

# Build better apps with AWS and CloudBees®

3 ways CloudBees CI helps you build  
enterprise-grade applications on AWS



# Cloud-native CI/CD with Kubernetes



Moving to the cloud—or more likely, clouds—is not a new concept; it's been on the horizon for many enterprise organizations for the past five years, at least. While migration can come in many forms, from building cloud-native applications, lifting and shifting an entire platform or rearchitecting an application to take advantage of microservices, the advantages of the cloud are clear. Running enterprise applications on Amazon Web Services (AWS) or in hybrid environments helps reduce risk, cut costs and increase innovation.

*At this point, the question isn't "Should we move to the cloud?" it's "How do we ensure quality software delivery in new hybrid and cloud environments?"*

*The answer is cloud-native continuous integration and continuous delivery with Kubernetes.*

Continuous integration and continuous delivery (CI/CD) is the process of developing and delivering software in short cycles of build, configure, deploy, test, and release, while underpinned by automation. CI/CD helps deliver higher-quality software more frequently and predictably.

Performing CI/CD in the cloud improves failover and reduces downtime, while Kubernetes StatefulSets defines the deployment and scaling of a set of Pods so your team can build responsive, cloud-native applications quickly. You have the ability to create and destroy ephemeral agents (such as containers deployed on a pod) during pipeline runs and use pod templates to share defined configurations across the whole cluster. Combining CI/CD and Kubernetes enables your team to focus on better CI/CD workflows instead of cluster management, namespaces or technical overhead.

As a CI/CD solution that runs natively on Kubernetes, CloudBees CI makes it incredibly easy to scale in support of enterprise cloud strategies.

## **CloudBees CI runs natively across:**

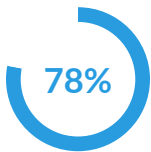
- Managed Kubernetes platforms, including Amazon Elastic Kubernetes Service (Amazon EKS)
- Amazon Elastic Cloud Compute (Amazon EC2) instances or virtual machines

*Through the CloudBees Operations Center, you can provision and manage multiple Kubernetes clusters running across different cloud providers.*

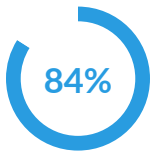
# Software delivery tips from high-velocity practitioners



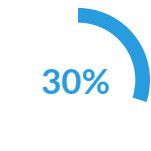
## Containers



**78%** use Kubernetes in production, up from **58%** in 2018



**84%** of respondents use containers in production, an increase of **15%** from 2018



**Nearly 30%** of managed Kubernetes workloads run on Amazon EKS



## Microservices



**28%** say their organizations have been using microservices for at least three years



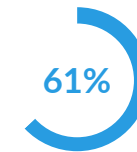
**42%** use containers to deploy at least half of their microservices



**49%** of respondents who describe their deployments as “a complete success” also instantiate **75%+** of their microservices in containers



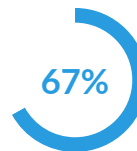
## Cloud hosting



**61%** use a public cloud, while **39%** embrace a hybrid strategy

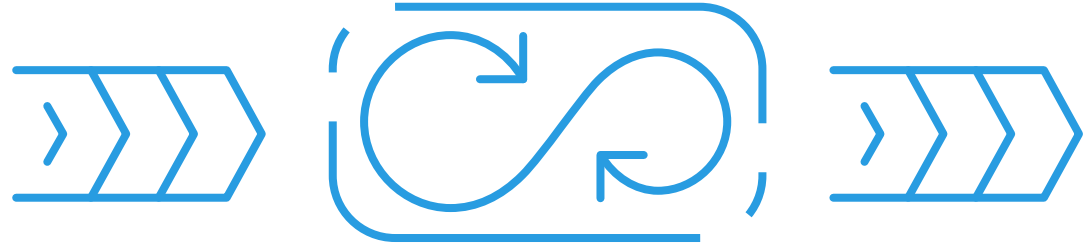


**90%+** expect to increase their usage of cloud-based infrastructure



**67%** of respondents use AWS

# CloudBees CI helps connect your DevOps toolchain



CI/CD relies on a solid DevOps foundation—where teams have stopped chasing waterfalls and instead welcome a cultural shift toward iterative processes, smaller releases and fast recovery from failures. CloudBees CI works across your entire DevOps toolchain—integrating with commonly used tools. It helps you automate processes within a wide, varied ecosystem, which is critical for successfully modernizing legacy applications.

Built on Jenkins, the most widely used automation server in the world (with 71 percent of the market share for CI/CD tools), CloudBees CI provides flexible, governed CI/CD you can trust. With the rise of available CI/CD tools, daily release cycles are accelerating. Based on responses from the Cloud Native Computing Foundation Survey 2019, 27 percent of organizations had daily release cycles in 2019, compared to 15 percent in 2018.

