

# FUNDAMENTALS & BENEFITS

## CI/CD



# OVERVIEW

- **Fundamentals of CI.**
- **Fundamentals of CD.**
- **The Phases of CI/CD Pipeline**
- **Benefits of CI/CD**

# FUNDEMENTALS of CI

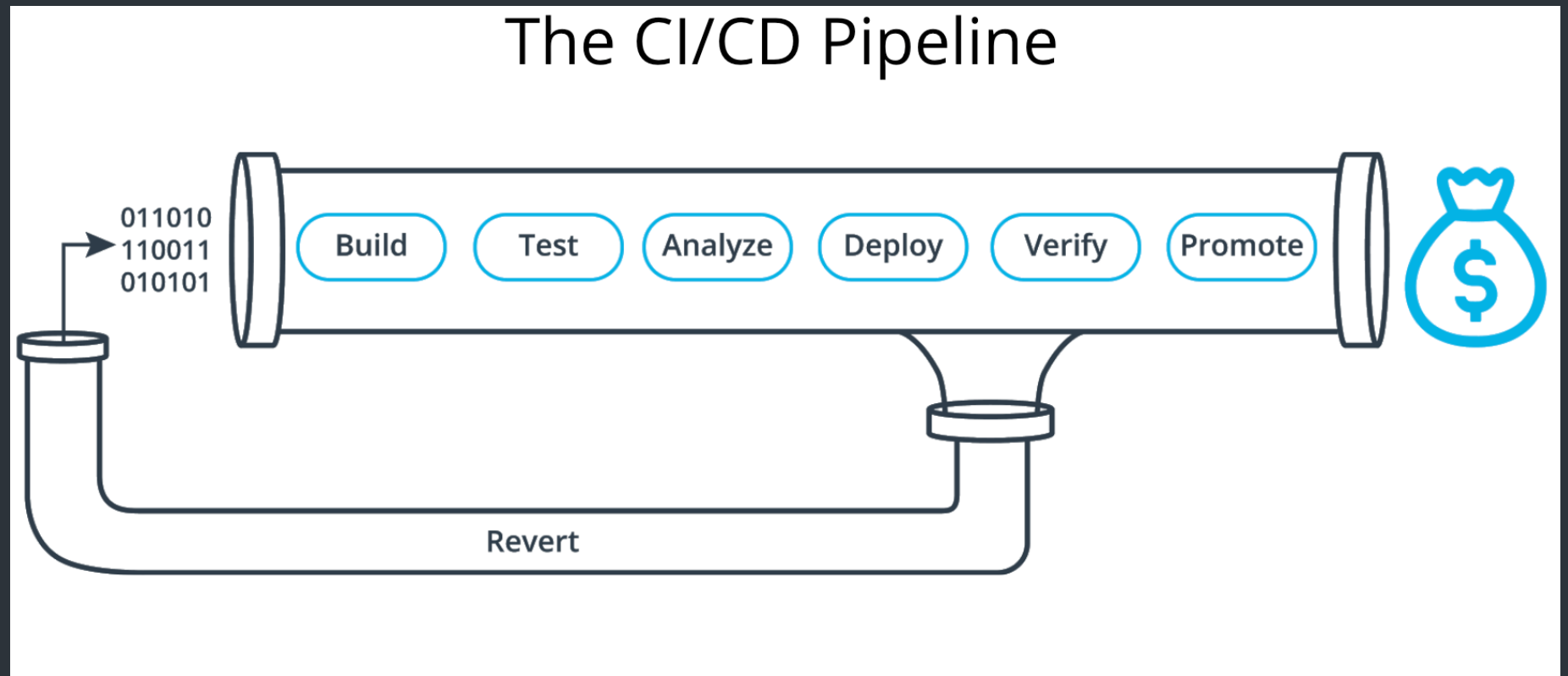
## ➤ Continuous Integration

- *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.*
- *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

# FUNDAMENTALS of CD

- 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

# The Phases of CI/CD Pipeline



# Benefits of CI/CD

| Technical Language                              | Value            | Translation   |
|---|------------------|---|
| Catch Compile Errors After Merge                | Reduce Cost      | Less developer time on issues from new developer code     |
| Catch Unit Test Failures                        | Avoid Cost       | Less bugs in production and less time in testing          |
| Detect Security Vulnerabilities                 | Avoid Cost       | Prevent embarrassing or costly security holes             |
| Automate Infrastructure Creation                | Avoid Cost       | Less human error, Faster deployments                      |
| Automate Infrastructure Cleanup                 | Reduce Cost      | Less infrastructure costs from unused resources           |
| Faster and More Frequent Production Deployments | Increase Revenue | New value-generating features released more quickly       |
| Deploy to Production Without Manual Checks      | Increase Revenue | Less time to market                                       |
| Automated Smoke Tests                           | Protect Revenue  | Reduced downtime from a deploy-related crash or major bug |
| Automated Rollback Triggered by Job Failure     | Protect Revenue  | Quick undo to return production to working state          |

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**Thank you**