

IBM Cloud



Optimize IT

Accelerate digital
transformation

Technology sets the speed of your business. When compared to low-performing organizations, high-performing organizations are more than twice as likely to have fully integrated their clouds.¹ Now is the time to optimize your IT.



Contents

What is IT optimization?

Maximize your technology within your existing infrastructure or environment.

The challenges of optimizing IT

Develop a sound strategy; gain sufficient architecture and design; leverage expertise.

How to optimize IT: Take the hybrid approach

Run apps, data, and services where they are most effective and deliver value faster.

Increase flexibility with virtualization and containers

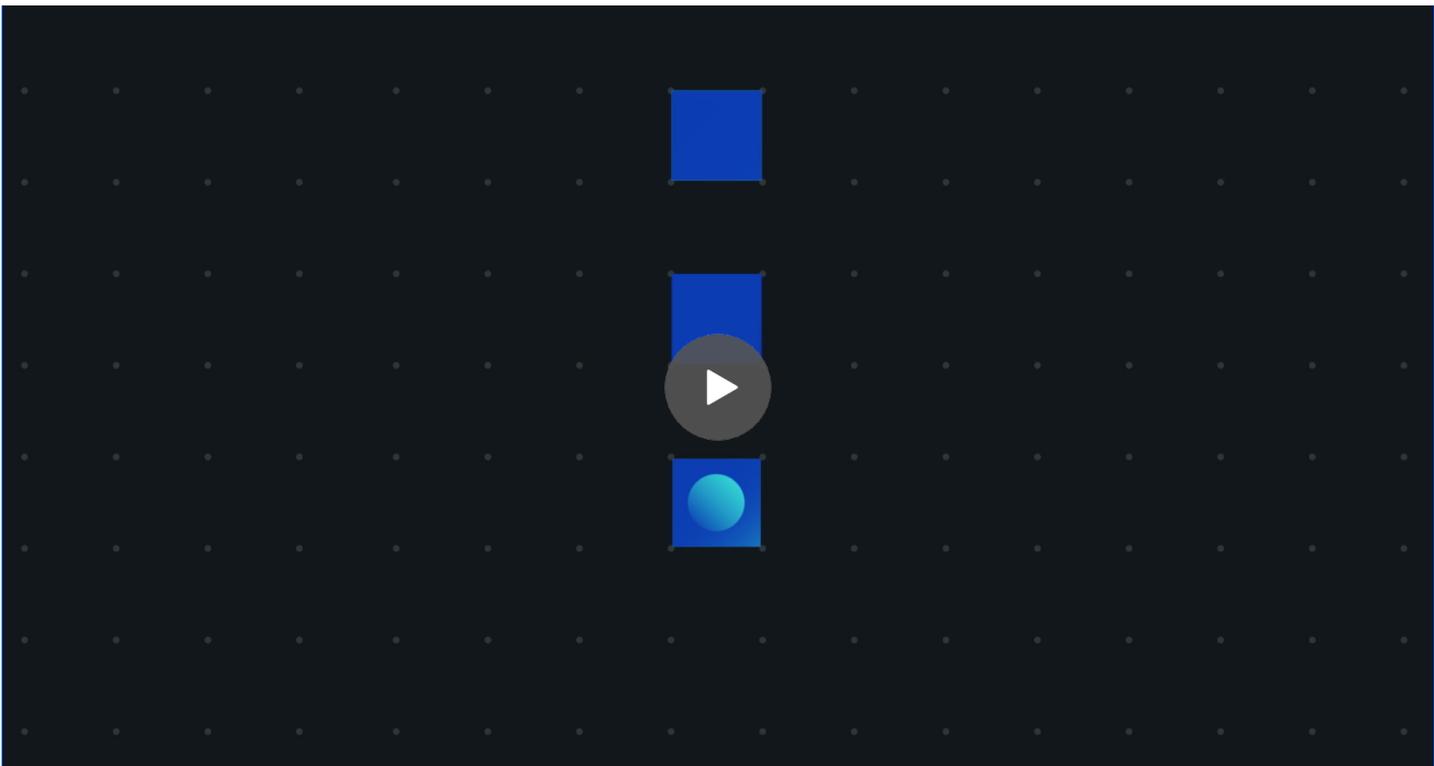
Implement software to scale resources cost-effectively as your workloads grow.

