ESG Enterprise Strategy Group | Getting to the bigger truth.™

HYBRID CLOUD TRENDS

Strategies for Optimizing On-premises and Public Cloud Infrastructure

Prepared for VMware

JUNE 2019

CONTENTS

Research Objectives

Hybrid cloud is clearly becoming the default configuration for most organizations, combining growing public cloud usage (including off-premises hosting) with existing on-premises workloads. Organizations will continue to keep workloads on-premises for the foreseeable future, but increasingly recognize the importance of being able to integrate them with off-premises cloud workloads.

In order to gain more insight into these trends, ESG surveyed 358 IT professionals at organizations in North America (U.S. and Canada) responsible for evaluating, purchasing, and managing the technologies underlying their organization's on-premises and cloud-based infrastructure. Among other things, this study sought to determine:

- What exactly is the balance of on-premises and off-premises workloads?
- Will the on-premises, infrastructure-first mindset of many hybrid cloud strategies start to shift toward a public cloud-based orientation?
- What are the requirements for automation and management in a hybrid cloud ecosystem?
- How long will hybrid cloud be the operating model for organizations?

Survey participants represented a wide range of industries including manufacturing, financial services, health care, communications and media, retail, government, and business services. For more details, please see the Research Methodology and Respondent Demographics sections of this report.

Key Research Findings

1. **Momentum swings towards hybrid approach, but on-premises matters.** Cloud will not be an either/or choice for most organizations for many years, and as a result, there has been significant growth in commitment to a hybrid cloud strategy. However, the majority of organizations still view on-premises as important. In fact, nearly nine of ten organizations expect to have a significant or measurable on-premises environment in three years.

2. **On-premises integration is vital to hybrid cloud strategies.** Many organizations have an on-premises-first mindset as they begin to formulate their hybrid cloud strategies. When asked to identify the most important consideration in these decisions, more than half cited seamless compatibility with their on-premises infrastructure. Furthermore, nearly three-quarters of organizations stated that it was critical or very important that public cloud service providers offer solutions that integrate with their on-premises environments.

3. **Clear alignment between hybrid cloud definitions and objectives.** Nearly two-thirds of respondents define hybrid cloud as the ability to manage applications and resources that span across or are located on-premises and off-premises. Not surprisingly, nearly half say that management software must manage across both on- and off-premises environments, while other key requirements include the ability to move applications seamlessly back and forth between on- and off-premises environments and the ability to deploy managed systems or applications both on- and off-premises.

4. **Application migrations dictate hybrid cloud strategies, but no definitive approach has emerged.** When asked to identify the most difficult aspect of adopting public cloud services, six in ten organizations cited application migrations. Specifically, 31% reported the preparation work—including building the business case—for application migration with another 29% pointing to the process for redesigning and actually moving these applications to cloud-based platforms. As businesses prepare for the next wave of application migration, their preferences for migration patterns are split, which validates the idea that there is no one-size-fits-all approach.

5. **Consistency desired for management and security spanning on-premises and public cloud resources.** When asked to compare systems management activities related to on-premises versus public cloud infrastructure, not surprisingly, the majority of respondents indicated public cloud management is more difficult. Similarly, nearly half of respondents view the management of resources spanning on- and off-premises as significantly or more difficult relative to other cloud computing tasks and initiatives.

Momentum swings towards hybrid approach, but on-premises matters.

As more applications are moved to public cloud services, the commitment to hybrid cloud strategies increases.
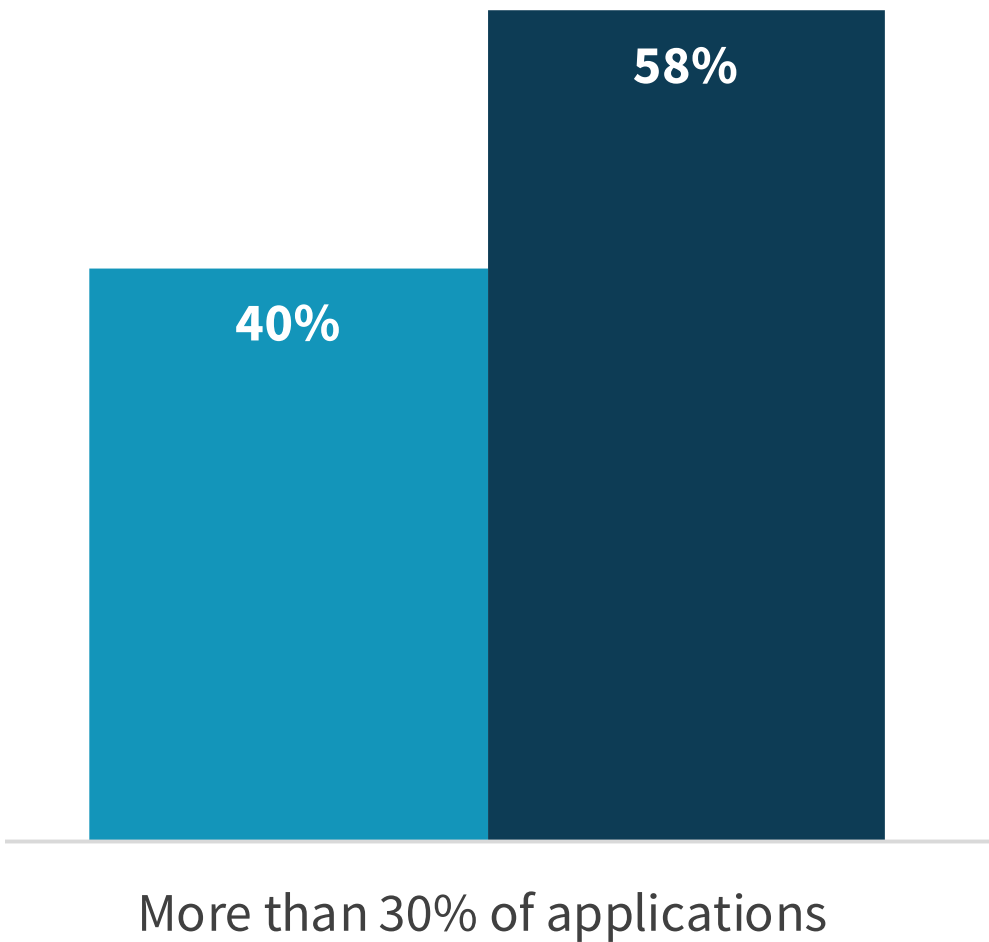
While adoption of public cloud services is nearly ubiquitous, the breadth of usage of these services is also increasing at an accelerated pace. Indeed, over the next two years, a 45% increase in the number of organizations running more than 30% of their production applications on public cloud infrastructure is expected.

However, cloud will not be an either/or choice for most organizations for many years, and as a result, there has been significant growth in commitment to a hybrid cloud strategy. Specifically, since 2017, the number of organizations committed to or interested in a **hybrid cloud strategy has increased from 81% to 93%.**
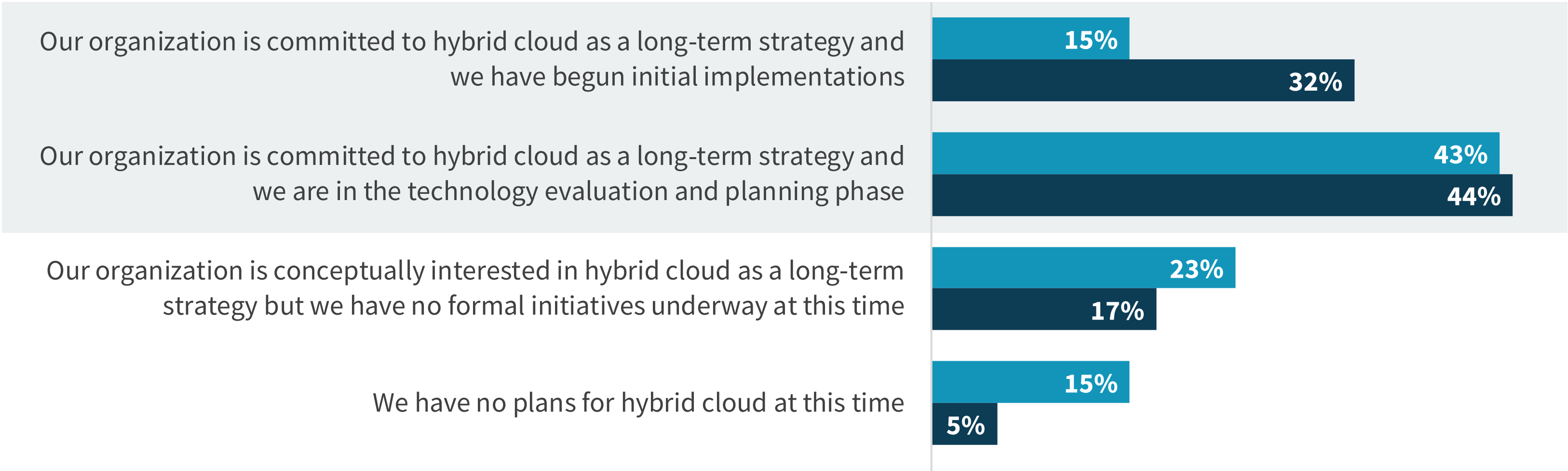
PERCENTAGE OF ORGANIZATIONS COMMITTED
TO OR INTERESTED IN HYBRID CLOUD STRATEGIES

2017 **81%** → 2019 **93%**

- Percent of production applications/workloads run on public cloud infrastructure services today (N=309)

- Percent of production applications/workloads run on public cloud infrastructure services 24 months from now (N=358)

58%

40%

More than 30% of applications

■ 2017 (N=318)   ■ 2019 (N=358)

Our organization is committed to hybrid cloud as a long-term strategy and we have begun initial implementations — 15% / 32%

Our organization is committed to hybrid cloud as a long-term strategy and we are in the technology evaluation and planning phase — 43% / 44%

Our organization is conceptually interested in hybrid cloud as a long-term strategy but we have no formal initiatives underway at this time — 23% / 17%

We have no plans for hybrid cloud at this time — 15% / 5%

On-premises still the tip of the spear for most hybrid cloud strategies at this point.

