Research Insights Paper

Data Center Modernization Study–Enabling Modernization with Intelligent Hyperconverged Infrastructure

By Mike Leone, ESG Senior Analyst; and Leah Matuson, Research Analyst

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The Importance of Data Center Modernization

Digital transformation is the mantra driving all business change: modernize, or get left behind. As IT becomes inexorably linked to business outcomes, the dynamic demands of growth and user expectations have created an environment where a core enabling technology is essential to modernization. From leveraging the cloud, whether public, private or hybrid, and implementing agile development processes, to becoming more data-driven and utilizing next-generation technologies like AI, organizations are scrambling to transform their businesses to outpace the competition. Given that, organizations are turning to IT to achieve these goals and better enable digital transformation—with data center modernization becoming a core tenet that enables all other digital transformation initiatives to get started—and succeed.

ESG recently performed research to better understand the progress organizations are making with their data center modernization initiatives, including business goals, top priorities, ideal infrastructure deployment models, and how organizations perceive the relationship between data center modernization and business success. The research consisted of a survey of 254 IT decision makers responsible for their organization's data center infrastructure. Respondents were based in North America (US and Canada) and employed at organizations with 1,000 or more employees and $250M+ in annual revenue. Organizations represented in the sample included a broad cross-section of industries, such as manufacturing, financial services, health care, and retail/wholesale, among others.

9 out of 10 organizations rank data center modernization as a top 5 priority over the next two years

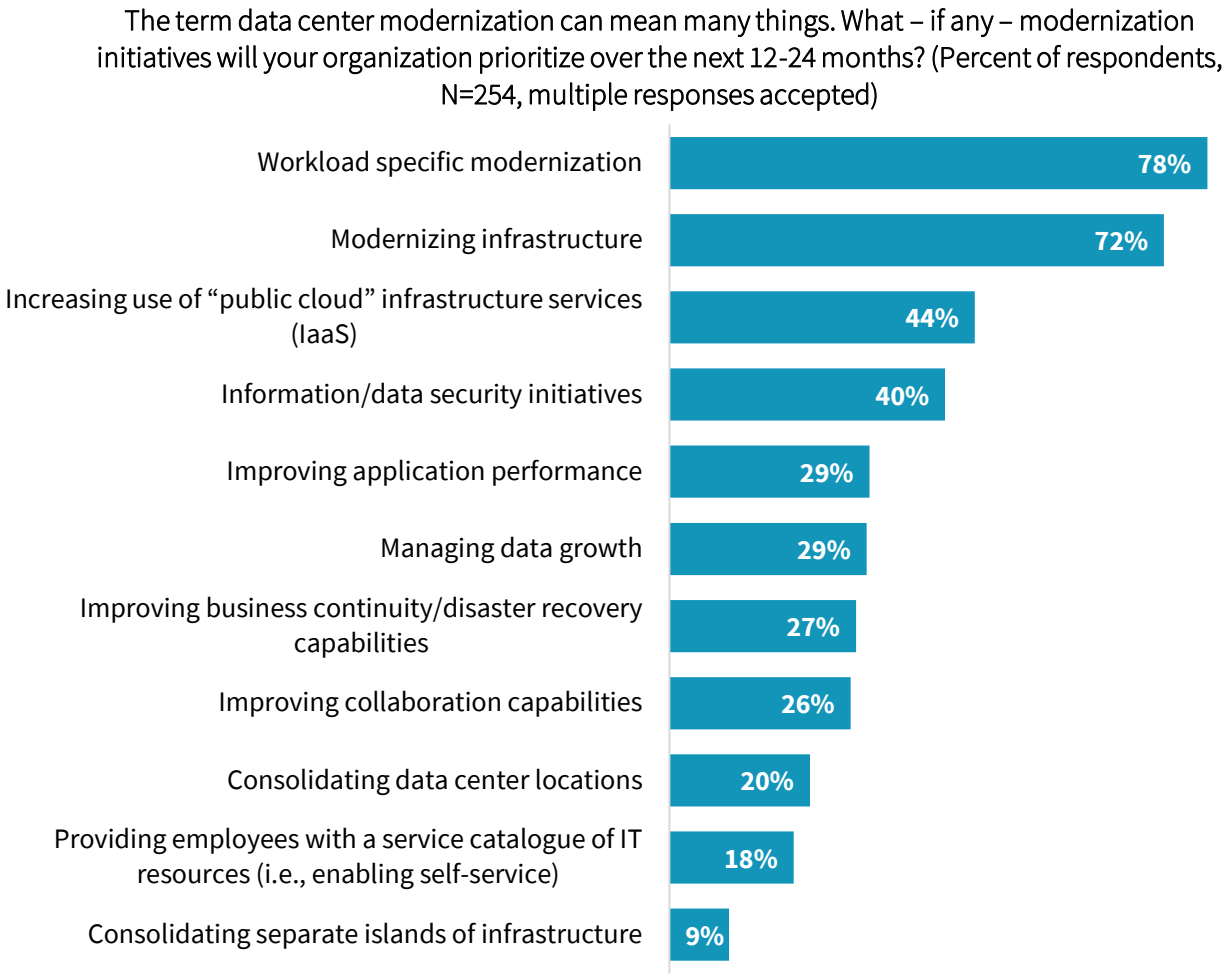
The findings show that data center modernization is a top priority with nearly nine out of ten organizations ranking data center modernization as a top five priority over the next two years, with one in four respondents (25%) citing it as their most important priority, and nearly two-thirds (63%) citing it as one of their top five priorities.

Data Center Modernization Initiatives

While data center modernization is clearly important, the term "data center modernization" can have a variety of meanings for different organizations and include numerous aspects of the business. A great example of this can be an emphasis on modernizing the infrastructure versus the specific applications and workloads that run on that infrastructure.

In fact, ESG research found that over the next 24 months, more than three-quarters (78%) of organizations will prioritize one or more aspects of "workload specific" modernization. That includes modernizing legacy applications, advancing analytics initiatives, desktop virtualization, and deploying specialized systems for specific applications/workloads, such as Oracle, SQL Server, and SAP. On the flip side, nearly three-quarters (72%) of organizations will prioritize modernizing their infrastructures. That includes refreshing outdated servers and storage, deploying hyperconverged infrastructure (HCI), building private clouds, and increasing the use of server virtualization for consolidation purposes.

