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Are You Getting The Most From Your Hybrid Cloud?

A FORRESTER CONSULTING THOUGHT LEADERSHIP PAPER COMMISSIONED BY IBM, MARCH 2022

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Executive Summary

Cloud computing has taken the world by storm. It's driving new infrastructure models across enterprises — both under the direct management of IT organizations as well as under rogue cloud adoption outside of the control of IT. But when addressing the changing application workload requirements of the decade-long digital transformation wave, cloud coexists with traditional infrastructure. Technology leaders are engaged in the task of optimizing application workloads across a balance of hybrid platforms (including public cloud, private cloud, and traditional) based on individual requirements.

In January 2022, IBM commissioned Forrester Consulting to examine the importance of hybrid cloud in supporting growing and increasingly complex application workloads as part of digital transformation. To explore this topic, Forrester conducted a survey of 503 global IT and infrastructure and operations decision-makers from companies in various regions and industry sectors around the world. The research revealed that most organizations are taking a modern, hybrid approach to meet the individual demands of their application workloads and matching those specialized demands with cloud (both public and private) as well as traditional platforms. And for about three-quarters of firms, hybrid is their long-term strategy to support their digital transformation priorities.

Forrester recommends that as organizations continue their transformation journeys, it is imperative that they do four things: 1) prepare for a hybrid cloud future, 2) optimize infrastructure choices to meet digital demands, 3) focus on effective application workload orchestration, and 4) commit to continuous change and improvement.



Key Findings



Current application workloads within organizations are fairly evenly split across public cloud, private cloud, and traditional infrastructure environments. However, on average, only 21% of surveyed IT leaders said they are fully confident in the ability of their organization's current infrastructure to support growing application workload requirements.



In total, 45% of respondents said their organization is adopting either modernization in place or a hybrid modernization approach. Compare that to 15% who said their organization uses lift-and-shift to the cloud (i.e., moving an application and its data without redesigning the app), and 15% who said their organization is building internally from scratch.



No individual infrastructure option meets the needs of all application workloads. All survey respondents said their organizations experience similar challenges with internal expertise, portability, and cost/value.



The top desired attributes for deciding where to deploy application workloads are performance, security, open/industry standard, and flexibility.



Surveyed IT leaders view hybrid cloud as an end state, not a milestone. They are embracing true hybrid strategies to boost their confidence in supporting their organizations' primary application workloads on any platform while also ensuring they have portability to switch between platforms as needed.

Digital Transformation Is Enabled By A Mix Of Public Cloud, Private Cloud, And Traditional Infrastructure

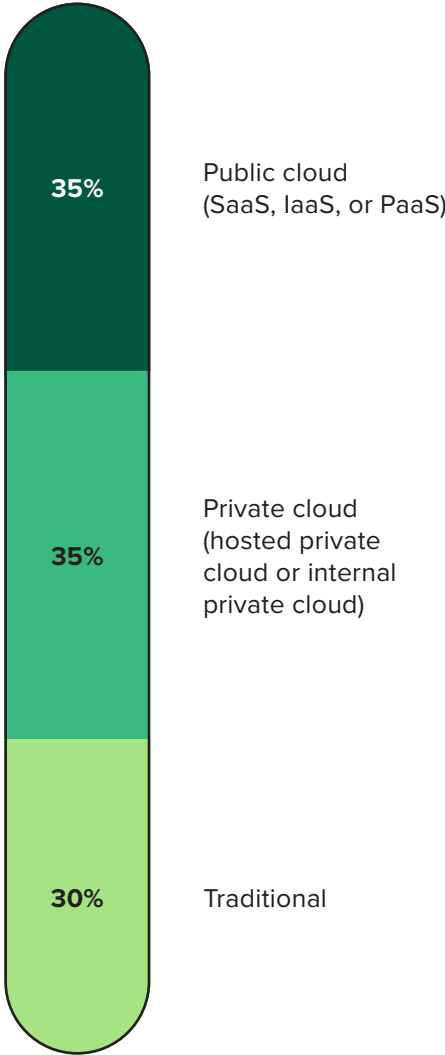
The events of the COVID-19 pandemic during the past two years have accelerated the urgency of digital transformation as stay-at-home workers and their organizations' customers change how they work and do business. Application modernization plays a central role in supporting employees in this new reality, but simply shifting application workloads into the cloud is not the end goal for most organizations. Instead, IT leaders are tasked with pairing application workloads to the right combinations of cloud and traditional infrastructure to improve application workload effectiveness.

Our survey of 503 IT leaders revealed that current application workloads are relatively evenly split across public cloud, private cloud, and traditional environments (see Figure 1). However, digital transformation isn't over — not by a long shot. Only 11% of surveyed IT leaders said they consider their organization's digital transformation effort to be complete. And they intend to continue optimizing their organizations' application workloads by leveraging cloud and traditional infrastructure investments.

