TECHNION

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הטכניון

היחידה ללימודי המשך ולימודי חוץ ע"ש עזריאלי

DevOps

What is DevOps?

Technologies
Tools
Principals

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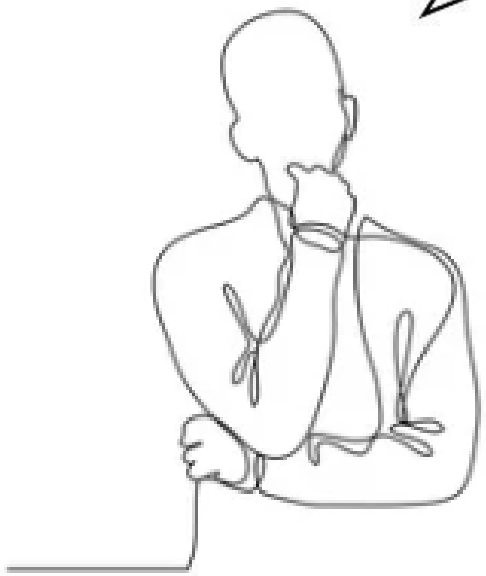
What is DevOps?



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TL;DR

DevOps is a collaborative approach that **integrates software development (Dev) with IT operations (Ops)** to streamline the software delivery process.

