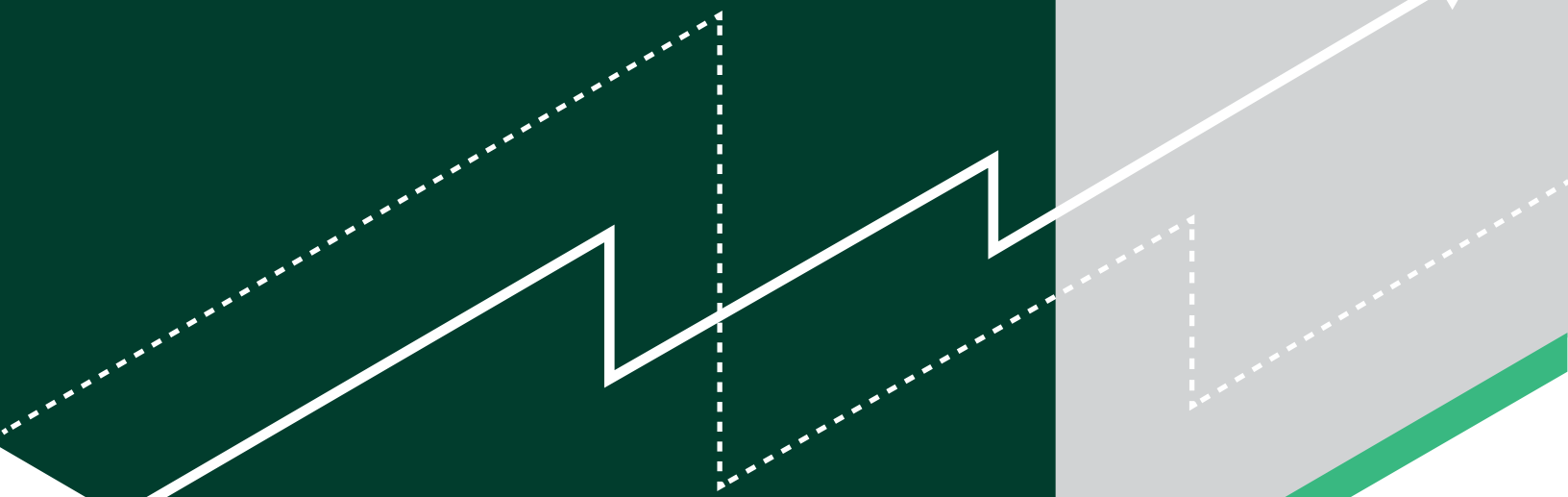
A Forrester Consulting
Thought Leadership Paper
Commissioned By IBM

January 2021

The Key To Enterprise Hybrid Cloud Strategy: An Annual Forrester Consulting Study Commissioned By IBM

The Importance Of On-Premises Infrastructure For A Future-Ready Hybrid Cloud Strategy



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Executive Summary

On-premises infrastructure is a critical part to any holistic hybrid cloud strategy. It continues to be the home of sensitive, custom applications and data that are integral to the security and health of organizations, even as IT teams increasingly embrace cloud environments. Given the impacts of the global COVID-19 pandemic, firms now face two monumental tasks: 1) quickly adapt to this change in the market and 2) continue the pace of their delivery to offset any potential market or revenue loss. Amid uncertainty and changing business needs, organizations that are able to best leverage a future-ready hybrid cloud infrastructure strategy will be better positioned to capitalize on their agility and resiliency.

In October 2020, IBM commissioned Forrester Consulting to refresh research done in 2019 that evaluates how organizations develop and implement their IT infrastructure strategies — for both cloud and on-premises deployments. For the 2020 research, Forrester conducted an online survey with 384 respondents with enterprise IT decision-makers across industries to explore this topic. In this annual study, we found that organizations are investing in a hybrid cloud strategy. This strategy is defined by a mix of infrastructure platforms, including public cloud, hosted private cloud, internal private cloud, and traditional on-premises deployments, that meet organizations' growing and shifting customer needs. Organizations find on-premises infrastructure foundational to their hybrid cloud strategy as they enter the 2020s.

