



# Top 10 best practices for successful multi-cloud management

How the multi-cloud world is changing the face of IT

# Overview

A multi-cloud world is quickly becoming the new normal for many enterprises. But embarking on a cloud journey and managing cloud-based services across multiple providers can seem overwhelming.

Even the term multi-cloud can be confusing. Multi-cloud is not the same as hybrid cloud. The technical definition of hybrid cloud is an environment that includes traditional data centers with physical servers, private cloud with virtualized servers as well as public cloud provisioned by service providers. Quite often, multi-cloud simply means that an organization uses multiple public clouds from many vendors to deliver its IT services. In other words, organizations can have a multi-cloud without having a hybrid cloud, or they can have a multi-cloud as part of a hybrid cloud.

When an organization's users take the initiative to adopt infrastructure and solutions from different cloud vendors, challenges emerge. Each new cloud service comes with its own tools that can increase complexity. Multi-cloud environments require new management solutions to optimize performance, control costs and secure complicated mixes of applications and environments, regardless of whether they are inside the data center or in the cloud.

Today, IT users have a choice. Corporate IT departments know that if they don't react, they may find themselves irrelevant. As a result, they are moving away from the capital investment model of IT—in which standing up a data center was essential—to assembling a catalog of IT services available from CSPs. In this environment, how can IT control the use of services by different internal groups to avoid unexpected expenses and potential risks?

Understanding cloud environments and making decisions about multi-cloud management can be complex. Questions arise, such as how organizations need to change in this multi-cloud world. Working with enterprise customers, IBM has identified ten key pain points and related best practices that help organizations successfully navigate these transformations.



# 1 Cost transparency and visibility

While IT professionals tend to think about keeping services available and secure, the number one consideration by CEOs and CFOs typically involves cost. How much is IT spending? Is it delivering value to the rest of the organization? If you start your cloud management journey there, you automatically start from a position that aligns with the business financial goals.

A multi-cloud approach can make costing and allocation even more challenging because the servers are in a different organization's data center and methods of charging and billing can differ among communication service providers. This

process is particularly demanding for multinational organizations with cloud use that extends globally across providers and user teams. How do you aggregate all those bills while maintaining transparency?

IBM offers tooling, consultants and expertise, and managed services that help organizations discover what they're using and how much it's costing them across the company. This knowledge helps empower organizations to negotiate provider costs. Moreover, IBM solutions can standardize the way different providers communicate billing.

Please watch the video below to learn more.

50%

of IT decision-makers actively monitor their organization's cloud bill.<sup>1</sup>



# **2** Dynamic, up-to-date catalog

Cloud providers change their offerings faster than you may think, but customers of IT won't tolerate lag. Users today expect near-instant access to a breadth of services and applications, not just what is provided by the central IT organization in the company, but also from services such as Amazon Web Services (AWS), IBM® Cloud, Microsoft® Azure and other external sources. Many organizations provide an online self-service store for employees to get the apps and services they need.

The challenge is that any time an external provider changes its price, service or technology, the organization's self-service store must be updated so that the offering is presented correctly. Otherwise, users may stop using the

self-service store and the organization may lose management oversight. But keeping up with the changes can be time-consuming, potentially involving the organization's development, contract, procurement and legal teams.

Many organizations solve this problem by using a content-as-a-service (CaaS) offering from a vendor such as IBM. The CaaS vendor negotiates price changes with service providers on the organization's behalf and manages the store behind the scenes.

[Deliver services with a curated IT-as-a-service catalog](#)



# **3** IT to operate in two, connected models

For many years, data center operations have been a sequential Information Technology Infrastructure Library-based process. Managing, governing and architecting services were centralized through IT—with users making requests through a ticketing process. Now, businesses are moving to a dynamic and multifaceted interaction of people in the IT operations space, the development space and the governance space. All groups are constantly interacting with each other and in no particular sequence as every developer and every team have their preferred processes and tools. This DevOps culture is helping drive fast innovation in businesses.

