



# 2016 State of Hyperconverged Infrastructure

By Scott D. Lowe  
David M. Davis  
James Green

Partners, ActualTech Media

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# Executive Summary

ActualTech Media surveyed over 1,000 technology professionals and members of organizational management in order to gauge people's understanding of hyperconvergence, as well as how the market is adopting such solutions. We also sought to understand how well expectations are meeting reality when it comes to hyperconverged infrastructure. The survey results include midmarket (100 to 999 employees), and large enterprises (1000+ employees or more) around the world.

Based on the data collected, ActualTech Media concludes:

- **Hyperconverged infrastructure adoption is accelerating.** When compared to our 2015 version of this report, hyperconverged infrastructure adoption has increased significantly and is accelerating. Those planning to deploy the technology plan to do so far sooner than those that had such plans in 2015.
- **Hyperconverged infrastructure is moving beyond niche use cases to the mainstream.** In the early days, VDI was the primary use case for hyperconvergence and, more recently, vendors have been making big pushes into remote office/branch office (ROBO) use cases. However, our data in this survey indicates that the technology is now enjoying broad use case and workload support.
- **Companies are seeking ways to simplify IT and reduce costs.** Many organizations continue to strive to reduce spending—both in capital expenditures by investing in technology that provides a healthy ROI, and in operational expenditures. Cost reduction is a key theme in this year's results.
- **Operational efficiency has emerged as a key driver for all things in IT.** Operational efficiency is a multifaceted outcome that has both an expense reduction component as well as the ability to redirect IT's efforts toward revenue-generating activities. This year's results, in both hyperconvergence and cloud, reinforce the importance of this outcome.
- **Cloud services – or at least cloud economics and operations – are increasingly important.** This year, we added a series of cloud questions as it pertains to hyperconvergence. Cloud is a rising force within organizations and its characteristics – economic outcomes and operational efficiency – are desirable regardless of where infrastructure resides.
- **Dissatisfaction with legacy storage is not a major factor.** While satisfaction with legacy storage may not be a major factor, it is likely that these same organizations have concerns around overall operational efficiency in IT, the category in which legacy storage management might fall.

# Introduction

## Hyperconverged Infrastructure

In this survey, hyperconverged infrastructure is defined as a virtual computing infrastructure solution that seamlessly combines several data center services in an appliance form factor, which accelerates the speed and agility of deploying virtualized workloads, reduces complexity, improves operational efficiency, and lowers costs. Hyperconverged infrastructure is characterized by:

- A software-centric design;
- Commodity x86 hardware components that combine hypervisor, compute, storage, and storage switching with other IT services, such as data efficiency and data protection, in the stack, effectively eliminating the need for discrete IT components;
- A single “building block” appliance that, when combined with additional building blocks, provides a single, scalable resource pool; and seamlessly scales in capacity and performance;
- A high degree of automation;
- The ability to manage aggregated resources as efficiently as possible within and across data centers as a single federated system and through a common toolset;
- Design, delivery and support by a single vendor.

For more information about hyperconverged infrastructure, see [Appendix A: Hyperconvergence Background](#).

## Report Objectives

To assess the State of Hyperconverged Infrastructure, ActualTech Media surveyed over 1,000 IT professionals at companies with a minimum of 100 employees, and who have knowledge of their company's IT environment and strategy.

ActualTech Media's goal is to understand the top challenges organizations are facing regarding IT infrastructure and service delivery, and how hyperconverged infrastructure addresses these challenges. Specifically, this report focuses on answering the following questions:

- What are the respondents' top IT priorities for the next 12 to 18 months?
- What is the general awareness of hyperconverged infrastructure?
- How do they perceive hyperconverged infrastructure as being able to help solve any problems they are experiencing?
- What is the interest level in hyperconverged infrastructure? Why is or why isn't there interest?
- For those interested in hyperconverged infrastructure, what is the timeframe for adopting/deploying it?
- What are the main drivers for deploying hyperconverged infrastructure?
- What criteria are used to evaluate hyperconverged infrastructure?
- What benefits can be expected from deploying hyperconverged infrastructure?
- How does cloud – public, private, and hybrid – fit into the organization's IT plans?
- In what ways can hyperconverged infrastructure help organizations accelerate their cloud adoption plans?

In addition to the various sizes of organizations, those taking part in the survey represent a wide sampling of industries. For more information on the demographics of the respondents, please see [Appendix B – Respondent Demographics](#).

## Key Hyperconverged Infrastructure Market Drivers

The survey results underscore a few key market drivers for hyperconverged infrastructure:

- **Legacy infrastructure costs are too high.** This problem is identified in the reasons why organizations are considering hyperconverged infrastructure and cloud services to reduce costs.
- **Respondent organizations are eager to improve IT operational efficiency.** As on-premises IT infrastructure increasingly has to compete with public cloud economics, organizations seek to reduce run-rate expenses. This year, improving operational efficiency emerged as a major driver for both hyperconverged infrastructure and cloud deployments.
- **Organizations are deploying hyperconverged infrastructure for a broad variety of workloads and applications.** No longer relegated to VDI and ROBO needs, hyperconverged infrastructure is now fully trusted to support mainstream workload.
- **Private and hybrid cloud are increasingly important.** The support of private and hybrid cloud environments is becoming a key driver for the deployment of hyperconverged infrastructure.



# Research Findings

## Real-World Hyperconverged Infrastructure Adoption

Today, hyperconverged infrastructure is beginning to enjoy mainstream adoption and attention. More and more organizations are considering the merits of the technology and are deploying it.

### Hyperconverged Infrastructure Uptake

In Figure 1, note that adoption of hyperconverged infrastructure in some form has jumped 13% since our 2015 survey, with 37% of respondents saying that they're customers..

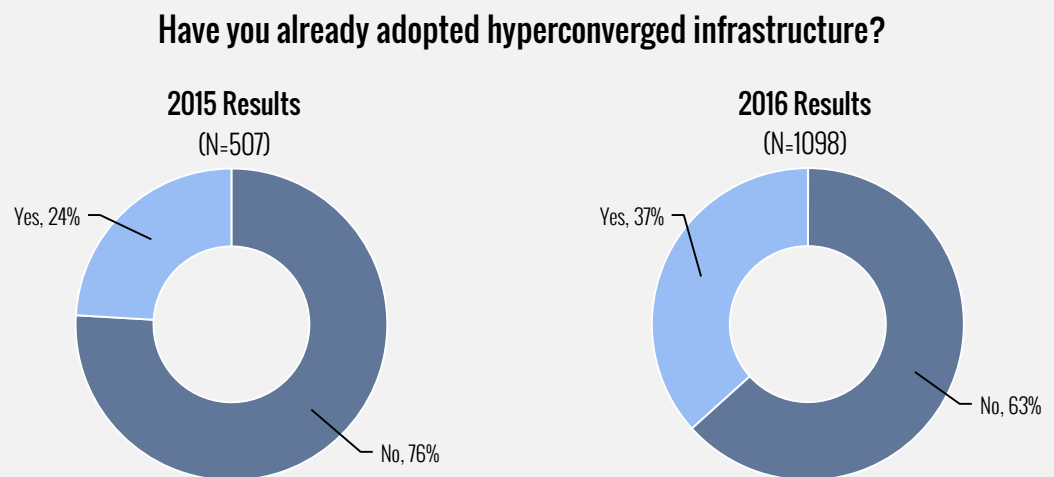


Figure 1 – Hyperconverged Infrastructure Adoption

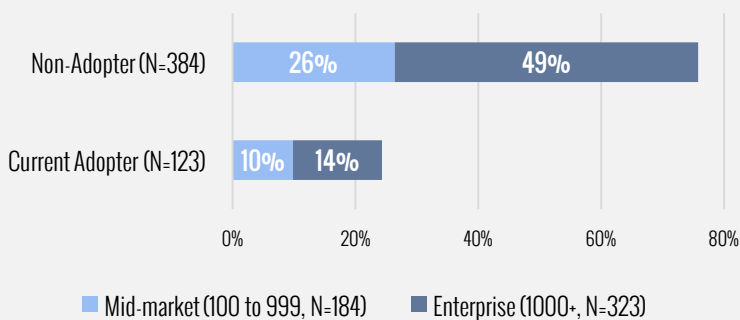
In Figure 2, you've provided a look at hyperconverged infrastructure adoption by company size (left side of graphic), while the right-hand side of the graphic shows you adoption intent for those companies that plan to adopt the technology but have not yet done so. In 2015, large companies (those with more than 1000 employees) were more likely to have adopted hyperconvergence, but in 2016, it appears as if company size is playing less of a role with regard to current adoption. The 37% that have adopted the technology splits pretty evenly down company size lines.

As would be expected, there are a number of respondents planning to adopt hyperconverged infrastructure. More than half (58% – 36% enterprise plus 23% midmarket) of those who haven't already adopted plan to deploy hyperconverged infrastructure in the next 24 to 36 months. This is higher than the 54% from our 2015 results.

### Current Adopters vs. Non-Adopters of Hyperconverged Infrastructure

#### 2015 Results

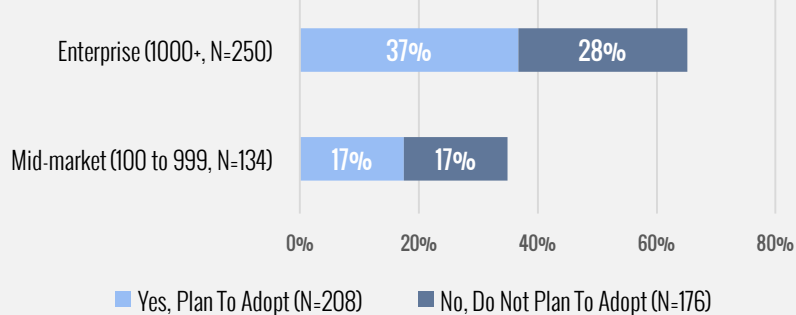
(By Company Size, N=507)



### Plans To Adopt Hyperconvergence Within Next 24 to 36 Months

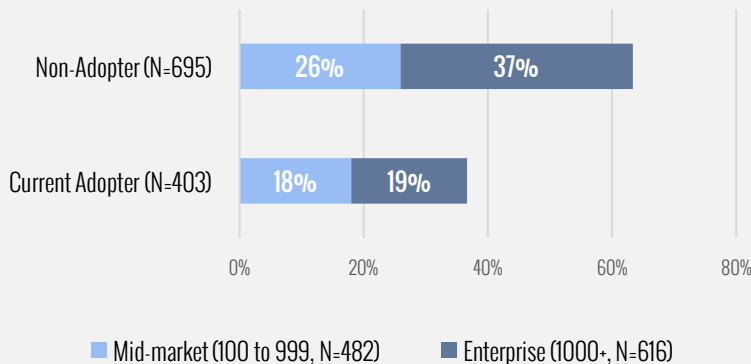
#### 2015 Results

(By Company Size, N=384)



#### 2016 Results

(By Company Size, N=1098)



#### 2016 Results

(By Company Size, N=695)

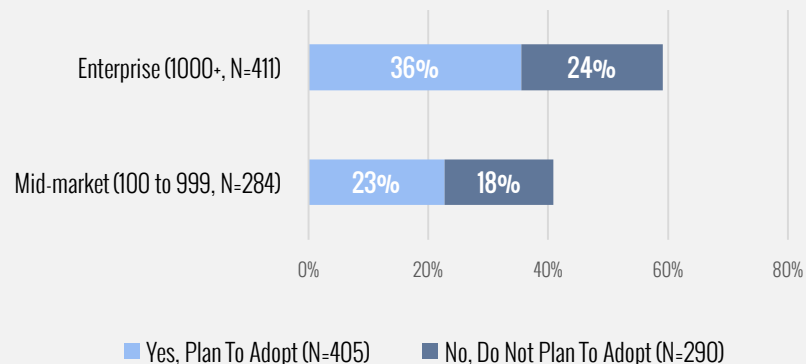


Figure 2 – Current and Planned Adoption Characteristics By Company Size

In examining the purchase criteria for hyperconverged infrastructure among *planned adopters* (see Figure 3), the top five criteria provide insight into what is important to IT infrastructure buyers: cost, availability, ease of scale, recoverability via native data protection, and management. These also tie into the four major themes uncovered in the survey:

- **Cost savings** – Companies are looking for ways to save money on IT and demand fast ROI from their technology investments. This is happening at the same time that the economics behind public cloud are viewed as increasingly attractive.
- **Redirection of IT staff efforts** (ease of scaling, common management interface) – A focus on business outcomes from IT is also increasingly desirable. As people compare management of on-premises infrastructure vs. the public cloud, there is a desire to adopt infrastructure that requires less direct management and that enables automation and self-service.
- **Improved backup and disaster recovery** (integrated backup and replication) – Backup and disaster recovery are also growing concerns as organizations become even more reliant on their technology systems.

### For hyperconverged infrastructure supporting your mission-critical applications, which criteria are most important in evaluating a solution?