Only 21%

of IT leaders are fully confident in the ability of their organization's current infrastructure to support growing application workload requirements.

Figure 1
Current Infrastructure Configurations Are A Mix Of On-premises And Cloud



Base: 503 global IT and infrastructure and operations decision-makers responsible for cloud strategy
Source: A commissioned study conducted by Forrester Consulting on behalf of IBM, January 2022

ORGANIZATIONS MUST ADAPT AS APPLICATION WORKLOAD DEMANDS GROW

Surveyed IT leaders said that during the next two to three years they expect the volume of work on primary application workloads (e.g., customer-facing systems, core systems, data systems) to increase. However, on average, only 21% of IT leaders said they are fully confident in the ability of their organization's current infrastructure to support growing application workload requirements. There is also higher confidence in supporting customer-facing and user-engaging systems compared to only 10% of IT leaders who are confident in current configurations to support the core systems that run the business (see Figure 2). Among the primary challenges IT leader face is knowing how to modernize their organizations' application workloads (each with their own specialized needs) across the most effective configuration of cloud and traditional infrastructure.

Our survey reveals four digital transformation outcomes that IT leaders are working toward:

- Increasing business agility and speed.
- Modernizing and simplifying existing applications and optimizing the infrastructure that supports them.
- Improving infrastructure security, reliability, and resiliency to reduce risk.
- Improving value for customers and partners.

