SIGMA ACADEMY
CI COURSE DAY 1

BY-
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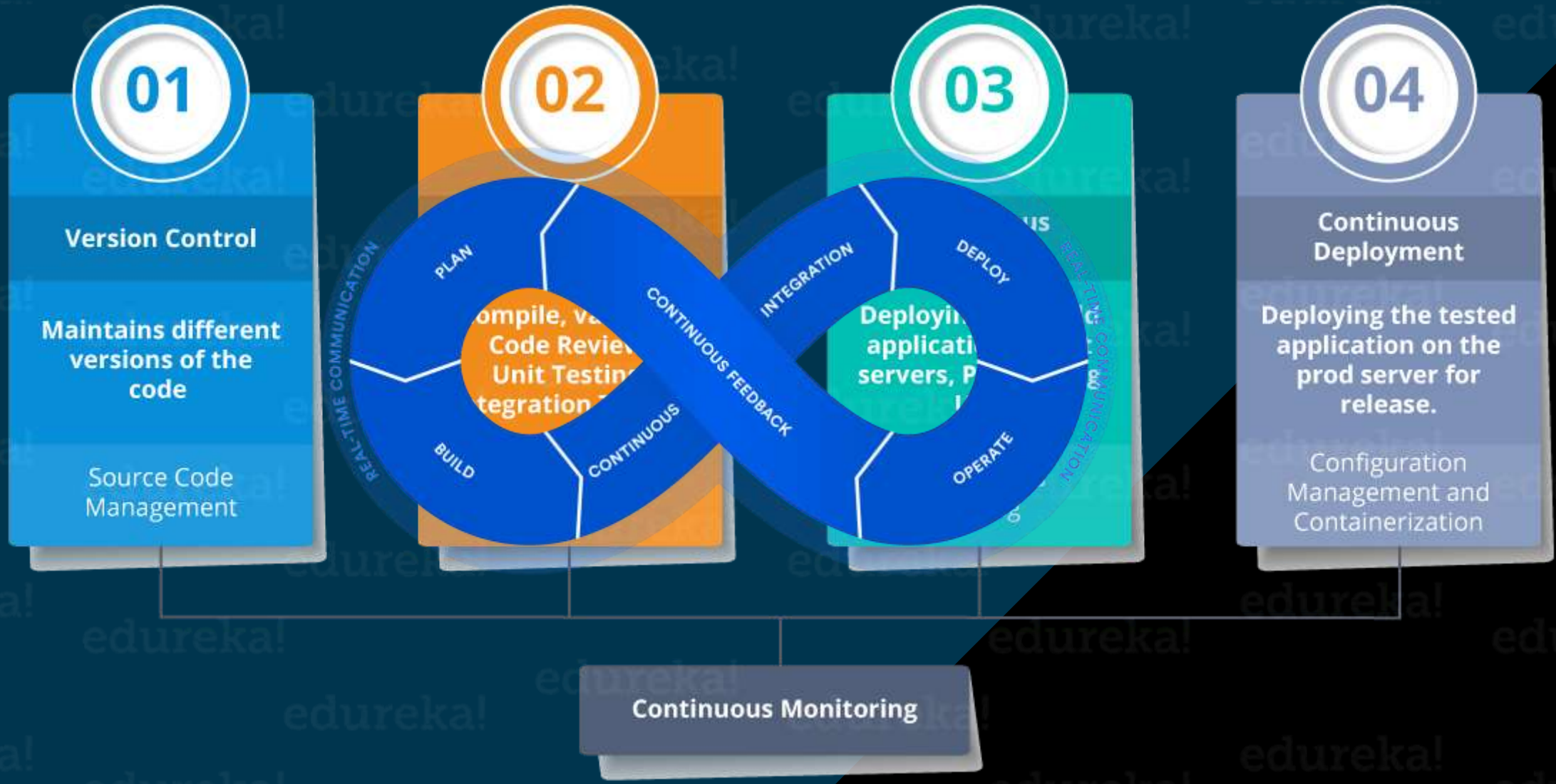
DEVOPS: LIFECYCLE



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DEVOPS: PRACTICES

CI / CD

CONTINUOUS DEPLOYMENT

CONTINUOUS DELIVERY

CONTINUOUS INTEGRATION

INFRASTRUCTURE AS CODE

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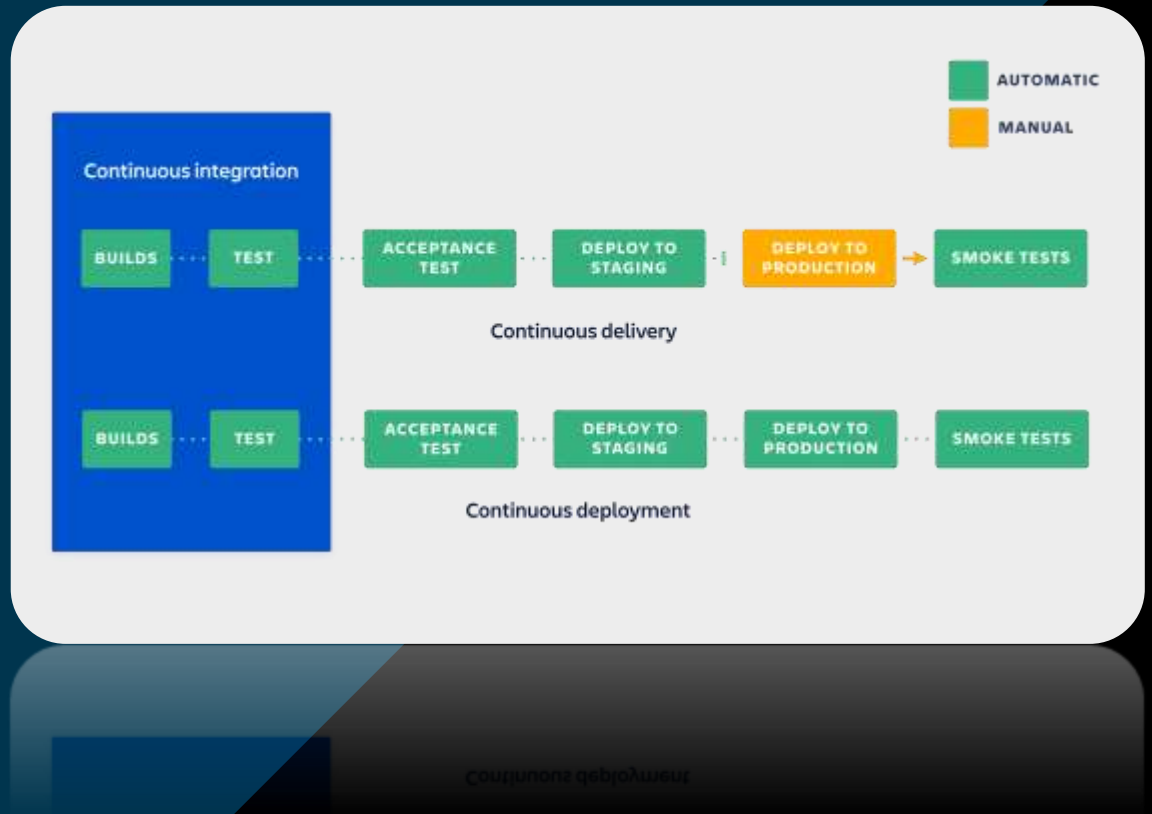
CI/CD : THE WHAT AND THE WHY?

