

Forbes
INSIGHTS

WHEN CLOUDS CONNECT

How Hybrid IT Is Transforming Enterprises



IN ASSOCIATION WITH:



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FOREWORD

Today all businesses battle with unprecedented competitive pressures. In order to succeed—or even survive—they must rapidly adapt to constantly changing environments, in every industry and sector. What does this mean for IT leaders? Transformation, on all fronts.

The very factors driving digital transformation in businesses are also pressuring IT organizations to transform.

Customer expectations have increased. Companies live and die by the applications they provide to their customers and employees. A smartphone is the modern bank branch. The palm of your hand is replacing traditional brick-and-mortar stores. Access without delay or interruption, 24/7, is the new normal. If they can't get what they want, when they want it, customers go elsewhere.

The cloud journey and infrastructure modernization are integral parts of IT transformation. Public cloud is a mature business model for many organizations, offering higher agility, lower operational costs and the ability to meet unpredictable demand. But that means the IT department must manage a whole new dimension of IT infrastructure over which it has little or no direct control, while also maintaining still-critical private cloud and data center responsibilities.

IT departments must be simultaneously agile and secure. Internal line-of-business users behave increasingly like consumers. If they can't get the resources they need—quickly—from internal IT, they look outside. Often, that means seeking out public cloud solutions. IT departments are stuck maintaining security on both private and public clouds while keeping up with the demands of the lines of business.

In this ever-changing world, IT leaders need to rethink in terms of IT as a Service. They must define, offer and orchestrate services for business users, not technology silos. IT transformation is the cornerstone of successful digital transformation for any business.

—DHRITIMAN DASGUPTA,
VICE PRESIDENT OF MARKETING AT CISCO

EXECUTIVE SUMMARY

As IT shifts to an as-a-Service model, cloud computing becomes the critical catalyst. Cloud opens up new worlds to enterprises, enabling applications and functionality to be drawn from multiple sources, whether they are public cloud-based resources, private cloud resources or traditional internal data centers. But IT and business executives must strike the right balance between public and on-premises resources, and adapt that balance as business requirements change.

To explore how organizations are progressing on this journey, Forbes Insights, in partnership with Cisco, conducted a survey of 302 top IT executives from across the globe. In addition, the narrative is rounded out with in-depth interviews with IT executives who have taken leadership roles in enterprise cloud initiatives. A key finding is that the multi-cloud scenario is becoming increasingly common. Today few companies are either all on-premises or all public cloud. Rather, they employ a mix of services that evolve with their businesses. Workloads are frequently moved between clouds and on-premises systems, depending on requirements.

In many respects, private and public clouds are now on an equal footing, the survey reveals. The costs tend to even out between public and private clouds, and executives are comfortable with the security that is available with public cloud implementations. Plus, they give very high ratings to the levels of service they are seeing from public cloud providers.

Many IT leaders contend with a constantly evolving mix-and-match scenario, across both regulated and non-regulated industries. “We have a significant amount of cloud activity going on. For the most part we are using a hybrid cloud approach, though this varies depending on the type of data and necessary function,” says Joel Taylor, CIO of CarePoint Health. The organization employs private cloud to “provide greater connectivity and significantly improve our disaster recovery time. Now we have the ability to update applications and hardware with little to no downtime across the entire organization.”

The cloud provides many homes for many workloads. “Now we can write an application, change one command and push that workload wherever we want,” says Brian Gregory, senior director of IT for Express Scripts. “It becomes easy to move to other platforms. Your endpoint might be public cloud or an internal hybrid cloud. It is really about having multiple options that cater to different workloads. Once you containerize your workload, you can push it anywhere.”

This survey finds there are many paths to cloud, and enterprises will need to shift their resources accordingly. The survey sought to identify the “break-even” point between on-premises solutions and public cloud, and where the greatest overall value may be achieved.

The following are key findings from the research:



TODAY IT'S A HYBRID WORLD

A majority of executives indicate they are employing a mix of public and private services, and hybrid or private cloud implementations are the preferred options going forward. Seventy-seven percent say their organizations are currently employing hybrid cloud approaches (Fig. 1). Close to two-thirds, in fact, regard it as very important to have a hybrid cloud strategy that combines both private and public cloud services (Fig. 2).

Hybrid cloud tilts toward on-premises systems—a majority, 57%, report that in hybrid cloud arrangements, most of their IT assets are on-premises (Fig. 3). At the same time, 54% expect to increase their reliance on public cloud services as part of their hybrid cloud strategy (Fig. 4).