Figure 1. Top Data Center Modernization Priorities



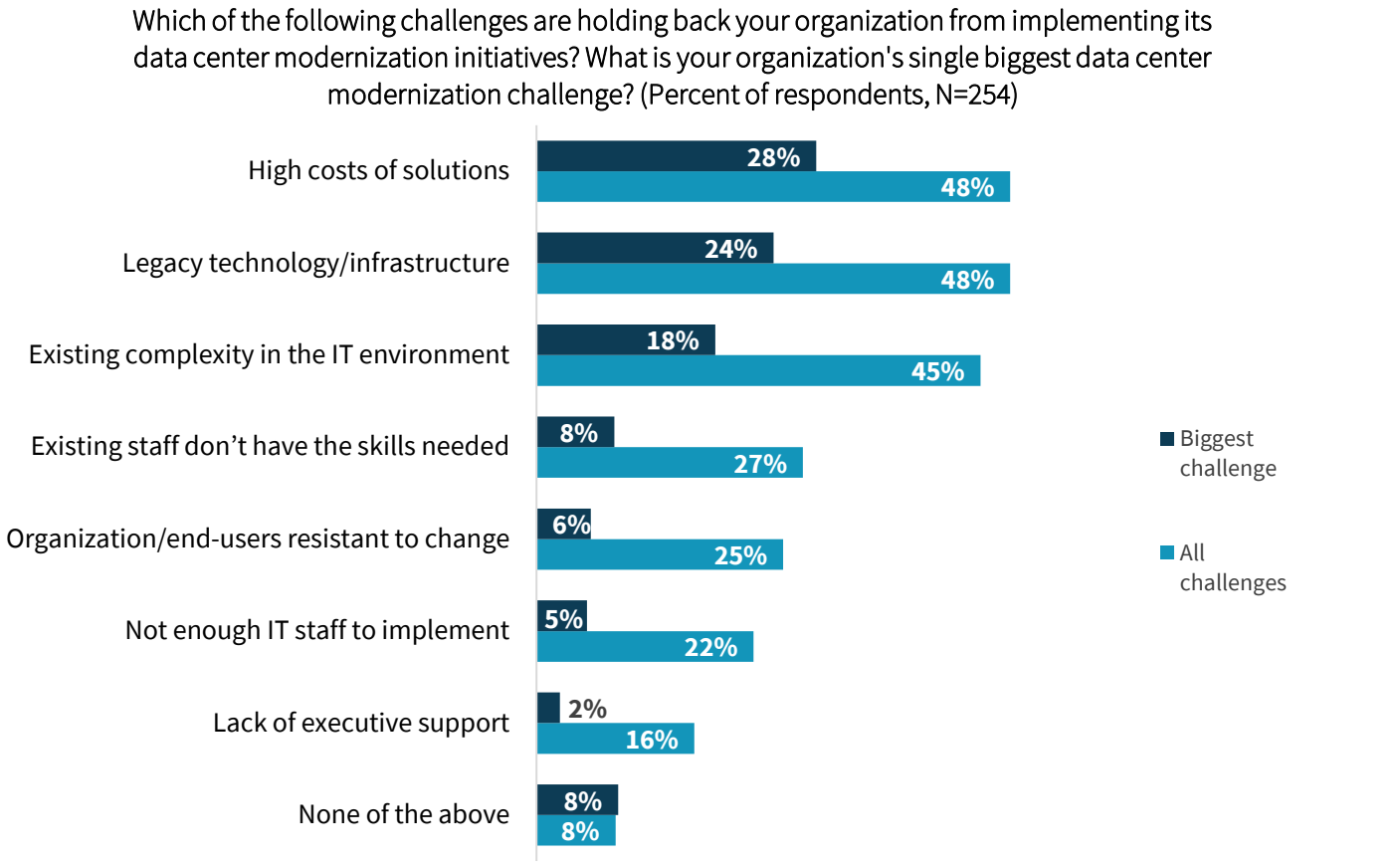
Source: Enterprise Strategy Group

Drivers and Challenges

With the potential benefits of data center modernization, what's preventing organizations from advancing down the data center modernization path? ESG asked organizations what types of challenges were holding them back from implementing their data center modernization initiatives. While numerous challenges appear on the list, including a shortage of IT staff with necessary skills, lack of executive support, inefficient storage capacity, vendor lock-in, and end-user resistance to change, three challenges emerged as clear-cut roadblocks: high costs, legacy technology/infrastructure, and existing IT complexity. With the ability to select multiple options, 48% of respondents cited legacy technology/infrastructure and high costs of solutions as one of their biggest challenges, with 45% citing existing complexity in their IT environments.

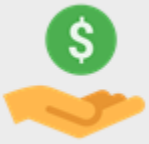
As shown in Figure 2, when forcing organizations to select their single biggest challenge, high costs of solutions emerged as the leader with 28% of the respondents. This means vendors that provide cost-effective solutions will have a higher likelihood of succeeding in the market. Further, organizations should look to those vendors to provide tangible, quantitative benefits associated with total cost of ownership (TCO) and return on investment (ROI).

Figure 2. Top Challenges Preventing Data Center Modernization



Source: Enterprise Strategy Group

In addition, ESG research found that while many data center modernization initiatives outperform or meet expectations, certain expected benefits have a higher likelihood of missing expectations. Cost reduction, enabling/supporting new revenue streams, and helping to differentiate offerings from competitors were the three desired business benefits of data center modernization most often falling short of expectations. However, organizations that currently leverage HCI in their IT environments were 2.5x more likely to say their data center modernization efforts had outperformed expectations in terms of reducing costs (35% versus 14% among non-HCI users).



Organizations that leverage HCI are 2.5x more likely to outperform expectations when it comes to addressing cost concerns.

Enabling Next-generation Initiatives and Technologies

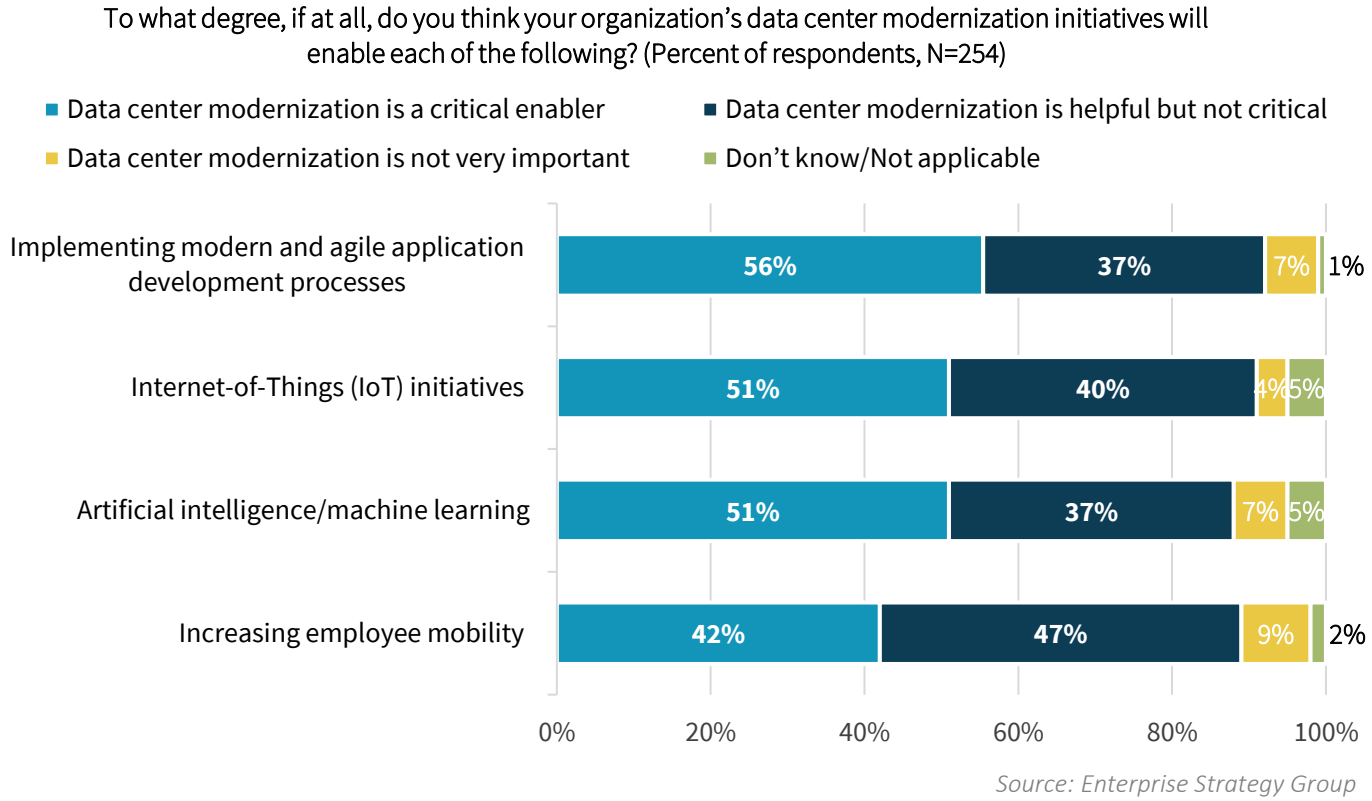
For organizations to grow and thrive, they must satisfy the requirements for next-generation initiatives and technology, and data center modernization is key to success. Whether enabling employee mobility, implementing modern and agile app/dev processes, supporting Internet of Things (IoT) initiatives, or benefiting from artificial intelligence (AI) and machine

