



IBM Cloud

Application
Modernization

Field Guide



Establish the foundation

Container platforms, like Kubernetes, provide the foundation for app modernization. This open source-based container management system targets both development and operations staff. With containerization, developers can treat configuration as code to enable a modern DevOps toolchain. IBM provides a consistent container platform for application modernization across IBM Cloud –both public and private.

CONTAINERS - THE FOUNDATION FOR MODERNIZATION

Kubernetes-based platform.

Container orchestration is the starting point. A strong foundation with resiliency and security in the forefront is essential.

Containerized middleware and services.

Prebuilt container images and Helm charts can greatly accelerate your containerization.

Automate.

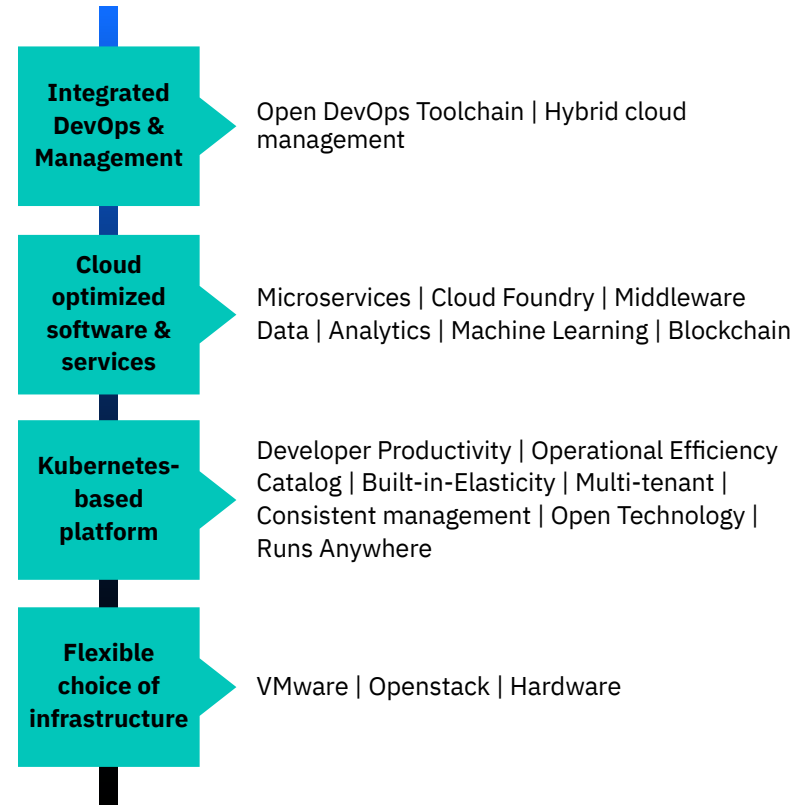
You need capabilities to orchestrate existing VMs, new finer grained deployment pipelines, and new operations stacks.



Learn more

Check out IBM Cloud Private.

<https://www.ibm.com/cloud-computing/au-en/products/ibm-cloud-private/>



Foundation for App Modernization

IBM realizes containerization through the IBM Container Service and IBM Cloud Private, based on Kubernetes.

Containerize your apps

Wrapping an application in a Docker image is a good first step toward modernization, but many applications are not optimized for containers. Load balancing, application state handling, and monitoring are different in containerized applications. 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 APP IN A DOCKER IMAGE- NOW WHAT?

Adapt your applications.

You need accelerators to adapt your application to a containerized environment. IBM provides prebuilt containerized middleware and services and prescriptive guidance.

Modernize your DevOps and Configuration.

IBM provides tools that automatically generate pipelines for new applications as well as orchestration tools that automate configuration.

Modern Operations.

