Cloud Fundamentals Done Right

How the Right Architecture Approach and Consistent Operations Deiliver Powerful Business Outcomes

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Introduction

Welcome to the digital-first world. By the end of next year, more than 65% of GDP will come from products and services of digitally transformed organizations.

In the words of a CEO of a large energy company, "digital is a major part of our strategy… we are going to be investing approximately €1 billion over the next five years, approximately 200 million per year in digital."

In a digital economy, enterprises require new competencies such as embedded intelligence, rapid innovation cycles, business resiliency, next-generation security, and trust to deliver value to their customers, workforce, industry, society, and the economy.

C-suites are committing themselves to embarking on a technology-led reimagination of the business to deliver these competencies.

> **AT A GLANCE**
>
> *A digital-first strategy is enabled by a cloud-centric strategy.*
>
> *Although 80% of organizations run hybrid and multicloud environments already, they cite challenges such as a lack of integration, management complexities, lack of end-to-end visibility, limited skills, and spiraling costs of operations*
>
> *It is time to reimagine hybrid cloud and explore how to leverage existing technologies to seamlessly extend to the cloud and build hybrid cloud by design and use the best of both worlds.*
>
> *A modern hybrid cloud is a springboard to developing a zero-trust mindset and security approach to ensure ransomware or cyber resilience and better control over data and IT operations.*

Cloud infrastructure, cloud-native development, consistent operations, and developer-friendly functionalities are the core building blocks to enable the digital future. It is no surprise then that investment in these areas will grow five times faster than the 5% overall ICT growth between now and 2024, according to IDC.

Cloud is the de facto engine for the digital future, but success in cloud is not determined by the number of cloud instances — it is determined by the ability to do more with less, at speed and scale, and with a consistent operational experience. Forward-thinking organizations are considering building a cloud-centric infrastructure that helps organizations to capitalize on their existing assets, gives them the flexibility of resources, and empowers developers without compromising on costs, simplicity, transparency, and smooth business processes. This cloud-centric digital infrastructure should augment existing business processes and applications to drive innovation and future-proof resilience for the organization.

For 71% of European organizations, investing in resilient and adaptable digital infrastructure is either a TOP or HIGH investment priority in 2021.

What are the Hallmarks of a Cloud-Centric Digital Infrastructure?

According to IDC's 2021 Multicloud Survey, 8 in 10 organizations are operating in hybrid and multicloud environments, but most of them cite challenges such as lack of integration, management complexities, lack of end-to-end visibility, limited skills, and spiraling costs of operations.

As the pressure to deliver business value from cloud strategies intensifies, it is time to view cloud strategies through a new lens — one where it is seen as an extension of the existing IT operational model that involves a flexible infrastructure strategy that extends from on-premises to the public cloud of choice to the edge.

- It meets the requirements of all workloads — traditional, cloud-native, and new AI-driven applications.
- It eliminates integration and management complexities by having a unified approach to cloud operations
- It brings cloud experience of scale, speed, and collaboration through the use of features such as automation and AI-based operations for consistency
- It gives consistent experience through access to cloud and cloud-native components on any infrastructure of choice
- It helps organizations integrate their existing IT investments and business processes to give a non-disruptive transformation strategy
- It is built with application-aware and data-aware principles for infrastructure flexibility