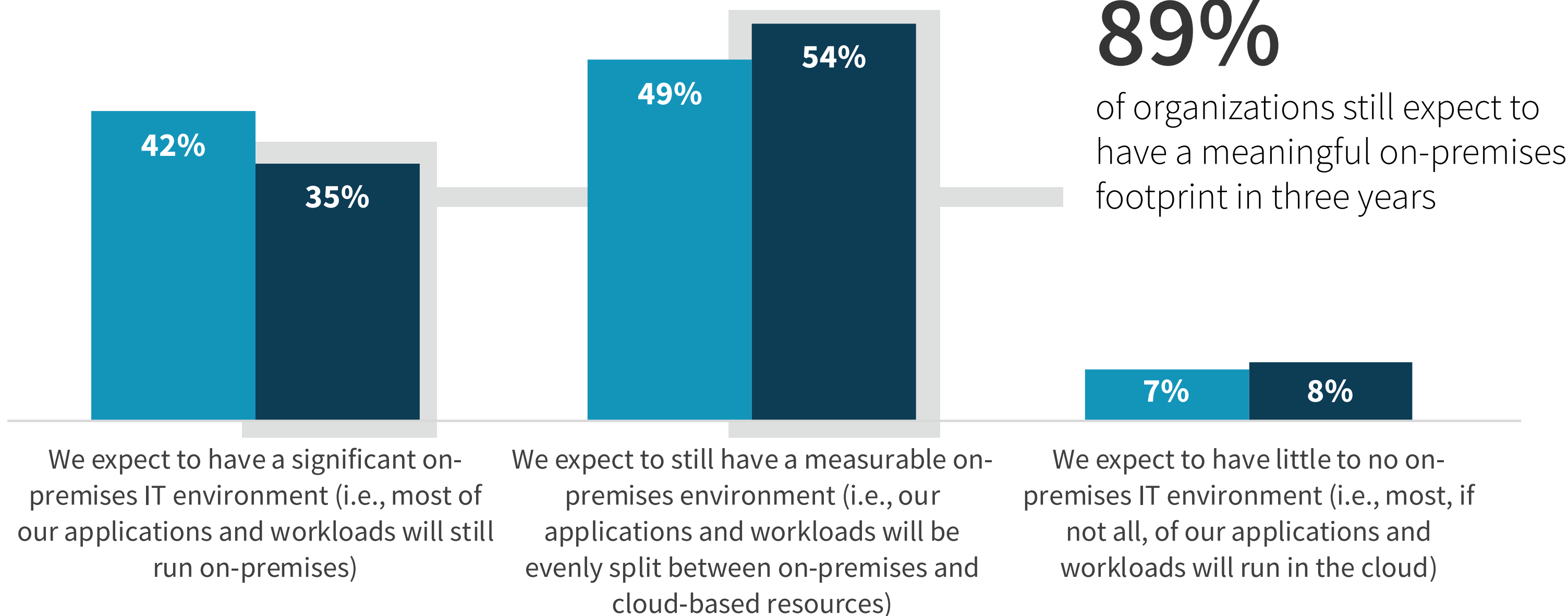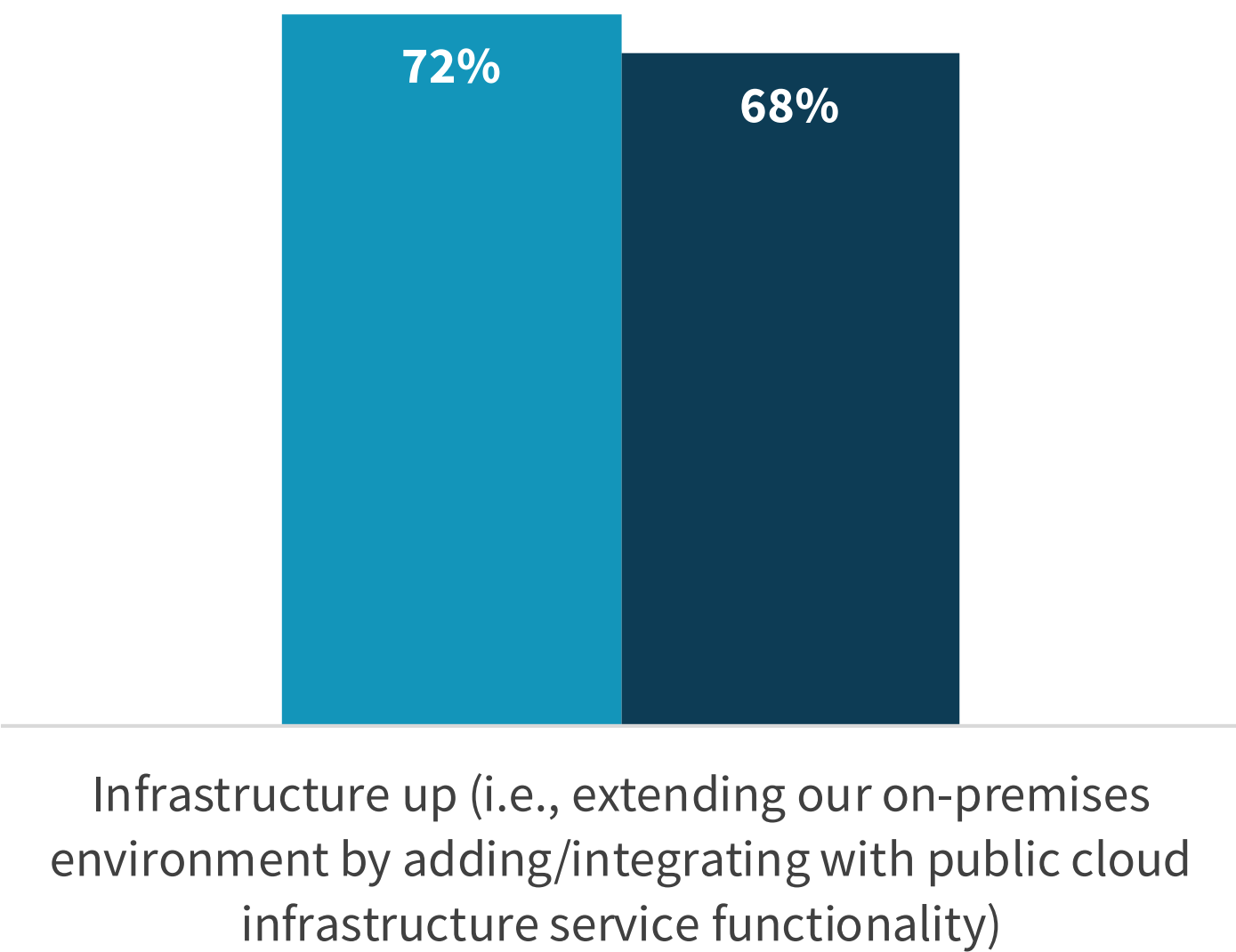The majority of organizations still view on-premises as important. In fact, **nearly nine of ten organizations expect to have a significant (35%) or measurable (54%) on-premises environment in three years.**

In terms of organizations' approach to hybrid cloud, more than two-thirds (68%) plan to take an infrastructure-up approach in which they will look to extend their on-premises environment by integrating with public cloud infrastructure service functionality.

