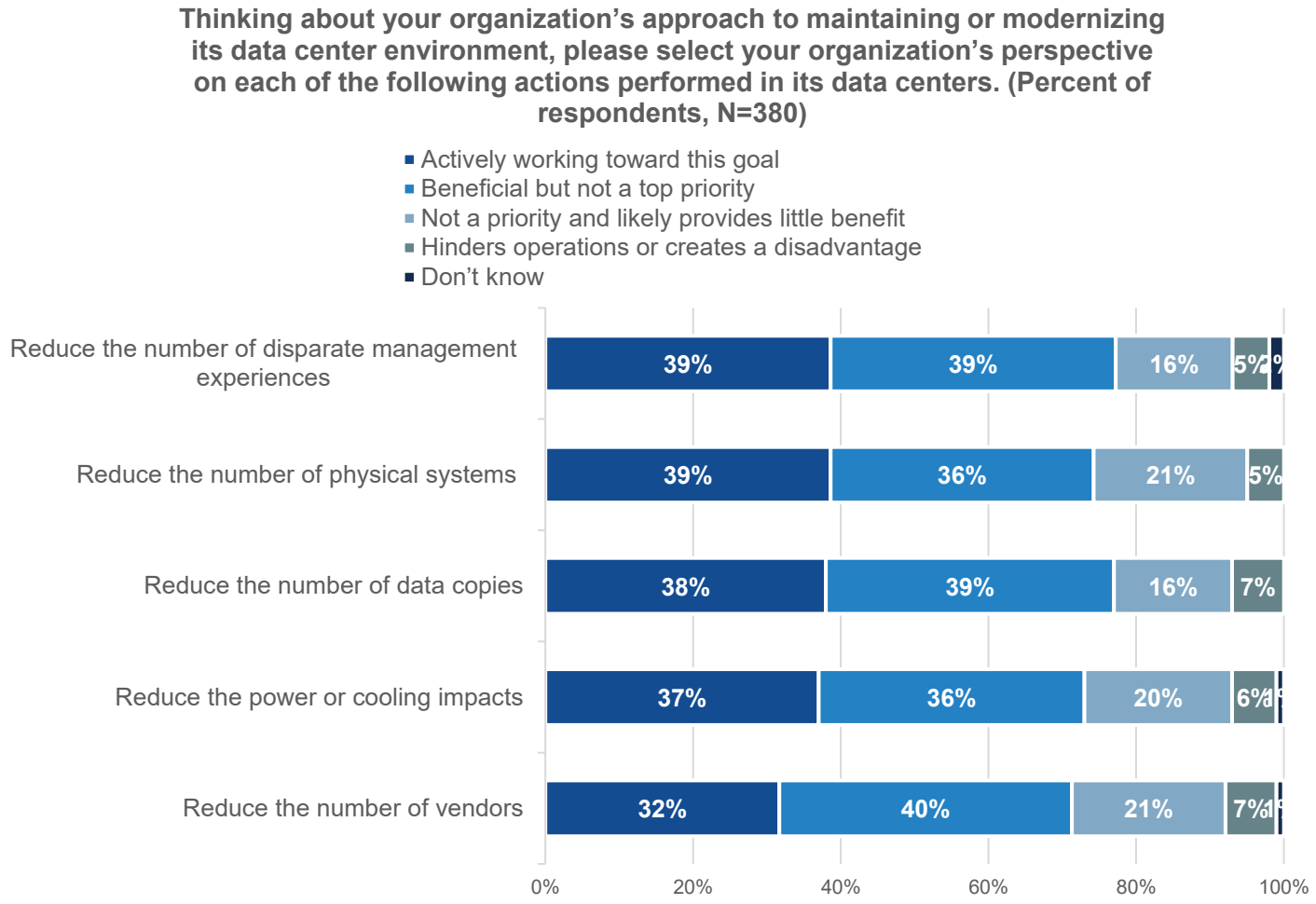
Figure 17. While Organizations Prioritize Consistency, They Often Want Something New



Source: Enterprise Strategy Group, now part of Omdia

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 (39%) and systems (39%) and 32% doing so for vendors (see Figure 18). 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.