- CI/CD is a devops best practice because it addresses the misalignment between developers who want to push changes frequently, with operations that want stable applications.

- DevOps practices like continuous integration and continuous delivery solve issues quicker and let organizations deliver rapidly in a safe and reliable manner to their customers.



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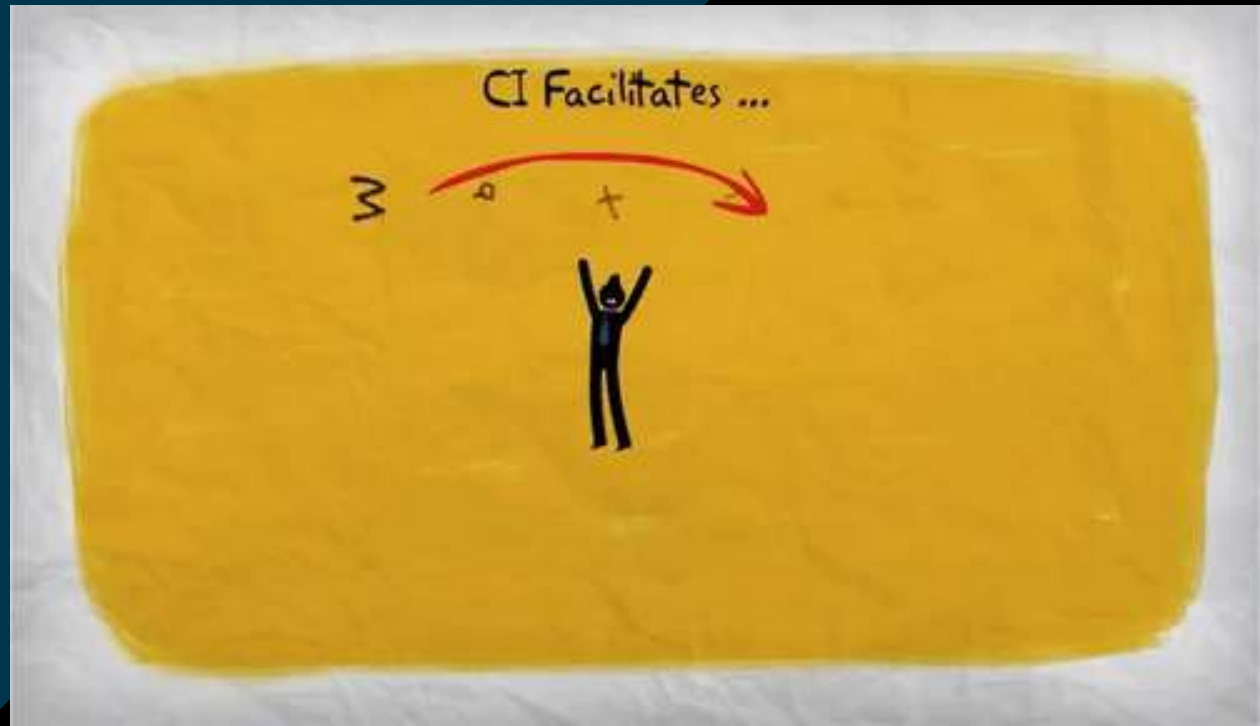
CI : CONTINUOUS INTEGRATION

- **WHAT?** - Continuous integration is a DevOps software development practice where developers regularly merge their code changes into a central repository, after which automated builds and tests are run

- **WHY?** –
  - Improve Developer Productivity
  - Better Software Quality
  - Find and Address Bugs Quicker
  - Deliver Updates Faster



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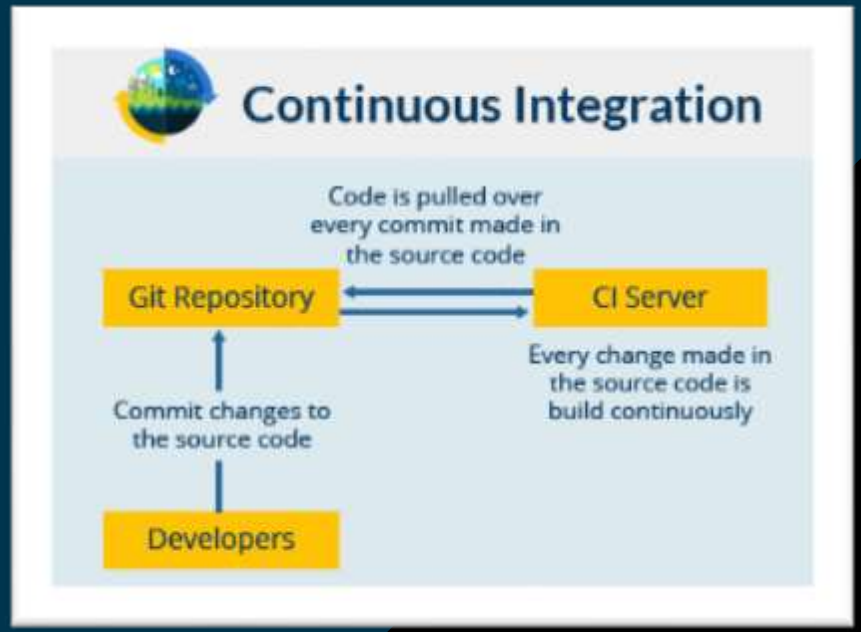
CI : CONTINUOUS INTEGRATION



