

# Realize the full value of your hybrid cloud

An open hybrid cloud platform from IBM and Red Hat is a catalyst for innovation and business value.



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# The opportunity

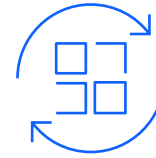
# Unify to remove barriers to innovation.

Connect and integrate your IT infrastructure and make the data accessible by the right people at the right time.

IT organizations face many challenges to creating business value while balancing speed and security. Building and deploying new applications to run anywhere. Managing workload spikes with existing infrastructure. Addressing complex compliance requirements without compromise. These challenges — and their solutions — often start with the data. And as an IT leader, you need your IT teams to have consistent data access, no matter where the data resides.

**We meet you where you are in your journey.** Our [hybrid cloud strategy](#) is founded on the deeply held belief that you know your business and its capacity for transformation. Our focus is to understand what your business and IT goals are and to help you achieve them in the most efficient way. This creates tangible value designed to help optimize your resources and improve time to market.

The core of our hybrid cloud strategy is an open hybrid cloud approach designed to integrate your cloud and on-prem environments. You won't be asked to replace what you have or rebuild from the ground up. Instead, our approach is designed to help you:



## Modernize

Modernize your applications and data, connecting and integrating them across a distributed hybrid cloud environment.



## Secure

Protect your regulated data and applications and mitigate risks before they happen to keep your core workloads and sensitive data compliant, secure and resilient — spurring innovation.



## Optimize

Optimize your hybrid infrastructure with agility and flexibility across on-prem, cloud and multicloud environments to gain resiliency and reliability and support consistent data access from edge to cloud to core.



# 80%

of IT leaders expect to increase their use of enterprise open source software for emerging technologies.<sup>1</sup>

IBM's open hybrid cloud approach is designed to create a single platform on which to run your applications and manage your data. It integrates and connects across your hybrid, multicloud and on-prem IT environments. This paper discusses the ways in which your enterprise IT can realize the full value of an open hybrid cloud approach and enable innovation for business value.

[Explore how IBM's hybrid cloud strategy can make your business more agile →](#)



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# IBM and Red Hat

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# Gain the control and flexibility your business demands.

Build and run in any environment and orchestrate resources across those environments to speed time to value.

Central to IBM's hybrid cloud strategy is a common, infrastructure-independent environment comprised of the Red Hat OpenShift and Red Hat Enterprise Linux platforms running on IBM Cloud or the cloud of your choice.

With Red Hat's platforms, optimized by IBM, you can adapt quickly to new market conditions because of the increased flexibility and agility these platforms afford. And being able to respond faster to changing market conditions can yield increased time to value and an impactful ROI. This is especially true as increased agility can shorten development lifecycles, enabling your IT teams to innovate more.

It's no wonder that according to a March 2021 white paper from IDC,<sup>2</sup> Red Hat OpenShift drives:

20%

higher DevOps development team productivity<sup>2</sup>

29%

faster application development lifecycles<sup>2</sup>

636%

five-year return on investment (ROI)<sup>2</sup>

**Simplify your environment to innovate faster.**

Red Hat technology allows IT teams to work together while accommodating different deployment environments. You can build, deploy and run applications with ease using native cloud services, such as managed Red Hat OpenShift. With full stack-automated operations, developers can access what they need — when they need it.

The open-source, managed environment from IBM and Red Hat can bring your cloud and on-prem data together and can simplify deployment to drive innovation. IBM and Red Hat provide the tools and an open, flexible infrastructure to get all the benefits of IBM Cloud or the cloud of your choice. For IT teams seeking to build cloud-native applications, but lack Kubernetes skills, Red Hat OpenShift and IBM Cloud Code Engine provide an ideal development environment.



**The Masters makes every shot count with IBM and Red Hat.**

IBM powered The Masters Tournament using an open hybrid cloud approach enabled by Red Hat OpenShift. IBM was able to manage the data while boosting efficiency. The flexibility and hyperscalability of Red Hat OpenShift, deployed on the Red Hat Enterprise Linux operating system, enabled the Tournament's computing platform and fan-engagement apps such as My Group to operate consistently across environments.

