Red Hat

TOPIC

Understanding cloud-native applications

To succeed in fast-paced, software-driven markets, companies must change the way they design, build, and use applications. Cloud-native application development is an approach to building, running, and improving apps based on well-known techniques and technologies for cloud computing.

What are cloud-native applications?

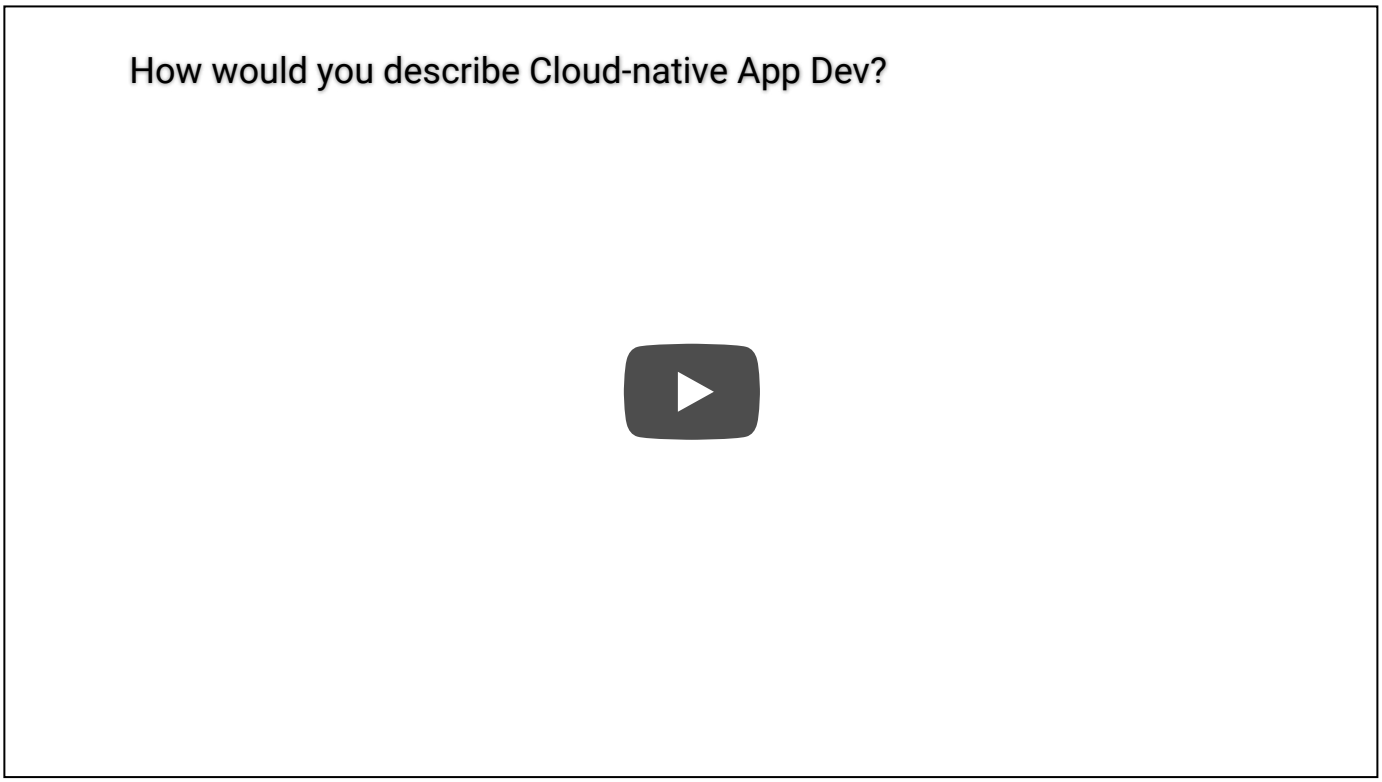
Cloud-native applications are a collection of small, independent, and loosely coupled services. They are designed to deliver well-recognized business value, like the ability to rapidly incorporate user feedback for continuous improvement. In short, cloud-native app development is a way to speed up how you build new applications, optimize existing ones, and connect them all. Its goal is to deliver apps users want at the pace a business needs.

