Introduction to DevOps

CLARUSWAY
WAY TO REINVENT YOURSELF

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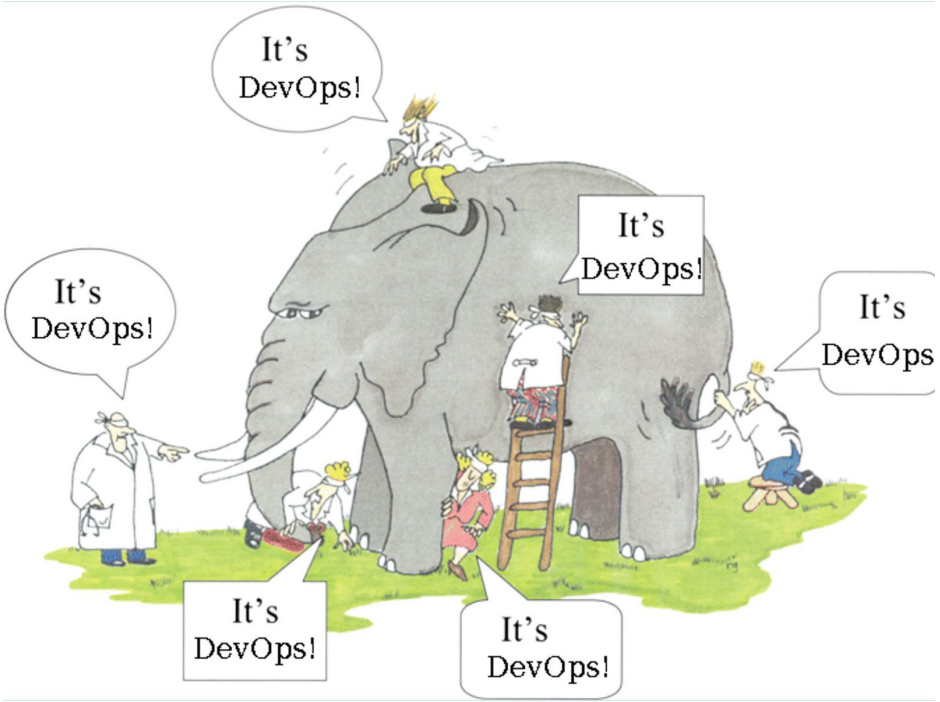
What is DevOps

What is DevOps

What DevOps is Not...

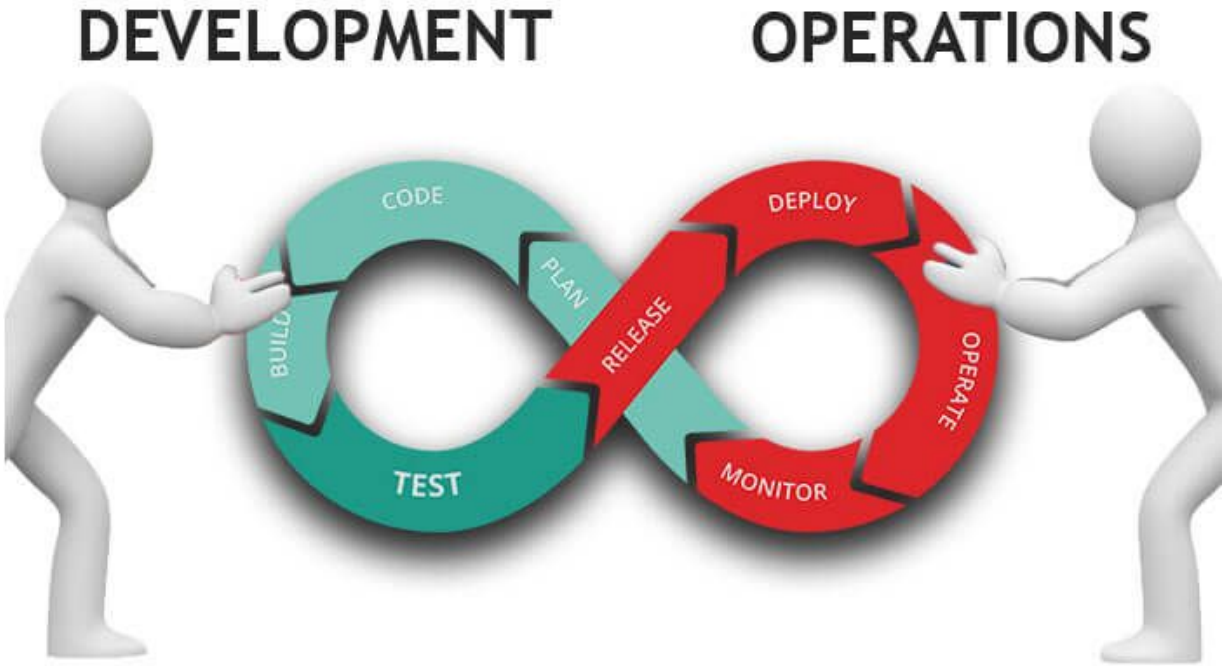
- a tool
- a role
- a team
- something that can be purchased or simply switched on



What is DevOps

The beginning of wisdom is the definition of terms.

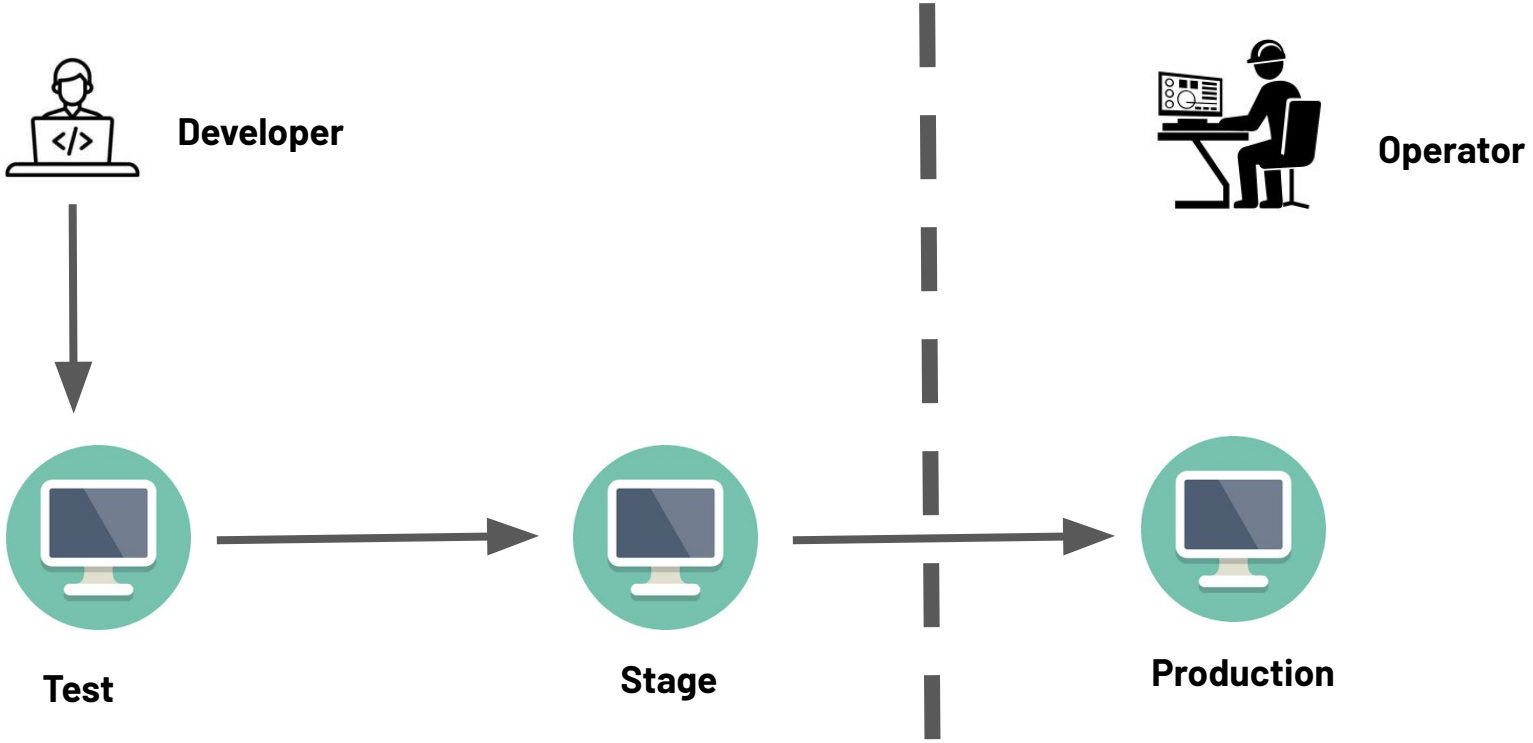
- — Socrates



What is DevOps

- **DevOps** is a set of practices that combines software **development** (Dev) and IT **operations** (Ops).
- It aims to **shorten** the software development life cycle and provide **continuous delivery** with **high software quality.**
- DevOps is complementary with Agile software development; several DevOps aspects came from the Agile methodology.
- DevOps addressed the **gap** between Developers and Operations.

