Modernize applications
Simplify and extend apps with an open, hybrid cloud

By 2023, 90% of current applications will still be in use, but most won’t be modernized.¹ Cloud-enable your applications in a phased approach that best fits your goals and architecture.
What is application modernization?

A key step in your business’s digital transformation is cloud-enabling your apps.

Why modernize your applications for cloud?

Improve application performance and speed up the development cycle.

Challenges of application modernization

Modernization is more complex than just “lifting and shifting” applications to the cloud.

Modernization: Taking a phased approach

Learn the best approaches to make the most of your applications.

The phased approach: How IBM can help

Tailor your modernization strategy to your application goals.

Modernization with IBM expertise

Use IBM’s deep expertise and technology to drive application innovation.
Modernize applications. Simplify and Extend Apps with an Open, Hybrid Cloud

What is application modernization?

Achieving flexibility and portability requires a new approach to designing, building, and deploying applications—especially when addressing traditional applications, or “monoliths.” Technologies such as APIs, microservices, Kubernetes and containers are used to cloud-enable traditional applications, achieving portability, security, and scalability while meeting marketplace demands.

Application modernization is a key step in your organization’s digital transformation and an investment in the future of your enterprise. You don’t have to rewrite all your applications, but in order to yield cost benefits and create competitive advantage, knowing which applications to modernize with cloud is crucial.

Why modernize your applications for cloud?

67% of organizations consider modernizing legacy applications a top priority. Those that prioritize modernizing their applications are seeing real benefits:

- **Boost digital transformation:** Improve your business by building new capabilities and delivering them quickly.
- **Enhance the developer experience:** Create new applications and services with cloud native and containerization.
- **Accelerate delivery:** Adopt DevOps best practices to drive a culture of automation and transformation.
Challenges of application modernization

Until now, enterprises have focused on “lifting and shifting” applications to the cloud. Although this works for simple workloads, it presents challenges for more complex traditional applications, called “monolithic applications,” which are single-tiered software applications with the user interface and data access code combined into a single program.

Monolithic applications typically have more elaborate coding and data integration requirements, and they may also require greater security and regulatory compliance efforts.

There are also architectural and organizational barriers to modernizing applications:

Multiple cloud instances that run applications can be difficult to connect seamlessly.

Many organizations simply lack the level of expertise and skills needed to modernize.

Modernization: Taking a phased approach

In a phased approach, cloud-enabling applications doesn’t have to be an all-or-nothing proposition. There are ways to simplify and extend functionality through a hybrid cloud approach that can meet the business and IT requirements of your applications.

By incorporating existing applications into hybrid cloud in a phased approach, you can start capitalizing on cloud while continuing to make the most of your existing investments in on-premises environments.

To get started, you’ll want to understand the approaches that can best fit your goals and your application architecture:

- **Simplify**: containerize the application to reduce costs and simplify operations
- **Extend**: use APIs for existing applications that are difficult to enable for cloud
- **Decompose**: use microservices to break down monolithic applications into deployable components
- **Refactor**: add new microservices to innovate incrementally
The phased approach: How IBM can help

IBM can help you get started with this phased approach to application modernization, one that’s tailored to your goals and your application architecture.

1. Simplify
Putting your application in a container is the first step to simplifying application deployment and management. Containers encapsulate the application with minimal or no changes to the application itself. This enables consistent testing and deployment that reduces costs and simplifies your operations.

IBM can help deliver enterprise-ready containerized software for an open, faster, more secure way to move, build, and manage your core applications for cloud. IBM Cloud Pak™ offerings simplify cloud modernization, reducing development time up to 84% and operational expenses up to 75 percent. They are designed to be flexible, consumable, secure and can run anywhere.

IBM Cloud Pak for Applications in one minute

2. Extend
Extend existing applications with APIs that securely expose their full capabilities to developers. The applications become reusable across clouds to easily access and build new capabilities. Beyond APIs, this approach relies on an agile integration strategy that supports the volume of connections and variety of architectures required.

App Modernization Field Guide

3. Decompose
Use microservices to break down monolithic applications into deployable components, where each component performs a single function. You can then further enhance development agility and efficiency by putting each microservice in its own container. Using Kubernetes, you can manage and deliver the microservices of your existing applications.

IBM Cloud Pak for Applications offers an end-to-end, enterprise-specific experience to speed development of apps built for Kubernetes. Built on IBM WebSphere® offerings and an orchestrated container platform, the IBM Cloud Pak for Applications provides a long-term solution to help you transition between public, private and hybrid cloud and create new applications.

4. Refactor
Refactoring involves building new microservices. In some instances, it may be easier to develop new applications utilizing cloud-native development practices instead of working with a current monolith. This provides teams with the ability to deliver innovation to users and encourage creative thinking. It also allows developers to experiment in a low-risk fashion.

Build for free
Modernization with IBM expertise

The ultimate goal for application modernization is to build once and deploy anywhere for optimal data and workload placement. With an open and integrated approach, you gain visibility, governance, and secure data access. IBM provides the best guidance and tools to modernize your company’s application development.

IBM’s skills and experience in cloud technologies, middleware, hardware, and services provide a unique approach to modernize your existing application estate with speed, confidence and reduced risk.

In addition, IBM public cloud includes a robust catalog of native cloud services—including Kubernetes service, managed Istio, and Knative as well as a choice of virtual, bare metal, and dedicated options to run your applications.

Your path to application modernization is unique. IBM can help you define the one that’s right for you. With IBM Cloud Integration, you can enable an agile, comprehensive integration architecture, working across multiple clouds. IBM can also help you connect your applications, data, legacy systems, and modern technologies through a variety of integration styles—from traditional service-oriented architectures to modern, agile and event-driven ones.

IBM Garage, a consulting practice that combines deep expertise with design thinking and agile methodology, can help your team acquire the skills they need to advance your business, whether your team decides to modernize existing applications or build new ones. IBM Garage can help you deliver cloud-native applications from concept to deployment in four to eight weeks.

Visit a virtual garage location ➔

Conclusion
Application modernization is business modernization. The leading organizations that are modernizing their application environments using IBM Hybrid Cloud solutions are unlocking hidden business potential, enhancing customer experiences, and accelerating development and delivery. IBM can make this easy for you. Leverage IBM’s capabilities to accelerate your application modernization journey.
Additional resources

Cloud without compromise
Build with speed and confidence on a platform designed for flexibility and portability. →

Schedule a garage session
Innovation from concept to reality with speed and impact. →

Elevate application innovation
Learn how to modernize your apps and innovate with velocity. →
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