A Successful Digital Transformation Requires Matching Workloads with the Right Platform

AS CLOUD ADOPTION MATURES, IS IT TIME TO REVISIT AND REFRESH CLOUD STRATEGIES?

The value of the cloud is clear to everyone, but strategies for using it are still very young. And although organizations are largely satisfied with their current cloud strategy, a significant percentage of organizations—especially very large ones—are conducting a major overhaul to meet future challenges, reduce costs, and drive innovation.

When Amazon Web Services (AWS) redefined the public cloud space, in 2006, few recognized just how dramatically this new platform would transform enterprise IT. Today every large enterprise has some kind of cloud strategy, and many are placing mission-critical workloads in the cloud. But although nearly all companies say that their cloud strategies have met their expectations—with 61% reporting that they have exceeded expectations—most cloud strategies are very young, according to a recent IDG survey of IT decision-makers. Just over three-quarters of all organizations have a cloud strategy that's no more than five years old, and one-third have cloud strategies that are two years old or less.

But although enterprises are clearly seeing value from the cloud, they're also starting to recognize that they will soon need a new strategy if they are to continue driving innovation and lowering costs. Just over three-quarters (77%) of enterprises are either in the process of undergoing or planning to undergo an expansion of their current cloud strategy. An additional 11% are overhauling their cloud strategy, and 11% have either just completed an implementation of or plan to implement a completely new strategy. What's more, larger companies with more than 20,000 employees are far more likely to be changing their strategy than are smaller ones.
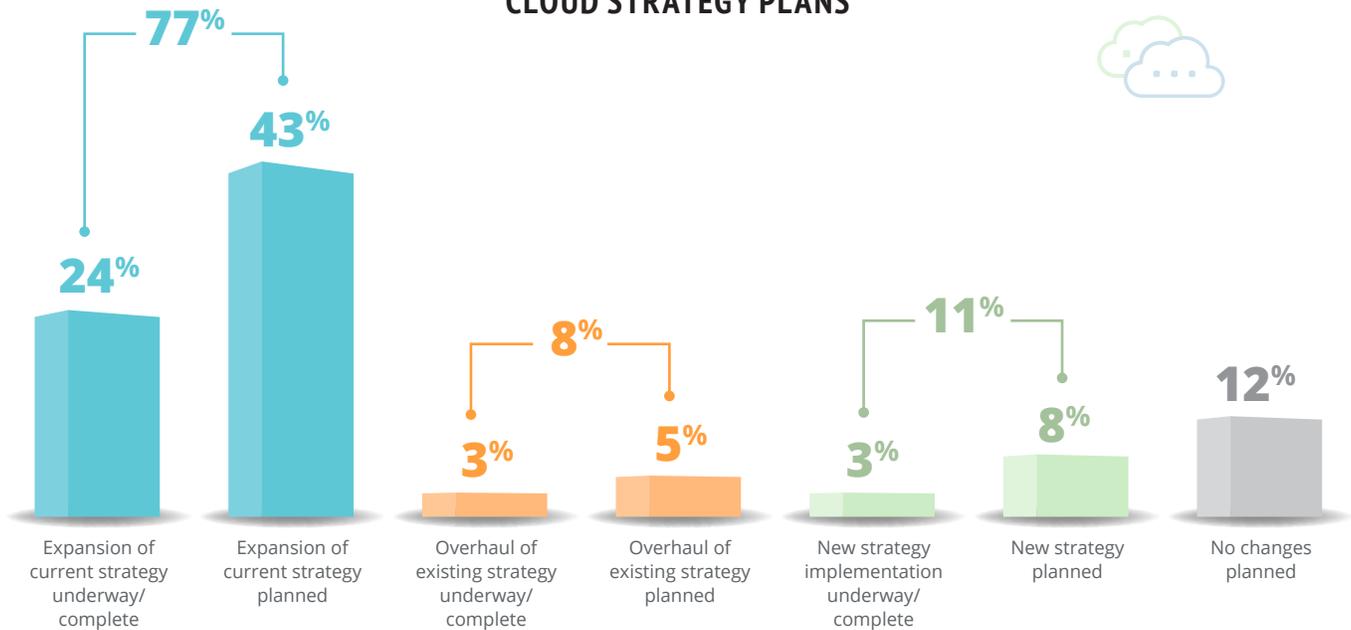
This shift indicates that larger companies are starting to move into the second phase of their cloud strategy, iterating on and advancing it based on what they have learned since

