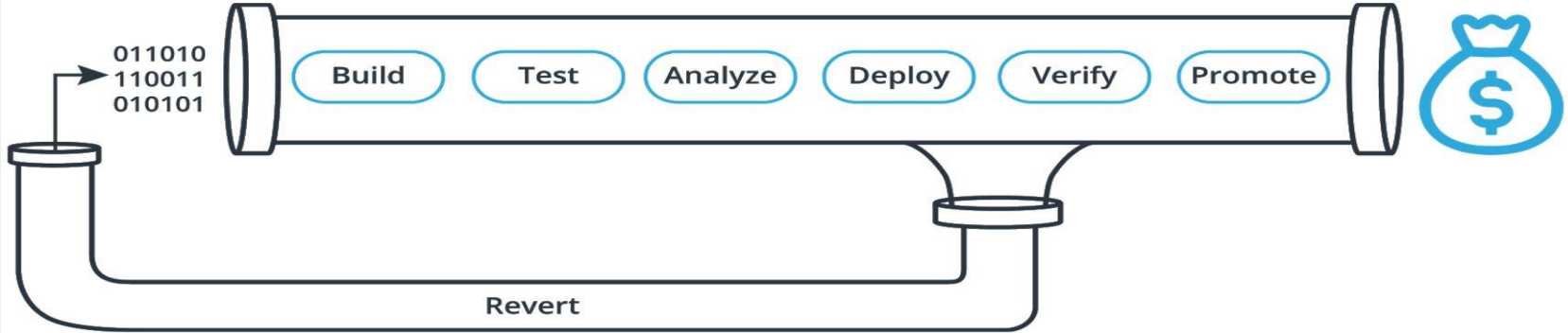


# Benefits of CI/CD For Udapeople

**Kennedy Uche**

# CI/CD Implementation Architecture

## The CI/CD Pipeline

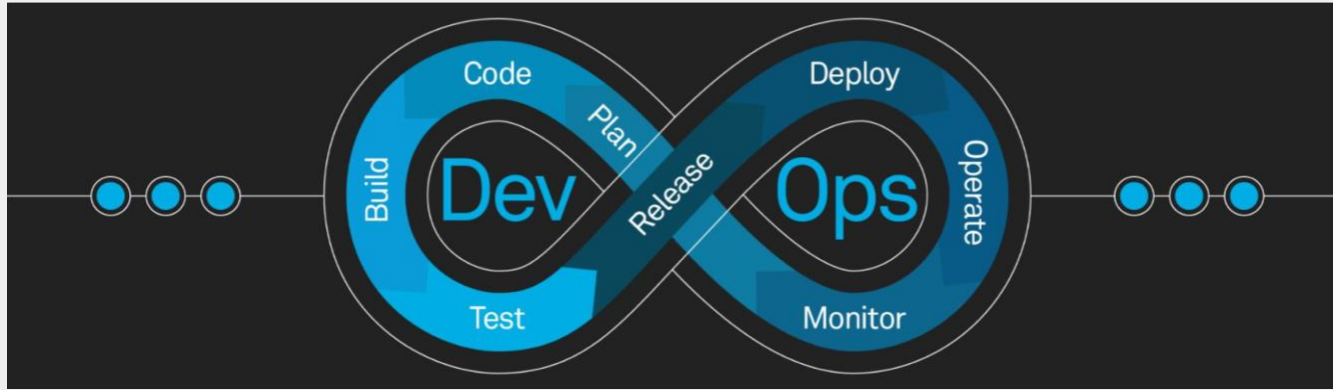


# DevOps Practices

DevOps aims to enhance an organization's capability to deliver applications and services at a faster pace than conventional software development methods. By leveraging the increased speed of DevOps, organizations can serve their customers more effectively and stay competitive in the market.

- **Continuous Integration (CI)** is a practice that aligns well with the continuous delivery paradigm. It involves developers making frequent small changes and checks to their code, which are then merged into a shared mainline multiple times a day.
- **Continuous Delivery (CD)** is an engineering paradigm that involves teams delivering value in short cycles. CD automates the delivery of completed code to various environments like testing and development, providing a consistent and automated method for code delivery.
- **Continuous Deployment** is also a software engineering approach that aligns with the continuous delivery paradigm. It entails delivering value frequently through automated deployments.

# Concept of CI/CD



- The practice of CI/CD combines continuous integration (CI) with either continuous delivery or continuous deployment (CD). The concept involves creating jobs that execute various operations like building, testing, and deploying.
- Contemporary DevOps practices revolve around continuously developing, testing, integrating, deploying, and monitoring software applications throughout the development lifecycle. The CI/CD pipeline forms a crucial aspect of modern DevOps operations, enabling organizations to deliver software swiftly and efficiently.

# Core Benefits of CI/CD

## Continuous Integration (CI)

- Compilation
- Unit testing
- Static Analysis
- Dependency Vulnerability testing
- Store artifact

## Continuous Development (CD)

- Compilation
- Unit testing
- Static Analysis
- Dependency Vulnerability testing
- Store artifact

# Core Benefits of CI/CD

## Continuous Deployment

- This is an engineering approach in which the final stage in the pipeline that refers to the automatic releasing of any developer changes from the repository to the production. Continuous Deployment ensures that any change that passes through the stages of production is released to the end-users.

# Benefits

Detailed benefits from the technical and Business point of view:

Technical	Benefit	Business
Unit test failure	Less cost	Avoidance of cost of Security holes.
Automate infrastructure creation	Less cost	Less cost of unused hardware.
Automatic rollback	Save revenue	Faster recovery from failure.
Automatic smoke test	Save revenue	Reduce downtime

Faster production code release	Increase revenue	New feature release more quickly.
Security Vulnerability	Less cost	Less human error
Compile error	Reduce cost	Less developer time on making code





# Summary

CI/CD ensures that the development team releases new codes rapidly and effectively by;

- Less Backlog
- Improve transparency
- Increase test cycle
- Faster release cycle
- Reduced change time
- Ensure code quality
- Improve mean time to resolution
- Increase monitoring metrics
- Raise customer satisfaction level
- Fault Detection and Recovery