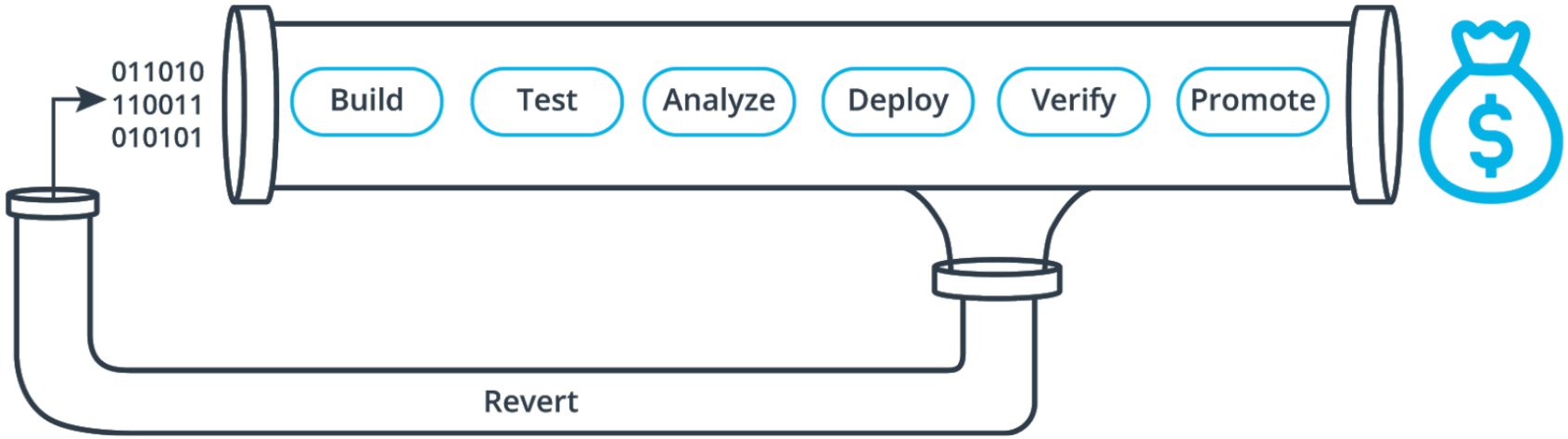
The Fundamentals and Benefits of CI/CD to Achieve, Build, and Deploy

Automation for Cloud-Based Software Products

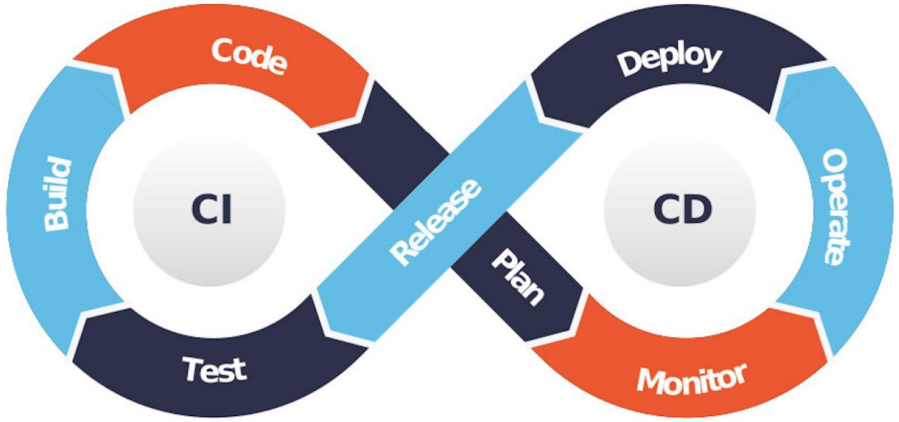
The CI/CD Pipeline



Continuous Integration (CI) is the process of frequently merging every developer's working copy to a common mainline. Static analysis, unit testing, compiling the code, and looking for dependency vulnerabilities are all part of the process. CI aims to guarantee that the code is of a high caliber and is deployable.

Continuous Deployment (CD) approach to software engineering, value is frequently delivered through automated deployments. It focuses on the artifact's deployment, which entails building infrastructure, setting up servers, copying files, moving something into production, conducting smoke tests, and managing rollbacks.

Benefit of CI/CID



- Faster Time to Market: CI/CD makes it possible for end users to receive software updates and new features more quickly.
- Improved Code Quality: As changes to the code are committed to the repository, Continuous Integration builds and tests the updated code automatically.
- Early Bug Detection: Automated tests are run after each change in the code with CI/CD, allowing for the early identification of bugs and problems.
- Collaboration among team members is improved thanks to CI/CD. It promotes routine code integration and offers a central forum for code review and criticism.
- Continuous Feedback: The codebase's health and quality are continuously evaluated using CI/CD.
- Reliable Deployments: The process of automating application deployment to production environments is known as continuous deployment.
- Scalability and Flexibility: CI/CD platforms like CircleCI are flexible enough to support a wide range of programming languages and frameworks as well as large codebases.

DevOps

- Software development (Dev) and IT operations (Ops) are combined in the DevOps methodology to enhance teamwork, communication, and productivity throughout the software development lifecycle. It aims to eliminate the communication gap between the development and operations teams so that they can collaborate easily and produce high-quality software more quickly and consistently.

CircleCi

The building, testing, and deploying of software applications can be automated with the help of the CircleCI continuous integration and continuous deployment (CI/CD) platform. Developers are able to concentrate on writing code rather than managing infrastructure because it offers a cloud-based environment for running these processes.