(N=405, Multiple Responses Allowed)

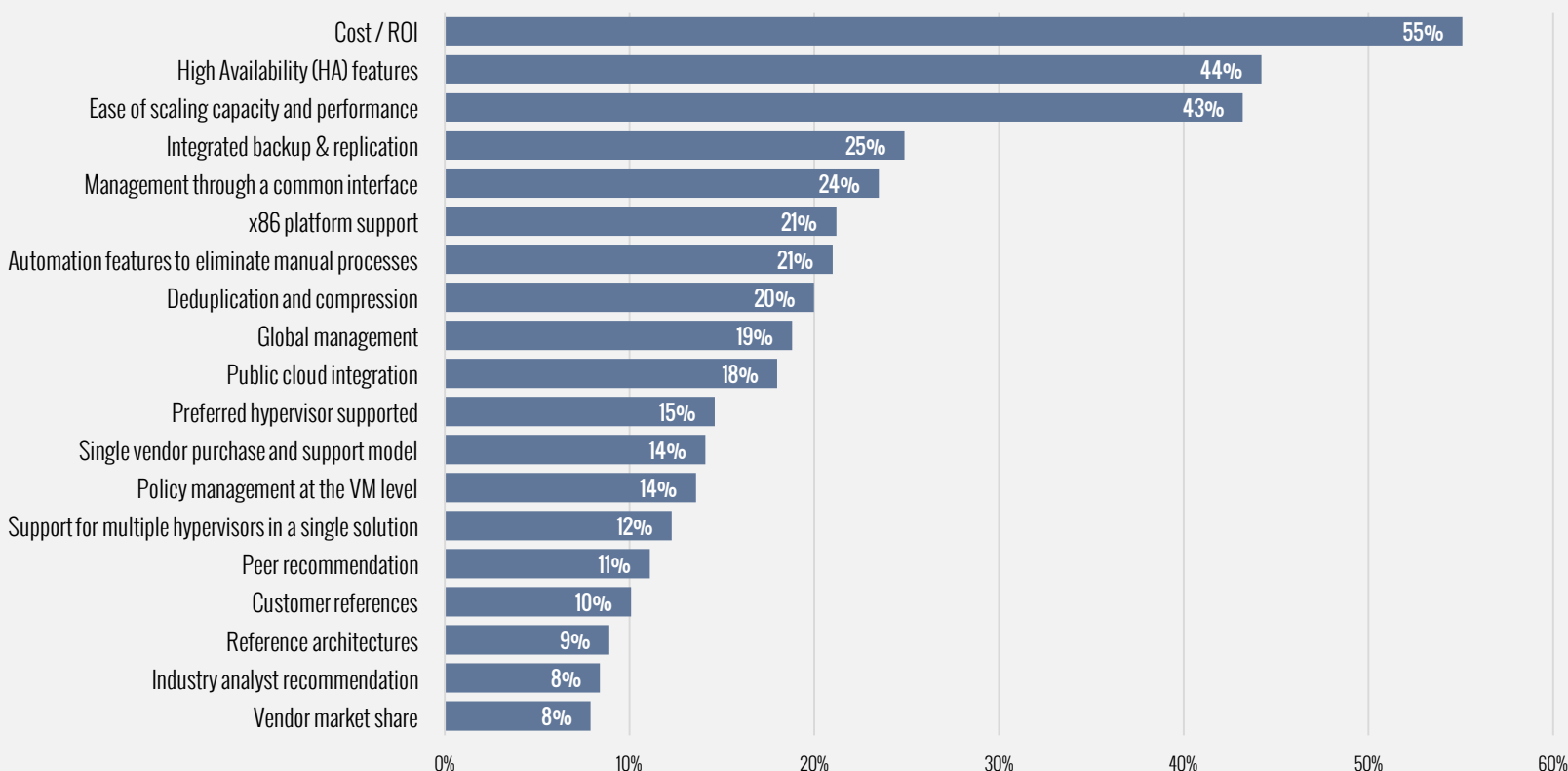


Figure 3 – Planned Adopters Purchase Criteria for Hyperconverged Infrastructure

Figure 4 compares those planning to implement hyperconverged infrastructure with those that have already implemented a solution. As we saw in Figure 3, planned adopters value cost/ROI, high availability, ease of scaling capacity and performance, integrated backup and replication, and management via a common interface. Figure 4 shows that current adopters also value many of these same things, but they also value data reduction (deduplication and compression).

You will notice that the percentages for *adopters* ranges from 15% to 36% while the percentages for *planned adopters* ranges from 9% to 55%; Since respondents were allowed to select up to five responses, we believe that people considering hyperconvergence have specific things they're looking for, but adopters are tainted (in a good way) a bit and are mixing the benefits they've seen with the original criteria.

### Hyperconverged Infrastructure Purchase Criteria By Current and Planned Adopters (Up To Five Responses Allowed)

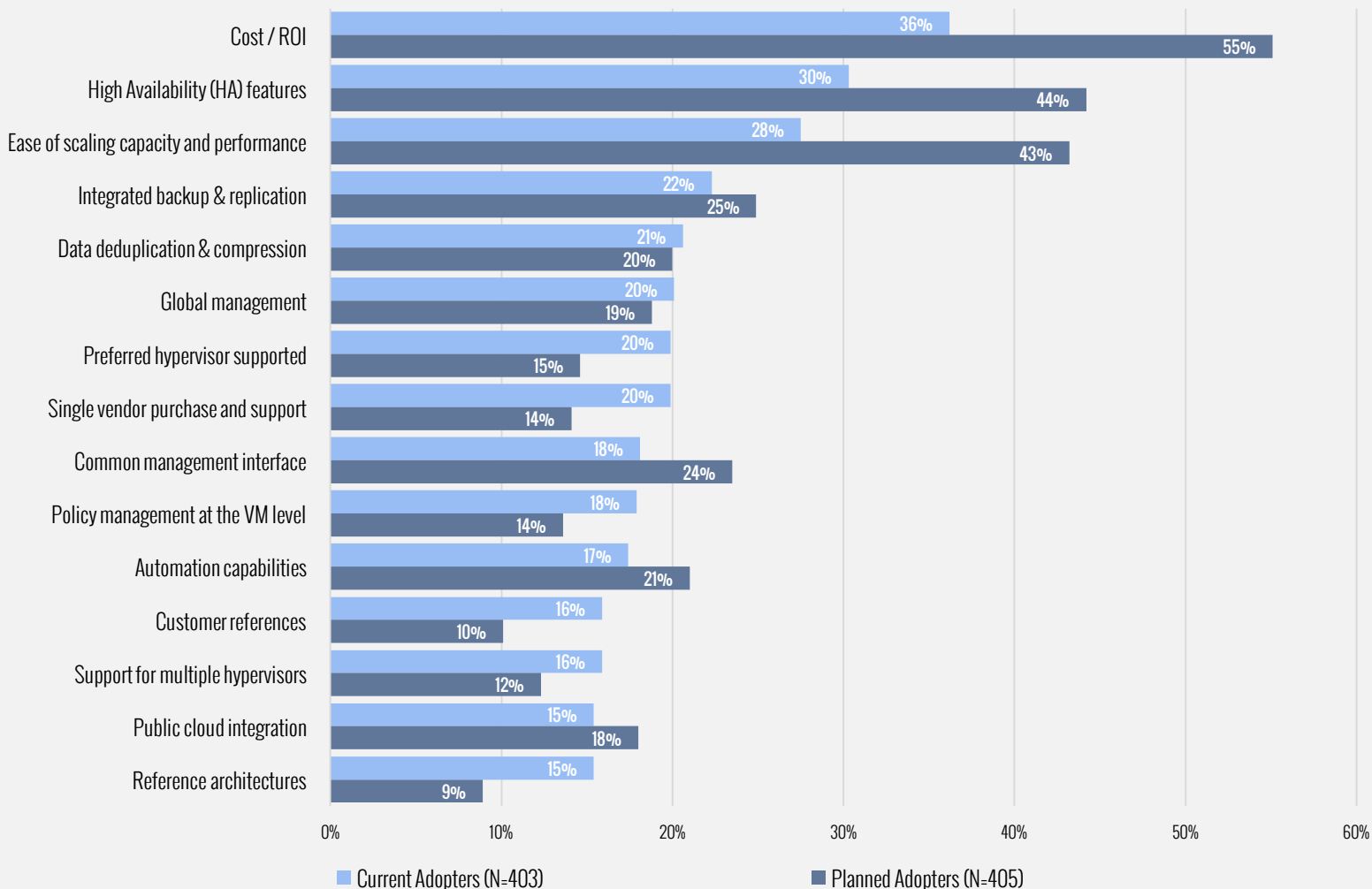


Figure 4 – Hyperconverged Infrastructure Purchase Criteria By Current and Planned Adopters

The widest gap between perception (planned adopters) and reality (current adopters) is with cost. Planned adopters prioritize cost/ROI for hyperconverged infrastructure much higher than current adopters. This might be the result of current adopters having gained other bigger benefits that have made them reflect less on the original solution cost.

## Expectations Meet Reality

Figure 5 identifies the outcomes that respondents expect to see from a hyperconverged infrastructure solution. In this case, current versus planned adopters' points of view are contrasted. For 2016, cost is both the primary expected benefit as well as the primary realized benefit. However, the second place expected benefit is improving operational efficiency while, among adopters, the second realized benefit is the ability to accelerate deployment time. This is not to say that hyperconvergence fails to meet its promises. In fact, we believe that the information shown in Figure 5 indicates that hyperconverged infrastructure actually does a reasonably good job of living up to the hype. Rather, those that have chosen to deploy a solution are just seeing slightly varied outcomes versus the expectations of those simply considering a solution.

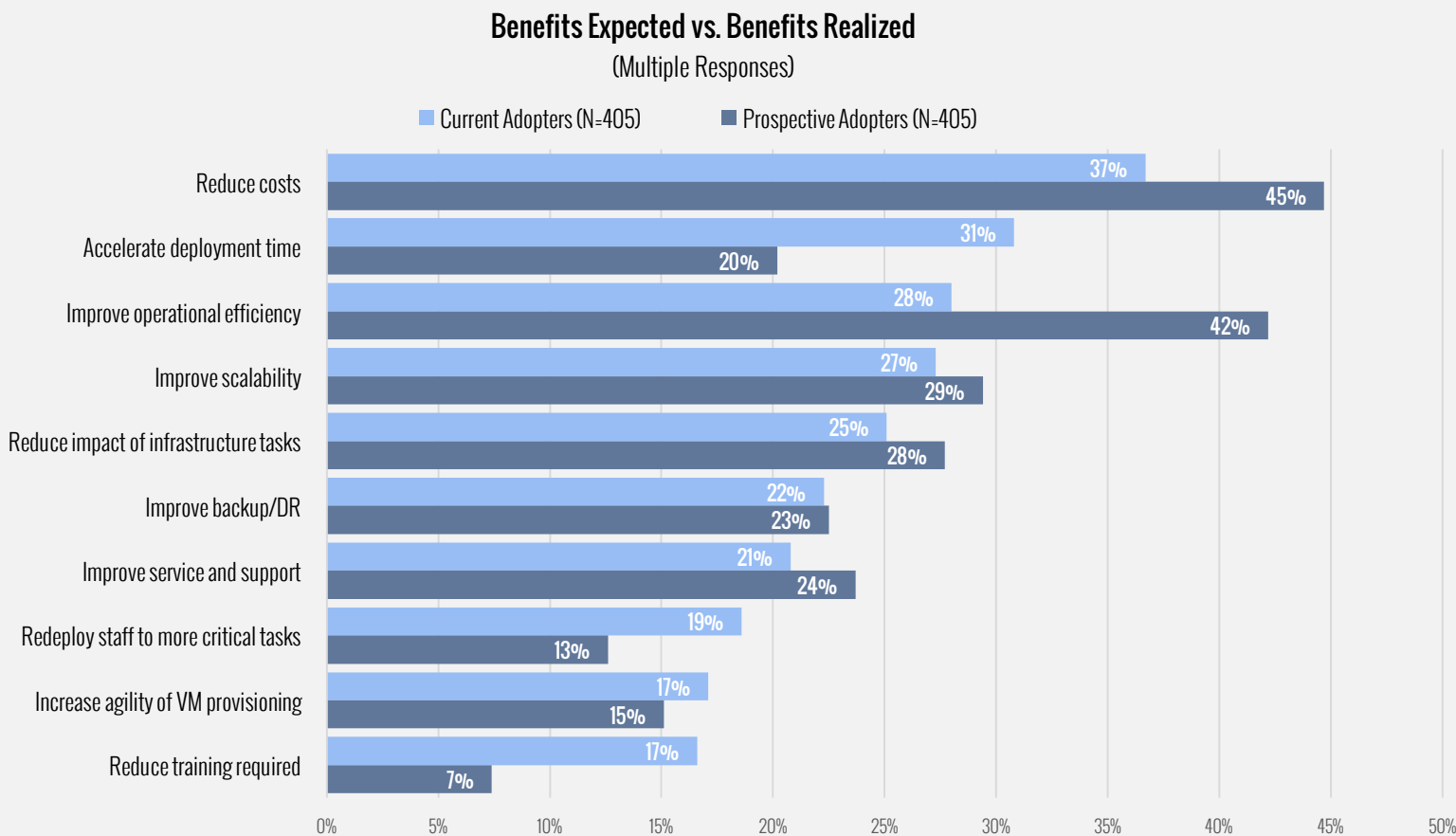


Figure 5 — Benefits Expected (Planned Adopters) Versus Benefits Realized (Adopters)

## Non-Adopters

Not everyone is enamored with the potential for hyperconverged infrastructure or simply has no present need to re-examine data center operations. There are myriad of challenges that respondents identified around hyperconverged infrastructure adoption.