Yet, the IT environment is currently a mix of traditional infrastructure that needs to continue to be supported and multi-cloud services that

are needed to enable cloud-native development. These two activities have their own existing processes that need to be managed in a unified manner. Even with a DevOps model, IT continues to be responsible for ongoing maintenance, optimization and cost management.

Embracing new technologies needs to be balanced with maintaining the existing IT investment, which is why hybrid IT is well suited for many businesses today. A company such as IBM with hybrid cloud tooling and expertise can help provide a cost-effective solution for organizations to have integrated management for both models.

[Read the whitepaper on optimizing your hybrid environment to improve business outcomes](#)



# 4

## Standardized consumption

In a multi-cloud environment, each business unit in an organization might use services from several different providers—for example, an analytics platform from Azure, storage from AWS and AI capabilities from the IBM Cloud.

Business units often pay for these services in different ways. A business unit might procure Azure services through a web portal, buy directly from AWS through a sales representative and issue a contract for IBM Cloud. Multiplied by the number of business units in an organization, this

situation can quickly become nearly impossible for central IT and procurement to control—especially as these services may need to be modified or changed in the future.

The secret to this best practice is to standardize consumption of cloud services through self-service tools. Look for a solution that provides a central place for buyers to compare and purchase cloud-based services and allows IT and procurement professionals to manage consumption in a standardized, uniform way.



