

# IBM Application Modernization

Start



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# Introduction

# Optimize the user experience through modernization

In today's ever-changing digital landscape, customer user experience is vital for business. Applications have become the gateway to more impactful and rewarding experiences for internal stakeholders and your customers. Yet to embrace agility, fuel growth and remain competitive, it's imperative to drive digital transformation and modernize your applications.

To embark on an application modernization journey, IT leaders need architectural flexibility in addition to leading technologies like AI to modernize applications for improved ROI and faster time to market. These resources will help optimize business models—all of which can be found within a robust hybrid cloud strategy.

## Modernization can provide immediate benefits

### **Accelerate digital transformation.**

Application modernization is driven by the need to build new capabilities and deliver them quickly.

### **Create a future-ready culture.**

IT leaders are prioritizing the development and delivery of new applications and services through the adoption of a cloud-native architecture, containerization and AI accelerators.

### **Accelerate delivery.**

It has become vital to adopt DevOps best practices to drive a culture of automation and transformation while remaining agile.

### **Deploy on hybrid cloud platforms.**

Improve efficiency by automating enterprise applications and operations in your hybrid, multicloud environment.

## What's inside?

This field guide provides a high-level overview of IBM's application modernization approach.



### **Learn it.**

Start exploring a summary of modernization concepts.



### **Get started.**

Discover tips for starting the application modernization journey.

02

Learn it

# Ready your application for deployment to the cloud

When you modernize your existing applications, you can ease your move to the cloud with the full promise of cloud technology. With a cloud-native microservices approach, you can capitalize on the scalability and flexibility inherent to hybrid cloud, making your experience truly tailored to your business needs.

Modernizing your cloud-native applications enables applications to run concurrently and to seamlessly connect with your existing investments. Barriers that prohibit productivity and integration are removed to create new user experiences and develop new applications.

## Build once and deploy on any cloud

### **Assess your applications.**

You'll be able to identify applications that can be readily moved into the cloud platform and those that will require refactoring.

### **Build applications quickly.**

Containerized workloads through the Red Hat® OpenShift® Container Platform can serve as the foundation for applications and services thanks to their scalability, openness and portability.

### **Automate deployments for productivity.**

DevOps pipelines automate deployments quickly and reliably.