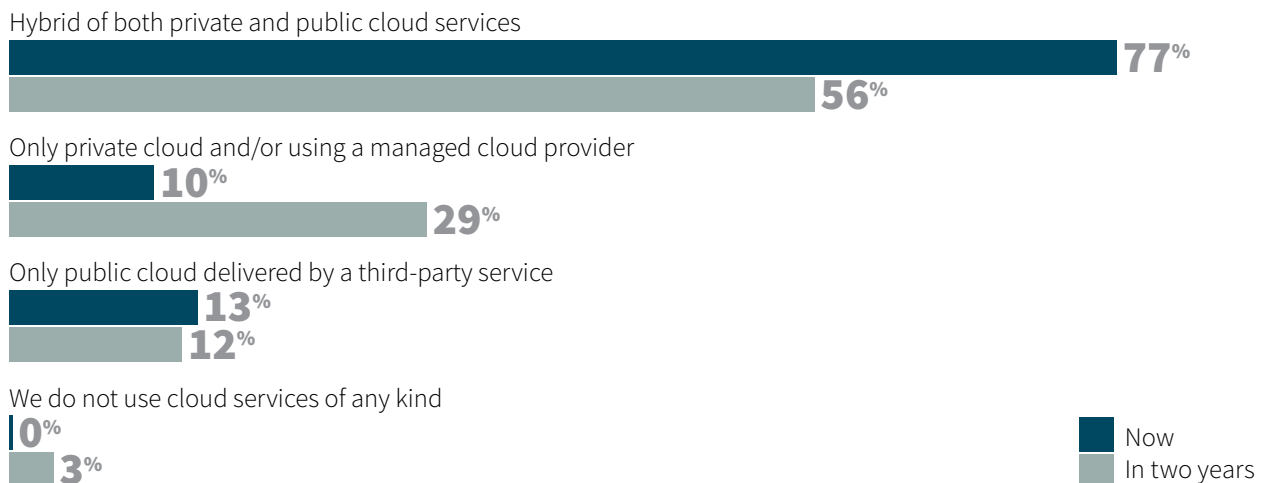
The choice to go public, private or hybrid depends on the type of application, IT leaders say. “We use both public and hybrid cloud environments, but for different purposes,” says Michael Quaranto, VP of development

for Global DMS. “We have been using and testing in these environments for the last few years. We are currently using a public cloud to support our test/dev environments, and utilizing the SunGard Availability Services hybrid cloud to host our production environment.”

For many organizations, public clouds—growing in sophistication and security—are becoming increasingly attractive. “Our focus has historically been on building our private cloud,” says Suresh Kumar, chief information officer at BNY Mellon. “We are adopting a hybrid approach because public cloud offers great benefits in terms of variable costs, scalability, resiliency and the agility to build new applications faster and more cost effectively. It can help you to be more innovative because it takes less time and fewer people to build applications, so you can try out new ideas without having to make a significant investment.”

FIGURE

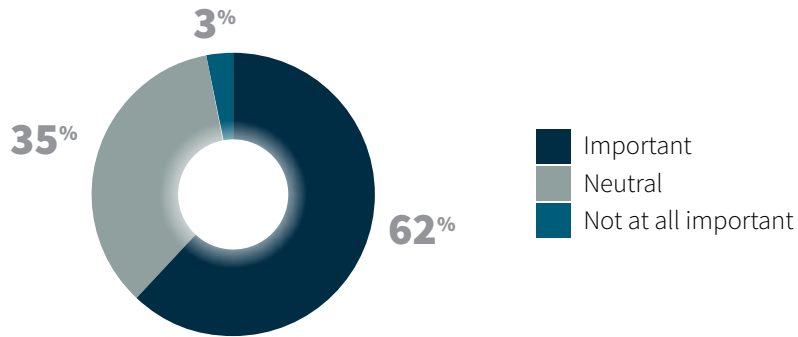
1 What type of cloud services are you currently using, and expect to use two years from now?



FIGURE

2

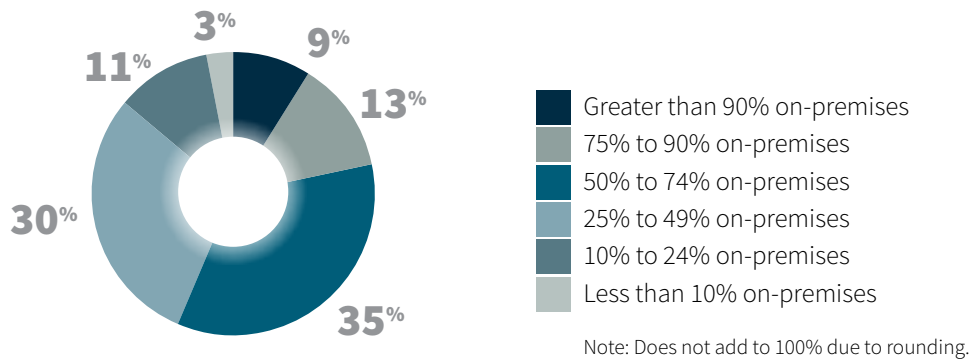
How important is it to you to have a hybrid cloud strategy—incorporating elements of both private and public clouds—versus just a public or private cloud one?



FIGURE

3

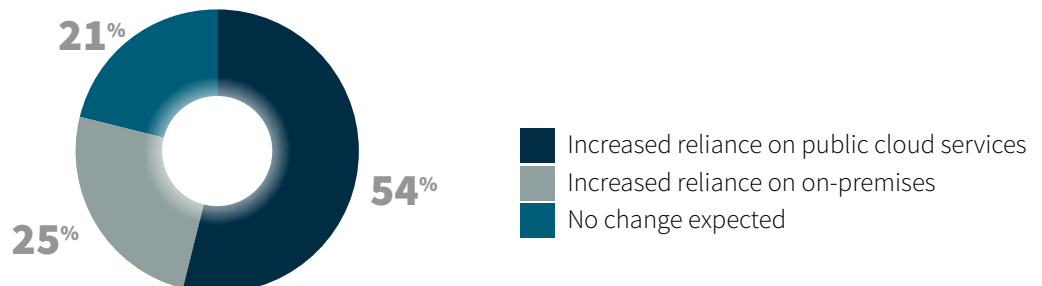
What percentage of your hybrid cloud infrastructure is on-premises versus public cloud?