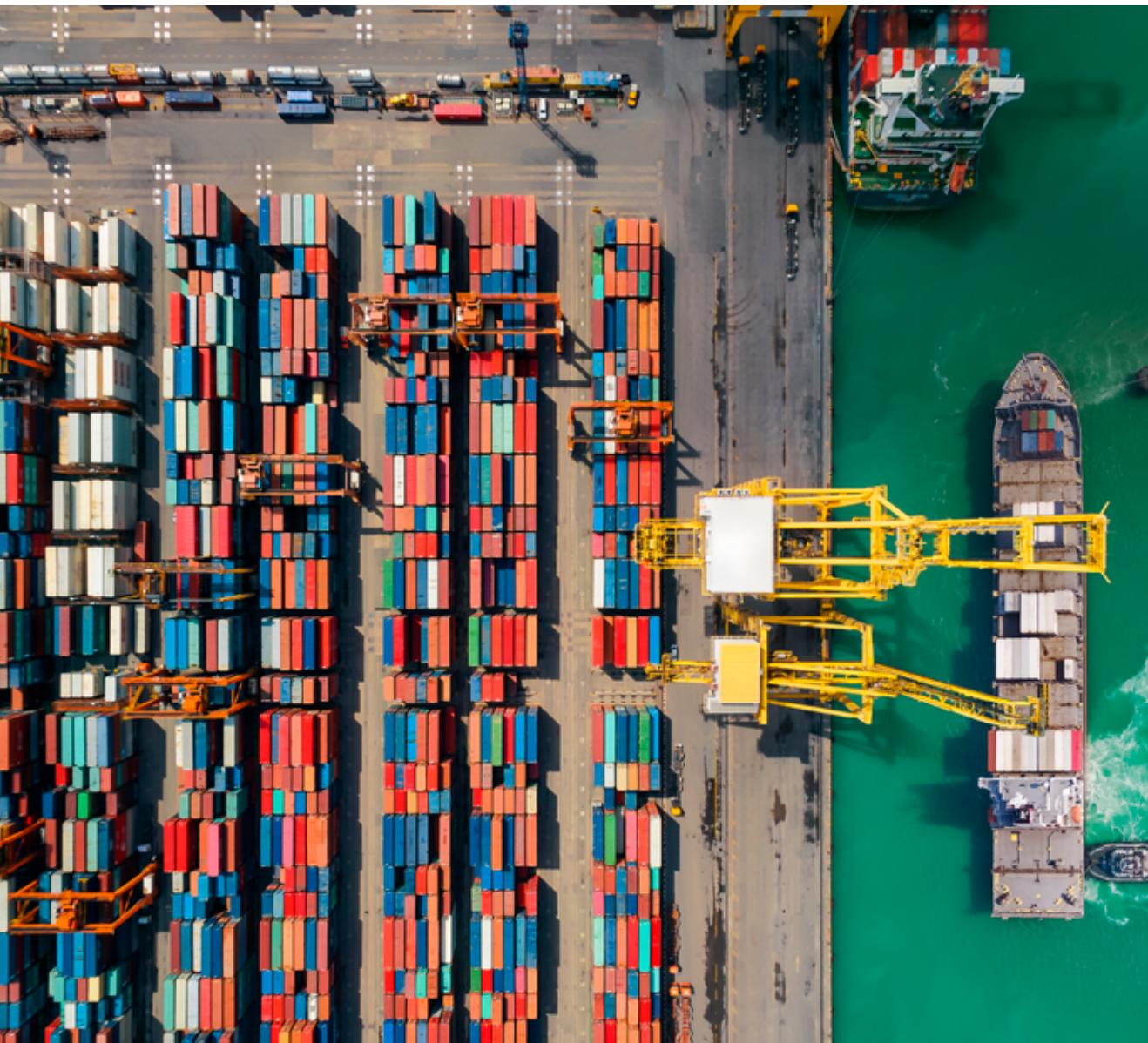
# 5 Aggregated services for added value

How can an organization attract and retain users of its centralized IT store? After all, users could choose to go to cloud providers directly. The solution is for central IT to add value through service aggregation.

Consider a telephone service analogy. At one time, simply providing a dial tone was all that a telephone company needed to provide to consumers. Nowadays, consumers also want services such as voice messaging and caller ID, and they expect a provider to aggregate those services.

Centralized IT practitioners can fill the same role when it comes to aggregating cloud-based services while adding value in the form of IT expertise. They understand regulatory compliance requirements in the areas served by the business. They know where to find the best services in a given category. Ultimately, they are well positioned to add their specialized expertise to services of other providers and cumulatively aggregate them together.

[Plan, buy, and manage IT resources across your organization](#)



