CI/CD

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

Continuous Integration

CI is the practice of merging all working copies of a software product into a mainline as soon as possible. A CI pipeline performs some or all of the following steps:

- Compilation.
- Unit tests.
- Static code analysis.
- Dependency vulnerability testing.
- Storing the resulting artifacts.

Continuous Deployment

CD is the practice of releasing software features to end-users as soon as they are ready and without human input. A CD pipeline performs some or all of the following steps:

- Creating infrastructure
- Provisioning servers
- Copying files and/or artifacts
- Promoting to production (blue/green, canary, A/B testing)
- Smoke testing
- Rollbacking changes if something did not look right

Benefits of CI/CD to our business

- Less bugs in production and less security vulnerabilities.
- Recued downtime in production deliveries.
- Developers can focus more on producing code and less on peripheral low-yield tasks.
- Quick and easy rollbacks leading to less downtime if case of an incident.
- Less opportunities for human error in infrastructure management, making for faster and smoother deployments.
- Costs from unused infrastructure are eliminated.
- New value-generating features reach the users more quickly, reducing time to market and increasing revenue.