FIGURE 1
Digital Infrastructure Principles to Support Digital Business Needs
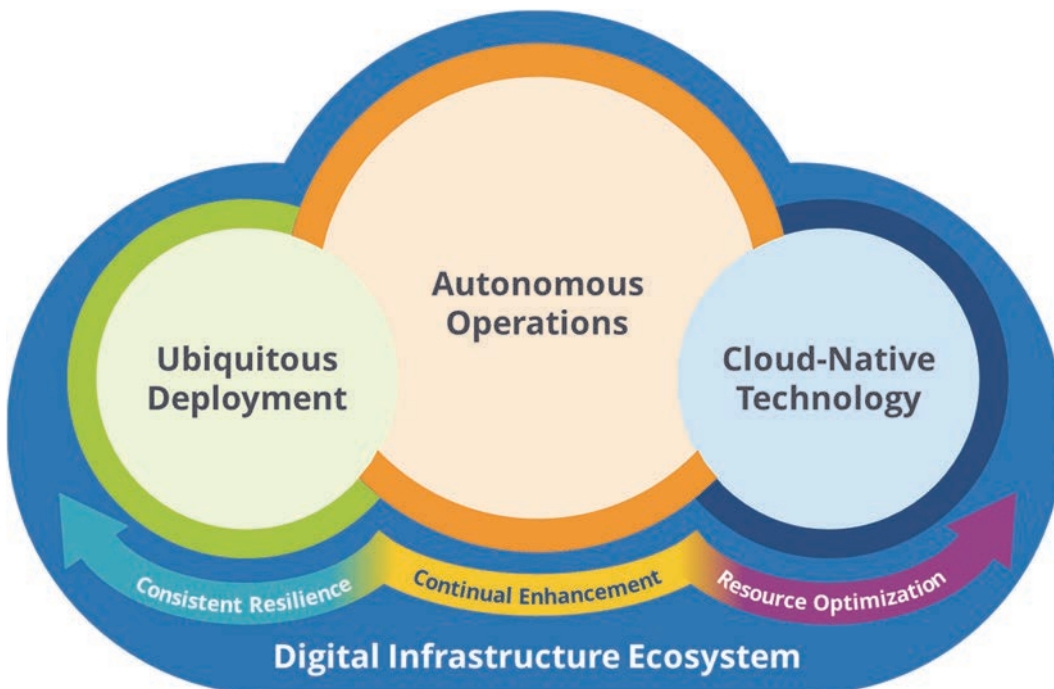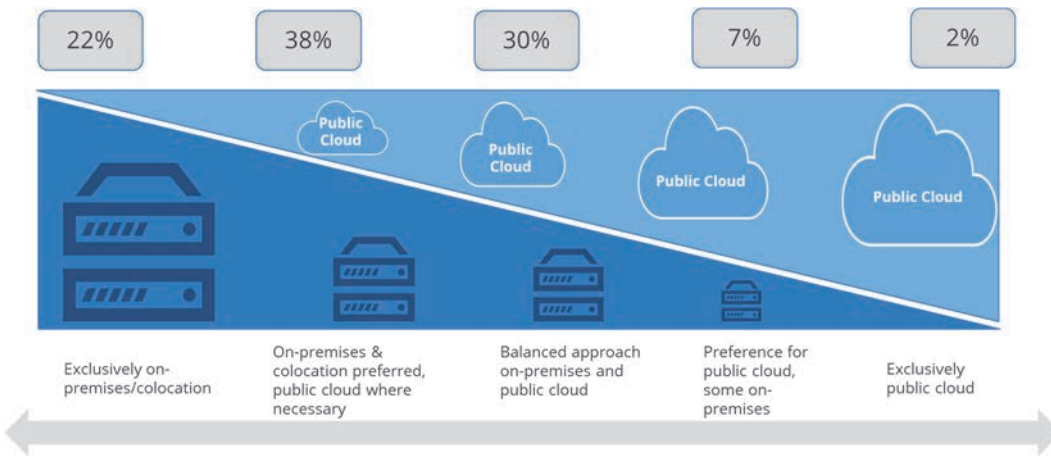

Source: IDC, 2021

IDC predicts that by 2023, 40% of the G2000 will reset cloud selection processes to focus on business outcomes rather than IT requirements, valuing access to providers' portfolios from device to edge and from data to ecosystem

Limitations and Roadblocks of Existing Hybrid Cloud Models

For the 80% of organizations running hybrid and multicloud environments, hybrid cloud is a natural evolution of their public cloud adoption. Many organizations do not yet feel comfortable fully shifting workloads into the public cloud but want many of the benefits it provides and have ended up with small islands of digital innovation.

As seen in Figure 2, only a minority of organizations prefer to use public cloud exclusively and a vast majority rely on on-premises, private cloud, or hybrid cloud environments.

FIGURE 2

Hybrid Cloud Infrastructure Mix

Source: IDC, 2021

Bringing public cloud principles and capabilities to hybrid environments that include on-premises traditional IT infrastructure is not easy.