FIGURE

4

How will your hybrid cloud strategy change over the next two years?



WORKLOADS ARE FREQUENTLY BEING MOVED TO, FROM AND BETWEEN CLOUDS

Demonstrating the constant movement of applications between public and on-premises sites, close to two-thirds of enterprises (65%) have discontinued or scaled back the use of a public cloud service within the past two years (Fig. 5).

Some public cloud engagements serve as “temporary” engagements that eventually shift back to on-premises implementations as functionality builds. Thirty-five percent left their public cloud service because it was meant to be a temporary engagement. Interestingly, even though cost is often touted as one of the major drivers of public cloud (in addition to speed and agility), for most it’s not a major factor. Only 27% of executives cited uncertainty about the costs of public cloud as a reason for transitioning to private cloud (Fig. 6).

Still, many business leaders who view public cloud as a temporary solution may begin to see it as a long-term asset. At Express Scripts, public cloud services initially served as a “quick way to find value and get people working faster,” says Gregory. “We would then go back to an internal system. Now the game is changing. Now you’re building out cloud applications that are real applications.”

In most cases, when a public cloud service is shifted, the application or function has been picked up by an internal, on-premises system, or in a similar number

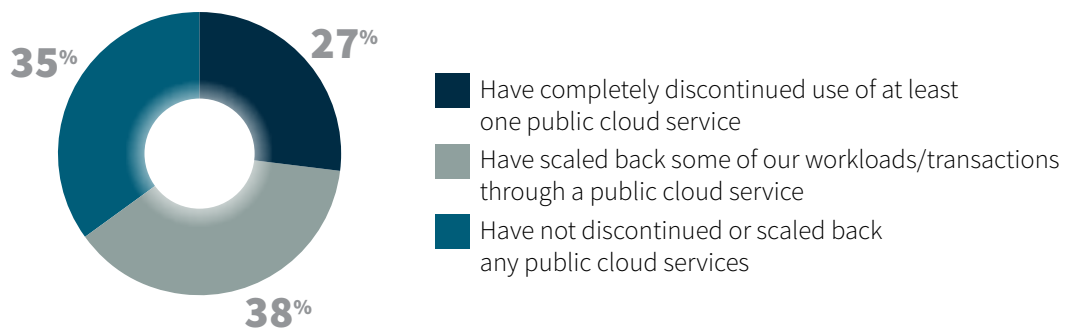
of cases, a configuration that pulls in both public and private resources (Fig. 7).

Hybrid adoption may be uneven for some time to come. Software-as-a-Service (SaaS) and Platform-as-a-Service (PaaS) are popular choices for CIOs, says Clinton Nichols, a principal consultant at Information Services Group (ISG). However, Infrastructure-as-a-Service—the processing and storage piece of the equation—is more nuanced, and requires greater planning. Often, he cautions, “there are too many tightly integrated legacy applications, and initiatives to build new applications are too small; they can’t re-factor enough of the old or build enough of the new to show ROI justifying a broad move to IaaS.”

As part of this hybrid strategy, Nichols is seeing companies use “cloud management platforms and cloud brokers to wrap their existing infrastructure with cloud capabilities and to create a bridge to one or two off-premise cloud service providers. They’re migrating applications off-premise as opportunities arise.”

Ultimately, the configuration needs to follow the urgency of business requirements—for achieving time to market and employing the most expedient platform to get there. “Most companies right now are buying converged infrastructure, because they want the fastest way to deliver business value,” says Gregory.

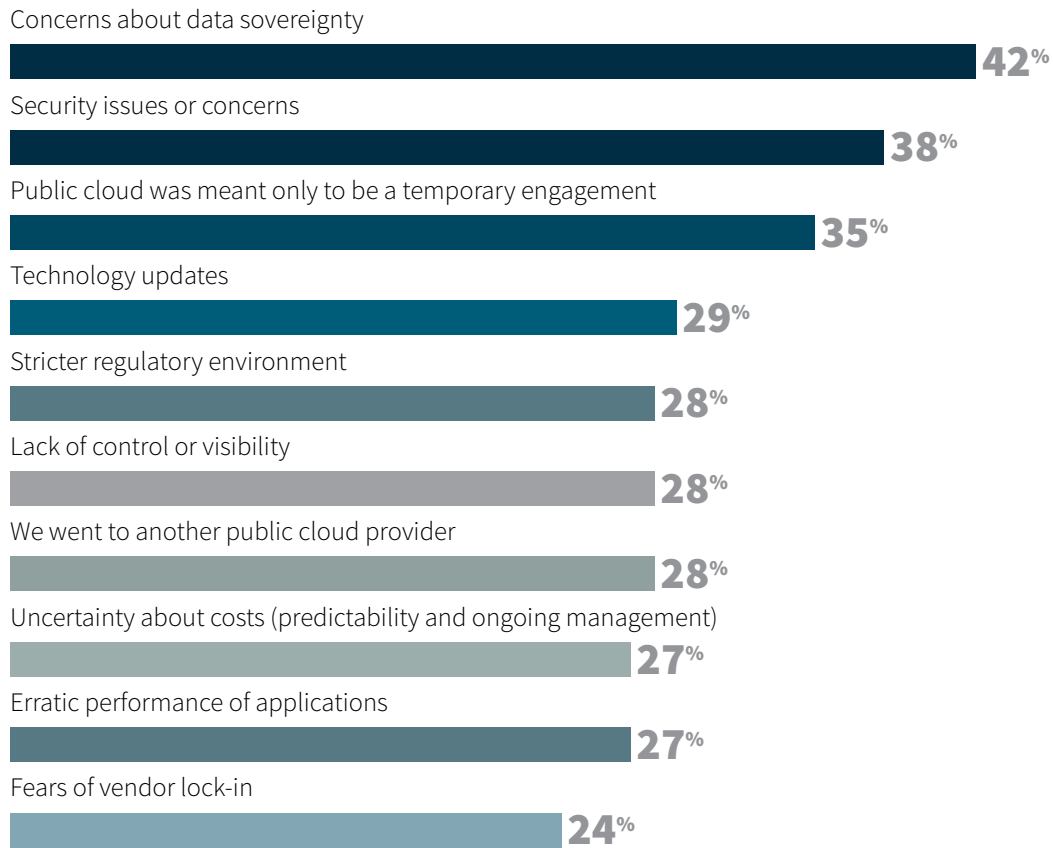
FIGURE 5 Have you discontinued or scaled back use of one or more public cloud services within the past two years?