learning (ML), organizations must start by modernizing their data centers to best support the demands these initiatives place on the underlying infrastructure.

For these key next-generation initiatives, ESG research shows that:

- 56% of respondents say that data center modernization is a critical enabler of implementing modern and agile application development processes.
- 51% say data center modernization is a critical enabler of IoT initiatives.
- 51% cite data center modernization as a critical enabler of AI/ML.
- 42% say data center modernization is a critical enabler for increasing employee mobility.

Figure 3. Enabling Next-generation Initiatives with Data Center Modernization

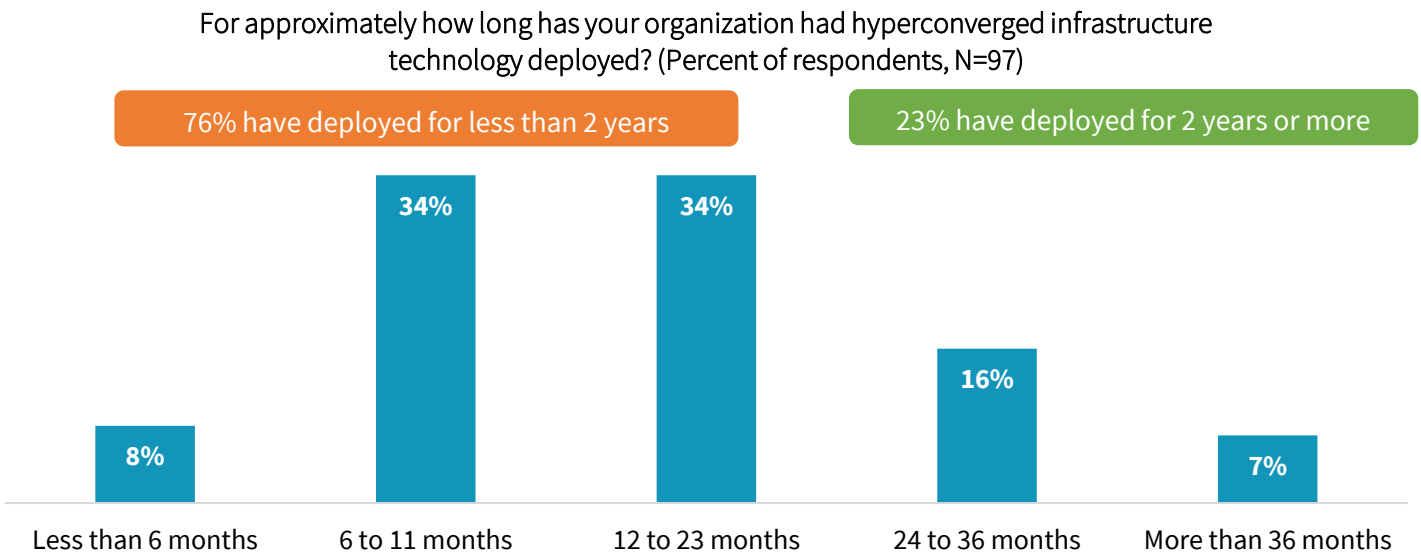


Source: Enterprise Strategy Group

Hyperconverged Infrastructure Trends

There is little question that HCI is important. With HCI, organizations can consolidate infrastructure and management silos, become more agile, better scale to meet the needs of current and future requirements, and benefit from a cloud operating model—and they can do it more cost-effectively compared to previous legacy 3-tier infrastructure or converged infrastructure (CI). While the HCI market has matured over the last year, HCI continues to grow significantly in adoption. As illustrated in Figure 4, of those organizations surveyed that currently leverage HCI, just 23% have had HCI deployed for two years or more.

Figure 4. HCI Adoption Trends



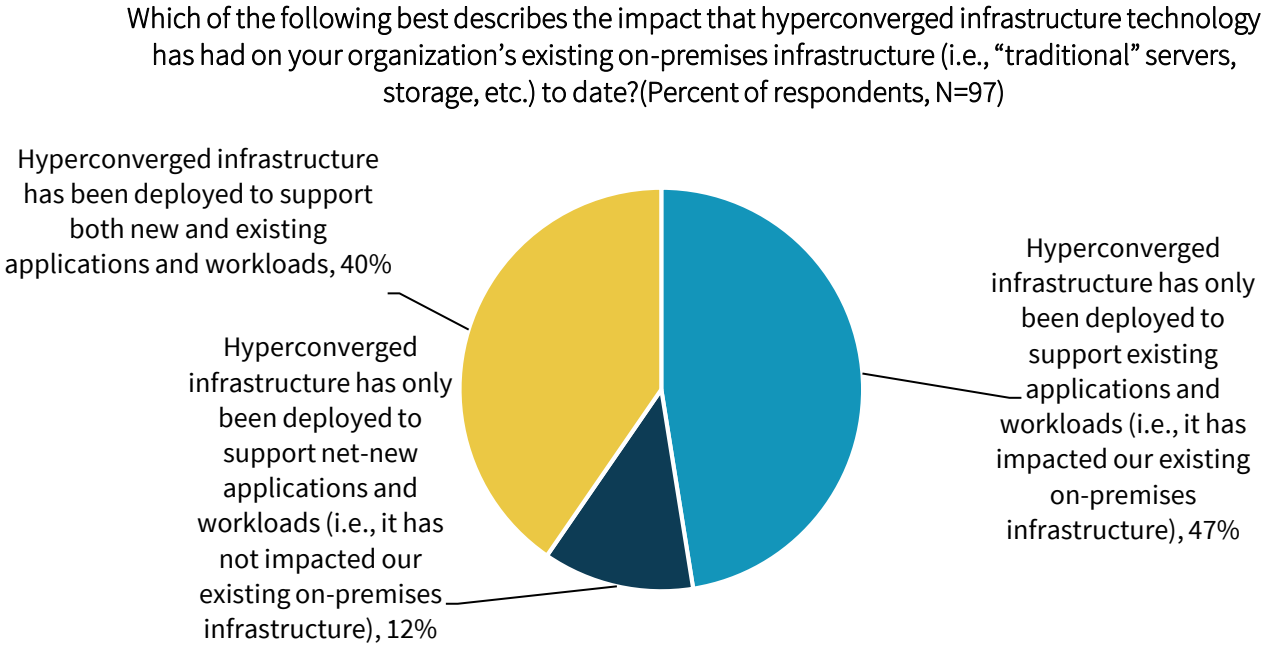
Source: Enterprise Strategy Group

Impact on On-premises Infrastructure and Existing Workloads

HCI is displacing traditional/legacy infrastructure supporting existing workloads (e. g., transactional databases, business intelligence (BI) and analytics, VDI, enterprise performance management (EPM), and custom applications, etc.), and organizations are looking to HCI to support new and existing workloads—but it's important to understand how this impacts existing on-premises infrastructure.