Businesses with traditional hybrid cloud environments are struggling with inconsistent operations and data and end user complexity as well as an inability to transform IT at scale. A default hybrid cloud environment is still siloed and delivers inconsistent experience, and there are challenges around integration, visibility, and management. The prevalence of multiple components with overlapping features results in complexity and cost inefficiency. The added complexity means that business cannot pivot quickly to capitalize on innovation accelerators such as containers, cloud-native applications, or OPEX models.

The Why — The Pressures in Making Hybrid Cloud Work, and Why it is Important to Get it Right

Hybrid cloud is here to stay and is seen as a sustainable long-term cloud strategy to meet all business requirements – from digital innovation through to boosting trust and compliance.

As seen in Figure 3, the key expectations from modern hybrid cloud environments are having workload and data fluidity, standardized operations and management, unified experience on any infrastructure, and the ability to delight developers with cloud-native features. A modern hybrid cloud is also seen as a springboard to developing a zero-trust mindset and security approach to ensure ransomware or cyber resilience and better control over data and IT operations.

FIGURE 3
Expectations from Modern Hybrid Cloud

RIGHT CLOUD FOR RIGHT WORKLOAD

BUILD-ONCE-RUN-ANYWHERE

OPTIMIZED OPERATIONS

APP MOBILITY/FLUIDITY
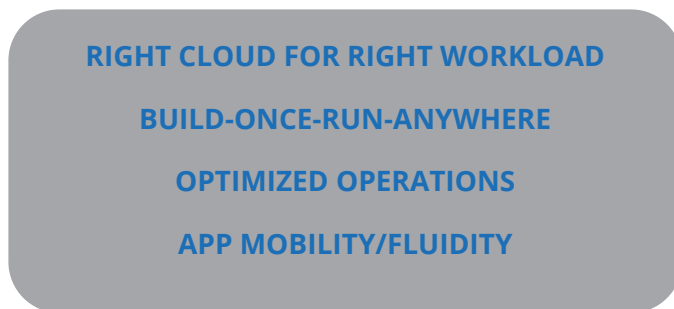
Source: IDC, 2021

IDC research shows that a third of organizations in Europe are increasing their 2021 cloud-related spending despite tight IT budgets. But the investment is not solely focused on growing the cloud infrastructure footprint. They are investing in public cloud, container platforms, private cloud infrastructures, SaaS environments, and cross-cloud management capabilities. This represents an evolution in hybrid cloud strategies where the emphasis is on operations through investments in integrated management, container mobility, and consistent operations.

Savvy organizations are "cloudifying" their on-premises infrastructure to leverage containers, agility, infrastructure APIs, and cloud economics for applications that cannot go to public cloud. This strategy helps them build consistent, standardized operations and use capabilities such as automation, observability, and unified monitoring to deliver secure cloud services as an experience and an operating model.

In IDC's opinion, it is time for businesses to treat hybrid cloud as a foundation for a digital infrastructure that delivers on digital business needs. Here are some of the key considerations.

- IT is under a mandate to drive digital business innovation
- IT is asked to find the lowest risk, yet fastest path to cloud operations maximizing existing investments
- Flexibility to adopt the public cloud of choice with a unified management experience
- Optimizing for traditional and cloud-native workloads from the datacenter to the edge
- Ability to make workloads portable across open, standardized, and consistent environments

According to IDC's 2021 multicloud survey, the top 5 reasons business and IT leaders cited for limited success in previous cloud migration projects are:

- Performance and reliability
- Lack of user acceptance of cloud services and tools

- Inability to integrate well with existing on-premises or cloud or edge strategies
- Lack of standards
- Skills shortages

The How — Best Practices for Overcoming Challenges and Making Hybrid Cloud Successful

Organizations are no longer going to the cloud just to save money. They are adopting the cloud for access to features that accelerate their digital journey and competitive advantage. This vision should form the basis of outlining the hybrid cloud roadmap. Improved business productivity, accelerated speed to market, and customer experiences are the top outcomes expected from cloud strategies by savvy organizations.