App

Users

Process


Idea & Plan


Code


Test


Package

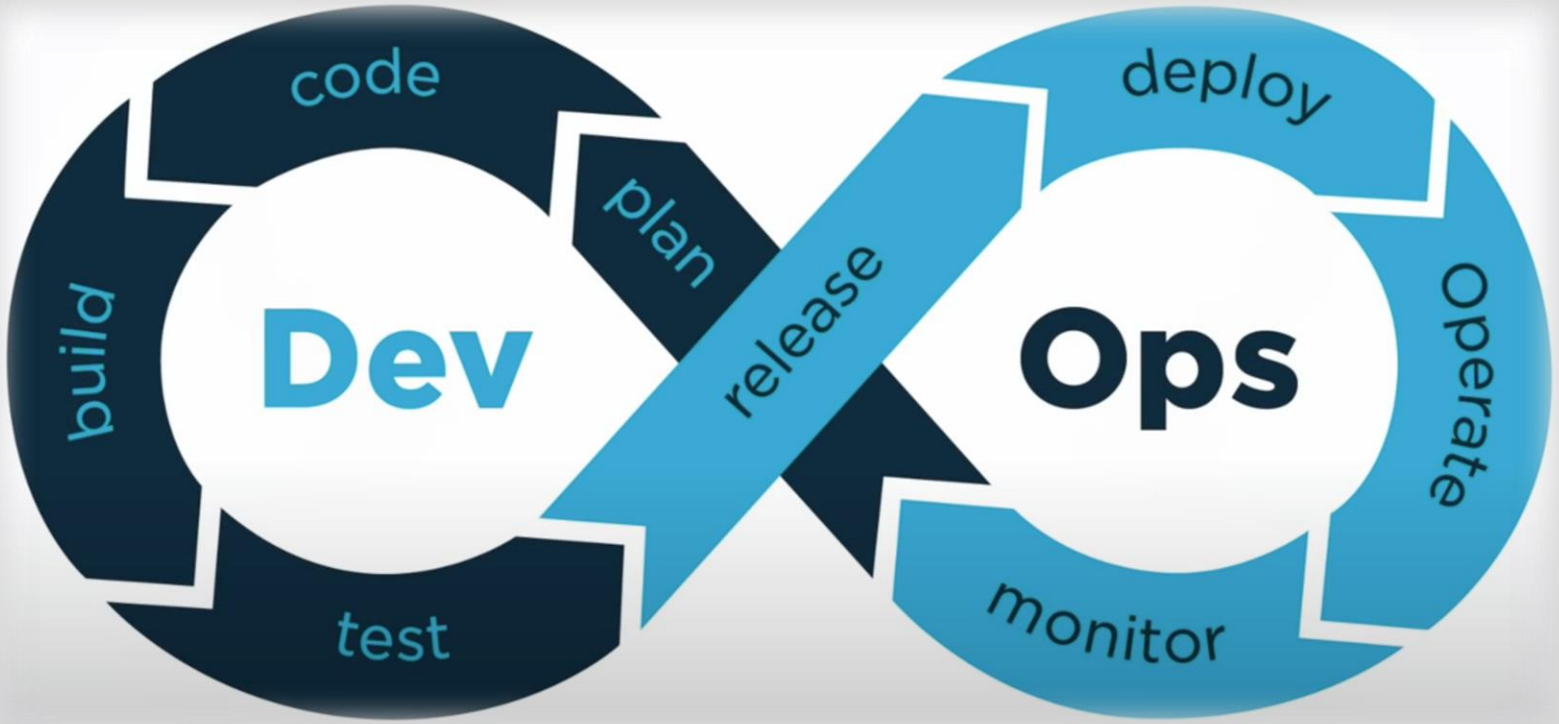

Deploy

Infrastructure


Networking


Compute


Security


code
plan
build
Dev
test
release
deploy
Ops
operate
monitor

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What is DevOps?

CI/CD

Cost

Monitoring

Scale

Automations

Durability

Databases

Code

Deployment

Networking

Infrastructure

Platform

Versioning

Security

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NGINX

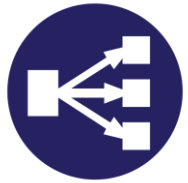
HELM

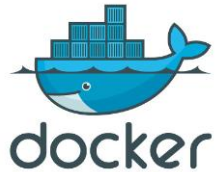
What is DevOps?

aws

HashiCorp Terraform

Apache





docker

elasticsearch

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So Devops is...

Anything that creates the process of
releasing the software **FAST** and with **HIGH QUALITY!**

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Let's Dive in...

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Code Repo

Working with git.

Integrations for the developer.

Application

Uderstanding the workflow.

Communication with other apps

Testing

Automating the testing process

Building an artifact

Application

Servers Managment

Servers - Infra

Linux & File System

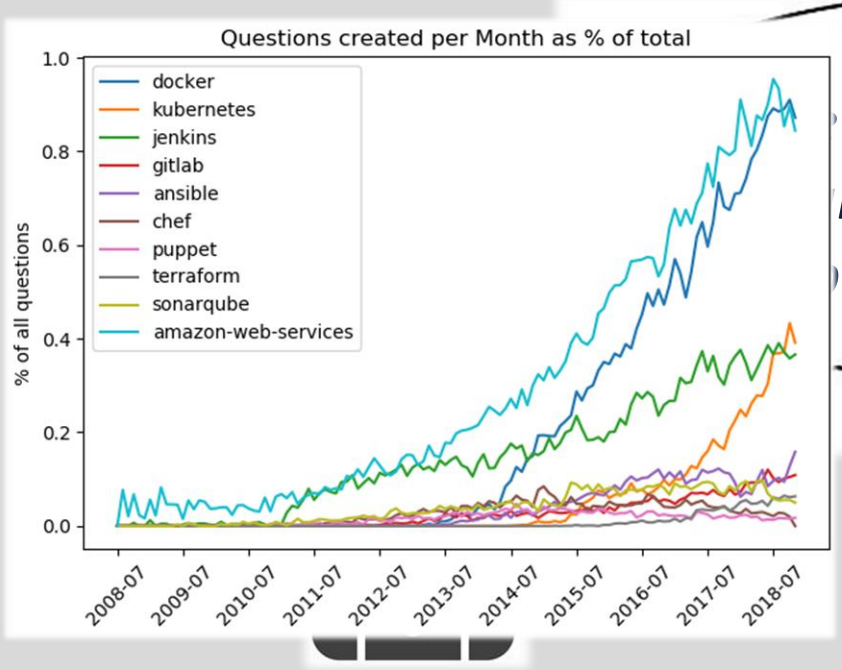
CLI

```
File  Edit  View  Search  Terminal  Help
mark@linux-desktop:~$ mkdir /tmp/tutorial
mark@linux-desktop:~$ cd /tmp/tutorial
mark@linux-desktop:/tmp/tutorial$ mkdir dir1 dir2 dir3
mark@linux-desktop:/tmp/tutorial$ mkdir
mkdir: missing operand
Try 'mkdir --help' for more information.
mark@linux-desktop:/tmp/tutorial$ cd /etc ~/Desktop
bash: cd: too many arguments
mark@linux-desktop:/tmp/tutorial$ ls
dir1  dir2  dir3
mark@linux-desktop:/tmp/tutorial$
```