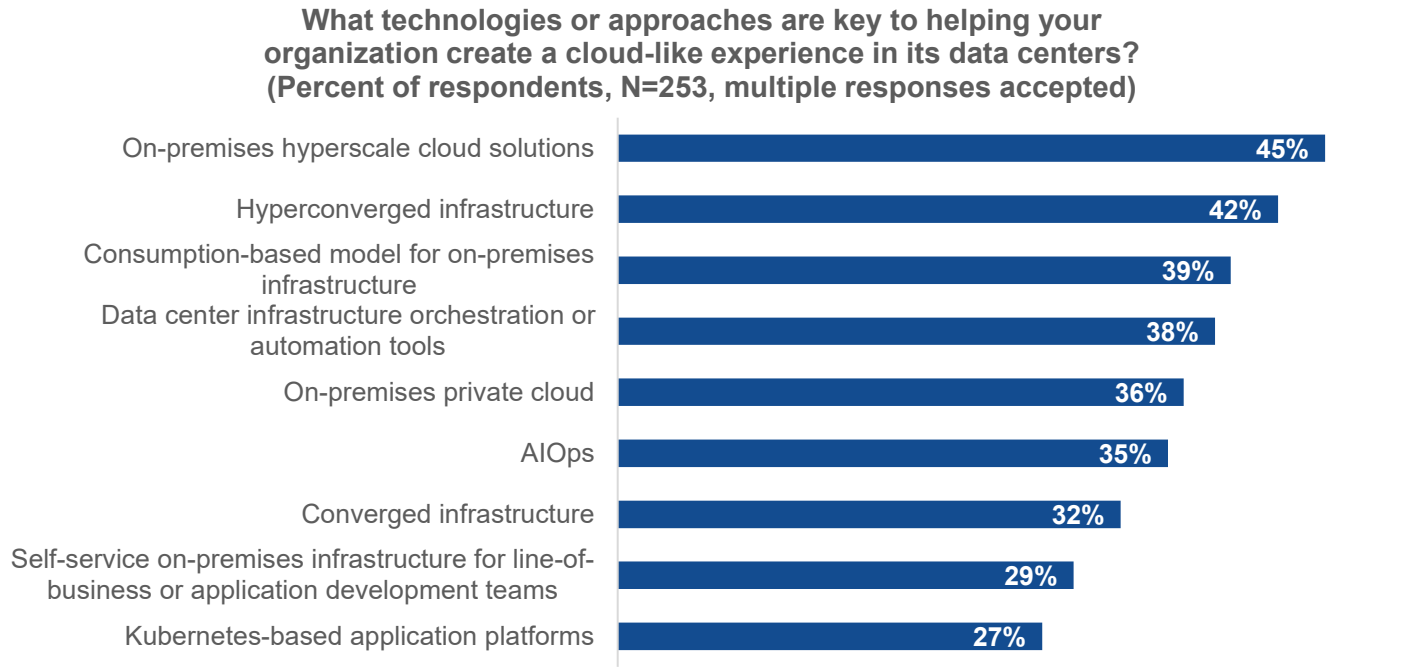
Figure 18. Consolidation Is Beneficial in Modernization Plans



Source: Enterprise Strategy Group, now part of Omdia

In terms of the technologies and approaches that are key to helping organizations create a cloud-like experience in their data centers, IT leaders said that on-premises hyperscale solutions (leveraging technology from the major public cloud providers, 45%), hyperconverged infrastructure (HCI, 42%), and on-premises as-a-service infrastructure options (39%) eclipse more software-centric management and orchestration technologies and approaches (see Figure 19). This highlights interest in coupling improved management experience with infrastructure modernization.