- **HOW?** - A continuous integration service automatically builds and runs unit tests on the new code changes to immediately surface any errors

- Teams use build definitions to ensure that every commit to the master branch triggers the automated build and testing processes

- Automated tests run for every build to ensure builds maintain a consistent quality

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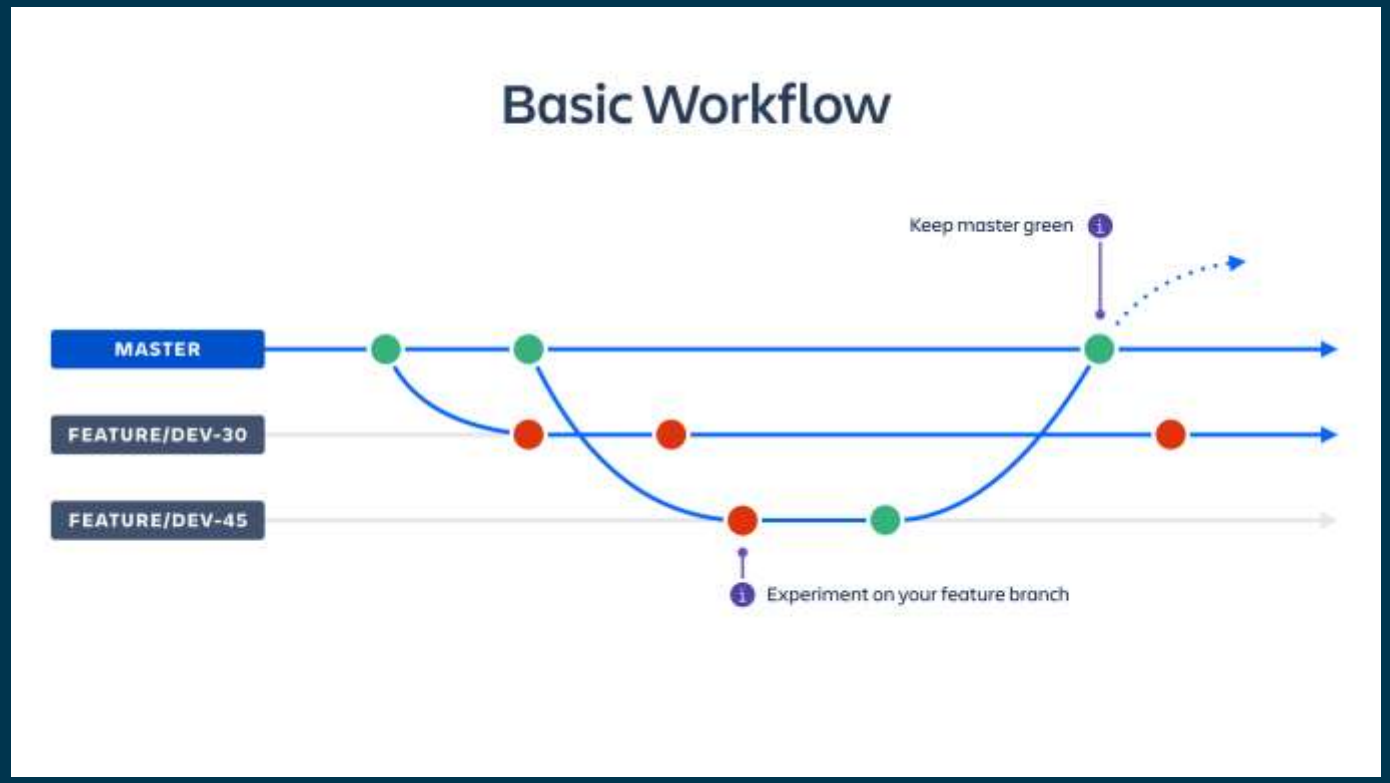
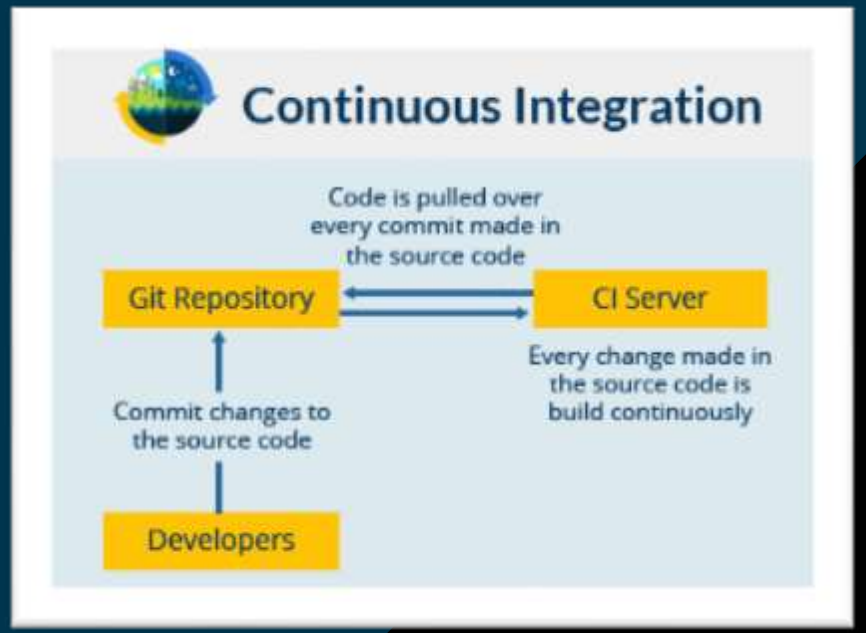
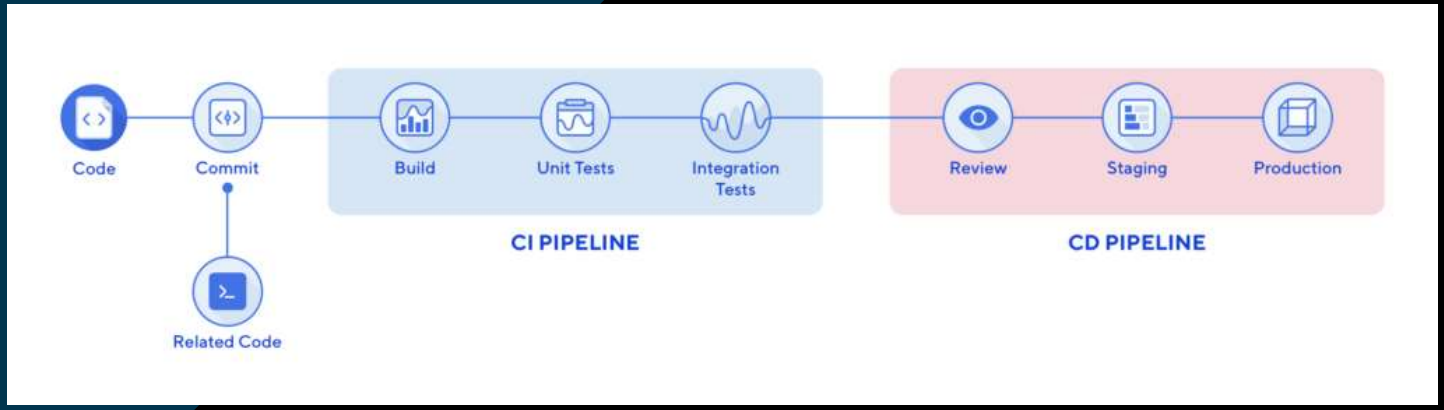
CI : CONTINUOUS INTEGRATION