In what is good news for hyperconverged infrastructure vendors, two of the top three reasons why respondents are not considering the technology, as shown in Figure 6 (next page), have nothing to do with the technology itself but rather have to do with the business cycle:

- **Current solution works just fine.** The adage “If it’s not broke, why fix it?” holds true for many respondents. However, that won’t always be true. Business priorities change on a dime, and understanding the delta benefits that may come from modernizing the data center with hyperconverged infrastructure solutions may be useful in the future.
- **Recently upgraded infrastructure.** For most hyperconverged infrastructure vendors, there is no need for a forklift. Many solutions can integrate with the existing environment although different solutions offer varying degrees of integration opportunities. Whether new applications are being deployed or there is a specific use case, such as VDI or ROBO, there may be an opportunity to introduce hyperconverged infrastructure into the environment.

When it comes to why some respondents have no interest in hyperconverged infrastructure, there is one major divergence from the 2015 data: acquisition and implementation cost. In our 2015 results, only 7% of those not interested in hyperconverged infrastructure cited cost. However, in 2016, this figure jumps to the number two position with 27%.

There are some important things to keep in mind. In 2015, we allowed only a single answer to this question, which forced respondents to choose their top concern. In 2016, we allowed respondents to choose up to three answers to help us better understand the true top concerns. Naturally, that will change the comparison a bit.

We believe that cost has always been a concern – and was a bigger concern last year than the data revealed – and that this year’s methodology helps us to better understand these potentially hidden concerns.

## Which are the primary reasons you have no interest in deploying hyperconverged infrastructure in the near term?

(N=290, Up To Three Responses Allowed)

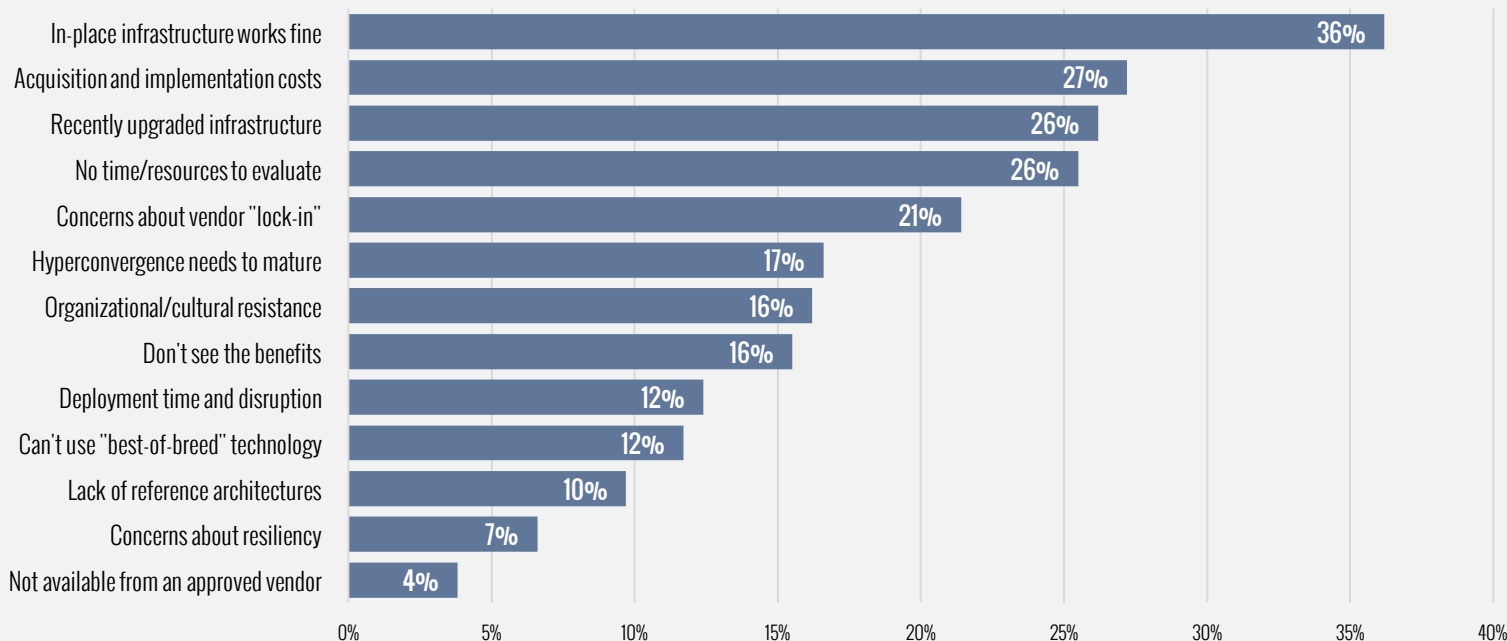


Figure 6 – Primary Reasons For No Interest In Hyperconvergence

There are other reasons that respondents are not considering hyperconverged infrastructure at this time. Some are related to the technology and others aren't:

- **Hyperconverged infrastructure needs to mature.** This makes sense as a concern given its relatively recent entry into the IT marketplace, coupled with the fact that it's a rapidly changing space.
- **No time or resources to evaluate.** Given that improving operational efficiency is one of the most expected outcomes from hyperconverged infrastructure, for organizations that are strapped for time, the technology should be considered.
- **Concerns around vendor lock-in.** Lock-in can be a serious concern, but companies do it every day. They "standardize" on platforms and software, thus locking themselves into solutions. If something is the right solution, lock-in is not necessarily a downside. In a virtual environment, it's rather simple to migrate workloads to something else using a tool such as VMware vMotion.
- **Acquisition/implementation costs.** This holds true especially for small and midsize organizations that may be strapped for financial resources. Regardless of the selected hyperconverged infrastructure solution, there is usually a need to start with a minimum of two to five nodes for full redundancy and availability. This can be a significant investment, but it is also an opportunity for hyperconverged infrastructure vendors who require fewer nodes without compromising resiliency to carve out.

## Adoption Timeframe

This year, there are far more people doing something with hyperconvergence. For those that have yet to adopt the technology but that plan to do so, their adoption timeframe is also quite a lot shorter than it was in 2015. This signals an acceleration of deployment. In our 2015 study, 24% of those planning to adopt hyperconvergence planned to do so in more than two years. For 2016, those that intend to delay more than two years is just 12%.

Overall, hyperconverged infrastructure is a long play. As shown in Figure 7, less than 12% of respondents plan to adopt it within the next six months and about three-quarters of respondents plan to deploy within the next year or two. It's a rapidly growing space, and is moving from an early adopter to early majority phase. 33% intend to deploy within the next twelve months and 56% intend to deploy in one to two years.

### In what timeframe are you interested in adopting hyperconverged infrastructure?

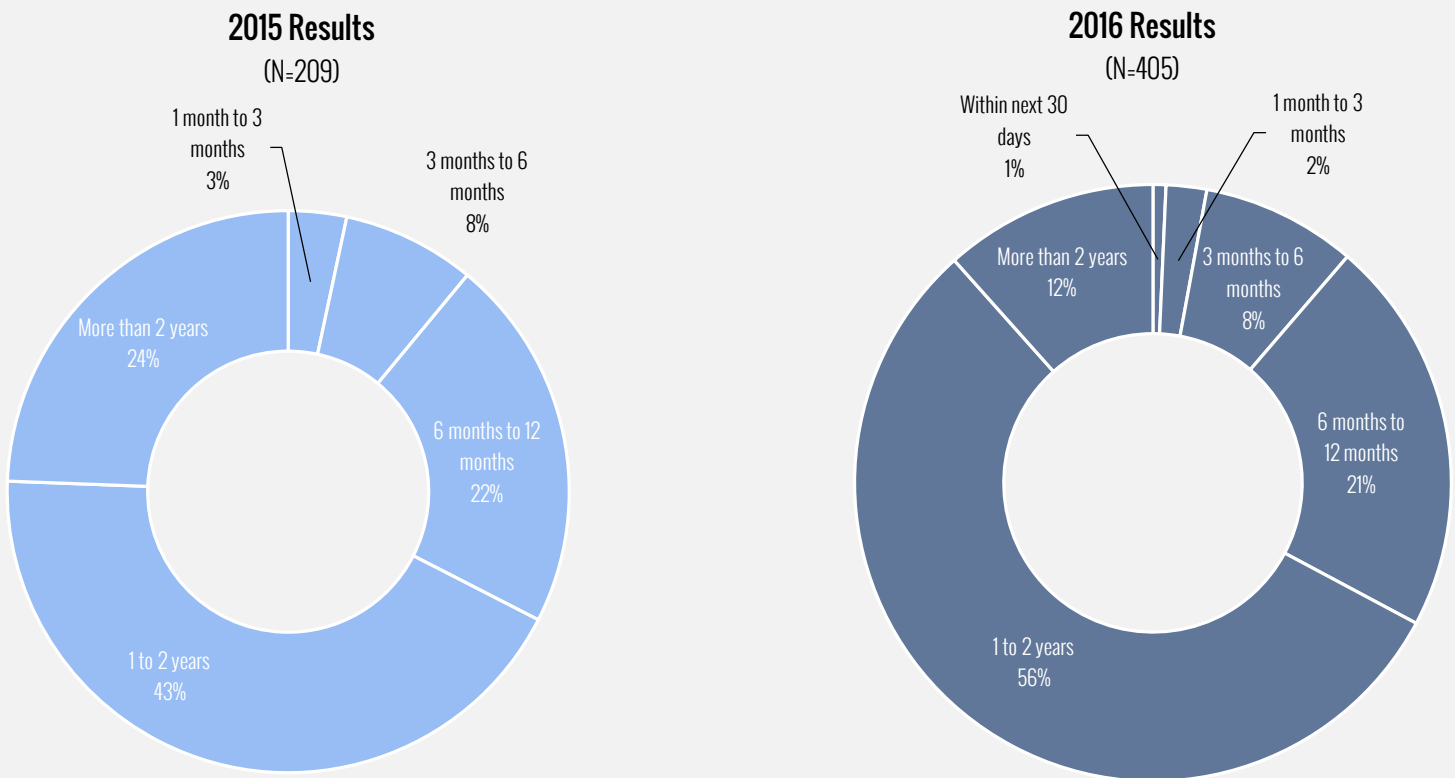


Figure 7 – Timeframe For Adopting Hyperconverged Infrastructure



## IT Priorities

In general, respondent IT priorities (Figure 8) are very similar to those that were provided in 2015, but with some notable exceptions. Taking the top spot in 2016 is a desire to improve operational efficiency (37%). This was the second most cited item in 2015, but had 44% of respondents indicating that this was a critical need.

In 2015, improving backup and disaster recovery (DR) was cited as the most critical priority, with 45% of respondents agreeing. This year, those items remain high on the list. Improving DR garnered 33% of the vote while improving backup and recovery got 30%, taking the second and third positions, respectively.

When it comes to new services, VDI took a big fall this year. In 2015, VDI initiatives were cited as the third most important IT priority with 34% of respondents agreeing. In 2016, only 22% of respondents cited VDI as a priority and it came in seventh on the list. We believe that VDI's fall has come as a result of hyperconverged infrastructure being considered for a wider variety of use cases.

As mentioned, taking up two spots, DR and backup and recovery remain critical items. This is likely a statement regarding the difficulties of maintaining on- and off-premises copies of data in today's dynamic, diverse and always-on data center. Today's modern data center is characterized by relentless data growth, an increase in virtualization and cloud deployments, remote/branch offices, business-critical applications with a low tolerance for downtime, and an increasingly mobile workforce, all of which introduce significant data protection challenges.

### Which of the following would you consider to be your organization's most important IT priorities over the next 12 to 18 months?