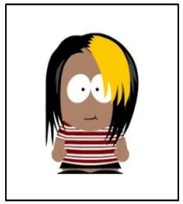
Before DevOps



What is DevOps

Roles;





DEVELOPMENT TEAM

- Project Manager
- Software Architects
- Developers
- Testers/QA, etc.

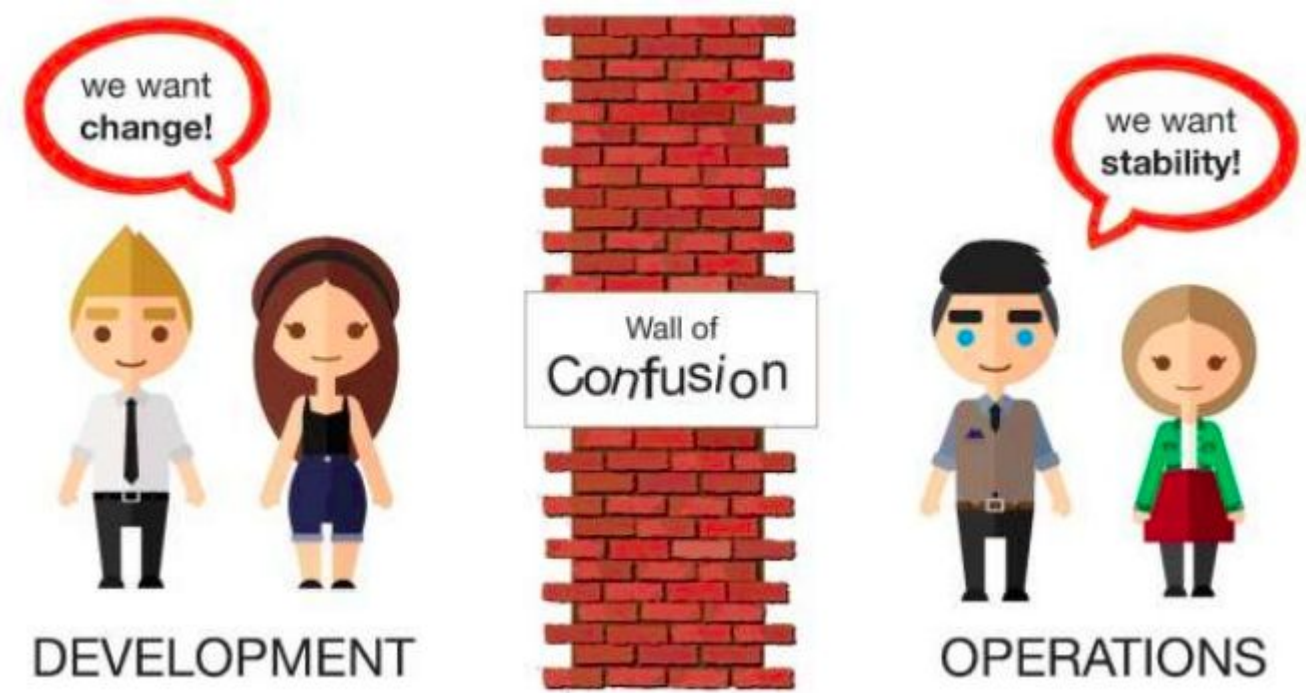


OPERATION TEAM

- System Administrators
- Database Administrators
- Release Engineers
- Network Engineers
- Security Professionals, etc

What is DevOps

Responsibilities;



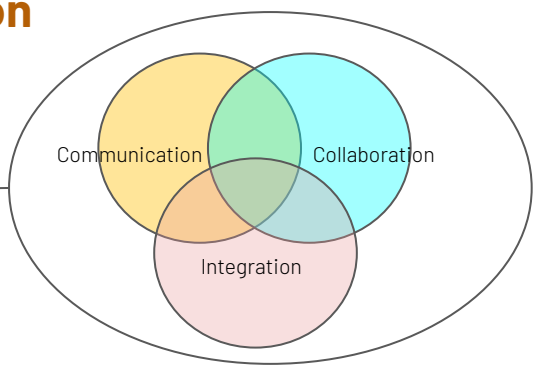
What is DevOps

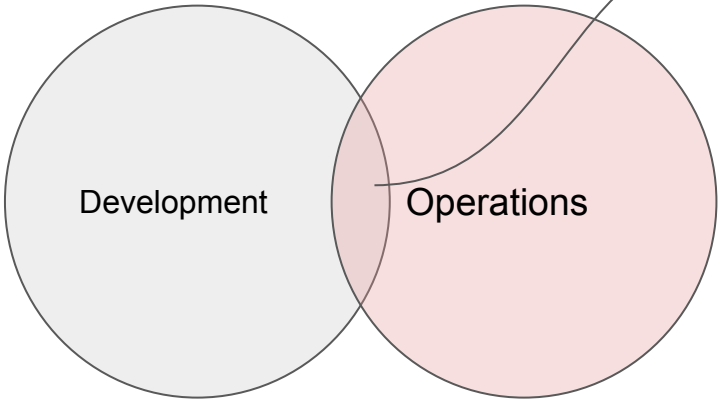
What is the problem?

What is DevOps

Breaking the Silos: Communication, Collaboration, Integration

- How can dev help system stability?
- How can ops help accelerate feature delivery?

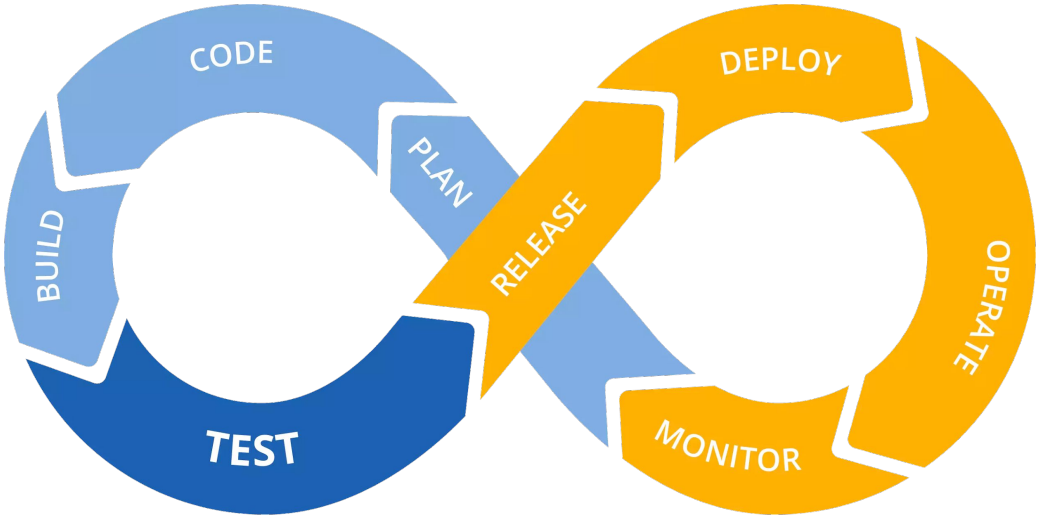




“We can build cross-functional teams around “knowledge overlaps” – people with experience on both sides and “Ops Devs””

Introduction to DevOps

What is DevOps ?

