Build cloud native
Build once, deploy anywhere

The build-cloud-native approach boasts more flexibility over legacy systems while it boosts development, speed, and performance. Cloud-native development is the path to innovation with velocity.
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What is cloud native?

Cloud-native application development is an agile approach to creating new applications by capitalizing on the scalability and flexibility of cloud. Unlike traditional monolithic applications, cloud-native applications are built using multiple, independent elements—called microservices—deployed in cloud environments. Software development teams can quickly add new features using this approach.

Cloud-native technologies are used to develop applications built with services packaged in containers, deployed as microservices, and managed on elastic infrastructure through agile processes.

Instead of “monolithic” application architecture, where you develop, update, and repair an application as a single unit, you can build them as microservices, which are small applications that perform a single service and communicate with each other via application programming interfaces (API). Each microservice performs only one business function.

So, instead of managing unwieldy monolithic applications, building cloud native gives developers the ability to assemble microservices into a larger, complete application while still updating and maintaining microservices individually. This independence allows developers to add, improve, or roll back a functionality without impairing the function of the application or delaying development.

The state of container-based app development
Why build cloud-native applications?

Cloud-native architectures and applications deliver faster time to market, scalability, superior customer experiences, ease of management, reduced cost through containerization and cloud standards, and more reliable systems without vendor lock-in.

The benefits of adopting this approach are extensive:

- Cloud-native applications can be deployed quickly, then scaled according to demand.
- Advanced technologies like AI, Internet of Things (IoT), analytics, blockchain, and others can enhance the capabilities of your application.
- Compared to traditional monolithic apps, cloud-native applications can be easier to manage as iterative improvements occur using agile and DevOps processes.
- Improvements can be made non-intrusively, causing no downtime or disruption of the end-user experience: Scaling up or down proves easier.

Get started with cloud native:

A strategic approach

Approximately three out of four non-cloud applications will move to the cloud within the next three years. But the path to cloud-native application development requires a few decisions. Should you modernize your existing application or build new?

**When to build new:**
In some instances, it may be easier to develop new applications utilizing cloud-native development practices instead of working with a current monolith. The reasons for building new can vary. Your corporate culture, perceived risks, or regulatory compliance constraints are some factors that contribute. Building new applications provides teams with the ability to deliver innovation to users unencumbered by previous design decisions and allows developers to experiment.

**When to modernize:**
In many cases, you don’t need to start writing new applications from scratch. Modernizing existing applications can help you leverage previous investments and business logic while capitalizing on the agility, flexibility, and scalability of the cloud. Whether you containerize, extend, decompose or refactor, you can update your traditional monolithic application into a cloud-native app.

Whether creating a new cloud-native application or modernizing an existing one, developers adhere to a consistent set of principles:

**Follow the microservices architectural approach:**
Break applications down to microservices, which allow the incremental, automated, and continuous improvement of an application without causing downtime.

**Rely on containers for maximum flexibility and scalability:**
Containers package software with all its code and dependencies in one place, allowing the software to run anywhere. This allows maximum flexibility and portability in a hybrid cloud environment. Containers also allow fast scaling up or down with Kubernetes container software defined by the user.

**Adopt agile methods:**
Agile methods speed the creation and improvement process. Developers can quickly iterate updates based on user feedback, allowing the working application version to match as closely as possible to end-user expectations.

Taking the right path to build cloud-native apps can be daunting, like effectively adopting Kubernetes, a container infrastructure for public and private cloud that allows you to place applications and workloads wherever they run best.

IBM Cloud — Build cloud native—Build once, deploy anywhere
IBM Garage:
The method behind a cloud-native culture

Over 75% of organizations will experience digital disruption because of skills gaps.²

An organization might adopt the best automated tools available, but without an understanding of the processes needed to use the tools, the adoption is unlikely to realize gains.

Development teams need a partner with consulting expertise to build cloud-native apps and a hub for innovation where businesses can design and build apps that solve real-world business needs. You need a culture that enables you to move and ideate faster, work smarter, and fundamentally enhance the way you work.

All of this is delivered through IBM Garage™ Method, an end-to-end service methodology that defines a reliable, repeatable, secure path for our clients to succeed on their cloud journeys. This better enables businesses to migrate, modernize, and build applications for the optimal destination cloud—public, private, and hybrid—and then to manage them efficiently. With IBM Garage you gain purposeful, transformational change with the speed of a startup at the scale of an enterprise and your teams gain new skills as they work side-by-side with IBM experts to co-create new cloud-native applications.

Visit a garage location →

Conclusion:
The build-cloud-native imperative

Teams that follow the build-cloud-native approach—in their tools, techniques, and culture—experience an increase in efficiency and higher productivity, along with improved data security and increased user satisfaction.

Market-leading organizations from a broad range of verticals have already adopted cloud native across their architectures, practices, and technologies. Now’s the time to disrupt, operate, and motivate. Now’s the time to begin creating experiences that produce significant business outcomes, fast.

Build now →
Additional resources

Winning cloud strategies
Deploying cloud technology to drive business innovation is already a mainstream tactic. →

Build now
Start building immediately using 190+ unique services. →

Elevate application innovation
Learn how to modernize your apps and innovate with velocity. →
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1 IBM. The enterprise outlook on cloud-native development. 2018.