But what about the "cloud" in cloud-native applications? If an app is "cloud-native," it's specifically designed to provide a consistent development and automated management experience across private, public, and hybrid clouds. Organizations adopt cloud computing to increase the scalability and availability of apps. These benefits are achieved through self-service and on-demand provisioning of resources, as well as automating the application life cycle from development to production.

But to fully utilize these benefits, a new form of application development is needed.

Cloud-native development is just that—an approach to building and updating apps quickly, while improving quality and reducing risk. More specifically, it's a way to build and run responsive, scalable, and fault-to[illegible] or hybrid clouds.

Here's how



A quick look at cloud-native apps

Cloud-native app development sounds like another IT industry buzzword, but it might just be the breakthrough organizations are looking for to speed up innovation. We asked Ashesh Badani, Vice President and General Manager of Cloud Platforms at Red Hat, to describe what cloud-native app development means to him.

Public, private, hybrid deployments?

No problem. Red Hat® OpenShift® 4 is the enterprise-ready Kubernetes platform for container orchestration. If you're building cloud-native applications, OpenShift 4 gives you the centralized management and visualization tools needed for unified operations, anywhere.

See what else OpenShift can do

How do I build a cloud-native app?

It starts with the people in your organization [illegible] them collaborate. That means bringing your development and operations teams

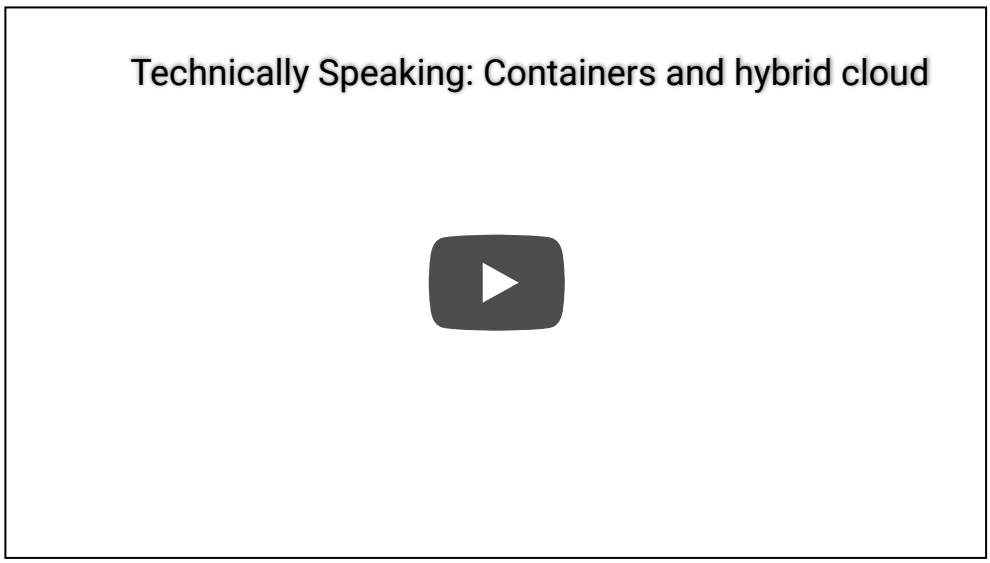
together with shared purpose and regular feedback through DevOps.

Container adoption supports these practices by offering an ideal application deployment unit and self-contained execution environment. With DevOps and containers, developers can more easily release and update apps as a collection of loosely coupled services, like microservices, instead of having to wait for one large release.

Cloud-native development focuses on an architecture's modularity, loose coupling, and the independence of its services. Each microservice implements a business capability, runs in its own process, and communicates via application programming interfaces (APIs) or messaging. This communication can be managed through a service mesh layer.

You don't always have to start with microservices to speed up application delivery as part of cloud-native apps, though. Many organizations can still optimize their legacy apps using a pragmatic, service-based architecture. This optimization is supported by DevOps workflows like continuous integration and continuous deployment (CI/CD), fully automated deployment operations, and standardized development environments.