ESG research shows that nearly half (47%) of respondents said HCI was only deployed to support existing applications and workloads (i.e., it has impacted existing on-premises infrastructure), while 40% said that HCI has been deployed to support both new and existing applications and workloads; just 12% said that HCI has been deployed to support net-new applications and workloads (i.e., it has not impacted existing on-premises infrastructure) (see Figure 5).

Figure 5. HCI Impact to On-premises Infrastructure



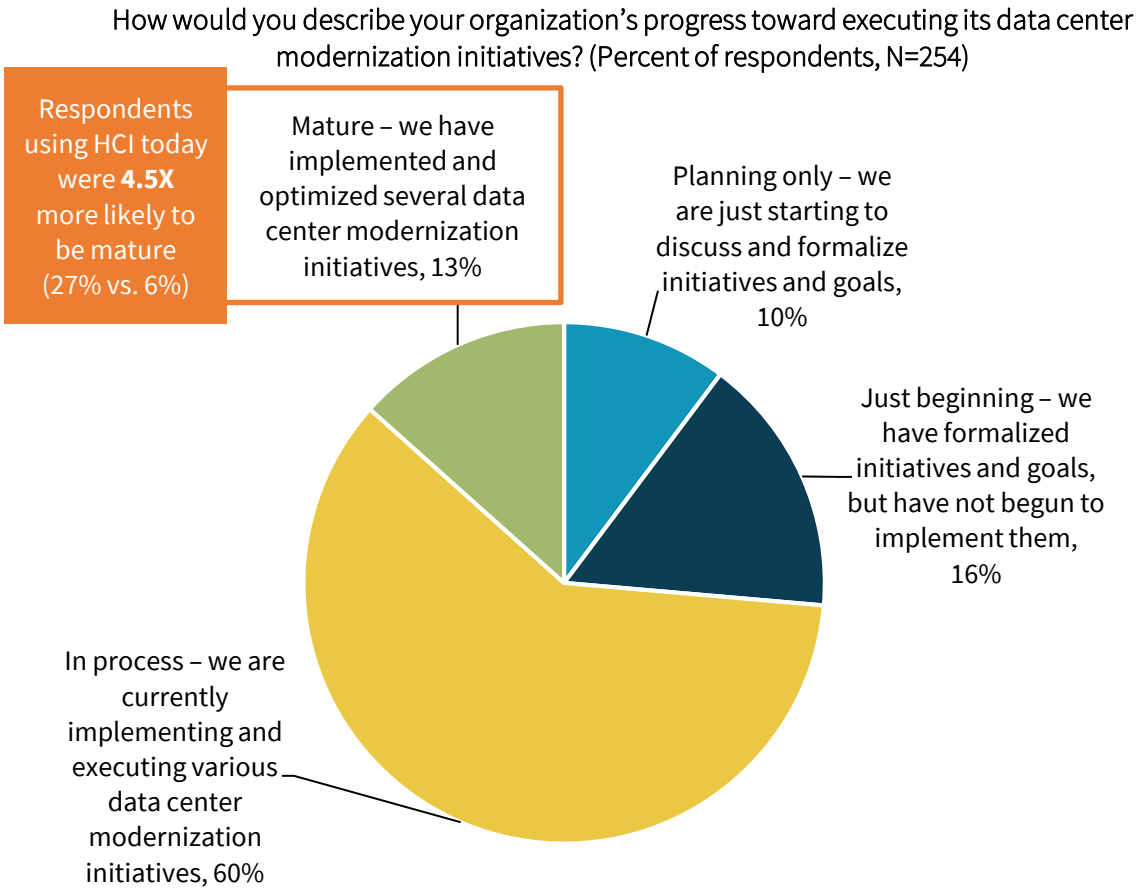
Source: Enterprise Strategy Group

It stands to reason that when organizations gain confidence in HCI, they deploy additional workloads and applications on HCI. ESG research illustrates the idea of "land and expand," which highlights a positive correlation of HCI deployment maturity to the percentage of total workloads organizations run on HCI. Case in point, among organizations that have used HCI for less than a year, 54% run more than 30% of their applications on that infrastructure. However, among organizations that have had HCI deployed for more than a year, 75% reported more than 30% of their applications run on HCI. This validates the belief that the longer the period of time organizations have used HCI, the more confident those organizations feel about moving more of their applications to HCI.

Correlating HCI Adoption to Data Center Modernization Maturity

Organizations across industries are at different stages of maturity as it relates to their data center modernization initiatives, but just 13% of organizations consider themselves mature today (see Figure 6). However, there is a correlation between an organization's use of HCI and its achievement of a mature status. Organizations that currently utilize HCI are 4.5x more likely to consider themselves mature in their data center modernization initiatives than those that have not yet deployed HCI (27% versus 6%).

Figure 6. Progress Toward Executing Data Center Modernization Initiatives

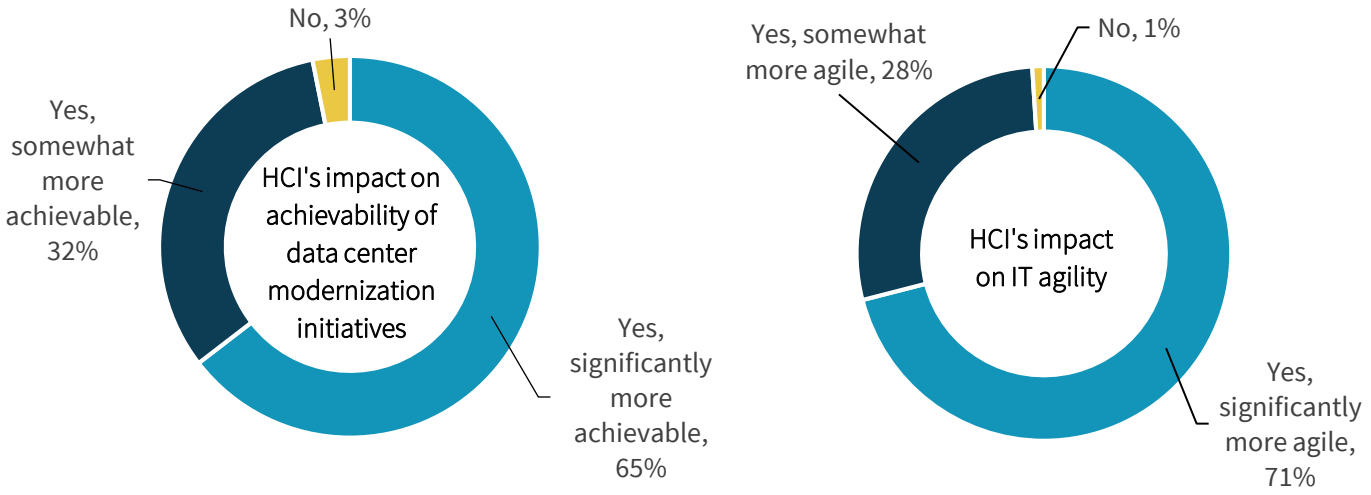


Source: Enterprise Strategy Group

Modernize with HCI for Greater Agility

Leveraging HCI as a foundational technology enables organizations to attain greater levels of agility, helping them to more easily advance on the path to data center modernization maturity. In fact, 65% of respondents believe HCI has made or could make data center modernization initiatives significantly more achievable. When it came to agility, 71% believe HCI has made or could make their organizations significantly more agile (see Figure 7).

