White Paper

Migrate and Modernize Cloud Applications Securely and Efficiently

Gaining Operational and Business Efficiencies

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Contents

Cloud Momentum Continues to Grow

As businesses prioritize their cloud strategies, interest in, as well as adoption of public cloud continues to grow. Increasing numbers of organizations modernizing applications are looking to the cloud to improve operational and business efficiencies, enhance security, and provide greater agility and flexibility. It's no surprise that businesses are looking to reduce the time, expense, and resources spent on routine maintenance and updates in a traditional, three-tier infrastructure—allowing IT staff to focus on value-added business outcomes.

In fact, recent ESG research shows a significant increase in public cloud infrastructure adoption over the last 24 months, with more than half (58%) of IT professionals indicating their organizations are currently using or have plans to use public cloud infrastructure. Two years ago, only 42% of organizations said they were using or had planned to use a public cloud infrastructure (see Figure 1).[1]

Figure 1. Substantial Rise in Public Cloud Infrastructure Adoption

Please indicate your organization's usage of or plans for infrastructure-as-a-service (IaaS).
(Percent of respondents)

2011	2012	2013	2014	2015	2016	2017	2018	2019
17%	27%	21%	33%	41%	38%	42%	51%	58%
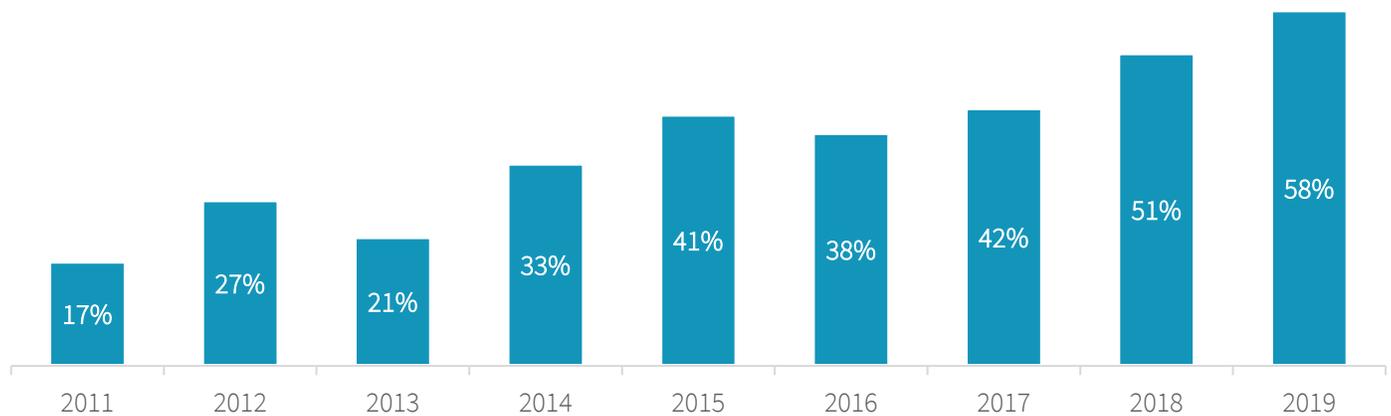
## The Challenges of Adopting Public Cloud Infrastructure

Regardless of a substantial rise in public cloud adoption, organizations are still challenged with business and technical difficulties when it comes to adopting public cloud infrastructure—from preparing and moving applications, to building viable business cases. According to ESG research, when asked what the most difficult aspect of adopting public cloud services for their organizations is, nearly one-third (31%) of IT professionals answered preparing for application migration and building a business case, while 29% answered redesigning and moving applications to the public cloud, and 20% answered retraining people and adopting new tools and processes (see Figure 2).[2]

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[1] Source: ESG Master Survey Results, *2019 Technology Spending Intentions Survey,* March 2019.
[2] Source: ESG Master Survey Results, *Hybrid Cloud Trends*, May 2019. All other ESG research references and charts in this white paper have been taken from this master survey results set, unless otherwise noted.