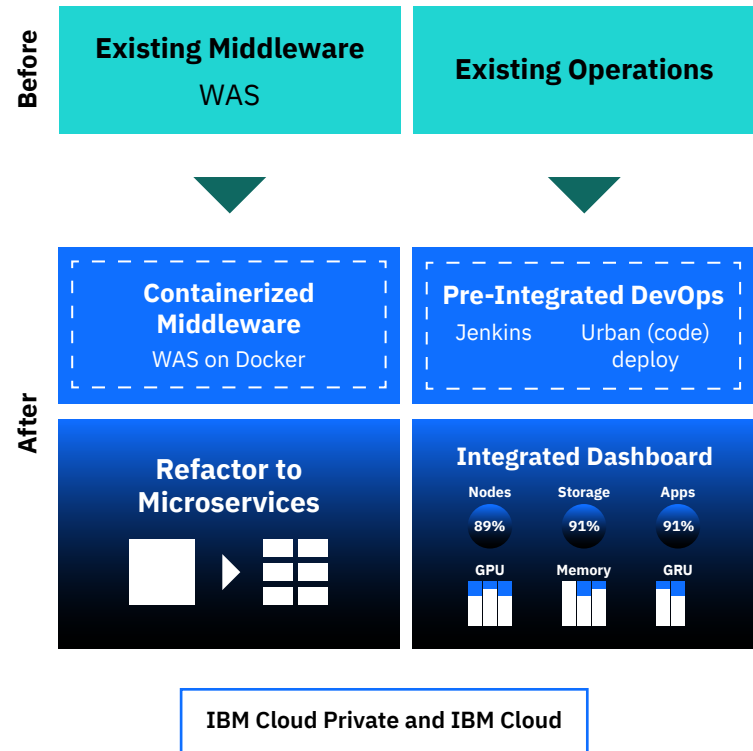
IBM provides out of the box management and monitoring based on open technologies.



Learn more

Check out the microservices architecture.

<https://www.ibm.com/cloud/garage/architectures/microservices>



Containerized middleware and applications are key to moving to modern development and operations approaches.

An integrated, container-native operations and DevOps platform is a requirement.

Expose and integrate

Some existing applications are best exposed as APIs. They then become reusable assets that are easily leveraged for building new capabilities that augment the existing application. Integrate other applications into the ecosystem by leveraging those APIs.

UNLOCK BUSINESS VALUE FROM EXISTING SYSTEMS

Expose.

Expose existing value as REST APIs for easy access from any endpoint.

Manage.

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

Leverage.

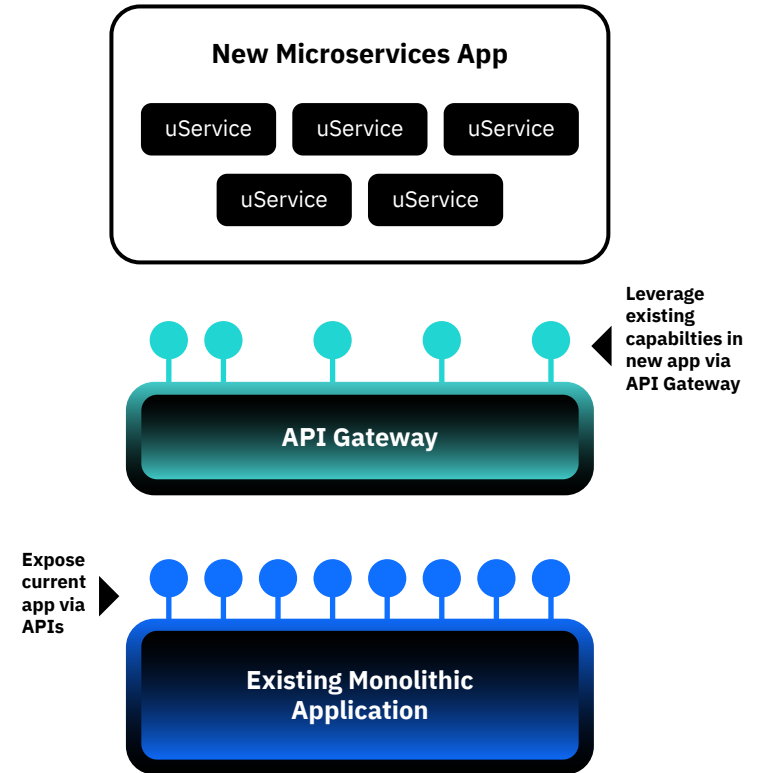
New applications can leverage API's from existing applications without requiring changes to existing applications.