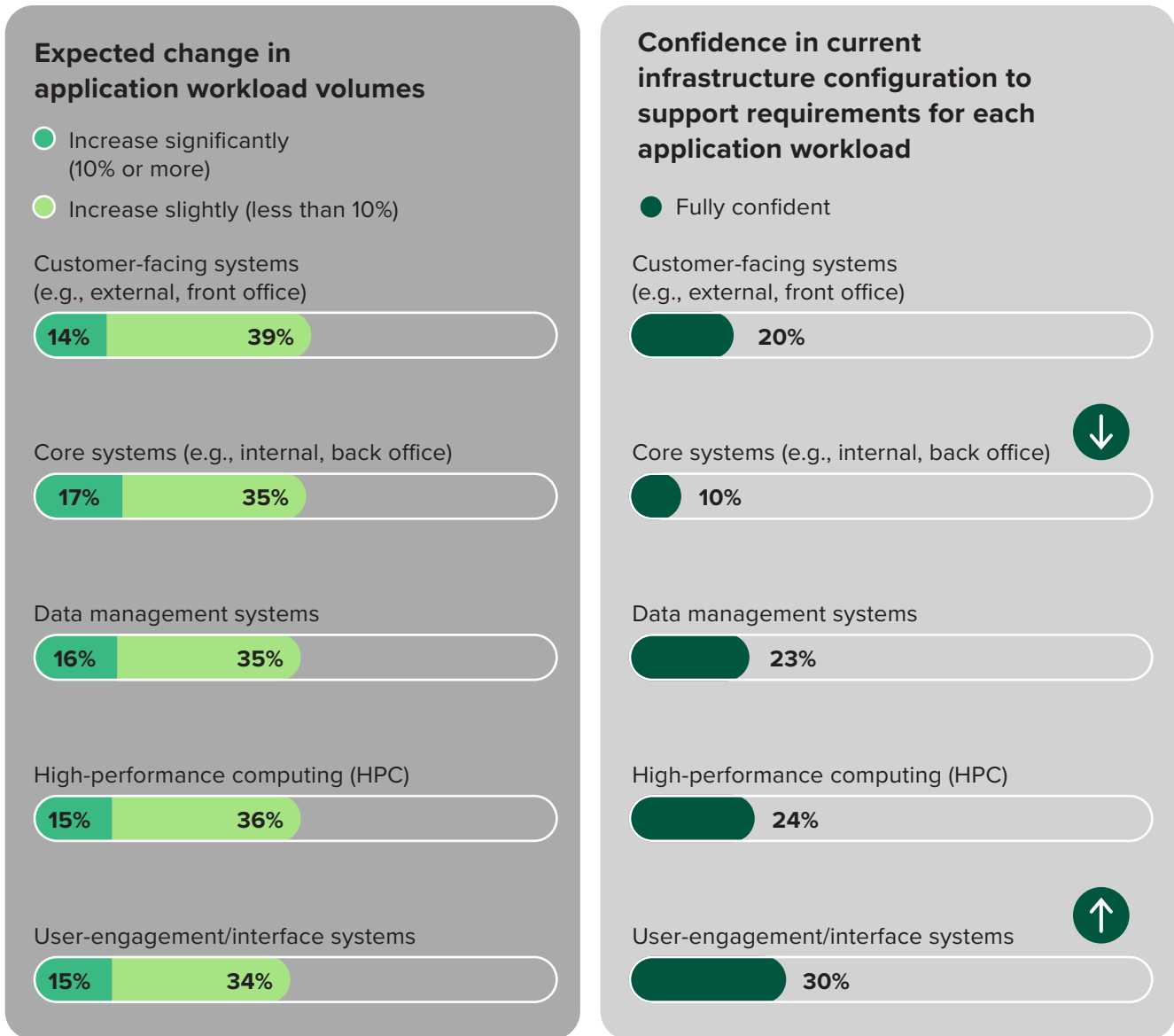
45%

of respondents said their organizations are focusing on modernization in place or a hybrid modernization approach.



Figure 2

Organizations Are Unprepared To Support Growing Application Workload Demands On Infrastructure

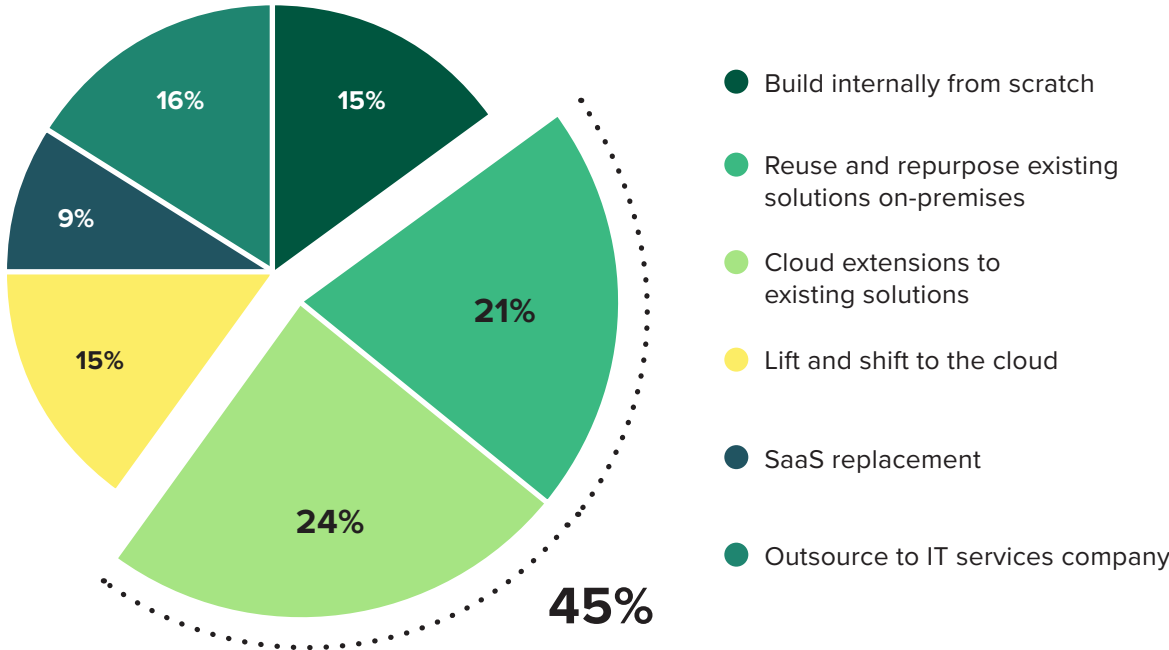


Base: 503 global IT and infrastructure and operations decision-makers responsible for cloud strategy
Source: A commissioned study conducted by Forrester Consulting on behalf of IBM, January 2022

As IT leaders think about how to best address these outcomes from a development and transformation perspective, they are more focused on how they can repurpose the resources their organizations already have in place versus starting something new.

The most common approaches organizations are taking to address digital transformation strategies are to reuse and repurpose existing solutions with traditional infrastructure (21%) and cloud extensions to existing solutions (24%). This means that 45% of respondents' organizations are focusing on modernization in place or a hybrid modernization approach. This is significant compared to other, less common approaches such as building internally from scratch (15%), lifting and shifting to the cloud (15%), or replacing software-as-a-service (SaaS) (9%) (see Figure 3).

