

# Multicloud Strategies for Success

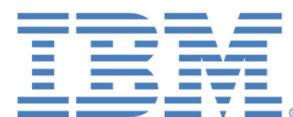


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# Multicloud Strategies for Success

## Introduction

Multicloud usage is mainstream, with 58% of Nordic organizations operating a multicloud environment. To be successful and efficient in the cloud we need to move from "accidental multicloud" to "multicloud by design." Operating a hybrid and multicloud environment triggers a new set of challenges around architecture, operations, agility, security, data management, and cost control.

The next chapter of cloud adoption is about business-critical workloads, where failure is not an option. Determining which applications run best on which cloud (on premises or public) is a critical step in moving successfully to the cloud.

IT organizations struggle to achieve and demonstrate business outcomes from their cloud journey and find an imbalance between investments made in a cloud platform and business value delivered, as cloud costs are difficult to manage and have spiraled out of control for 62% of Nordic organizations. Just switching from on-premises IT to a public cloud platform does not necessarily provide the promised benefits. Organizational structures and processes need to be adjusted to truly achieve agility, flexibility, and business benefits.

This IDC Market Spotlight looks at multicloud challenges, benefits, and best practices, and at the architectural success criteria that will define multicloud success.

## Definitions

Before we continue, it is important to get the terminology right. The terms multicloud and hybrid cloud are used interchangeably in the market, but there is a significant difference between them that leads to architectural and operational differences.

### *Hybrid Cloud*

IDC defines hybrid cloud as the use of IT services (including IaaS, PaaS, SaaS apps, and SaaS-SIS cloud services) across one or more deployment model using a unified framework. The cloud services used leverage more than one cloud deployment model. Hybrid cloud services include "public-public," "public-private," and "private-private" combinations. Cloud and non-cloud combinations (sometimes referred to as hybrid IT) where the non-cloud applications are front ended with cloud service interfaces (e.g., RESTful APIs) are also included. Examples include:

- A customer using a public cloud IaaS service while also consuming the same IaaS portfolio on a dedicated local cloud-as-a-service (LCaaS) platform in the customer's datacenter or edge location

## AT A GLANCE

### KEY TAKEAWAYS

- Multicloud is mainstream.
- 58% of Nordic organizations use two or more clouds.
- The need for application modernization drives multicloud adoption.

There are three strategies:

- Rehost or lift and shift (IaaS)
- Refactor and rearchitect (PaaS)
- Replace (SaaS)

Challenges to address:

- Keeping track of cloud costs
- Lack of unified monitoring and management and building a common control workflow
- Driving one security policy across different cloud providers

To drive a successful application modernization strategy, you need to master your multicloud environment.

- A customer using a hosted private cloud system while also consuming a dedicated LCaaS platform in the customer's datacenter
- A customer using a common cloud automation/operating environment (open or proprietary) across more than one public cloud and/or on an LCaaS, a hosted private cloud, or an enterprise private cloud

IDC is closely watching the continuing evolution of hybrid-cloud-enabling tools and technologies, such as those that provide much more real-time, dynamic deployment of cloud services across diverse private and public cloud models. Truly dynamic cloud service portability will likely require further refinement in how IDC categorizes cloud services. But this vision is currently still much more in development than actual deployment. IDC will wait until at least the next cloud taxonomy version (or whenever there's a significant amount of adoption of real offerings) to address this emerging approach.

Because hybrid cloud services are defined as combinations of (already sized and categorized) private, public, and non-cloud resources, from a market sizing standpoint (e.g., "how big is the hybrid cloud services market?"), IDC considers hybrid cloud services as an overlay of existing cloud services and traditional (non-cloud) markets — not as a separate market distinct from the public and private cloud services markets. IDC sizes hybrid cloud services adoption by researching what percentage of public and private cloud services (and non-cloud resources) is part of an integrated and/or coherently managed hybrid cloud environment. IDC's perspective is that the percentage of cloud services that is part of a "hybrid" environment will steadily rise to a majority in the coming five to seven years.

### *Multicloud*

The term multicloud is sometimes used in the industry as an alternative to hybrid cloud. However, for IDC, multicloud is a description of an organizational strategy or the architectural approach to the design of a complex digital service that involves consumption of cloud services from more than one cloud service provider. These may be directly competing cloud services such as hosted private cloud versus public cloud compute services, public object storage from more than one public cloud service provider, or IaaS and SaaS from one or more cloud service providers. In both of these contexts, multicloud encompasses a much larger universe than hybrid cloud and is only gated by the cost/complexity associated with enabling consistent management/governance of many different cloud options.

Multicloud is also a growing focus when it comes to management products/services that enable an enterprise to effectively administer/govern (configure, secure, cost control) its expanding portfolio of different cloud-based infrastructure, data sets, and applications from multiple cloud service providers.

Since the start of the cloud era, multicloud management has been offered as a multicloud services contract by managed service providers. Today, multicloud management also includes a growing portfolio of packaged and SaaS-delivered multicloud management software solutions that automate or replace some managed services elements.