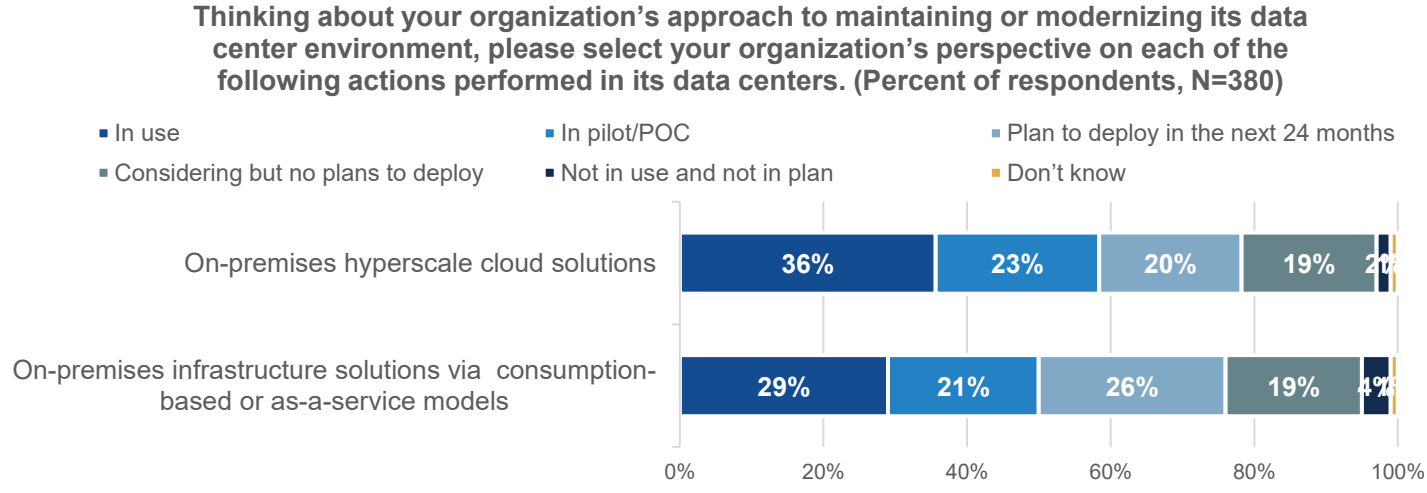
Figure 19. Organizations Seek Cloud-like Experiences From Cloud Providers, HCI, and Others