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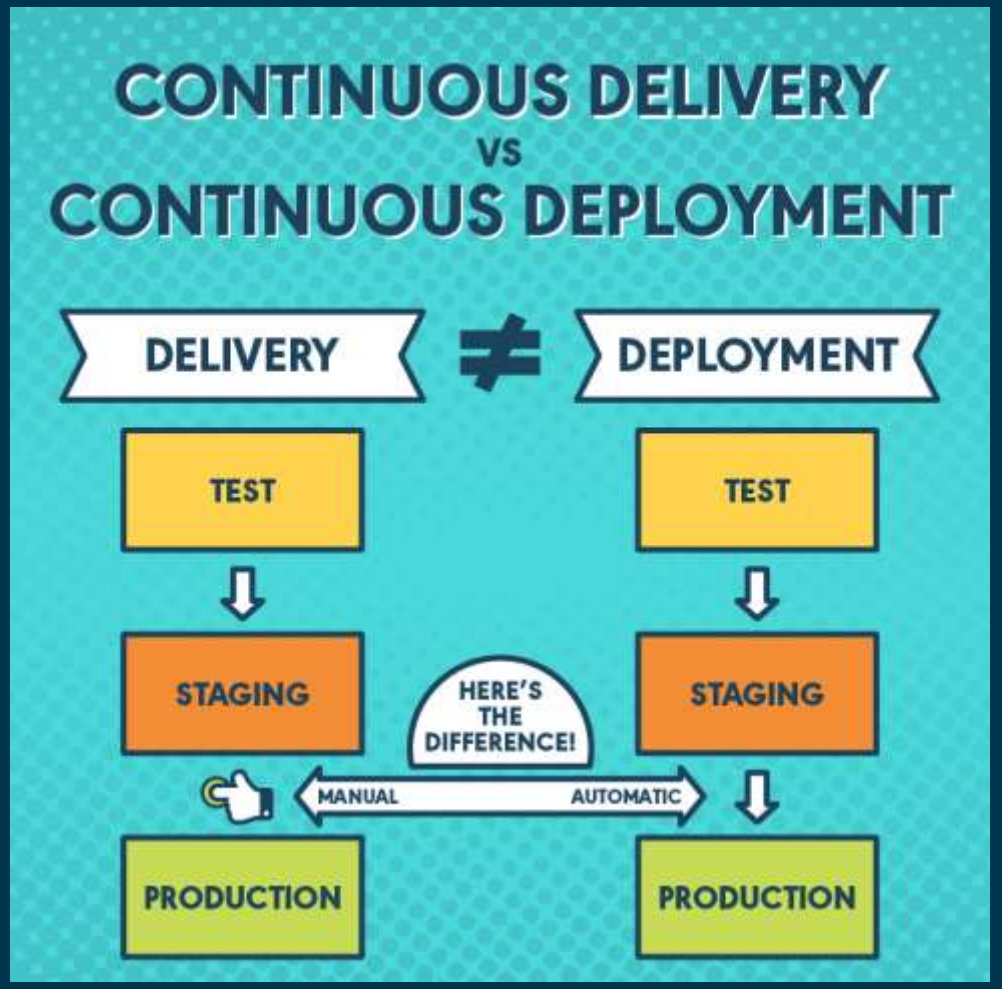
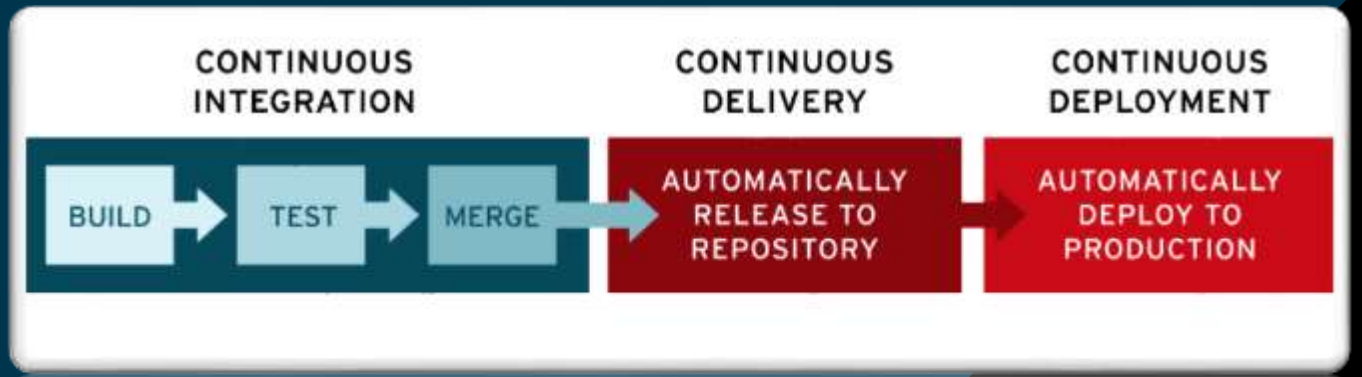
CD : CONTINUOUS DELIVERY & DEPLOYMENT