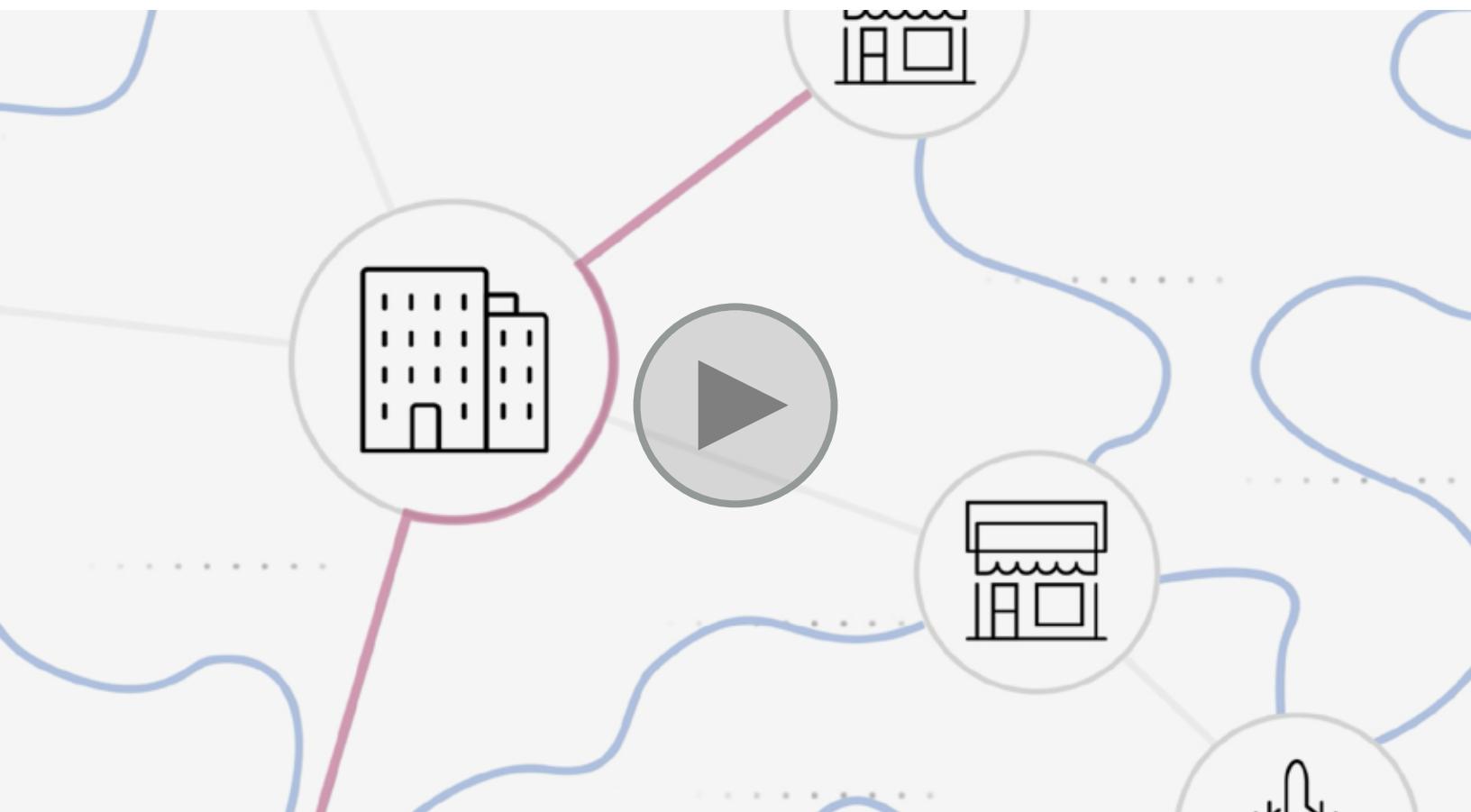
# **6** Integration remains a necessity

As organizations consume a growing variety of IT services from multiple service providers, they may be running into several challenges including escalating costs, lack of reliability, slow deployment and visibility issues. IT requires common standards for integrating and managing the supplier ecosystem to help address these issues. A cohesive multi-sourced ecosystem requires integration in six key areas including business, organization, information, governance, processes and tools.

Networks are another critical integration component of the multi-cloud and also need to be designed to let companies run their applications in a hybrid computing environment. Some jobs are run on-premises while others are offloaded to the cloud. The network control, security and visibility need to extend into public and multi-clouds, making these environments look like a single network, with single pane of glass management functionalities.

**41%**  
of IT decision-makers manage cloud using internal tools and expertise.<sup>2</sup>

Please watch the video below to learn more.



# **Z** Control without obstruction

Shadow IT emerges when users in organizations perceive IT as putting up roadblocks. The goal of establishing a self-service portal sponsored by central IT is not to stop users from making their own purchases, but rather to make the self-service store a convenient and familiar experience. Instead of having to go to multiple providers to find various services and tools, users have one place to see everything. And by giving users the ability to quickly access the services they need, the organization can regulate the process, so the enterprise is not exposed to financial or security risk.

To help users the same rapid access to services as if they were going directly to a cloud provider, key users should be required to suggest items to be vetted and pre-approved for the organization's self-service store. Any item that meets organizational standards can be published as a reliable service for the rest of the organization to consume.

[Benchmark your organization's cloud adoption](#)

**60%**  
of IT decision-makers actively monitor their organization's cloud usage.<sup>3</sup>



# 8 Challenges of user management

Large organizations, especially multinational organizations, have complex organizational structures in place that help determine who has access to which applications and data. If an organization procures a service from a cloud provider and runs the application on the provider's servers, how does it make sure those access rights apply to the new application?

The key is to leverage active directory and other user management systems already existing in the organization. But tying them into a multi-cloud environment is not a trivial matter. An organization such as IBM helps by applying best practices, predefined integrations and automation to ensure that existing structures can be extended for multi-cloud management.

Please watch the video below to learn more.