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CUTTING EDGE TECHNOLOGIES

IDG

Fig. 1

CLOUD STRATEGY PLANS

77%

43%

24%

8%

3%

5%

11%

3%

8%

12%

| Expansion of current strategy underway/ complete | Expansion of current strategy planned | Overhaul of existing strategy underway/ complete | Overhaul of existing strategy planned | New strategy implementation underway/ complete | New strategy planned | No changes planned |

implementing their initial plans. And perhaps the biggest lesson they've taken away is that a single-cloud strategy is unlikely to deliver the desired outcome, because no single platform is appropriate for every potential workload. There's clearly room for enterprises to grow here, as just 30% of companies are using public, private, and hybrid cloud as a part of their overall IT strategy.

None of these three technologies is intrinsically more complex than the other or more difficult to manage. Each has its advantages and disadvantages. The key is to understand them so you can determine which will best suit any given workload.

Strengths and weaknesses of public, private, and hybrid cloud

Private, hybrid, and public cloud strategies are closely matched in adoption, with 73%, 68%, and 67% adoption, respectively. Private cloud provides the enterprise with the ability to customize the platform to meet its own unique needs, whether it be a specific operating system, more-stringent security measures, or tighter control of failure domains and fault isolation for sophisticated deployments. Additionally, because all variables are under their control, organizations can deploy advanced technologies that aren't yet available on public platforms to improve performance or provide next-

generation capabilities to gain a competitive advantage.

These strengths are important, but private cloud's biggest advantage, by far, is performance and cost effectiveness for well-known workloads, says CE Tech Director of Technology Jeff Thompson. Whether your concern is network latency and bandwidth between hops, CPU oversubscription, thread speeds, storage protocols, or memory, private cloud enables IT to control every variable to ensure success for performance-sensitive applications.

All that control and speed, however, comes with a price tag. Up-front capital expenses are often a deterrent to appropriate investment, and nonlinear price curves to consumption demand create peaks and valleys of cost and resource availability. And as your IT needs grow, you'll need to make additional investments to expand and scale, so careful resource management is crucial to effective private cloud operation. Private clouds, however, will reward those who invest in them, with predictable costs that are often lower than they would be with public cloud for steady-state workloads over the long term.

Going public

Public cloud, of course, requires no capital expense and provides complete flexibility to scale up and down as required. And, Thompson points out, because today's clouds

are application-centric platform services, the only thing a customer needs to bring to them is business logic—the rest of the stack is maintained by the service provider. If you're trying out new technologies and approaches, public cloud is an ideal testing ground, because once you're done with your test, you can discard them without a significant capital investment or a heavy lift to configure and provision hardware resources. Public cloud is extremely agile, so it's also an excellent choice when you need to get workloads up fast and time to market is paramount.

If your organization operates IT on a chargeback model, you'll find that it's much simpler to implement this for public cloud than for private cloud, Thompson says, because, in

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public cloud, you have just a monthly consumption fee. With private cloud, you have to account for fixed capital and operating costs that work on different purchase schedules, sizes, and scopes, which makes the chargeback process complex to determine and manage without the right system in place, up to and including financial operating models. In addition, public cloud providers are rolling out advanced services at a rapid clip, and pricing is becoming more competitive with private cloud when all costs are accounted for.

Public cloud also makes it simple to reach global audiences at the click of a button. It's easily accessible from virtually anywhere, which makes it an excellent platform for distributed workloads or consumer bases. Without public cloud, IT would need to architect and deploy complex networks and content distribution systems to support global access from centralized data centers.

But public cloud does have significant disadvantages: latency and inconsistency. Hyperscalers are typically focused on geographically central locations and managing platform efficiency at scale, meaning that hosting your

workloads in a public cloud may often be farther from your consumers than ideal or workloads may not have the guaranteed quality of service they demand for network or storage I/O. Building and hosting locally can address latency constraints between and within core service components where milliseconds—let alone microseconds—matter.