Move your apps to the cloud with Red Hat Enterprise Linux



DevOps

DevOps is an approach to culture, automation, and platform design intended to deliver increased business value and responsiveness.

Understanding DevOps

Microservices

A microservices architecture breaks apps down into their smallest components, independent from each other.

Understanding microservices

APIs

Application programming interfaces (APIs) are sets of tools, definitions, and protocols for building application software. They connect products and services without having to know how they're implemented.

Understanding APIs

Containers

Containers allow apps to be packaged and isolated with their entire runtime environment, making it easy to move them between environments while retaining full functionality.

Understanding containers

Red Hat named a leader

In latest Forrester Wave repor
evaluating multicloud container
development platforms

Review

Is there something specific you're looking for? I can help.

What is a serverless architecture?

The primary benefit of a cloud-native strategy is that it can increase the speed of application development for companies that have compute resources spread across different environments. For instance, you may have some resources housed on Amazon servers, Google servers, and also an Oracle database that you run on premise. Cloud-native development helps your company derive more value from this hybrid cloud architecture, but there is an additional step you can take as part of a cloud-native strategy.

Serverless refers to a cloud computing model whereby application developers don't have to provision servers or manage scaling for their app. Instead, those routine tasks are abstracted by the cloud provider, allowing developers to push code to production much faster than in traditional models.

What is serverless?

Keep exploring cloud-native apps

E-BOOK

The path to cloud-native applications

Get the e-book

FREE TRAINING

Developing Cloud-Native Applications with Microservices Architectures (DO092)

Take the course

DATASHEET

Accelerate your DevOps with OpenShift by Red Hat

View the datasheet

WHITEPAPER

Principles of container-based application design

Read the whitepaper

Why build cloud-native apps with Red Hat?

Whether your industry is telecom, banking, healthcare—even cattle farming—you are now also a software company, with applications at the center of business strategy. This software-driven business transformation requires new apps to be developed and delivered faster for users who have come to expect a higher quality. This is no small task. Red Hat believes it will require investing in your processes, infrastructure, and architecture to compete in modern, fast-changing markets.

In order to support these changes, Red Hat believes organizations will need a new platform to enable improvements across your architecture, infrastructure, and processes. The end goal is the ability to deliver higher-quality apps with greater agility.

Why choose Red Hat for cloud-native d

> Many companies know they need to achieve higher release velocity and improved reliability using approaches like microservices architecture and more modern development and operations tools. Historically, one of the biggest challenges has been the roadmap necessary for change in legacy environments. OpenShift Application Runtimes helps simplify that transformation and lowers the effort and risks to getting started with cloud-native development.
>
> **Chris Hart**, CTO, Levvel

Useful tips for IT leaders—delivered right to your inbox

Get important tech insights—like this cloud-native app development advice—in the Red Hat Shares newsletter.

Currently available in English only

Sign me up

The foundation you need for cloud-native apps

Red Hat OpenShift

A container and Kubernetes platform for ...ti... applications.

Learn more

Red Hat Runtimes

A set of lightweight runtimes and frameworks for highly-distributed cloud architectures, such as microservices.

Learn more

There's a lot more to do with cloud-native apps

Read the blog | **Talk to a Red Hatter**

ABOUT

We're the world's leading provider of enterprise open source solutions, using a community-powered approach to deliver high-performing Linux, cloud, container, and Kubernetes technologies. We help you standardize across environments, develop cloud-native applications, and integrate, automate, secure, and manage complex environments with award-winning support, training, and consulting services.

Company information

Jobs

Locations

Development model

Events

Newsroom

Blog

C

PRODUCTS

Red Hat Ansible Automation Platform

Red Hat Enterprise Linux

Red Hat OpenShift

Red Hat OpenShift Container Storage

Red Hat OpenStack Platform

See all products

TOOLS

My account

Customer support

Partner resources

Developer resources

Training and certification

Red Hat Ecosystem Catalog

Resource library

TRY, BUY, SELL

Red Hat Store

Buy online (Japan)

Contact sales

Contact training

Contact consulting

Find a partner

Red Hat Marketplace

COMMUNICATE

Contact us

Feedback

Social

Red Hat newsletter