■ 2017 (N=318) ■ 2019 (N=358)

42%
35%

49%
54%

7%
8%

89%
of organizations still expect to have a meaningful on-premises footprint in three years

We expect to have a significant on-premises IT environment (i.e., most of our applications and workloads will still run on-premises)

We expect to still have a measurable on-premises environment (i.e., our applications and workloads will be evenly split between on-premises and cloud-based resources)

We expect to have little to no on-premises IT environment (i.e., most, if not all, of our applications and workloads will run in the cloud)

■ 2017 (N=261) ■ 2019 (N=314)

72%
68%

Infrastructure up (i.e., extending our on-premises environment by adding/integrating with public cloud infrastructure service functionality)

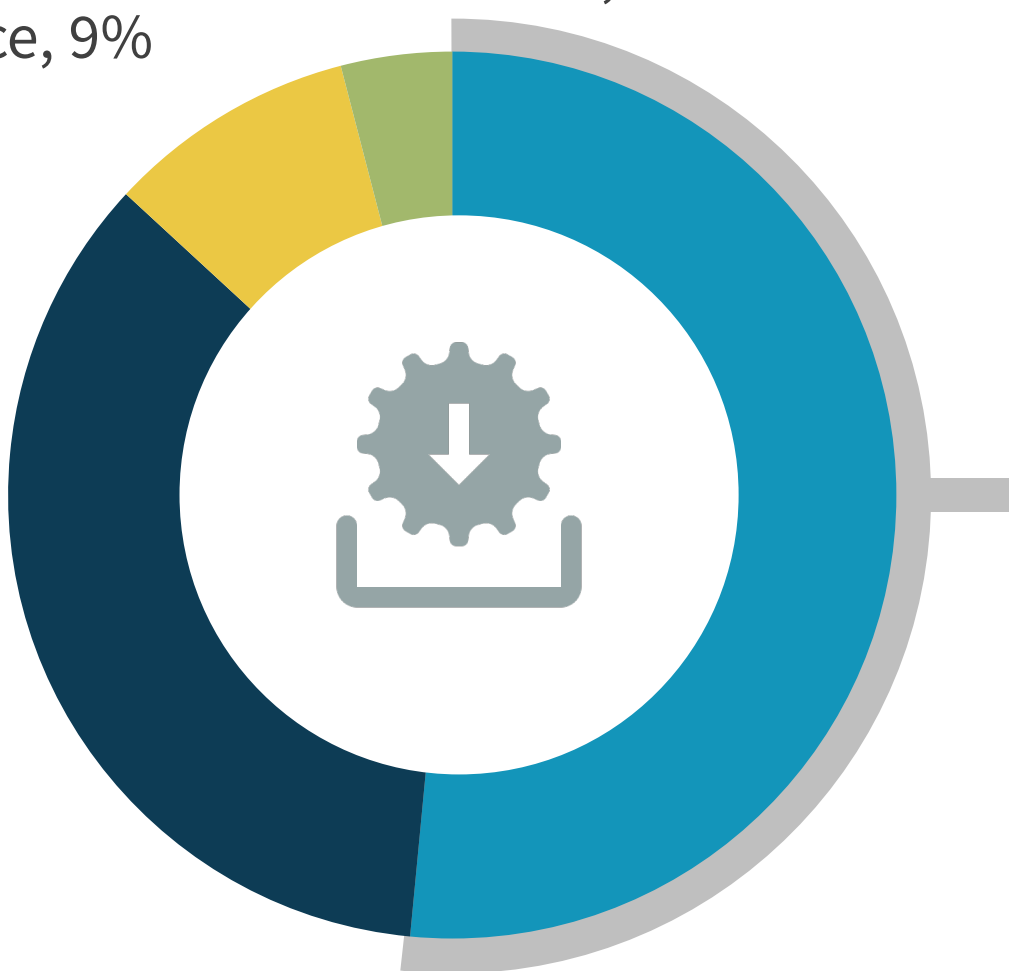# On-premises integration is vital to hybrid cloud strategies.

On-premises integration is a hybrid cloud requirement for many.

Clearly many organizations have an on-premises-first mindset as they begin to formulate their hybrid cloud strategies. When asked to identify the most important consideration in these decisions, more than half (51%) cited seamless compatibility with their on-premises infrastructure.

Furthermore, nearly three-quarters of organizations stated that it was critical (16%) or very important (53%) that public cloud service providers offer solutions that integrate with their on-premises environments.

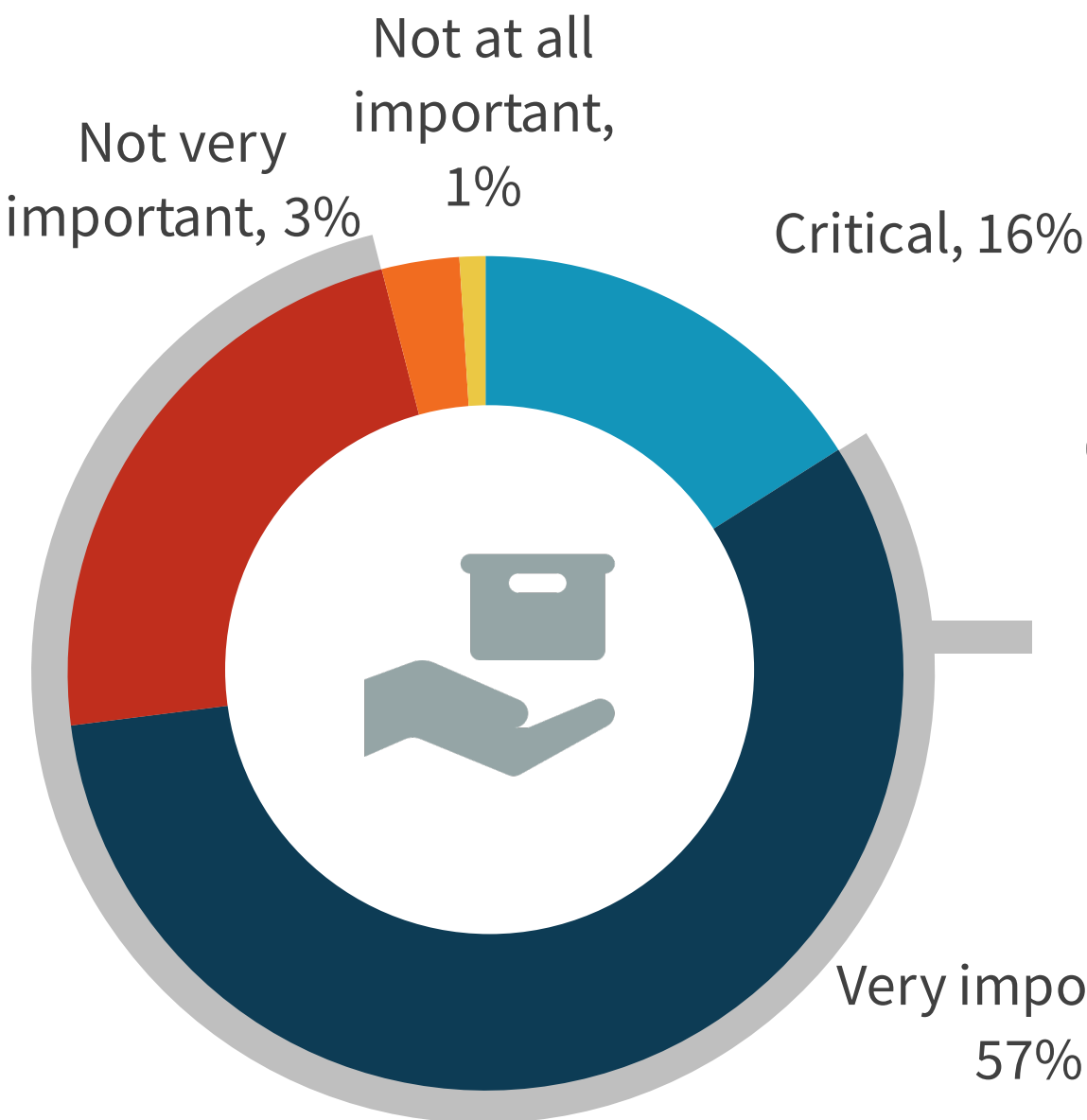Compatibility with our public cloud service provider(s) of choice, 9%