FIGURE

6

Why have you discontinued or scaled back use of a public cloud service?

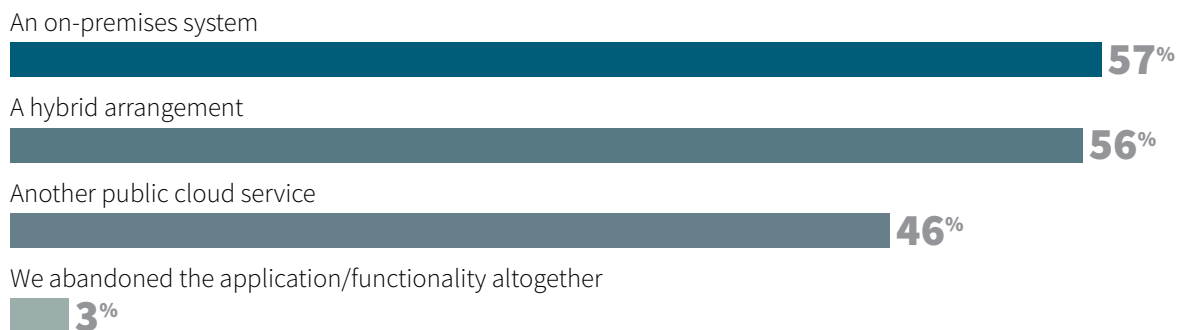


(Multiple responses permitted.)

FIGURE

7

What did you replace the public cloud service(s) with?



(Multiple responses permitted.)

IN THE LONG RUN, PUBLIC AND PRIVATE CLOUD COSTS MAY EVEN OUT

A majority of executives, 58%, say their costs per transaction have increased as a result of moving to a public cloud infrastructure. An important way to approach the decision of going with a public or private cloud environment is to evaluate the costs and benefits of making a move (Fig. 8).

But where is the “tipping point” at which the value of maintaining on-premises or hybrid services surpasses that of subscription-based cloud services?

When looking at estimated total cost outlay for applications and workloads, most executives predict there would be some lag time from the actual migration to the point at which they see return on investment. A majority of executives (62%) predict that it would take two or more years to recoup an investment, if at all, in cloud-to-on-premises migration (Fig. 9).

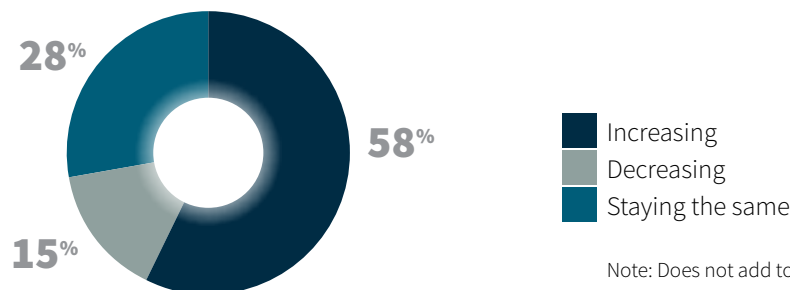
As mentioned above, cost is not as significant a factor in cloud decisions as conventional wisdom suggests it may be. Many executives are looking at other advantages cloud provides, such as agility and growth potential. Accordingly, the survey finds 64% of executives would consider transitioning from public to private cloud services—even if the total investment costs for private cloud were two to three times that of public cloud.

Another 23% would consider it even if the total costs were more than three times that of public cloud (Fig. 10).

Often, the time involved in moving to public cloud may be an inhibitor, especially with applications that require a great deal of security. “If I have a private cloud that’s already certified, where we already know all the rules and regulations, access blocks, who has access to it, I can have an application up and running in a week,” says Gregory. With a public cloud service, “you’re looking at a three-month process to get everything certified, understanding how you will deal with compliance, with the tools you’re going to use on top of it. So you’re not going to show value for a long time.”