Figure 3
Digital Transformation Requires Both On-Premises And Public Cloud Components



Base: 503 global IT and infrastructure and operations decision-makers responsible for cloud strategy
Source: A commissioned study conducted by Forrester Consulting on behalf of IBM, January 2022

Tech Leaders Want To Optimize The Effectiveness Of Application Workloads By Using Hybrid Environments

Many respondents said their organization is ill-prepared with its current application workload configurations to deliver on its digital transformation vision. Less than half of surveyed IT leaders said they find their organization's current infrastructure to be effective at supporting agility, and only 32% consider their organization's infrastructure to be effectively aligned with the objective of simplifying applications and infrastructure. An application workload's effectiveness is based on how well it drives business value at a reasonable cost and in good time. Within digital transformation, there are four common areas of business value effectiveness: 1) creating compelling customer experiences, 2) deriving new customer insights, 3) improving operational performance, and 4) transforming business process effectiveness.¹

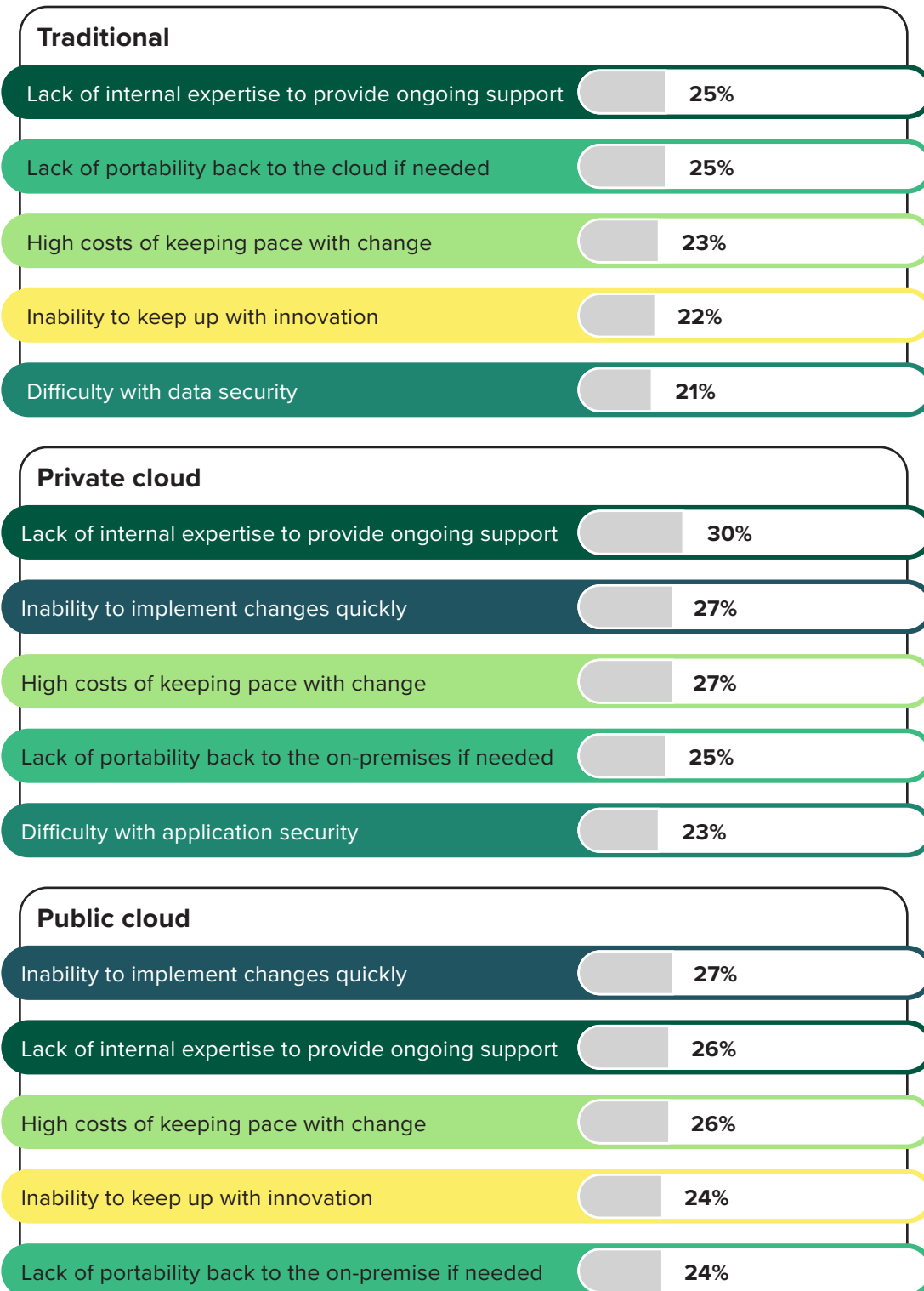
In trying to understand current limitations and barriers with optimizing application workload effectiveness, we asked respondents to identify issues their organizations face with using public cloud, private cloud, and traditional infrastructure to see if there was a weak spot across the three. But instead of discovering which type of infrastructure was the problem, our survey revealed that the challenges were fairly consistent across all options (see Figure 4).