Shell & Bash

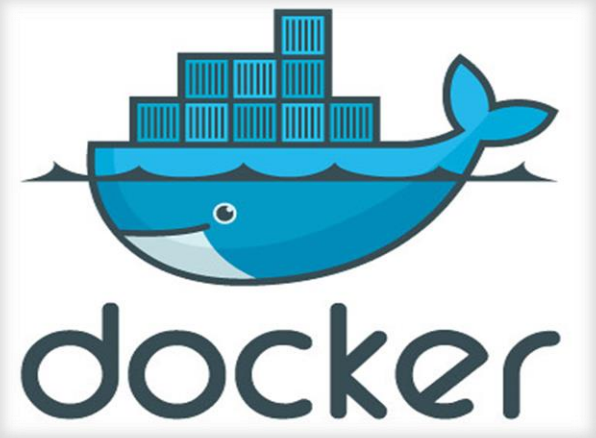
- OSI
- Communication Protocols
- IP, DNS, HTTP/HTTPS, TCP/UDP, Ports, VPC, Subnets, Routing Tables
- Load Balancers
- Web Servers, proxy/revers proxy
- Firewall, Security Groups
- SSL/TLS, Certificates

Containers

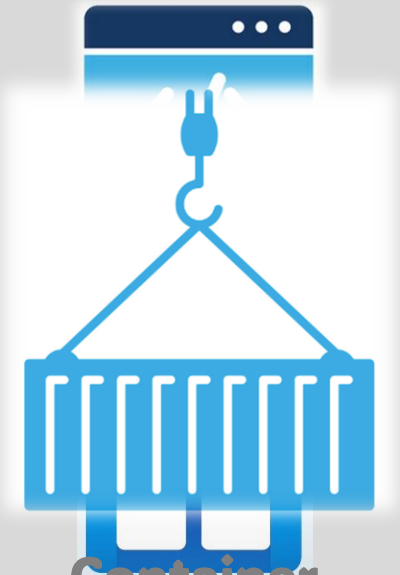


containers to Build,
re and Run your
lications…

Containers



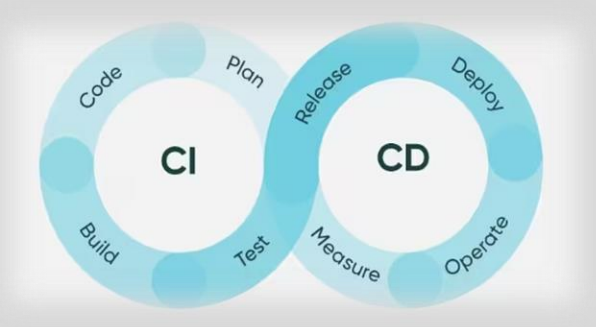
A container is a standard unit of software that packages up code and all its dependencies so the application runs quickly and reliably from one computing environment to another.