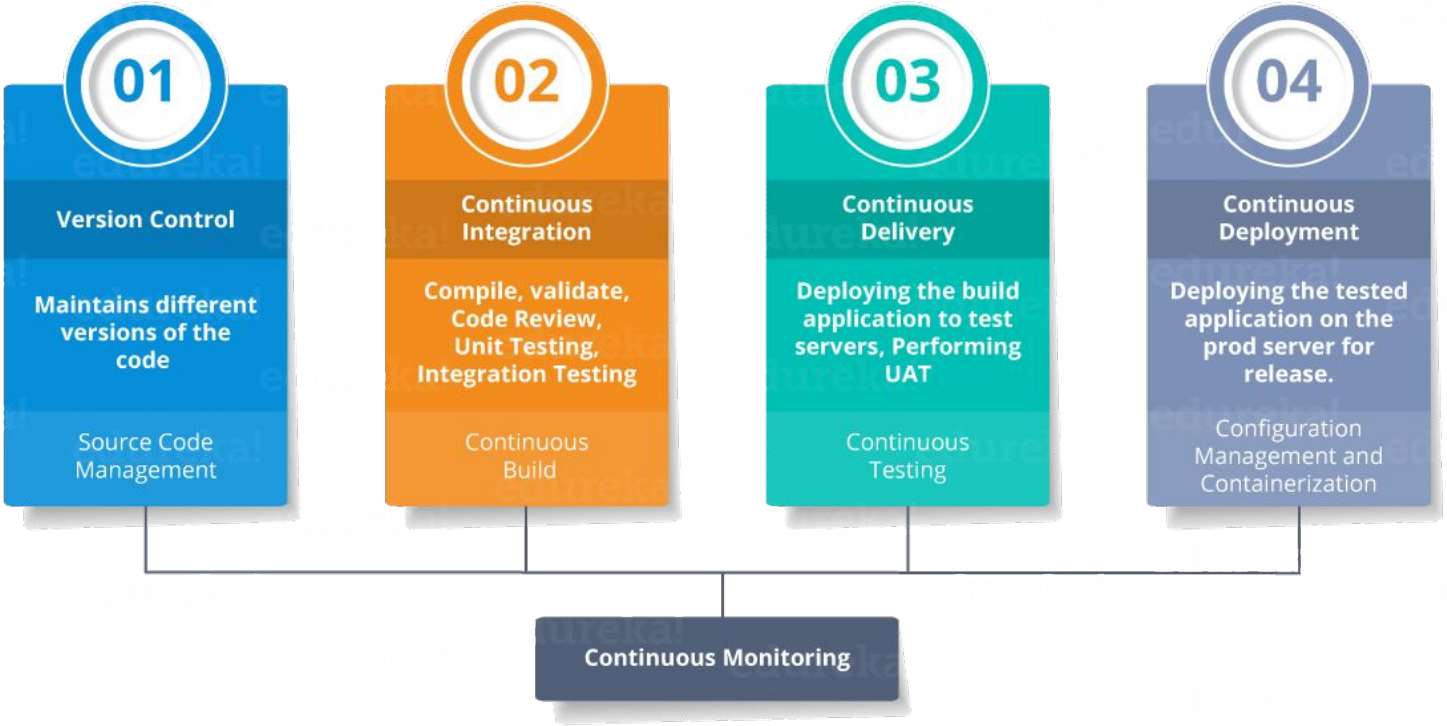


DevOps is a software development approach which involves continuous development, continuous testing, continuous integration, continuous deployment, and continuous monitoring of the software throughout its development lifecycle

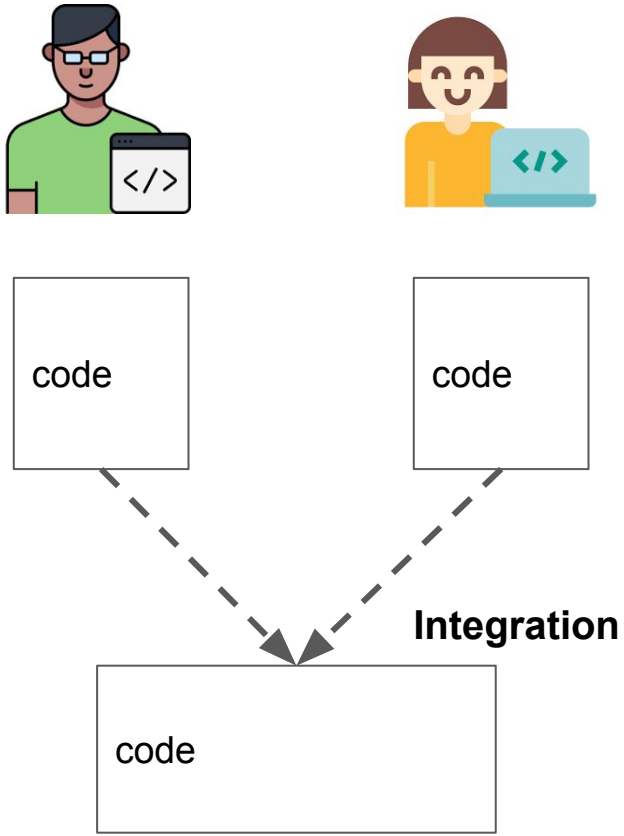
2

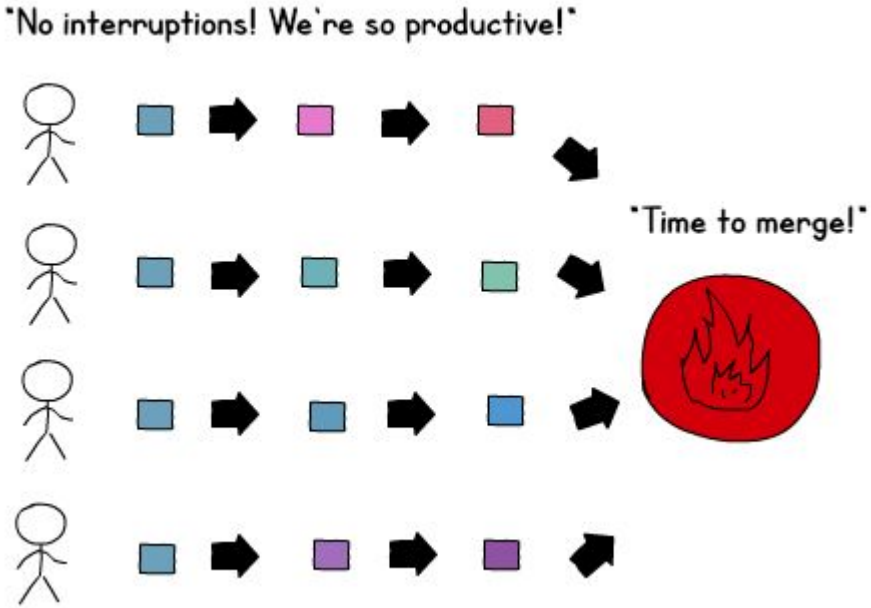
Continuous Integration/ Continuous Delivery (CI/CD)

CI/CD

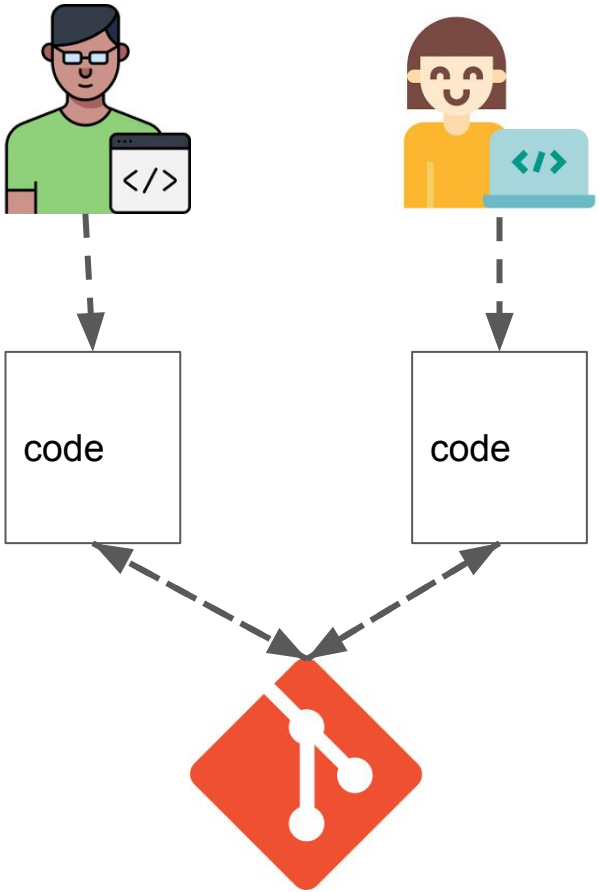

01
Version Control
Maintains different versions of the code
Source Code Management
02
Continuous Integration
Compile, validate, Code Review, Unit Testing, Integration Testing
Continuous Build
03
Continuous Delivery
Deploying the build application to test servers, Performing UAT
Continuous Testing
04
Continuous Deployment
Deploying the tested application on the prod server for release.
Configuration Management and Containerization
Continuous Monitoring