Moving workloads to cloud: How IBM can help

Develop a clear technology strategy and an end-to-end approach.

Expect more: IBM solutions

Extend your existing data center to the cloud simply and quickly.



Optimize IT
Accelerate digital transformation

What is IT optimization?

Organizations continue to increase their investment in cloud and evolve their environments to drive business forward. An optimized IT solution is unique to each enterprise, and most often involves a hybrid cloud platform, which is a combination of public cloud, private cloud and traditional IT services. In a cloud computing survey, 73 percent of key IT decision-makers reported having already adopted this combination of cloud technology, and another 17 percent intended to do so in the next 12 months.²

The number of use cases grows as organizations turn to cloud adoption to optimize their IT infrastructures, improve efficiencies and offer a better customer experience. The need to optimize for flexibility, stability and agility has never been stronger.

The challenges of optimizing IT

The first challenge your organization faces in optimizing IT is assessing its existing environment to determine the ideal approach. Chances are, your IT environment includes multiple cloud platforms and providers, potentially with deployment options that are on or off premises, in public or private clouds. Adding to the complexity, each cloud service has various offerings, including infrastructure as a service (IaaS), platform as a service (PaaS), and software as a service (SaaS).

New business projects and processes pose some risks to an organization, and cloud migration is no different. The better you understand and address these risks at the outset, the less likely it is that your organization will encounter delays, face unexpected obstacles, or even derail the migration project. The main challenges to address include the following:

Architecture and application dependencies:

When enterprises move workloads to cloud infrastructures, they typically blend public and private clouds with on-premises assets to create a hybrid environment. A key requirement is compatibility and consistency across these environments. Given application connections to servers, databases, and other services, it's critical that you have a clear picture of any dependencies that could impact a smooth IT optimization process.

Unwanted latency:

Latency is a delay between an action and a response, which may occur when accessing applications, databases, and services. Applications that require immediate responses to alerts and notifications have a very low tolerance or latency; applications such as autonomous vehicles, intelligent road signs, and medical equipment—for example pacemakers and insulin pumps are prime examples of this. To prevent latency issues, either consider keeping such applications on premises or make sure your network provider has optimization services that address this issue.

Security considerations:

Moving data to and from cloud infrastructures poses [security risks](#). Opt for a secure, private connection to mitigate these and to handle particularly sensitive data. The results of IT optimization—accelerated adoption, cost-effectiveness, scalability, and more—are well worth the journey, despite the challenges that may appear overwhelming at first glance.

Successful cloud adoption relies on considerations involving people and processes—in other words, optimization involves organizational culture as well as the way your teams work together. Embracing an agile system of operations can improve cloud adoption and aid the full integration of applications and infrastructure.

[Forbes Insights: Renewing IT In The Cloud Era](#) →

How to optimize IT: Take the hybrid approach

Adopting cloud doesn't have to be an all-or-nothing proposition. You can start capitalizing on cloud capabilities while continuing to maximize the assets that currently reside within your on-premises environments. To facilitate flexibility and portability, you can incorporate your existing systems and applications into a hybrid cloud model.

Most companies with private clouds will evolve to use their private cloud as a foundation that they'll strategically integrate with public cloud services, ultimately managing workloads across data centers, private clouds and public clouds. The main advantage? With hybrid cloud your workloads can be deployed and managed where it makes the most sense.

More key aspects of hybrid cloud include:



Retains your critical applications and sensitive data remain within a traditional data center environment or private cloud.



Enables usage of public cloud resources like SaaS for the latest applications and IaaS for elastic virtual resources



Facilitates the portability of data, apps and services and more choices for deployment models

A hybrid-cloud approach affords you the freedom to have your apps, data and services where they are most effective and deliver the most value, faster.