KEY FINDINGS

- **On-premises infrastructure continues to be key for enterprise strategy.** Our study found that on-premises infrastructure isn't going anywhere as organizations are making strategic decisions about the types of IT infrastructure which are best suited for their ever-changing demands. Firms are planning to increase investments toward on-premises infrastructure, and 85% of IT decision-makers (ITDMs) in our survey agree that on-premises infrastructure is critical to their hybrid cloud strategies.
- **The push to public cloud has not stopped investments in on-premises infrastructure.** Our study found that organizations are mixing and matching infrastructure platforms (for automation, operations, etc.) to suit their specific needs. The majority of IT decision-makers plan to increase funding toward both public cloud and on-premises infrastructure in the next 24 months.
- **Lack of infrastructure reinvestment leaves organizations vulnerable post-pandemic.** Though investment in infrastructure is on the rise, budget and resource constraints have made it so that many organizations are forced to hit pause on needed refreshes. These delays in infrastructure come at a cost: Security vulnerabilities, higher costs to business, and restrictions with compatibility and integration are top repercussions for ITDMs.
- **Firms seek a hybrid cloud strategy for today and tomorrow.** In a post-pandemic world, unlocking the benefits of a flexible, yet secure hybrid cloud environment empowers organizations to meet and exceed both present and future needs. In uncertain times with rising demands and workloads, IT organizations require flexible, open IT, while maintaining secure delivery and high performance. A hybrid cloud strategy can offer firms better control of their sensitive data and where it resides during uncertain times.

On-Premises Infrastructure Continues To Be Key For Enterprise Strategy

Technology needs are changing and it's no surprise. In response to the global pandemic, there has been a verifiable charge toward all things digital and virtual.[1] Forward-thinking IT organizations must not only respond to these shifts in technology needs, but they also must do so while proactively keeping their systems secure and resilient. Our study found that though the public cloud footprint continues to steadily grow, this increased attention toward moving to the cloud only tells part of the story. In a post-pandemic world, where organizations are faced with increasing workload demands and security concerns, we still find that on-premises usage and spending continue to grow. In 2020, when surveying 384 ITDMs, we found that organizations are simultaneously:

› **Increasing infrastructure investment to support faster delivery.** Nearly nine in 10 ITDMs (89%) will accelerate digital investments in their organization. In addition, 88% will be innovating rapidly and aggressively to come out on top, and 82% have more of a need for 24x7 availability as an implication of the pandemic on their industry. When looking at their top priorities, the ability to deliver IT projects more quickly was ranked first (60%) and rose two positions year-over-year, followed by providing for growing demands on existing IT infrastructure (54%) (see Figure 1). We found that while IT organizations do not plan to hold back on investment, they are also committed to taking advantage of their existing investment to meet priorities.

Figure 1

"What are your organization's top IT priorities over the next 12 months?"
(Showing top five priorities, ranked 1 to 5 by respondents)

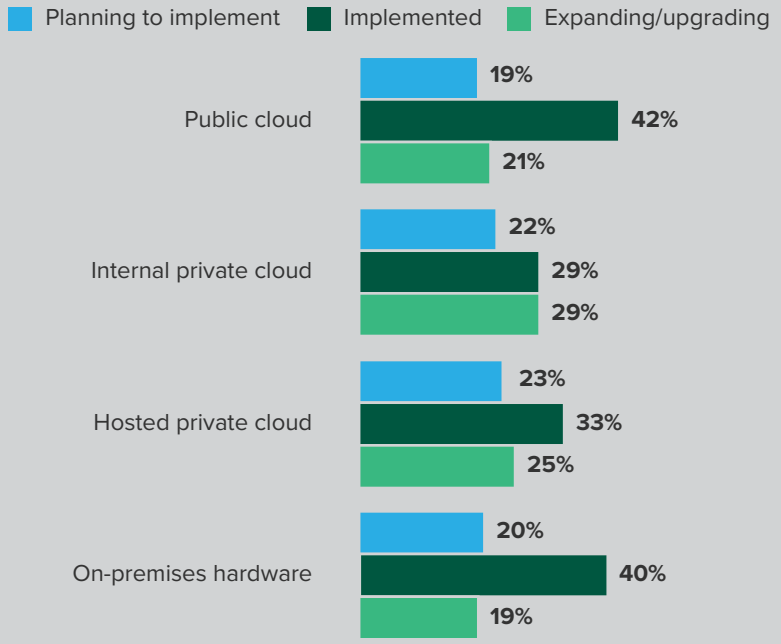
Priority	2020 rank	2019 rank*
Δ2 Deliver IT projects more quickly (60%)	1	3
Provide for growing demands on existing IT infrastructure (54%)	2	1
Align IT performance metrics to business outcomes (47%)	3	2
Better manage external partners and suppliers (42%)	4	4
Drive continuous improvements in business operations (38%)	5	5