The adoption of open standards to enable use of a multicloud architecture for complex applications or for defining and monitoring cloud resource and data streams can make it easier

to extend the value of multicloud architectures and management, but they are not a prerequisite at this time.

## Multicloud or Not?

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The key question for Nordic organizations is to decide if they want to go deep with one cloud provider or if they want to operate a multicloud environment. The larger the organization, the more likely it is that you cannot avoid implementing and running multiple cloud services, due to the diversity of your application landscape, geographic coverage, and the diversity of the business needs of the different business units.

Executing a cloud strategy is complex, as it is not only a technology transformation, but also requires the evolution and acquisition of new skill sets, definition of new processes, and the implementation of new organizational structures, like setting up a cloud center of excellence.

Going deep with one cloud provider is easier from an operational standpoint: you only need to train your staff in the technology and processes of one cloud provider, you use one tool chain, and set up one set of guidelines. However, for most organizations, this is not an option, as different workloads require different cloud or on-premises infrastructure, different departments influence the choice of cloud provider, and geographic coverage makes it necessary to work with several cloud providers.

## Application Modernization: Identifying the Right Cloud for Every Application

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One of the reasons why most Nordic organizations need a multicloud strategy is because various classes of applications have different requirements in terms of regulatory compliance, security, data privacy, performance, latency, and resiliency. These requirements determine if they are a good fit for cloud or not. For example, business-critical applications such as ERP systems typically run best on a bare metal infrastructure, which some cloud providers offer. Industry-specific applications for banking or public sector, for example, require high levels of security certification of the cloud platform before they are approved by the regulators. Production applications in manufacturing depend on low latency and are sometimes best placed on a local private cloud or an edge cloud.

For example, the banking industry and the public sector have been challenged by strict regulations around the use of cloud. In a recent collaboration between Bank of America and IBM, they have developed a certified public cloud platform that fulfills the requirements from the financial regulators and enables Bank of America to use the public cloud while fulfilling data security, resiliency, and customer information privacy requirements. The financial-services-ready public cloud will run on a container platform and includes more than 190 API-driven, cloud-native PaaS services to create new and enhanced cloud-native apps. With the emergence of these industry-specific cloud platforms, highly regulated industries such as finance and public sector can also move their industry-specific applications to the public cloud.

Another aspect of application modernization and choosing the right cloud for every application is the choice of application modernization strategy. There are three main application modernization strategies:

- **Rehost or lift and shift (IaaS):** Migrate your application largely unchanged from an on-premises environment to a public cloud infrastructure service (IaaS). This is a relatively low-risk modernization strategy that enables Nordic organizations to gain first-hand experience of working with public cloud providers and establish processes around cloud security, cloud cost control, and cloud management. But the rewards are also limited, as you are not taking advantage of the capabilities of cloud.
- **Refactor and rearchitect (PaaS):** If your application architecture is modular, you can replace components of your application with cloud services — for example, moving to a database service from a public cloud provider. Replacing individual components of the application with a cloud service is called refactoring. You can also rearchitect your application so that it runs on containers or uses microservices and cloud functions. Both application modernization strategies utilize cloud platform services, are riskier, and take longer to implement than rehosting, but the rewards are much greater as well, as you modernize your applications to take full advantage of all the benefits that the cloud offers.
- **Replace (SaaS):** Instead of operating and changing your current application, you can move to a SaaS service, which is fully managed by the SaaS provider.

Choosing the right application modernization and cloud strategy is not only about technology, because with each of the above strategies, new organizational structures need to be put in place, new management, operations, and governance processes need to be put in place, and employees need to be upskilled.

When classifying applications into different classes depending on their fit for cloud, it becomes apparent that one cloud is not going to satisfy all the requirements and that is why the majority of organizations are operating a hybrid and multicloud environment.

## Multicloud Benefits

Operating a multicloud environment can both be a blessing and a curse. It is challenging if you did not plan to operate a multicloud environment and find out that your organization is operating far more cloud services than the IT department has sanctioned. In this case, taking stock of all the cloud services used, and understanding why they are in use and if they can be consolidated, is the first step to success. If you are executing your multicloud strategy and operate a multicloud environment at scale, there are many potential benefits:

- **The right cloud for every workload:** Workloads have different infrastructure, resilience, performance, latency, security, regulatory compliance, and data privacy needs, and not every workload is a good fit for every cloud. With a multicloud environment, you provide the optimal platform for different classes of workloads.
- **Offering choice for developers to attract the right skills:** There is a shortage of developers in the market and by offering a choice of cloud platforms you have a better chance of attracting the sought-after developers.
- **Avoidance of lock-in:** By enabling your workloads to run on different clouds (for example, through containerization and the use of open source/open standards technologies), you are limiting the dependence on any one cloud provider and are keeping your options open should you wish to switch in the future.