[Forrester Study: The Key to Enterprise Hybrid Cloud Strategy](#) →

Increase IT flexibility with virtualization and containers

IT optimization involves maximizing the performance of your technology within your existing infrastructure or environment. One approach that allows a more efficient use of computer hardware and boosts your ROI is virtualization.

Virtualization uses software to extend the utility of your physical hardware, allowing you to purchase the computing resources you need, when you need them. You can then scale those resources cost effectively as your workloads grow.

Containerization, as an alternative to or companion to virtualization, has become another major trend in software development. A container is an independent miniature platform that holds a single application, which makes it simple to deploy—often requiring a single click, making them ideal for cloud-to-cloud migrations. In fact, more than 59 percent of enterprises implementing a container strategy have seen an improvement in app quality, as well as a reduction in their applications' defects.³

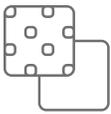
Containers provide a level of flexibility that is ideal for what's become a multiple cloud world. When a dev team creates an application, they may not know where they'll need to deploy it later. Today, an organization might be running the application on its private cloud, but tomorrow it might need to deploy it on a public cloud from a different provider.

Containerizing applications provides teams the flexibility they need to handle the many software environments of modern IT.

Moving workloads to cloud: How IBM can help

Sixty percent of companies are migrating applications to the cloud, but 66 percent of those companies see cloud migration as a challenge.⁴ When migrating applications and data to the cloud, one size doesn't fit all. You'll need to consider how much of your back-end infrastructure you want to support, and which application workloads can and should be moved.

Migrating to a cloud environment can help improve operational performance and agility, workload scalability, and security. From virtually any source, you can migrate workloads and quickly begin capitalizing on the following hybrid-cloud benefits:



Greater agility with IT resources on demand, which enables you to scale unexpected surges or seasonal usage patterns



Reduced capital expenditure by shifting to an operating expenses model to pay-as-you-go



Enhanced security with various options throughout the stack—from physical hardware and networking to software and people

Before you embark on the cloud migration process, it helps to have a clear understanding of what's involved. Here are five key elements for a successful cloud migration:

1. Develop a strategy.

This should be done early and in a way that prioritizes business objectives over technology.

2. Identify the right applications.

Not all apps are cloud friendly. Some perform better on private or hybrid clouds than on a public cloud. Some may need minor tweaking while others need in-depth code changes. A full analysis of architecture, complexity, and implementation is easier to do before the migration than after.

3. Secure the right cloud provider.

A key aspect of your optimization will involve selecting a cloud provider that can work with you throughout and after the migration process. What tools, including third-party, does it have available to help make the process easier? Can it support public, private and multiple cloud environments at any scale? How can it help you deal with complex interdependencies, inflexible architectures, or redundant and out-of-date technology?

4. Maintain data integrity and operational continuity.

Managing risk is critical, and sensitive data can be exposed during a migration. Post-migration validation of business processes is crucial to ensure that automated controls are producing the same outcomes without disrupting normal operations.

5. Adopt an end-to-end approach.

Service providers should have a robust and proven methodology to address every aspect of the migration process. This should include the framework to manage complex transactions on a consistent basis and on a global scale. Make sure to spell all of this out in the service level agreement with agreed-upon milestones for progress and results.

It's clear that IT optimization requires specific capabilities and know-how. IBM Cloud Migration Services advises on the best approach for your enterprise—from any environment to any cloud—showing you how to plan, test different options, prepare budgets, and calculate the ROI for your overall migration initiative.

[Confidently move to cloud with IBM →](#)

Expect more: IBM solutions

Your enterprise needs a tailored IT optimization strategy. IBM has the technology and services to modernize and extend your IT infrastructure to cloud.

VMWare

IBM Cloud™ supports a wide variety of VMware products and services in its cloud environment. You can migrate all your VMware workloads from on-premises infrastructure to IBM Cloud, or you can mix and match, creating a hybrid cloud environment that you manage from a single place. IBM has the experience in managing, designing, and deploying VMware infrastructure, with some of the largest deployments under management.

VMware clients often have difficulties with migration, implementing automation solutions, and vendor lock-ins. This IDC report examines how the IBM Cloud partnership combats these issues by offering a security-rich, flexible, non-disruptive path to a public cloud.