Don't know/too soon to tell, 4%

Support for our application development environment and tools, 35%

51%
cited seamless compatibility with their on-premises infrastructure

Not very important, 3%

Not at all important, 1%

Critical, 16%

Somewhat important, 23%

96%
consider it important that public cloud vendors offer solutions that integrate with on-premises environments.
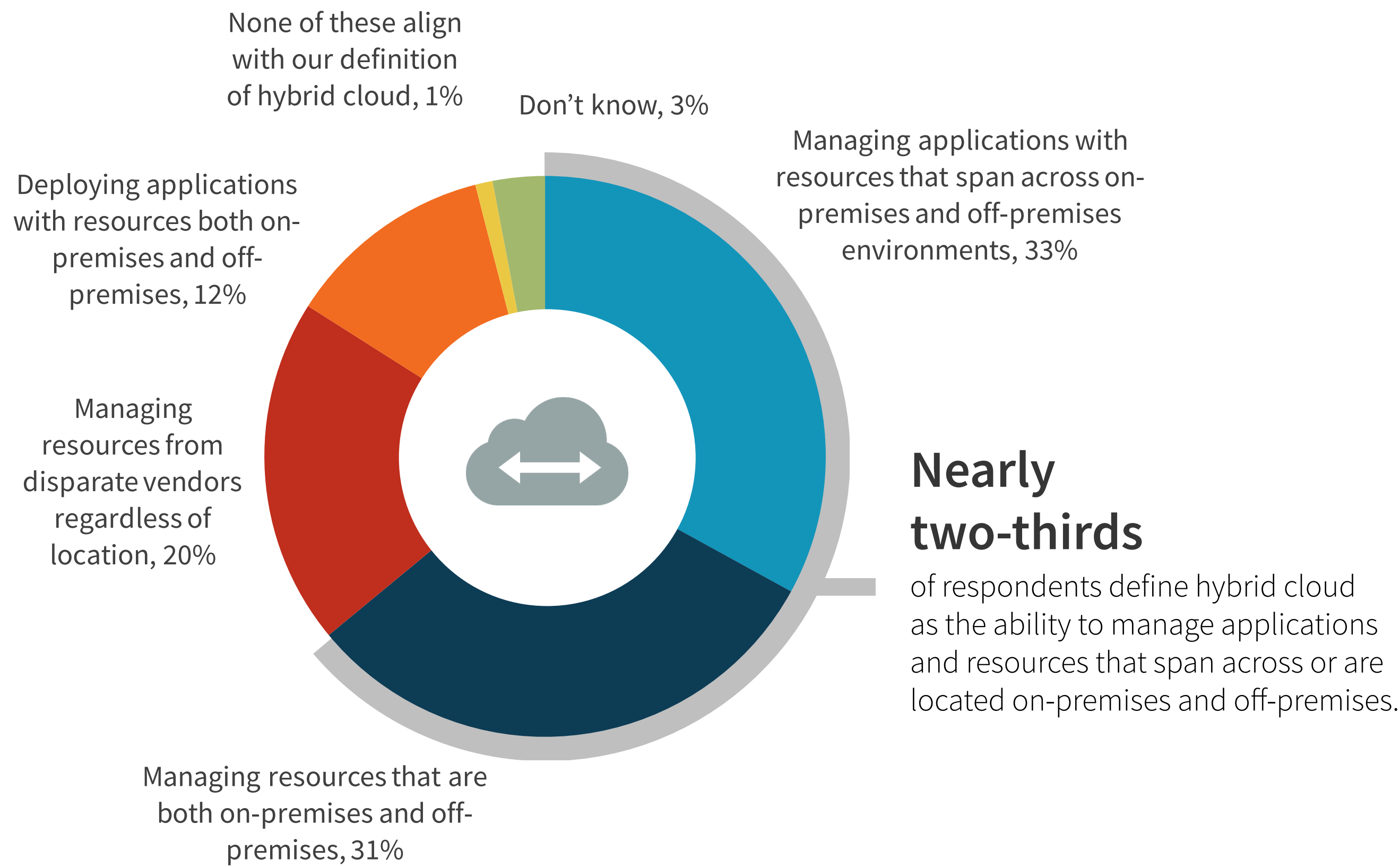
Very important, 57%

Clear alignment between hybrid cloud definitions and objectives.

Federated management and bi-directional application movement most common hybrid requirements.
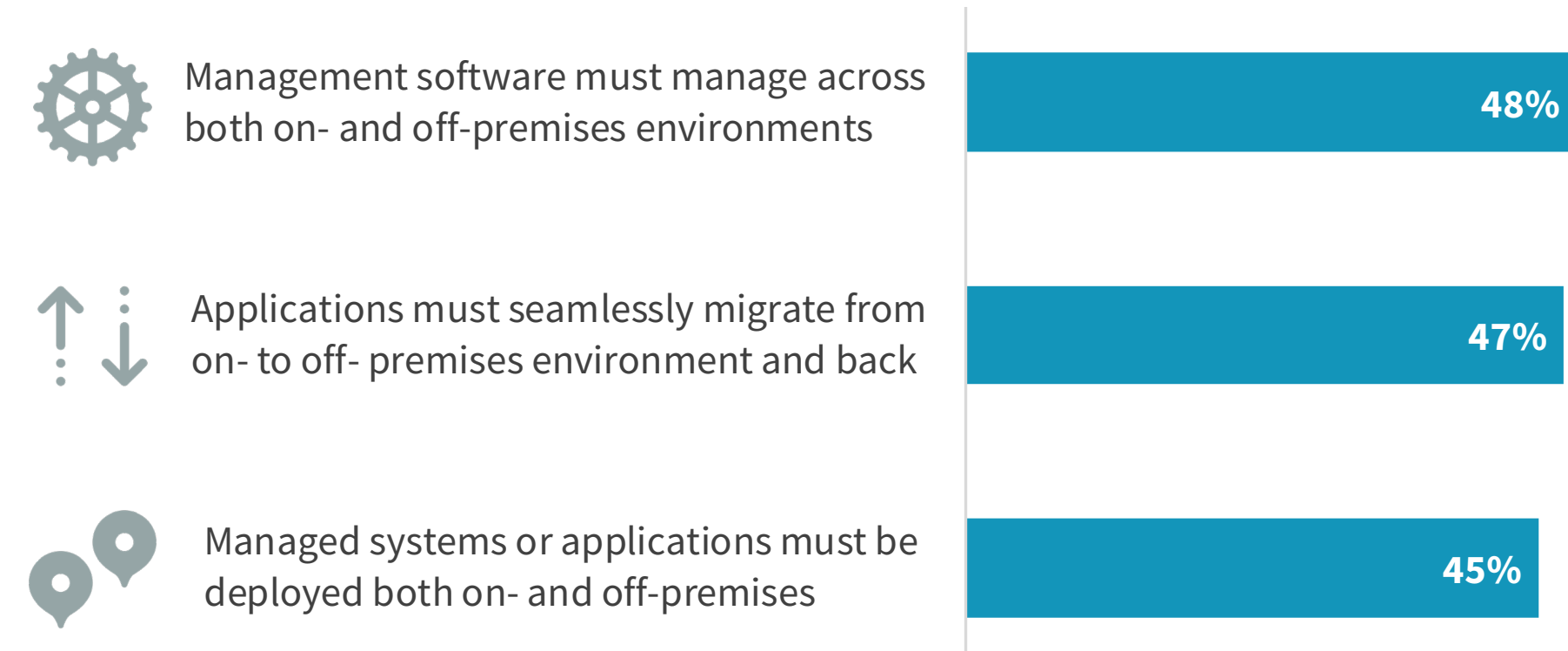
Hybrid cloud definitions vary based on IT market motivations and business goals, but when asked, nearly two-thirds of respondents define hybrid cloud as the ability to manage applications and resources that span across (33%) or are located (31%) on-premises and off-premises.

Defining hybrid cloud

None of these align with our definition of hybrid cloud, 1%

Don't know, 3%

Deploying applications with resources both on-premises and off-premises, 12%

Managing applications with resources that span across on-premises and off-premises environments, 33%

Managing resources from disparate vendors regardless of location, 20%

Nearly two-thirds

of respondents define hybrid cloud as the ability to manage applications and resources that span across or are located on-premises and off-premises.

Managing resources that are both on-premises and off-premises, 31%

Not surprisingly, this aligns closely with the most commonly identified hybrid cloud characteristics. Nearly half (48%) say that management software must manage across both on- and off-premises environments, while other key requirements include the ability to move applications seamlessly back and forth between on- and off-premises environments (47%) and the ability to deploy managed systems or applications both on- and off-premises (45%).
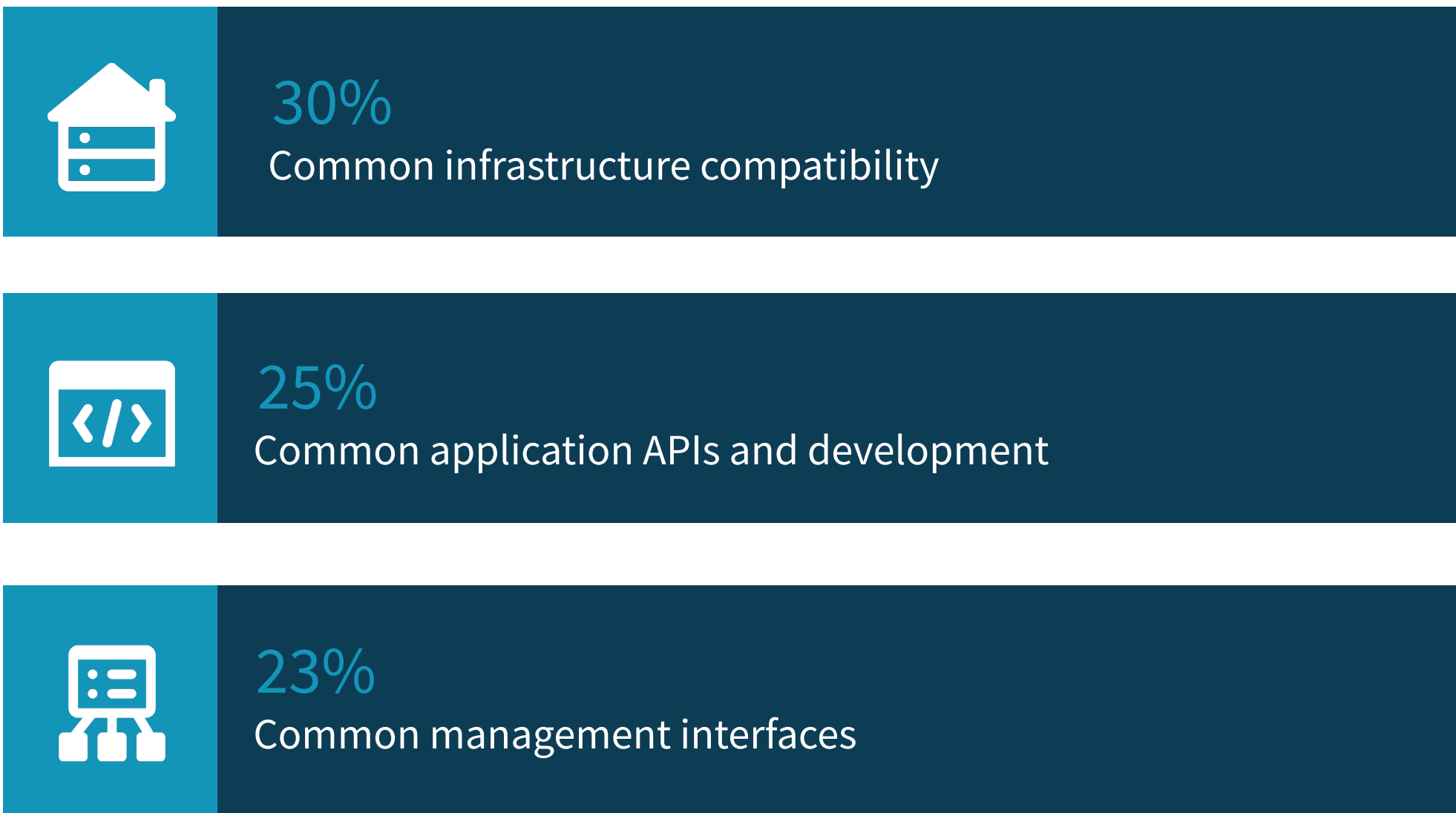
Top three hybrid cloud requirements