Figure 7. HCI Is an Enabler

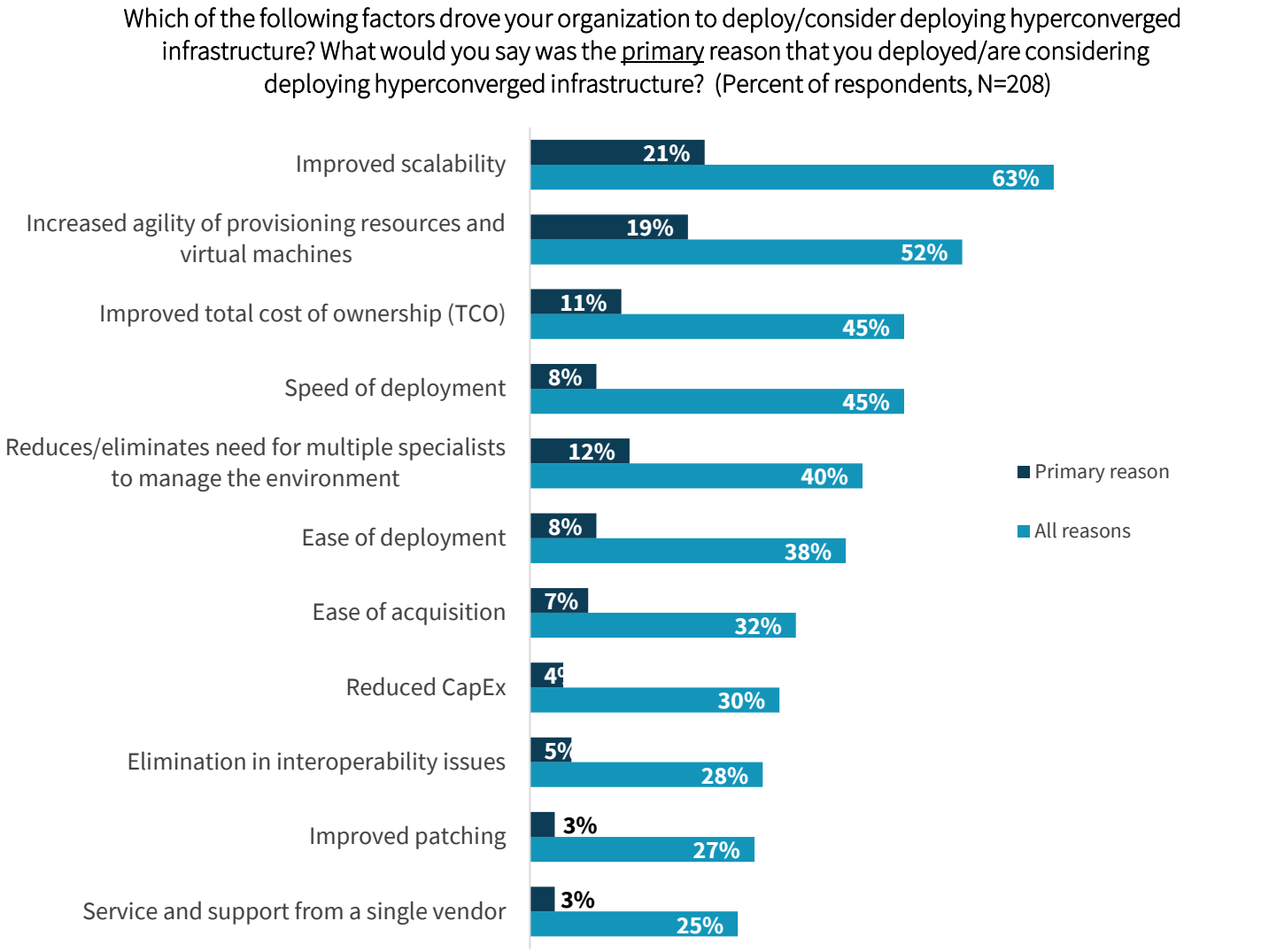


Source: Enterprise Strategy Group

It's clear why organizations across industries are looking to HCI. They're pursuing operational excellence (scalability, agility, and administrator productivity) and believe HCI can help them achieve it—by being able to more swiftly respond to the changing needs of the business, more easily scale, reduce total cost of ownership, and speed deployment times.

According to ESG research, of those organizations using or planning to use HCI, 63% said that improved scalability was one of the reasons, with 21% citing it as the main reason; 52% said increased agility was one of the reasons, with 19% citing agility as the main reason; and 45% said improved total cost of ownership was one of the reasons, with 11% citing it as the main reason for deploying HCI (see Figure 8).