### **Run and manage consistently.**

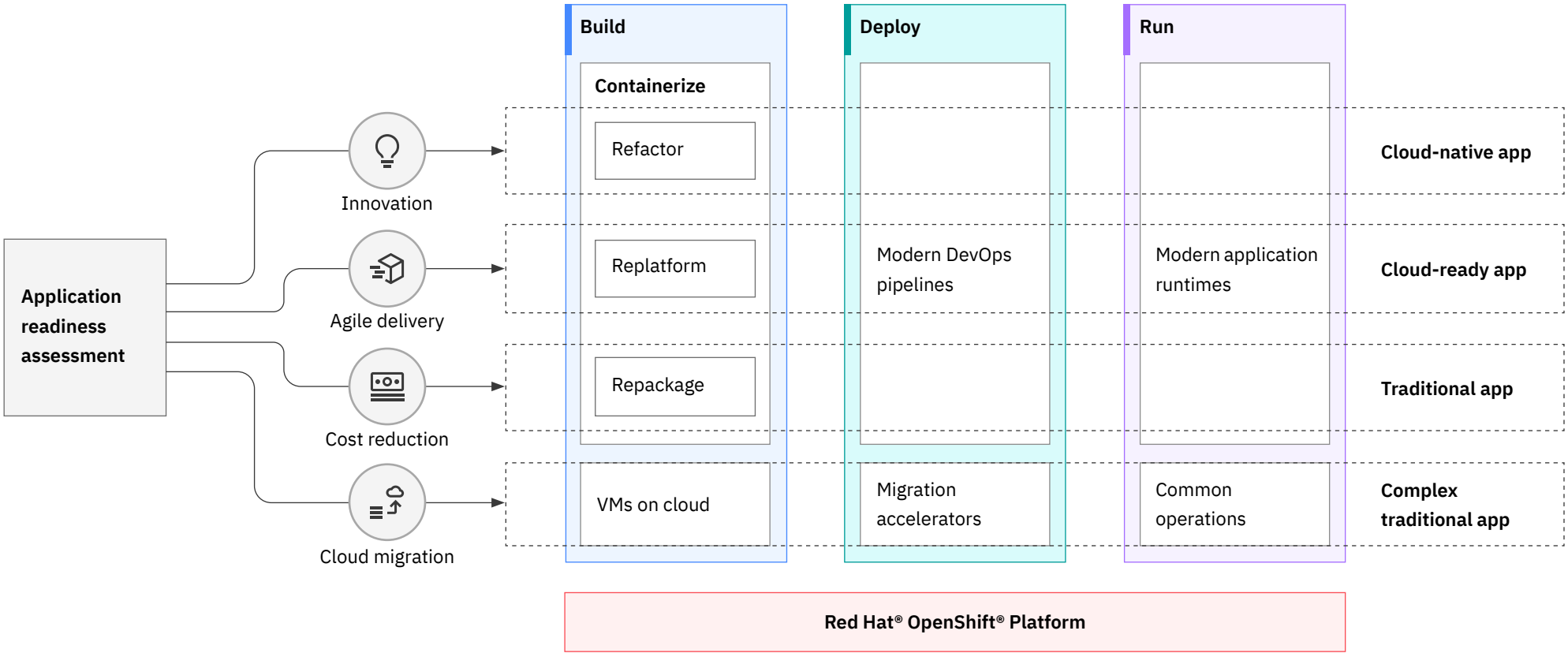
Enjoy a cloud solution that can consolidate operations for all applications into a common management approach to ensure reliability.



# Ready your application for deployment to the cloud

Modernize your applications quickly and safely using our accelerators and tools.

IBM can guide your cloud transformation journey with leading technology and expert guidance to help you achieve your business outcomes.





# Modernization journey

To get started on your modernization journey, it's important to understand the approaches available to help you plan and build your IT infrastructure. Our various cloud-based solutions help you select the best entry point to deliver value at each step in your journey, while our experts can assist you in understanding the patterns to help you achieve your modernization goals.

## Choose the approach that best meets your needs

### **Containerize monolithic applications.**

Define business opportunities and drive new insight into existing ideas. Define the opportunity, prototype with your squad and co-create a solution.

### **Expose on-premises assets.**

An application programming interface (API) enables existing assets that would otherwise be difficult to move to the cloud.

### **Refactor into microservices.**

By restructuring workloads into smaller, deployable components based on maturity, modernization objectives and requirements, you can sunset monolithic applications.

### **Add new microservices.**

Innovate incrementally, reduce complexity and establish success early. Incrementally sunset the monolith.