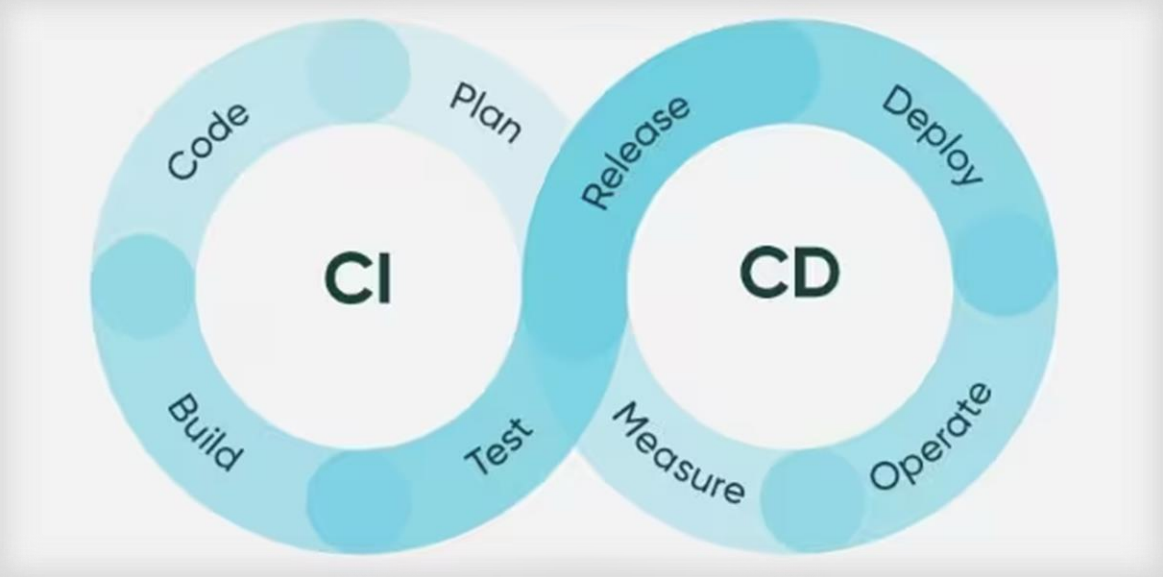
Container App

Server

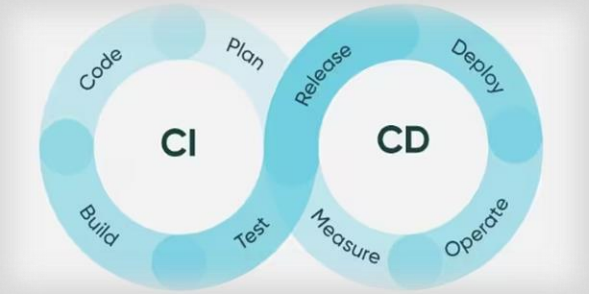
Users



CI/CD & Automations



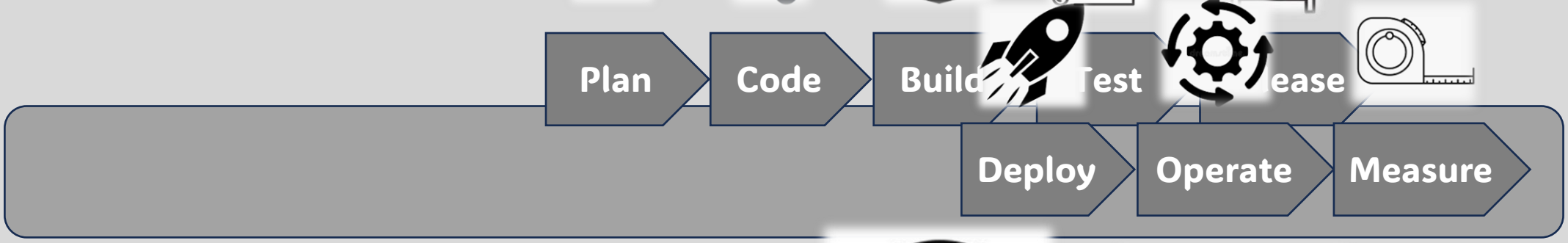
CI/CD & Automations

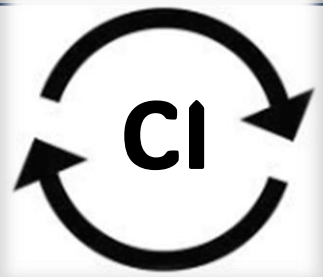


