



DIGITAL TRAINING - MINDSPRINT

8th July 2024 - 19th July 2024

MINDSPRINT

Team Name : Fantastic Five

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INTRODUCTION TO ON-PREMISE DATACENTER INFRASTRUCTURE

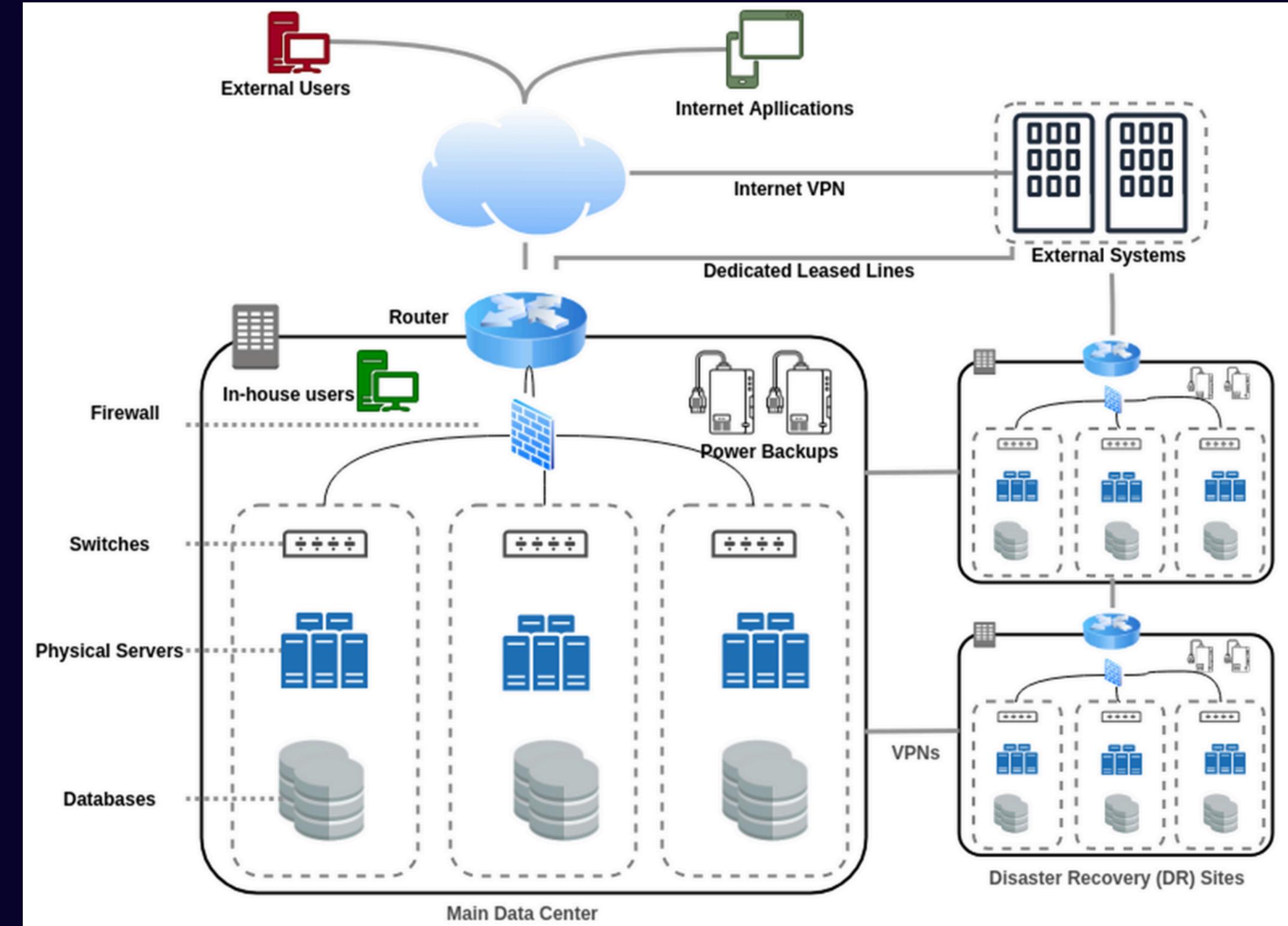
On-premise datacenter infrastructure refers to the physical servers and networking hardware located within an organization's premises

Use Cases:

- Businesses with stringent data security requirements
- Organizations with legacy systems
- Enterprises requiring high performance and low latency

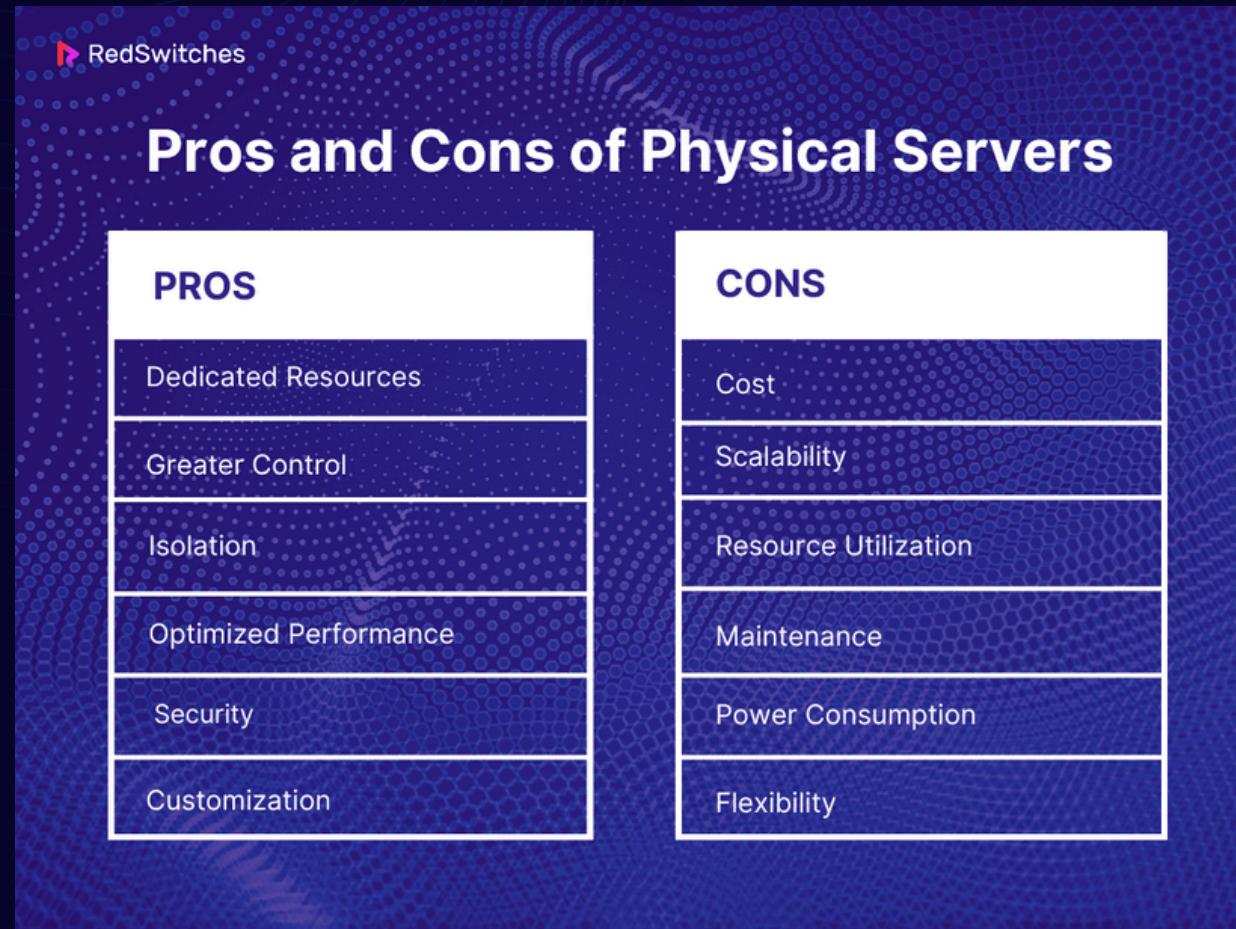
Advantages:-

- Full control over data and infrastructure
- Customizable to specific business needs