(N=1098, Multiple Responses Allowed)

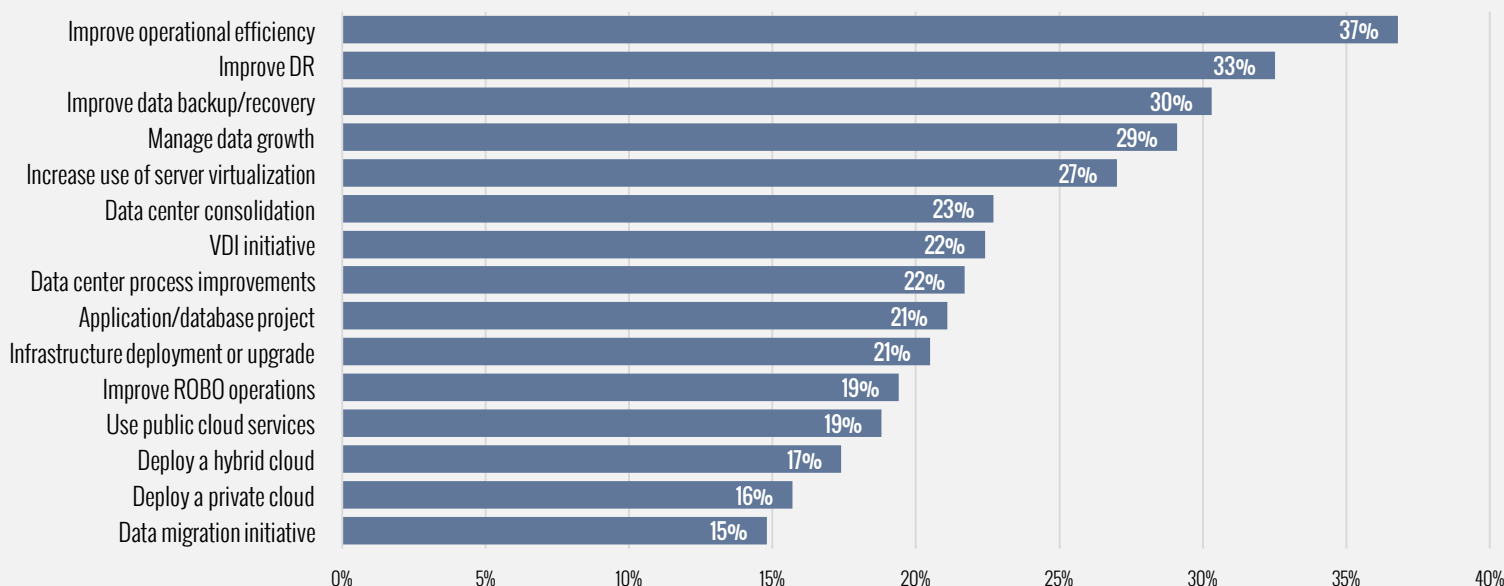


Figure 8 – Most Important IT Priorities Over The Next 12 to 18 Months

You will also note that using various cloud services ranks very low on respondent priority lists. We believe that CIOs and other decision-makers are now focusing more on service outcomes rather than where services run. Therefore, they may, for example, seek operational improvements that could come with a cloud service, but they recognize that cloud is just one means to that end and it not an end unto itself.

Improving operational efficiency is a two-sided issue. Operational efficiency is a measure of IT's ability to achieve its objectives with the minimum allocation of run-rate resources, including staff, budget, and time. Since this typically impacts the lion's share of IT's budget, IT organizations are motivated to simplify and automate to introduce productivity improvements.

As such, we see operational efficiency as being both a cost-saving measure as well as the one that allows information technology to better meet the needs of the business. With regard to the identified priorities, it would not be a huge leap to include data center consolidation and data center process improvements as proxies for improving operational efficiency. Doing so further cements improving operational efficiency as the key theme for this year's results.

## IT Priorities By Company Size

In 2015, company size played a key role in the order of an organization's IT priorities. This year, while there are some gaps in priorities, company size does not play a key role in the order of the top five priorities (Figure 9).

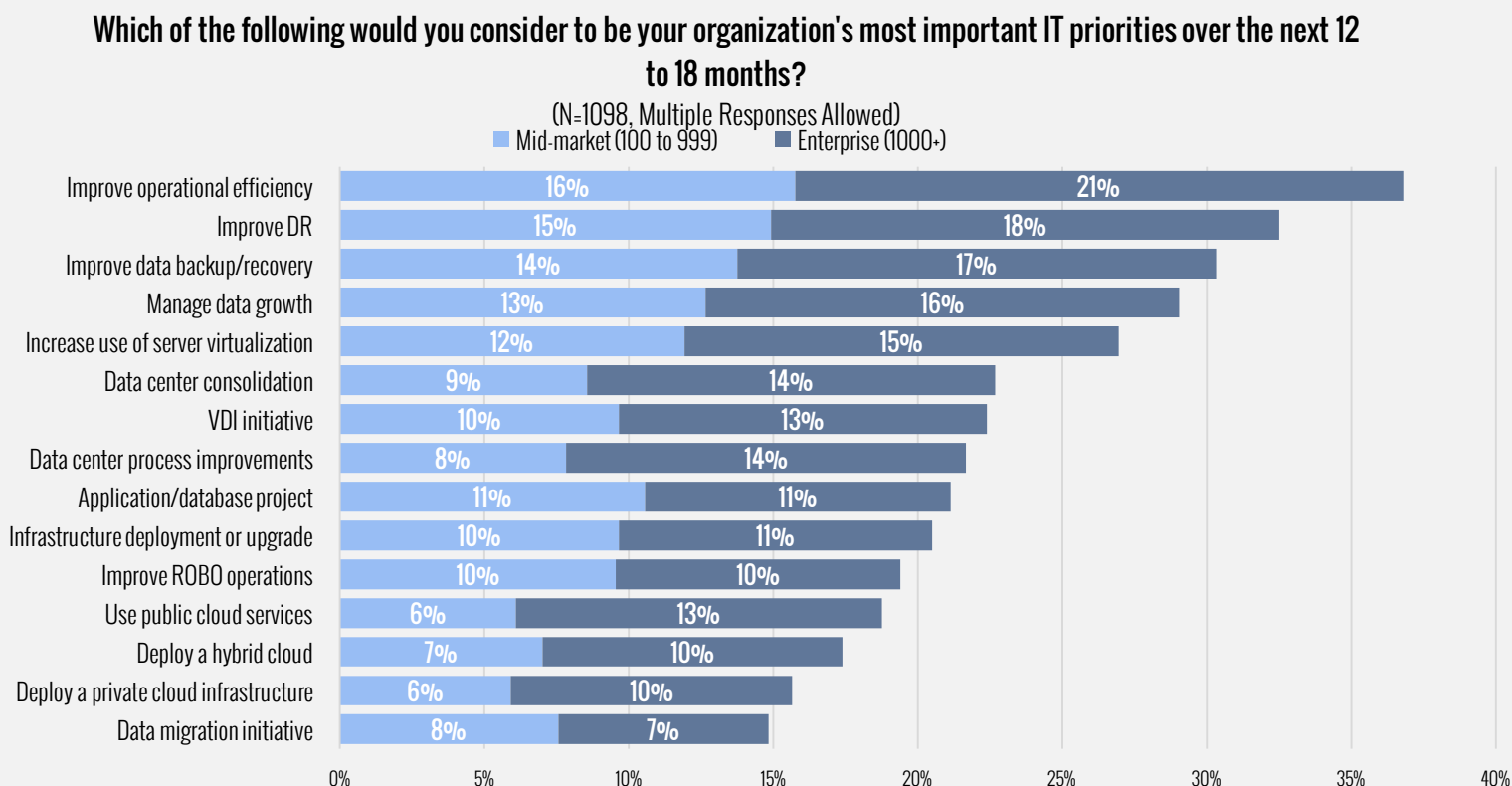


Figure 9 — IT Priorities By Company Size

## IT Priority Alignment with Hyperconvergence

Last year, we asked respondents similar questions regarding IT priorities. In an effort to determine how hyperconverged infrastructure might align with those priorities, we compared last year's responses with this year's responses to see if anything significant has changed. The results are shown in Figure 10. As you can see, improving operational efficiency and reducing costs remain the top two drivers of hyperconverged infrastructure, which aligns with overall IT priorities.

### Which of the following is the primary driver for your interest in hyperconverged infrastructure?

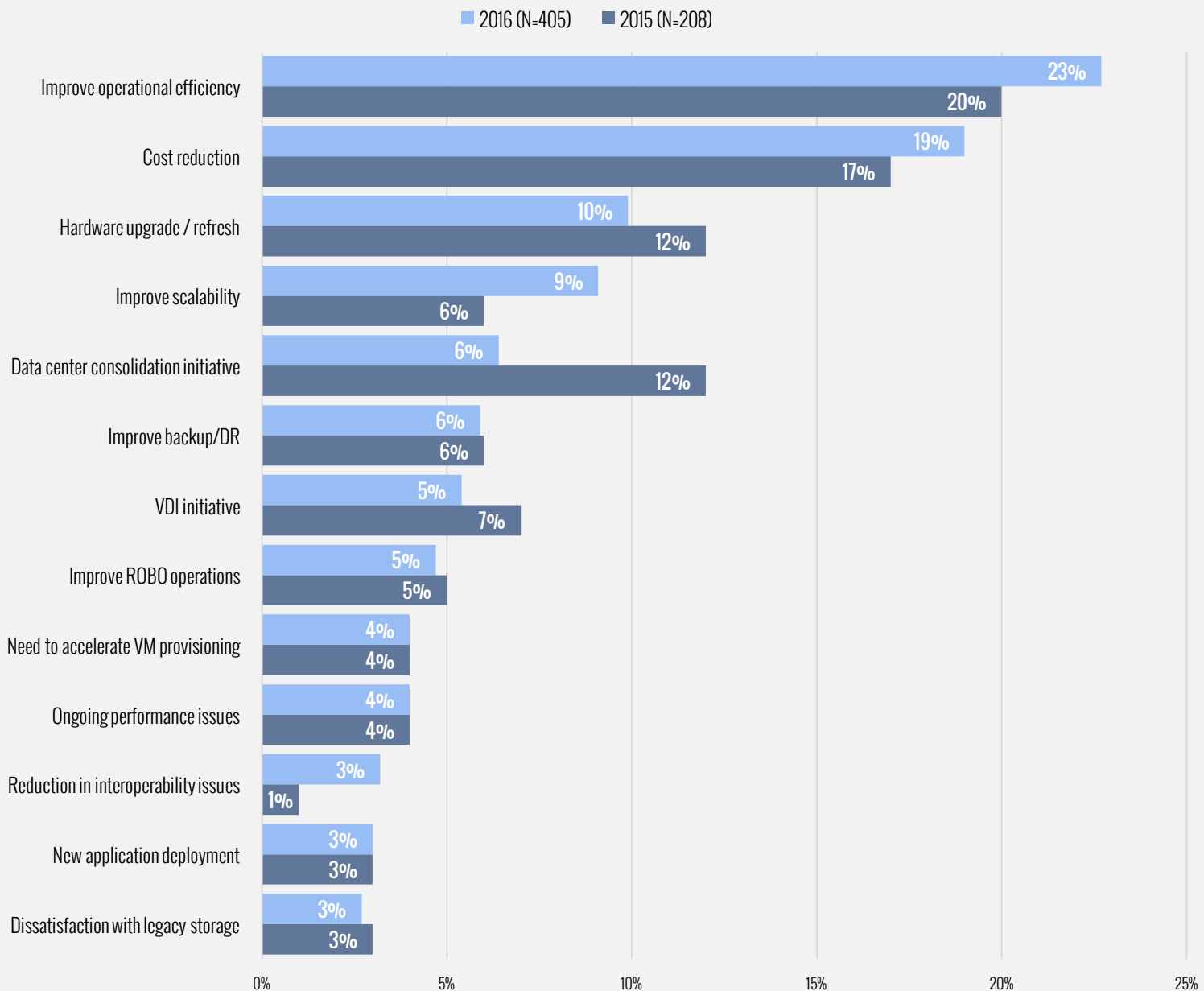


Figure 10 – Primary Driver For Interest in Hyperconverged Infrastructure

## Priorities Matched By Interest in Hyperconvergence

Solving the critical IT challenges that were identified earlier is really important. Fortunately for many, hyperconvergence has the potential to solve many of the identified challenges. Figure 11 provides a breakdown for how these critical IT priorities align with respondents' interest in deploying hyperconvergence.