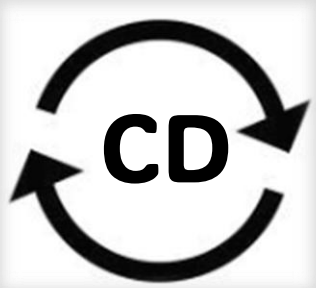
CI/CD & Automations

Automations

Pipelines



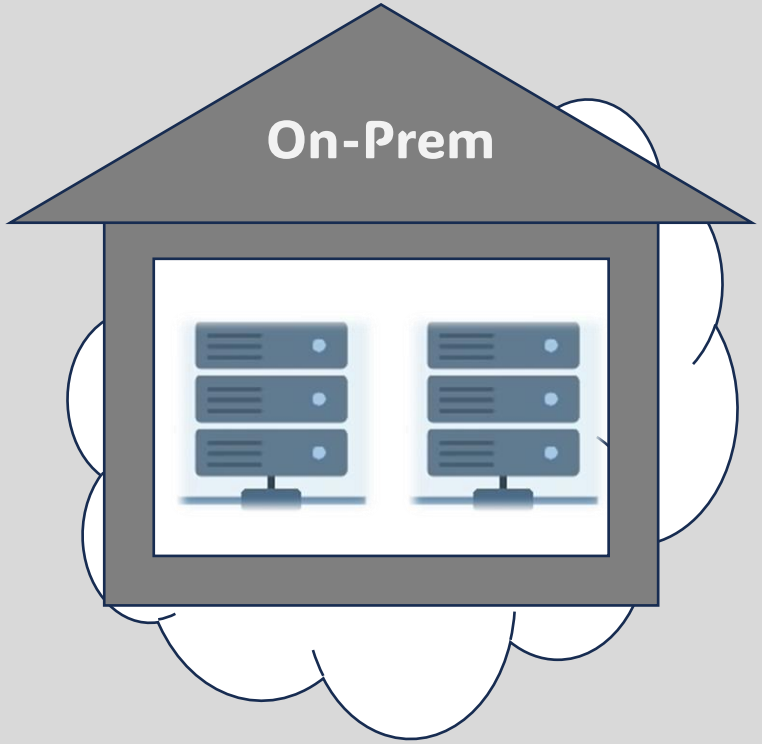




Continuous Integration

Continuous Delivery

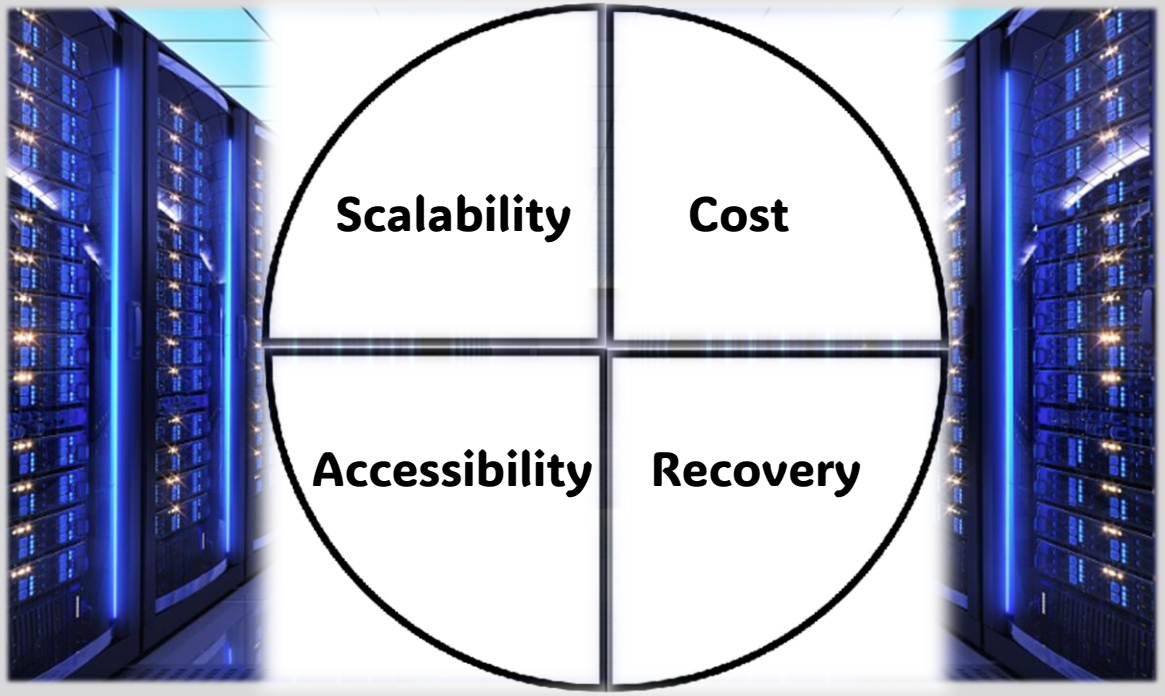
Cloud

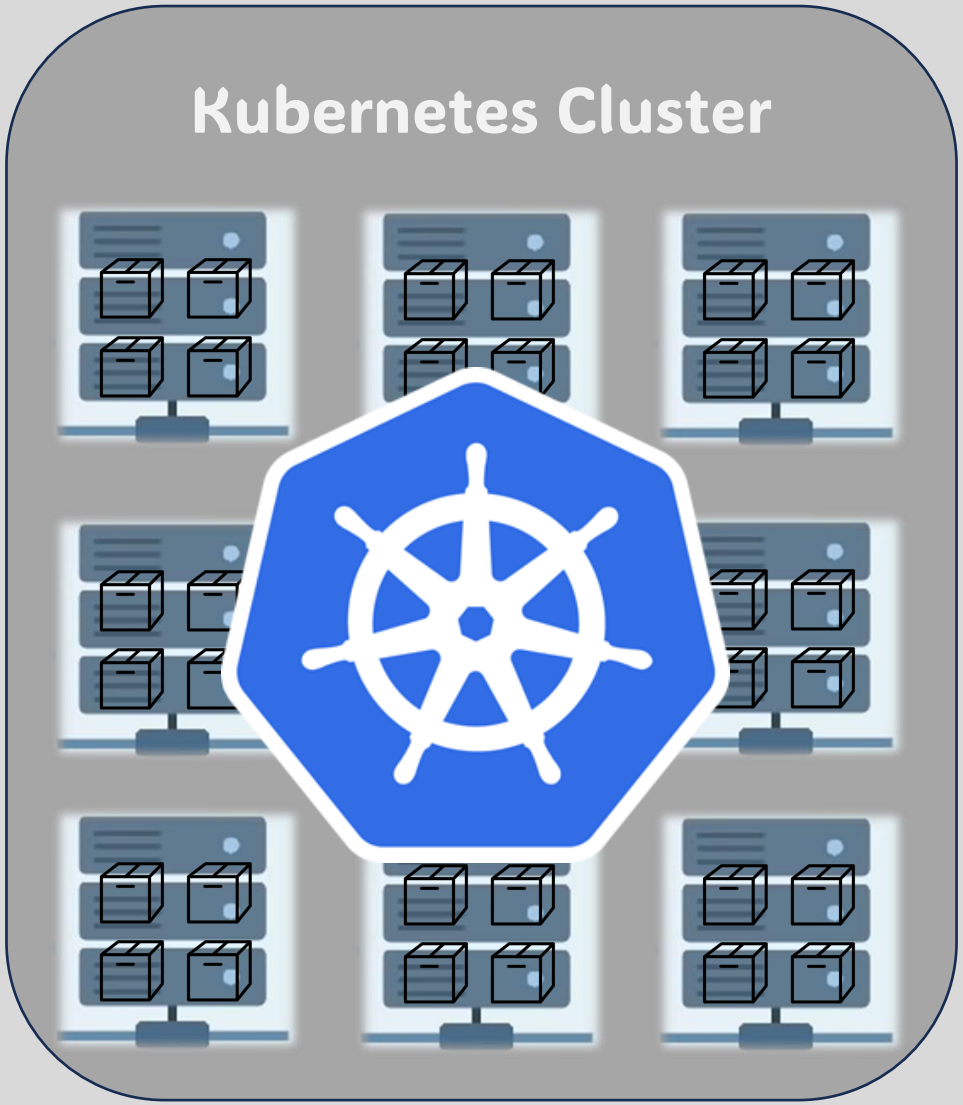


aws