Source: Enterprise Strategy Group, now part of Omdia

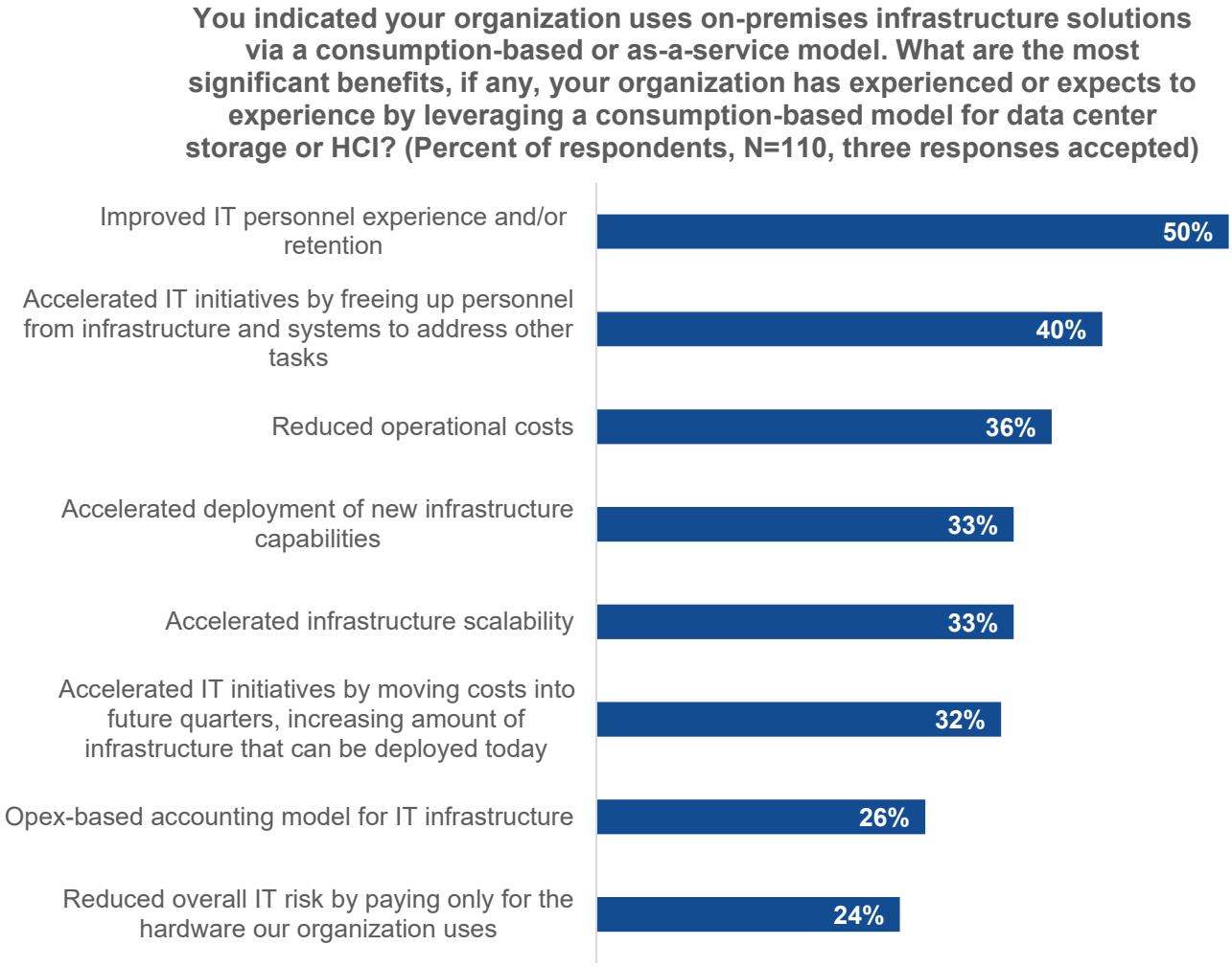
Once considered primarily a financial alternative, on-premises consumption (pay-per-use) and as-a-service offerings have evolved as a strong option to reduce the burden on internal personnel while improving the experience and retention of IT team members. Many organizations now value on-premises infrastructure solutions that leverage a consumption or as-a-service model, with a majority (76%) reporting they either actively use them (29%), are piloting them (21%), or plan to use them in the next 24 months (26%, see Figure 20). Indeed, according to those using them, these technologies often deliver tangible, transformational benefits such as improved IT personnel experience and retention (50%) and accelerated IT initiatives by freeing up personnel from infrastructure and systems (40%, see Figure 21).

Figure 20. Most Use On-premises Infrastructure Solutions via As-a-service Models or Plan to



Source: Enterprise Strategy Group, now part of Omdia

Figure 21. On-premises Consumption-based Solutions Improve IT Experiences, Accelerate Operations, and Become Strategic to the Business



Source: Enterprise Strategy Group, now part of Omdia

Conclusion

Pressure created by AI adoption and rising hypervisor licensing costs is revitalizing interest in infrastructure optimization today. Hybrid cloud strategies remain in the spotlight as AI workloads influence many infrastructure decisions while users expect cloud-like experiences regardless of where workloads run. Given this dynamic landscape, Enterprise Strategy Group recommends that IT leaders:

- **Recognize that AI is driving renewed hybrid infrastructure focus**. While using multiple cloud services providers is commonplace today, many organizations also expect their on-premises data center footprint to grow as teams strive to deploy and operate AI workloads privately for security, control, and customization. Organizations need to carefully develop strategies that balance their needs for both cloud and modernized on-premises infrastructure to support AI workloads effectively now and as they grow in the future.
- **Make infrastructure decisions based on the organization's control, security, and cost optimization considerations**. AI initiatives require massive amounts of data to fuel their processing, and that data must be properly secured and protected against corruption. At the same time, these applications can be highly costly. Infrastructure strategy decisions and technology purchases should make these considerations top priorities to support the goals of the larger organization.
- **Scrutinize new infrastructure investments for integration capabilities, security, and AI-readiness**. Solutions that bridge on-premises and cloud environments with consistent management experiences will offer massive benefits to strapped IT teams that are often bogged down by broken and incongruous hybrid management experiences. Decision-makers should press infrastructure providers on their current integration capabilities and roadmap for these features. Further, robust security capabilities and AI-readiness qualities in infrastructure offerings are a requirement for teams looking to support the future of their organization.