One of the features is the ability to use cloud-native capabilities consistently in the public cloud and modern on-premises environments. IDC estimates that by 2024, net-new production-grade cloud-native apps will increase to 70% from 10% of all apps in 2020, due to the adoption of technologies such as microservices, containers, dynamic orchestration, and DevOps.

It is time to evolve with a hybrid cloud strategy that is future-ready but available now and can evolve and iterate to deliver continuous business value as requirements change along the way rather than a big bang approach.

Key Considerations

When designed with the right framework and business outcomes in mind, the hybrid cloud should:

- Support any application or workload (from traditional/virtualized to cloud-native to microservices) across multiple choices of cloud platforms from a centralized point of view and control of these applications to centralize operations, security, and cost-metering efficiently.
- Create pathways to use containers, microservices architectures, and APIs across the cloud spectrum so organizations can adopt the right mix of cloud services according to their own terms and needs.
- Bring more transparency, visibility, monitoring, and metering across the cloud environment.
- Ensure all resources including data services and databases are elevated to become application-aware rather than infrastructure- or hardware-centric.
- Provide consistent performance, security, and availability mapped to the needs of specific data and workloads.
- Ensure that the hybrid cloud foundation brings data and application mobility across environments.

The hybrid cloud strategy should also factor in people, processes, and culture, ensuring the right skill sets are available to minimize disruption and avoid adding new friction to the business model.

IDC

Another key consideration when architecting a modern hybrid cloud is data and taking advantage of new ways to access and take action through AI. In conversations with IDC, enterprises emphasize the importance of a modern data platform that delivers resilience against cyber and ransomware threats, meets the data needs of all applications (traditional and cloud-native), provides metadata management, and delivers a rich set of data services across hybrid cloud consistently.

As one CIO said: "If you want to leverage AI, you need to organize data and have a unified data fabric." IDC believes that having a unified view of data can accelerate innovation, risk assessment, optimization, and consistent data governance.

Seek Out Long-Standing, Deeply Invested Technology Partnerships to Make Your Hybrid Cloud Journey Successful

Existing enterprise IT environments are made up of a federation of technologies. To architect a modern hybrid cloud, organizations don't need to write off all their existing investments and start afresh. There are some common underlying foundations that IT should build upon when designing a modern hybrid cloud infrastructure. The virtualization and data management layers form a core around which IT can design a robust, flexibly hybrid cloud foundation. In IDC's opinion, virtual infrastructure and data and cloud management have to evolve in an aligned fashion for a rich hybrid cloud experience.

Taking stock of existing environments to identify a non-disruptive pathway to modern hybrid cloud can offer opportunities to get more from existing platforms, management interfaces, skills, and investments. Starting from familiar platforms and building cloud experience to grow the cloud footprint can help upskill existing staff and maintain consistent business processes.

Integration, reliability, flexibility, and experiences can make or break hybrid cloud strategies. When rearchitecting hybrid cloud for the digital future, businesses need to take an ecosystem view, with longstanding partnerships and synergies between the underlying foundations.

Ultimately, a modern hybrid cloud architecture is one that has a pool of shared and dedicated infrastructure resources that will be application- and data-defined. It will have a pool of cloud-native components, security features, and a full spectrum of data services available as APIs for developers to draw from. It will also be a modernized extension of the core building blocks of existing enterprise IT that serves mission-critical workloads.

Customer Case Study of Hybrid Cloud Success

Extending to the cloud for cost efficiency and paving the way for a modern architecture in a non-disruptive way

Business context:
A large, multinational building material organization is in its multi-year pivot to digitally innovate and pave the way to carbon neutrality. It is looking to reimagine its business using cloud-centric technology while maintaining a consistent operational experience.

This purpose has to be backed by a world-class technical foundation and the company wanted to transform its infrastructure into a platform service offering. But with thriving on-premises and existing infrastructure resources, the IT team developed a strategy of "leveraging the best of cloud and on-premises" rather than making it an "either/or" conversation when it comes to cloud adoption.

This strategy to leverage the best of both worlds led the IT team to embark on a well-planned hybrid cloud journey.