The key message here is that no individual infrastructure option meets the needs of all application workloads. This is represented by the balanced distribution of application workloads across hybrid platforms as well as by the commonality of challenges and benefits associated with these platforms. Respondents told us their organizations' challenges center on these key issues:

- **Lack of internal expertise for ongoing support.** All types of infrastructure require technical expertise to maintain and support, and the required skills are constantly changing. With accelerating demand for these skills, it becomes both difficult and expensive to keep up with them. As cloud usage continues to grow, the talent shortage will be a constant issue. A 2020 Forrester report found that popular job-search sites listed more than 350,000 jobs in cloud computing, which signals the high demand for these roles.²

Figure 4

Top Challenges By Infrastructure Type



Base: 503 global IT and infrastructure and operations decision-makers responsible for cloud strategy
Source: A commissioned study conducted by Forrester Consulting on behalf of IBM, January 2022

- **High costs to keep up with change.** Initial cloud implementations seldom take advantage of the full set of opportunities offered by any infrastructure platform, all of which are continually upgraded. And most of these new capabilities require going cloud native and leveraging virtual machines, containers, and serverless to access greater security, portability, and manageability.
- **Lack of portability to and from cloud.** Utilizing a hybrid infrastructure is effective only to the extent that organizations are able to move application workloads seamlessly among platforms as needed. And the need for this level of flexibility accelerates as the compute needs of users become more complex.
- **Inability to implement changes quickly.** Digital transformation demands rapid changes to keep up with evolving customer and market demands. Relying solely on existing architectures will fail to support this level of change, no matter what infrastructure platform the organization is currently using.

Addressing these challenges requires organizations to think less about cloud or traditional infrastructure deployments separately and more about how they can improve connectivity and portability for application workloads (regardless of where they are deployed) to reduce cost and more quickly enable change. Organizations need to embrace a true hybrid approach.

Organizations need to
embrace a true
hybrid approach.



Hybrid Platforms Enable And Support Digital's Wide Range Of Application Workloads

Surveyed IT leaders said their organizations are embracing hybrid platforms to boost their confidence in supporting their primary application workloads. This approach allows the organizations to take advantage of both cloud and traditional infrastructure systems to match workload-specific requirements. However, the accelerating pace of change with digital transformation reduces confidence that today's application workload requirements will remain the same for long. That is why organizations are also improving application workload portability among multiple cloud instances and between cloud and traditional infrastructures to give themselves greater flexibility in conjunction with embracing hybrid platforms.

Every IT organization has multiple application workloads it needs to support, and it's essential to choose the right deployment for each. When asked what attributes matter most when deciding where to deploy application workloads, respondents said the top attributes are (see Figure 5):

- **High performance.** Because application workload volumes are expected to increase, maintaining strong performance is a top priority for IT leaders. It is also essential that infrastructure performance remains consistent as organizations look to scale and/or shift between infrastructure types. More than a quarter of surveyed IT leaders said they consider high performance to be a top-three criteria when deciding where to deploy application workloads.
- **Security/compliance.** Security is always top of mind for IT, especially when application workloads that deal with customer personal identifiable information (PII) or sensitive business data are involved. Survey respondents said that an average of 61% of workloads must remain in regulated environments. These regulatory requirements are driving IT leaders to put greater emphasis on compliance and data security.

More than a quarter of surveyed IT leaders consider **high performance to be a top-three criteria** when deciding where to deploy application workloads.

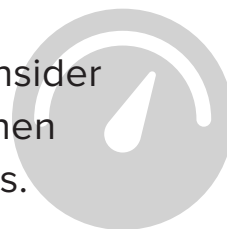
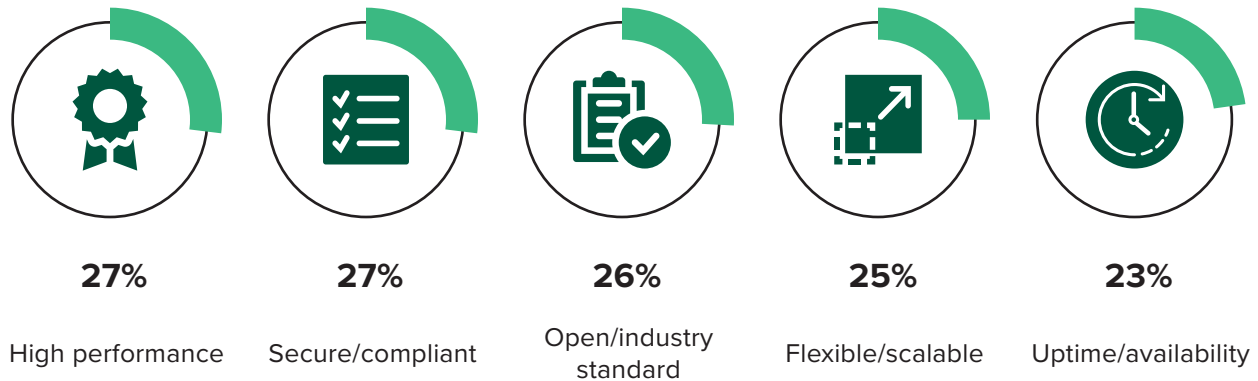