The Tournament was able to provide personalized video feeds, highlights and regular updates to golf fans worldwide. Every shot matters, and IBM and Red Hat were behind the scenes making sure fans didn't miss a single swing.

[Learn how IBM and Red Hat drive fan engagement to new heights →](#)





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# IBM's open hybrid cloud approach

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# Open is the cornerstone of our hybrid cloud strategy.

Leverage existing investments to optimize your resources and improve time to market.

IBM and Red Hat's deep engagement in open-source communities combined with leadership technology and industry expertise enables an open, hybrid multicloud environment. Based on Red Hat Enterprise Linux and Red Hat OpenShift, our hybrid cloud approach includes a model that bridges platforms to create a unified experience — for your users and customers. With a shared foundation, cloud deployments are faster and more reliable.

IBM is also contributing key elements of its intellectual property to the open-source community through participation in projects such as Linux, Eclipse and Kubernetes. IBM with Red Hat offers an open, top-to-bottom hybrid cloud stack — from infrastructure to software to consulting (see Figure 1).

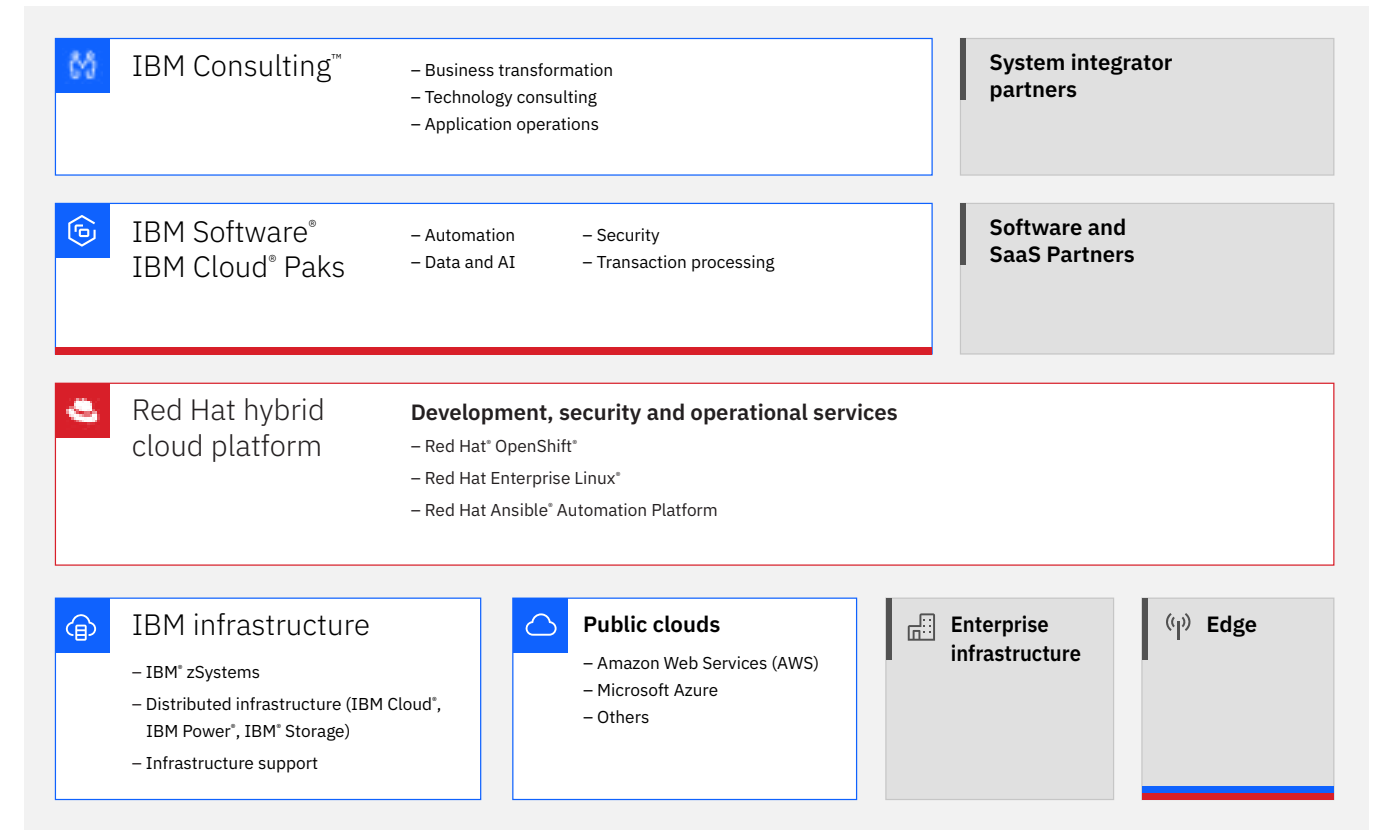


Figure 1: IBM with Red Hat offers an open, top-to-bottom hybrid cloud stack — from infrastructure to software to consulting.<sup>3</sup>

One of the Banco Sabadell's first steps was to select [IBM Consulting](#) to help expand and manage its banking-as-a-service model and continue innovating its digital solutions and services.

**Enable standardized IT through our open architecture.**

You can use Red Hat OpenShift to create a standardized environment for workload portability, orchestration and management of all cloud deployments: public clouds such as IBM Cloud, private clouds and on-prem environments, and at the edge. On this shared infrastructure, you can build, deploy and manage applications and automate tasks at enterprise scale. IBM's entire cloud-native software portfolio is optimized to run on the open hybrid cloud platform.

Meemoo is a nonprofit organization funded by the Flemish Government and focused on preserving Flemish history. By optimizing its architecture with IBM and Red Hat, Meemoo has realized significant value, according to Senior Systems Engineer Herwig Bogaert. "Because we use Red Hat OpenShift on IBM Cloud, we spend less time managing

the infrastructure, and we have more time to listen to business needs and develop new applications to accommodate them," explains Bogaert.<sup>4</sup>