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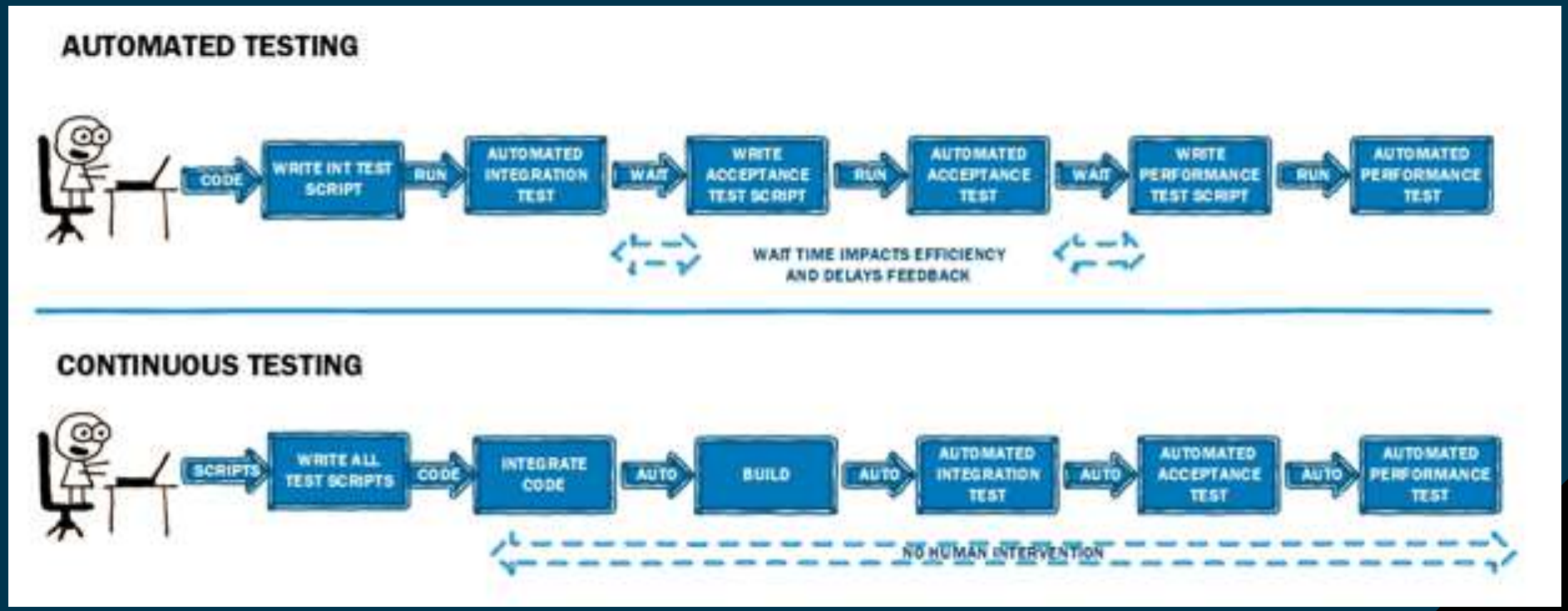
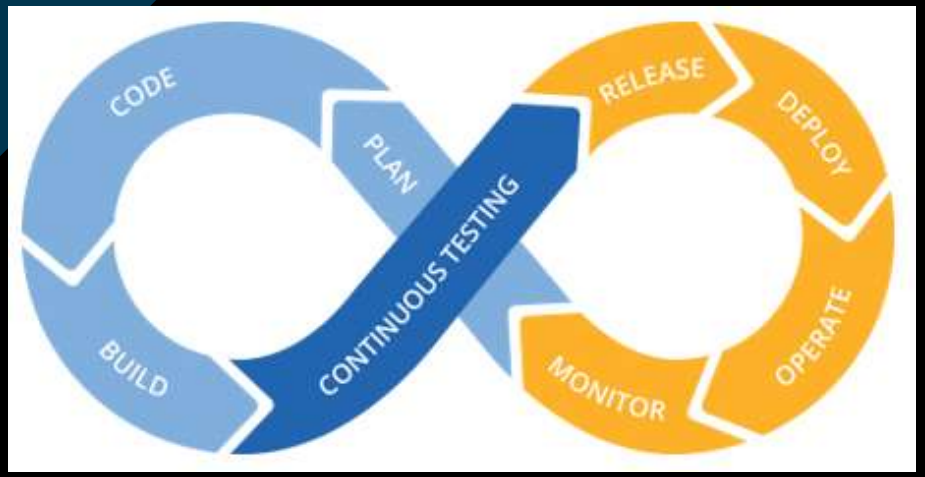
CI/CD: CONTINUOUS TESTING





