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

Cloud DevOps Engineer Nanodegree project 3 – Section 1

Waqar Ahmed

Continuous Delivery

A process to deliver software products in **short cycles.**

- **Benefits of Continuous Delivery:**
  - Bugs free or less bugs Production.
  - Less security vulnerabilities.
  - Less intervention of human errors.
  - Unused infrastructure cost eliminated.
  - Quick production of product to generate value early on.
  - Reduce time to market the product.
  - Increase the revenue.

Continuous Integration

Integration of all the working codes from the developers into a single software product.

Some of the steps include in CI are:

- Compilation
- Testing
- Vulnerabilities checking/testing
- Static code analysis
- Result artifacts sorting

Continuous Deployment

A process to release code changes or features to system architecture as soon as they are ready to reach the end users.

Some steps of CD are:

- Infrastructure setup
- Servers provisioning
- Files/Artifacts copying
- Promoting Production
- Smoke tests
- Rollback changes due to some incidents

Benefits of CI/CD for Udapeople

Some of the benefits for implementing CI/CD for Udapeople are:

- Early error/failure catching through unit testing
- Automated smoke tests.
- Agile Production
- Frequent Deployments of Changes
- Security Vulnerabilities Detection
- Automated deployment without much of a human input/checking
- Unused Infrastructure Cost Elimination