## CloudBees CI delivers:

- Comprehensive Jenkins team management with pre-configured templates to onboard new projects and teams fast
- The ability to manage more Jenkins instances with less compute to reduce costs and release software more efficiently
- Pipeline policy and best practices enforcement to ensure quality CI

***CloudBees CI enables you to embrace DevOps tools, automate pipelines and embed best practices for improved software delivery of cloud-based applications.***

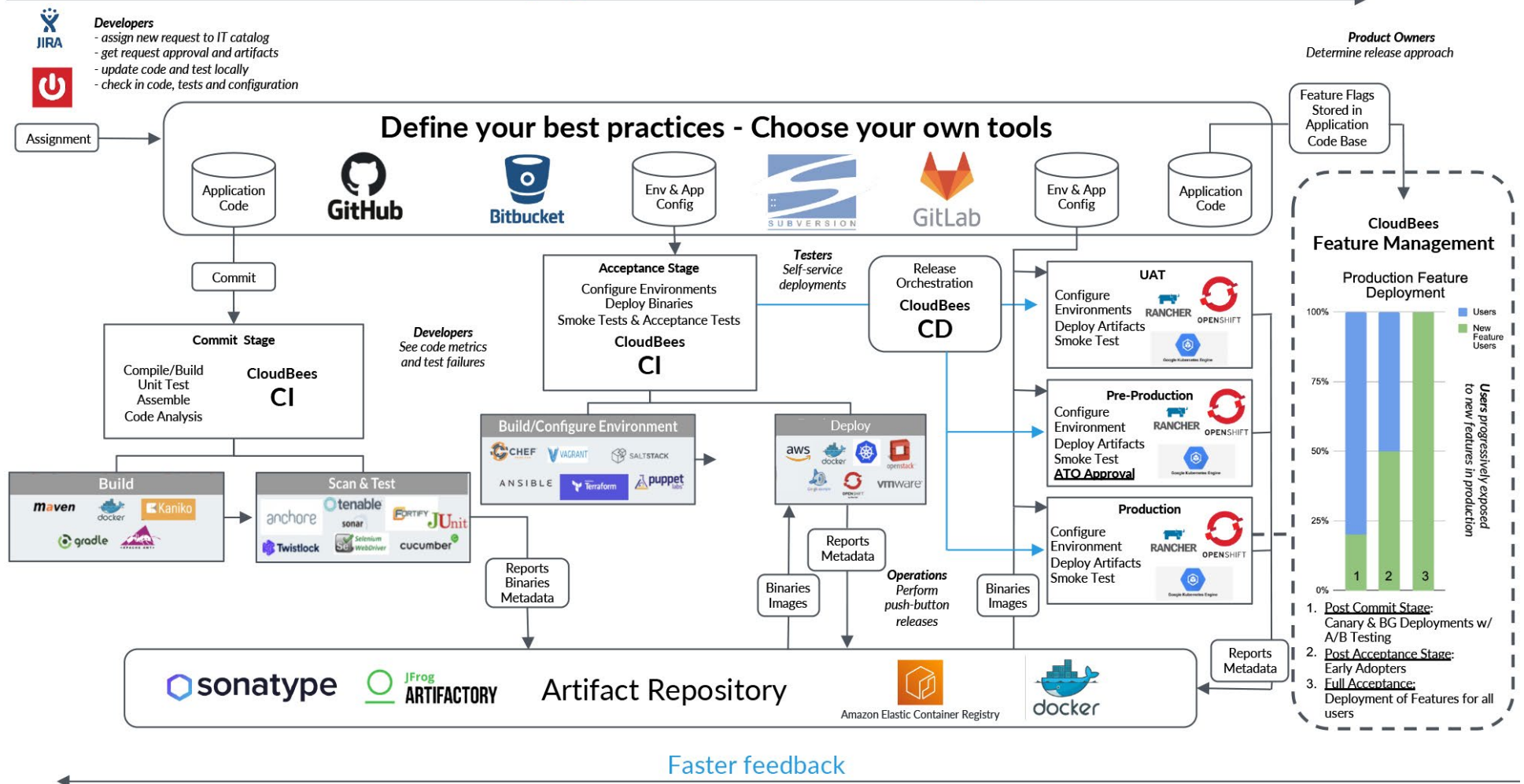
In the following pages you'll learn how CloudBees CI helps you implement enterprise-level CI/CD for high-quality cloud applications. With CloudBees CI you can:

- Scale and configure microservices applications
- Dynamically control cloud resources
- Embrace an everything-as-code approach

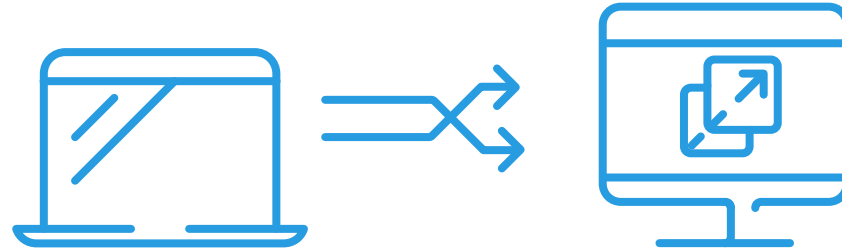
*DZone, The State of CI/CD, 2020, Cloud Native Computing Foundation Survey 2019*