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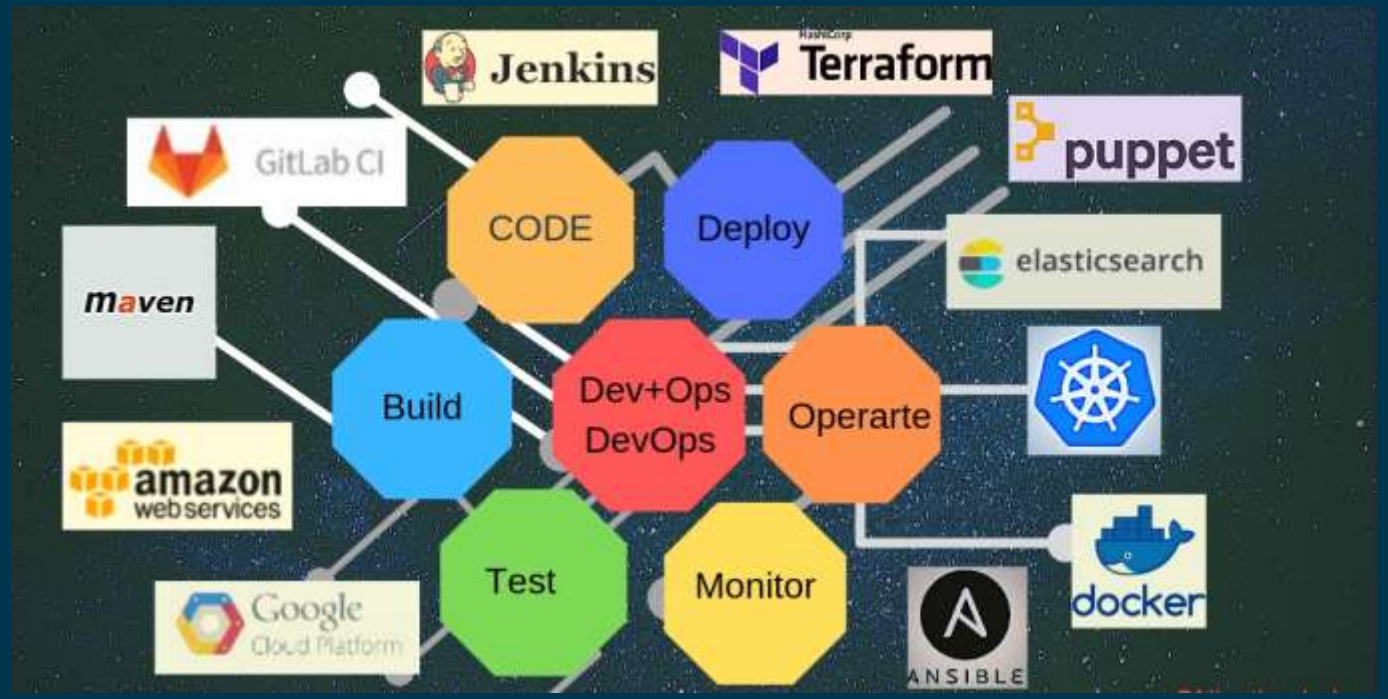
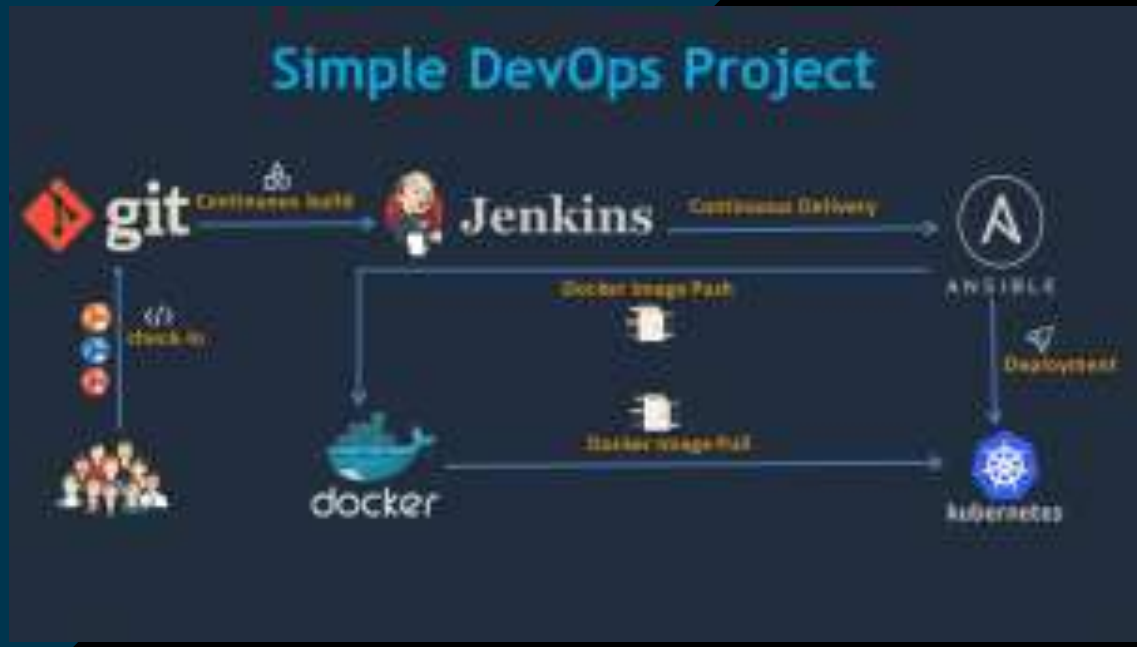
CI/CD : THE VARIOUS TOOLS



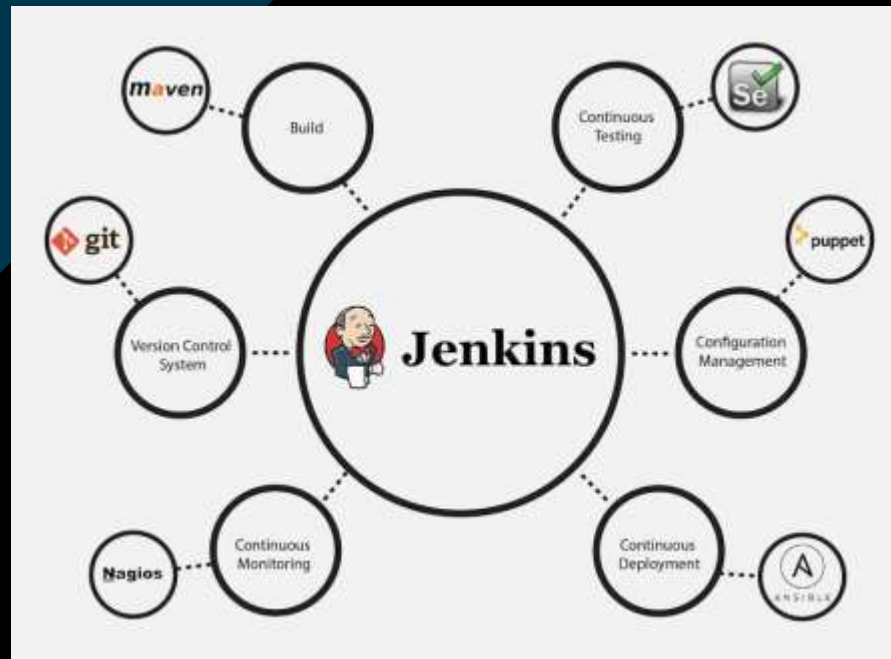


CI/CD : JENKINS

- **WHAT?** - Jenkins is an open source automation tool written in Java with plugins built for ***Continuous Integration purpose***

- **WHY?** –
- ***Adoption***: Jenkins is widespread, with more than 147,000 active Installations

- ***Plugins***: Jenkins is interconnected with well over 1,000 plugins that allows to integrate with most tools.