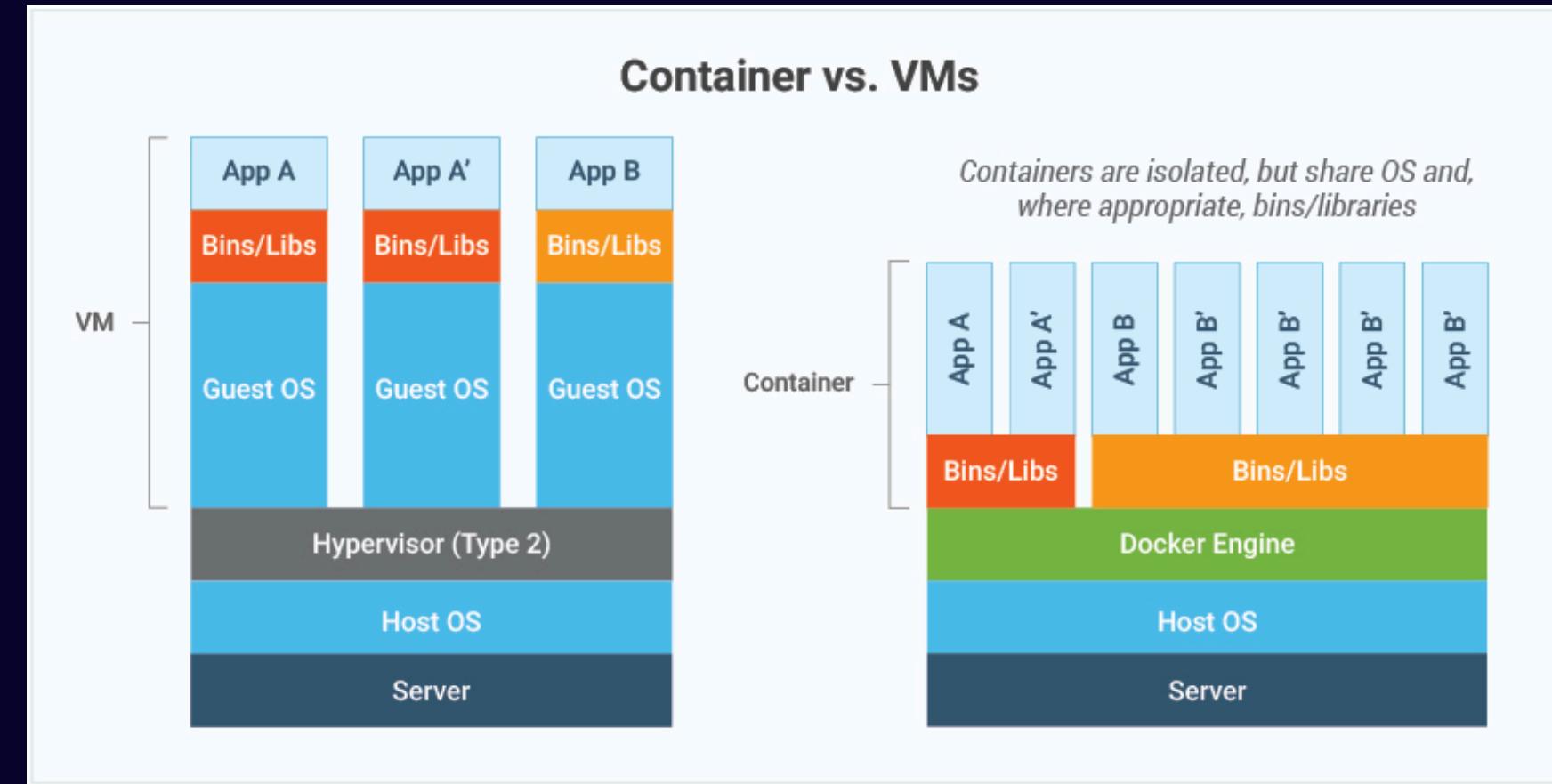
PHYSICAL SERVER

A physical server is a standalone, dedicated computer designed to process requests and deliver data to other computers over a network



Virtual Machine

VMs are software emulations of physical computers that run an operating system and applicationst

