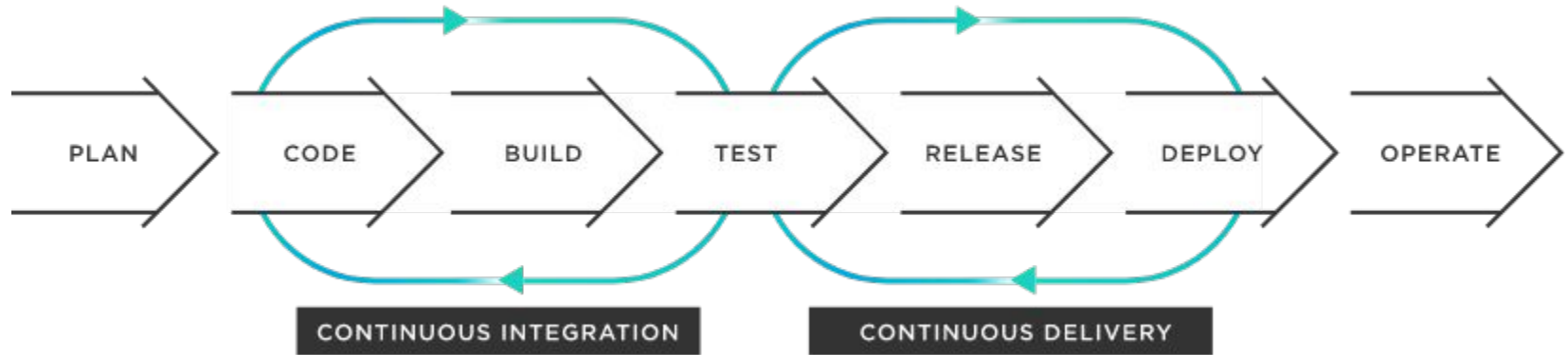# Why do we need CI/CD?

By: Nader Tarek

What is CI/CD Pipelines?

What is Continuous Integration Pipelines?

The method of automating the integration of code changes from various contributors into a single software project is known as continuous integration (CI). It's a key DevOps best practice that allows developers to merge code changes into a common repository, from which builds and tests can be executed. Before integrating the new code, automated tools are employed to verify its validity.

Benefits of Continuous Integration Pipelines

Developers will have less time to discover and fix bugs after adopting a continuous integration pipeline because everything is automated from building the application to testing it, giving them more time to work on new features that add value to the end customer while also lowering costs by not wasting developers' valuable time doing some manually cumbersome tasks after they finish their actual work.

What is Continuous Delivery Pipelines?

Continuous delivery is a software development process in which code updates are prepared for production release automatically. Continuous delivery, a pillar of modern application development, builds on continuous integration by deploying all code changes to a testing and/or production environment following the build step. Developers will always have a deployment-ready build artefact that has passed through a standardised test process if the system is properly implemented.

Benefits of Continuous Delivery Pipelines

Automate the software release process

CD allows your team to check in code that is automatically built, tested, and readied for production release, ensuring that your software is efficient, durable, fast, and safe.

Deliver updates faster

CD enables your team to provide customers with frequent and timely updates. When CI/CD is used, the entire team's velocity increases, including the release of new features and problem fixes. Market shifts, security challenges, consumer wants, and financial pressures may all be addressed more quickly by businesses. If a new security feature is required, for example, your team can use CI/CD and automated testing to introduce the remedy to production systems swiftly and reliably. What used to take weeks or months to complete can now be completed in a matter of days or even hours.
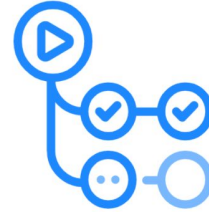
Popular CI/CD Tools

Jenkins

GitHub Actions

circleci

GitLab