Hybrid options

Hybrid cloud aims to provide the best of both worlds by creating an operating model that complements varied workload requirements. But hybrid cloud deployments are often tailored to very specific workloads, and the additional capital costs that are often involved can negate some of the cost savings that public cloud provides. Additionally, because hybrid cloud involves on-premises hardware, depending on how it's architected, it may limit IT's ability to scale quickly when necessary.

Whatever your mix of workloads, matching the right workload with the right platform can increase the pace of innovation and, ultimately, lower costs. So, as you update your cloud strategy, you need to ensure that it can provide the following:

Agility: A flexible platform can serve a rapidly changing set of needs and services within seconds to days, not weeks to months.

Connectivity: An effective hybrid cloud platform must have a strong networking foundation to allow for true workload portability and cross-platform connectivity.

Scalability: IT can scale up or down without substantial cost or operability impacts.

Efficiency: Allowing the right workload to be mapped to the right platform ensures that you're always operating at peak efficiency, whether that be serverless computing, Kubernetes, or satisfying bespoke requirements for legacy monolithic applications in a cost-effective manner. To illustrate, let's take a look at two workloads and discuss the considerations you'll need to keep in mind as you determine which platform is best for each.

Big data

Given the cloud's essentially infinite capacity and ubiquitous access, you might think that a public cloud is an ideal place to store and analyze big data. And, depending on your needs, it can be. All of the large public clouds offer a wide array of

Fig. 2

DEVISING CLOUD STRATEGIES

33%
Created cloud strategy first, then selected business goals to focus on

60%
Defined business objectives first, then mapped cloud solutions and providers against requirements

6%
Mandated by executive or board

SOURCE: IDG

data analytics services, although they differ substantially in their capabilities. So if you decide to go the public cloud route, carefully evaluate the different services to determine which has the best mix to suit your needs. In fact, depending on what kind of analytics you want to do, it may be best to work with multiple clouds to get optimal results.

Additionally, it may be a good idea architecturally to separate storage of big data from the compute resources used to analyze it, which also plays a role in the optimal mix of platforms for your big data strategy. Although it may be temporarily inexpensive to store large datasets in the cloud, you'll pay higher-than-expected fees for performant or readily accessible storage. If you're dealing with extremely large datasets such as those common to medical imaging, for example, data science can become expensive and cumbersome over time in the public cloud, offsetting any agility and simplicity gains.

Data management and collaboration
Data management includes a large array of workloads, including data protection (such as snapshotting, backup, recovery, replication, and disaster recovery), copy data management (which includes thin clones and similar workloads, which are very valuable for the software development lifecycle), and global data services that can be delivered irrespective of the application running on them.

Data management tends to be intrinsically better in the

private cloud space currently, especially at a large scale, so long as it is properly architected. Because a lot of these services are not exposed to public cloud customers, they must rely on application-level protection mechanisms, which can be more difficult or expensive in a diverse environment.

That said, depending on your specific use case, the ease of global access to public cloud may tip the balance in its favor. To achieve the performance required, however, some workloads may require a hybrid approach in order to achieve desired local performance. Additionally, data sovereignty laws may require data generated in-country to physically reside in-country. To comply with these regulations, organizations may need to work with multiple clouds or, at the very least, multiple regions within a single cloud provider.

Expert help can help guide you through this complex decision
Large organizations today depend on their infrastructure for critical business functions and service delivery. In fact, 60% of organizations first determine their business goals and then develop a cloud strategy to realize them, according to IDG research. So, if there's a problem with the infrastructure, there will be problems in the business, which makes changing platforms and incorporating new ones a lot like conducting open heart surgery—a mistake could result in lost revenue, lost opportunities, and severe disruption of operations.

Given how important your cloud strategy is to the overall health of your business and how complex the factors are that will determine that strategy, it's wise to consult experts who regularly work with large organizations to help them navigate their many options. In fact, it's best to consult with more than one. After all, if you're facing a major medical intervention, getting a second opinion is par for the course. When it comes to your cloud strategy, it's no exaggeration to say that the well-being of your entire business is at stake.

At CE Tech, the focus is to help organizations intelligently plan and execute their digital transformation, and a key part of that process is determining a cloud strategy that matches each customer's circumstance. To learn more about how CE Tech can help you with your cloud strategy, visit **https://www.cetechllc.com/solutions/** or reach out to **envisionyourIT@cetechllc.com**.