[IDC Whitepaper: IBM Cloud for VMWare Solutions →](#)

Private cloud

IBM Cloud Pak™ offerings provide a faster, more secure way to move your core business applications to any cloud through enterprise-ready containerized software solutions. Built on a common operating environment that runs anywhere—from any data center to multiple clouds—you can select the best architecture and approach to address the most critical application, data and workload requirements for your business.

Red Hat® Enterprise Linux® and Red Hat OpenShift® enterprise Kubernetes, an open source platform for container orchestration, is trusted and certified by thousands of organizations around the world and is available anywhere they operate. Open architectures enable inclusion and choice for all companies, applications, developers and users.

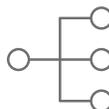
[Learn more about IBM + Red Hat →](#)

Public Cloud

Open architectures, based on Kubernetes and containers, are driving the next wave of cloud-based business innovation. IBM's public cloud offers trusted and secure solutions, improving innovation, user experience, account management, networking, core infrastructure and more, including:



Support your existing enterprise workloads with IBM's open cloud architecture so you can easily and quickly migrate, scale up and scale out your applications.



Choose from multiple cloud-native architectures for your innovative new applications—Kubernetes, Cloud Foundry, Serverless, VMs, bare metal—all under one management umbrella.



Access advanced cloud services, such as AI, IoT and blockchain, to build next-generation applications.

IBM Cloud Pak offerings give you a faster, more secure way to move your core business applications to any cloud through enterprise-ready, containerized software solutions.

[Build now →](#)

Cloud expertise

Cloud services from IBM can help your organization realize business objectives by building, deploying and managing workloads on a multiple cloud environment that's integrated with your traditional infrastructure. As tightly integrated infrastructures are replaced by modular, managed services in a hybrid environment of private and public clouds, workloads must be migrated, optimized, and enabled for cloud applications to stay competitive.

[Top 10 cloud migration and management services →](#)

Conclusion

IT optimization helps your enterprise drive velocity, scale easily and increase security. IBM supports mission-critical workloads and optimization efforts across various industries including healthcare, finance, transportation, media, and more.

With a blend of trusted technology, tools, and expertise, you can successfully optimize your IT to meet the changing needs of your enterprise, and most importantly, you'll exceed the ever-increasing demands of your customers.

Additional resources



Unified security in hybrid cloud

Complex, distributed resources call for unified simplicity for hybrid cloud security. →



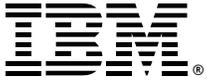
Visit a virtual garage

Move faster, work smarter, ideate more rapidly and fundamentally change the way you work. →



Optimize and manage technology

Learn how to optimize and manage IT, securely and with velocity. →



© Copyright IBM Corporation 2019

IBM Hybrid Cloud
IBM Corporation New Orchard Road
Armonk, NY 10504

Produced in the United States of America
December 2019

IBM, the IBM logo, ibm.com, and IBM Cloud Pak are trademarks of International Business Machines Corp., registered in many jurisdictions worldwide. Other product and service names might be trademarks of IBM or other companies. A current list of IBM trademarks is available on the Web at “Copyright and trademark information” at www.ibm.com/legal/copytrade.

Linux is a registered trademark of Linus Torvalds in the United States, other countries, or both. Kubernetes is a registered trademark of The Linux Foundation. Red Hat and Red Hat OpenShift are registered trademarks of Red Hat, Inc. Open Container Initiative™ is a trademark of The Linux Foundation.

This document is current as of the initial date of publication and may be changed by IBM at any time. Not all offerings are available in every country in which IBM operates.

The information in this document is provided “as is” without any warranty, express or implied, including without any warranties of merchant-ability, fitness for a particular purpose and any warranty or condition of non-infringement.

IBM products are warranted according to the terms and conditions of the agreements under which they are provided.

- 1 IBM Institute for Business Value. Tailoring hybrid cloud. August 2016.
- 2 IDG. 2018 IDG Cloud Computing Survey. 2018
- 3 IBM Cloud Education. Containerization. May 2019.
- 4 IBM Services. Soar to the cloud without turbulence. 2018