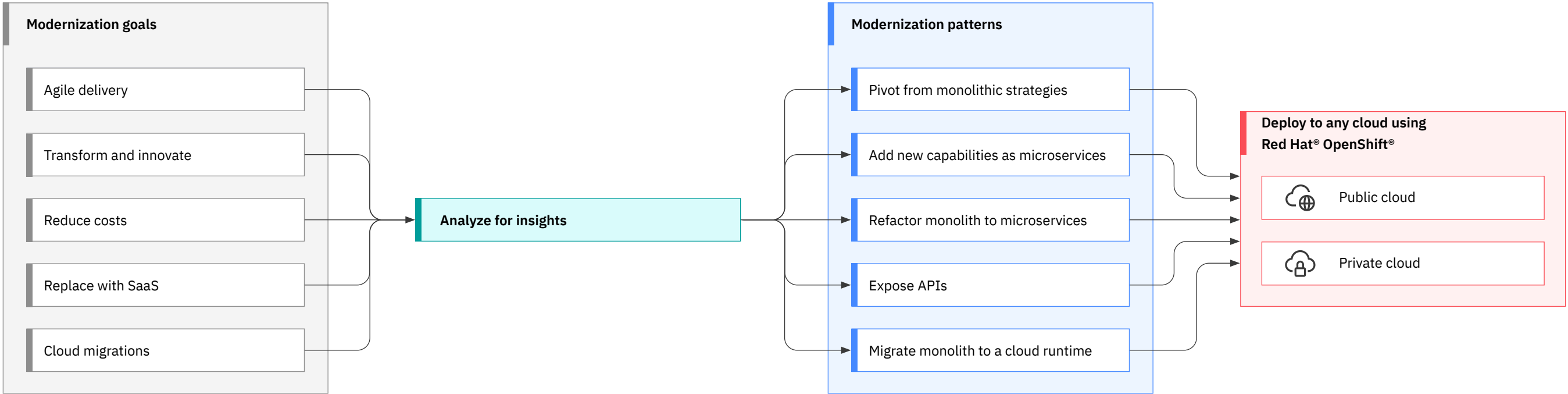


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# Modernization journey

Take an approach totally unique to your business goals and needs



Increase your delivery velocity throughout the journey

## Build on a trusted foundation

Container platforms like Kubernetes provide a strong foundation for application modernization. This open source-based container management system is built to help both development and operations staff.

With Red Hat OpenShift, developers can treat configuration as code to enable a modern DevOps toolchain. IBM provides a consistent container platform for application modernization from edge to cloud to core.

### Solutions to reduce costs and minimize disruptions

#### **IBM Cloud Pak®**

Enterprise-ready, **containerized software solution** for modernizing existing applications and developing new cloud-native apps that run on Red Hat OpenShift.

#### **Red Hat OpenShift Container Platform**

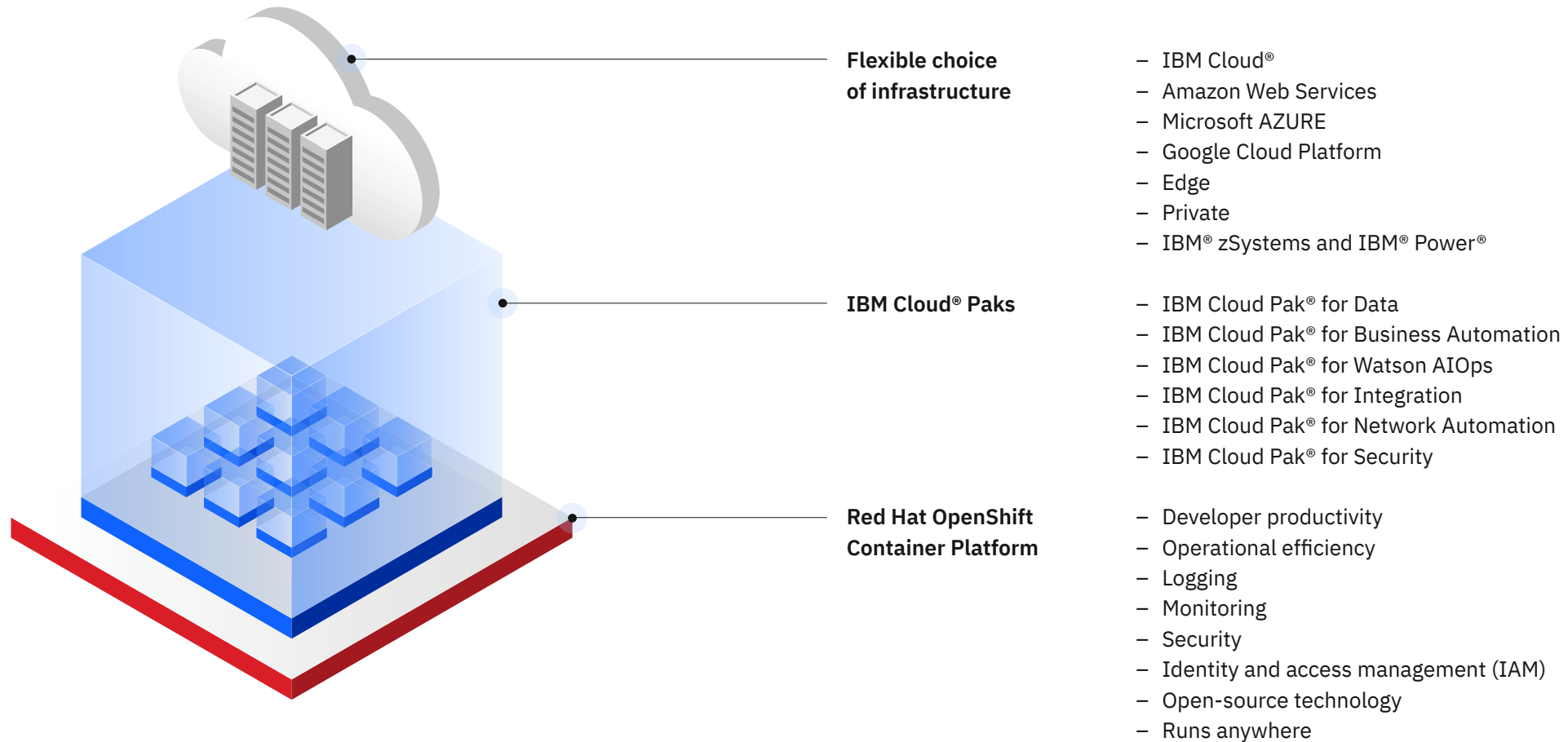
Based on the Kubernetes container orchestration project, Red Hat OpenShift is the starting point. A strong foundation with resiliency and security in the forefront is essential.