Base: 384 global decision-makers for IT infrastructure environments
Source: A commissioned study conducted by Forrester Consulting on behalf of IBM, November 2020
*Base: 350 global decision-makers for IT infrastructure environments
Source: A commissioned study conducted by Forrester Consulting on behalf of IBM, September 2019

- **Growing their cloud footprint steadily.** Sixty-three percent of respondents either have already implemented or they plan to expand their use of public cloud, on par with last year (62%) (see Figure 2). Not only are organizations' cloud footprints growing steadily, but so are their cloud investments. We see that investments in public cloud are steady: 79% plan to increase cloud infrastructure investments in the next two years, which is on par with our data from 2019 (82%).
- **Meeting growing demand with existing infrastructure.** Perhaps due to pandemic impacts (such as competing priorities, shrinking budgets, and resource constraints), many firms feel pressured to continue using their existing infrastructure without any updates or upgrades. In fact, we found that 70% have delayed infrastructure refreshes at least a few times in the last five years or more (61% in 2019) (see Figure 3). While most firms have delayed refreshes, many are still opting to increase their infrastructure investments — including investments in existing infrastructure. In fact, over half of firms (54%) plan to expand or upgrade existing infrastructure in the next 12 months. While organizations are focused on taking advantage of their existing stacks to meet growing demand, doing so while delaying refreshes comes with costly consequences (see the section 'Lack Of Reinvestment Leaves Organizations Vulnerable, Post-Pandemic,' for more information).

Figure 2

"What best describes your organization's plans to adopt the following in the next 12 months?"



Base: 384 global decision-makers for IT infrastructure environments
Source: A commissioned study conducted by Forrester Consulting on behalf of IBM, November 2020

62% of ITDMs have already implemented or they plan to expand their use of public cloud.

ITDMs plan to implement or expand implementation of internal private cloud (51%) and hosted private cloud (48%).

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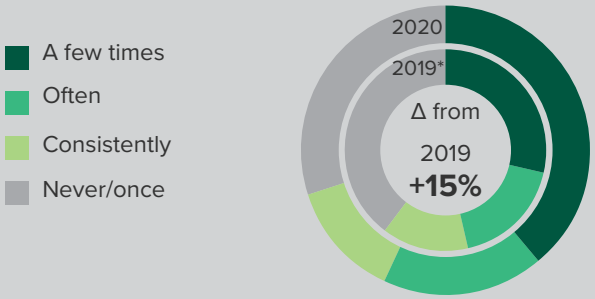
› **Increasing non-cloud infrastructure investments.** Despite these refresh delays, most firms are maintaining a steady increase in on-premises infrastructure. Three in four (75%) ITDMs plan to increase their infrastructure investment in the next two years. Most ITDMs have either already implemented new infrastructure, or they plan to update existing infrastructure or purchase new infrastructure in the next 12 months. Over six in 10 ITDMs are either currently implementing or they plan to invest in updating existing infrastructure (61%). In addition, most surveyed ITDMs are also updating management practices (63%) and/or purchasing new infrastructure technologies (59%) (see Figure 3).

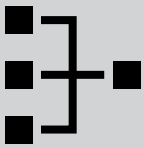
Figure 3

Firms are dealing with delayed infrastructure refreshes and growing demands on existing infrastructure ...

"How often has your organization delayed a refresh of infrastructure in the last five years?"*



70% have delayed a refresh a few times or more.



54% will prioritize providing for growing demands on existing infrastructure in the next year.