The screenshot shows the IBM Services Platform with Watson interface. At the top, there are three dots indicating a navigation bar. Below that, the header reads "IBM IBM Services Platform with Watson" and "nfuller@us.ibm.com". The main content area is divided into several sections:

- Clients**: A search bar labeled "Find other client" with a magnifying glass icon. Below it, the company name "ACME Corp." is displayed in bold black text.
- Services & Offerings**: This is the active section, indicated by a blue background. It lists three services:
  - Cognitive Delivery Insights (CD)**: "Insights and automation powered by cognitive services". Includes "Subscribe" and "Launch" buttons.
  - Continuous Compliance (CC)**: "Transforms Security Processes into a Primary Control Compliance Process". Includes "Subscribe" and "Launch" buttons.
  - Cost and Asset Management (CA)**: "Greater visibility and control into costs and assets across cloud and traditional IT providers". Includes "Subscribe" and "Launch" buttons.A large circular play button is overlaid on this section.
- Support**: A section asking if you want a customized experience, with a "Request for a Workshop" button and an icon of three people connected by lines.
- Developer Zone**: A section featuring four services:
  - Integration**
  - API**
  - Cognitive** (Coming Soon)
  - Orchestration** (Coming Soon)
- Contact Us**: A section with an envelope icon and a "Feedback" button.
- Feedback**: A section with a speech bubble icon.
- Not sure? Our expert can help you.**: A final section at the bottom right.

# 9

## Primary consumption: Machine-to-machine purchase

The use of the DevOps methodology can help radically shorten time to market for new applications. However, despite the efficiency and speed of DevOps, a developer still needs to purchase a whole series of services before the process can start: development environment stacks, virtual machines (VMs), test tools, deployment release management software and so on.

This requirement is about to change. Imagine an intelligent DevOps tool chain that orders those services as needed through APIs. Instead of one person trying to complete a dozen orders in an hour through an online portal, a machine can rapidly place the order

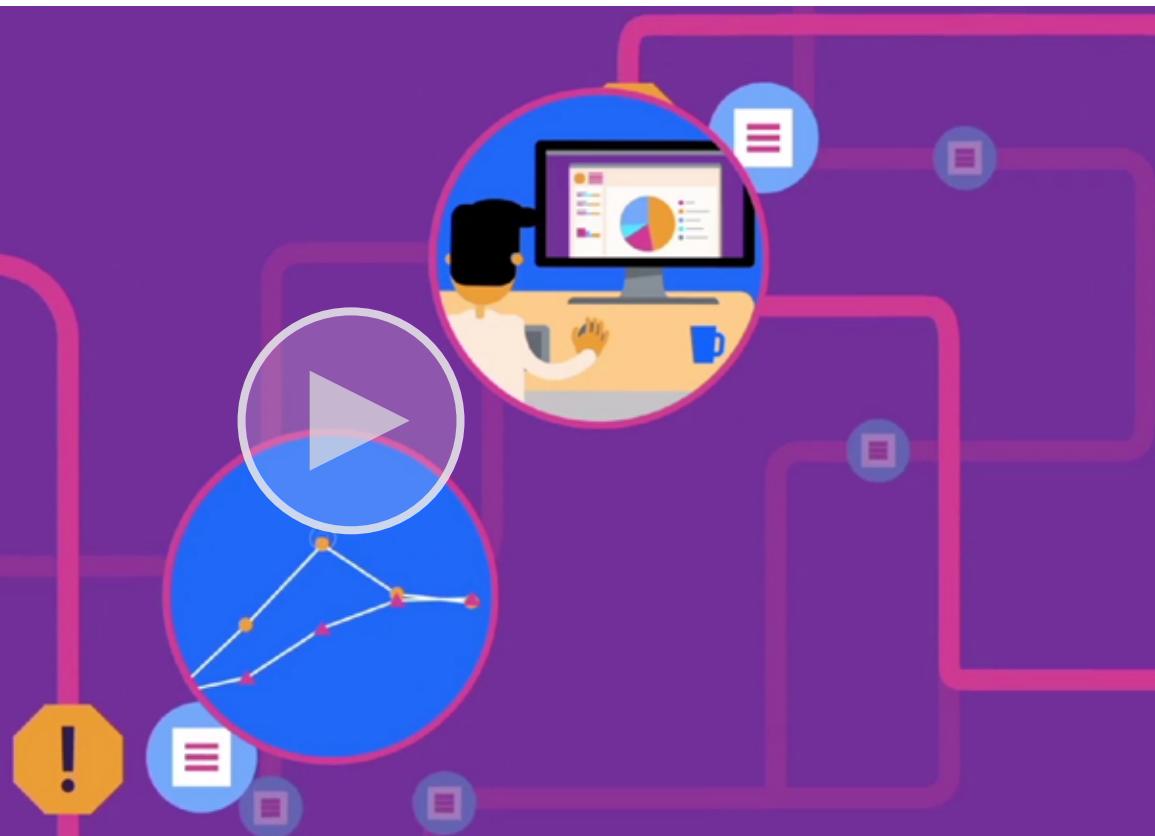
with APIs. Using as many VMs, for example, a new application could be tested immediately in the cloud and then sent back five minutes later for deployment, with automated governance ensuring the new app is secure and compliant.