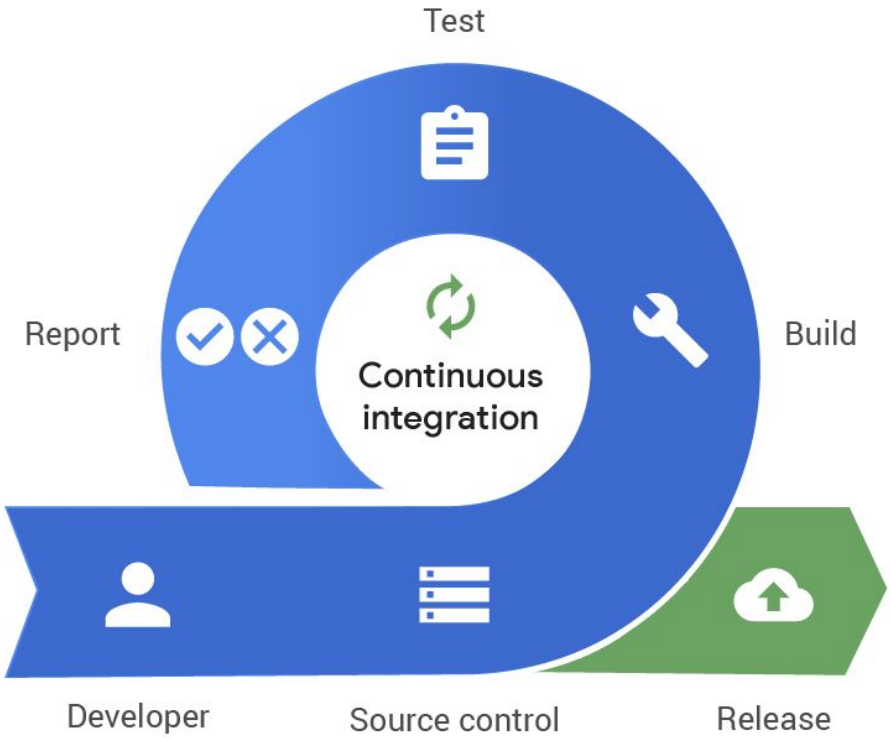
Integration Hell



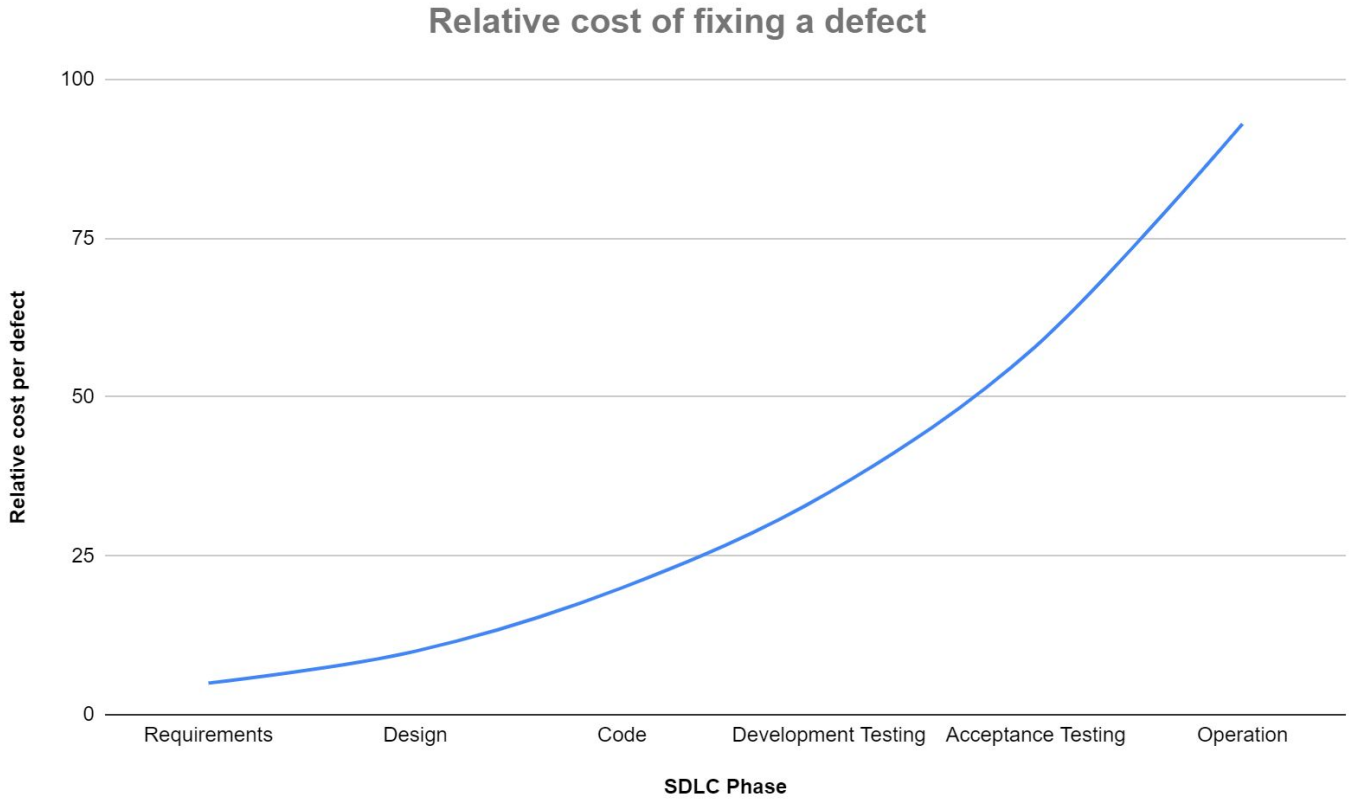


CI


code
code

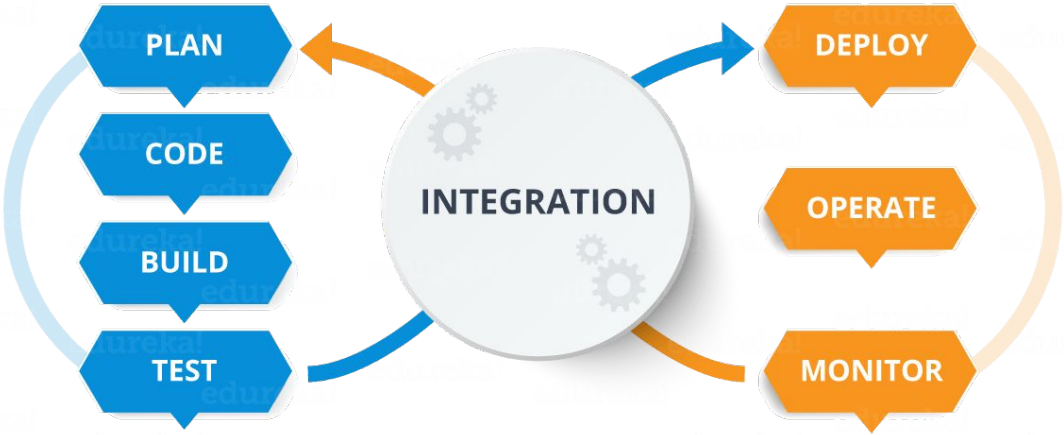

Test
Report
Build
Continuous integration
Developer
Source control
Release

Introduction to DevOps



Introduction to DevOps

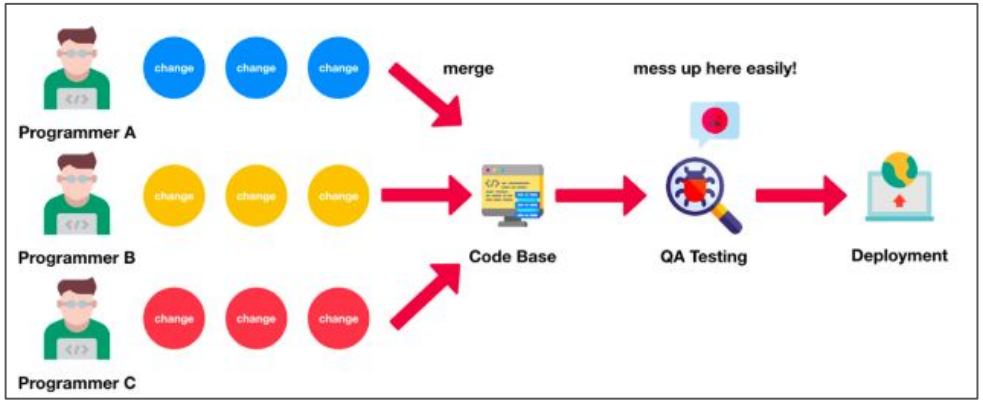
What is Continuous Integration ?



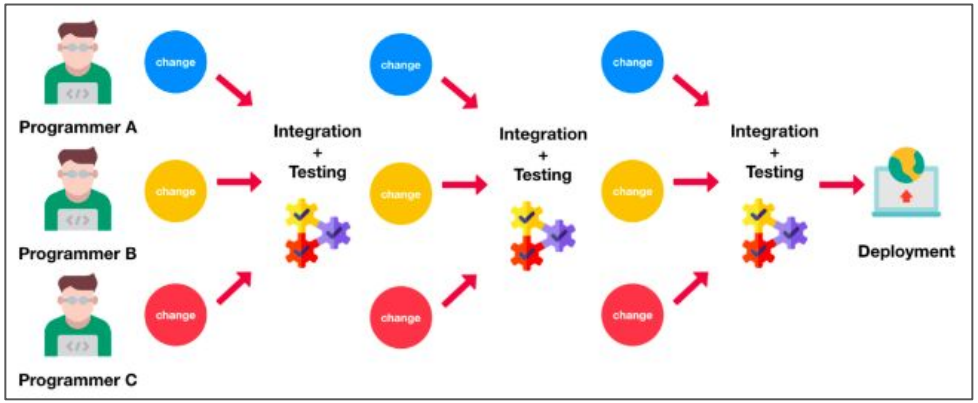
Continuous integration is a software development method where members of the team can integrate their work at least once a day. In this method, every integration is checked by an automated build to search the error.