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JENKINS

Jenkins

search

1

Sai Tejo Manasa Konda

log out

Jenkins

- New Item
- People
- Build History
- Project Relationship
- Check File Fingerprint
- Manage Jenkins
- My Views
- Lockable Resources
- New View

add description

All | Other | Rebuild | Solutions | +

S	W	Name ↓	Last Success	Last Failure	Last Duration
		Lab 1 Start and stop me	N/A	N/A	N/A
		Lab1-Start Me	11 days - #1	N/A	16 sec
		Lab1_2 Solution	16 days - #1	N/A	0.1 sec
		Lab1_3_Solution	11 days - #36	N/A	16 sec
		Lab2 Error Pipeline	N/A	12 days - #4	15 ms
		Lab2_1 Solution	11 days - #10	11 days - #9	3.8 sec
		Lab2_2 Solution	11 days - #8	11 days - #6	28 sec

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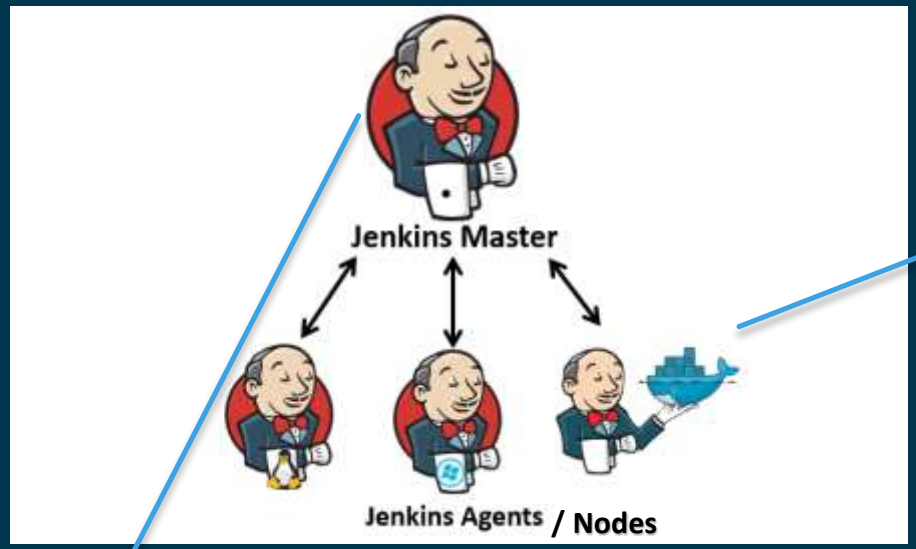
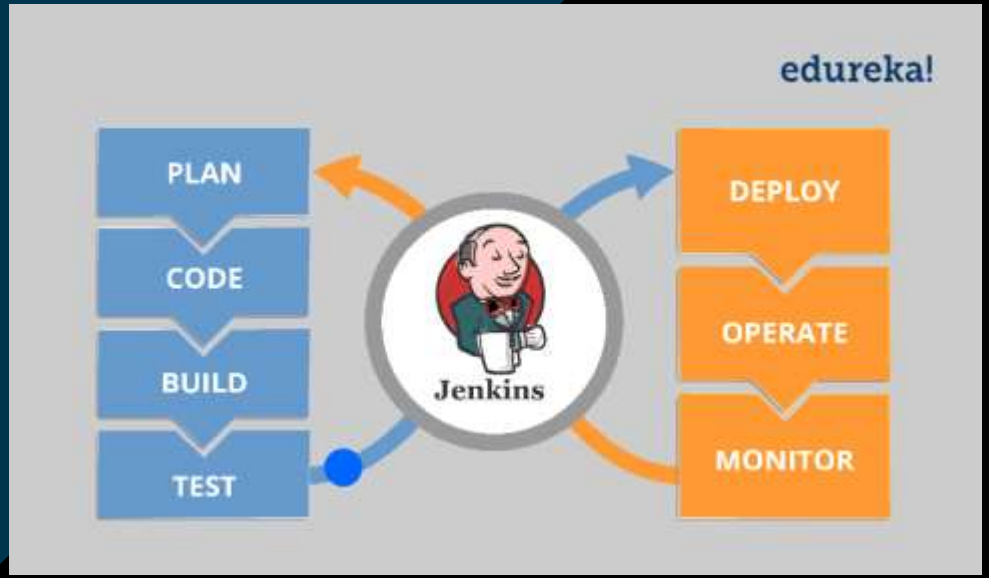
JENKINS



- Hears requests from the Jenkins Master
- Can be run on variety of OS
- Execute build jobs dispatched by Master
- Can configure to run on one particular slave or let the Master decide

- Main Jenkins Server
- Schedules build jobs and dispatches to slaves
- Monitors the slaves
- Records and presents the build results



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JENKINS DEMO

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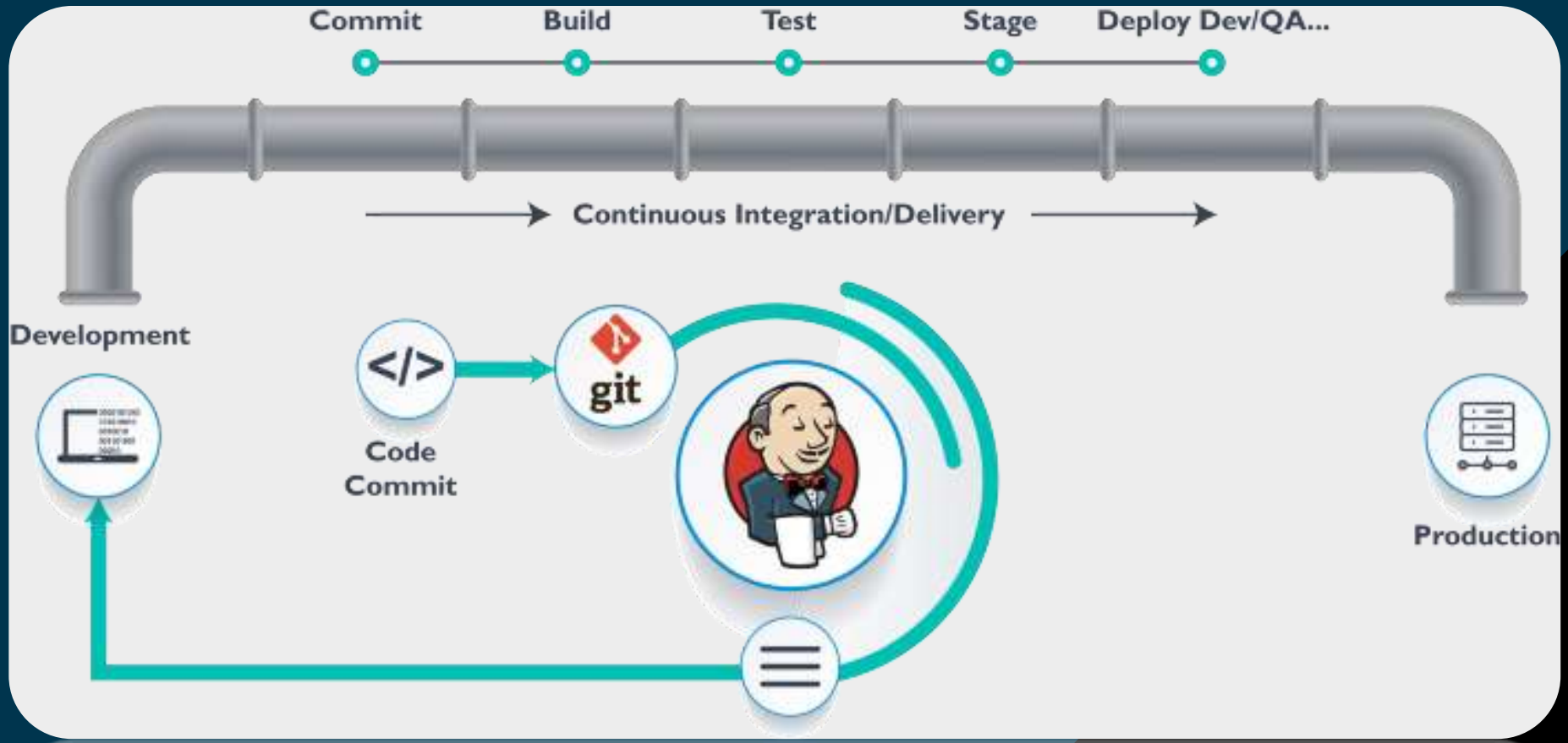
CI/CD PIPELINES