### IT Priorities By Interest In Deploying Hyperconverged Infrastructure (N=695)

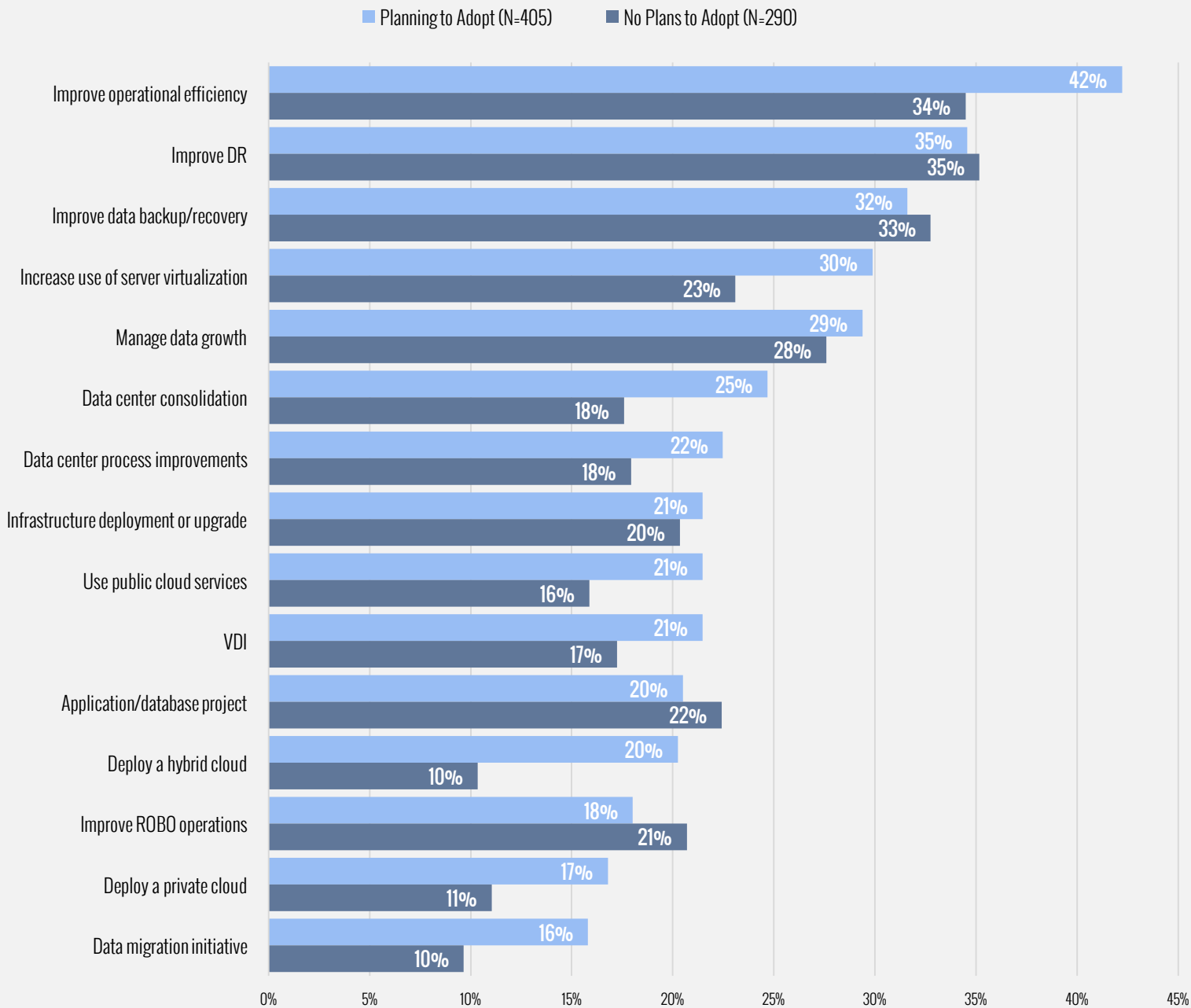


Figure 11 – IT Priorities By Interest In Deploying Hyperconverged Infrastructure

As we consider IT priorities by examining those considering hyperconvergence, a number of items become apparent:

- **Hyperconverged infrastructure vendors need to do more work to explain their data protection capabilities.** Many companies that identified backup and disaster recovery as critical priorities have no plans to consider hyperconverged infrastructure. Disaster recovery and backup/recovery are perennial problems. Any vendor that can help solve these challenges will have some advantage over other hyperconverged vendors in the market.
- **The operational efficiency story is gaining traction.** It appears that people are starting to hear the operational efficiency story from vendors. More planned adopters than those with no plans to adopt hyperconverged infrastructure cite operational efficiency improvements as a key IT priority.
- **Data center consolidation and private cloud deployments remain a sweet spot for interest in hyperconverged infrastructure.** These are two classic use cases for introducing next-generation data center architecture support the scale-out, agility, elasticity, automation and simplicity promises of cloud models.

## Cost Savings

Some hyperconverged infrastructure vendors go far beyond a simple combination of servers and storage, and bring to the environment enterprise-class functionality that was difficult to achieve with legacy systems. This generally happens by way of the reduction technologies that are built into the system. Data reduction, for example, enables the assimilation of a number of infrastructure components such as data deduplication devices for production and backup workloads, load balancers, WAN accelerators, backup tools, and more. The goal for these types of systems is to reduce as much as possible the sheer variety of components running in the data center to make the system as a whole easier to manage and easier to scale. With production workload data reduced into as compact a form as possible, downstream operations, such as replication across a WAN, take place without the need for third-party replication software or specialized equipment such as WAN accelerators.

## Improving Operational Efficiency

Regardless of company size, operational efficiency has emerged this year as a key driver for IT as well as the key driver in the decision process around adoption of hyperconverged infrastructure. Although improving operational efficiency definitely saves money, there are also other positive outcomes associated with it. We'll discuss those other outcomes later in this report.

## Savings Beyond CapEx

When direct costs are compared between legacy architectures and hyperconverged infrastructure, it's likely that the cost for the hyperconverged system will be lower than the traditional solution. Most hyperconverged infrastructure systems are built on commodity, general-purpose x86 hardware, vastly reducing hardware costs in a data center. Further, don't forget the hardware beyond servers and storage. If there is no longer a need for data protection software, an SSD-based caching appliance or a WAN accelerator, those hardware and maintenance costs can also be eliminated.

These potential capital expenditure (CapEx) savings are just the very beginning of the story and can be dwarfed by the operational savings that can be realized. In fact, the *real* savings in a hyperconverged infrastructure scenario comes from operational savings. This converts savings from a single event (which is often a capital expense) into something that takes place on an ongoing basis (which is often an operational expense or OpEx).

## Hyperconverged infrastructure:

- Eliminates ongoing maintenance fees for ancillary appliances and services that are eliminated.
- Reduces power and cooling costs thanks to reduced hardware requirements.
- Reduces the need for ongoing training for a myriad of disparate platforms since many are eliminated.
- Lowers – or redirects – costs for technical IT personnel by simplifying operations.
- Improves processes with more VM-centric policy-based approaches, and fewer classes of hardware to manage.

As shown in Figure 12, among those that have adopted hyperconverged infrastructure, over one-third (37%) identified cost savings as a key benefit.

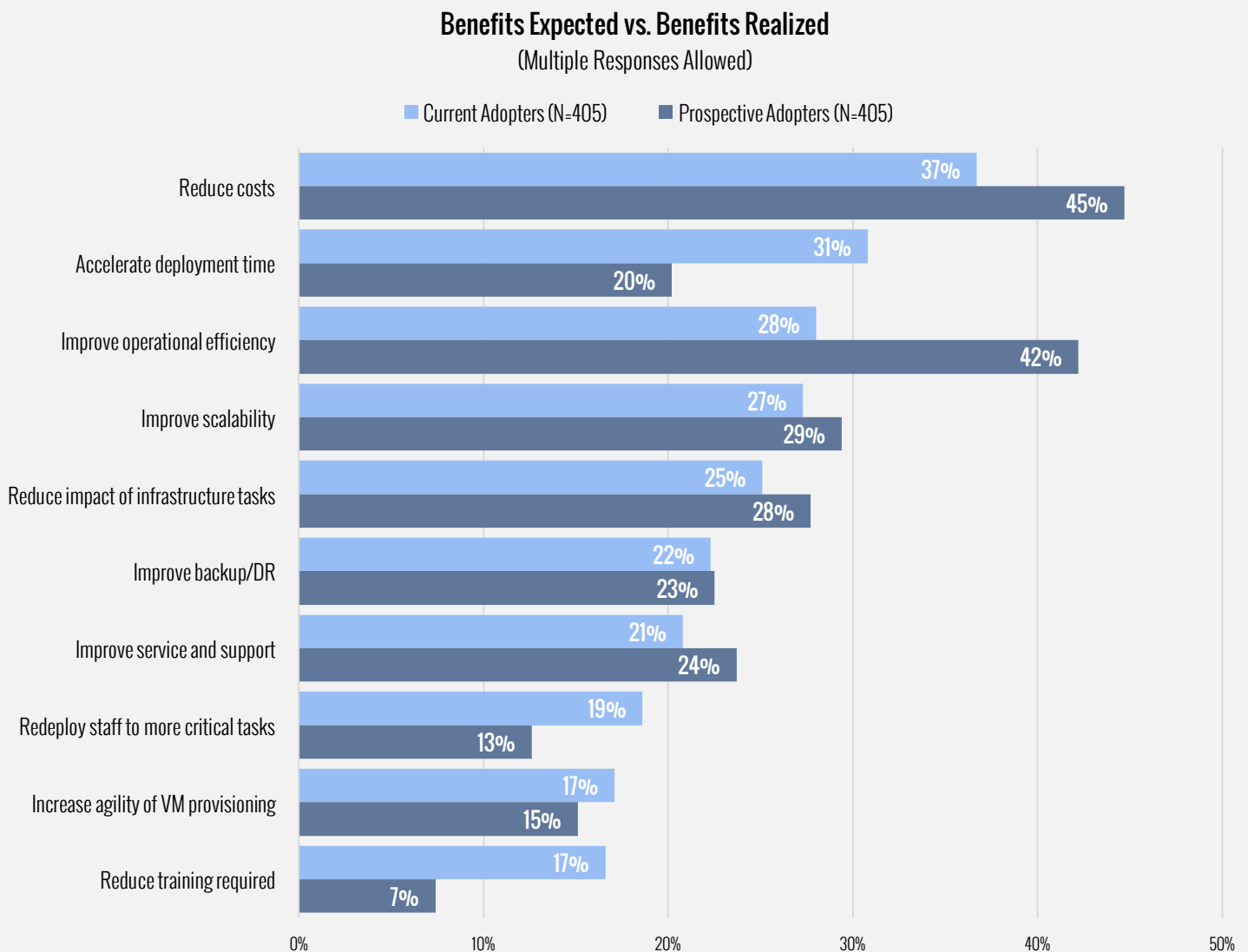


Figure 12 — Benefits Expected (By Planned Adopters) Versus Benefits Realized (By Current Adopters)

## Improving Operational Efficiency

The bottom line is that making operations easier is another cost savings outcome from hyperconverged infrastructure; however, this one has serious second order benefits that can impact both the bottom line and even top line revenue. In the survey, improving operational efficiency (i.e., simplifying operations) is the second biggest driver (behind cost savings) for respondents considering hyperconverged infrastructure, with 42% of respondents indicating agreement. Among all respondents, 37% identify improving operational efficiency as a key IT initiative. Among respondents that have adopted hyperconvergence solutions, 28% identify improved operations as a top benefit.

### What Is Operational Efficiency?

Earlier, we discussed the cost benefits of improved operational efficiency. There is also a significant enablement opportunity associated with improving operational efficiency. For example, consider the plight of a storage administrator. They spend their days creating LUNs and managing storage. What if, through the deployment of hyperconverged infrastructure, 75% of that person's time could be redirected toward business enablement activities?

Traditionally, IT infrastructure and services have often been linked with expense management rather than revenue generation. As you look at the books, you can only go so far with managing expenses relegating IT to an expense management box. This is one of the main reasons that many IT departments are seen as cost centers. With an infrastructure that is streamlined and easy to manage, fewer personnel resources are required to be dedicated to infrastructure management. By deploying such infrastructure, organizations effectively free up significant personnel resources that can be redirected toward business enablement and revenue generation. Unlike the expense side of the ledger, there is no upper limit on what can be accomplished with revenue generation. In essence, there can be a multiplier effect that is not possible when it is simply focused on reducing expenses.



## **Manifestations of Operational Efficiency**

Beyond the direct and obvious methods, there are a lot of different ways by which improved operational efficiency can manifest itself.

### **Policy-Driven Administration**

Policy enablement can lead to powerful automation. Consider this: many organizations strive to align business and technology policies with what is possible in the infrastructure. As more and diverse vendors and solutions are introduced into the data center, it becomes increasingly difficult to ensure that policies are consistent across all systems. Inconsistencies can lead to inefficiencies as IT struggles to keep up, or can lead to even worse outcomes, such as data loss or long recovery times in the event of some kind of outage.

One of the ways by which policy inefficiency is introduced to the data center is via the constant need to apply policies to different constructs. For example, you may apply a data retention policy through your backup software and you may apply different or overlapping policies on your replication appliance.

By consolidating a myriad of data center functions in hyperconverged infrastructure, businesses can begin to apply VM-centric policies that flow through the complete data center lifecycle without having to make a “synapse jump” from one vendor to another or between different kinds of devices. By melding all policies together at the VM level, administrators can focus on that single construct.

The more automation that can be adopted, including through policy driven automation, the more efficient the IT enterprise.

### **Transforming Scalability**

Consider scalability in the current data center. When the need for new resources arises, a flurry of activity takes place. New hardware is selected and procured, testing is performed, downtime is scheduled, and the new resources are eventually brought on line. Sometimes, this is a days-long process, but it can be a months-long one. Consider what needs to take place when adding expansion shelves into existing storage systems, for example. The sheer effort that goes into ensuring that shelf and even individual disk firmware revisions are current and that the system is running appropriate versions of software can be staggering.

This is why many of today’s scaling operations are considered “events” around which significant planning must occur in order to ensure success. They are time consuming and can be costly. This kind of scaling methodology also reduces the agility of the business. When IT needs to take weeks or months to deploy new infrastructure, the result is a business that waits.