Google Cloud

Azure





Container Orchestrator

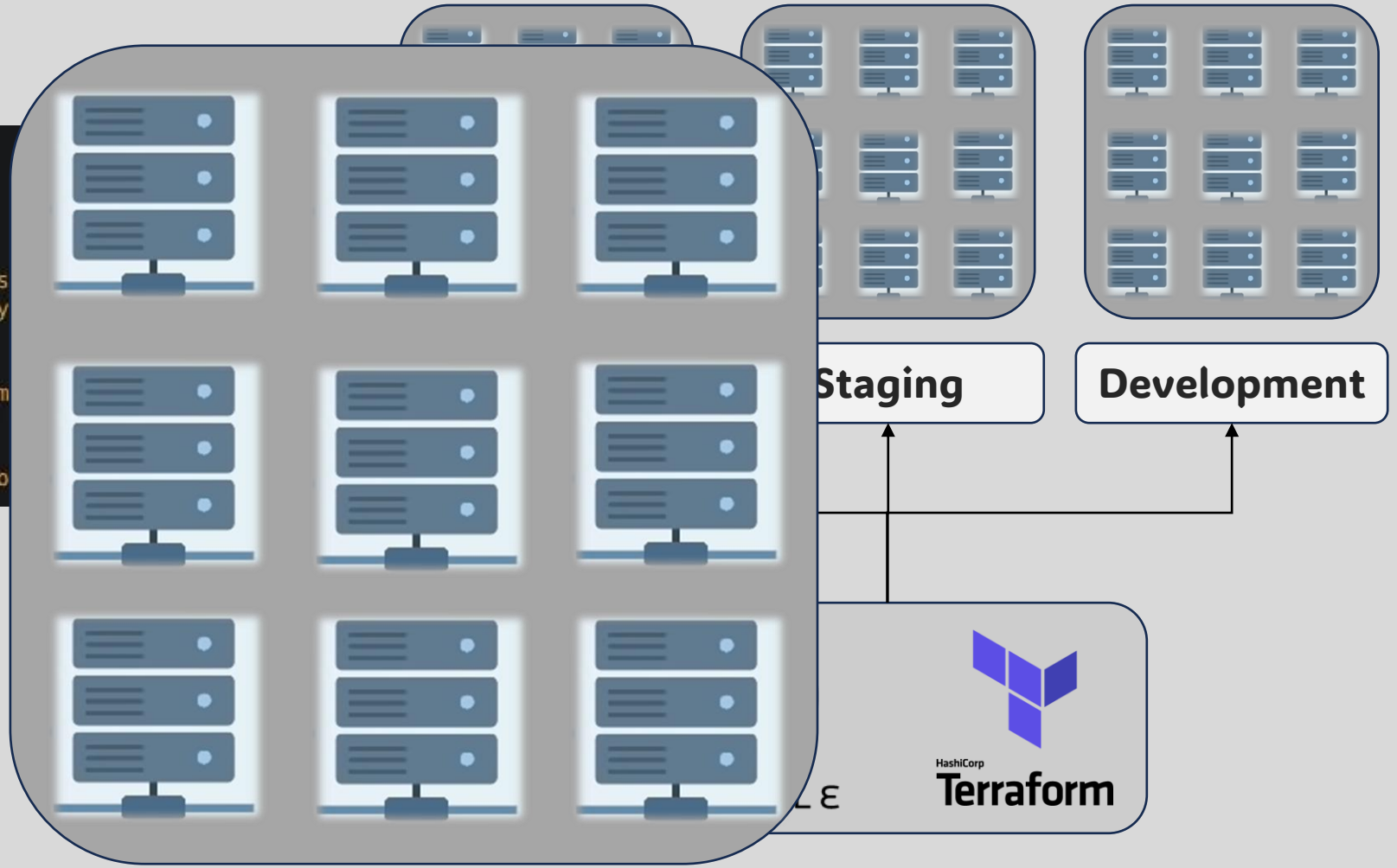
Kubernetes (K8s) is an open-source container orchestration platform designed to automate the deployment, scaling, and management of containerized applications.

Monitoring

Grafana

Infrastructure as Code

```
## ec2.tf
provider "aws" {
    access_key = "<aws_access
    secret_key = "<secret_key
    region = "<aws_region>"
}
resource "aws_instance" "exam
    count = 5
    ami = "ami-v1"
    instance_type = "t2.micro
```