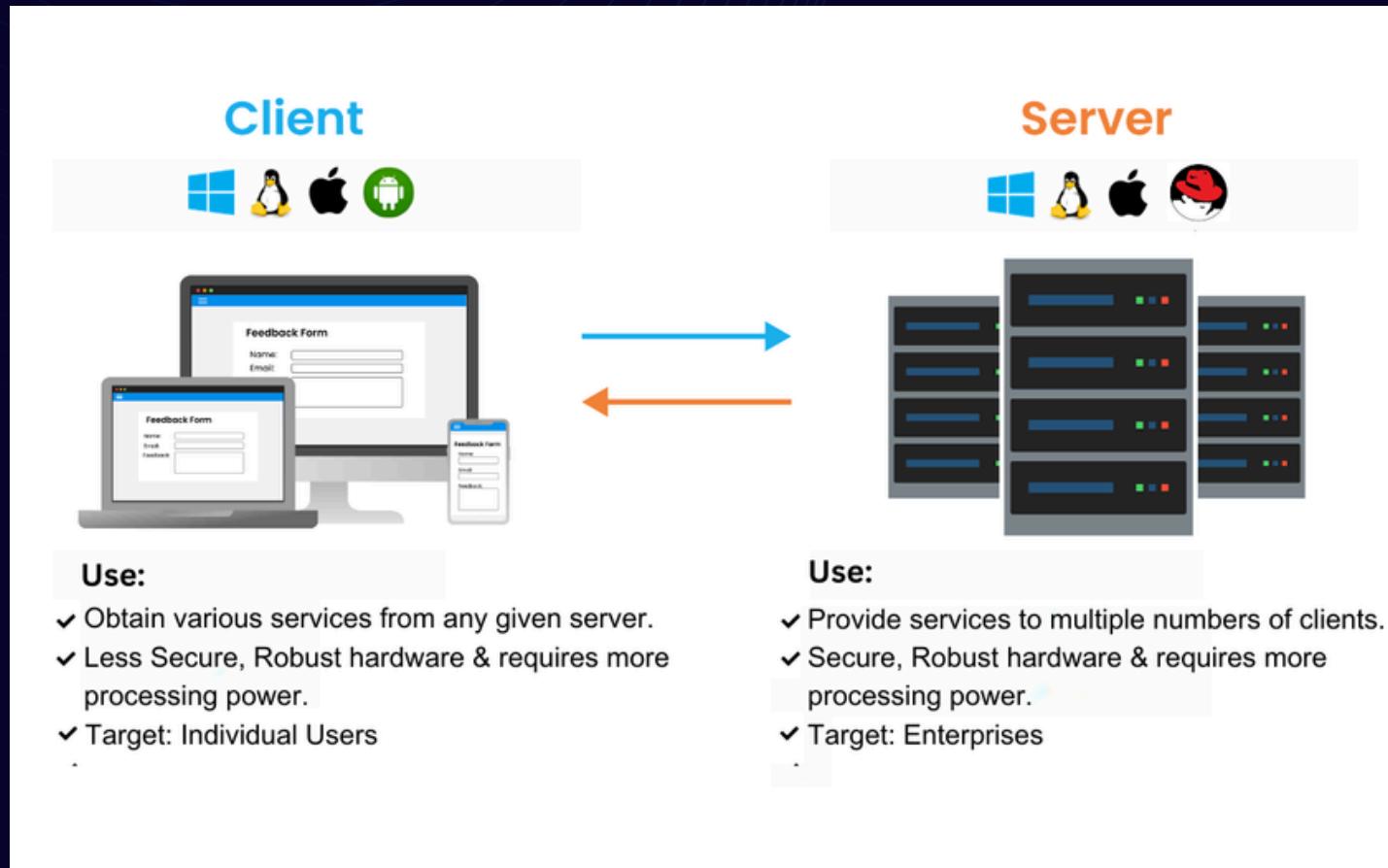


Containers

Containers are lightweight, standalone, executable software packages that include everything needed to run a piece of software, including code, runtime, libraries, and settings

Operating System

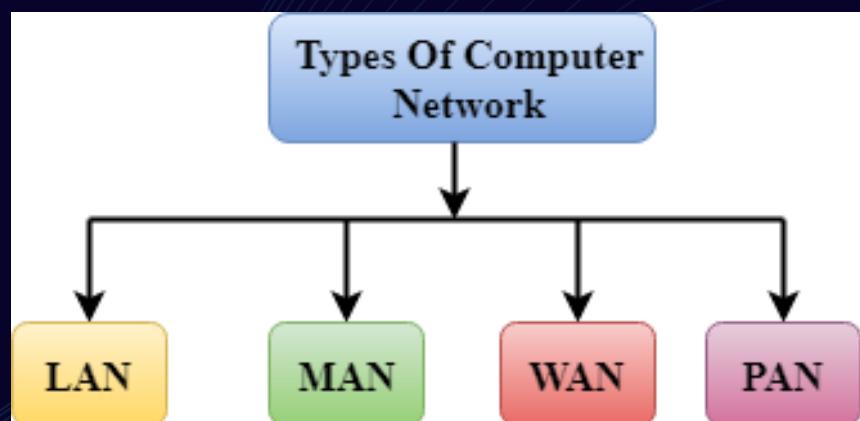
An operating system acts as an interface between the software and different parts of the computer or the computer hardware.



Network

A network is a collection of computers, servers, mainframes, network devices, peripherals, or other devices connected to one another to allow the sharing of data and resources.

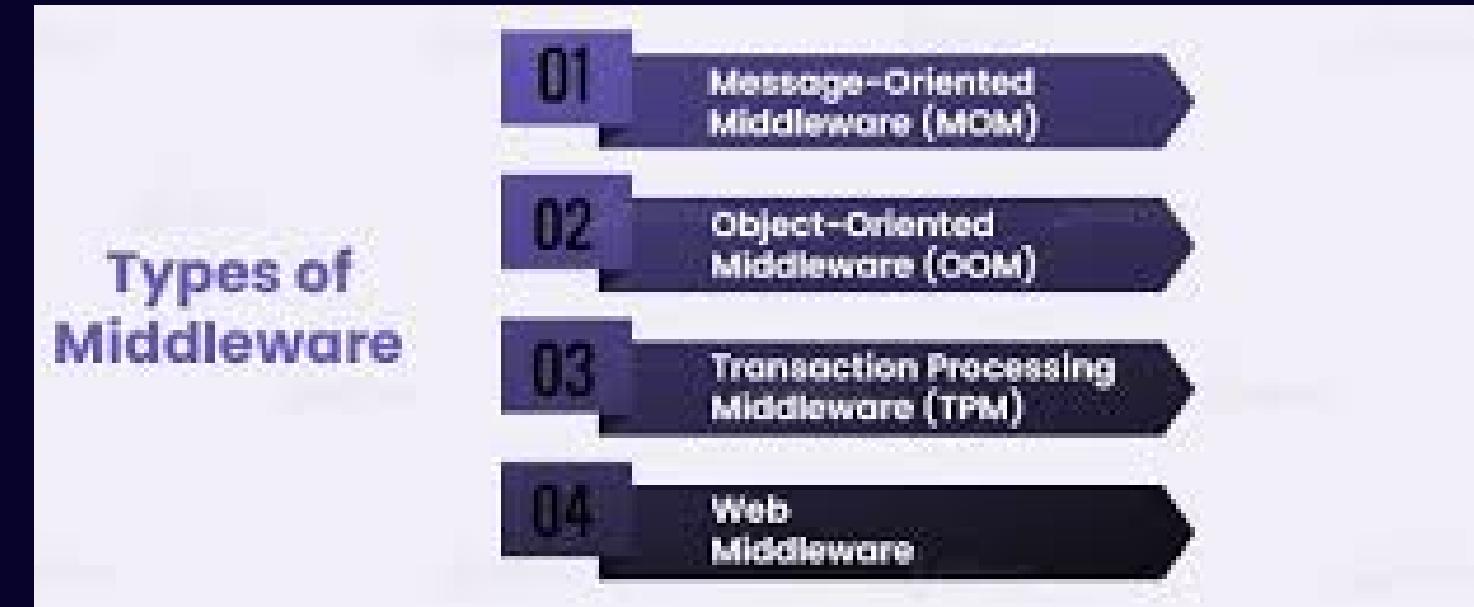
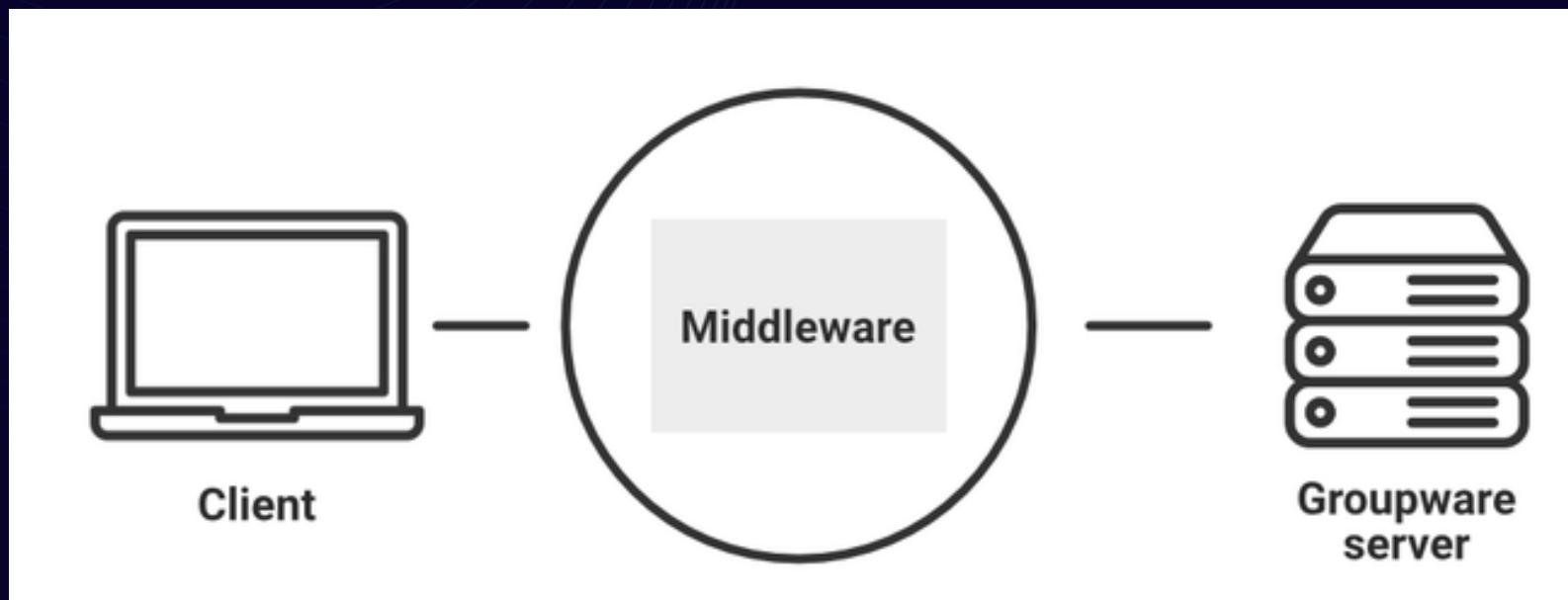
Types of Networks