Figure 8. Factors Driving HCI Deployments

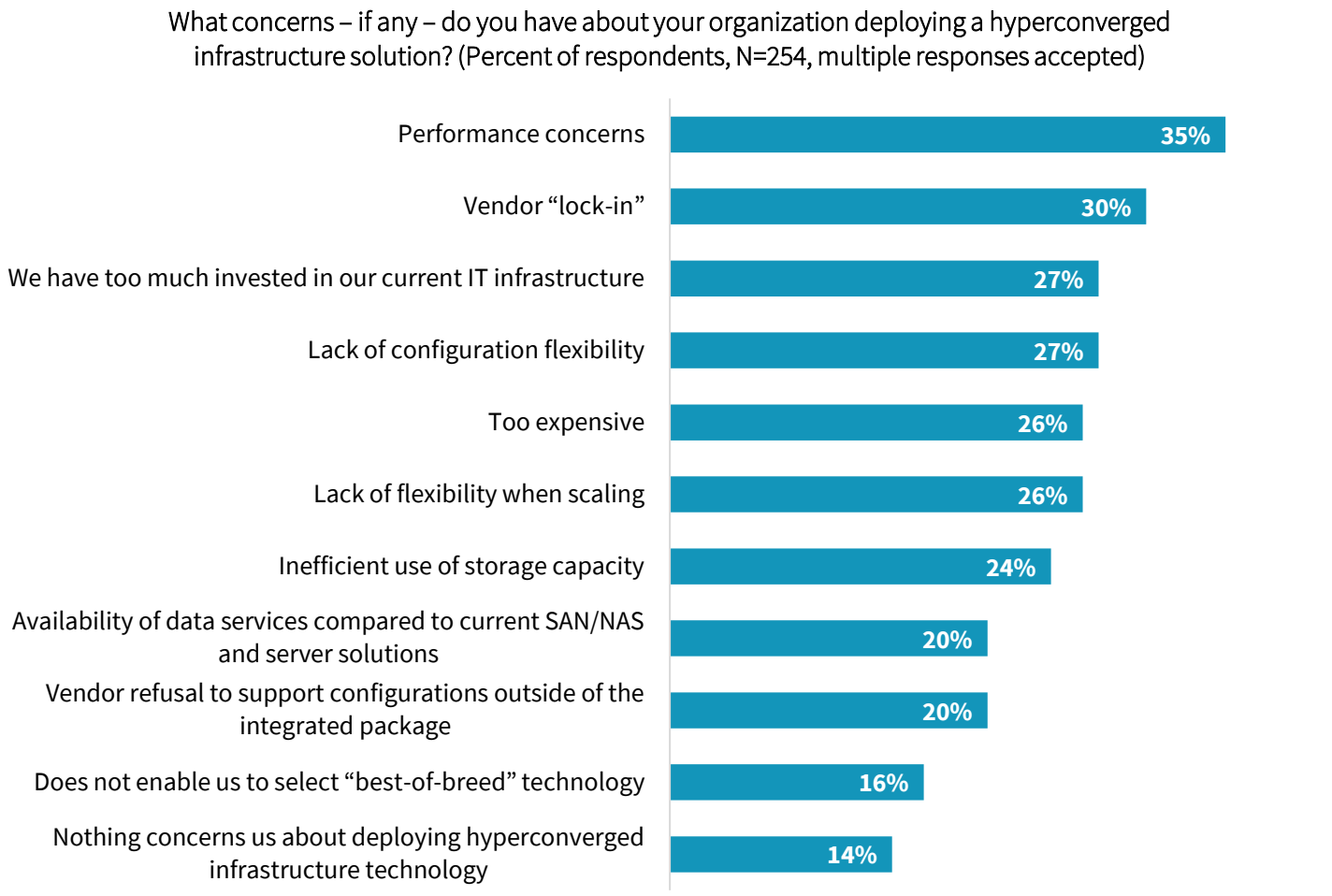


Source: Enterprise Strategy Group

Providing Peace of Mind with HCI

While HCI continues it meteoric rise, especially in support of data center modernization initiatives, concerns remain. ESG research shows that respondents had several concerns when it came to their organizations deploying a hyperconverged infrastructure solution. According to the research, performance was a concern among more than one-third (35%) of respondents, nearly one-third (30%) cited vendor lock-in, and 27% said they had too much invested in their current IT infrastructure. In addition, 27% responded with lack of configuration flexibility, 26% said it was too expensive, and another 26% cited the lack of flexibility when scaling (see Figure 9).

Figure 9. Concerns with Deploying HCI



Source: Enterprise Strategy Group

This closely aligns with the list of "must haves" that an HCI solution must provide in order for organizations to invest in it. Data security tops the diverse list of must haves, with 63% of respondents saying they would not purchase an HCI system unless it featured data security assurances, nearly half (48%) citing quality of service to guarantee application SLAs are met, and 46% citing built-in data protection. Other must haves include the ability to scale up or out (41%), scalable systems management (40%), and workload and data orchestration between environments, whether on-premises or in the cloud (38%) (see Figure 10).

- Data Security — Data is proliferating by the second and is generated, stored, processed, analyzed, and backed up at several locations including core data centers, remote and edge locations, and the cloud. With an ever-expanding attack surface, data breaches are becoming rampant and more sophisticated, and organizations must mitigate potential threats without compromising on security, resiliency, or manageability at scale for mission-critical applications. In addition to simplifying the process of securing business-critical data, organizations must possess an effective means of meeting regulatory compliance.

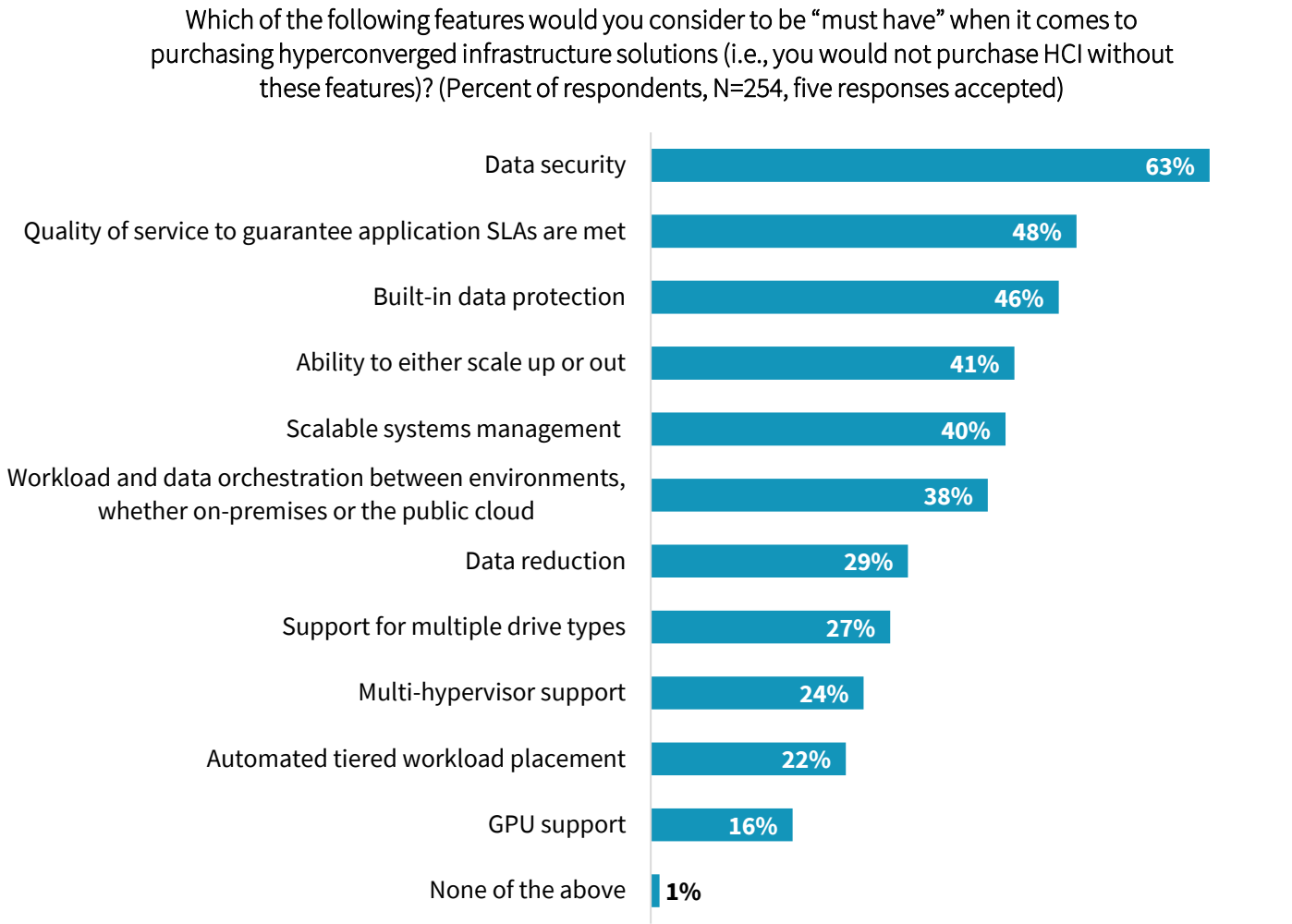
- Quality of Service —Many data center modernization initiatives involve consolidating multiple application workloads with varied business criticality and performance requirements. Quality of service (QoS) is especially critical in these environments as opposed to application silos. To guarantee application SLAs are continually met, organizations should look at intelligent QoS policies that can be automated and assigned at a VM level to address specific application/workload SLAs, without having to identify precise performance requirements. Service levels

associated with each QoS policy must automatically prioritize performance resources in real-time to ensure mission-critical workloads always meet their services levels, even during periods of resource contention or degraded mode conditions. By automating policy changes, IT has the agility to support the business as application priorities and workloads change. In addition, data protection QoS policies ensure snapshots are prioritized and automated to align with constantly changing data protection needs of the business.