The conversion between cloud and on-premises may also require some degree of collaboration and retraining across the enterprise. “Rewriting existing complex applications that run critical business services into cloud-native applications is not a trivial thing,” says Kumar of BNY Mellon. “You need to invest in bringing your developers up to speed on a new way of writing applications, and allocating talent to rewriting apps means pulling those resources off of other projects. Also, for a financial services institution like BNY Mellon, running critical business applications, there is significant testing that needs to occur whenever you write or

FIGURE 8 As you add new applications or workloads to your public cloud infrastructure, how are your costs per transaction changing?



rewrite an application. Then, we need to make sure that regulators and our clients are comfortable, and clients need to migrate. When you have a large business-to-business client base, it takes a certain amount of

time and effort to convert clients one at a time. All of those factors need to be weighed against the benefits of public cloud.”

FIGURE 9 From a total cost outlay (TCO) perspective, how long would it take to break even if you moved your applications/workloads from the public cloud back to your on-premises data center?

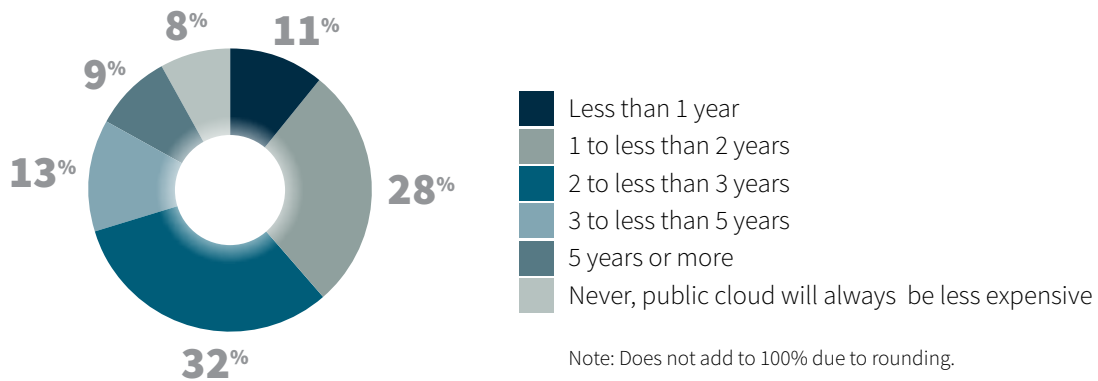
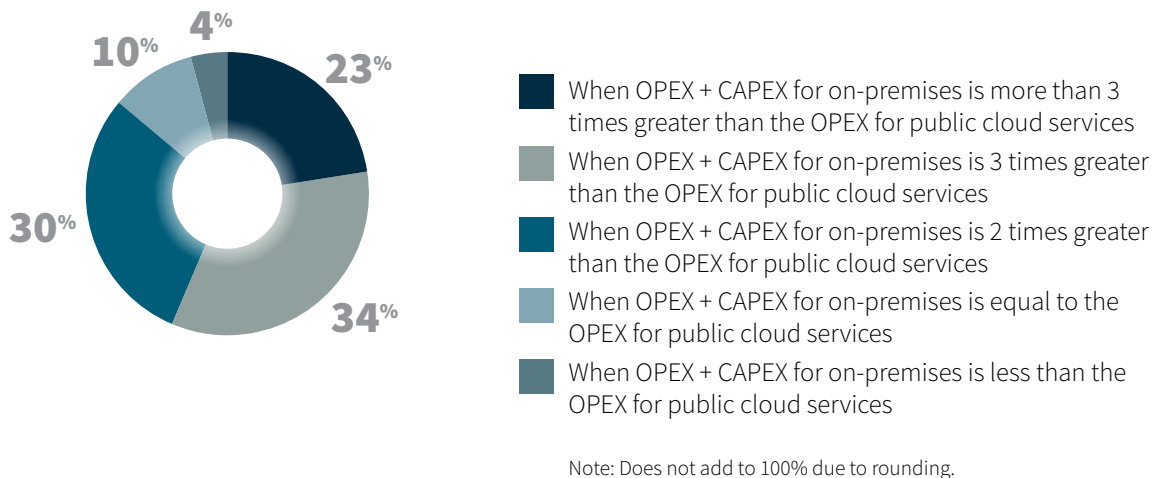


FIGURE 10 As you look at the total investment required for cloud services (e.g., operating expenditures (OPEX) + capital expenditures (CAPEX)), at what point would you consider transitioning your public cloud services to an on-premises data center?



PUBLIC CLOUD MAY BE FINALLY TAMING THE SECURITY MONSTER

As noted above, in most cases where public cloud services have been phased out, the most commonly cited reason for scaling back public cloud services was “concerns about data sovereignty” (42%), followed by “security issues or concerns” (38%).

However, at the same time, a majority of executives express confidence in the ability of their public cloud providers to deliver security (Fig. 11). Key areas in which executives express confidence in public cloud include: meeting compliance requirements and government mandates; including data, user and application security; and communicating and working with their own internal IT teams (Fig. 12).