**Engage with experts to accelerate your transformation.**

The technology experts working within the IBM Garage™ service model can help you accelerate your digital transformation. IBM Garage empowers your team to take manageable risks, speed up product development and measure the value of everything you do. With a smaller investment, you get support that helps you generate innovative ideas and equips you with the practices, technologies and expertise to turn those ideas into business value.

[Learn how IBM Garage is applied to the four pillars of IBM Consulting™](#) →



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# Modernize

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# Modernize your applications and data for a connected and integrated hybrid cloud environment.

Optimize your application-modernization efforts by selecting the path most suitable to your workloads.

A modern infrastructure designed with an open hybrid cloud strategy at its core lets you access and modernize mission-critical applications while building new, cloud-native applications. Cloud-native applications evolve at the pace of business, so they can quickly respond to changing market and customer demands. When you invest in cloud native, you can expect a consistent development experience with the rapid deployment of a new function.

But with a hybrid multicloud environment to manage, you need more — you need consistency across private clouds, public clouds and on-prem infrastructure. IBM and Red Hat enable new cloud-native applications to be built once, deployed anywhere and connected to existing data and applications. The result is flexibility of workload placement, agility of delivering new business value and common DevOps skills across the enterprise.

## Accelerate development without needing to skill up.

Red Hat OpenShift and IBM Cloud® Paks are supported across your on-prem, virtualized and cloud environments. Red Hat OpenShift provides a consistent foundation for building, deploying and managing applications across the hybrid cloud environment. IBM Cloud Paks employ AI technology to accelerate application modernization with preintegrated data, automation and security capabilities.

We also offer a spectrum of modernization options to make your applications cloud native. Whether you're trying to migrate existing applications to the cloud or integrate your on-prem and cloud infrastructure, we have the tools to help you create a connected and integrated hybrid cloud environment.



Banco Sabadell has migrated its applications to **IBM Cloud** and has workloads deployed on both virtual machines and IBM Cloud bare metal servers.