Figure 5

Top Desired Attributes For Deciding Where To Deploy Application Workloads

(Percent ranked as a top 3 attribute)



Base: 503 global IT and infrastructure and operations decision-makers responsible for cloud strategy

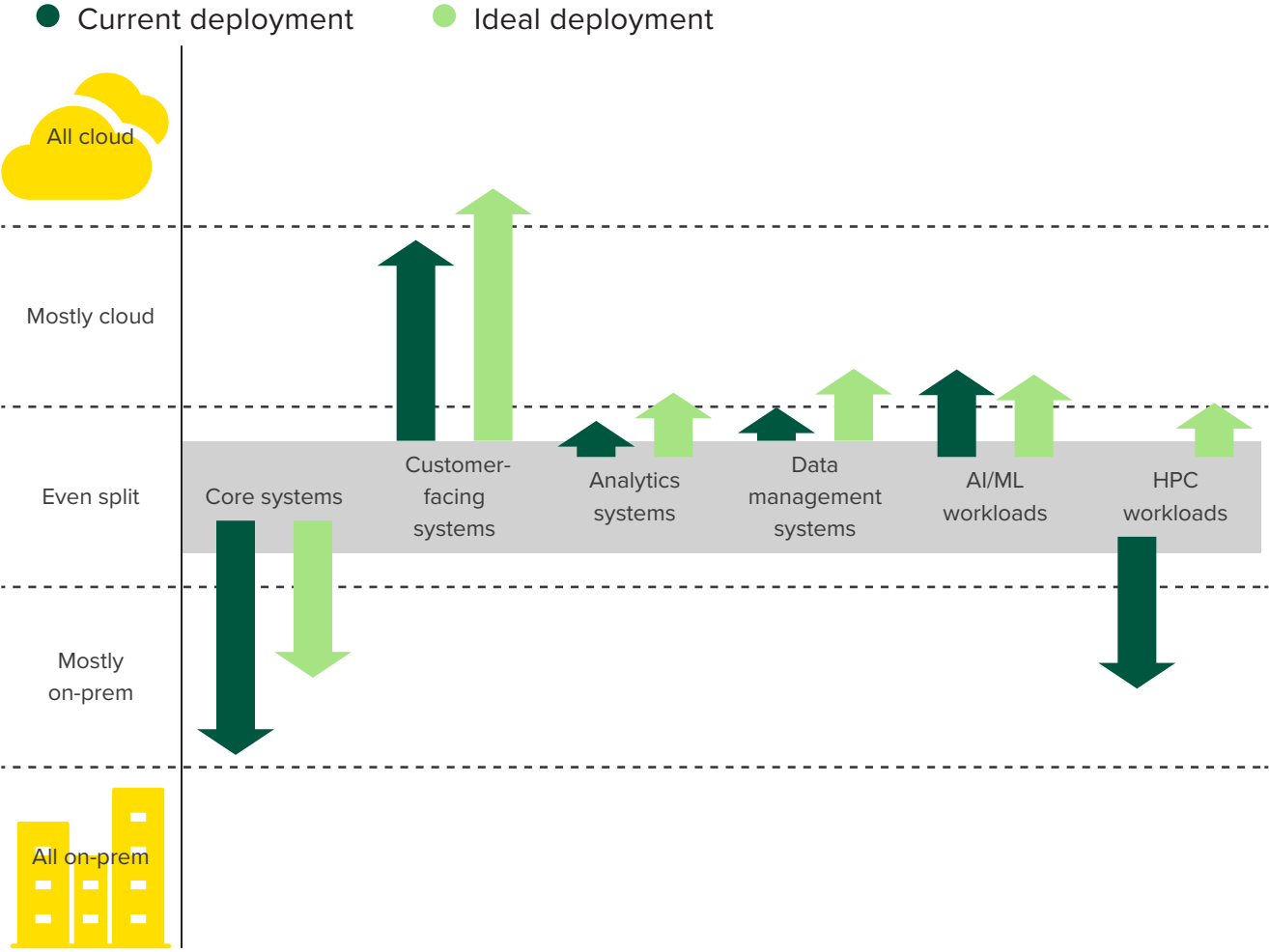
Note: Not all responses shown.