#### **Deploy where it matters.**

Use any public or private cloud provider and still maintain consistent operations.



## Build on a trusted foundation



# Assess your application portfolio

Before you begin modernizing your applications, it's essential to understand your application inventory and how it aligns with your business priorities. This will help you determine the best technical path to modernization and evaluate the effort required.

## Application modernization empowers business modernization

### **Align with your business priorities.**

Understand where your business needs are driving you to modernize.

### **Take inventory of your applications.**

Use powerful tools within the cloud ecosystem that can collect information from your existing Java environment and recommend modernization activities.

### **Spend your modernization dollars wisely.**

Make informed decisions by understanding how your application portfolio aligns with your business priorities.



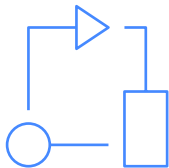
03

# Get started

# Align priorities and options

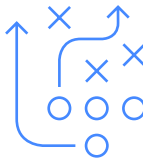
Classify your application modernization portfolio by choosing which modernization techniques will best meet your business goals.

## Achieve your goals with thoughtful modernization



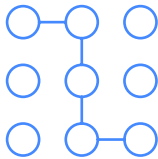
### Simplify

Understand where your business needs are driving you to modernize. Use tools native within IBM Cloud to gain insights and perform analysis.



### Plan

Strategize your modernization journey based on matching effort to business priority. Your first few projects should be both short in duration and high in potential business value.



### Select

Evaluate all possible modernization options relative to their complexity, cost and business value. Prioritize and assess your options.

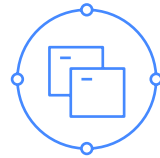
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# Containerize your applications

Wrapping an application in a container image is a good first step toward modernization, but many applications aren't optimized for containers. Load balancing, application-state handling and monitoring can be different working within the Red Hat OpenShift platform. As a result, you might need to rewrite portions of your applications. Likewise, performance tuning and DevOps processes must be aligned to containers.