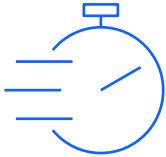
Because IBM and Red Hat are open and vendor agnostic, we deliver strategic flexibility that allows you to adapt to changing business needs. You can optimize your application-modernization efforts by selecting the path most suitable to your workloads, while also:



Modernizing applications to make them easier to build and maintain



Supporting the portability of workloads across multiple clouds and systems to protect investments



Accelerating delivery of high-impact business processes on a more secure and scalable platform

**Meemoo builds an archive for the future on Red Hat OpenShift.**

The Archive for Education, an online platform from Meemoo, offers teachers throughout Flanders, Belgium, a way to incorporate part of Flemish heritage into their lesson plans. The solution features Red Hat OpenShift technology, which allows the engineering team to build automated deployment pipelines that make it easy to add new applications to the platform.

[Learn how Meemoo is modernizing its applications on cloud \(PDF, 540 KB\) →](#)



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# Optimize

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# Optimize your infrastructure for reliable storage across distributed environments.

Adopt a flexible as-a-service model to respond nimbly to fluctuating needs and spikes in demand.

On-prem infrastructure is a critical part of most enterprises' IT architectures. With IBM and Red Hat, your on-prem infrastructure can now be used and managed as efficiently as public cloud. Create an on-prem infrastructure in the image of cloud by balancing your existing IT infrastructure and clouds for greater reliability and resiliency.

An energy-efficient IT infrastructure can play an essential role in reducing an enterprise's carbon footprint.

### **Increase capacity as your needs fluctuate.**

In a study commissioned by IBM in 2021, 451 Research, part of S&P Global Market Intelligence, concluded that the flexibility offered through an as-a-service consumption model can help organizations get more from their investments.<sup>5</sup> Pay only for what you use with IBM's flexible as-a-service consumption model, which enables you to scale resources during periods of fluctuation, so you can respond to spikes in demand.

IBM provided Rg19 with a flexible financing solution that enabled the privately-owned Swedish cloud solution provider to minimize the duration of downtime for the transition between systems while balancing cost.

[Explore how Rg19 uses dynamic capacity to reduce costs and provide flexibility.](#)

In the area of data storage, IBM's hybrid cloud approach provides reliable data access across distributed environments. Our approach is designed to help you establish a consistent storage solution across distributed computing environments. In addition, you can manage your hybrid storage resources wherever they reside — on prem, in public or private cloud, or at the edge. [Learn how Genus Power Infrastructures Ltd. gets an electrifying boost from IBM Storage.](#)



**More efficient resource use supports sustainability.**

The energy consumed in a data center can have a significant impact on the environment. Updating your on-prem servers to be more energy efficient will not only help to optimize your infrastructure, it will also reduce your carbon footprint. This can be an important consideration for an enterprise committed to simplifying its IT and driving efficiencies in cost and sustainability.

Two of IBM's most relied upon platforms, IBM® Power® and IBM zSystems, provide the scalability and efficiency you need from on-prem architectures. This enables server consolidation and more efficient use of resources. An IBM z16™ can reduce the CO2e footprint by approximately 75% each year

compared to x86 servers running the same Linux workloads under similar conditions. This is the equivalent of taking approximately 37 gas-powered vehicles off the road annually.<sup>6</sup>

Newlight Technologies, Inc., is innovating in a partnership with IBM to apply our infrastructure solutions to reduce the flow of carbon and synthetic plastic into the environment.

[Discover how Newlight created a new approach to tackle climate change →](#)





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# Speed innovation while addressing your compliance and security needs.

## Automate your security and compliance posture and innovate more.

Businesses in regulated industries, such as financial institutions, are under pressure to more quickly adopt cloud to compete — without compromising security and regulatory compliance. To address growing cybersecurity risk and regulatory complexity, these businesses need a cloud platform that’s specifically designed to help them innovate while keeping their data and applications secured and compliant. That’s why we built [IBM Cloud for Financial Services™](#), a first-of-its kind public cloud platform developed for the industry with built-in security and controls capabilities to help clients protect data, mitigate their risks and accelerate cloud adoption for even their most sensitive and mission-critical workloads.