There is a serious lack of efficiency in this paradigm. IT resources are consumed in a big way and the business has to suffer a significant amount of latency in order for new business needs to be accommodated.

Most hyperconverged infrastructure solutions on the market today have implemented a scale-out expansion architecture, which provides near-linear resource scalability. As the data center environment expands, new blocks of infrastructure carry with them additional compute, RAM, networking, and storage resources. Moreover, this scalability feature is a part of the base infrastructure. Rather than scaling being an “event” that requires weeks of careful planning, expansion takes place in a matter of minutes with little or no disruption to the existing environment. This is really important. It transforms scaling from an event to just another routine operation, as it should be. The ability to scale at will and without worry will be transformational for some organizations. It enables far more business agility than was provided in the past, when architectures were far more rigid and far more brittle.

In fact, while only 9% of respondents identified improving scalability as their primary motivator for considering hyperconverged infrastructure, this choice was the fourth most popular, making it an important driver. Further, when compared to 2015’s results, in which just 6% identified scaling as their top choice, moving to 9% is a significant jump. Moreover, improving scalability can be considered an operational improvement feature, which is in line with the larger survey results. What’s really important in scalability happens when looking at those that have already adopted hyperconvergence. Among current adopters, 27% of respondents identified improved scalability as a key outcome for their projects (see Figure 12).

When it comes to scaling, hyperconvergence attacks this issue from two angles:

- Enabling companies to grow with reasonable granularity to reduce the amount of wasted resources that need to be deployed.
- Simplifying scaling operations. Simply plug in the new appliance, add it to an existing resource pool, and use it.

## Other Improved Operational Efficiency Results

In re-examining drivers for interest in hyperconvergence (see Figure 13), at 23%, improving operational efficiency garnered the most responses of the selections provided. Improving scalability, which can be considered an operational efficiency, got 9%. There were other responses that can reasonably be considered operational efficiency, reinforcing this critical need and desire in many organizations. These responses include:

- Reduction in interoperability issues (3%).
- Need to improve ROBO infrastructure and operations (5%).
- Need to accelerate VM provisioning (4%).
- Solve ongoing performance issues (4%).

When combined in this way, 48% of responses can be considered as improving operational efficiency in some form. Even the 19% of respondents that identified cost reduction as their primary objective could be lumped in here given that the outcomes can be similar. Likewise, data center consolidation (6%) can be considered here. As such, financial and operational efficiency account for the majority of the responses (73%) around the need for hyperconverged infrastructure.

### Which is the primary driver for your interest in hyperconverged infrastructure?

(N=405)

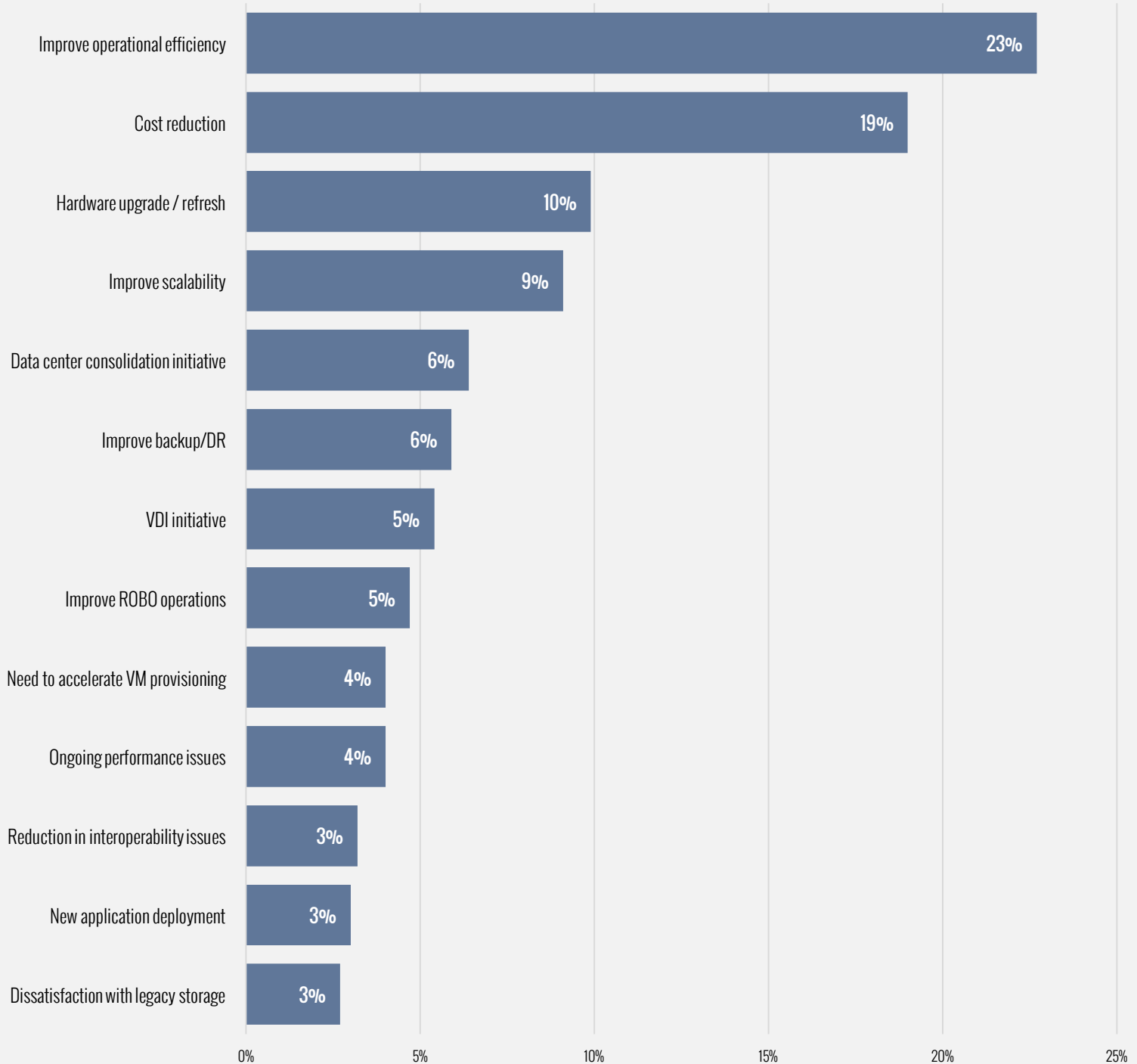


Figure 13 — Primary Driver For Interest In Hyperconverged Infrastructure

## Data Protection and Disaster Recovery

When asked about the most critical IT priorities in an organization, improving data backup and disaster recovery emerged as the single most important overall need. However, when asked about the primary reason that organizations are considering hyperconverged infrastructure, respondents did not rate data protection very highly – it was the sixth-highest factor. In our opinion, this disparity comes from a lack of understanding for how hyperconverged infrastructure solutions address these issues and is an opportunity for vendors in this space to educate end users about data protection challenges and how hyperconvergence addresses them. That said, it's entirely possible that end users have, in fact, scanned the hyperconverged infrastructure market and determined that data protection is not a strong feature in the solutions they've reviewed. It would behoove vendors to gain a better understanding behind the misalignment between this top IT priority and the view of how hyperconverged solutions address this issue.

### Overarching Policies

The virtual machine is the center of the universe when it comes to applications in most modern data centers. Most new workloads are deployed in virtual machines. However, consider the state of centralized policy in the data center. For data centers that have equipment from a wide variety of vendors or that have a lot of “point solutions,” such as WAN accelerators and replication tools, there could be a number of touch points when it comes to policies. These various touch points don't always align very well with one another, particularly when there are different vendors in the mix. For example, while it may be possible to define some policies at the hypervisor layer, it's often difficult to apply storage policies that have any awareness of virtual machine boundaries, although that is starting to change as storage vendors adopt VMware vVols. However, there are a myriad of other devices in the data center that can suffer from the same problem.

Since the virtual machine is the center of the data center universe, why not implement a system that focuses directly on these constructs? Hyperconverged infrastructure solutions provide this opportunity to varying degrees, depending on the vendor. Rather than go to three different places to define storage, backup, and replication policies, some hyperconverged infrastructure systems enable these policies to be attached to the virtual machine, enabling granular policy management.

## Workload and Use Case Characteristics

*Note: Our 2016 workload and use case questions were new this year. Therefore, we do not have data to compare against last year.*

There was a day when hyperconverged infrastructure was advertised as a primary solution to solve problems associated with virtual desktop infrastructure (VDI). Times have certainly changed. While hyperconverged infrastructure vendors still discuss their solutions in the context of individual workloads, this year's survey data shows a picture of a technology that is absolutely hitting the mainstream.

In Figure 14, we have provided information broken down by current customers and those currently considering hyperconverged infrastructure (prospective customers). We now see people deploying hyperconverged infrastructure for workloads that go far beyond VDI. In fact, it's apparent that hyperconvergence is being used for mainstream workloads including general business processing and traditional IT infrastructure applications. In addition, you can see that those that are currently considering hyperconverged infrastructure feel the technology is well-suited to these mainstream needs.

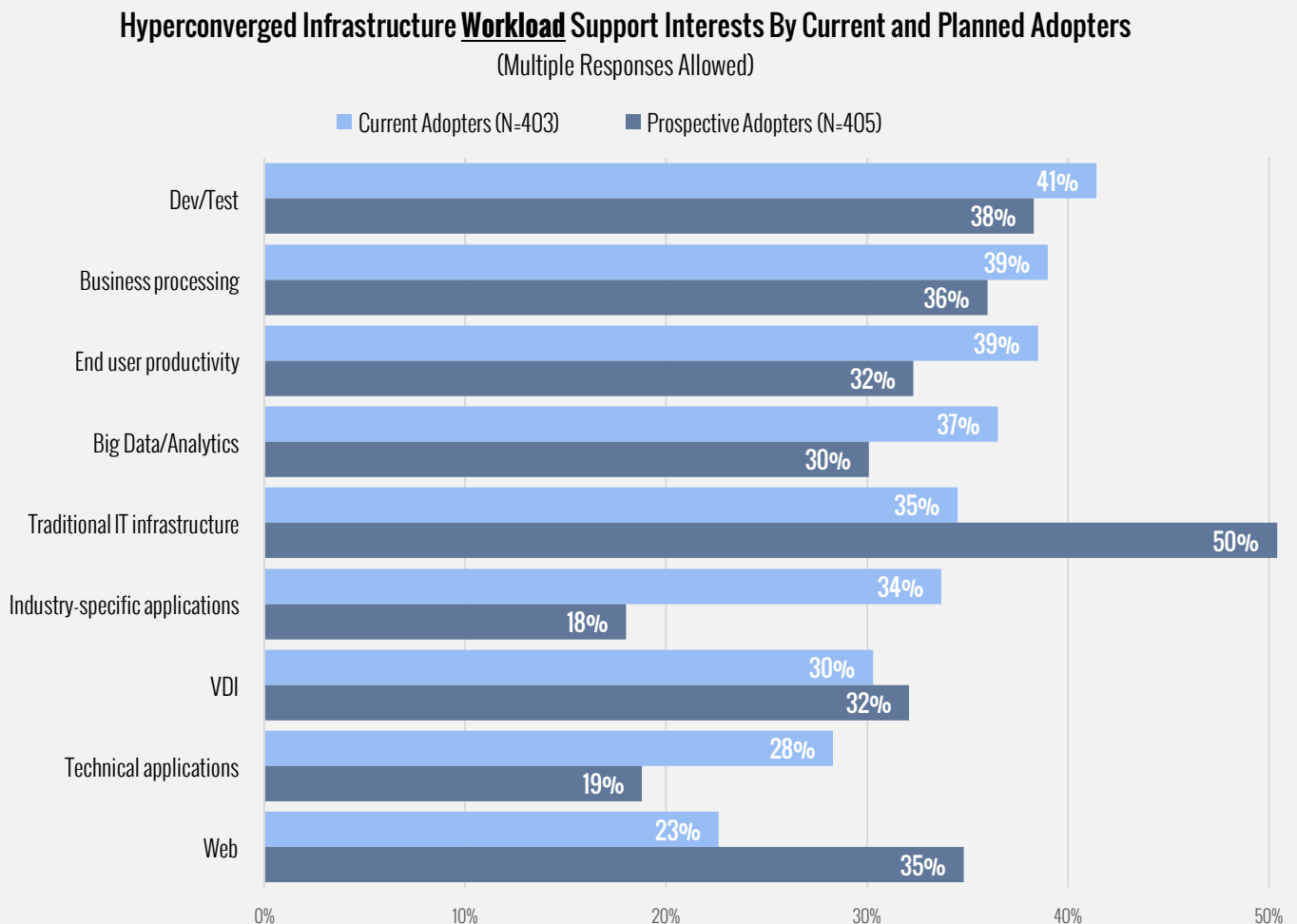


Figure 14 – Hyperconverged Workloads Interests By Current and Planned Adopters

In considering the use cases that people identified around hyperconverged infrastructure, it becomes clear that server virtualization leads the pack. This should come as no surprise, however, due to the fact that hyperconverged infrastructure requires server virtualization of some kind. Vendors in the hyperconverged space have also spent a lot of time talking about remote office/branch office (ROBO) use cases as well as data protection. Data protection is well represented for both current and prospective customers. It's clear that vendor marketing around the ROBO use case is beginning to take hold. While only 6% of current adapters cite ROBO as a use case, 15% planned adopters cite ROBO as a use case of interest.