Introduction to DevOps

Traditional way



With CI &CD



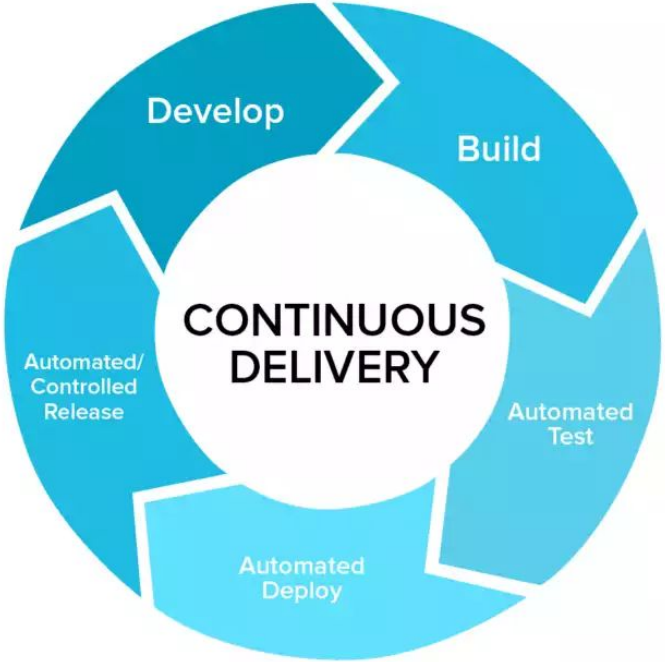
Introduction to DevOps

With CI vs Without CI

Development without CI	Development with CI
Lots of Bugs	Fewer bugs
Infrequent and slow releases	Regular working releases
Difficult integration	Easy and Effective Integration
Late bug finding(days,weeks)	Early bug finding(minutes,hours)
Issue raised are harder to fix	Find and fix problems faster and more efficiently.
Poor project visibility	Better project visibility

Introduction to DevOps

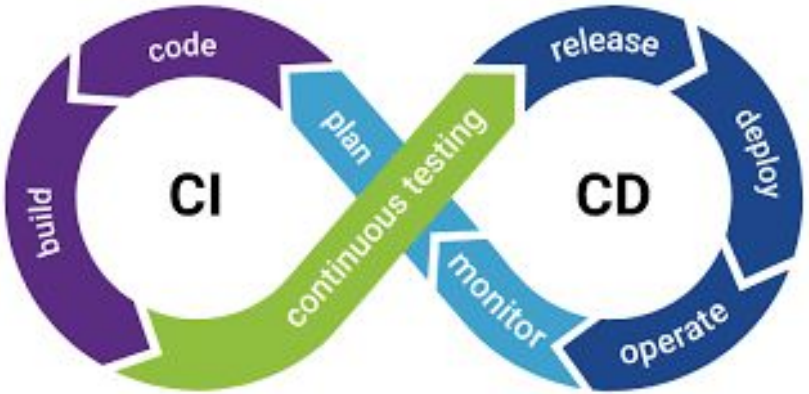
What is Continuous Delivery?



Continuous delivery (CD) is a software engineering approach in which teams produce software in short cycles, ensuring that the software can be reliably released at any time and, following a pipeline through a "production-like environment", without doing so manually.

Introduction to DevOps

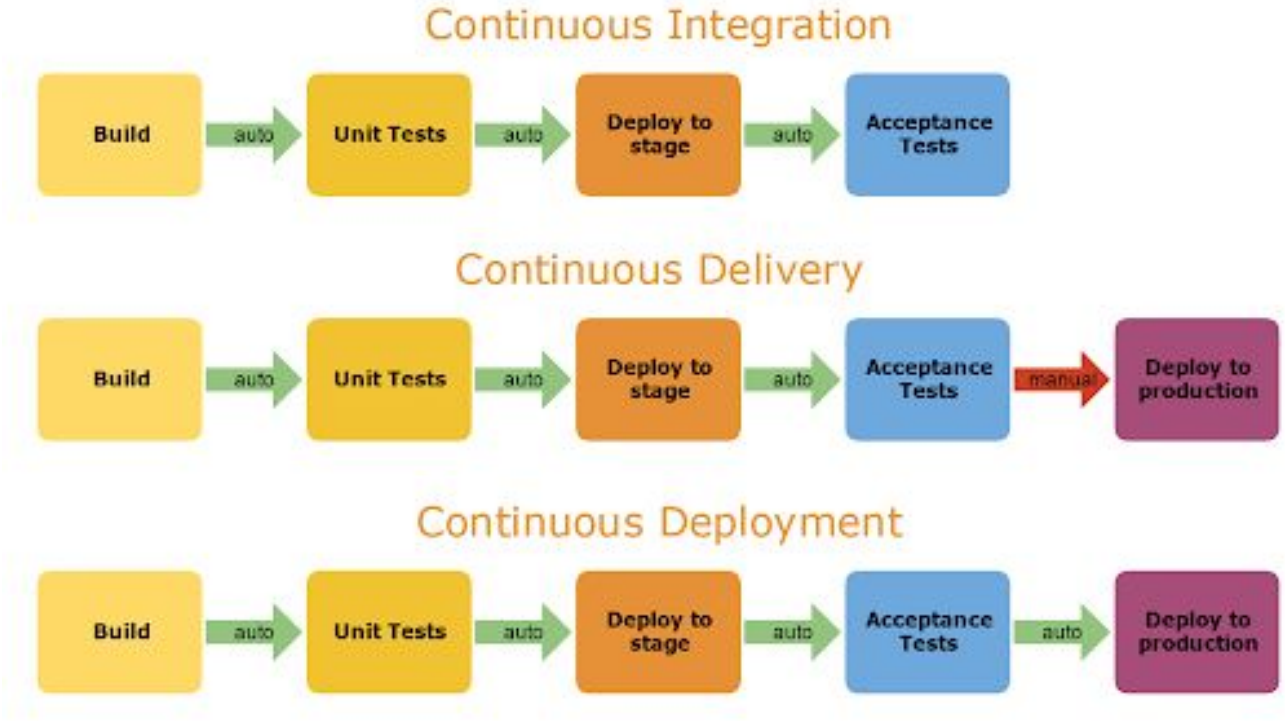
What is CI/CD?



In software engineering, **CI/CD** is the combined practices of continuous integration **(CI)** and (more often) continuous delivery or (less often) continuous deployment (**CD**).

Introduction to DevOps

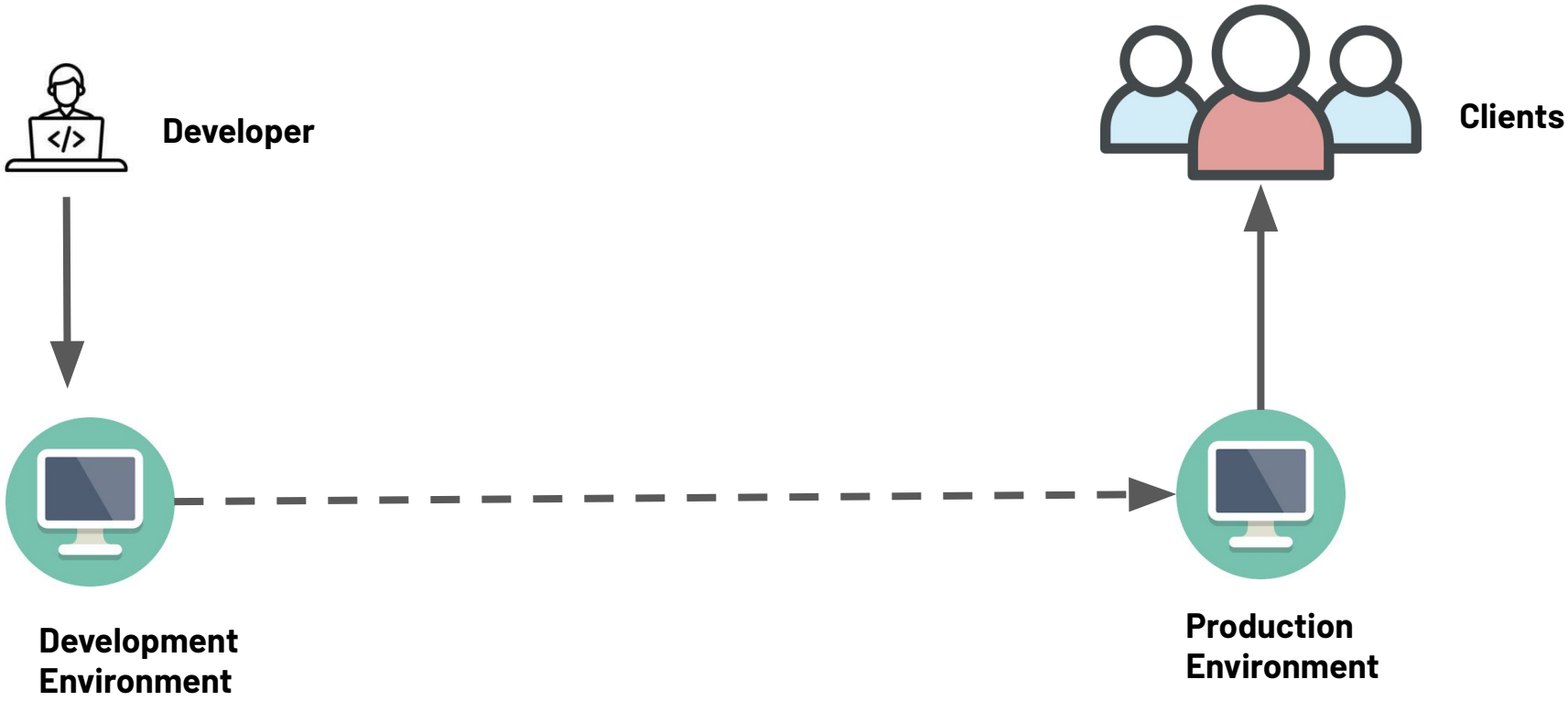
Continuous Delivery vs Continuous Deployment