Business outcomes expected from hybrid cloud architecture:
The organization wanted to deliver two key outcomes:

1. It wanted a sustainable infrastructure strategy and to minimize empty stacks or power waste on-premises by using cloud.
2. It also wanted a modern digital and cloud technology foundation to meet the speed and innovation of business, new products and services, supply chain, and apps.

For the first business outcome, it decided to consolidate its datacenter footprint and not fully exit it. The IT team reduced the six datacenter operations to three optimized datacenter operations. It identified the datacenters that were running workloads such as test & dev, archive, and backup and DR, and decided to shift these to the cloud to benefit from cloud scale and agility. This strategy was hugely valuable because the datacenters hosting DR and backup were built "for peak failovers" and using lot of resources.

But it was not just about migrating DR to the cloud as a transactional or tactical approach. Instead, the team explored how it could connect the second digital transformation objective to extend this. It used the opportunity to build a cloud-centric foundation by evolving governance, security, connectivity, new processes, and company organization transition to leverage cloud and on-premises to an optimum level.

It wanted to use existing investments in tooling and have the same data management and virtual machine management experiences that it is using strategically on-premises.

With a combination of existing NetApp, VMware, and Microsoft Azure, it succeeded in its hybrid cloud journey and business outcomes. This way, it didn't need to change existing processes or operational model and created a non-disruptive path to a cloud-based future.

The pre-integrations and first-party experience between VMware, NetApp, and Azure made the journey less complex.

The key to success was that its infrastructure foundation on-premises, including VMware and NetApp had cloud capabilities to help the organization extend its IT environment to include the public cloud seamlessly without overthrowing its existing tooling, budgets, or backup strategies.

Benefits:
- Resilient environment with ability to fully recover from the cloud and ease of restores
- By consolidating datacenters and bursting to cloud with DR, backup, and archiving workloads, the organization has saved up to 15% of its IT costs compared to running six datacenters previously
- Right foundation to accelerate speed of innovation using cloud services and use of containers and cloud-native capabilities
- Modern hybrid cloud design including software-defined networking, cloud-aware backup and DR, and evolution to IT services
- Ability to articulate a business case and demonstrate the possibilities of the role of cloud in the long term
- Ability to identify datacenter components for targeted modernization

In IDC research, study participants reported that migrating applications is substantially easier and less costly than carrying out a comparable migration with either a customized private cloud or a public cloud environment
Source: IDC report titled "IDC Business Value of Hybrid Cloud with VMware"

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Recommendations, Action Points, and Conclusions

The new digital world calls for a new technology-enabled approach to deal with future crises. IDC calls this ability digital resilience.