What is Middleware?

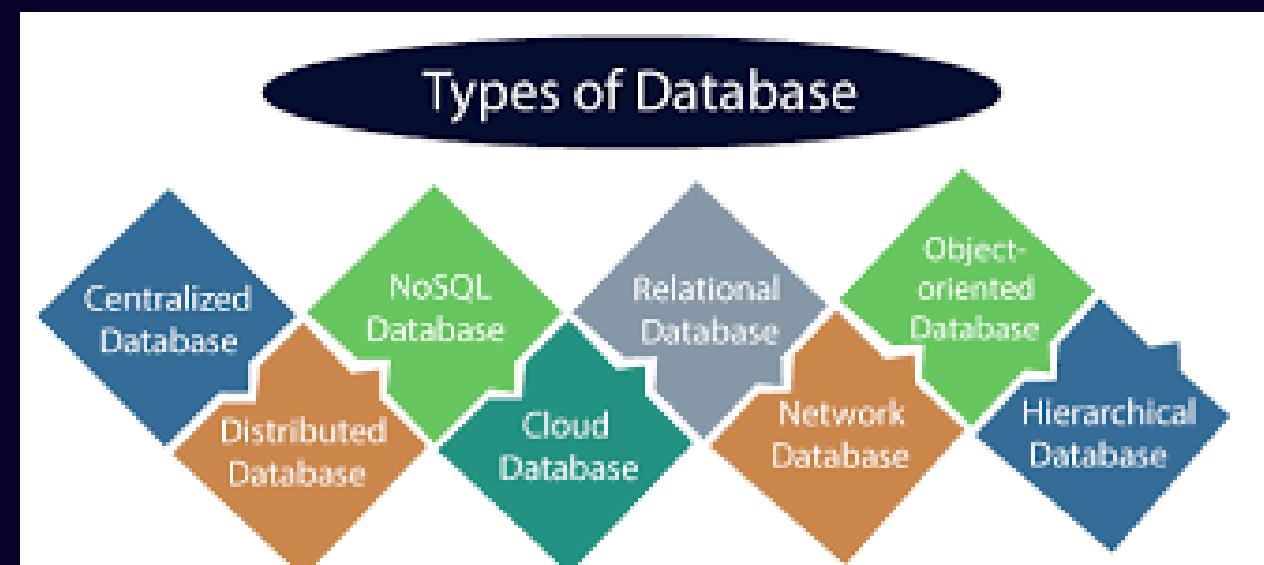


Middleware is software that acts as an intermediary between different applications or between an application and the network. It enables communication and data management for distributed applications.



What is a Database?