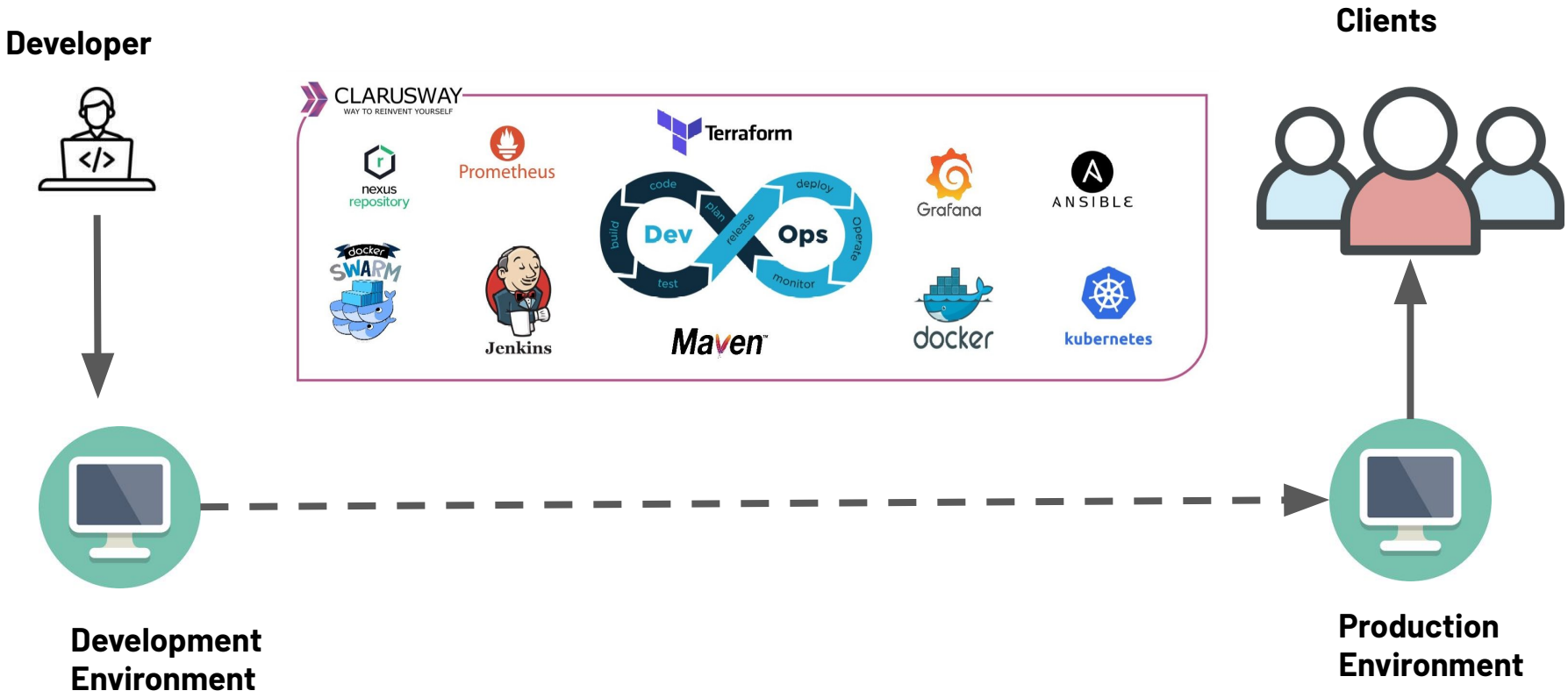
3

DevOps Tools

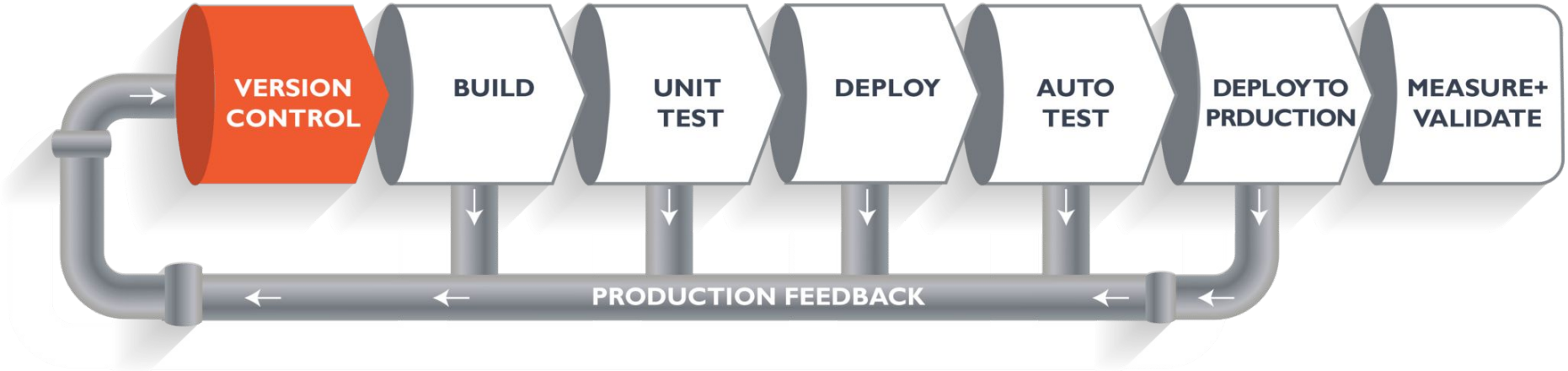
Introduction to DevOps



Introduction to DevOps

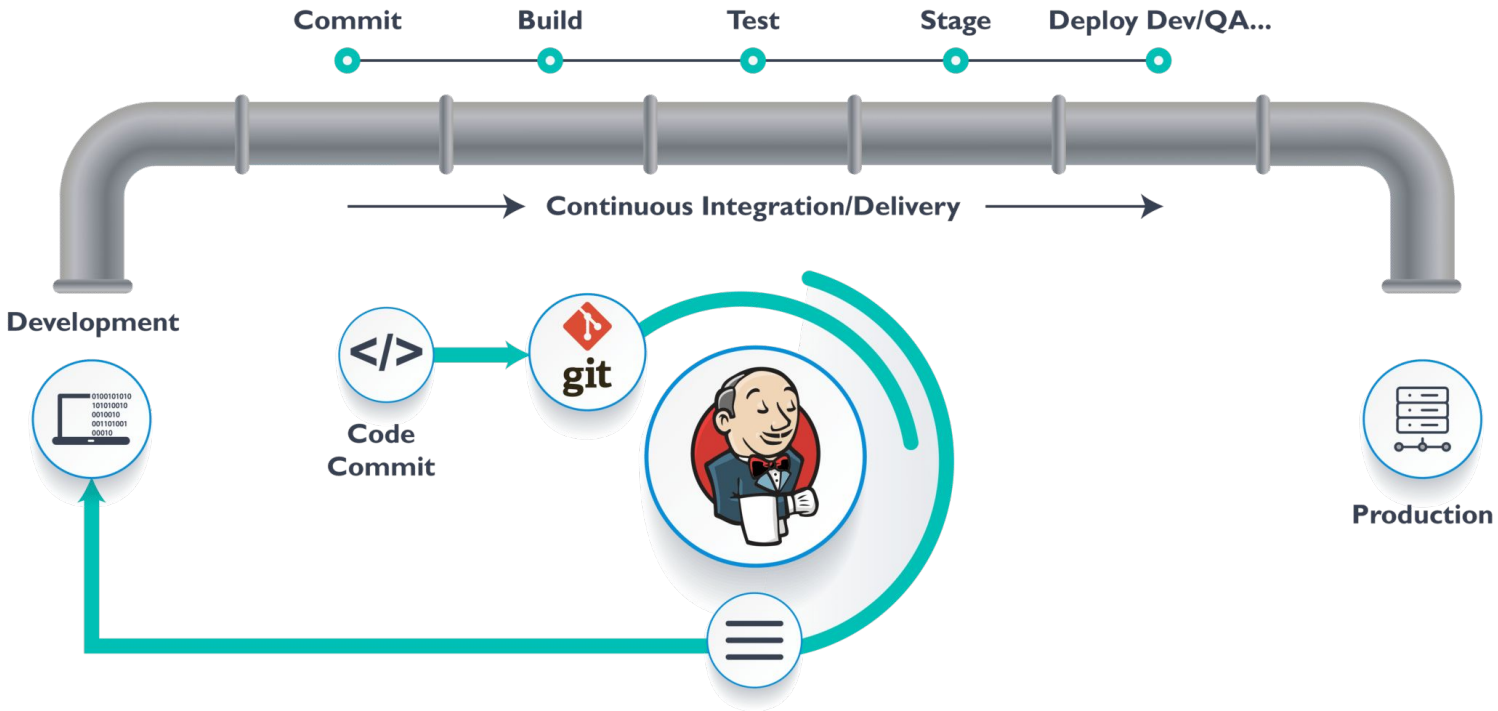


DevOps Tools



Introduction to DevOps

Continuous Integration Server



Introduction to DevOps

Continuous Integration Server

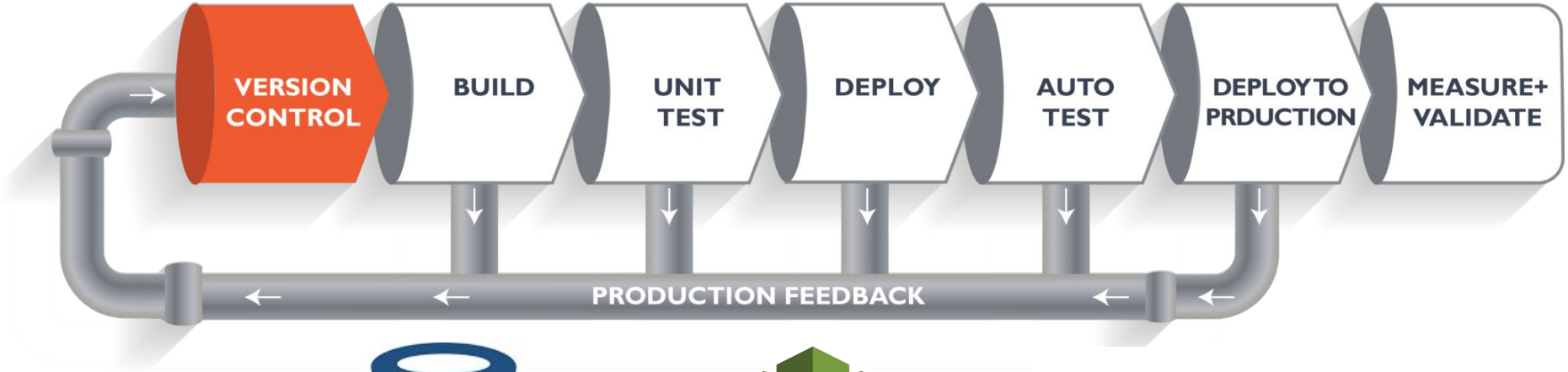
Gitlab

Teamcity

Introduction to DevOps

Version Control Stage

EC2
CodeCommit



GitHub

Bitbucket
Atlassian

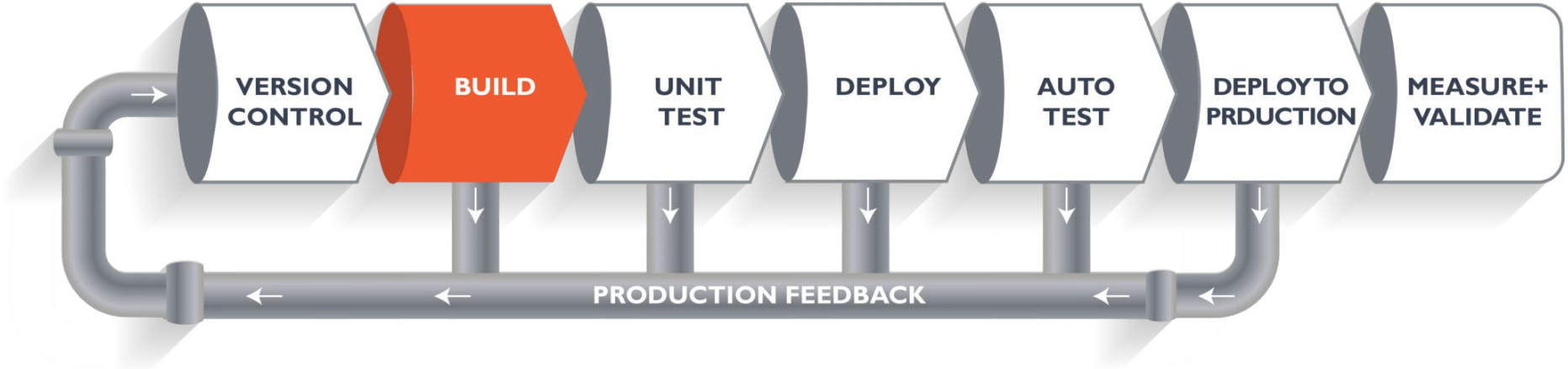
Codecommit
AWS

Gitlab
Gitlab

Introduction to DevOps