Management software must manage across both on- and off-premises environments — **48%**

Applications must seamlessly migrate from on- to off- premises environment and back — **47%**

Managed systems or applications must be deployed both on- and off-premises — **45%**

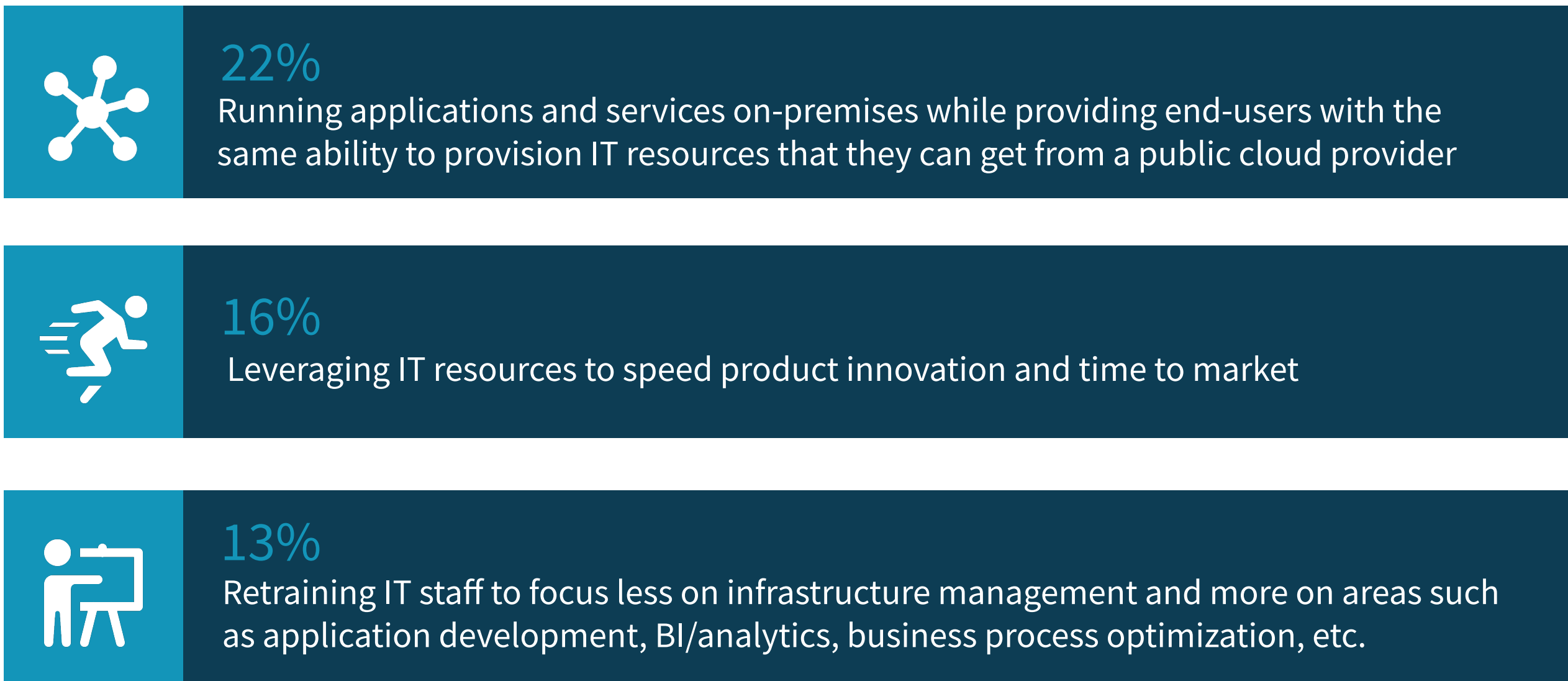# Infrastructure and application compatibility key hybrid cloud technology objectives.

What are the technology and business goals organizations are looking to achieve with their hybrid cloud strategies? Consistent with the desire for integration of on-premises and public cloud resources, it makes sense that more than half of respondents identified common infrastructure compatibility (30%) or common application APIs and development (25%) as their organization's main technical objective.

From a business perspective, organizations view their hybrid cloud strategy as a way to replicate the cloud experience for their users. Specifically, more than one in five (22%) respondents point to providing end-users with the same ability to provision on-premises IT resources that they can get from a public cloud provider, while 16% believe applying cloud-like speed and agility to on-premises infrastructure will help drive both faster product innovation and reduced time to market.
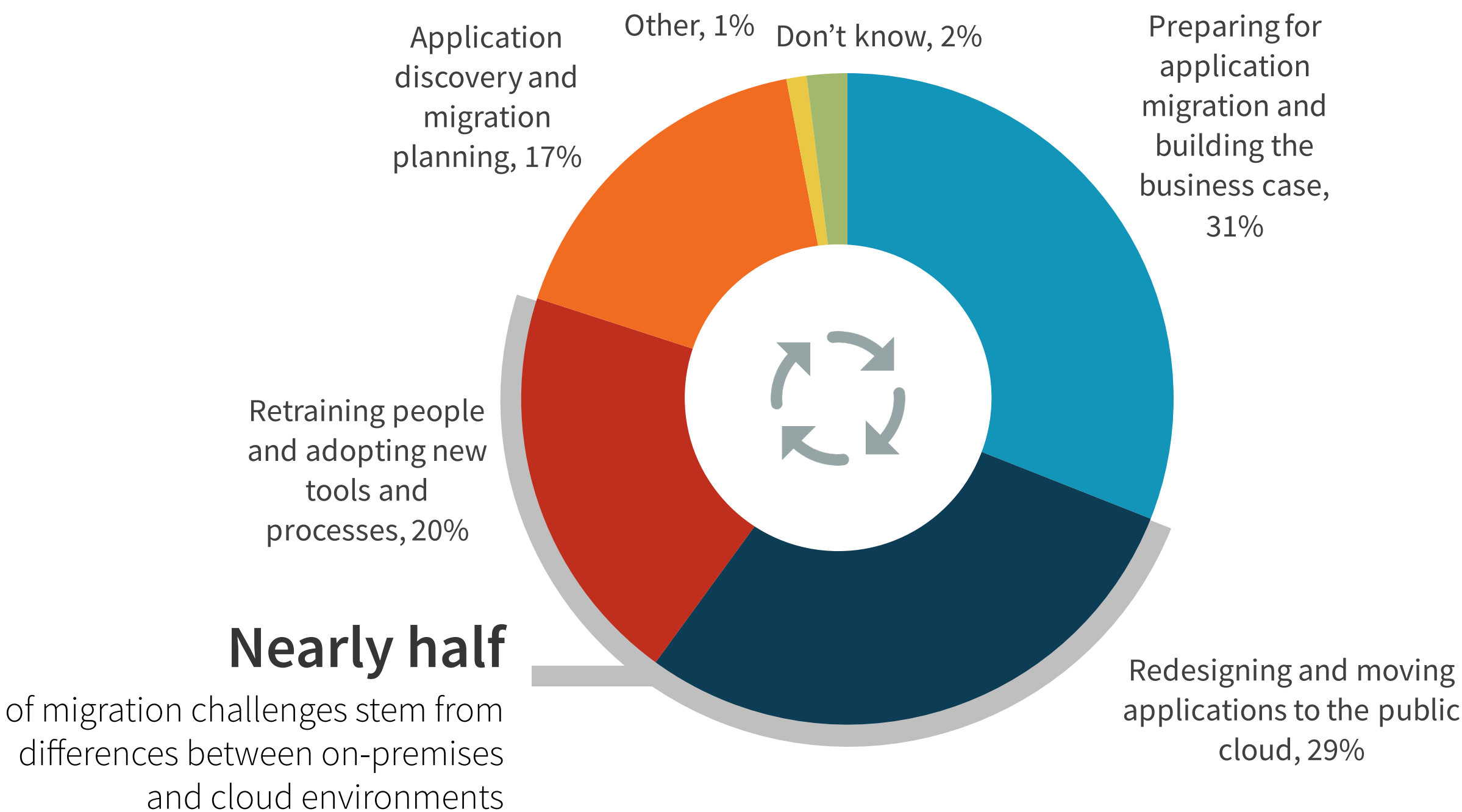
Top Technology Objectives for Hybrid Cloud

30%
Common infrastructure compatibility

25%
Common application APIs and development

23%
Common management interfaces

Top Business Objectives for Hybrid Cloud

22%
Running applications and services on-premises while providing end-users with the same ability to provision IT resources that they can get from a public cloud provider

16%
Leveraging IT resources to speed product innovation and time to market

13%
Retraining IT staff to focus less on infrastructure management and more on areas such as application development, BI/analytics, business process optimization, etc.

