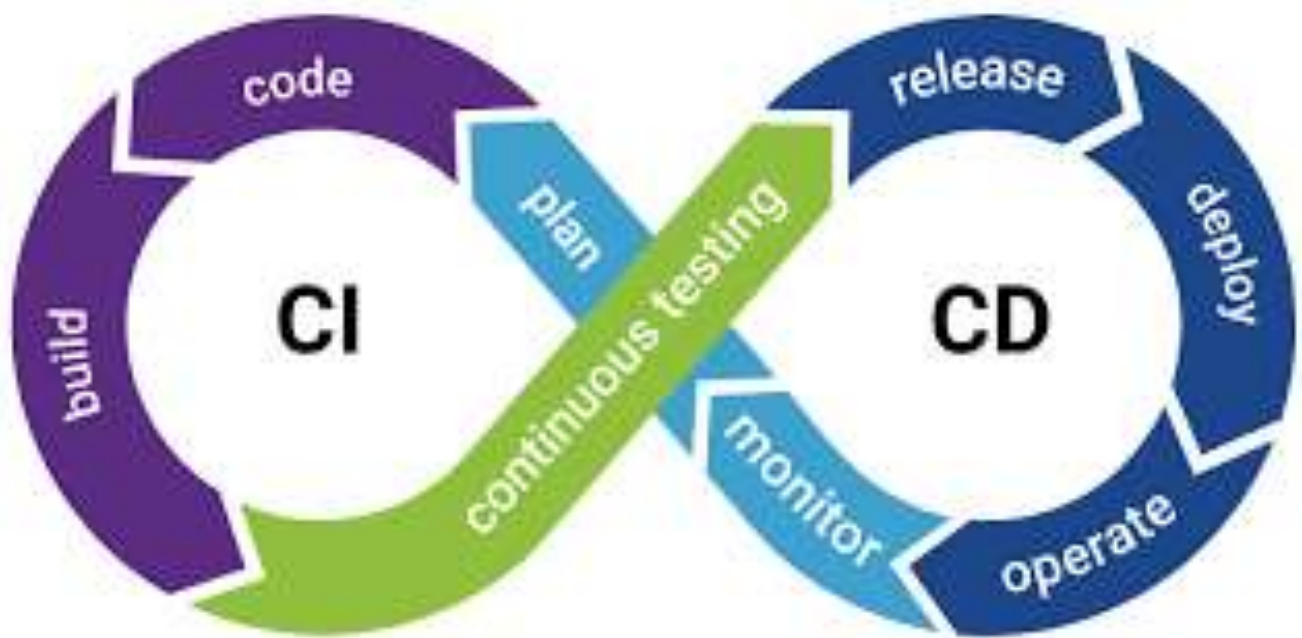


## The CI/CD benefits proposal



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.

**Continuous Integration:** The Practice of merging all developers' working copies to a shared mainline several times a day.

Continuous Integration focuses on the source code. Every manual step like testing, compiling, linting, source code validation and vulnerability checking now are responsible by CI, avoiding to waste time with these activities and aiming the final value objective.

**Continuous Deployment:** is software engineering approach in which the value is delivered frequently through automated deployments. Continuous Deployment focuses on built code and deployment.

The CD is responsible for deploy the application into development / stage / production environments and verify if the deployed services is running OK. If some error is raised, the version that is running successfully, won't be affected and the failed one will be discarded.

Otherwise, the new version is deployed and the oldest one will be deleted, avoiding unused resources costs.

CI + CD = Continuous Delivery

**Continuous Delivery:** An engineering practice in which teams produce and release value in short cycles

## Benefits of CI/CD

- **Reduced Risk:** Less human error (no human involved). Every step is written in code.
  - ⇒ **Reduce costs.** Less time spent fixing avoidable human error
- **Builds confidence in the code:** new changes are verified before they are merged so the code quality is kept constantly high.
  - ⇒ **Reduce Cost.** Less time spent on issues from new code
- **Automated Infrastructure and Code Deployments:** no time wasted on manual steps then manually validating and/or debugging these steps
  - ⇒ **Increase Revenue.** Faster time to market
- **Automatic Cleanup:** Automated cleanup of leftover artifacts and previous deployment infrastructure
  - ⇒ **Reduce Cost.** Less cost from unused artifacts in storage or IDLE infrastructure
- **Faster and more frequent Production deployments:** Deployment is done by scripts which require minimum time and have automated rollback plans in case of failure
  - ⇒ **Protect Revenue.** The software is always working because of multiple deployments and ease of rolling back to a working state
- **Detect security vulnerabilities**

Less bugs are shipped to production, and this will reduce the security vulnerabilities and thus reduce cost of fixing issues.

- ✓ Smoke test will be automated thereby reducing downtime from a deploy related crash or bug and in turn protects revenue.
- ✓ With all the benefits of CI/CD mentioned coupled with the low cost of implementation using cloud services, we can say that it is more cost effective and beneficial to our business.