What is Continuous Integration ?

EC2
CodeCommit,CodeBuild
ECS(Elastic Container Service)

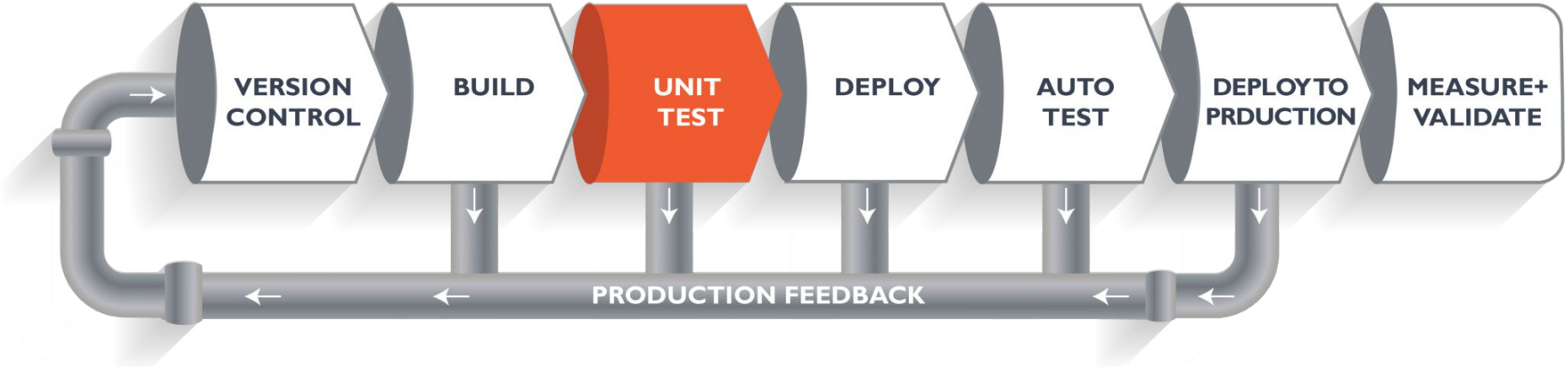


Maven
npm
nuget
BASH
THE BOURNE-AGAIN SHELL
Xcode
Gradle
<APACHE ANT>
CMake

Introduction to DevOps

What is Continuous Integration ?

EC2
CodeCommit,CodeBuild
ECS(Elastic Container Service)



JUnit

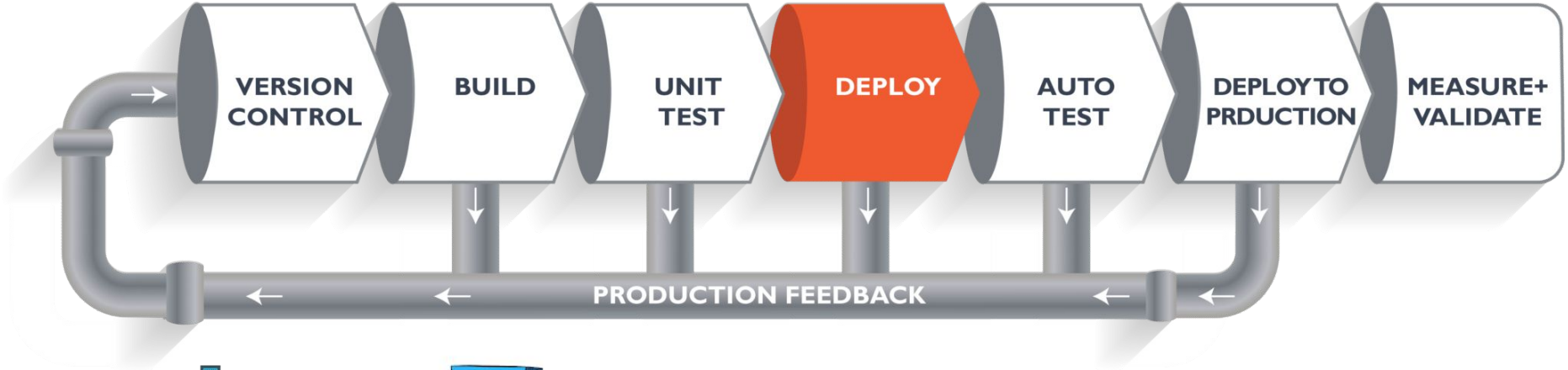
JACOCO
Java Code Coverage

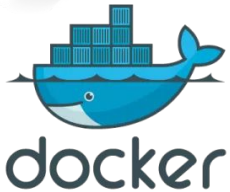
sonarqube

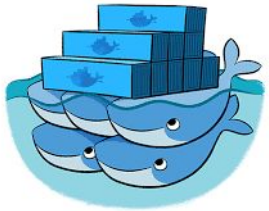
Introduction to DevOps

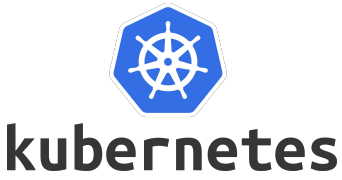
What is Continuous Integration ?