Application migrations dictate hybrid cloud strategies, but no definitive approach has yet emerged.

Application considerations top the list of public cloud adoption hurdles, especially long migration efforts.

When asked to identify the most difficult aspect of adopting public cloud services, six in ten organizations cited application migrations. Specifically, 31% reported the preparation work—including building the business case—for application migration with another 29% pointing to the process for redesigning and actually moving these applications to cloud-based platforms.

MOST DIFFICULT ASPECT OF ADOPTING PUBLIC CLOUD SERVICES

Application discovery and migration planning, 17%

Other, 1% Don't know, 2%

Preparing for application migration and building the business case, 31%

Retraining people and adopting new tools and processes, 20%

Redesigning and moving applications to the public cloud, 29%

Nearly half
of migration challenges stem from differences between on-premises and cloud environments

The time it takes for migration also remains a barrier. Indeed, organizations report needing, on average, 27 days to refactor and migrate an application to public cloud services. At this rate, it would take 7.4 years for a business to migrate 100 applications.

27 days
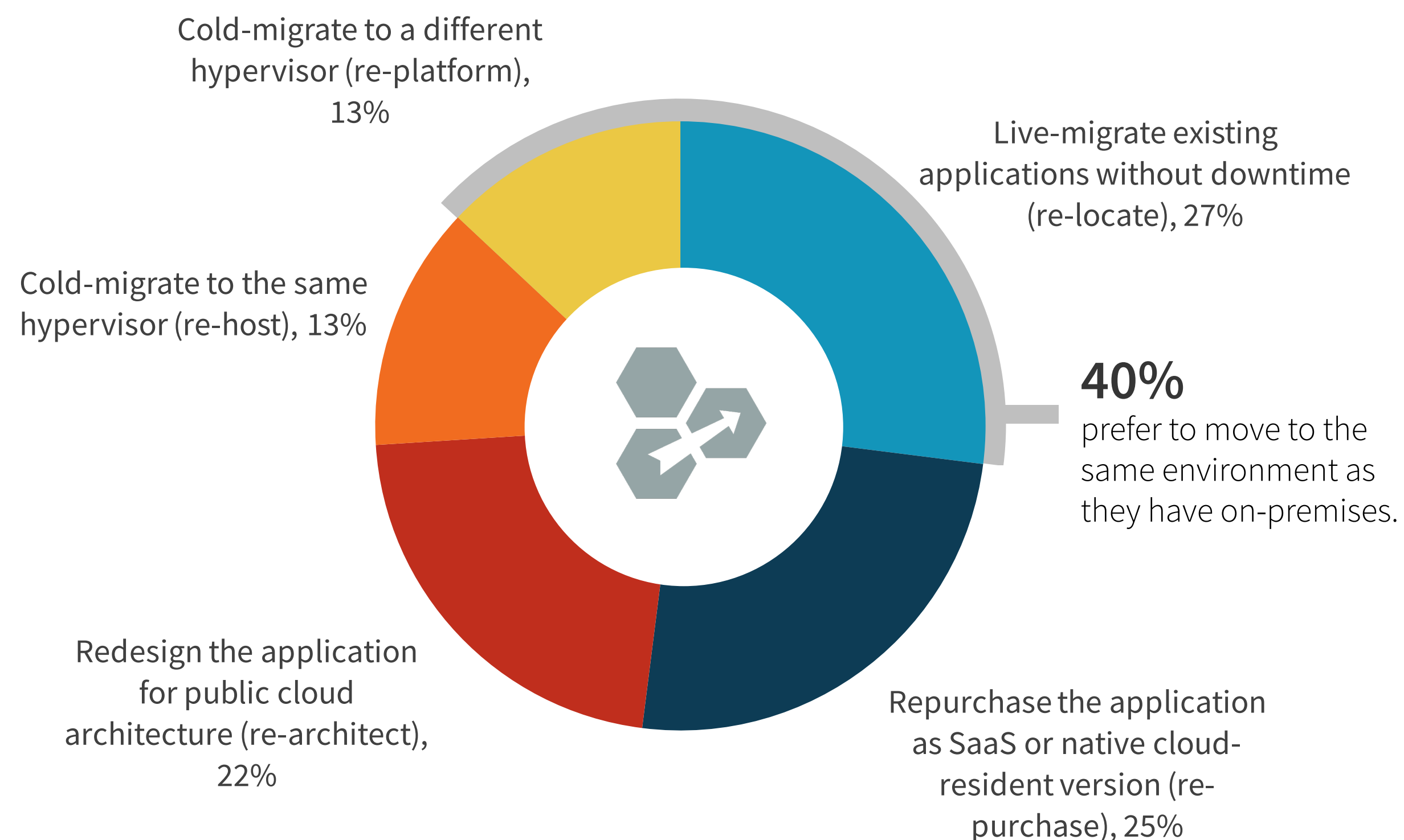to refactor and migrate an application to public cloud services

7.4 years
for a business to migrate 100 applications

No one-size-fits-all approach to migrating applications to the cloud, but availability does slightly outweigh performance.

As businesses prepare for the next wave of application migrations, their preferences for migration patterns are split, which validates the idea that there is no one-size-fits-all approach. The two likeliest approaches going forward for organizations with hybrid cloud strategies include attempting to live-migrate applications without downtime (27%) or re-purchasing the cloud-native version (25%).

PREFERRED MIGRATION PATHS TO PUBLIC CLOUD SERVICE USAGE

Cold-migrate to a different hypervisor (re-platform), 13%

Live-migrate existing applications without downtime (re-locate), 27%

Cold-migrate to the same hypervisor (re-host), 13%

40% prefer to move to the same environment as they have on-premises.

Redesign the application for public cloud architecture (re-architect), 22%

Repurchase the application as SaaS or native cloud-resident version (re-purchase), 25%

While both matter, high availability is a more common consideration than performance for public cloud application migrations.

75% of respondents expect public cloud infrastructure to provide high availability without having to re-design their applications

39% We expect to re-design applications to match performance, but public cloud infrastructure has to provide us with the same (or better) high availability

36% Public cloud infrastructure has to provide us with the same (or better) performance and high availability without any application changes

14% We expect to re-design applications to match high availability, but public cloud infrastructure has to provide us with the same (or better) performance

11% We expect to re-design applications to match both performance and high availability

Consistency desired for management and security spanning on-premises and public cloud resources.
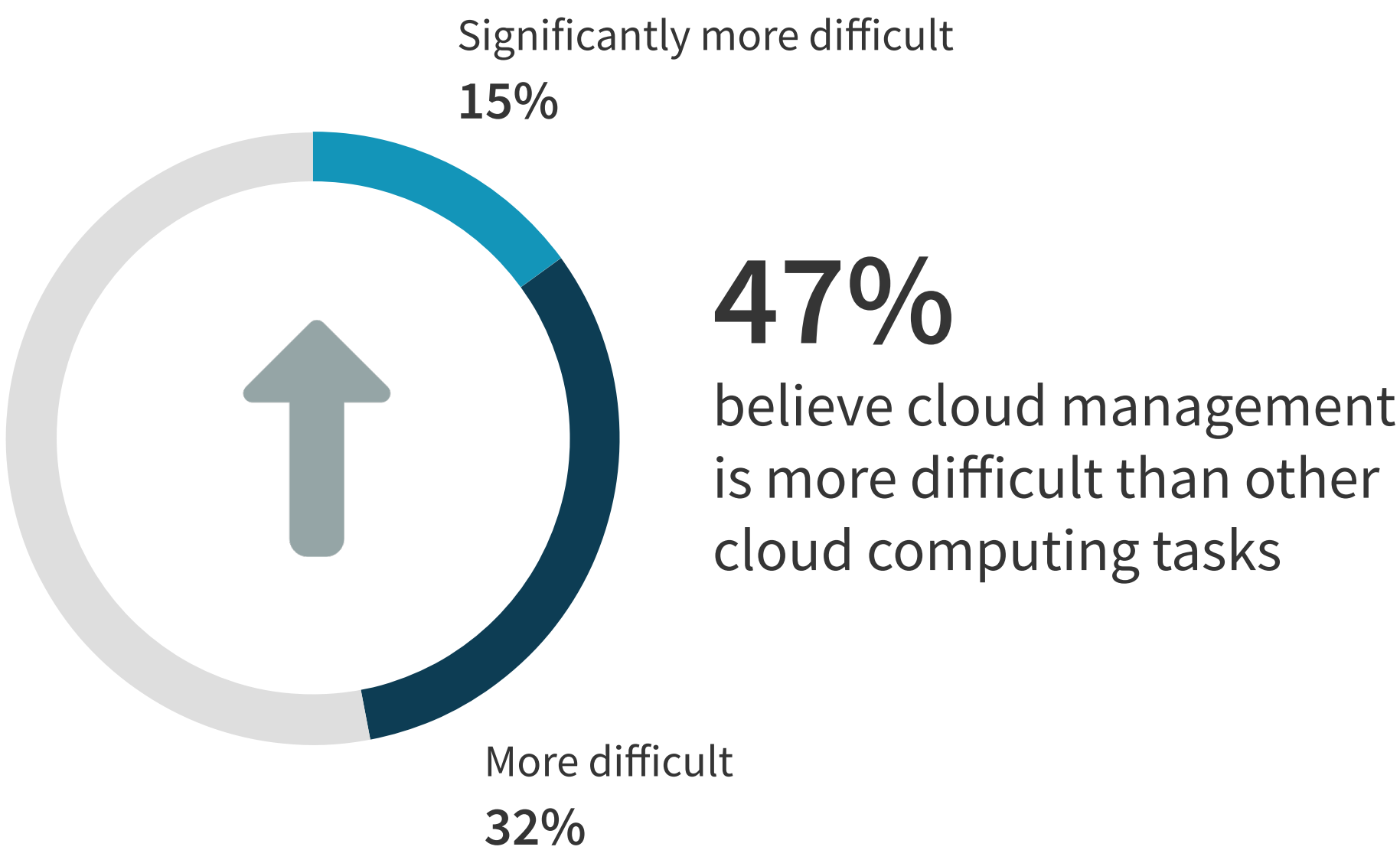
Most view public cloud management as more difficult than on-premises, and at least as difficult as other cloud tasks.

