Dev Ops

Build Code Plan Release Deploy Operate Monitor Test

Achieve, Build, and Deploy Automation for Cloud-Based Software Products

The Fundamentals and Benefits of CI/CD

Continuous Integration

- The process of "Making" is to merge all developers' working to a shared mainline several times a day.

- Everything related to the code fits here, and it has to achieve the main goal of CI: a high quality, deployable artifact!

- Some CI-related phases:
  - Compile
  - Unit Test
  - Static Analysis
  - Dependency vulnerability testing
  - Store artifact

Continuous Integration

- An approach in the software engineering field in which the value is delivered frequently through automated deployments.

- Everything related to deploying the artifact fits here. It's the process of "Moving" the artifact from the back stage to front stage.

- Some common CD-related phases might include:
  - Creating infrastructure
  - Provisioning servers
  - Copying files
  - Promoting to production
  - Smoke Testing
  - Rollbacks

Benefits of CI/CD at the Business Level
From "Cost" point of view

1. **Catch Compile Errors After Merge**
   a. **Translation:** Less developer time on issues from new developer code
   b. **Business Value:** Reduce Cost

2. **Automate Infrastructure Cleanup**
   a. **Translation:** Less infrastructure costs from unused resources
   b. **Business Value:** Reduce Cost

3. **Catch Unit Test Failures**
   a. **Translation:** Less bugs in production and less time in testing
   b. **Business Value:** Avoid Cost

4. **Detect Security Vulnerabilities**
   a. **Translation:** Prevent embarrassing or costly security holes
   b. **Business Value:** Avoid Cost

5. **Automate Infrastructure Creation**
   a. **Translation:** Less human error, Faster deployments
   b. **Business Value:** Avoid Cost

Benefits of CI/CD at the Business Level

From "Revenue" point of view

1. **Faster and More Frequent Production Deployments**
   a. **Translation:** New value-generating features released more quickly
   b. **Business Value:** Increase Revenue

2. **Deploy to Production Without Manual Checks**
   a. **Translation:** Less time to market
   b. **Business Value:** Increase Revenue

3. **Automated Smoke Tests**
   a. **Translation:** Reduced downtime from a deploy-related crash or major bug
   b. **Business Value:** Protect Revenue

4. **Automated Rollback Triggered by Job Failure**
   a. **Translation:** Quick undo to return production to working state
   b. **Business Value:** Protect Revenue