## You wrapped your application in a container image – what's next?



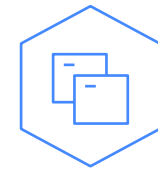
### **Adapt your applications.**

If you have existing IBM® WebSphere® applications from a non-cloud environment, IBM Cloud Pak solutions and IBM WebSphere Hybrid Edition solutions include pre-built containerized middleware and services to support your modernization journey.



### **Modernize your DevOps and configuration.**

You can automatically generate pipelines for new applications in addition to orchestration tools that automate configuration.



### **Consolidate and standardize operations.**

It's time to prioritize efficiency. Manage and monitor operations based on open container technologies while maximizing speed and agility.

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# Expose and integrate

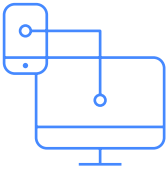
Some existing applications are best exposed as APIs that are easily reused for building new capabilities that augment the existing software. You can then use those APIs to integrate future applications into the ecosystem.

Running on Red Hat OpenShift, the IBM Cloud Pak for Integration gives you agility to deploy and run workloads on premises and on private and public clouds.

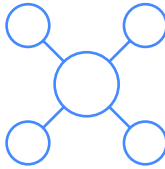
At this stage, you will also be able to modernize your existing IBM applications, enabling more of their value to be unlocked in an already broad offering set. Businesses also use this opportunity to harness their data and AI to create better outcomes and customer experiences—no matter where their data is.

Finally, unlock the potential of your APIs by moving them through your IT estate from edge to cloud to core with the robust power of on-premises IBM® zSystems and IBM® Power® technology.

## Do more with APIs



**Expose**  
REST APIs—APIs that adhere to the state transfer architectural style (REST)—can expose existing access from any endpoint.



**Manage**  
Place APIs under management control to improve security, performance and visibility.



**Build**  
New applications can build on freshly exposed APIs from existing applications without requiring changes to existing applications.

# Modernize operations

After an application is pushed to production, it must be managed. Cloud service management and operations address the operational aspect of your applications and services. Applications are monitored to ensure availability and performance according to service-level agreements. As methods to develop, test and release new functions become more agile, service management must also transform to support this paradigm shift.

IBM Cloud Satellite® is a robust solution built to enable businesses to manage their applications from anywhere. It's a solution for faster building, more efficient management, faster AI processing and reduction in latency.

## Reinvent your cloud operations



### **Build to manage.**

Developers use a set of standards and solutions to make applications manageable and meet service-level objectives.



### **Monitor and log.**

Access platform tools that enable you to monitor metrics and logs to determine application health in order to solve issues before users are impacted.



### **Communicate and collaborate.**

Use tools and automation, including chat applications. Use issue-tracking and project-tracking systems to keep everyone informed.