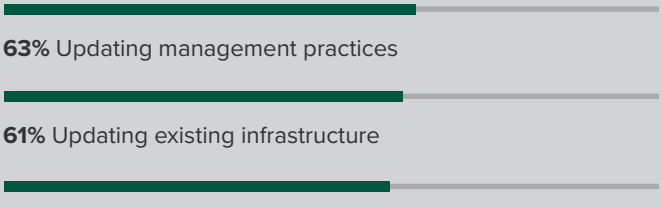
... yet they are increasing spend and continue investing in infrastructure outside of public cloud.

"To what extent do you expect infrastructure funding (not including public cloud) to change in the next two years?"

- **12% - Increase more than 20%**
- **27% - Increase 11% to 20%**
- **27% - Increase 6% to 10%**
- **19% - Increase 1% to 5%**
- 6% - Remain flat
- 9% - Decrease

75% increasing investments

"What are your organization's plans to invest in the following?"



Base: 384 global decision-makers for IT infrastructure environments
Source: A commissioned study conducted by Forrester Consulting on behalf of IBM, November 2020
*Base: 345 global decision makers for IT infrastructure environments
*Source: A commissioned study conducted by Forrester Consulting on behalf of IBM, September 2019
Note: Percentages do not total 100 because of rounding.

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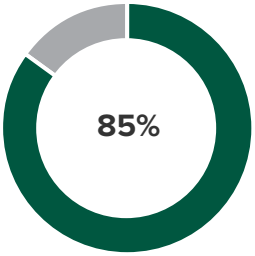
Lack Of Reinvestment Leaves Organizations Vulnerable, Post-Pandemic

With increasing demand and changing workloads expected in a post-pandemic world, 84% of ITDMs anticipate greater data-sensitive workloads (e.g., AI, machine learning). The survey respondents report that they rely on on-premises infrastructure to ensure security and prioritize compliance adherence (85%) (see Figure 4). However, while firms continue to prioritize security and compliance in their investments, many still delay infrastructure refreshes to their detriment. Though many budgets were likely slashed and unexpectedly shifted in this past year, our survey finds that it comes at a cost. Firms that don't take a holistic view of their infrastructure strategy leave themselves vulnerable to (see Figure 5):

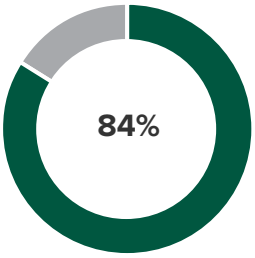
- **Security vulnerabilities.** When organizations prioritize other IT initiatives over infrastructure refreshes, they leave themselves exposed to security risks. Our survey findings reveal that 50% of ITDMs found security vulnerabilities following a delayed refresh. In 2020, security vulnerabilities have maintained their place as the highest ranked repercussion, and compared to our data from 2019, that number has increased (50% vs. 44%, respectively).
- **Higher costs.** Interestingly, the survey found that delaying infrastructure refreshes also led to higher costs for the business. Nearly four in 10 (38%) surveyed ITDMs found higher costs as a result of not keeping up with on-premises updates and upgrades. And 44% found higher costs to be a repercussion they faced following a refresh delay. Higher costs went from the seventh ranked repercussion in 2019 to being the second-highest ranked in just one year.
- **Compatibility restrictions.** Similar to 2019, compatibility and integration restrictions continue to land on top of the list of negative repercussions following refresh delays. Thirty-nine percent of surveyed ITDMs ranked restrictions for compatible apps, software, services, and integration as a repercussion of not keeping up with infrastructure refreshes, tied for third overall.
- **Diminished performance.** Among all ITDMs, diminished performance following a refresh delay (36%) is tied for third, and it is on par with 2019's data (38%). In fact, throughout this study we found an increased value on performance, i.e., meeting infrastructure service levels like availability, uptime, and response time, when it comes to making infrastructure strategy decisions. This was especially true among non-executive ITDMs.[2]

Figure 4

Firms Anticipate Greater Focus On Security And Compliance



Agree/strongly agree that they will increasingly prioritize adherence to compliance and regulations in our investment decision.



Agree/strongly agree they will see an increase in data-sensitive workloads and applications.

