CI/CD & Continuous Delivery

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Agenda

- What is Continuous delivery?
- Continuous Integration
- Continuous Deployment
- Benefits of CI/CD

What is **Continuous delivery**?

- Continuous delivery is a software development practice where code changes are automatically prepared for a release to production.
- Continuous delivery is also assumed to be an overarching paradigm or mindset that informs and enhances the practices of Continuous Integration and Continuous Delivery.

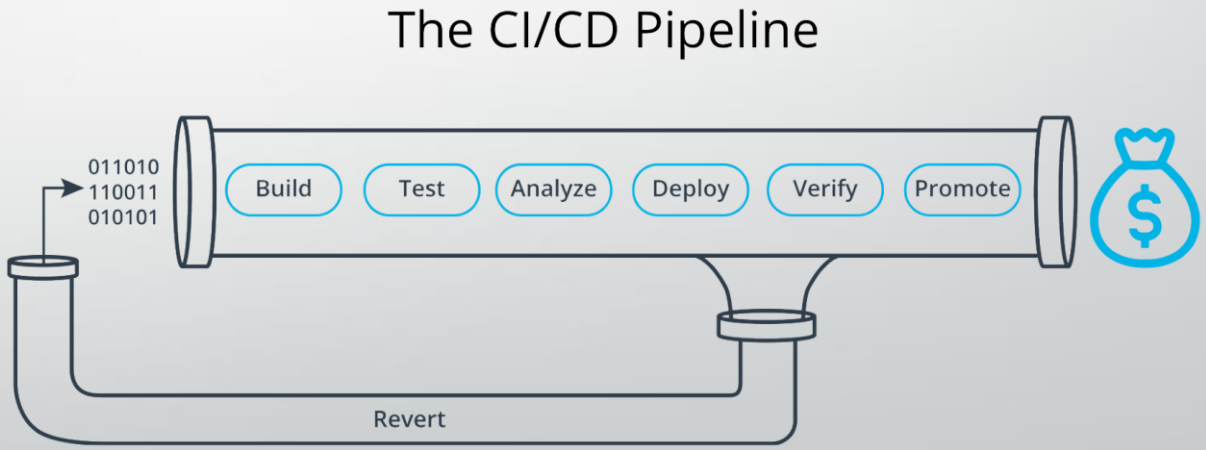
Continuous Integration + Continuous Deployment = Continuous Delivery

Continuous Integration

- *The practice of merging all developers' working copies to a shared mainline several times a day. It's the process of "**Making**". Everything related to the code fits here, and it all culminates in the ultimate goal of CI: a high quality, deployable artifact! Some common CI-related phases might include:*
  - **Compile**
  - **Unit Test**
  - **Static Analysis**
  - **Dependency vulnerability testing**
  - **Store artifact**

Continuous Deployment

- *A software engineering approach 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 shelf to the spotlight. Some common CD-related phases might include:*
  - **Creating infrastructure**
  - **Provisioning servers**
  - **Copying files**
  - **Promoting to production**
  - **Smoke Testing (aka Verify)**
  - **Rollbacks**



Benefits of CI

- CI reduces cost by:
  - Helping developers to spend less time on issues from new developers code.
  - Reducing the Infrastructure costs from unused resources
- CI also avoid costs by:
  - Catching test failures that results in less bugs in production and less time in testing
  - Detecting security vulnerabilities which prevent embarrassing or costly security holes
  - Automating Infrastructure Creation that results in Less human error, Faster deployments

Benefits of CD

- CD Increases Revenue by:
  - Performing faster and more frequent production deployments which means that new value-generating features will be released more quickly
  - Deploying to Production without manual checks which leads to less time to market
- CD Protect Revenue by:
  - Performing Automated Smoke Tests which results in reduced downtime from a deploy-related crash or major bug
  - Automating rollback on failure which can Quick undo the deployment to return production to working state