Being the newer aspect of most hybrid cloud strategies, there are still obstacles organizations are fighting to overcome as they use—or attempt to use—public cloud services more pervasively, including systems management. When asked to compare systems management activities related to on-premises versus public cloud infrastructure, not surprisingly, the majority of respondents indicated public cloud management is much more (20%) or more (34%) difficult.
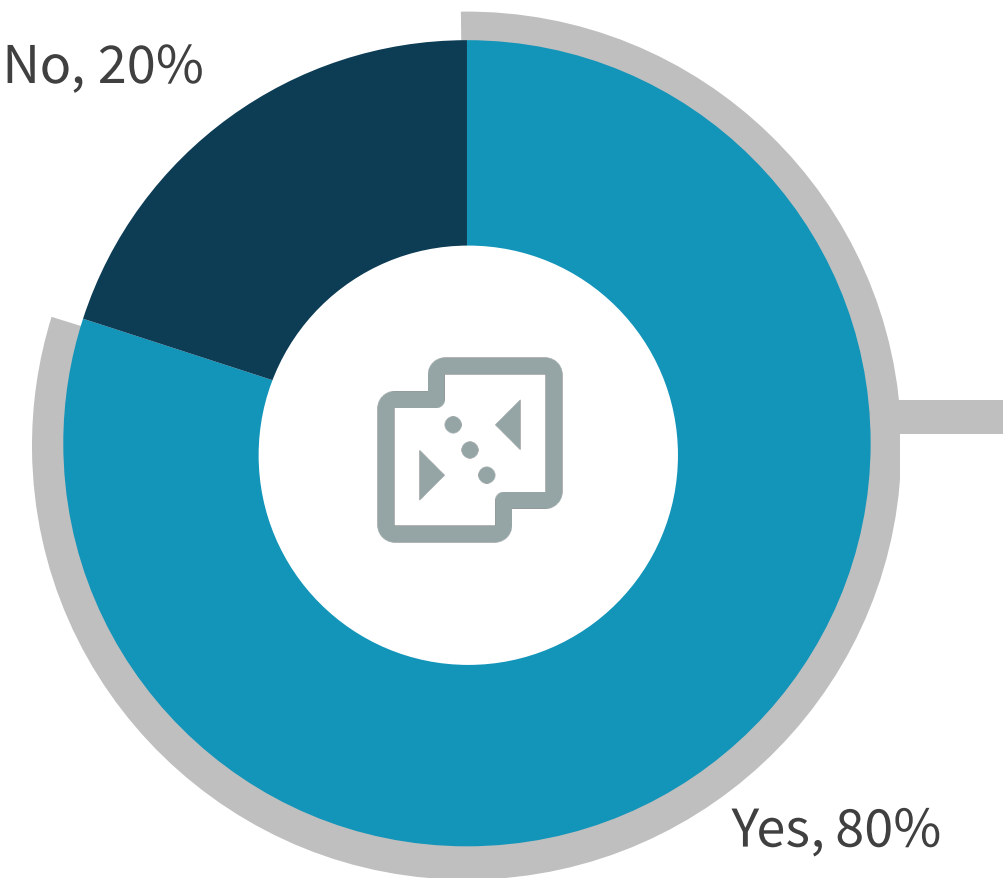
Similarly, nearly half of respondents view the management of resources spanning on- and off-premises as significantly or more difficult relative to other cloud computing tasks and initiatives.

54%
of respondents indicated public cloud management is more difficult

Significantly more difficult
15%

47%
believe cloud management is more difficult than other cloud computing tasks
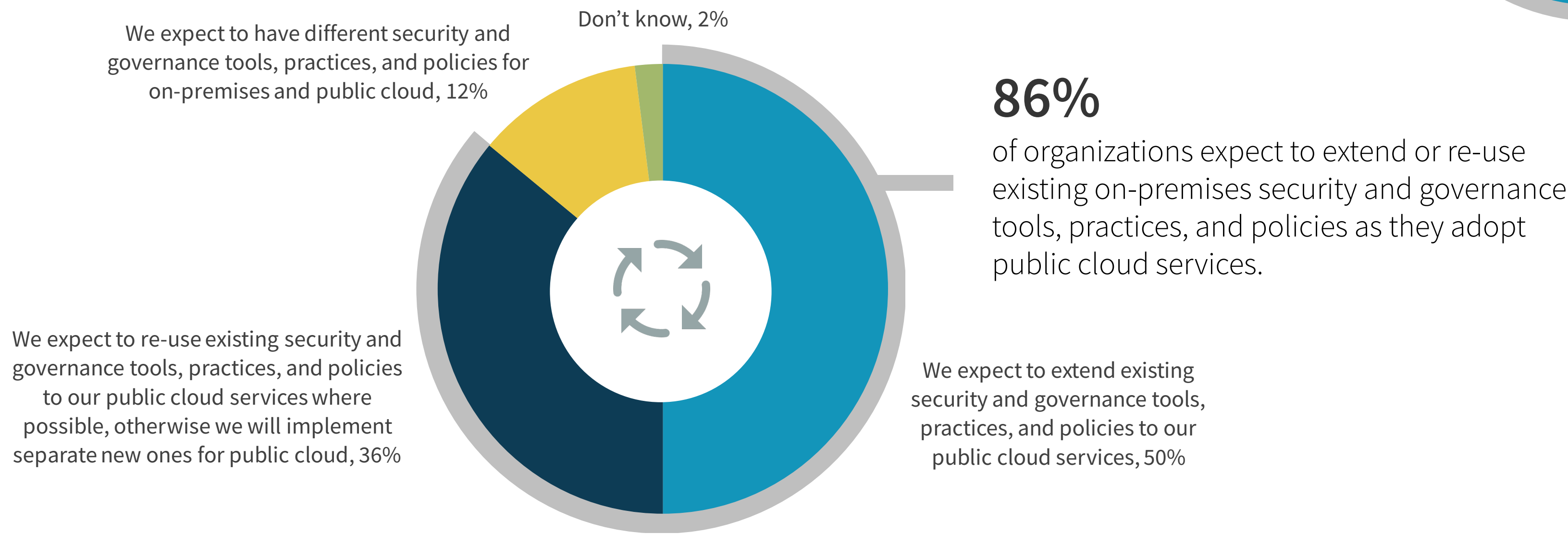
More difficult
32%

While organizations are split on their likely hybrid cloud management strategy, the clear preference is an integrated solution.

Despite the fact that most organizations view public cloud systems management as more difficult, they are split between using disparate management tools for each environment or a unified management platform spanning both when it comes to their expected hybrid cloud management strategy. However, the clear management preference for three-quarters of respondents is an integrated solution from a single vendor.

No, 20%

Yes, 80%

Three-quarters

of respondents prefer an integrated solution from a single vendor

We expect to have different security and governance tools, practices, and policies for on-premises and public cloud, 12%

Don't know, 2%

We expect to re-use existing security and governance tools, practices, and policies to our public cloud services where possible, otherwise we will implement separate new ones for public cloud, 36%

We expect to extend existing security and governance tools, practices, and policies to our public cloud services, 50%

86%

of organizations expect to extend or re-use existing on-premises security and governance tools, practices, and policies as they adopt public cloud services.