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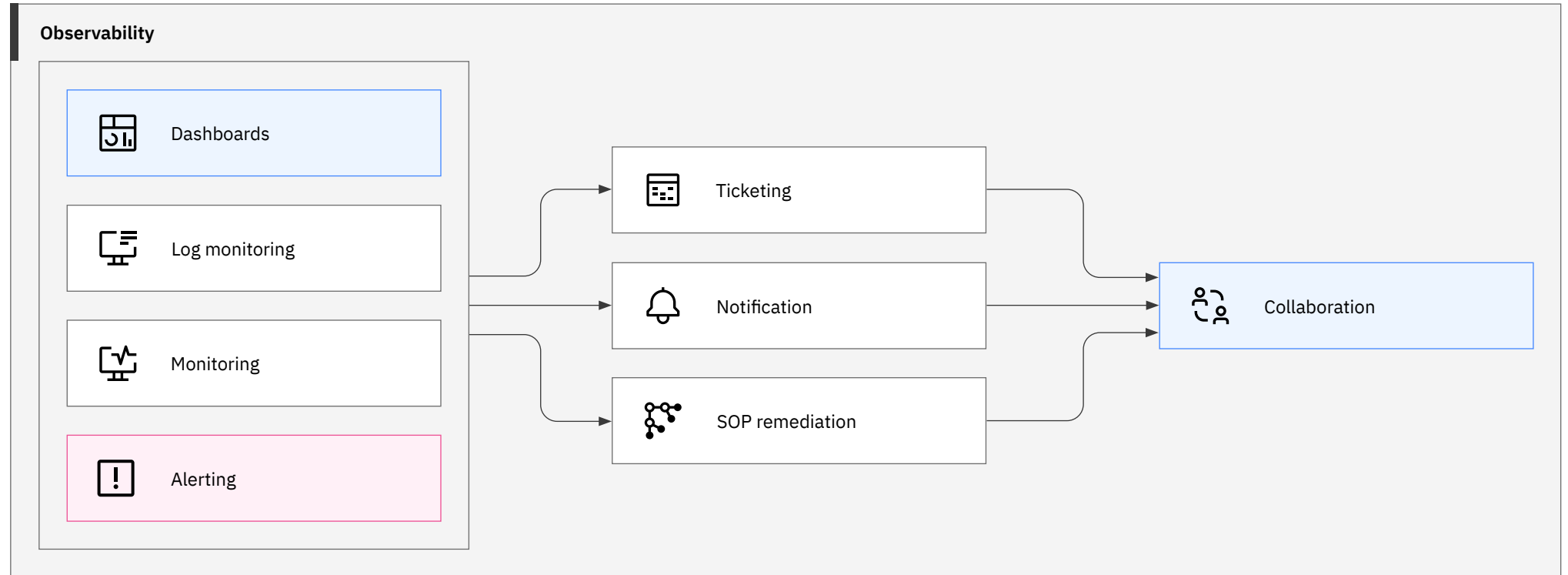
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# Modernize operations

Red Hat OpenShift is key to moving to modern development and operations approaches.



Learn more about application management services for hybrid cloud

[Learn more →](#)