- Built-in Data Protection —Without question, effective data protection is essential for organizations undergoing data center modernization. No longer is traditional backup appropriate for HCI systems. Organizations must look for a viable solution that can automate data protection, placement, and performance, while minimizing risk of downtime and data unavailability.

- Flexibility to Scale and Manage Systems—The ability to scale specific requirements, whether compute, storage, or GPU, addresses specific resource bottlenecks, and is essential to aiding IT in streamlining scaling, while also optimizing TCO.

Figure 10. HCI "Must Haves"



Source: Enterprise Strategy Group

The Bigger Truth

Organizations recognize the need to digitally transform. They understand the benefits they can achieve by infusing their business with next-generation technologies and empowering IT to meet the ever-growing expectations of end-users. But where do they start? To embrace a more cloud-like service delivery, better support end-user mobility, and leverage artificial intelligence, organizations must start with a more agile infrastructure that can satisfy the needs of the business as they embark on their digital transformation journey.

Data center modernization is the first step in achieving digital transformation goals. Organizations must arm IT with the right infrastructure to support the current and future demands of the business. And with hyperconverged infrastructure, IT is empowered to deliver higher levels of efficiency, better scalability, and improved agility, all while reducing capital and operational costs. By utilizing HCI as the foundational infrastructure technology of data center modernization, organizations are now on a path to success.

However, a clear set of requirements has emerged as HCI makes the transition to be *the* primary datacenter infrastructure technology. It is imperative the HCI platform provide security, quality of service guarantees, data protection, and flexible scalability to effectively meet the requirements of broader data center modernization initiatives. Vendors offering these capabilities should be able to successfully address the data center modernization requirements of their customers.

For information on how Pivot3 can deliver the foundational infrastructure to support data center modernization goals, visit:

https://pivot3.com/why-pivot3/

Appendix: Research Methodology and Respondent Demographics

To gather data for this report, ESG conducted a comprehensive online survey of IT infrastructure decision makers from private- and public-sector organizations in North America. The survey was fielded between February 15, 2019 and February 26, 2019.

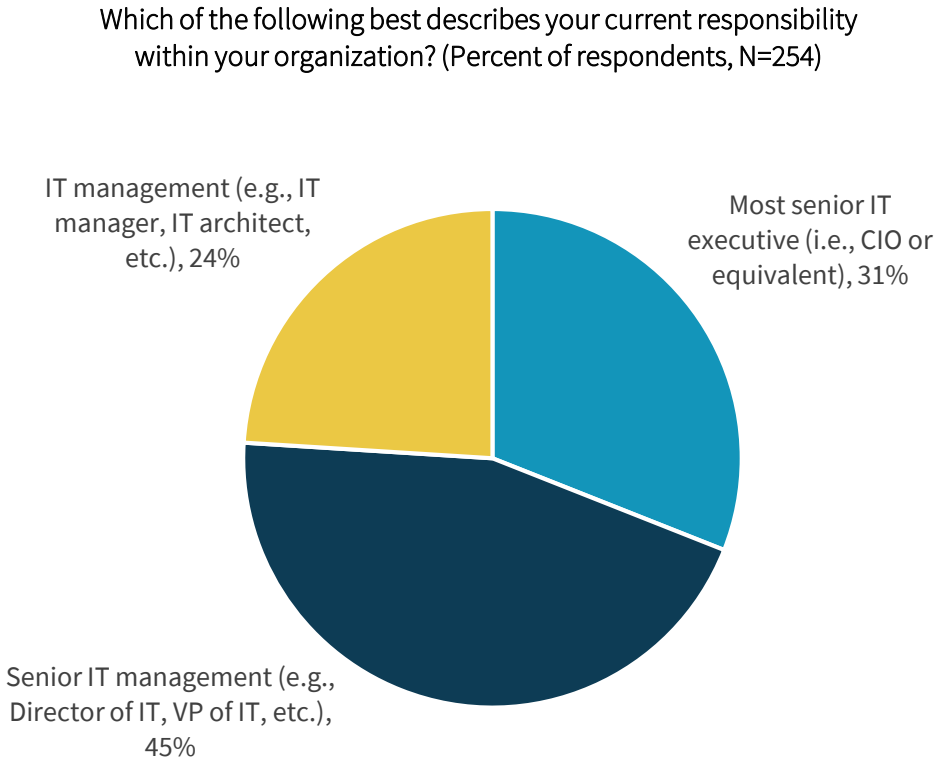
To qualify for this survey, respondents were required to be influential in their organization's decision-making process for data storage, servers, virtualization, converged/hyperconverged infrastructure, and/or data protection solutions. Additionally, all respondents must have held a manager or higher title. Finally, all respondents must have been employed at a large enterprise, defined as organizations with 1,000 or more employees and with $250M or more in annual revenue.

After filtering out unqualified respondents, removing duplicate responses, and screening the remaining completed responses (on several criteria) for data integrity, a final sample of 254 respondents remained.

All respondents were provided an incentive to complete the survey in the form of cash awards and/or cash equivalents. Note: Totals in figures and tables throughout this report may not add up to 100% due to rounding.

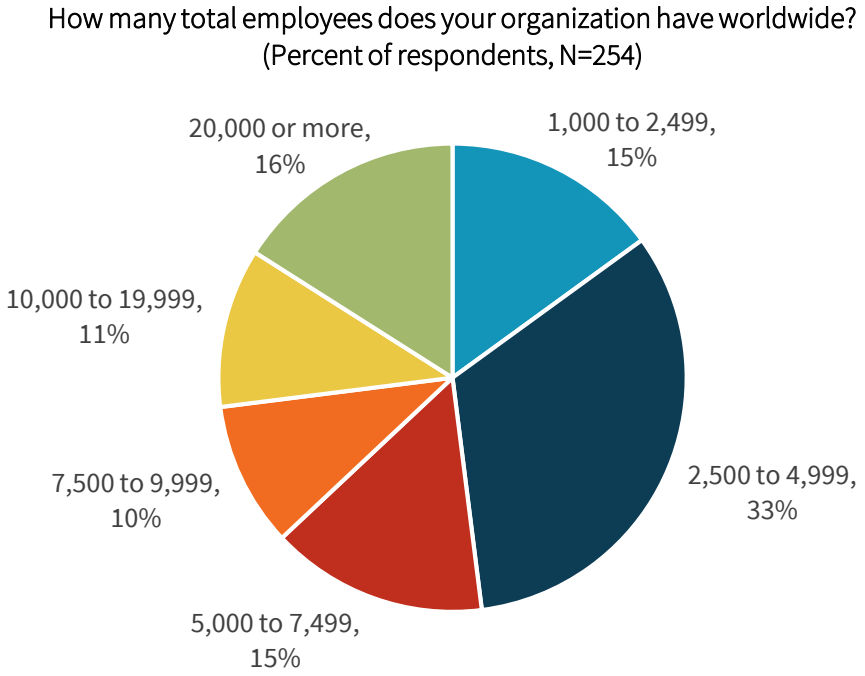
The figures below detail the demographics of the respondent base: individual respondents' current job responsibilities, as well as respondent organizations' total number of employees, primary industry, and annual revenue.