Although infrastructure considerations do not often make the headlines in the bustling world of enterprise AI initiatives, this research shows that it can play a major role in enabling controlled, secured, and cost-effective launches of transformative AI projects.

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Research Methodology

To gather data for this report, Enterprise Strategy Group conducted a comprehensive online survey of IT professionals from private- and public-sector organizations in North America (U.S. 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.

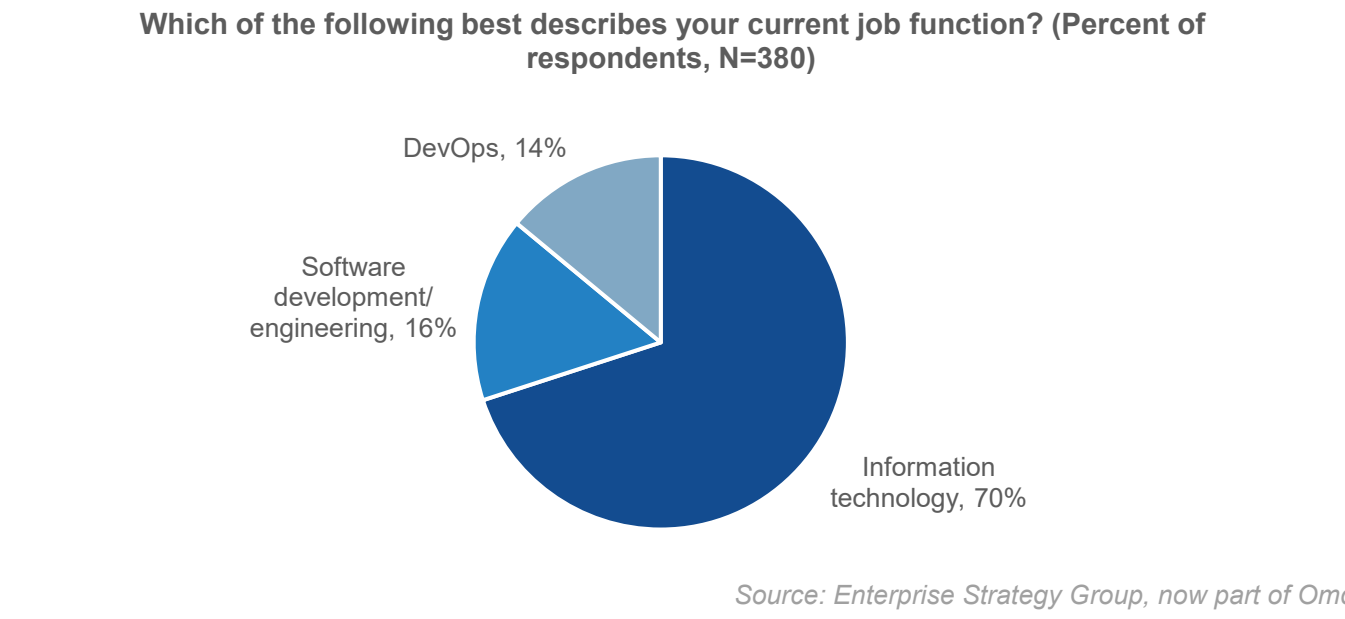
Please see the “Respondent Demographics” section of this report for more information on these respondents.

Note: Totals in figures and tables throughout this report may not add up to 100% due to rounding.

