



POINT OF VIEW | CLOUD

The Best of Both Worlds: An IT Leader's Guide to Navigating a Hybrid and Multi-Cloud Future

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Table of contents

Why hybrid cloud? 4

Why multi-cloud? 4

Successful operating models 5

Avoid these common pitfalls 6

Steps to a successful journey 6

Conclusion 8

About the author 8

Let's get started 8



While cloud isn't a single technology, companies use hybrid and multi-cloud in various ways. We define hybrid cloud as the mixed use of public cloud and on-premises systems that can include private cloud. Multi-cloud is the use of multiple public and private providers. Organizations can — and increasingly will — manage both hybrid and multi-cloud environments.

Cloud is clearly integral to a digital future, as it facilitates speed and agility with the necessary guardrails for security and compliance. Yet, a business case can't always be made for cloud. And sometimes the business can achieve greater value by using multiple cloud providers. These truths, however, don't negate the power of cloud to transform your business. Rather, they dictate the need to develop a strategy that uses cloud to the company's benefit when it adds value, helping further your business goals. With an analysis-driven approach that determines the best-fit technology it's easy to see that organizations will, by choice or constraint, eventually manage both hybrid and multi-cloud environments.

Why hybrid cloud?

Cloud's pay-as-you-go approach is ideal for many workloads, but cases do exist where it makes sense to maintain an on-premises presence. We find there are generally five such cases for hybrid environments:

- 1. The presence of low business value workloads.** These should be maintained at the lowest total cost of ownership, which can result in the informed decision to sustain them on-premises. Cloud migrations are often bound by budget, and the resources required to migrate a low-value workload may be better invested in higher value workloads. For example, we work with a client that intended to migrate its IBM AS/400 applications to the cloud. The plan was to rewrite the applications as microservices using an open-source database. Yet, on deeper analysis, the amount of time and resources required to migrate the applications exceeded the value of the migration, so they remained in production onsite.
- 2. The technology can't run in the cloud.** Technology constraints can translate into the inability to migrate a workload to the cloud. For example, we work with a client that wanted to close its own data center but had technically constrained AS/400 applications that prohibited them from running in the cloud. The company determined that moving these applications to a colocation facility was the best business decision. Conversely, in other cases, it may make sense to sunset the technology over time.
- 3. The company's existing utilization investments.** While the cloud boasts the ability to save costs due to greater utilization, some organizations have already made this investment on their own. For example, we work with clients that see 85% to 90% utilization around their high-performance computing workloads. Because they've already made this investment, it makes little sense to further invest to migrate these workloads to the cloud.
- 4. The competitive interests a company's hybrid cloud strategy dictates.** Sometimes, an organization may choose to keep some workloads onsite rather than on a competitor's public cloud.
- 5. The role security and compliance play.** These requirements can affect the decision to pursue a hybrid cloud strategy. For example, an energy company we work with is contractually obligated to maintain customer data in its own data center. As a result, the firm chose to host its front-end application in the public cloud while keeping the database on-premises.

The thoughtful business decision to pursue a hybrid cloud strategy can be driven by technology restraints or legal obligations, or it may even be temporary in nature, as an organization determines that its best strategy is to move to the cloud over time.

Why multi-cloud?

The reasons to pursue a multi-cloud strategy can vary greatly and are often multifold. Despite this, we see six common themes among multi-cloud business strategies:

- 1. Cost control** is a leading motivation to pursue a multi-cloud strategy. By working with more than one cloud platform, companies can maintain leverage in the negotiation process, parlaying each cloud provider's top offer to obtain the best deal and ensure the greatest possible cost control.
- 2. Skills within the company** can drive a thoughtful team-based approach. In these organizations, we often see specific public clouds selected based on a team's skills and knowledge. While it can be resource-intensive to upskill each team for one specific cloud platform, these organizations opt instead to maximize teams' preexisting cloud knowledge. For example, we worked with a retailer that had teams with different cloud capabilities. Rather than standardizing on a single cloud platform, the company chose to exploit each team's existing skill sets and standardize its operations instead via a DevOps dashboard.
- 3. The best tool for the job isn't always available** from a single public cloud provider. For this reason, organizations will expand beyond a single cloud strategy and maximize best-of-breed capabilities. We worked with a company where Google offered the best tool for low code and serverless application scripting for automation while Microsoft Azure offered the strongest out-of-the-box Office suite productivity tools and the platform-as-a-service solution from Amazon Web Services (AWS) had the best tools for its workloads.



