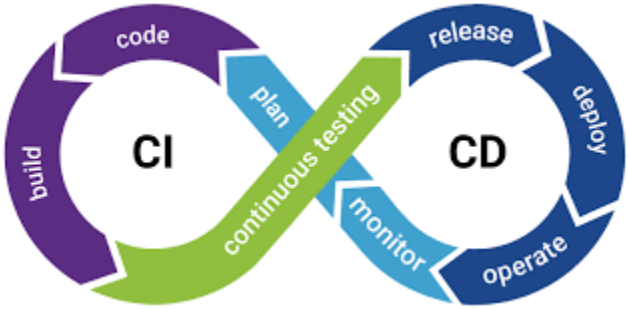
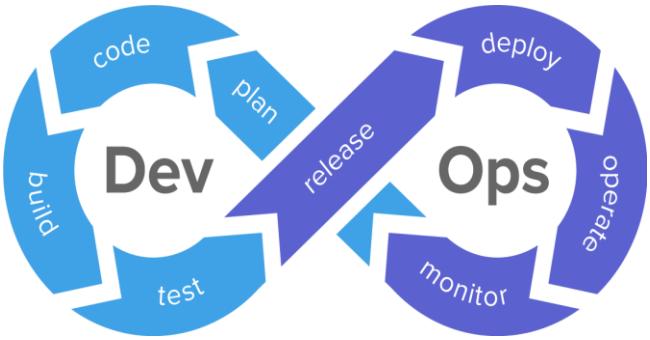
BENEFITS OF CONTINUOUS INTEGRATION AND CONTINUOUS DEPLOYMENT (CI/CD)

What is CI/CD?

CI/CD stands for **Continuous Integration** and **Continuous Delivery/Continuous Deployment**.

CI/CD is a best practice for DevOps and agile development which helps software development teams automate continuous integration and delivery all the way through the CI/CD pipeline. It is a culture or a set of practices that application development teams use to deliver code changes more frequently and reliably. This practice helps in delivering new features to customers with speed and almost zero down-time.





Continuous Integration

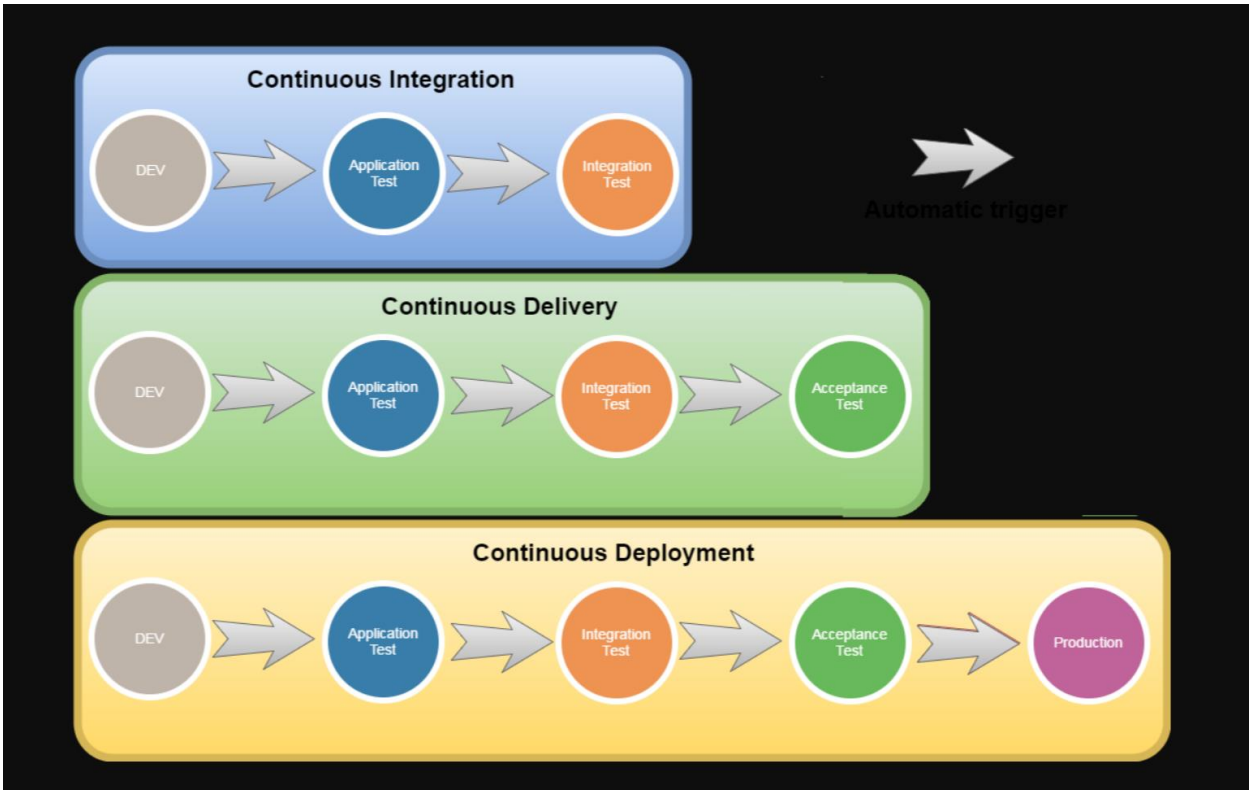
Continuous integration is a DevOps software development practice where developers regularly merge their code changes into a central repository, after which automated builds and tests are run. These tests include unit and integration tests. CI reduces the time needed to find and fix bugs, thereby improving the overall quality of code.

Continuous Delivery

Continuous delivery is the next stage where all code changes are deployed to a testing environment and/or a production environment after the build stage (Continuous Integration). Continuous delivery lets developers automate testing beyond just unit tests. Other tests include UI testing, load testing, integration testing, API reliability testing, etc.

Continuous Deployment

Continuous deployment is the next step of continuous delivery, where every change that passes the automated tests is automatically released to the production environment and delivered to the software consumers.



What are the Business benefits of CI/CD?

There are lots of benefits in implementing CI/CD culture in a Development team, some of which include;

✓ Superior Quality Code

Rather than working in isolation, Developers release code into a shared repository in small batches, which enables them to conduct parallel testing. CI/CD implementation drives business growth by providing high-quality releases that have fewer errors and bugs, as teams collaborate to identify critical bugs, which ensures that bad code does not make it to production.

✓ Increased Customer Satisfaction

Faster resolution of bugs, shorter production time, zero downtime, and quick roll-out of new products/features, due to CI/CD practices helps to build customers' confidence.

✓ Cost Reduction

If there's something a company likes more than making money, it has to be saving money.

CI/CD presents a perfect way to shorten the time to finish a project and market new features. Businesses can save on the cost of maintaining a Development Teams and massively reduce the Time-to-Release of updates and new products.

✓ Improved Mean Time to Resolution (MTTR)

In CI/CD, Software testing is not an afterthought, but an integral part of the development cycle. CI/CD helps the Development team to continuously integrate small batches of code instead of the entire application, which makes it easier for developers to spot anomalies and rectify them. CI/CD plays a crucial role in reducing the MTTR, thus keeping deployment failures to a bare minimum, and reducing recovery time as well.

Conclusion

Migrating from the traditional software release cycles to CI/CD won't just accelerate the time-to-market, but also result in a productive and satisfied development team.

CI/CD provides immense business benefits to Software Development teams.