04

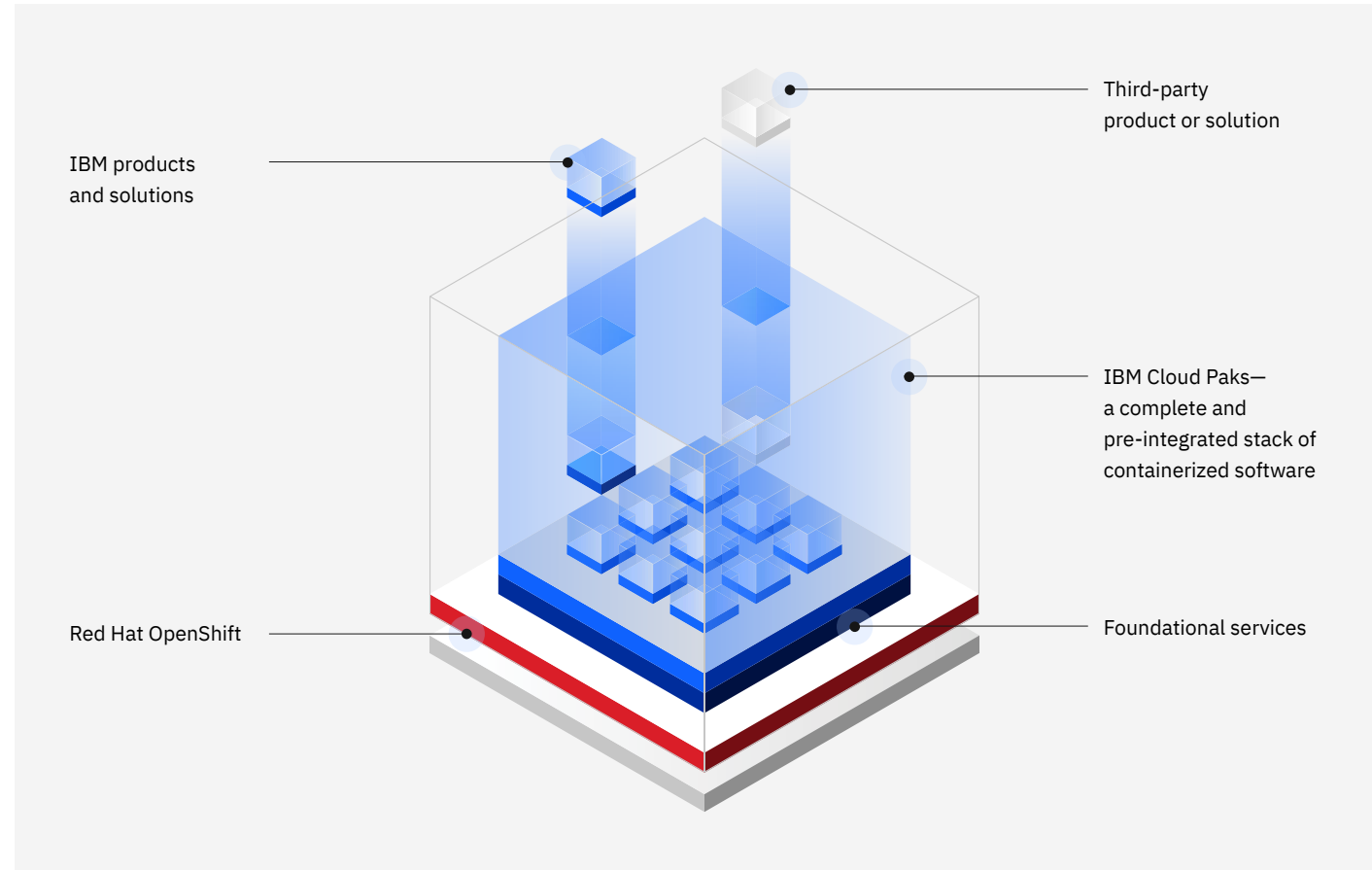
See what's possible

See what's possible

# What are IBM Cloud Paks?

IBM Cloud Pak technology consists of AI-powered software for hybrid cloud infrastructure that can help you fully implement intelligent workflows to accelerate digital transformation. Tap into the power of IBM Watson® to apply AI capabilities to your business to predict and shape future outcomes, automate complex processes, optimize your employees' time and create more meaningful and secure customer experiences.

Built on Red Hat OpenShift, this innovative solution enables you to develop applications once and deploy them anywhere on any cloud; integrate security across the breadth of your IT infrastructure; and automate your operations with management visibility. IBM Cloud Pak solutions have a common foundation of enterprise components that accelerate development, deliver seamless integration and help enhance collaboration and efficiency.



See what's  
possible

See what's possible

# Continuous modernization with IBM Consulting

Modernizing your IT infrastructure is an incremental and ongoing pursuit. Having experts by your side as you continue your journey is vital. IBM Consulting™ can offer the skills, methods and tools that can help you continuously modernize, build and manage applications to achieve your business and IT outcomes.

## **Build a modernization roadmap.**

Develop an application modernization roadmap that's underpinned by modernization patterns and solutions, and supported by architecture built to minimize risk and drive faster delivery.

## **Accelerate your modernization journey.**

Modernize your application portfolio using IBM tools, accelerators and DevSecOps principles to improve your time to market and better compete in an ever-changing industry.

## **Deliver using a new operating model.**

To sustain value, your modernization journey requires your operating model to change. IBM can help you design a flexible platform that meets future-state needs with AI-powered tooling that orchestrates and automates modernization.



See what's  
possible

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# Helpful resources



# Helpful resources

Application modernization services from IBM

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IBM Z & Cloud Modernization Center

[Learn more →](#)

Explore IBM Power

[Learn more →](#)

IBM zSystems and IBM LinuxONE application modernization field guide

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IBM Cloud  
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Produced in the United States of America  
May 2022

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