FIGURE 4
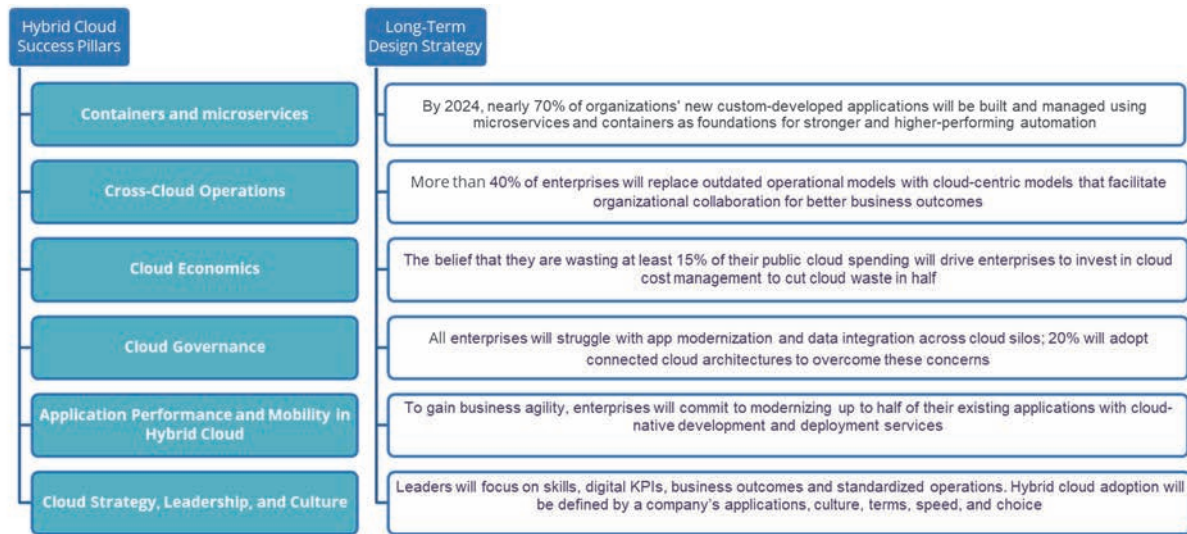Digital Resilience Framework

Source: IDC, 2021

Resilience across all these organizational dimensions is underpinned by a digital infrastructure. This is founded on modern hybrid-cloud architectures featuring cloud infrastructure, automation, insights, governance, and consistent operations. This augments the business processes, DevOps teams, and applications that drive innovation and resilience for the organization.

Where to Start?

- Start from the existing virtualized infrastructure foundation. This offers a pragmatic and value-based modernization strategy that can work for all stakeholders.
- Double click on consistent standardized operations as it is the operations that can make or break a hybrid cloud experience. Choose hybrid cloud components as an extension to this existing virtual foundation.
- Leverage cloud-native capabilities from the underlying platform to empower developers and accelerate innovation.
- Look for co-development and ecosystem-based innovation between vendors to help you build a robust hybrid cloud architecture for today's and tomorrow's needs.
- Avoid islands of digital innovation and siloed cloud environments but use consistent operations as the framework to bridge the gap between traditional and cloud native to have a modern hybrid cloud.
- Ensure flexibility and control of data and operations to determine your digital destiny.

FIGURE 5

Time to Shine! Forward-Thinking CIOs Invest to Make Modern Hybrid Cloud the Bedrock of Digital Resilience and Optimized Operations

Hybrid Cloud Success Pillars	Long-Term Design Strategy
Containers and microservices	By 2024, nearly 70% of organizations' new custom-developed applications will be built and managed using microservices and containers as foundations for stronger and higher-performing automation
Cross-Cloud Operations	More than 40% of enterprises will replace outdated operational models with cloud-centric models that facilitate organizational collaboration for better business outcomes
Cloud Economics	The belief that they are wasting at least 15% of their public cloud spending will drive enterprises to invest in cloud cost management to cut cloud waste in half
Cloud Governance	All enterprises will struggle with app modernization and data integration across cloud silos; 20% will adopt connected cloud architectures to overcome these concerns
Application Performance and Mobility in Hybrid Cloud	To gain business agility, enterprises will commit to modernizing up to half of their existing applications with cloud-native development and deployment services
Cloud Strategy, Leadership, and Culture	Leaders will focus on skills, digital KPIs, business outcomes and standardized operations. Hybrid cloud adoption will be defined by a company's applications, culture, terms, speed, and choice

Source: IDC, 2021

When planning a hybrid cloud strategy, savvy business and technology leaders are considering long-term, continuous value. Are you ready?

MESSAGE FROM THE SPONSOR

For 20 years, NetApp and VMware have led the market in virtualizing compute and storage technologies. NetApp has a long history of collaborating with VMware to integrate the rich data management, protection, security, and mobility capabilities in ONTAP to provide customers with the most robust compute and storage virtualization solutions in the industry. NetApp and VMware have a combined install base of over 18,000 customers worldwide. NetApp and VMware collaboration and integration continues today as both companies deliver integrated virtualization technologies across the hybrid multicloud.

About the Analysts

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Archana's primary research coverage is cloud data management and is a co-lead of IDC's European cloud practice. She covers multiple topics including data protection, edge to cloud data trends, application and data availability, compliance, data integration, intelligent data management, DataOps, data quality, and multicloud priorities and trends.

Carla Arend, Senior Program Director, Cloud, IDC Europe

Carla Arend is a senior program director with the European software and infrastructure research team and heads up IDC's European cloud research. Arend provides industry clients with key insight into market dynamics, vendor activities, and end-user adoption trends in the European cloud market. Arend is regularly asked to speak at industry events, strategy workshops, sales kick-offs and training, partner events, and end-user events.

About IDC

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