

CI/CD

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Introduction

- CI/CD is a method to frequently deliver apps to customers by introducing automation into the stages of app development. The main concepts attributed to CI/CD are continuous integration, continuous delivery, and continuous deployment. CI/CD is a solution to the problems integrating new code can cause for development and operations teams (AKA "integration hell").

What's the difference between CI and CD (and the other CD)?

CI

The "CI" in CI/CD always refers to continuous integration, which is an automation process for developers. Successful CI means new code changes to an app are regularly built, tested, and merged to a shared repository. It's a solution to the problem of having too many branches of an app in development at once that might conflict with each other. ○

CD

The "CD" in CI/CD refers to continuous delivery and/or continuous deployment, which are related concepts that sometimes get used interchangeably. Both are about automating further stages of the pipeline, but they're sometimes used separately to illustrate just how much automation is happening. ●

It's possible for CI/CD to specify just the connected practices of continuous integration and continuous delivery, or it can also mean all 3 connected practices of continuous integration, continuous delivery, and continuous deployment. To make it more complicated, sometimes "continuous delivery" is used in a way that encompasses the processes of continuous deployment as well.

Continuous integration (CI) helps developers merge their code changes back to a shared branch, or “trunk,” more frequently—sometimes even daily. Once a developer’s changes to an application are merged, those changes are validated by automatically building the application and running different levels of automated testing, typically unit and integration tests, to ensure the changes haven’t broken the app. This means testing everything from classes and function to the different modules that comprise the entire app. If automated testing discovers a conflict between new and existing code, CI makes it easier to fix those bugs quickly and often.

What are some common CI/CD tools?

CI/CD tools can help a team automate their development, deployment, and testing. Some tools specifically handle the integration (CI) side, some manage development and deployment (CD), while others specialize in continuous testing or related functions.

One of the best known open source tools for CI/CD is the automation server Jenkins. Jenkins is designed to handle anything from a simple CI server to a complete CD hub.