Base: 384 global decision-makers for IT infrastructure environments
Source: A commissioned study conducted by Forrester Consulting on behalf of IBM, November 2020

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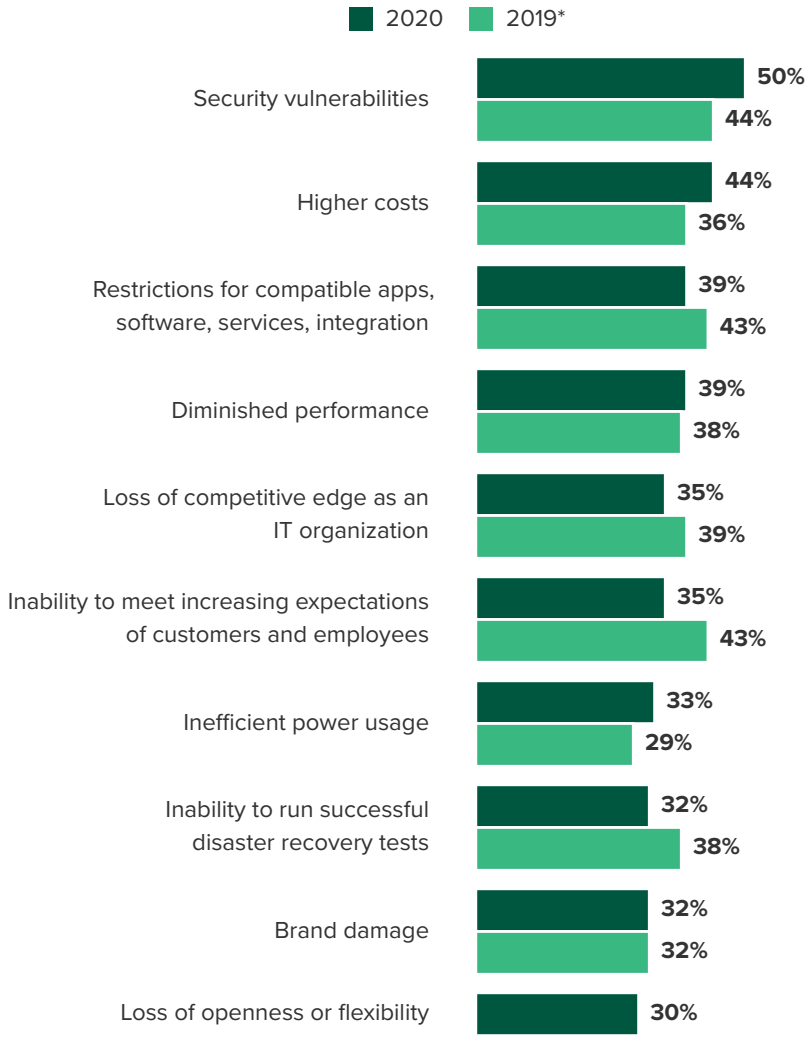
Figure 5

"What repercussions has your organization faced after a delay in infrastructure refresh?"
(Showing top 10 reasons, ranked 1 to 5 by respondents)



Base: 320 global decision-makers for strategy and execution of IT infrastructure environments who have delayed a refresh of on-premises/non-cloud or private cloud infrastructure in the last five years
Source: A commissioned study conducted by Forrester Consulting on behalf of IBM, November 2020
*Base: 280 global decision-makers for IT infrastructure environments who have delayed a refresh a refresh of on-premises/non-cloud or private cloud infrastructure in the last five years
*Source: A commissioned study conducted by Forrester Consulting on behalf of IBM, September 2019

A Hybrid Cloud Strategy For Today And Tomorrow: With Open Source Powering Flexibility While Enhancing Security And Resiliency

Organizations leverage both cloud and on-premises infrastructure to meet their unique needs during uncertain times. ITDMs resoundingly agree that on-premises infrastructure is a critical part of their hybrid cloud strategy, and they believe that a hybrid cloud strategy is best suited for their organization (see Figure 6). Our survey revealed a few key benefits that on-premises infrastructure, which combined with a holistic hybrid cloud, can deliver (see Figure 7):

