Udacity- Fundamentals and Benefits of CI/CD

Agenda

1. Introduction
2. What is CI/CD
3. Why CI/CD is necessary for business software deployment process

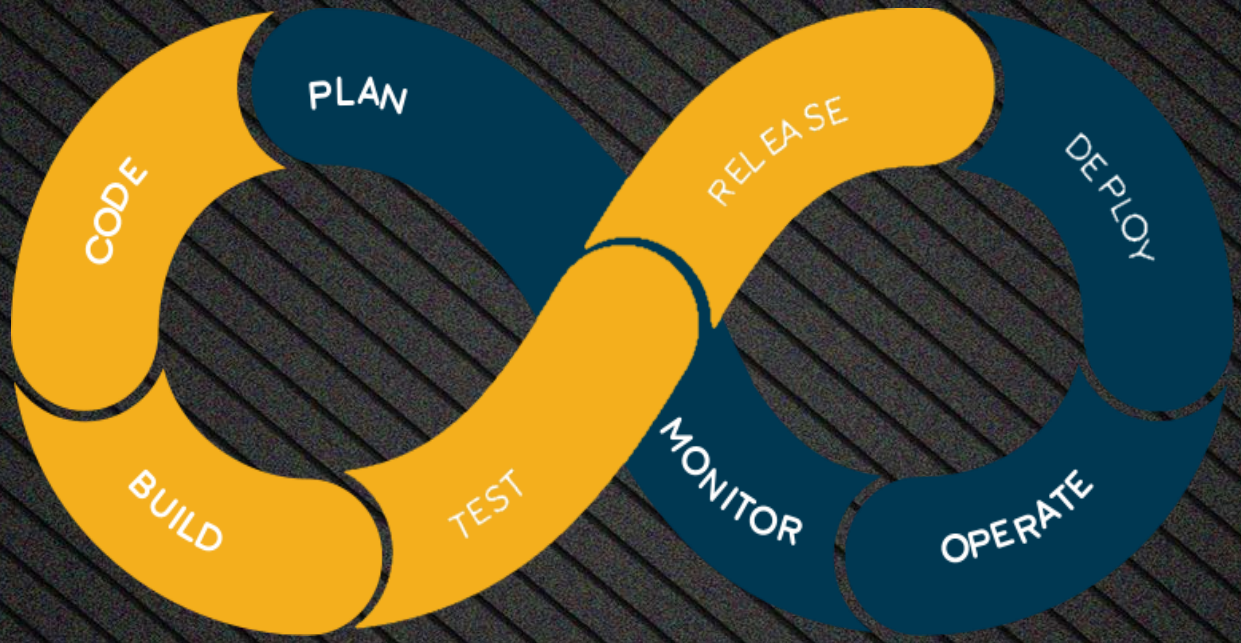
1. Introduction

- Imagine you are a backend developer and you have built a new API for your product. A few months later when it comes time to merge the feature for releasing we find that they're completely incompatible. The build fails and we have to spend a lot of money to resolve this mistake.

- Now, if we have a CI/CD pipeline. This will automatically build, test and deploy your work. If there is any build error. You will be notified the issue that make your process failed. It can also do some roll back process to ensure that your production running stable every time.

- Some kinds of CI/CD platform are: Jenkins, Teamcity, CircleCI, GithubAction, ...

2. What is CI/CD



Continuous Integration

- CI stands for **Continuous Integration**, Is a DevOps software development practice that enables the developers to merge their code changes in the central repository to run automated builds and tests

- How it can be used:
  - Automating builds
  - Automating testing
  - A single source code repository
  - Visibility of the entire process
  - Real-time code access to everyone in the team

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Continuous Deployment - Delivery

- Continuous Delivery (CD) is a DevOps practice that refers to the building, testing, and delivering improvements to the software code. The phase is referred to as the extension of the Continuous Integration phase to make sure that new changes can be released to the customers quickly in a substantial manner.

- When the step of Continuous Delivery is extended, it results in the phase of Continuous Deployment. Continuous Deployment (CD) is the final stage in the pipeline that refers to the automatic releasing of any developer changes from the repository to the production.

3. Why CI/CD is necessary for business software deployment process

Benefits between manual and automatic delivery

- Common issues of manual delivery process:
  - Wrong provisioning of servers
  - Lots of manual work that can lead to error
  - Misuse of human resources, because they are assigned to time wasting tasks
  - Slower product delivery to user

- Why should we use automatic process?
  - Improve resources user technical and human
  - Lower costs
  - Reduce human error
  - Reduce product delivery Time
  - Automatized Tests
  - Automatized cleanup and server creation

-> With all that conditions. We can conclude that some automatic process like CI/CD pipeline is very necessary for business cost control.

In summary

- CI/CD provide you ability to:
  - Faster time to market
  - Cost control
  - Reduced risk
  - Shorter review time
  - Better code quality
  - Smoother path to production
  - Faster bug fixes
  - Efficient infrastructure
  - Measurable progress