The rate at which organizations consume IT services is expected to explode once machines begin doing the consumption. IBM can provide the linkages, automation and cognitive capabilities to enable machine-to-machine procurement.

Please watch the video below to learn more.

**64%**

of IT leaders are considering or evaluating the use of AI to help manage their infrastructure.<sup>4</sup>



# 10

## Internal and external IT role changes

IT was previously the central entity responsible for building services for the enterprise. In the multi-cloud world, organizations such as Amazon, Azure, IBM and other providers are the constructors of services, and IT can select and aggregate the services. IT can become more of a supply chain operator. As these changes take place in the technology and business landscape, many traditional roles change:

- Architects become service authors and are able to aggregate components and assemble bundles.

- CIOs become contract and procurement experts who manage the vendor and supply chain.
- Product managers curate catalogs and know how to price products and introduce them into the market.
- Operations employees handle both traditional and cloud models.

Organizations now need to consider how these changes are expected to impact them both inside and outside of IT. As a managed services provider, IBM can also take on some of these roles as IT makes shifts internally.

Only  
**29%**  
of IT leaders  
say their  
teams are able  
to allocate  
sufficient time  
to strategic  
projects today.<sup>5</sup>

Please watch the video below to learn more.



# Containers: Changing the game for cloud

Containers are revolutionizing IT by separating all of the internal elements of an application instance from the host environment, rendering applications more portable and able to run in almost any environment without changes. For example, an organization can quickly and easily deploy the same containerized application into multiple environments or readily move it from one cloud to another.

Imagine, then, an artificial intelligence capability that scans pricing for the infrastructure the containers run on, in real time. If Amazon suddenly dropped its price, the AI service could spot the change and recommend moving the container there, potentially saving a significant amount of cost. A user of this AI service might even ask to see the most advantageous cloud locations to run a particular workload and receive pricing updates every three hours. As a result, containers are changing the game for IT and fostering new business models.

## Making the most of the future

Whatever path you take toward multi-cloud, you can benefit from the key takeaways presented here, based on the experience of other organizations that have made this journey. Traditionally, organizations built their production environments and then built a backup system and kept the two synchronized. With both a primary and secondary facility, data center costs potentially doubled. But as organizations moved to the cloud, they had the capability to take snapshots of what they were doing, keep them in the cloud and very quickly recover data, based on those snapshots if necessary. With no need to build a secondary data center infrastructure, costs have the potential to be substantially reduced.

That new model didn't occur to everyone until the business started using cloud and understood what was possible. IT is changing so quickly that we cannot always envision the new ways of doing things that will be enabled by new technologies. As these technologies appear, IT is expected to innovate on top of them and create new business models in the process. The multi-cloud world is an exciting place, and being prepared and armed with best practices can accelerate the adoption and benefits of cloud.

Are you ready to simplify multi-cloud management?  
Schedule a consultation with an IBM expert, or learn more  
about establishing IT governance in your organization.

[Schedule a consultation](#)

[Learn more](#)



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1. Forrester Research. [\*Benchmark your enterprise cloud adoption.\*](#) 2017
2. Ibid
3. Ibid
4. IDG Research. [\*Managing a Multi-Cloud Environment Survey.\*](#) 2018
5. Ibid