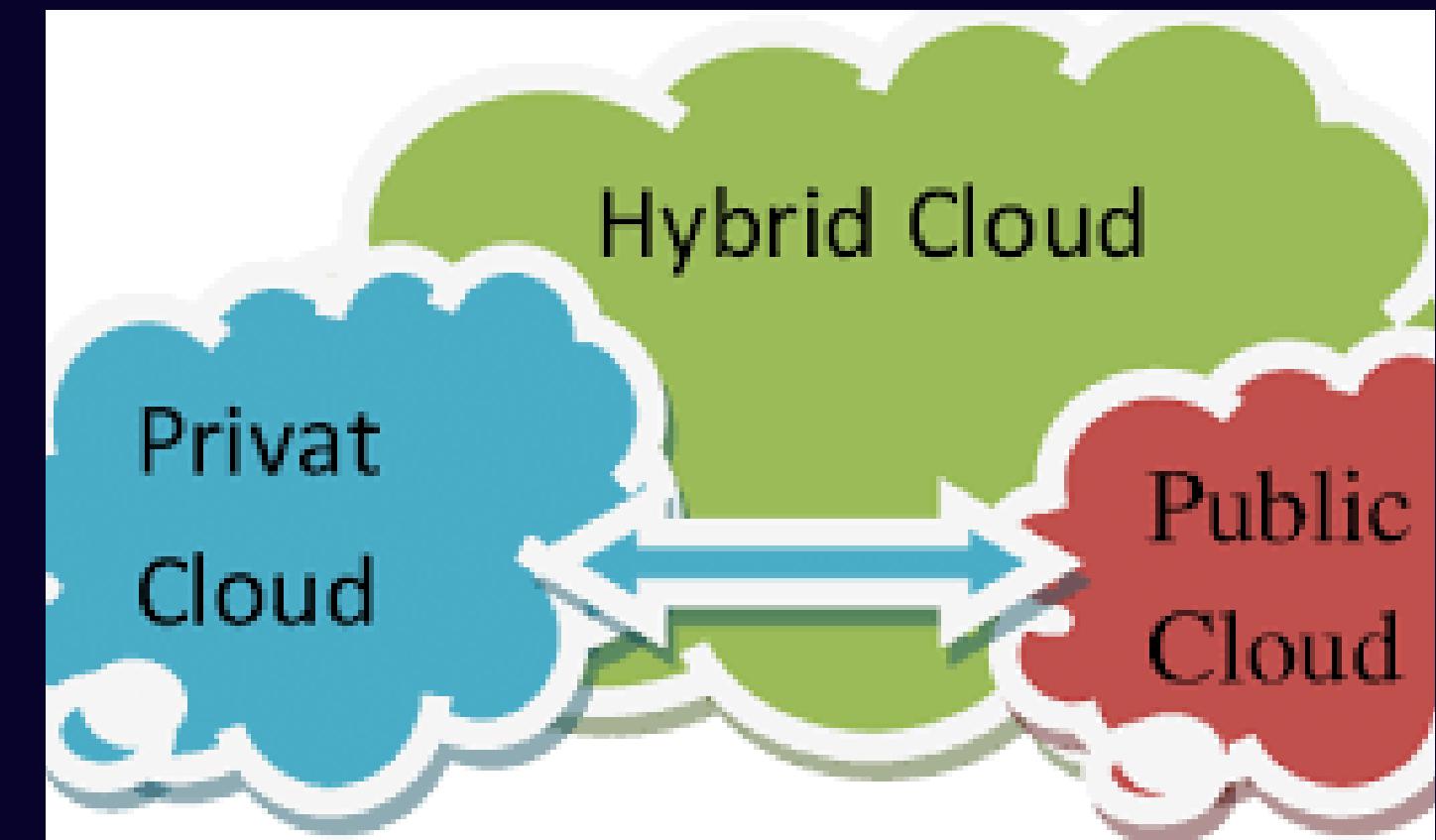
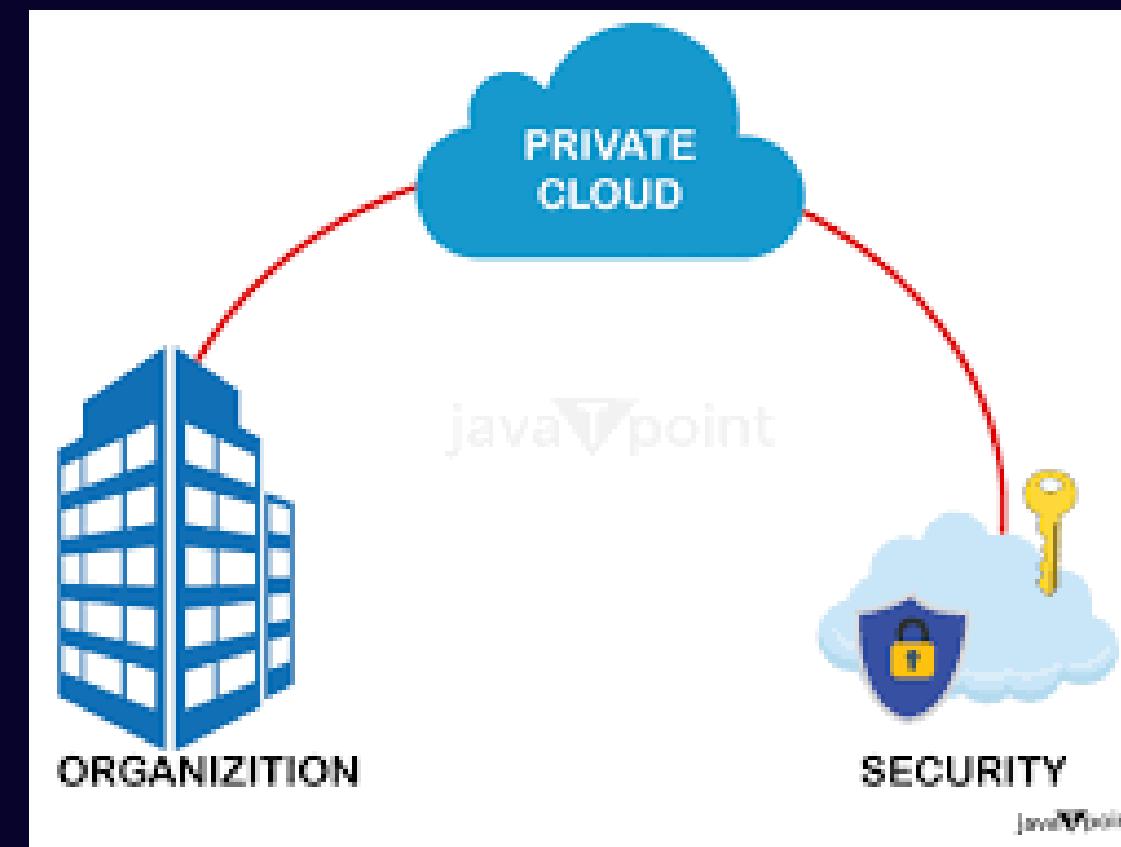
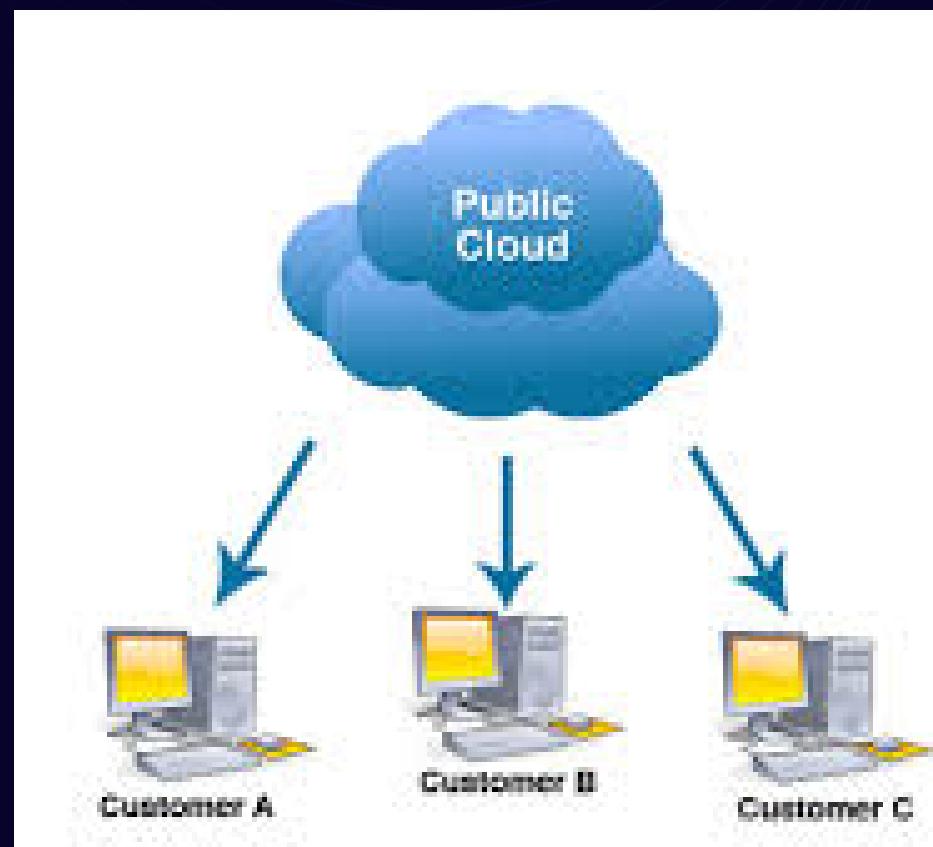
A database is an organized collection of structured information, or data, typically stored electronically in a computer system. A database is managed by a Database Management System (DBMS).