It may seem paradoxical that security is considered a deal-breaker for public cloud, since public clouds are

seen as secure places. This disconnect around public cloud security perceptions may be attributable to the wide variety of applications now powering enterprises, and their ultimate purposes. The data security issue is connected to the industry and types of applications that are affected. “We avoid putting sensitive information, like medical records, on the public cloud for obvious reasons, like HIPAA,” says Taylor of CarePoint. “There simply isn’t enough insurance with the public cloud. Similarly, we like to avoid placing applications that contain intellectual property or confidential business information on the public cloud. Data that doesn’t contain confidential business operations, intellectual property, patient records or de-identified information could be considered for public cloud.”

FIGURE

11 Do you believe your public cloud provider’s security policies meet the standards of your organization?

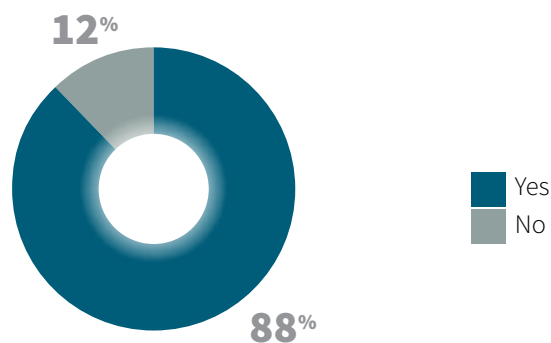
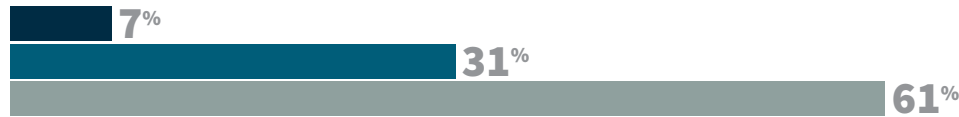


FIGURE
12

Please rate your level of confidence with the following public cloud security practices.

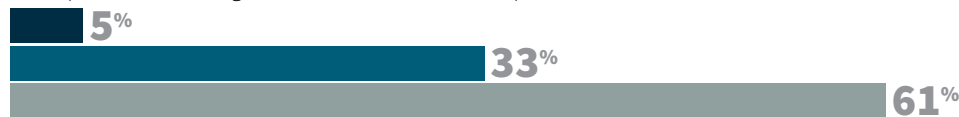
Data, user and application security is being handled adequately overall in public cloud



Public cloud security will always meet compliance requirements



Data/practices meet government mandates/requirements



Our IT department is aware and engaged with our public cloud provider to ensure security standards are met



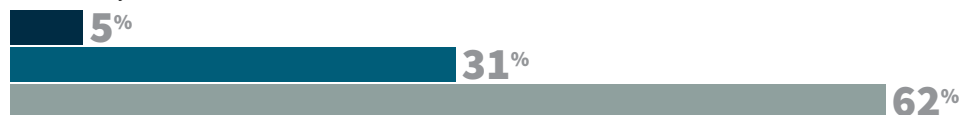
Our public cloud provider is capable of detecting data breaches/insider threats



Our public cloud provider provides proactive security alerts and visibility



Our public cloud provider is able to provide real-time analytics and visibility to prevent security breaches before they occur



Not confident
 Neutral
 Confident

PUBLIC CLOUDS ARE DELIVERING ON SERVICE PROMISES

An important piece of the cloud management equation is service level agreements (SLAs). Interestingly, while conventional wisdom has dictated that public cloud engagements may fall short on SLAs, this has not been the case with enterprises. Four in five executives indicate they are satisfied with the SLAs they have in place with their cloud providers (Fig. 13).

From a performance perspective, public cloud services have met executives' expectations. Areas especially strong include access to greater storage—cited by 40% as “exceeding expectations”—and access to greater processing capacity. In terms of “burstyness”—the ability to ramp up processing when necessary—38% of executives say their public cloud provider exceeded their expectations. More than one-third see public cloud delivering skills beyond their expectations (Fig. 14).

Among the most problematic areas for public cloud are security and the flexibility to change or customize applications. Security ranks low in comparison to private cloud, with 46% indicating public cloud is “worse” than private cloud. Where public cloud scores the highest is application performance and operational efficiency. One-third say public cloud is better in terms of supporting large volumes of transactions (Fig. 15).

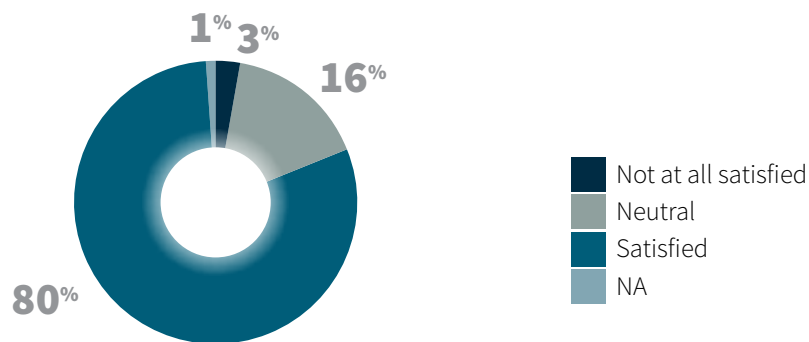
The choice between public or private cloud “depends on the application,” says Quaranto of Global DMS. “In general, we prefer the flexibility that is offered with most public cloud environments. However, a hybrid cloud environment gives us the ability to customize and tune configurations for performance and security. We can’t get to that level of customization in the public cloud just yet.”