Learn more

Check out the API architecture.

<https://www.ibm.com/cloud/garage/architectures/apiArchitecture>



Create new capabilities by leveraging APIs.

APIs allow incremental creation of value to extend current application ecosystems.

Refactor

Refactoring is the process of replacing existing, hard to maintain code with new, better code in a piecewise way. You “strangle” the old monolith by replacing each business function incrementally.

MODERNIZE INTELLIGENTLY

Productivity.

Refactoring an application to microservices improves developer productivity. It allows you to quickly release more code.

Scalability.

Refactoring to a more scalable architecture should be done incrementally. It’s important to provide real business value at each step in a refactoring while improving operational efficiency.

Containerize.

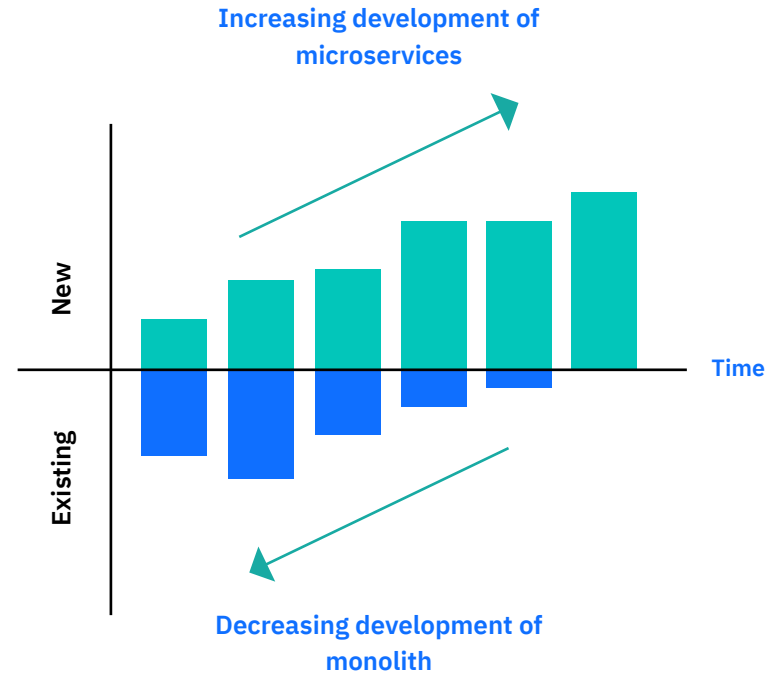
You can begin with repackaging your monolith as a container with Liberty, then add new containers to your solution as you separate business functions into new microservices.



Learn more

Check out the microservices architecture.

<https://www.ibm.com/cloud/garage/architectures/microservices>



Incremental Value is delivered at every point in the process.

When you replace a monolith piecewise, you gain additional efficiency and improvements at each step.

Place selected apps on VMs

Not every application is easily landed on containers. In some cases, parts of an overall solution might need to be executed on VMs. This is a valid and complementary choice as part of the overall modernization journey.

ROUNDING OUT A MODERNIZATION SOLUTION

Fit for purpose.

Some existing application infrastructure is optimized for working within VMs. These apps should remain within a VM.

Standardized services.

VMs can leverage IBM Cloud Private services to reduce overall management cost.

Container integration.

Clear obstacles inhibiting modernization by enabling new container based services to interact with existing apps on VMs.