Respondent Demographics

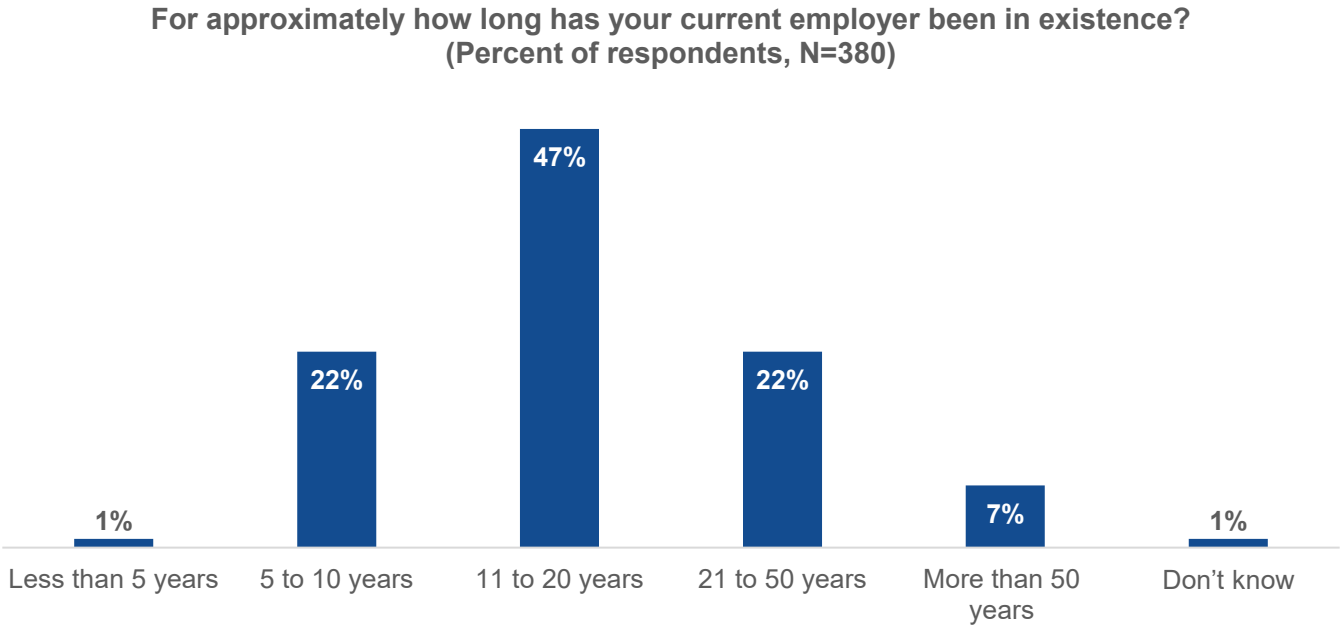
The data presented in this report is based on a survey of 380 qualified respondents. Figure 22 through Figure 27 detail the demographics of the respondent base at an individual and organizational level.

Figure 22. Respondents by Role



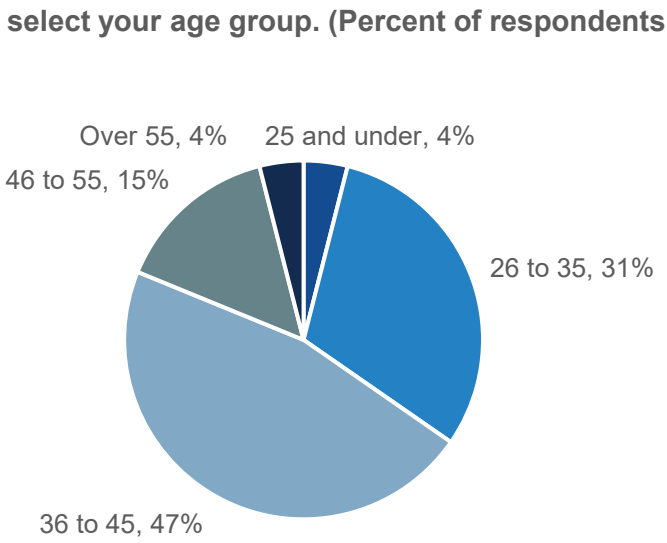
Source: Enterprise Strategy Group, now part of Omdia