The applications best suited for public cloud, he adds, are “our lower environments—development, QA, staging. The ability to easily provision and tear down resources as needed gives us maximum flexibility for minimum investment. Concerns over performance, data security and compliance just aren’t the same as they are at the production level.”

Nevertheless, confidence in public cloud continues to grow. “Public cloud is the future for SaaS base applications,” says Quaranto. “Public cloud providers continue to evolve their offerings at a staggering pace, while gaining a wider-scale acceptance. It’s only a matter of time before the public cloud can satisfy the needs for most applications.”

Still, many IT leaders seek to leverage the best of both worlds. As explained by Kumar, “We want to write

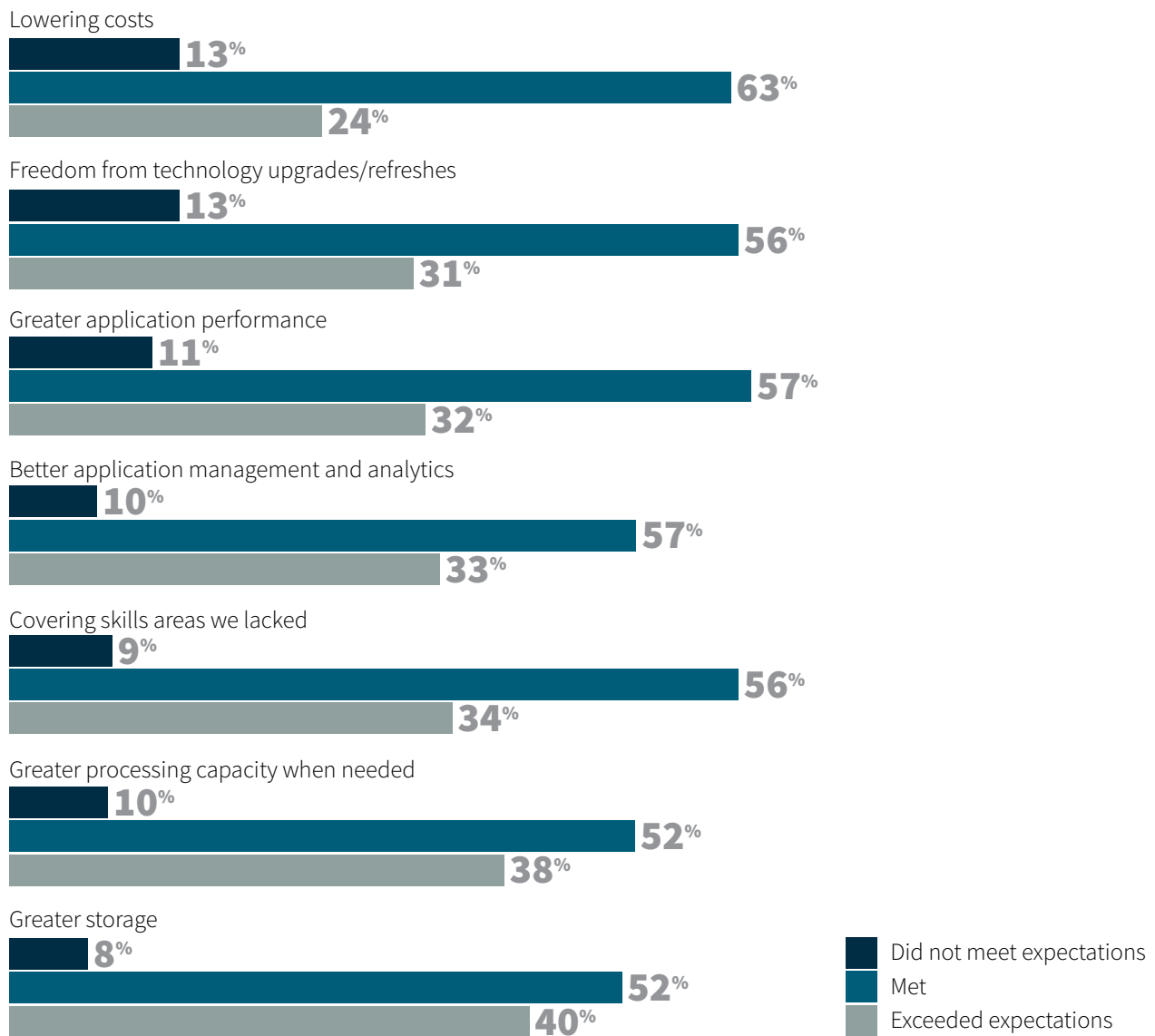
FIGURE 13 Please indicate how satisfied you are with the types of service level agreements (SLAs) your public cloud provider offers.



applications that are agnostic between private and public clouds, which is why we are focused on building a hybrid that will protect our investment in applica-

