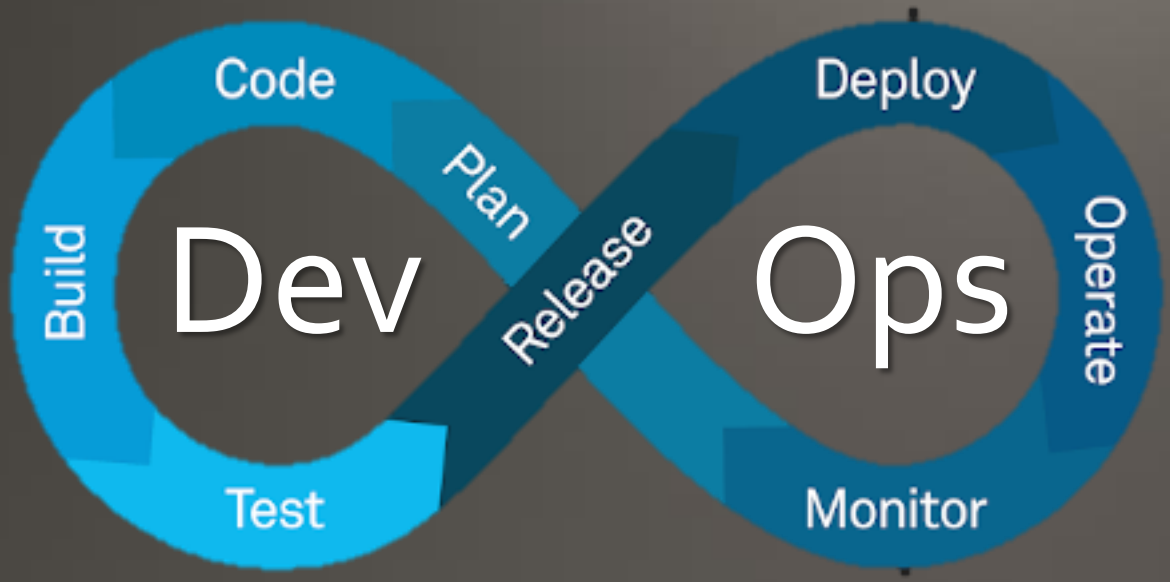

Achieve, Build, and Deploy Automation for Cloud-Based Software Products

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

Reduce Cost

- Catch Compile Errors After Merge
  - Less time consumed on issues from new code.
- Automate Infrastructure Cleanup
  - Less infrastructure costs from unused resources

Avoid Cost

- Catch Unit Test Failures
  - Less bugs in production and less testing time.
- Detect Security Vulnerabilities
  - Prevent embarrassing or costly security holes
- Automate Infrastructure Creation
  - Less human error, Faster deployments

Benefits of CI/CD at the Business Level

From "Revenue" point of view

Increase Revenue

- Faster and More Frequent Production Deployments
  - New value-generating features released quickly.
- Deploy to Production Without Manual Checks
  - Less time to market

Protect Revenue

- Automated Smoke Tests
  - Reduced downtime from a deploy crash or major bug.
- Automated Rollback Triggered by Job Failure
  - Quick undo to return production to working state.