Figure 23. Respondents' Organizations by Years in Operation



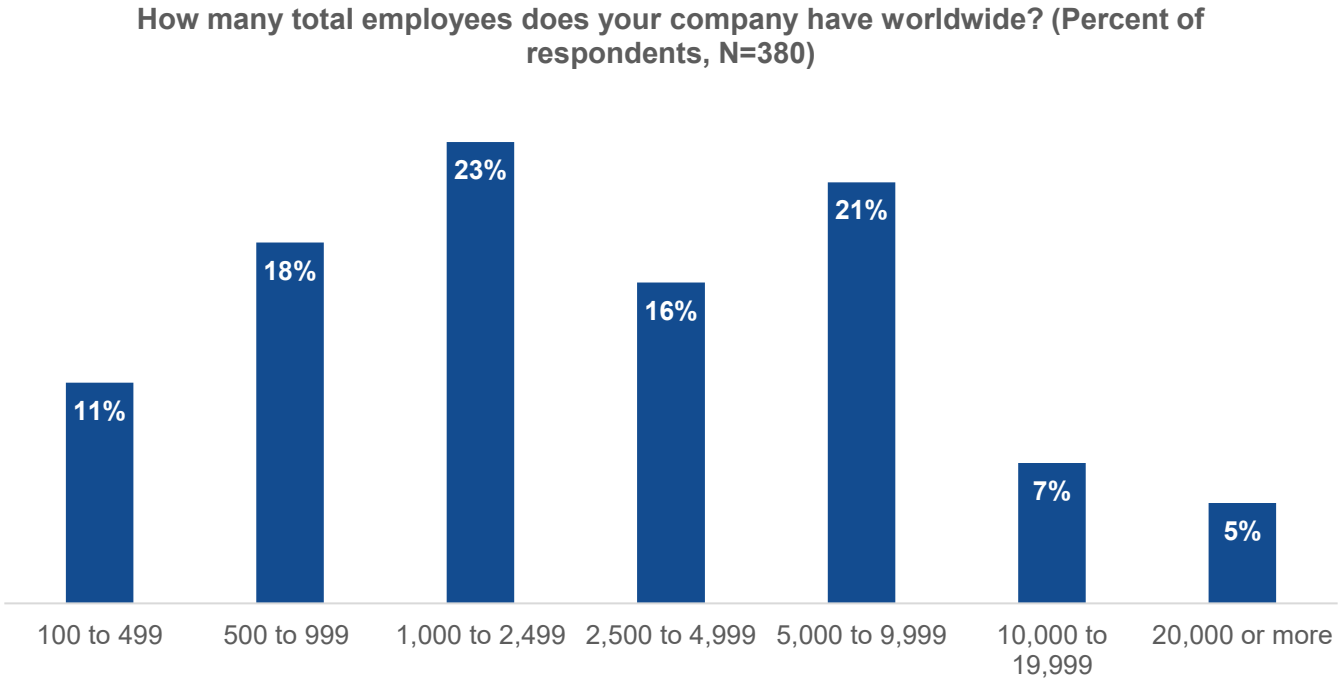
Source: Enterprise Strategy Group, now part of Omdia