### Hyperconverged Infrastructure Use Case Support Interests By Current and Planned Adopters (Multiple Responses Allowed)

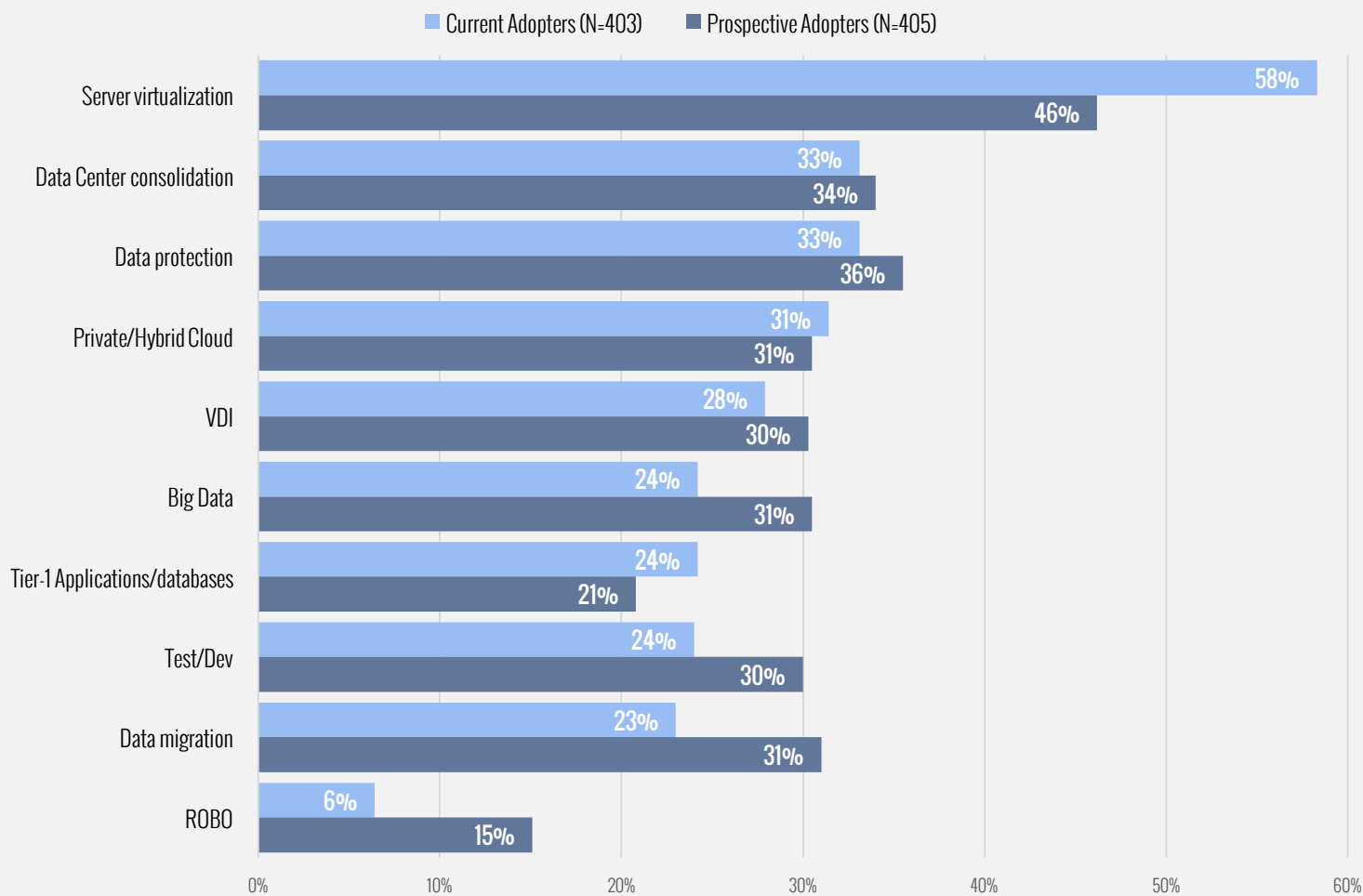


Figure 15— Hyperconverged Use Case Interests By Current and Planned Adopters

We believe that the results shown above reinforce our findings that hyperconverged infrastructure is going mainstream.

# Conclusions

## Hyperconvergence Takeaways

### Growing Alignment Between Hyperconvergence Expectations and IT Priorities

IT priorities are broad and varied. In 2015, our results showed hyperconverged infrastructure beginning to make inroads in specific use cases. This year, however, results indicate that respondents have either deployed hyperconverged infrastructure or plan to deploy the technology to support a wide variety of use cases, including support for business-critical workloads.

This proves that organizations are beginning to trust the technology and the vendors in this space. As alignment between expectations and priorities continues to blend, we expect to see continued acceleration for hyperconvergence adoption.

### Adoption Is Accelerating

It's clear that hyperconverged infrastructure is of interest and that interest is turning into adoption at an accelerating rate. Our 2015 results show that planned adopters intend to deploy hyperconverged infrastructure far more quickly than our 2015 respondents.

Further, we don't anticipate the introduction of hyperconverged technology by legacy vendors as a significant threat against hyperconvergence startups, at least not yet. VMware made a foray into the space in 2014 that helped to kick start the market as a whole, but that introduction also boosted the fortunes of the startups. The last year has seen new products from many traditional infrastructure vendors, but as we review vendor selection data, we're not yet seeing a major shift to these vendors for hyperconvergence.

That said, as traditional infrastructure vendors continue to enhance their offerings, we expect startups to be under increasing pressure to remain ahead of the technology curve in order to maintain their competitive advantage.

### Hyperconvergence Lives Up To the Promise

Unlike many other technologies, hyperconverged infrastructure appears to be largely living up to the hype and expectations based on respondents' reaction to what they expected to see versus what they're actually seeing. The alignment isn't perfect, but there is relatively little separation between expectations and reality. Oftentimes, technology that is as hyped as hyperconverged infrastructure has become completely fails to meet expectations.



## **Seek and Quantify Operational Improvements**

As discussed in this report, respondent organizations are looking for any reasonable method to improve their overall operational efficiency. Hyperconverged infrastructure is proving itself as a capable aid to reaching efficiency goals. Between the ability to directly reduce costs to free up operational funds and the ability to help IT redirect their efforts toward more business-facing activities, hyperconverged infrastructure is a technology that we believe merits consideration for organizations large and small.

# Appendix: Respondent Demographics

## Geography

Given the nature of the survey, it's not a surprise that 60% of respondents hailed from the Americas (see Figure 16). Beyond North America, EMEA brought in 26% while APJ garnered 14% of the responses with the balance coming from the Middle East, Africa, Japan, India, and China.

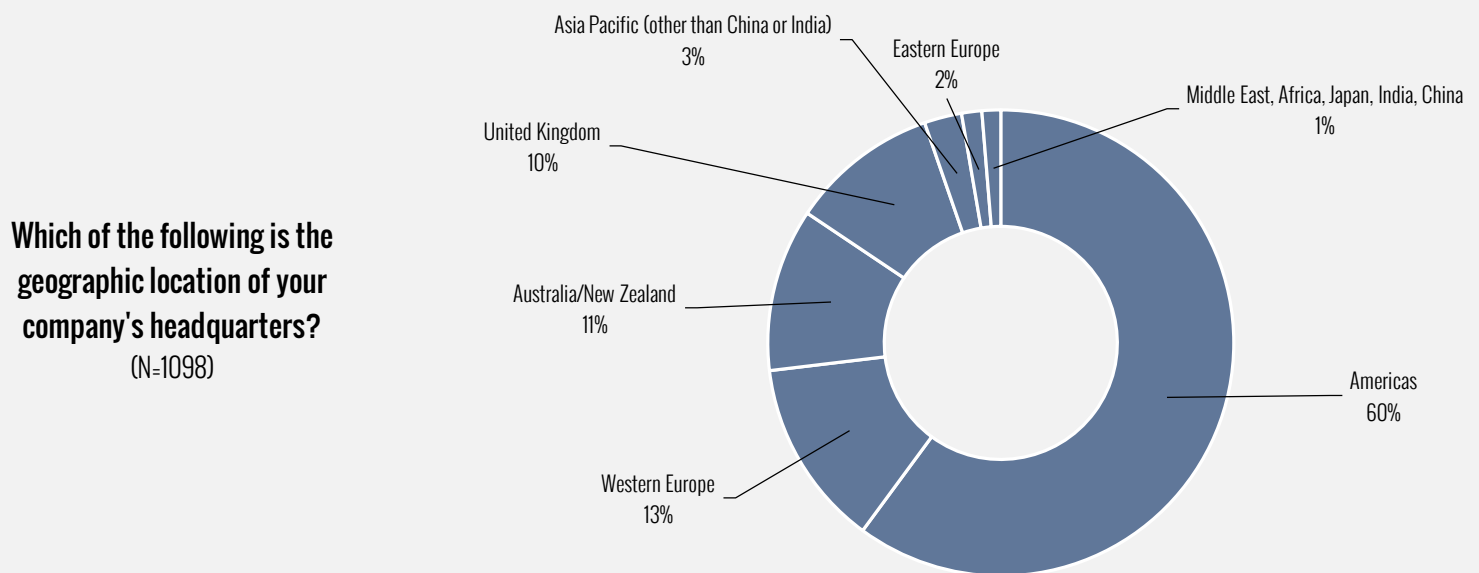


Figure 16 – Geographic Location of Respondent's Company Headquarters

## Number of Employees

As far as company size goes, respondents work in organizations that run the gamut from as few as 100 employees to well beyond 20,000 employees. Note that the survey eliminated responses from respondents that work in organizations with fewer than 100 employees. Beyond that, there is surprising consistency in the number of respondents per size band, as shown in Figure 17.

Please note that, for simplicity, we combined company size categories into midsize (100 to 999) and enterprise (1000+) in order to more easily perform company size comparisons in this report.

**Approximately how many  
total employees does  
your organization have  
worldwide?**  
(N=1098)

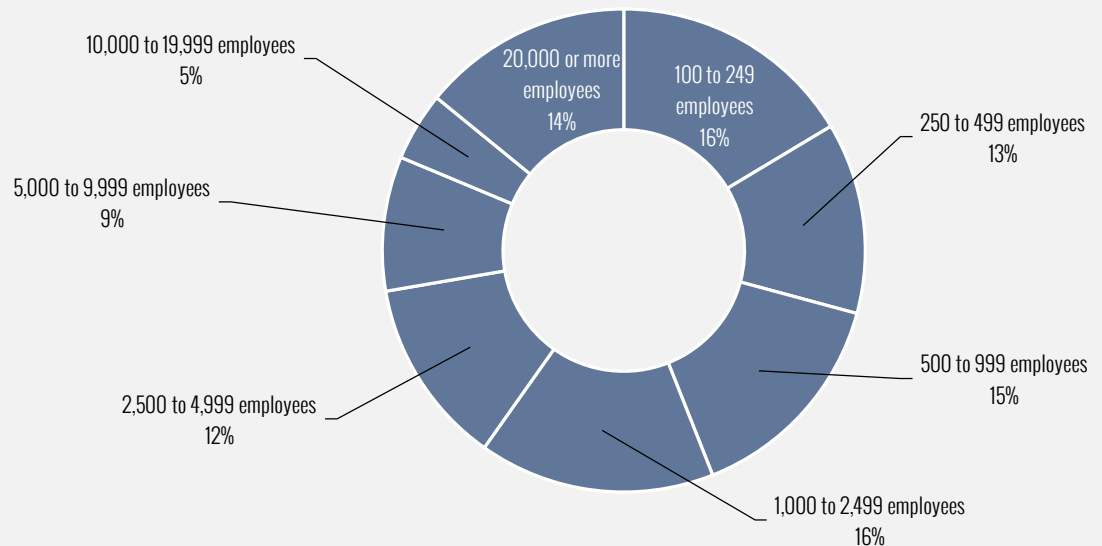


Figure 17 — Respondent's Company Size (Total Employees)

## Respondent's Protagonist

The vast majority of respondents represent the IT organization within their companies. Shown in Figure 18, 38% of all respondents identified as IT staff while 55% said that they work in IT management. 7% of respondents identified as executive management. This statistic should not be construed as proof that executive management has nothing to do with decisions around hyperconverged infrastructure. Instead, bear in mind that respondents were identified through lists that are comprised primarily of IT staff and management.