# CloudBees automates and orchestrates CI/CD pipelines, integrating the tools you love

As the SDLC progresses environments become more production-like →



# Scale and configure microservices applications



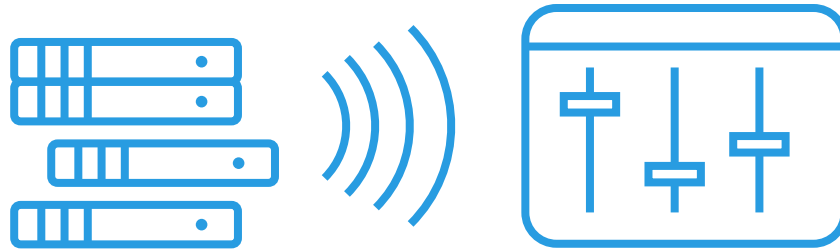
Faced with monolithic applications that are hard to update and scale, many companies turn to microservices. By rearchitecting an application with microservices, you're able to isolate services that run on containers and are governed by an orchestration engine like Kubernetes. Through CI/CD, you can automate the pipeline that carries your application through development stages and into deployment.

## Using CloudBees CI to control your software delivery across hundreds or thousands of microservices, you can:

- **Automatically scale** your agent pool up and down based on demand
- **Auto-configure pipelines** with templates that allow you to bake in best practices and get microservices off the ground faster
- **Manage multiple build servers across teams** with the CloudBees Operations Center, which allows you to deconstruct monolithic apps with a controller per service
- **Activate multiple configuration settings** spanning many microservices
- **Look upstream and support multiple, independent pipelines** and instances of Jenkins controllers, delivering a high-level business view

Achieve granular control over how your microservices application is built and updated with CloudBees CI for software delivery.

# Dynamically control cloud resources



With CloudBees CI, you also have the option of using hibernating controllers to conserve resources and control cloud spend—a feature made possible by Kubernetes.

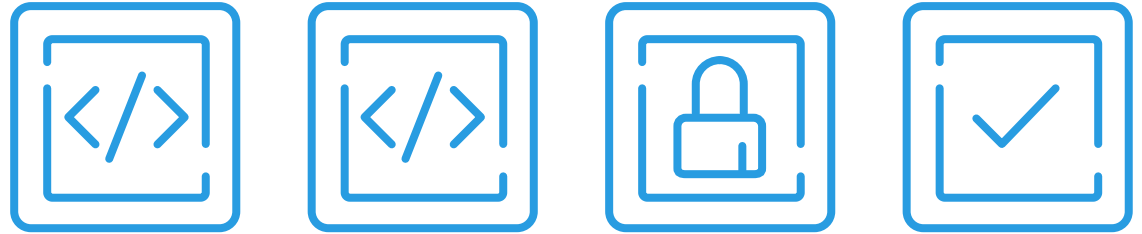
**Automatic resource conservation:** Now, with the flip of a switch, you can automatically set controllers to hibernate when they're idle and set up ephemeral agents. This frees up your resources for more Jenkins agents or non-CI workloads by only building agents as needed. When the work is completed, an unused agent will be automatically destroyed.

**Cost savings:** Eliminate idle controllers to decrease compute costs and switch off unused agents that are eating up costly storage. Hibernating controllers help you optimize resource utilization so you only pay for the metered infrastructure you use.

## Hibernating controllers:

- Shut down if not in use
- Wake up when needed
- Use Helm for activation on the Kubernetes cluster
- Use a plugin on each Jenkins controller

# Embrace everything-as-code



When everything is code—configurations, infrastructure and environments—your team has a single source of truth that leaves nothing out. Everything-as-code allows you to better manage version control of pipeline configurations in conjunction with the application code and container specifications. This approach provides fine-grained control of your entire software environment and breaks down silos between developers and operations. Working with a single source of truth across teams makes changes instantly auditable.

## CloudBees CI takes everything-as-code to heart.

**Configuration-as-code for controllers** allows you to create all configuration settings for a controller from a known good state. Any time you make a change, CloudBees CI will reconcile it against the source code to maintain a single source of truth. You can also create configuration bundles to apply new changes across several controllers at once.

**Pipelines-as-code** enables you to control the configuration of multiple pipelines across many different projects all running at once. CloudBees CI delivers an enterprise-level solution to maintain properly configured pipelines.



# Get those pipelines buzzing

Choose the right CI/CD solution to ensure your cloud journey stays on the right path. CloudBees CI is the enterprise-grade, Kubernetes-native solution that can help you unlock microservices, control cloud resources and build against a single source of truth.

Get started with [CloudBees CI in AWS Marketplace](#) to ensure your team builds brilliant applications.