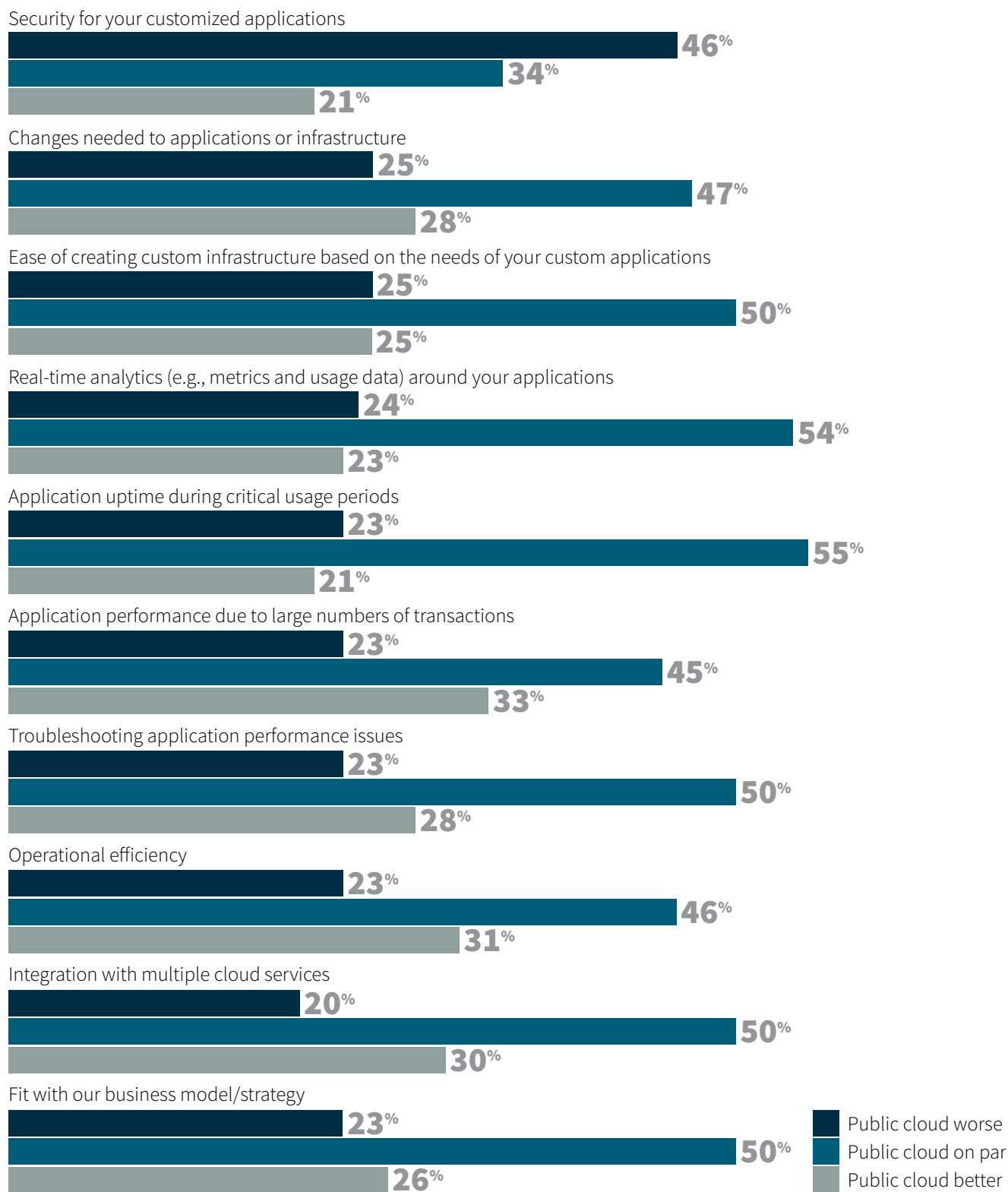
tions from technology obsolescence and dramatically improve developer productivity.”

FIGURE 14 Thinking about your adoption of public cloud services, please indicate the extent to which your expectations were met with regard to the following:



FIGURE

15 Compared to your experiences with private cloud, how would you rate your experience using public cloud services for each of the following attributes?



RECOMMENDATIONS

Enterprises need to determine where public, private or hybrid cloud best fit within their technology infrastructure and strategy. This survey illustrates the balancing act required to get the best from a multitude of choices. The importance of hybrid cloud is only going to grow as enterprises increase their use of both on-premises (private) and public cloud services. Overall, the survey finds 91% of executives plan to increase use of private cloud over the next two years. For 38%, this increase will be significant—with usage set to increase by more than 25% during this period.

As the importance of hybrid cloud increases, so does getting the private cloud—and especially transitions between the two—right. While the survey finds the level of concern with vendor lock-in is moderate (43%), it points to the need to find ways to transition workloads effectively. Tellingly, many cite difficulty in changing cloud providers. A shift back to on-premises, for example, takes time to recoup the expense. Close to two-thirds (62%) say it would take more than two years

to make up the difference, or possibly not recoup at all, if they moved from a cloud service provider to an on-premises data center. In addition, the ability to perform analytics in both public and private cloud environments is critical as executives weigh potential changes in where and how workloads are run.

Cloud strategies must reflect business outcomes—for example, improved time to market and greater operational efficiency. This requires that IT leaders take on an educational role within their enterprises. Many of the long-term benefits of cloud will be realized as a result of the new ways of thinking and creating that are possible after implementation. “It’s difficult to build an ROI at the beginning,” says Gregory. “The real value for the technology teams is the soft benefits, such as when a developer goes from 44 steps to four to deploy an application, or can auto-scale applications, or you have greater reliability. It’s a different mind shift and culture shift.”



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