- **Geographic coverage and access to local markets:** By enabling the use of multiple cloud providers, you gain access to different countries and local markets where the different cloud providers have built their datacenters.
- **Participation in several innovation ecosystems:** Large cloud providers are the platforms for innovative ecosystems that are emerging around them. By using multiple cloud service providers, you gain access to different innovation ecosystems.

## Multicloud Considerations

However, operating a multicloud environment can be challenging and architecture, operations, agility, security, data management, and cost control need to be mastered from a technology perspective. New skills, processes, and organizational structure also need to be put in place. According to IDC's *Multicloud Survey*, there are operational challenges that stem from operating a multicloud environment that Nordic organizations will need to overcome to take the cloud environments to the next level.

- **Keeping track of cloud costs:** 62% of Nordic organizations are struggling to put the right governance and control mechanisms in place to keep their cloud costs under control, as they are moving from a capex model to a pay-per-use model. Keeping track of cloud costs is a very multifaceted problem, as cloud costs depend on uptake of the applications that are running on the cloud, and responsibility for cloud costs is often unclear.
- **Lack of unified monitoring and management and building a common control workflow:** 55% of Nordic organizations have difficulty monitoring and managing all their cloud services in one management tool. Instead they are using point services for each cloud provider individually, which makes it hard to get one integrated view of the entire cloud landscape.
- **Driving one security policy across different cloud providers:** Security concerns have been the biggest obstacle for cloud adoption in the early days, but last year we reached a tipping point where more organizations were using the cloud because it has better security than organizations could achieve on premises. However, driving one unified security policy across multiple cloud providers is challenging, as they all provide different security frameworks and different security data through APIs.

Choosing the right technologies and tools to set up and manage a multicloud environment is critical for success. End-to-end visibility of the entire cloud estate is the foundation for cost control and a unified security policy and process. When it comes to developing multicloud capabilities, Nordic organizations focus on containers, virtualization, and application migration:

- **Containers:** 53% of Nordic organizations see containers as a key enabler of their future multicloud strategy. Applications in containers are truly portable between different clouds.
- **Virtualization:** 53% of Nordic organizations use virtualization as the foundation for their multicloud strategy. Virtualized environments still make up the largest share of the IT infrastructure, and consequently form the basis for hybrid cloud and multicloud architectures. However, the next wave of cloud adoption is going to be based on containers.

- **Application migration:** Migrating applications from on-premises environments to public cloud platforms or from virtualized environments to containers is another critical capability that is vital for multicloud success. The more automated application migration is, the easier it is to execute multicloud strategies.

To have true flexibility and choice between different cloud providers, organizations are looking to use open source tools, look for standards to be developed to enhance better interoperability, and use containers as a means to port and run applications on any cloud.

## Multicloud Trends

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Multicloud environments are here to stay, as clouds become more specialized and industry-specific in the future. Applications that process sensitive data or data that is subject to industry-specific regulations need to run on certified cloud platforms that are optimized for this industry. Moving to a multicloud environment is not only a technology challenge but also an organizational evolution. Cloud centers of excellence are emerging as a way to bundle cloud expertise in the organization and define standards, governance, and best practices for cloud usage.

IDC predicts that containers will be the foundation to operating a multicloud environment successfully, in combination with the right management tool chain.

The advent of distributed clouds and edge computing is going to change cloud architectures significantly. When the majority of data is generated at the edge, data flows will change, applications will move to the edge where the data is, and clouds need to be more distributed and local. Increased focus on sustainability and the European Commission's Green Deal sharpen the focus on the carbon emissions of IT operations, and carbon emission reduction goals have now been announced by most enterprises. Cloud providers are very focused on energy efficiency and the reduction of their carbon footprint. By moving to a public cloud service, you are moving to a more energy efficient infrastructure.

## Conclusion

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To operate a multicloud environment successfully, Nordic organizations need to address multicloud from several angles:

- **Technical foundation:** Put in place a container platform and the right tool chain to support DevOps processes and methodologies, as well as automation, orchestration, and security of multicloud environments.
- **Organizational foundation:** Implement new processes for application classification, cloud deployment, and cost control. Cloud centers of excellence start to emerge as a best practice for governing multicloud environments.

## MESSAGE FROM THE SPONSOR

While cloud adoption may happen consistently across the IT estate, much still appears to be driven by individual teams and business units. There is often no master plan or other guiding principles at enterprise level to encourage alignment. And it is logical, perhaps, for evolution to follow this path during the early stages of a cloud journey, where experimental freedom and speed are key to generate experience. But taking cloud to the next level will require a more systematic approach to achieve efficiency and effectiveness around general challenges like security, compliance, resilience, and cost. There are complex architectural decisions to be made — the question is when to accelerate the process? Do it too soon and valuable evolution may stop; do it too late and organizations may find themselves in a catch-up game struggling to deliver operational maturity and stability.

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## About the Analyst



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Carla Arend is a senior program director with the European Software and Infrastructure research team. She heads up IDC's European cloud research, and provides industry clients with key insight into market dynamics, vendor activities, and end-user adoption trends in the European cloud market.

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