Source: A commissioned study conducted by Forrester Consulting on behalf of IBM, January 2022

- **Open/industry standard.** Portability with a single infrastructure architecture — whether cloud or traditional — won't address digital transformation's hunger for delivering new business models. Firms require quick and low-cost movement of application workloads to take advantage of features and performance capabilities of specific platforms and the colocation of workloads to reduce latencies. And this will come only with standard facilities like containers and orchestration across platforms.
- **Uptime/availability.** Certain application workloads such as mission-critical or core business systems require higher uptime. Disruptions to core application workloads can have a snowball effect on other application workloads where interdependencies exist, thus making uptime a top requirement.
- **Flexibility/scalability.** Organizations must be able to scale their application workloads up and down as needed to meet customer and business demands. The same is true for flexibility. IT leaders must be able to adapt their organizations' infrastructures to meet changing business needs on demand and offer a path forward without expensive investments every time an application workload requirement shifts.

In an ideal world, computing requirements for every application workload would be the same and allow organizations to invest in a single infrastructure solution to meet all its needs. However, that is not the case, and it is why hybrid platform deployments are becoming more prevalent. Each application workload varies in terms of what attributes are most essential when considering how it is deployed. For example, a 2021 Forrester study, commissioned by IBM, showed that many organizations intend to maintain more of their core application workloads on traditional infrastructure while shifting customer-facing systems to the cloud (see Figure 6).

Figure 6
71% Of Surveyed IT Leaders Value Having A Consistent Way To Deploy Cloud-Native Applications Across Traditional Infrastructure And Public Clouds



Base: 412 global decision-makers responsible for enterprise server and application development or deployment decisions
 Source: A commissioned study conducted by Forrester Consulting on behalf of IBM, March 2021

There is no one-size-fits-all approach for optimizing application workload deployment, and that explains why IT leaders are investing in hybrid platforms during the next two years. IT funding for all platform types is expected to increase, with only a slightly bigger increase expected for traditional infrastructure and private cloud solutions.

HYBRID CLOUD IS AN END STATE, NOT A MILESTONE

Most organizations are already using a combination of cloud and traditional infrastructure either by design or coincidence. However, looking forward, it is clear that IT leaders are deliberately embracing hybrid configurations and placing nearly equal importance on public cloud, private cloud, and traditional infrastructure solutions to provide better portability, performance, speed, and cost across application workloads.

Interestingly, the further organizations advance in their digital transformation journeys, the stronger their resolve regarding the criticality of traditional infrastructure solutions to their overall infrastructure strategy. Fifty-seven percent of respondents from companies in the late stages of digital transformation view traditional infrastructure as critical, compared to 43% from companies in the early stages.

With hybrid platforms as the central strategy for supporting key application workloads, these firms are reaping the business benefits of improved workload effectiveness. The most common benefits surveyed IT leaders cited were better business continuity, greater scalability, better control, improved speed, and increased flexibility (see Figure 7).