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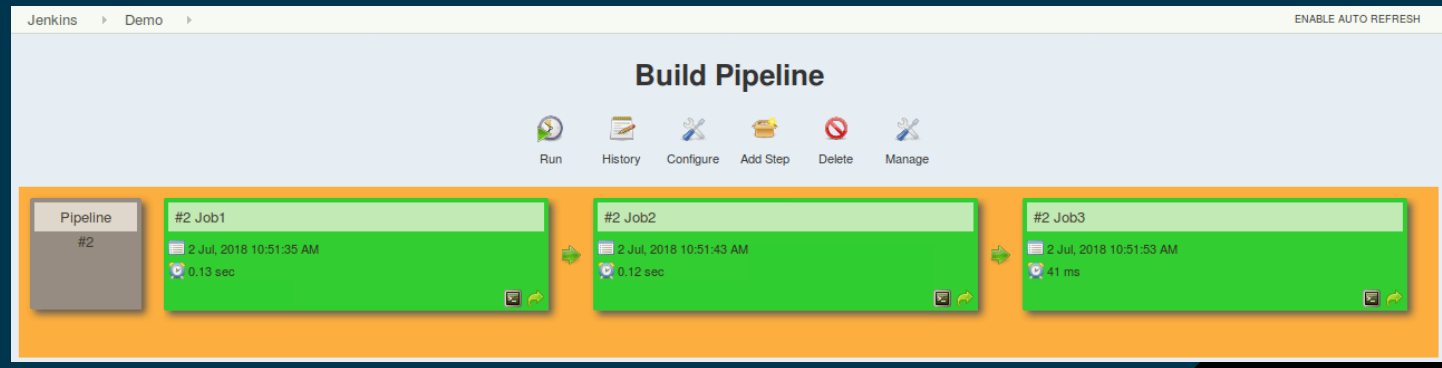
CI/CD PIPELINES USING JENKINS

- **WHAT? -** When it comes to ***continuous integration and delivery***, Jenkins uses a feature called ***Jenkins pipeline***

- A pipeline is a collection of jobs that brings the software from version control into the hands of the end users by using automation tools

- These pipelines are a **collection of Jenkins jobs** which trigger each other in a specified sequence

JENKINS PIPELINES



- Pipelines are Jenkins jobs enabled by the Pipeline (formerly called “workflow”) plugin and built with simple text scripts that use a Pipeline DSL (domain-specific language) based on the Groovy programming language

- Pipelines leverage the power of multiple steps to execute both simple and complex tasks according to parameters that you establish.

- Once created, pipelines can build code and orchestrate the work required to drive applications from commit to delivery.

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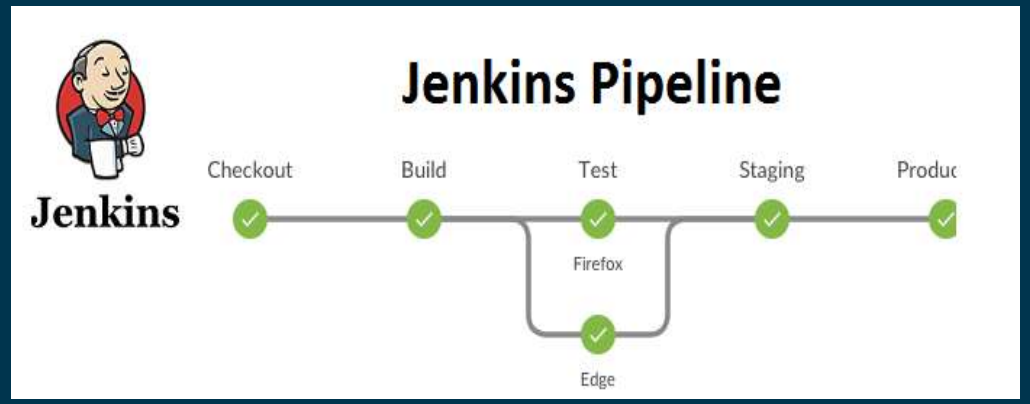
JENKINS PIPELINES



Why use pipelines?

- Jenkins pipeline is implemented as a code which allows multiple users to edit and execute the pipeline process
- Pipelines are robust. So if your server undergoes an unforeseen restart, the pipeline will be automatically resumed
- You can pause the pipeline process and make it wait to resume until there is an input from the user
- Jenkins Pipelines support big projects. You can run multiple jobs, and even use pipelines in a loop

GROOVY DSL

Parameters input to Pipeline

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WHAT DID WE LEARN TODAY?

- DEVOPS LIFECYCLE AND PRACTICES
- INTRO TO CI/CD – WHAT & WHY?
- INTRO TO JENKINS - WHAT & WHY?
- LIVE JENKINS DEMO
- CI/CD PIPELINES USING JENKINS