- **Openness leads to flexibility, efficiency, and scalability.** On-premises infrastructure is key to a holistic strategy, and a hybrid cloud environment delivers on the openness and flexibility that is needed for today and tomorrow. This marriage of open source and hybrid cloud technologies unlocks valuable benefits. Open source is the key to a more flexible hybrid cloud strategy (89%). And 83% of ITDMs agree that a hybrid cloud IT infrastructure leverages open source for greater efficiency and scalability in the future. Nine in 10 surveyed ITDMs (89%) believe that a hybrid cloud environment is able to easily and securely store and move data and workloads.
- **Greater performance/resiliency.** Firms leverage on-premises infrastructure for greater performance and productivity across data-sensitive and mission-critical application deployments. Faster productivity, improved application and infrastructure performance, accelerated workload performance, and greater assurance of compliance are the top ranked reasons why organizations leverage on-premises resources. We see a shift from 2019, where greater assurance for compliance was ranked first. This is not surprising. Compliance and adherence to requirements are still priorities. However, given the pandemic's impacts on the future of work, firms are hyper-focused on short- and long-term productivity and performance gains from using on-premises infrastructure for select workloads.
- **Solutions for data residency and security challenges.** And finally, many organizations also rely on on-premises infrastructure because it addresses concerns that the public cloud does not on its own. According to respondents, the failure to meet security needs is the top reason for maintaining infrastructure outside of a public cloud platform. Data residency (56%) is the top ranked reason why organizations maintain infrastructure outside of the public cloud, far outpacing the previous year's data (39%). Along with data residency, security is a top concern for organizations. The survey found that 46% of ITDMs believe the public cloud does not meet its security needs, and this is up from the 2019 data (40%). Among all ITDMs, security is the single most important consideration when making an infrastructure purchase decision (75%). Ensuring that security is non-negotiable for organizations underpins how on-premises infrastructure is foundational to a hybrid-cloud strategy.

Figure 6

85% agree that on-premises infrastructure is a critical part of their firms' hybrid cloud strategies.

Base: 384 global decision-makers for IT infrastructure environments
Source: A commissioned study conducted by Forrester Consulting on behalf of IBM, November 2020

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Organizations mix and match their technology platforms to best meet their business needs, keeping on-premises infrastructure to maintain security and to meet other requirements. As organizations continue to diversify their infrastructure platform investments, including an increased public cloud footprint, continued investment in on-premises infrastructure will remain critical to ensuring appropriate security and performance requirements.

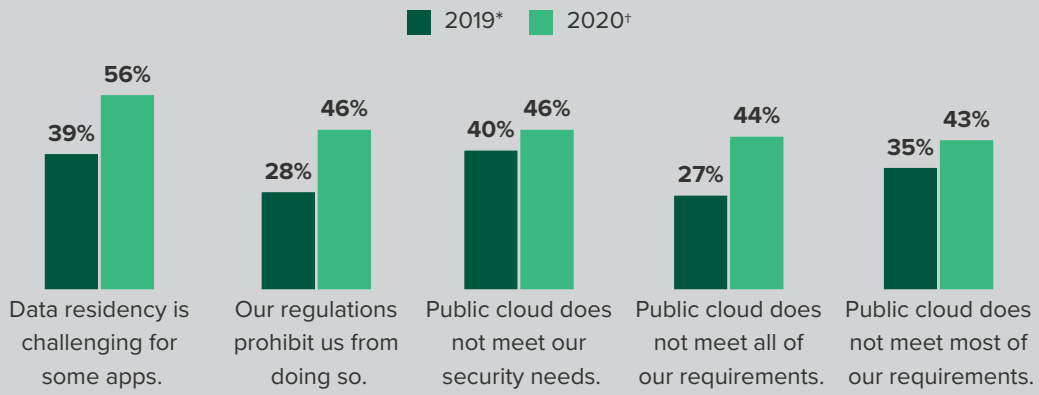
Figure 7

Hybrid-Cloud Environments Deliver On Openness And Flexibility (Showing agree/strongly agree)

89% Open source allows for a more open and flexible hybrid cloud strategy.

83% A hybrid cloud IT infrastructure leverages open source for greater efficiency and scalability in the future.