Infrastracture as Code

Infrastrucure Provisioning

HashiCorp Terraform

CloudFormation

ARM Template

Configuration Managment

ANSIBLE

puppet

CHEF

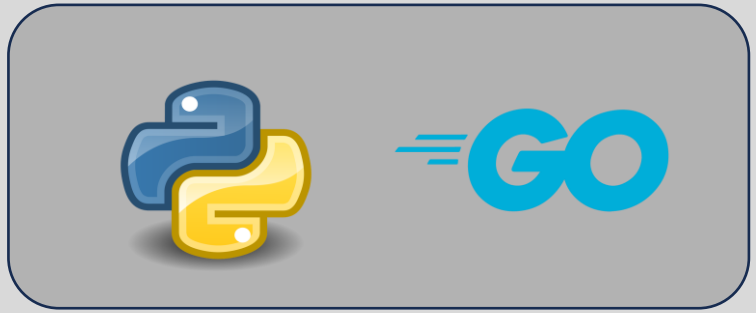
</>

Scripting

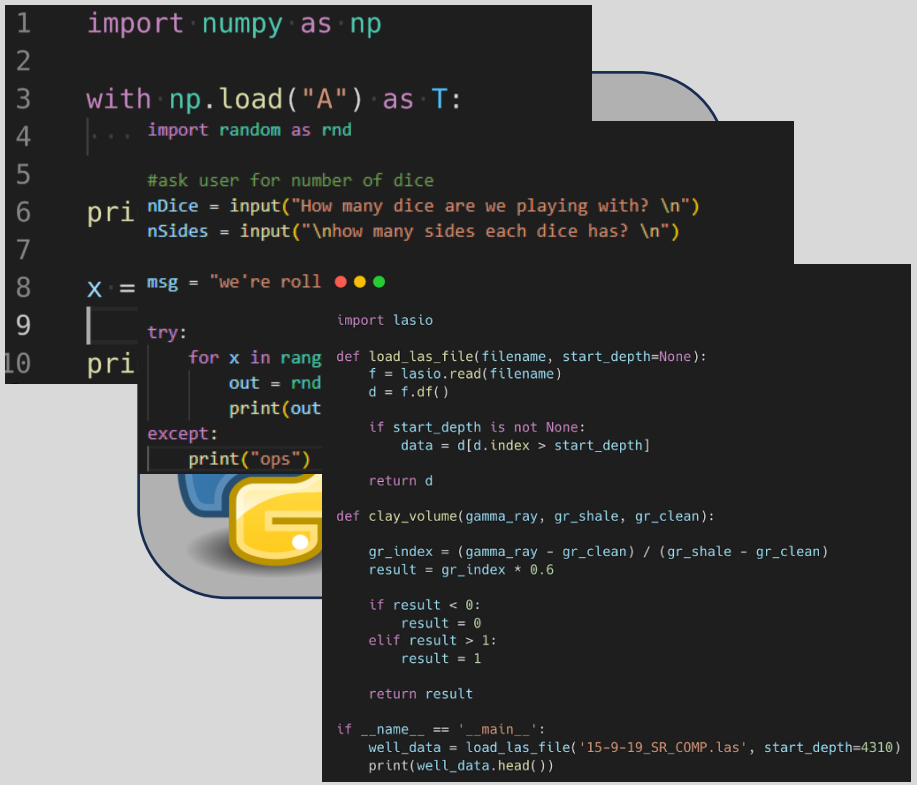
- Configurations
- General Managment
- Monitoring
- Cron Jobs
- Backups

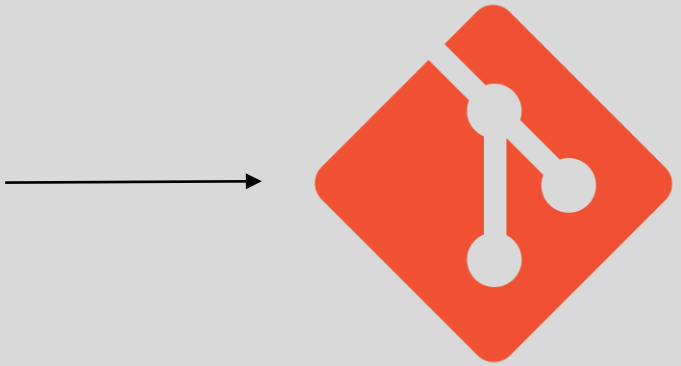
OS Scripting

General Languages



Version Control





So DevOps is ....

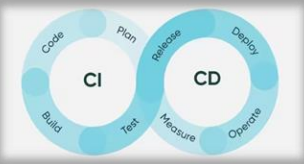
Development

Operating Systems

Security & Networking

Containers

CI/CD & Automations



Learning

Cloud

Container Orchestration

Monitoring

Infrastructure as Code

Scripting & Version Control

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DevOps:

"Because sometimes even servers need a good therapist to talk about their feelings."

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