4. Availability of geographic compute resources may cause an organization to choose a multi-cloud approach. For example, we worked with a client that delivered video streaming services and wanted its edge infrastructure as close to the customer as possible. As a result, the company's strategy was to exploit edge infrastructure near its customers, regardless of the cloud provider. In the end, the firm prioritized low latency and customer satisfaction over a single cloud approach.

In another scenario, we worked with a global enterprise that sought to deploy in China. Although it deployed with Google in other locations, it was unable to use its analytics behind a firewall in China. Instead, the company pursued a multi-cloud approach, using AWS in China to serve this specific geography.

- 5. Shadow IT** can create unplanned multi-cloud environments. When part of an organization steps out on its own to use the cloud without notifying IT, it may choose a different public cloud vendor than the rest of the organization, creating a multi-cloud environment. While business leaders will usually choose the best cloud for their needs, which helps drive line-of-business innovation and productivity, such shadow IT projects often end up remaining a permanent fixture of the cloud landscape.
- 6. Mergers and acquisitions** can result in unplanned multi-cloud environments. An acquired company may have standardized on a different cloud platform than the acquiring company. Choosing to let those systems continue to run where they are can help ensure business continuity, maximizing existing skill sets and resulting in greater cost control.

In addition to these business reasons for a multi-cloud environment, you can also take advantage of innovation across cloud platforms to maximize value from enhanced automation, new feature sets and more.

Successful operating models

There are many thoughtful reasons to operate a hybrid and multi-cloud environment, and yet we've found less variance in successful operating models. We recommend an approach that combines two tactics:

- **Present a unified view to less mature audiences.** At the end of the day, the differences in clouds matter less to these users. They're more interested in having their asset deployed and understanding the chargeback mechanism than where it's deployed — or why that cloud was chosen. For example, an organization's IT team may act as a cloud broker and present cloud as a blanket choice, where users ask the team to deploy their workload and the IT team selects the best-fit, cost-optimized cloud for them. In these environments, it's helpful to have a single management tool that ties together the cloud layers and presents a unified view of the hybrid and multi-cloud environment.

- **Embrace and expose the differences between cloud options for more mature or selective audiences.** For mature users who understand the technical nuances between cloud providers and their private cloud options, exposing these differences can become a boon to their productivity and innovation. Teams and other internal customers who need specialized or differentiated tools will benefit from the exposure to cloud options.

To best serve a spectrum of internal customers, both approaches can and should exist in organizations that opt to take a hybrid and multi-cloud approach. This avoids watering down the cloud experience.

Avoid these common pitfalls

The thought behind watering down the cloud experience is that by offering users the same features from each cloud, it will simplify the hybrid and multi-cloud experience. However, when disparate clouds are boiled down to their commonalities, best-of-breed capabilities are lost. Simply put: a lowest common denominator approach loses the advantages of taking a hybrid and multi-cloud approach in the first place.

Another pitfall to avoid is taking on more than you can chew. Often overcome with enthusiasm for their new hybrid and multi-cloud approach, companies may attempt to tackle massive projects — like migrating all their applications at once. Take an iterative approach instead, where you can apply learnings and implement innovation along the way for a more successful cloud journey.