Cloud Computing

Cloud Computing means storing and accessing the data and programs on remote servers that are hosted on the internet instead of the computer's hard drive or local server.

Types of Cloud Computing

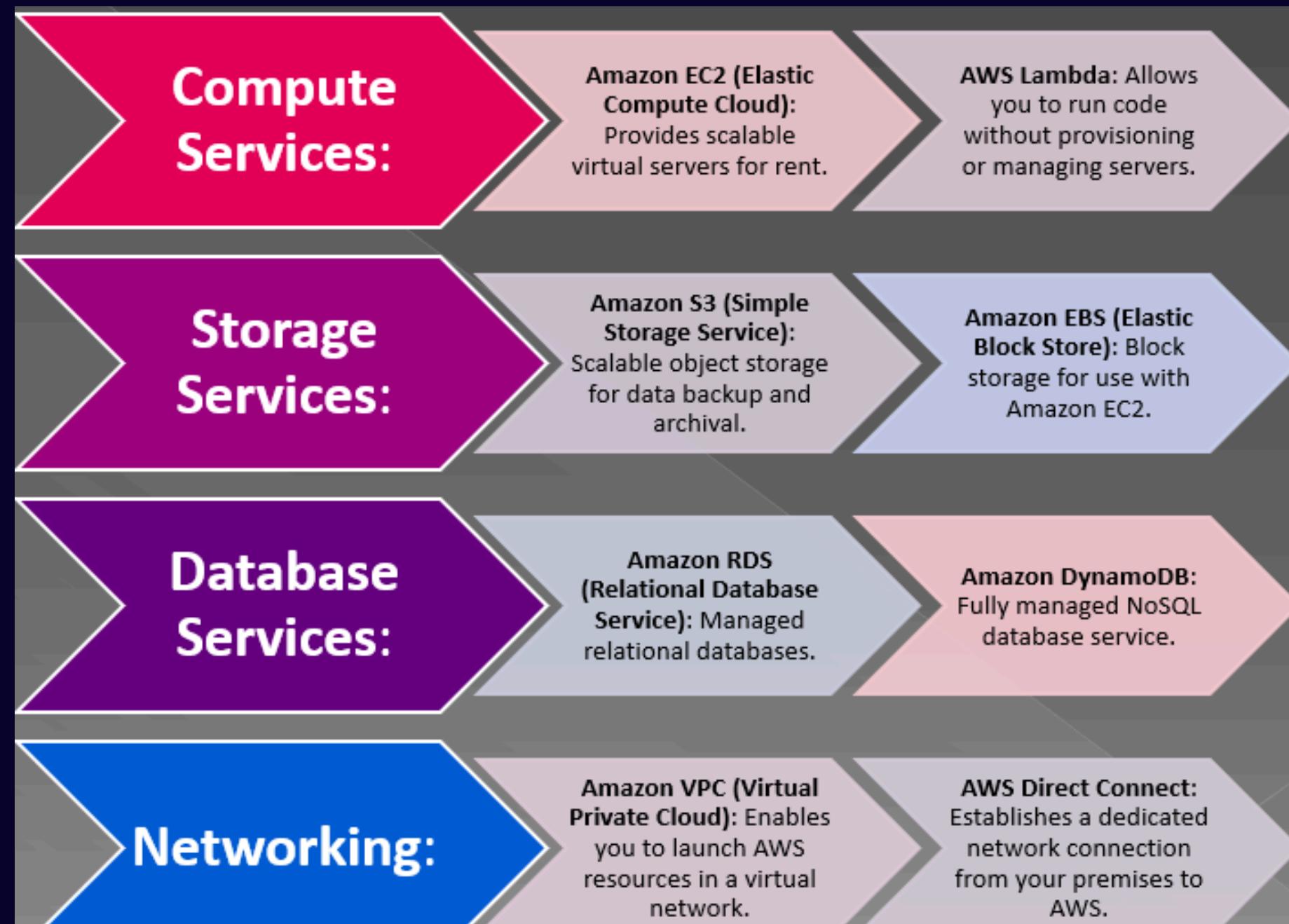


Amazon Web Service (AWS)

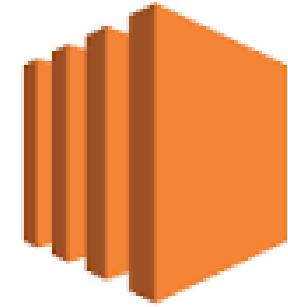


AWS is a comprehensive and widely adopted cloud platform, offering over 200 fully featured services from data centers globally.

AWS Services:



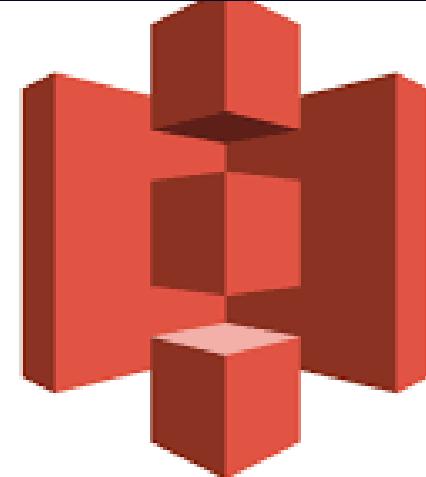
Amazon Web Service (AWS)



Amazon
EC2



AWS Lambda



Amazon S3

Amazon Elastic Compute Cloud (Amazon EC2) provides scalable computing capacity in the Amazon Web Services (AWS) cloud

AWS Lambda is designed to enable developers to run code without provisioning or managing servers.

Amazon S3 provides object storage and is built for storing and recovering data from anywhere over the Internet.