Figure 2. Obstacles to Adopting Public Cloud Services

Which of the following is the most difficult aspect of adopting public cloud services for your organization? (Percent of respondents, N=309)

Other, 1%

Don't know, 2%

Application discovery and migration planning, 17%

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%
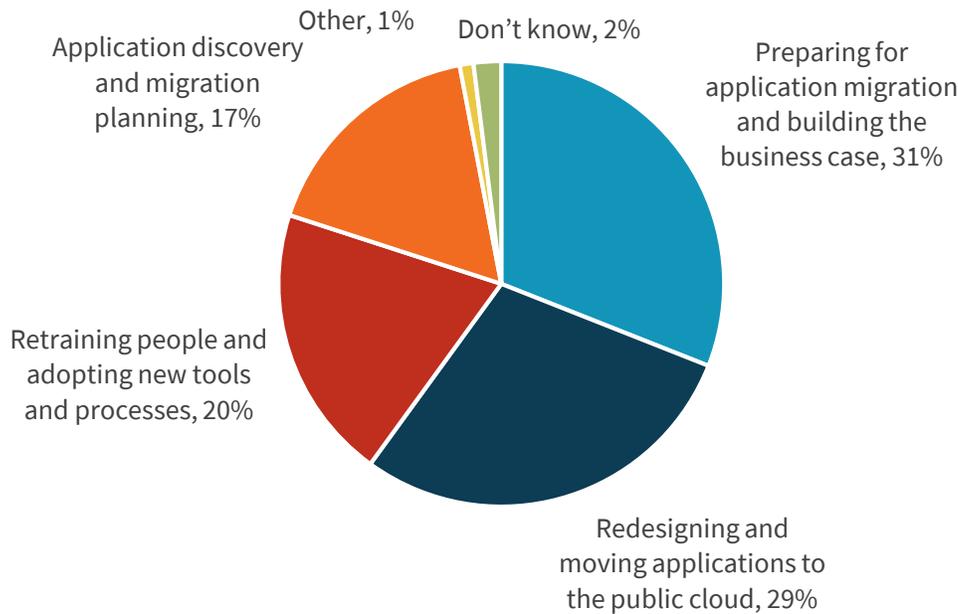
Source: Enterprise Strategy Group

Lack of Cloud and DevOps Expertise Can Hinder Progress

Looking at traditional client-server or web-based applications in years past, the capability to speed application development and release code updates on a daily or weekly basis was not common. Today, for businesses to succeed, they must be able to innovate by developing and iterating cloud-native applications faster and more efficiently than the competition.

Still, agile and scalable DevOps environments for cloud-native applications (where IT innovation can grow and thrive) can be a source of anxiety for many IT organizations. Many enterprises may not have the skills, expertise, or resources necessary to build, maintain, and operate a DevOps cloud, which results in slow and expensive cloud building projects, causing delays in the application development pipeline for weeks or even months.

What's more, the need for speed can promote a "shadow-IT" approach where developers often use DevOps tools hosted in a public cloud infrastructure (i.e., developers can instantly download and spin up with little regard for security, consistency, compliance, auditability, etc.). Moreover, developers may take advantage of their situation and use the public cloud to create their own environments, focusing on their own needs and not the requirements of the business. As experienced by a number of organizations, shadow IT can result in a lack of control, negligible security of applications in the public cloud, significant costs at scale, and SLA violations, while also emphasizing the shortage of enterprise IT resources and services.

Make no mistake, the risk is real. For example, there have been publicly reported issues concerning certain open source software development kits (SDKs) that have inadvertently stored confidential data without consent or have transmitted proprietary data to third-party vendors without permission.

Successful Cloud Adoption Starts with Aligning Cloud and Business Strategies

While a variety of obstacles may be impeding an organization's journey to the cloud, one of the keys to successful cloud adoption is the ability to align cloud strategies with business strategies. Groups responsible for determining an organization's technology choices wield power that will inevitably have far-reaching effects. Consequently, those groups must carefully consider how their decisions can best support the wide-ranging goals of the business.

When ESG research respondents were asked what is the most important objective of their organization's hybrid cloud strategy, 22% of IT professionals cited running applications and services on-premises, at the same time providing end-users with the same ability to provision IT resources they can acquire from a public cloud provider, while 16% said leveraging IT resources to speed product innovation and time to market, and 13% said retraining IT staff to focus less on infrastructure management and more on areas such as application development. Furthermore, 12% cited proactively offering technology suggestions to lines of business rather than reacting to requests/requirements, and 11% cited automating manual processes and tasks as the most important objective of their organization's hybrid cloud strategy (see Figure 3).

