



FUNDAMENTALS AND BENEFITS OF CI/CD

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CI/CD DEFINED

- ❖ Continuous Integration (CI) is a development practice that helps ensure that software components work together. CI allows you to continuously integrate code into a single shared and easy to access repository. *Each check-in is then verified by an automated build, allowing teams to detect problems early. By integrating regularly, you can detect errors quickly, and locate them more easily.*
- ❖ Continuous Deployment is the process of deploying the packaged software (from the Continuous Delivery process) into one or more environments without human intervention (e.g. approvals) and is often triggered by a commit or new build. After continuous delivery, the software build can be automatically deployed to the production if it passes all the tests.

CI/CD PIPELINE

A CI/CD pipeline is a path for delivering a unit of change that starts from development to delivery. It helps you automate steps in your software delivery process and allows application development teams to release software quickly.

A CI/CD pipeline workflow usually consists of the following discrete steps:

- ❖ **Build** - The stage where the application is compiled.
- ❖ **Test** - The stage where code is tested. Automation here can save both time and effort.
- ❖ **Release** - The stage where the application is delivered to the repository.
- ❖ **Deploy** - In this stage code is deployed to production.
- ❖ **Validation and compliance** - The steps to validate a build are determined by the needs of your organization.

BENEFITS FOR IMPLEMENTING CI/CD

The ultimate aim for any software application is to reach its potential customers faster than ever before. This is exactly what the CI/CD pipeline offers to any business model that leverages a software process which reduces the risks in each build and helps the end product to reach the customer quicker.

- ❖ **Achieve Faster Feedback Through CI Tools:** For every committed code, the corresponding tests are run simultaneously to avoid any link breakage at later stages. Faster feedback helps to check the quality and impact of the code.
- ❖ **Greater Visibility:** With CI/CD pipeline setup, the whole process of new builds, test results and any issues with new builds can be analysed. This transparency allows the developers to know which changes in the build led to the brokerage and to avoid them in the future.
- ❖ **Early Bug detects:** Conducting various types of automated testing allows to identify any bug issues at an early stage without any last-minute surprises. These automated tests along with few manual test runs, help to fix any issues that may arise.

IMPROVED CUSTOMER SATISFACTION

- ❖ The ultimate goal of every CI/CD implementation is to make customers/clients happy. Buggy software can harm a company's reputation, sometimes irreparably. Fast and frequent releases, new features shipped regularly, bugs fixed promptly and immediate reaction to feedback—these are the major factors that will make end-users happy to pay for your software. They can be achieved thanks to embracing CI/CD in your company.
- ❖ CI/CD pipelines enable a much shorter time to market for new product features, creating happier customers and lowering strain on development.