Then there is the Wild West trap, where enthusiasm for the cloud inadvertently creates a false urgency to quickly begin migration without a governance policy in place. This can create lawlessness that's difficult to retroactively reign in. Start on the right foot by adopting guidelines that specify which cloud to use for different use cases — and which clouds can't be used. A cloud framework can go a long way in helping enforce standardization, from unified naming and tagging to consistently enforcing security policy. Curated services offered directly to internal customers can also help create consistency, as these customers deploy services prebuilt to meet cloud framework specifications.

Steps to a successful journey

Implementing hybrid and multi-cloud environments across a large enterprise can be a challenge. To ensure you reap the benefits your organization sets out to achieve, consider these best practices:

1. **Plan and assess.** Like all journeys, it's important to plan and know where you're going. This includes having a clear understanding of your organization's starting point and the business goals you want to meet. Only when these mile markers are clear should your organization begin developing a cloud strategy and making technology decisions.
2. **Build a roadmap.** With a clear cloud strategy developed, the next step is to build a roadmap for success by adopting a specific approach and applying it consistently. While every company has a different culture and business needs, your organization should choose a roadmap approach that works best for your unique situation. For example, some organizations may start by moving a single application to one cloud and then, from there, move the same application to a different cloud. In this way, business leaders will begin to understand the nuances of different clouds. Other organizations may choose to start by moving one application to a cloud and then moving a second application to the same cloud, maximizing their learnings about a single cloud platform. Either approach can work, because each helps your team grow knowledge that can be applied as your cloud journey continues.

3. Blueprint the plan. With a roadmap in mind, your organization will want to blueprint the desired state from which you can create a detailed plan for execution. With a blueprint and sprint plan in hand, your teams can begin building their cloud architecture(s). We recommend a multi-cloud landing zone that standardizes cloud environments for naming, security, operational controls and more. With secure, compliant baseline configurations, a multi-cloud landing zone can become an execution engine to operationalize your roadmap. A landing zone is an ideal way to enforce a common management and governance approach.

Note that you should also plan for the unforeseen in the blueprinting process. For example, your team may think it has no need for Google Cloud Platform (GCP), but a use case may present itself in the future and you should prepare for this potential eventuality.

4. Assemble a center of excellence (CoE). An internal CoE is a key to long-term success, as it helps teach others in the organization how the new cloud tools work — helping upskill teams while also evangelizing successes. Ideally, CoEs are comprised of a small, handpicked cross-functional group of people who can build the foundation for the cloud journey ahead.

5. Execute with a seasoned partner that can help you understand and avoid pitfalls. We recommend partners with a “T” structure; these organizations have deep knowledge in one area and are prepared to handle other areas. For example, they may have deep expertise on AWS and are also able to manage GCP and Azure.



Conclusion

As a foundation for digital reinvention, cloud computing's role will only continue to grow in size and importance. Ensuring that business goals are met with a best-fit cloud strategy will increasingly mean that enterprises will pursue a hybrid and multi-cloud approach. With the best practices we highlight here and the right partner, your enterprise can design, build and execute a strategy that adds business value and ensures an agile foundation that will grow your organization's resilience and responsiveness for ongoing business success.

About the author

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Dr. Suleman is a recognized thought leader and frequent speaker at events such as AWS re:Invent, Dockercon, TechWell and O'Reilly; he regularly conducts corporate workshops on digital transformation and is a Technology Council Contributor for Forbes magazine. He actively puts his background and experience in technology to use as a professor at the University of Austin while working to design systems for continuous improvement at the world's leading brands.

Let's get started

NTT DATA offers a spectrum of cloud services that meets clients where they are on their cloud journey. Our Cloud Advisory consultants help organizations map their business needs and goals to the best-fit cloud operating models and technologies. We can help you plan, assess, develop and implement hybrid and multi-cloud architectures that transform your business and meet your critical objectives.

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- Cloud brokerage services that optimize costs and reduce risk by planning, buying, managing or brokering IT resources for any cloud environment
- A focus on continuous improvement that helps you further your cloud journey for maximum business benefit

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