Created in collaboration with major financial institutions, our cloud is designed to help clients automate their security and compliance posture and monitor it with security and controls built into the platform — not offered as add-on tools or do-it-yourself features. Our cloud also features industry-leading security and privacy capabilities, with confidential computing technology that protects even your sensitive data, at rest, in transit and in use. This includes Keep Your Own Key (KYOK) encryption that technically gives clients exclusive control of their data — not even IBM can access it.<sup>7</sup>

IBM Cloud for Financial Services is strengthened by deep IT operations knowledge, industry expertise and an extensive set of curated ecosystem partners. The result is a secured environment

engineered to help clients with lowering the risk and cost of moving sensitive data to the cloud, modernizing workloads faster and rapidly integrating the capabilities needed to move their business forward.

If your business is in a highly regulated industry, you can now take advantage of the benefits of public cloud while also addressing your cybersecurity and automate regulatory compliance requirements. You don’t have to choose between innovation and risk management.

[Explore IBM’s regulated industries cloud platform →](#)

Banco Sabadell has . . . migrated its VMware workloads with the [IBM Cloud for VMware](#) solution, which is a security-rich, automated deployment architecture that can help financial institutions to manage compliance.

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# Take the next step

# Maximize the value of your investments with a single, integrated platform.

IBM and Red Hat offer the combination of strategy, technology and skills that can help you build a more effective and innovative open hybrid cloud strategy. Connecting and integrating clouds and on-prem infrastructure in a single platform affords simple, frictionless interoperability and enables IT leaders to maximize the business value of all cloud and infrastructure investments.

IBM's open hybrid cloud approach can create efficiencies that enable your teams to innovate with speed and agility. Working with IBM Consulting advisors enables you to choose

where to focus your resources — whether modernizing your applications and data, optimizing your infrastructure or protecting your regulated data and applications. Whichever path you choose, with IBM and Red Hat you're in control.

[Start to build and execute an open hybrid cloud strategy with the help of IBM Consultants →](#)





Endnotes

- 1 *The State of Enterprise Open Source* (link resides outside of ibm.com), Red Hat, Inc., February 2022. <https://www.redhat.com/en/enterprise-open-source-report/2022>
- 2 *The Business Value of Red Hat OpenShift* (link resides outside of ibm.com), IDC Business Value White Paper, sponsored by Red Hat, Doc. #US47539121, March 2021. <https://www.redhat.com/en/resources/The-Business-Value-of-Red-Hat-OpenShift>
- 3 *Let's create*, IBM Annual Report 2021, IBM Corporation, 2021. [https://www.ibm.com/investor/att/pdf/IBM\\_Annual\\_Report\\_2021.pdf](https://www.ibm.com/investor/att/pdf/IBM_Annual_Report_2021.pdf)
- 4 Leah Valentine, *Preserving Flemish Heritage* (PDF, 540 KB), IBM Corporation, April 2022. <https://www.ibm.com/downloads/cas/GKQA4BJA>
- 5 *Bridging the Hybrid IT Gap with STaaS* (PDF, 2 MB), 451 Research, part of S&P Global Market Intelligence, commissioned by IBM, 2021. <https://www.ibm.com/downloads/cas/1DA5YAW>
- 6 IBM z16 Max 125 model consists of three CPC drawers containing 125 configurable cores (CPs, zIIPs, or IFLs) and two I/O drawers to support both network and external storage. 39 Cascade Lake and Ice Lake x86 servers configured to provide same performance. Annual energy required for server operations was 143,962 KW for IBM z16 with 125 cores and 566,448 KW for 39 x86 servers with 2,072 cores. Estimated annual CO2e reduction is based on the EPA GHG calculator (<https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator>); 62.5 metric tons for IBM z16 and 245 metric tons for x86 servers. The number of equivalent gas-powered passenger vehicles for distributed servers is 49.9 and 12.7 for 39 distributed systems and 1 z16 Max 126 respectively based on the EPA GHG calculator.
- 7 Based on IBM Cloud® Hyper Protect Crypto Services, the only cloud service in the industry built on FIPS 140-2 Level 4-certified hardware. At this security level, the physical security mechanisms can provide an envelope of protection around the cryptographic module with the intent of detecting and responding to unauthorized attempts at physical access.

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IBM Corporation  
New Orchard Road  
Armonk, NY 10504

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