



Fundamentals and Benefits of CI/CD to Achieve, Build, and Deploy Automation for Cloud-Based Software Products



WHY CI/CD

An integral part of DevOps is adopting the culture of continuous integration and continuous delivery/deployment (CI/CD), where a commit or change to code passes through various automated stage gates, all the way from building and testing to deploying applications, from development to production environments.



What is CI

Continuous integration (CI) is a software development strategy that increases the speed of development while ensuring the quality of the code that teams deploy. Developers continually commit code in small increments (at least daily, or even several times a day), which is then automatically built and tested before it is merged with the shared repository.

Simply put CI is breaking our work up into small pieces, sharing our work with our peers, and QA-ing frequently.



What is CD

Continuous deployment(CD) refers to automatically releasing a developer's changes from the repository to production, where it is usable by customers. It addresses the problem of overloading operations teams with manual processes that slow down app delivery. It builds on the benefits of continuous delivery by automating the next stage in the pipeline.



BENEFITS OF CI/CD TO OUR BUSINESS

- It is much easier for more than one team member to work on the same feature.
- The cost of merging small changes is much lower than large changes.
- Team members can evaluate their peer's changes in a system that has passed automated testing rather than the moving target of a feature branch.
- It is much easier for QA engineers to validate small changes iteratively in a consistent system, so detecting the source of errors becomes much simpler.
- Features can get into the hands of customers in an earlier state. This means that if we're on the wrong track, we can change direction after only a small investment.