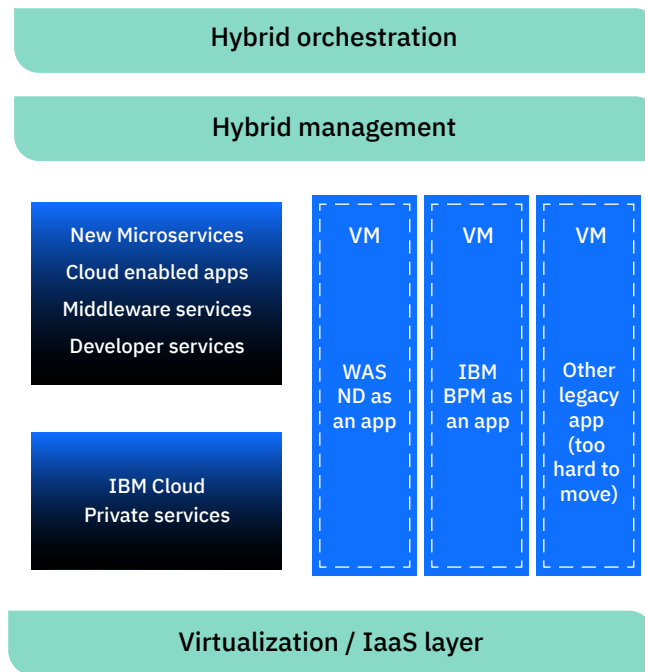


Learn more

Check out the infrastructure architectures.

<https://www.ibm.com/cloud/garage/architectures/infrastructure>

Manage VMs and containers together.



VM based assets are part of an overall modernization solution.

Cloud Adoption and Transformation Consultancy

The Cloud Adoption and Transformation Consultancy helps you balance your current and future technology needs with an understanding of the integrated set of decisions that need to be made. Work with us to align the talent and capabilities you'll need, the management systems you'll use, and the business goals on which you will be measured with your organization's adoption and transformation vision.

A STRATEGIC ROADMAP

Think.

Assess your current state, and ideate on and prioritize future state goals.

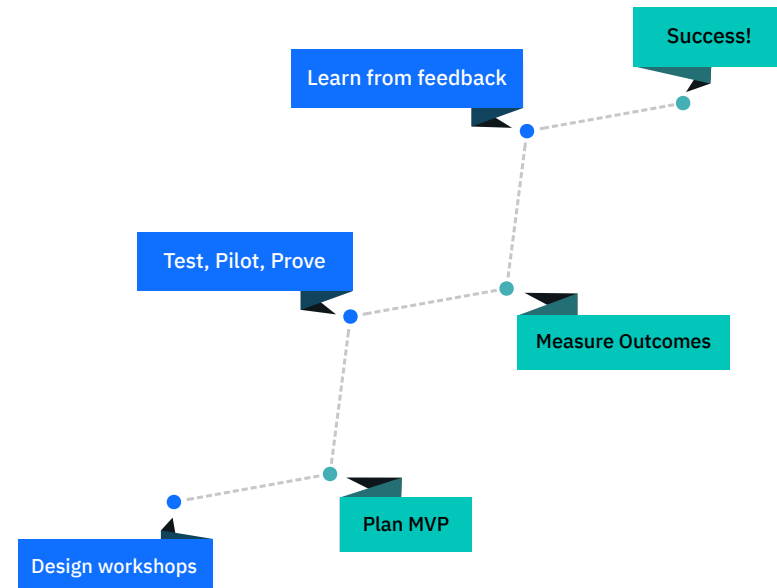
Transform.

Get guidance to help you adopt cloud, build confidence, and realize your initial set of business outcomes.

Thrive.

Work together to adjust and expand your plan to build on your success and amplify your new agile culture.

Engage IBM's Cloud adoption experts!
cloud adoption roadmap



Establish a cloud strategy to adopt, transform, and deliver value—then turn it into a roadmap you can follow.

Notes:

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ibm.com/cloud/garage/get-started



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