Figure 11. Survey Respondents, by Job Responsibility



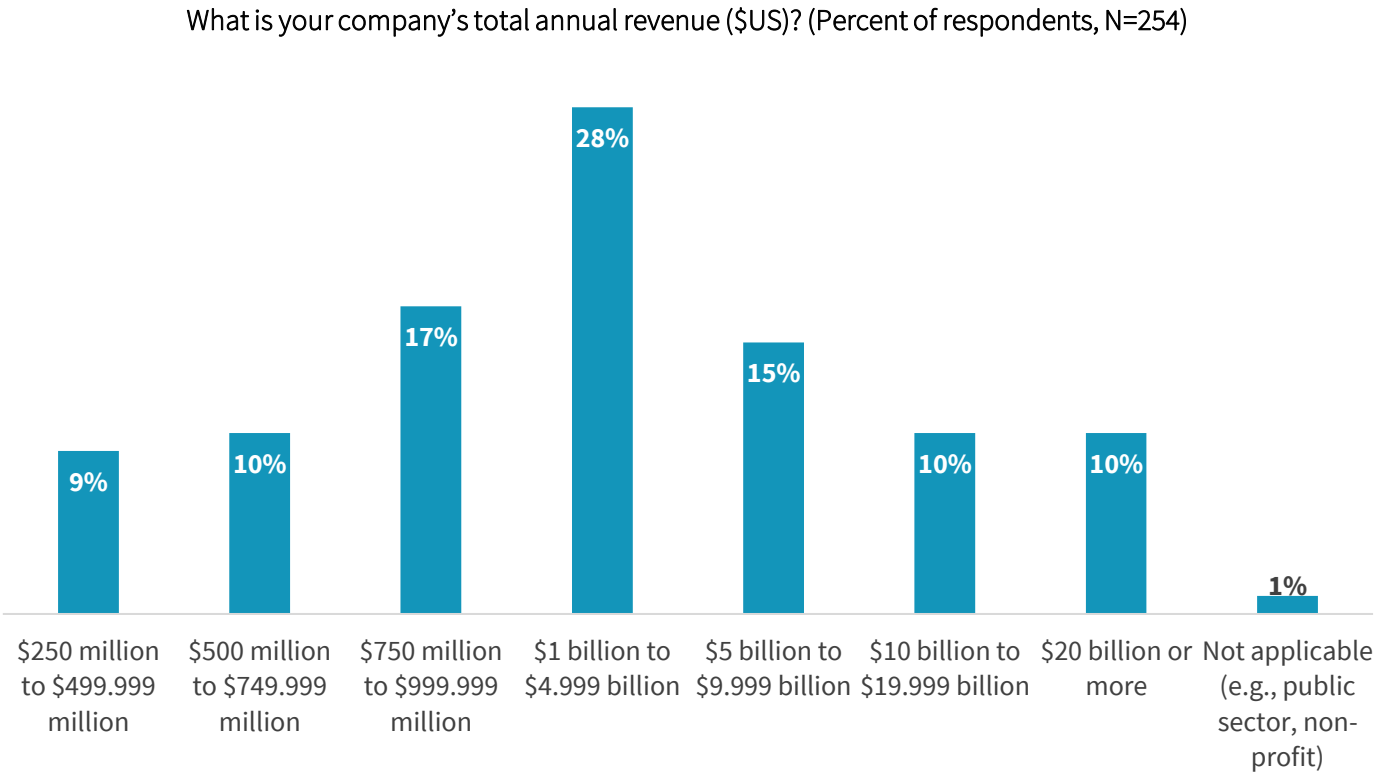
Source: Enterprise Strategy Group

Figure 12. Survey Respondents, by Company Size (Number of Employees)



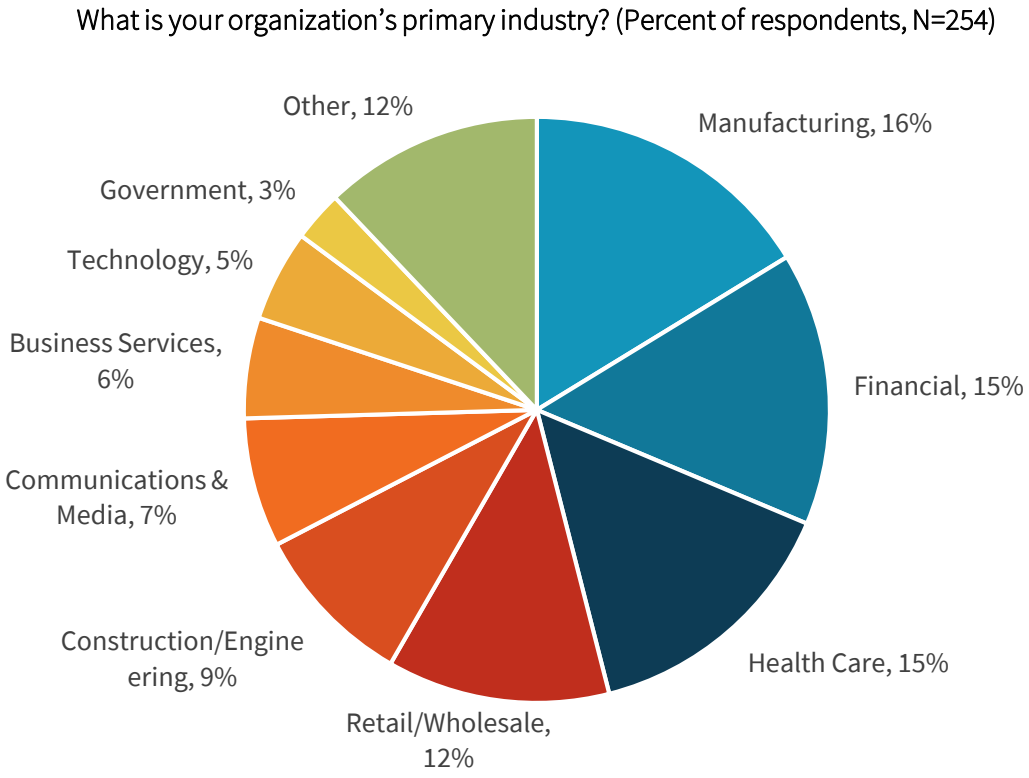
Source: Enterprise Strategy Group

Figure 13. Survey Respondents, by Company Size (Revenue)



Source: Enterprise Strategy Group

Figure 14. Survey Respondents, by Industry



Source: Enterprise Strategy Group