Git and Github

Git

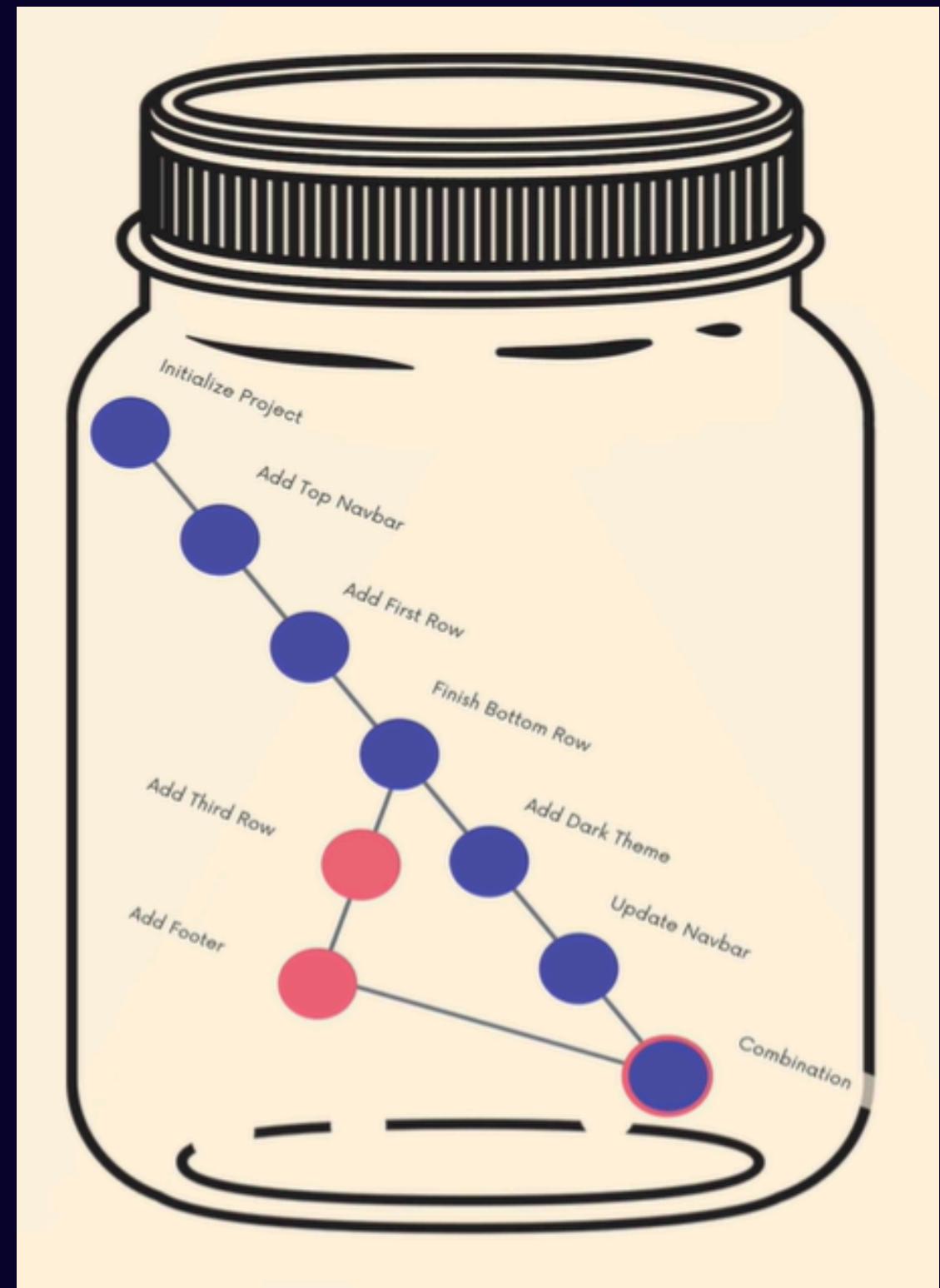
Git is the world's most popular version control system that tracks and manages changes to the files over time .

Github

Github is a service that hosts git repositories in the cloud and makes it easier to collaborate with other people.

Git Repository

A Git “Repo” is a workspace which tracks and manages files within a folder. Anytime we want to use Git with a project, app etc we need to create a new git repository.



The Basic Git Workflow



Make new files,
edit files, delete
files etc

Group specific
changes
together, in
preparation of
commiting

Commit
everything that
was previously
added

Working with Github

Pushing

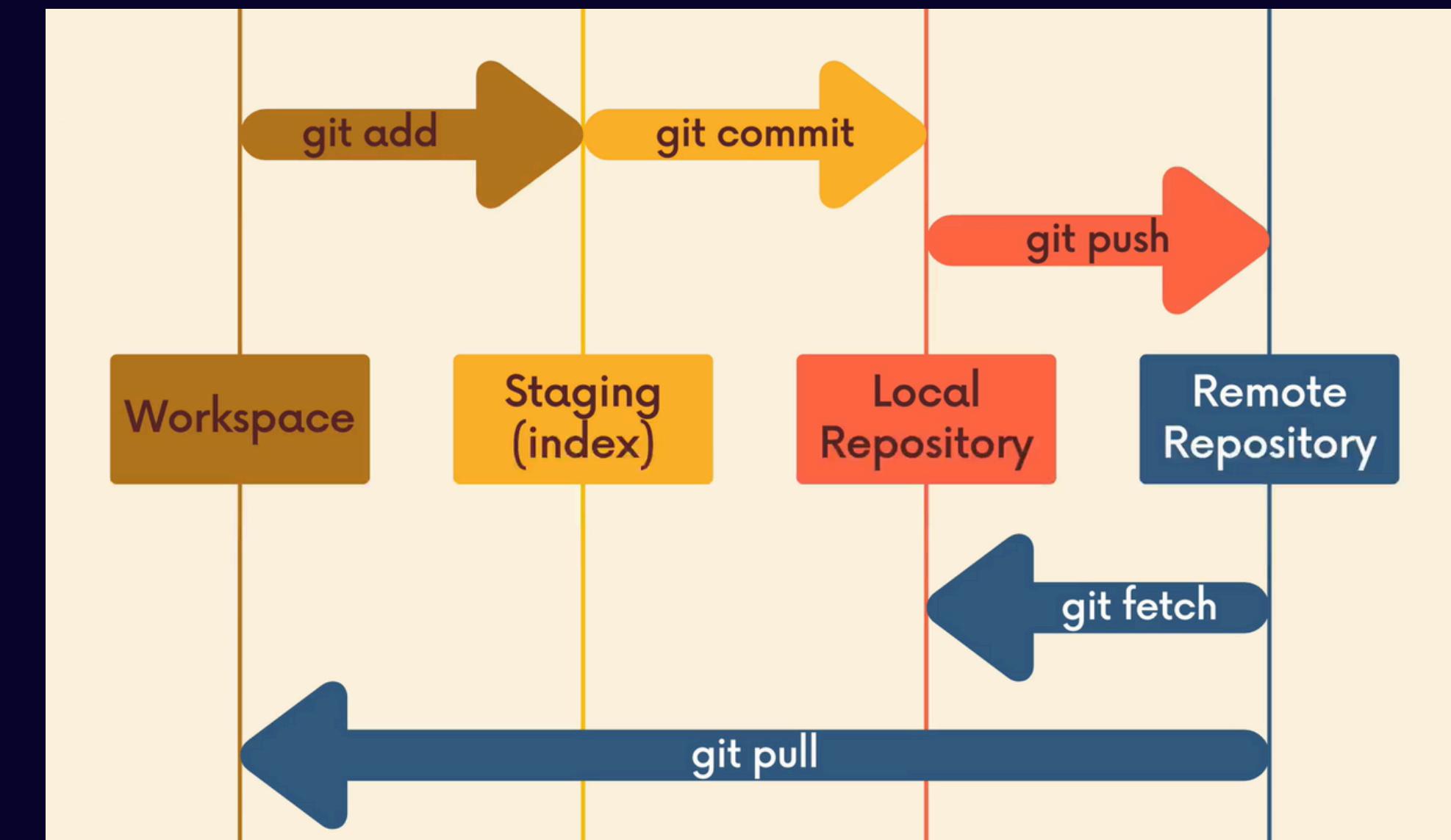
```
●●●  
❯ git push <remote> <branch>
```