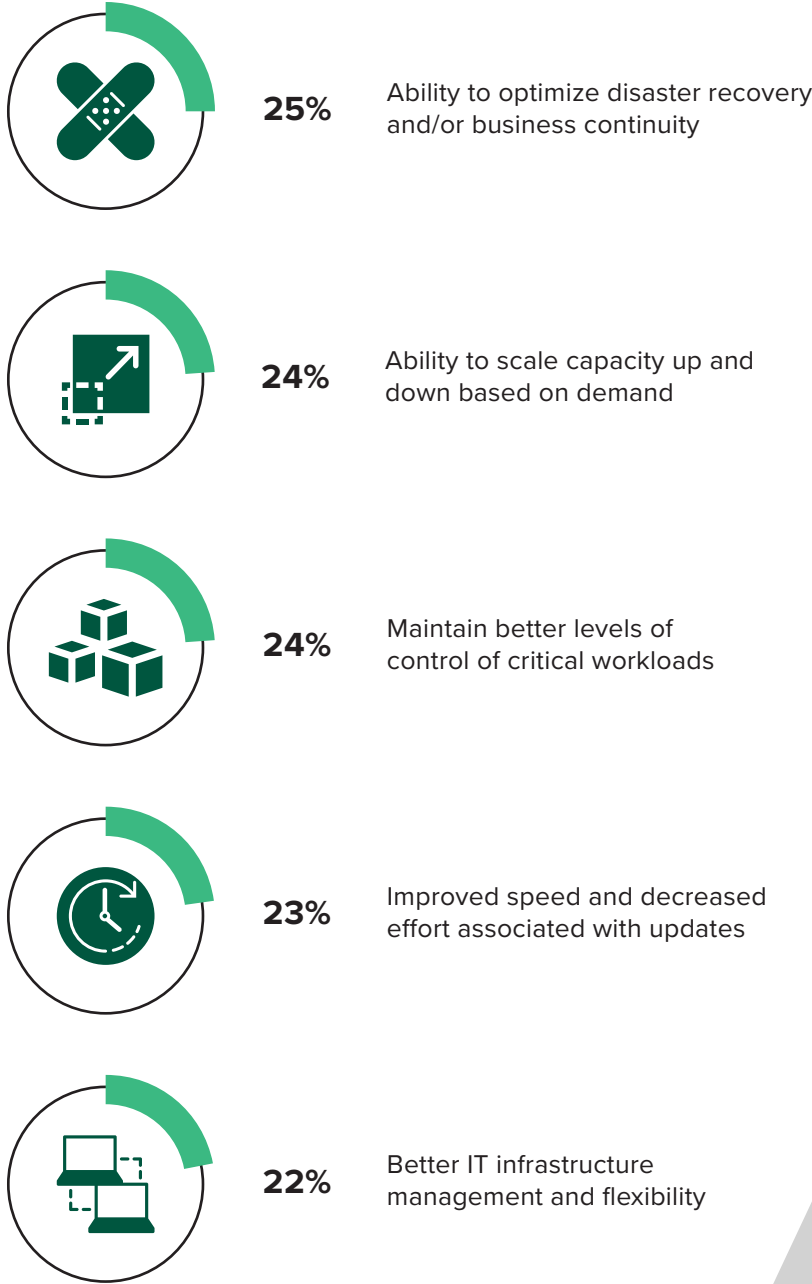
57%

of respondents from companies in the late stages of digital transformation view traditional infrastructure as critical, compared to 43% from companies in the early stages.



Figure 7

Benefits Of Using Hybrid Cloud To Run Application Workloads



Base: 503 global IT and infrastructure and operations decision-makers responsible for cloud strategy
Source: A commissioned study conducted by Forrester Consulting on behalf of IBM, January 2022

Key Recommendations

Firms need hybrid solutions to deliver the digital transformation goals they are working toward. Most organizations are already using a mix of traditional infrastructure and cloud resources, but improvements are needed to optimize application workloads on the right platform to drive greater effectiveness.

Forrester's study yielded several important recommendations to help IT leaders in planning the next steps in their organizations' digital transformation journeys:

Prepare for a hybrid, multicloud future.

It isn't time to retrench in some single cloud instance or to sit only in a traditional infrastructure environment. Survey respondents made it clear that hybrid cloud with multiple cloud options is a given for the foreseeable future.

Optimize infrastructure choices for digital transformation demands.

Place application workloads on infrastructure that will deliver the greatest business value to customers and partners, keep agility and speed front and center (especially through portability), and keep reducing risk by improving security, reliability, and resiliency.

Focus on an effective container and orchestration strategy.

Aggressively pursuing a consistent container strategy will enable more flexible application workload optimization across cloud and traditional infrastructure by using open-source solutions to support containers in your organization's traditional infrastructure world.

Expect to continuously adjust to meet changing needs.

Your organization's business transformation will require continuous change as it connects across the enterprise's, partners', and customers' ecosystems to provide an end-to-end experience. And this will increasingly require that your organization keep up to date on infrastructure changes across platforms.

Appendix A: Methodology

In this study, Forrester conducted an online survey of 503 global IT and infrastructure and operations decision-makers from companies in the US, Canada, the UK, France, Germany, India, and China. Respondents were from companies with 500 employees or more and from a variety of industries. Survey participants were decision-makers for infrastructure strategy and planning (including cloud). Respondents were offered a small incentive as a thank you for time spent on the survey. The study was completed in January 2022.

Appendix B: Demographics

COUNTRY	
United States	24%
India	16%
China	16%
Canada	11%
United Kingdom	11%
France	11%
Germany	11%

COMPANY SIZE (EMPLOYEES)	
500 to 999	14%
1,000 to 4,999	41%
5,000 to 19,999	35%
20,000 or more	10%

ROLE	
IT	100%

INDUSTRY	
Insurance	16%
Banking	13%
Healthcare	10%
Telecommunications	10%
Government	10%
Tech/tech services	10%

LEVEL	
C-level executive	2%
Vice president	15%
Director	52%
Manager	31%

AREAS OF INVOLVEMENT AS IT DECISION-MAKER	
Infrastructure strategy and planning	99%
Cloud strategy and planning	98%

Appendix C: Endnotes

¹ Source: “Cloud Powers The Adaptive Enterprise,” Forrester Research, Inc., January 25, 2022.

² Source: “Mind The Cloud Skills Gap,” Forrester Research, Inc., March 11 2020.



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