Related to management considerations, the vast majority (86%) of organizations expect to extend or re-use existing on-premises security and governance tools, practices, and policies as they adopt public cloud services. At the other end of the spectrum, only 12% expect to have separate security and governance tools, practices, and policies for their on-premises and public cloud environments.
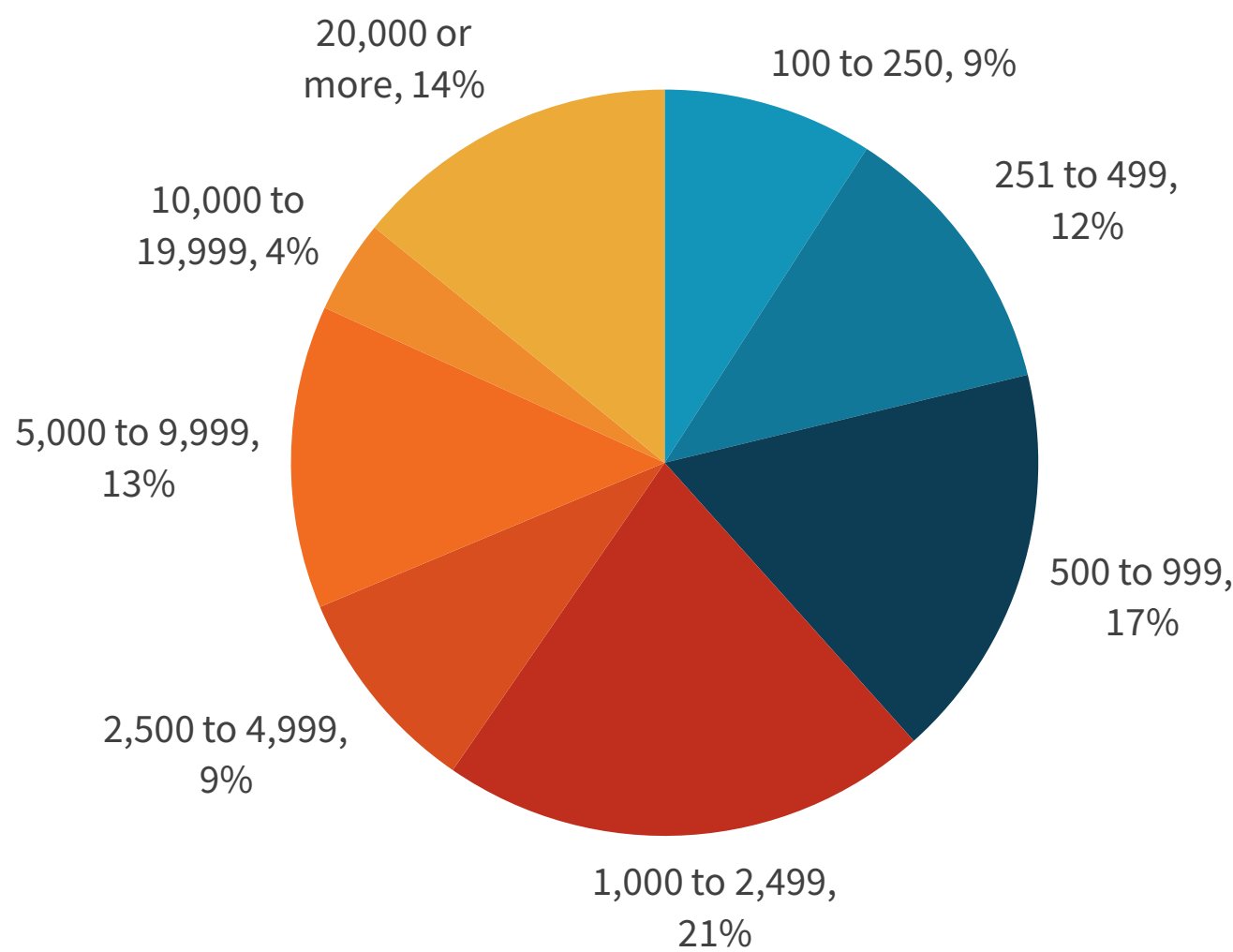
Research Methodology

To gather data for this report, ESG conducted a comprehensive online survey of IT professionals from private- and public-sector organizations in North America (United States and Canada) between January 22, 2019 and January 30, 2019. To qualify for this survey, respondents were required to be IT professionals currently responsible for their organization's on-premises and cloud-based infrastructure and the associated management software. 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 358 IT and cybersecurity professionals.
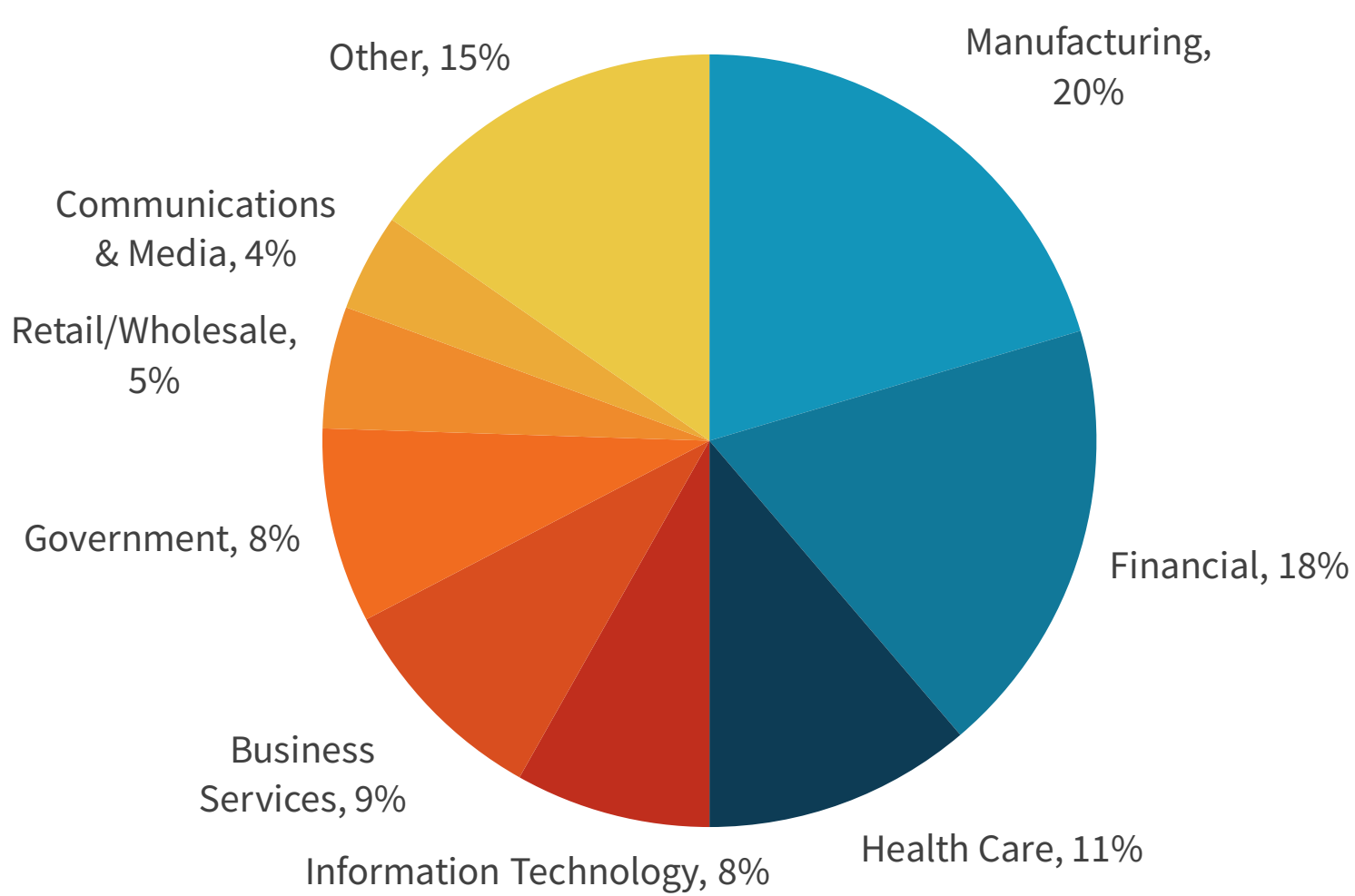
Respondent Demographics

Respondents by Number of Employees

Respondents by Age of Organization

Respondents by Industry

VMware Cloud on AWS – Faster Path to Hybrid Cloud

VMware and AWS have teamed up to deliver a seamlessly integrated hybrid cloud that brings together the best technologies from the leading private and public cloud providers. VMware Cloud on AWS is a public cloud service that combines the rich capabilities of VMware's Software-Defined Data Center (SDDC) with AWS's elastic, bare-metal infrastructure. By extending your on-premises vSphere environment to VMware Cloud on AWS you can take advantage of public cloud scale, flexibility, and innovative services with existing skills, tools, and processes. Your organization can use VMware Cloud on AWS to define and achieve hybrid cloud strategies more effectively, modernize applications with AWS services, and innovate in IT service delivery.

[LEARN MORE]

Enterprise Strategy Group is an IT analyst, research, validation, and strategy firm that provides actionable insight and intelligence to the global IT community.