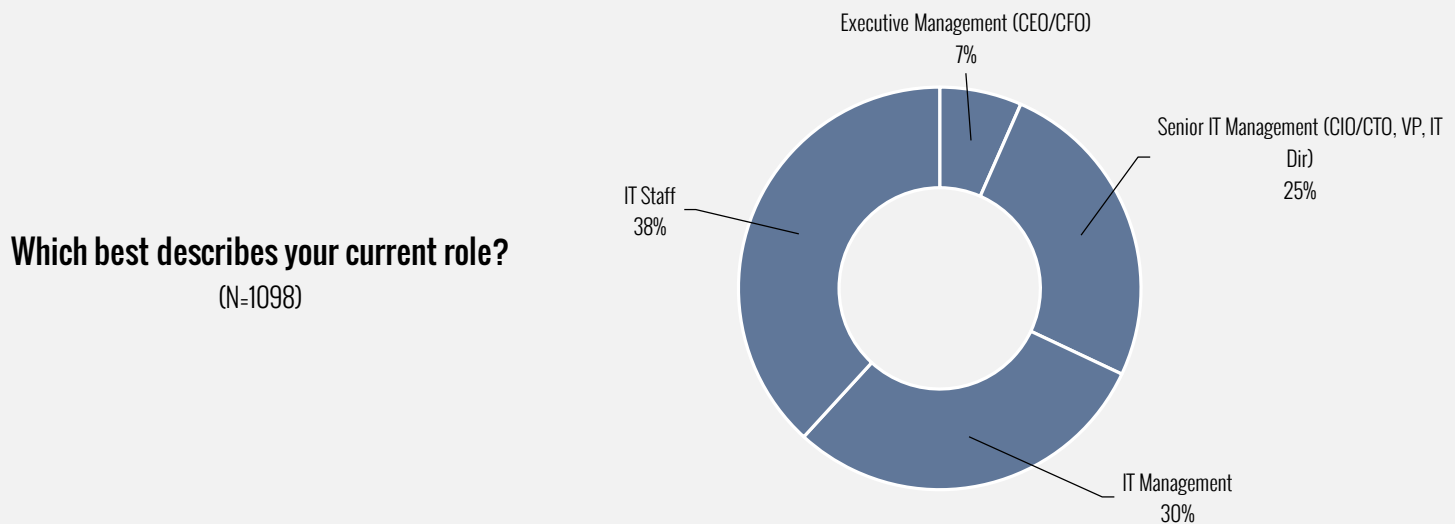


Figure 18 — Respondent's Current Role

# Respondent's IT Functional Responsibility

Hyperconverged infrastructure is a topic that enjoys attention from across the spectrum of job roles within the IT organization (see Figure 19), but with concentration (38%) by those with decision-making responsibility. Remaining respondents hail from the generalist ranks as well as security, storage, networking and security. We were surprised to see that only 1% of respondents identified as being responsible for end user computing. Virtual Desktop Infrastructure (VDI) was one of the original targets for hyperconverged infrastructure in its early days. It's very obvious that the technology has moved beyond its roots.

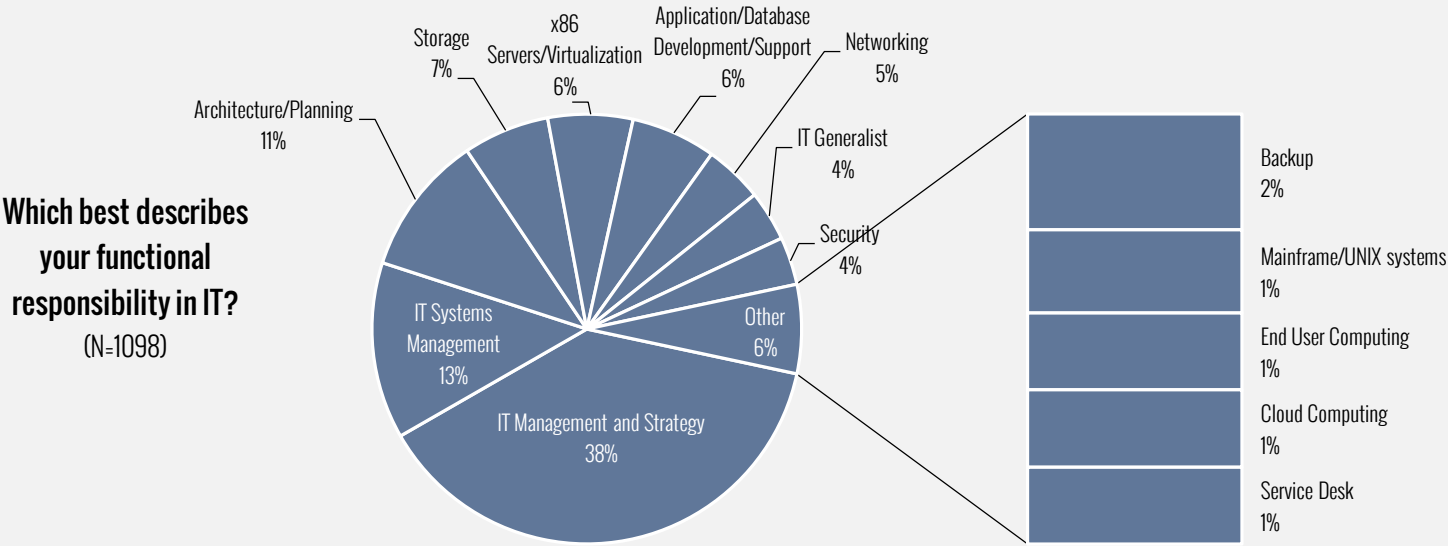


Figure 19— Respondent's Functional Responsibility In IT

Error! Reference source not found. provides a look at the responsibility breakdown by company size and reveals some interesting pieces of information:

## Principal Industry

As shown in Figure 20, industry representation among respondents was heavily skewed toward Manufacturing, Information Technology, Financial Services, and Health Care with these three categories making up almost one-half (47%) of the respondents. Also well represented were Retail and Education, which, when combined with the previous industries, made up well over half of all respondents. It should be noted that it's possible that some respondents include themselves in the Information Technology category even if they actually represent a different vertical, so analysis around this response should keep that in mind.

### Which of the following best describes the principal industry of your organization? (N=1098)

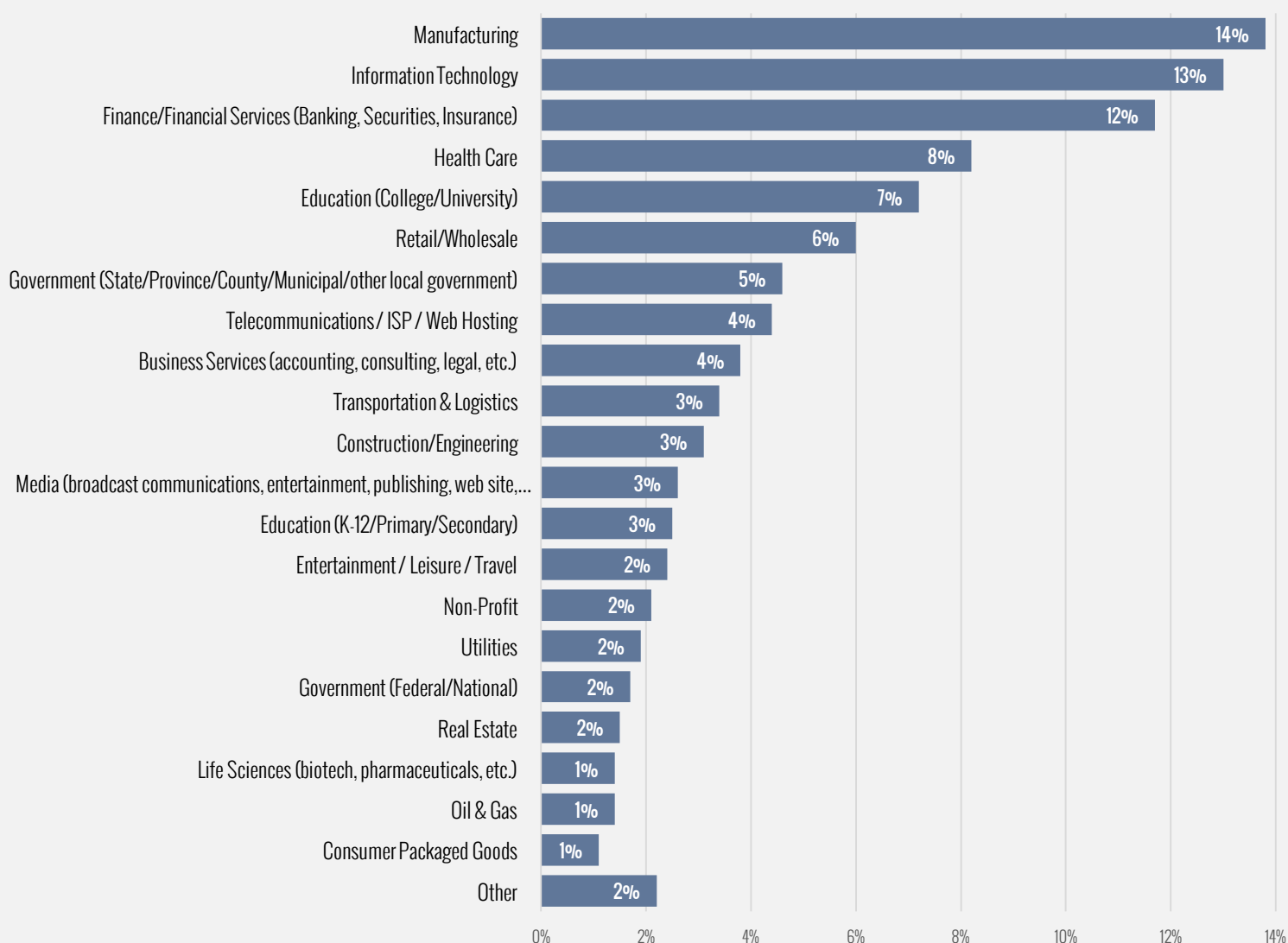


Figure 20 — Primary Industry of Respondent's Organization

## Technical Characteristics

### Virtualization Penetration

Company size and hypervisor use are great statistics but are largely meaningless unless there is significant virtualization penetration in the organization. That is, what percentage of the data center environment is virtualized? Figure 21 shows that 85% of respondents are at least 50% virtualized. This is critically important as organizations consider hyperconverged infrastructure, for which virtualization is a prerequisite.

**Of all x86 servers that can be virtualized in your environment, approximately what percentage has been virtualized to date?**  
(N=1063)

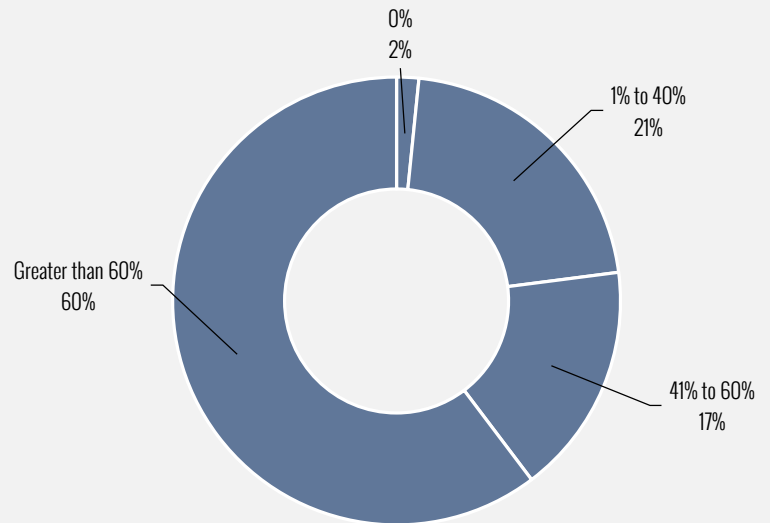


Figure 21 — Percent of Eligible x86 Servers Virtualized To Date

# About

## About SimpliVity

SimpliVity hyperconverged infrastructure delivers the enterprise-class performance and availability today's IT leaders require, with the cloud economics businesses demand. No other company has taken on the mega task of assimilating all IT elements below the hypervisor (8 to 12 discrete components or services) into an x86 building block to create a single, scalable resource pool. SimpliVity's unique data architecture improves performance and data efficiency, and enables native data protection and global unified management from a single console. SimpliVity's hyperconverged infrastructure simplifies IT; accelerates deployment; and improves recovery objectives—delivering a 3x TCO savings.

Learn more about SimpliVity at [www.SimpliVity.com](http://www.SimpliVity.com)

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ActualTech Media is comprised of well-known VMware vExperts, authors, analysts, and speakers with considerable depth and breadth of technical and IT leadership expertise. The company produces custom content assets aimed at educating IT buyers. To that end, ActualTech Media developed [hyperconverged.org](http://hyperconverged.org). Hyperconverged.org's mission is to help IT professionals understand the world of hyperconvergence. From time to time, the company conducts surveys designed to gather information about IT priorities, purchase criteria for new data center architectures, such as hyperconverged infrastructure. Its reports can inform your data center modernization strategy.

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