"Which of the following reflects why your organization maintains infrastructure outside of a public cloud platform?" (Showing top three, ranked 1 to 5 by respondents)†



Firms Leverage On-Premises Infrastructure For Greater Performance And Productivity Across Workload Types.‡

Base: 384 global decision-makers for strategy and execution of IT infrastructure environments
Source: A commissioned study conducted by Forrester Consulting on behalf of IBM, November 2020
*Base: 350 global decision makers for IT infrastructure environments
Source: A commissioned study conducted by Forrester Consulting on behalf of IBM, September 2019
†Base: 294 global decision-makers using or expanding hosted private cloud or internal private cloud
Source: A commissioned study conducted by Forrester Consulting on behalf of IBM, November 2020
‡Base: 303 global IT decision makers currently using internal private cloud environments
Source: A commissioned study conducted by Forrester Consulting on behalf of IBM, November 2020

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Key Recommendations

Take a new look at your infrastructure strategy, in the context of what our surveyed ITDMs are saying. For most firms, traditional on-premises infrastructure is a critical part of their hybrid cloud strategy, addressing security and other requirements in a manner not met by public and private cloud. Forrester's in-depth survey of 384 enterprise IT decision-makers about their hybrid cloud infrastructure strategies yielded several important recommendations:

Make yours a hybrid cloud infrastructure strategy. Each aspect of a hybrid cloud strategy is already in use by about three-fifths of the firms we surveyed. These firms have already implemented or are expanding/upgrading their implementations of the four aspects of public cloud, internal private cloud, hosted private cloud, and/or on-premises hardware.

Keep on-premises as part of the strategy for the foreseeable future. On-premises infrastructure should remain an active part of your hybrid cloud strategy. This continuation of commitment to traditional compute doesn't represent a failure to move forward. To the contrary, 85% of surveyed firms list on-premises as a critical part of their hybrid cloud strategy, recognizing that the modern, cloud-based infrastructure has yet to accommodate all workloads and performance environments. Look to on-premises to address specific needs around data residency, regulatory requirements, security, and specific infrastructure performance requirements.

Manage the mix of public cloud, private cloud, and on-premises as a whole. There are many good reasons for each of the different infrastructure aspects of a hybrid cloud strategy — so manage your infrastructure needs as a portfolio of options, not a single compute environment. It would be an unusual company that meets all of their workload and performance needs through a single infrastructure architecture — so don't try to force your firm into that rare state.

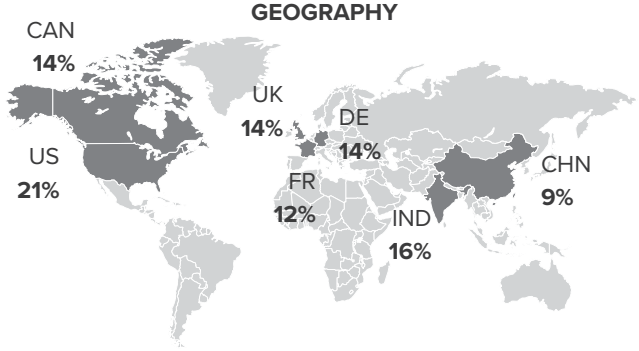
Keep up with on-premises infrastructure refreshes. Too many firms assume that moving everything to the cloud is the best strategy — making ongoing refreshes of on-premises infrastructure is something to be avoided. To the contrary, 83% of our survey respondents report delaying on-premises/non-cloud or private cloud infrastructure upgrades in the past five years with significant negative repercussions. These negative impacts include security vulnerabilities, higher costs, restrictions for compatible apps, and diminished performance.

Appendix A: Methodology

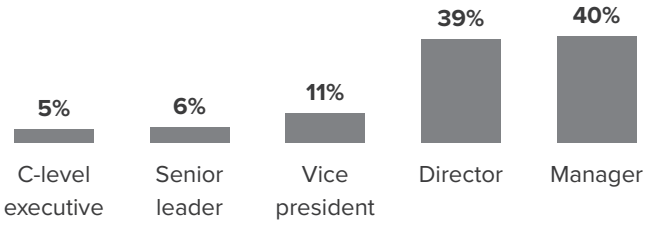
In this study, Forrester conducted an online survey of 384 global decision-makers for IT infrastructure environments to evaluate how organizations develop and implement their infrastructure strategies. Survey participants included IT decision-makers in infrastructure and operations, application management or maintenance, and/or software development. Questions provided to the participants asked about environments used for different workloads and infrastructure investments. Respondents were offered a small incentive as a thank you for time spent on the survey. The study began in October 2020 and was completed in November 2020.