Figure 24. Respondents by Age



Source: Enterprise Strategy Group, now part of Omdia

Figure 25. Respondents' Organizations by Number of Employees

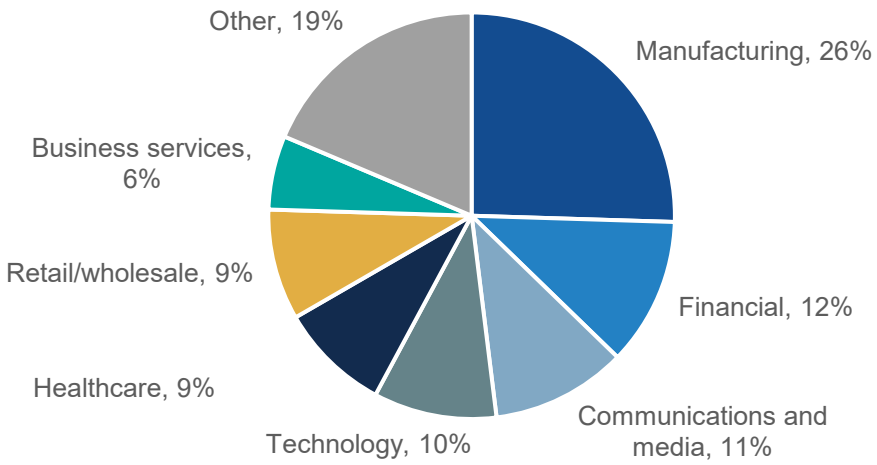


Source: Enterprise Strategy Group, now part of Omdia

Respondents were asked to identify their organization's primary industry. In total, Enterprise Strategy Group received completed, qualified responses from individuals in 22 distinct vertical industries. Respondents were then grouped into the broader categories shown in Figure 26.

Figure 26. Respondents' Organizations by Industry

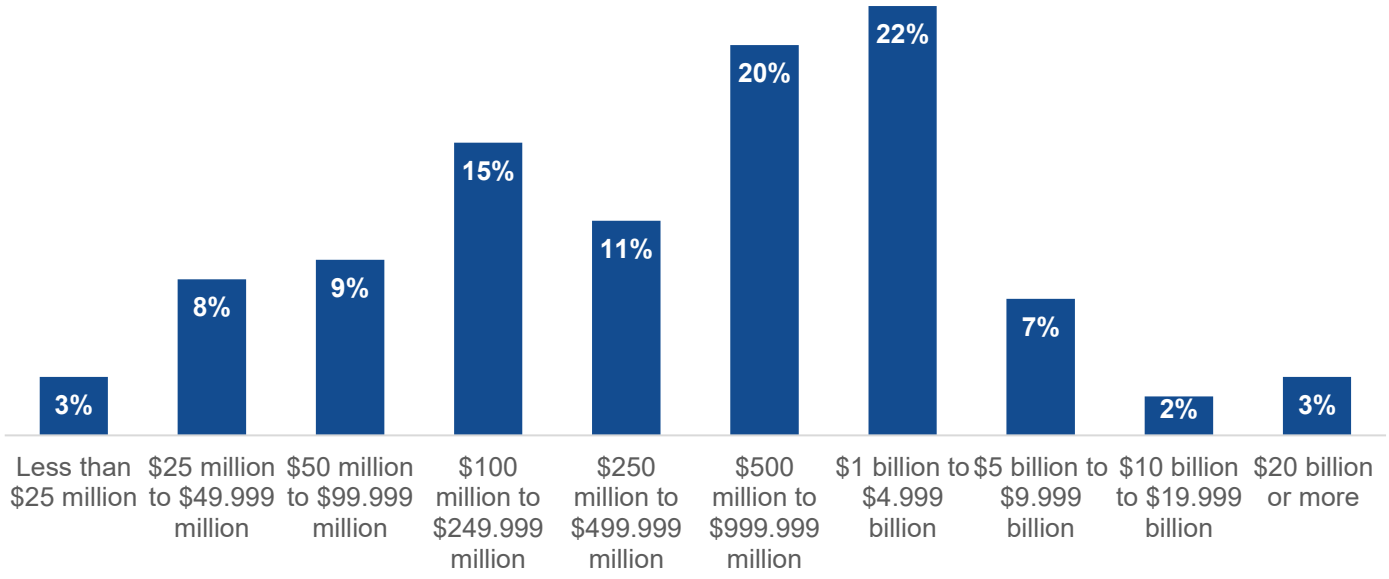
What is your organization's primary industry? (Percent of respondents, N=380)



Source: Enterprise Strategy Group, now part of Omdia

Figure 27. Respondents' Organizations by Annual Revenue

What is your organization's total annual revenue ($US)? (Percent of respondents, N=380)



Source: Enterprise Strategy Group, now part of Omdia

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About Enterprise Strategy Group
Enterprise Strategy Group, now part of Omdia, provides focused and actionable market intelligence, demand-side research, analyst advisory services, GTM strategy guidance, solution validations, and custom content supporting enterprise technology buying and selling.

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