Figure 3. Top Hybrid Cloud Objectives that Align with Business Strategies

What is the most important objective of your organization's hybrid cloud strategy?
(Percent of respondents, N=358)
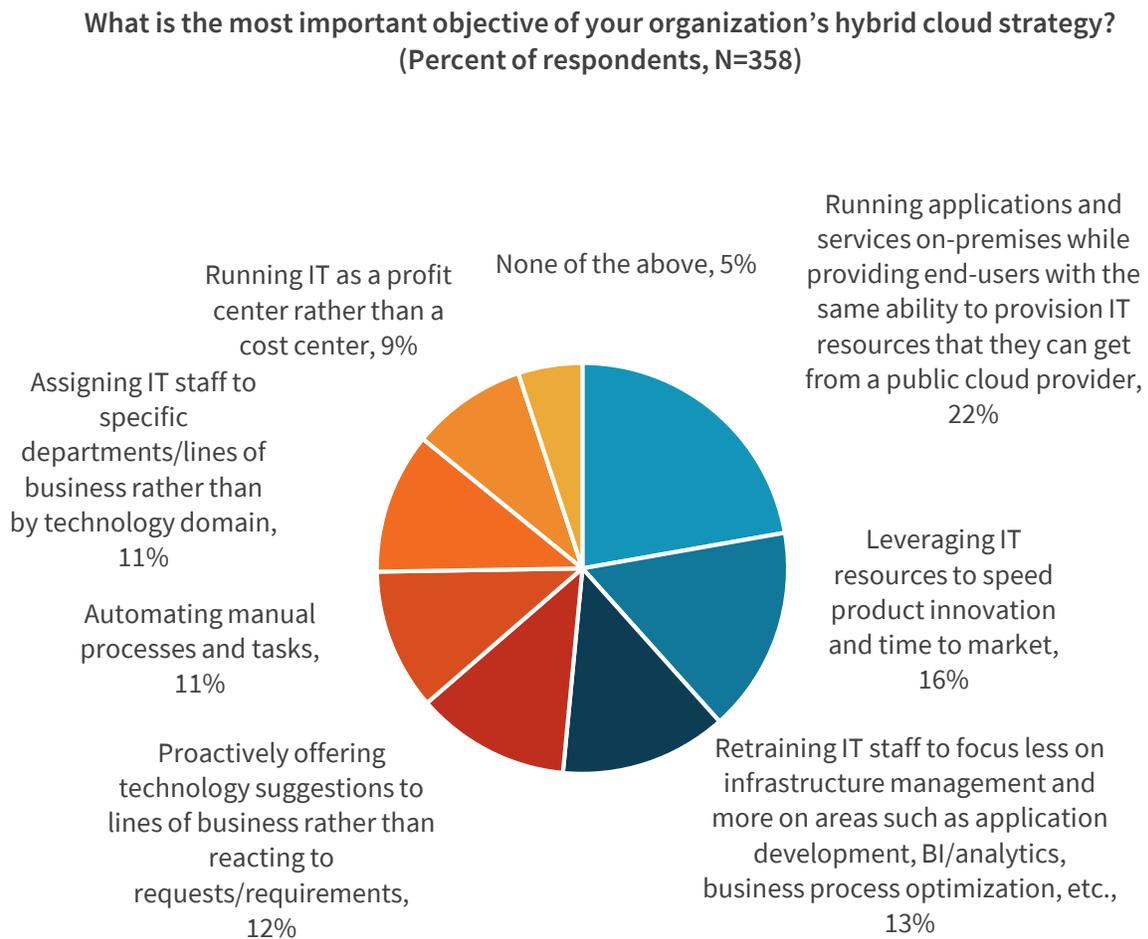
Source: Enterprise Strategy Group

Organizations Continue to Implement a Hybrid Cloud Strategy

Today, growing numbers of organizations continue to implement hybrid cloud strategies because they still value their on-premises investments in infrastructure. Given that a hybrid approach involves many moving parts, companies must focus on managing both technical and business aspects.

From a technical viewpoint, IT must be familiar with their complex technology portfolio to successfully migrate to the cloud, and understand how to create a viable governance structure—all while ensuring that security is not compromised. Designing a hybrid cloud strategy also requires a thorough understanding of an organization's business goals and processes. This awareness aids in identifying how to effectively use a hybrid cloud model to optimize IT assets, while also swiftly responding to the rapidly changing needs of the business.

Potential Obstacles to Using a Multicloud Approach

While many organizations have started down the path to the cloud, they are at various stages in their journeys but are aware that a multicloud approach (i.e., using services from a variety of public cloud providers) can be an efficient way to configure an IT infrastructure—sustaining performance and data integrity, and managing costs in both regional and global deployments.

While a multicloud approach can offer numerous benefits, it can also present significant challenges such as a lack of visibility and control over applications and other cloud resources. What's more, data locked in a public cloud, as well as organizations being constrained by vendor lock-in to proprietary cloud technologies, can contribute significant difficulties. Additionally, complications can occur when dealing with the regulatory landscape, as well as other complex issues that may arise when running production applications in a public cloud.