Appendix B: Demographics/Data

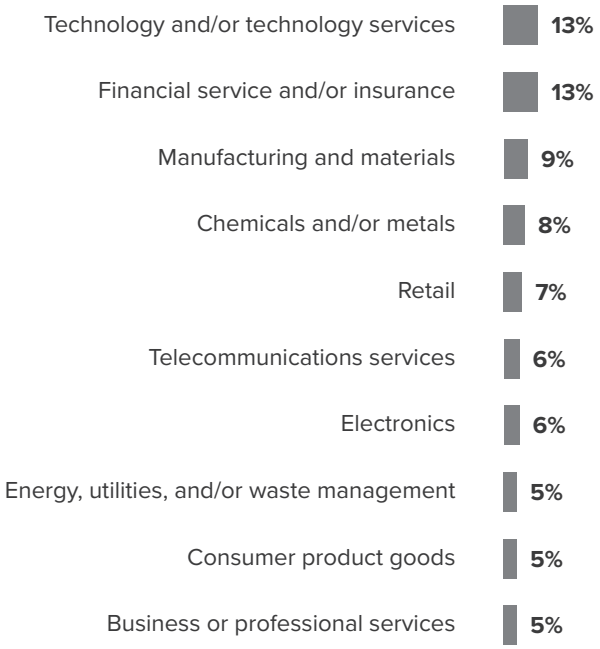
GEOGRAPHY



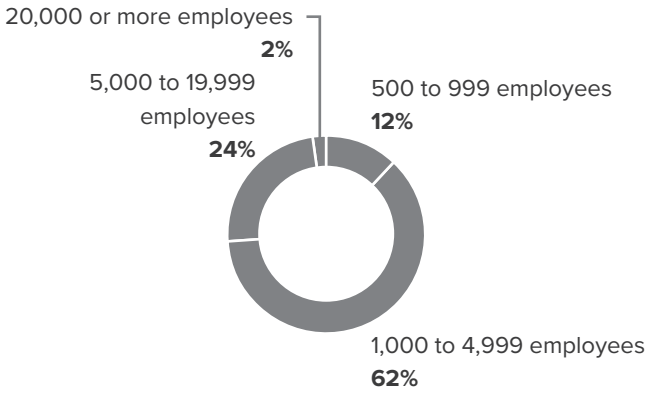
RESPONDENT LEVEL



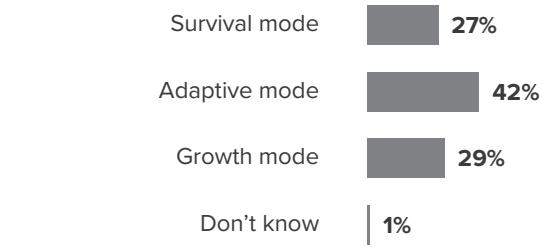
INDUSTRY (TOP 10 SHOWN)



COMPANY SIZE



ORGANIZATIONAL IMPACT OF CURRENT GLOBAL PANDEMIC



Base: 384 global decision-makers for IT infrastructure environments
Note: Percentages may not total 100 because of rounding.
Source: A commissioned study conducted by Forrester Consulting on behalf of IBM, November 2020

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Appendix C: Supplemental Material

RELATED FORRESTER RESEARCH

"Where To Adjust Tech Budgets In The Pandemic Recession," Forrester Research, Inc., May 19, 2020.

"Your Definition Of Future Work Should Shape Your Operating Structure," Forrester Research, Inc., June 4, 2020.

"Your Future Fit Technology Strategy: Adaptive, Creative, and Resilient," Forrester Research, Inc., October 14, 2020.

Appendix D: Endnotes

[1] Source: "Your Future Fit Technology Strategy: Adaptive, Creative, and Resilient," Forrester Research, Inc., October 14, 2020.

[2] Executive ITDMs refer to those who have self-reported as C-level executives, senior executives/line-of-business leaders, and vice presidents. Non-executive ITDMs refer to those with director and manager positions.