EC2
CodeCommit,CodeBuild, CodeDeploy
ECS(Elastic Container Service)
ECR,S3,RDS,DynamoDB
Cloudformation,Beanstalk
ELB, AutoScaling

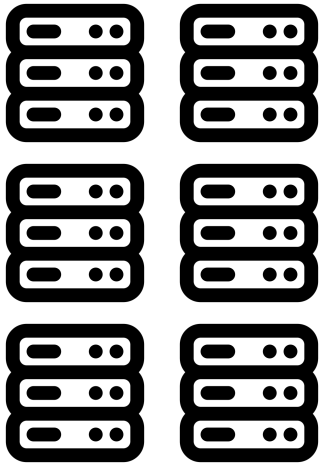




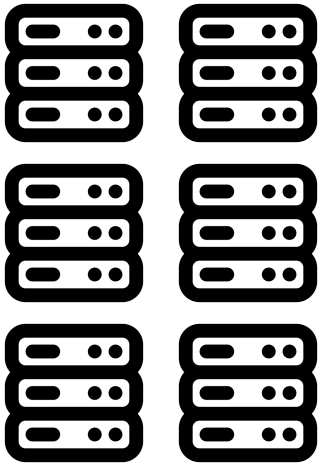




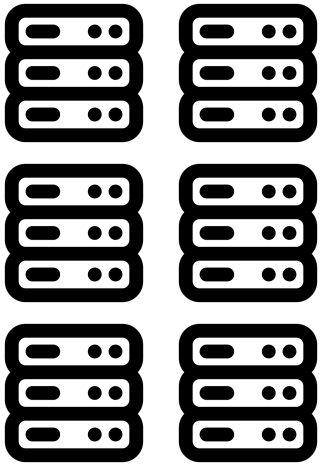
Introduction to DevOps



DEV Environment



TEST Environment

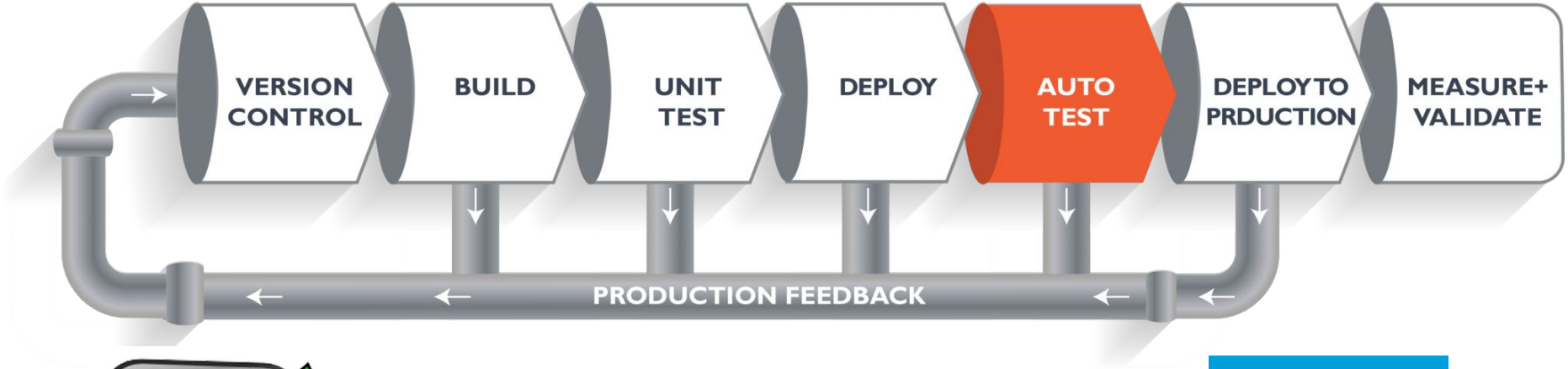


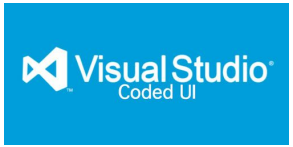
PROD Environment

Introduction to DevOps

What is Continuous Integration ?

EC2
CodeCommit,CodeBuild, CodeDeploy
ECS(Elastic Container Service)
ECR,S3,RDS,DynamoDB
Cloudformation,Beanstalk
ELB, AutoScaling

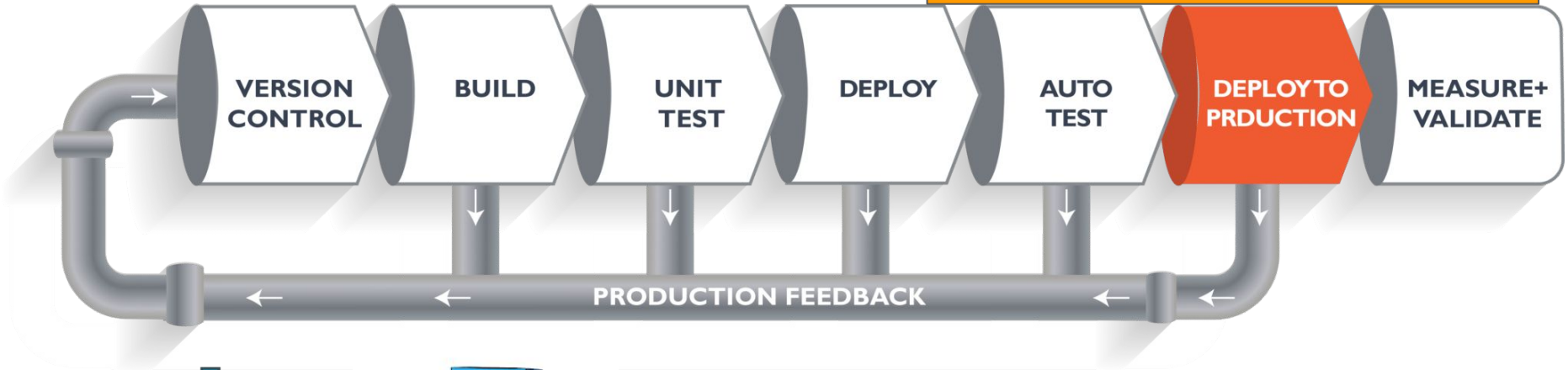




Introduction to DevOps

Continuous Delivery/Deployment ?

EC2
CodeCommit,CodeBuild, CodeDeploy
ECS(Elastic Container Service)
ECR,S3,RDS,DynamoDB
Cloudformation,Beanstalk
ELB, AutoScaling
Cloudfront,Route53



docker

kubernetes

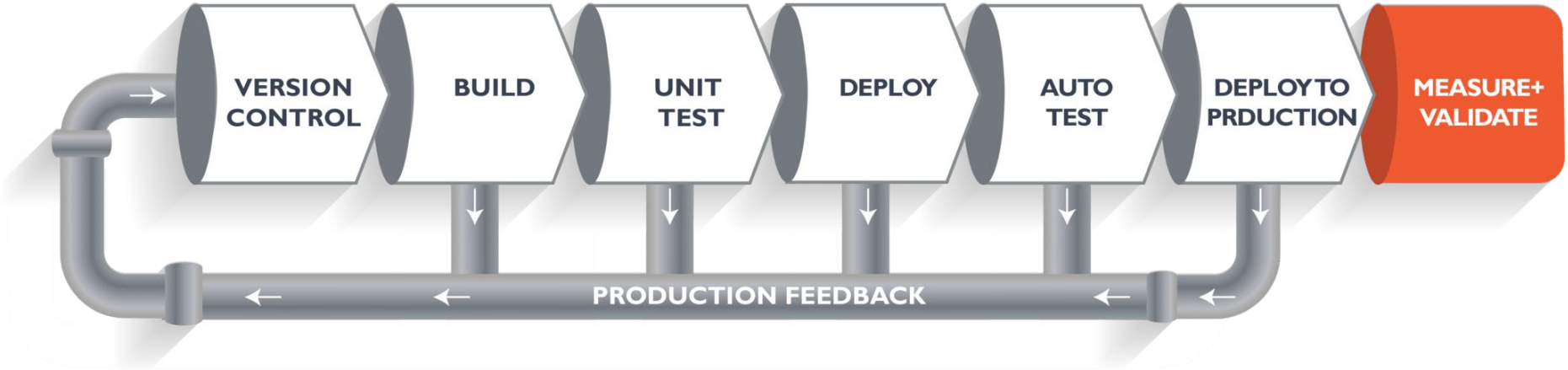
ANSIBLE

Terraform

Introduction to DevOps

Continuous Delivery/Deployment ?

Cloudwatch
SNS
SQS
SES



Prometheus

Grafana

Nagios®

ATLASSIAN Opsgenie

THANKS!

Any questions?