Cloud Offerings Built for a Multicloud Environment

Businesses that began their cloud journeys several years ago are now are looking at different business objectives and challenges. Today, those organizations can take advantage of new technology offerings to streamline their infrastructures, choosing from a number of vendors in the public cloud space—each offering distinctive advantages (and disadvantages) depending on an organization's location, data usage, and deployment requirements.

There are also viable options for a comprehensive pre-engineered hybrid DevOps cloud stack. These solutions include infrastructure, DevOps, and data services for cloud-native application development—enabling organizations to control security, compliance, and data sovereignty (including fully managed offerings for on-premises and public cloud options). Deployments may now be completed in as few as 90 days. Vendor lock-in is no longer a challenge as many services are elastic, do not require upfront investment, and offer predictable rate-card pricing with no hidden costs.

A Cloud-agnostic Approach to a Multicloud Environment

While organizations across the board have made investments in their own IT infrastructures, many are considering attractive offerings from multiple public cloud vendors—now understanding the value of integrating with public cloud services. Though a number of these organizations are looking to migrate their applications to the cloud via "lift and shift," they still must maintain sovereignty over their data and infrastructure.

By using external cloud tools and services to automate the process of building, managing, and provisioning, teams are able to accelerate the development process, mitigate human error, and establish repeatability. Additionally, a pre-engineered and integrated DevOps infrastructure for cloud-native application development combines DevOps tools and data services, which enables the delivery of quick and secure updates using consistent tools and processes.

A preconfigured solution can offer organizations the ability to replace multiple, inconsistent DevOps environments with a single, centralized cloud—while leveraging open source components to help eliminate public cloud vendor lock-in. Combining preconfigured solutions, automation, and consistent operations can release DevOps and IT from having to perform time-consuming, and repetitive tasks (e.g., bug fixes, configuration changes, log management, error processing, etc.), allowing them to focus on more value-added business initiatives.

Audit Your Cloud Infrastructure to Focus on Business Impact

To help ensure companies are efficiently (and securely) using their cloud resources, many organizations perform audits of their cloud resources. As they begin their audits, groups tasked with the efficiency of an organization's cloud infrastructure should be asking these key questions. The answers could have a significant impact on how an organization's current cloud configuration is serving the needs of the business.

- How are our cloud resources being used to deliver business value?

- Which application-support environments, data services, and tools will we need?

- Can some or most of our processes related to the bottom line be automated?

- In what way will we need to change or modify our applications, so they are able to run in the cloud?

- What service level outcomes will complement the needs of the business?

Ensure a Comprehensive Public Cloud Security Strategy

Security matters. As organizations look to the public cloud (e.g., building cloud-native applications to run in the public cloud, migrating and refactoring applications for the cloud, etc.), security should be top of mind. As long as organizations subscribe to a comprehensive strategy for storing data in the cloud, they should not see security as an obstacle to moving applications to the public cloud. In fact, some early adopters find the approaches and mechanisms available to developers and administrators in the public cloud are better than many of the tools and methods used on-premises.

Leveraging Hitachi Vantara Cloud Services

Hitachi Vantara cloud services can help IT operations and developers drive new business outcomes. Their portfolio of managed services assist organizations with all aspects of cloud infrastructure—public cloud migration, application modernization, operations, services, and advisory expertise—enabling organizations to drive digital transformation across hybrid and multicloud infrastructures.

Hitachi Vantara cloud services are cloud-agnostic, which means data, applications, and workloads are always run where it makes the most sense, and are easy to change. This future-proof and cost-effective approach allows applications (and the data they generate and consume) to easily migrate across cloud platforms without expending additional resources.

The Bigger Truth

Businesses want the ability to accelerate cloud adoption with confidence so they may take advantage of innovation, various cloud services, and the potential for an improved economic operating model. Cloud computing helps drive IT transformation—and using advanced tools and automation can assist companies in further streamlining and embedding DevOps processes for greater efficiencies that are truly transformative.

To accomplish these goals, the right cloud advisor can help organizations find viable ways to avoid the pains of lift and shift, which can consume an enormous amount of time and valuable resources. The right cloud advisor can assist organizations in codifying and automating new processes, and streamline existing ones—reducing time to market and providing a competitive edge. Hitachi Vantara cloud services offer organizations the proper tools and proven expertise to help mitigate risk, and enable them to successfully migrate and modernize to achieve the benefits of cloud, while driving favorable business outcomes.

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

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