Fetching

```
●●●  
❯ git fetch <remote>
```

Pulling

```
●●●  
❯ git pull <remote> <branch>
```



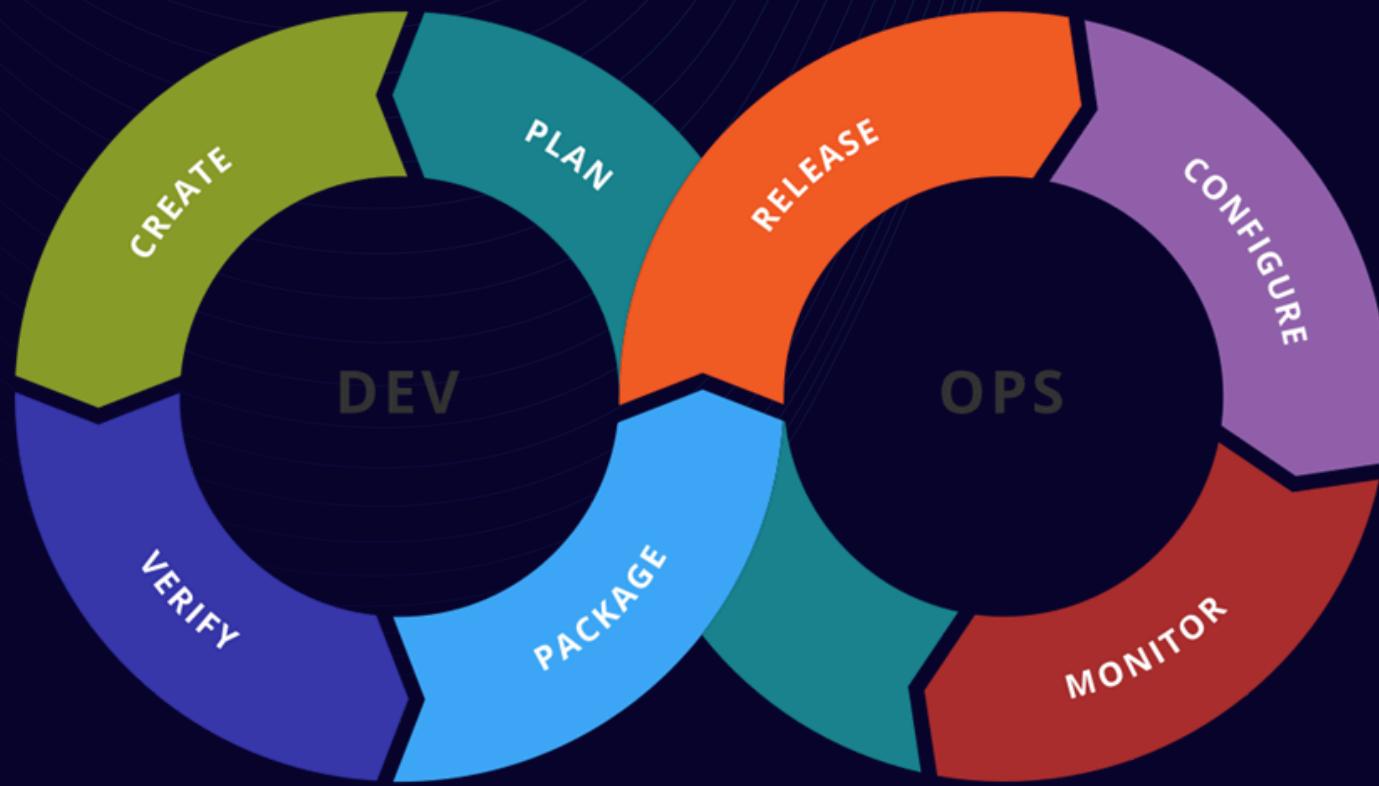
DEVOPS CI/CD

Continuous Integration (CI) and Continuous Deployment/Delivery (CD) are practices used in modern software development to improve code quality, reduce integration issues, and accelerate the delivery of software.

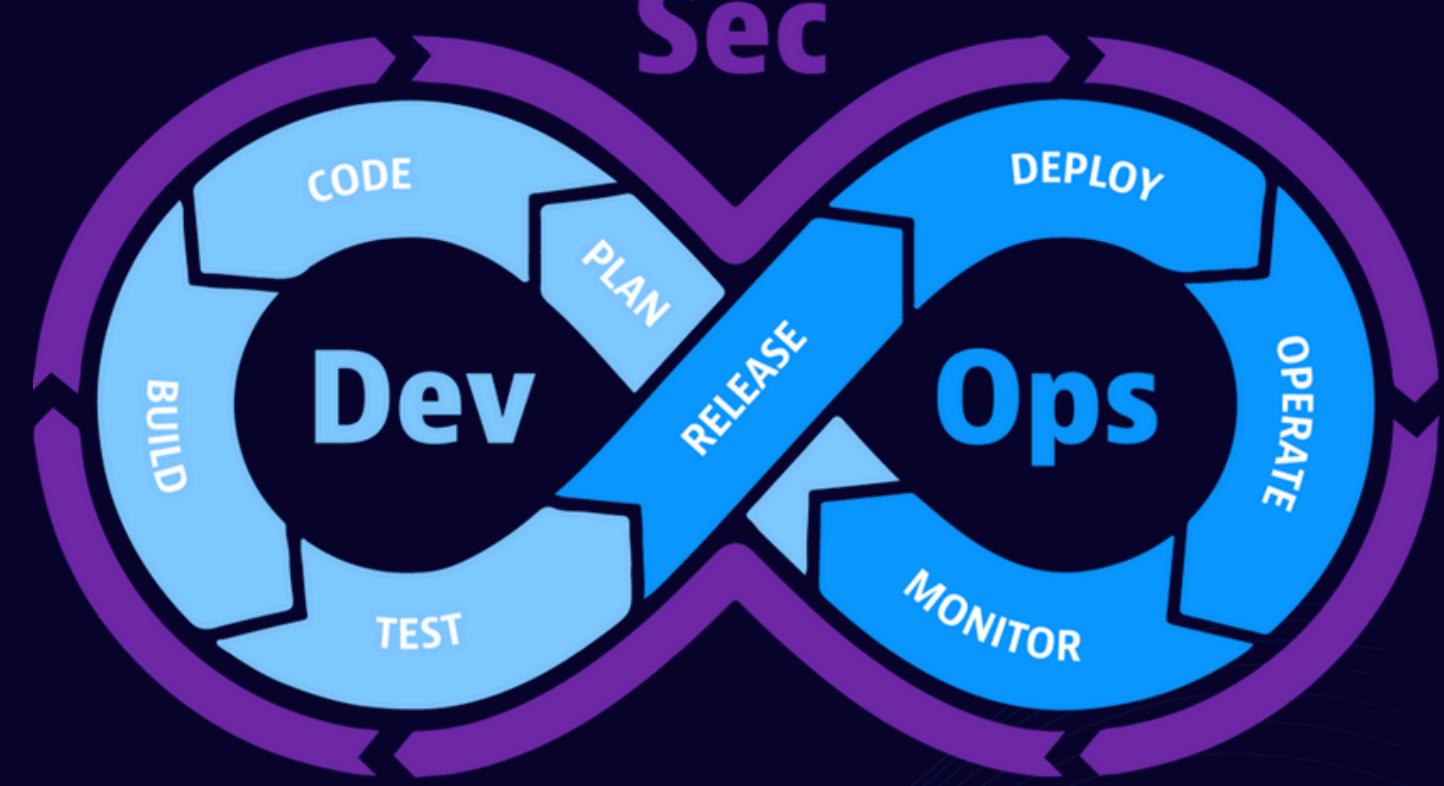
Key Concepts



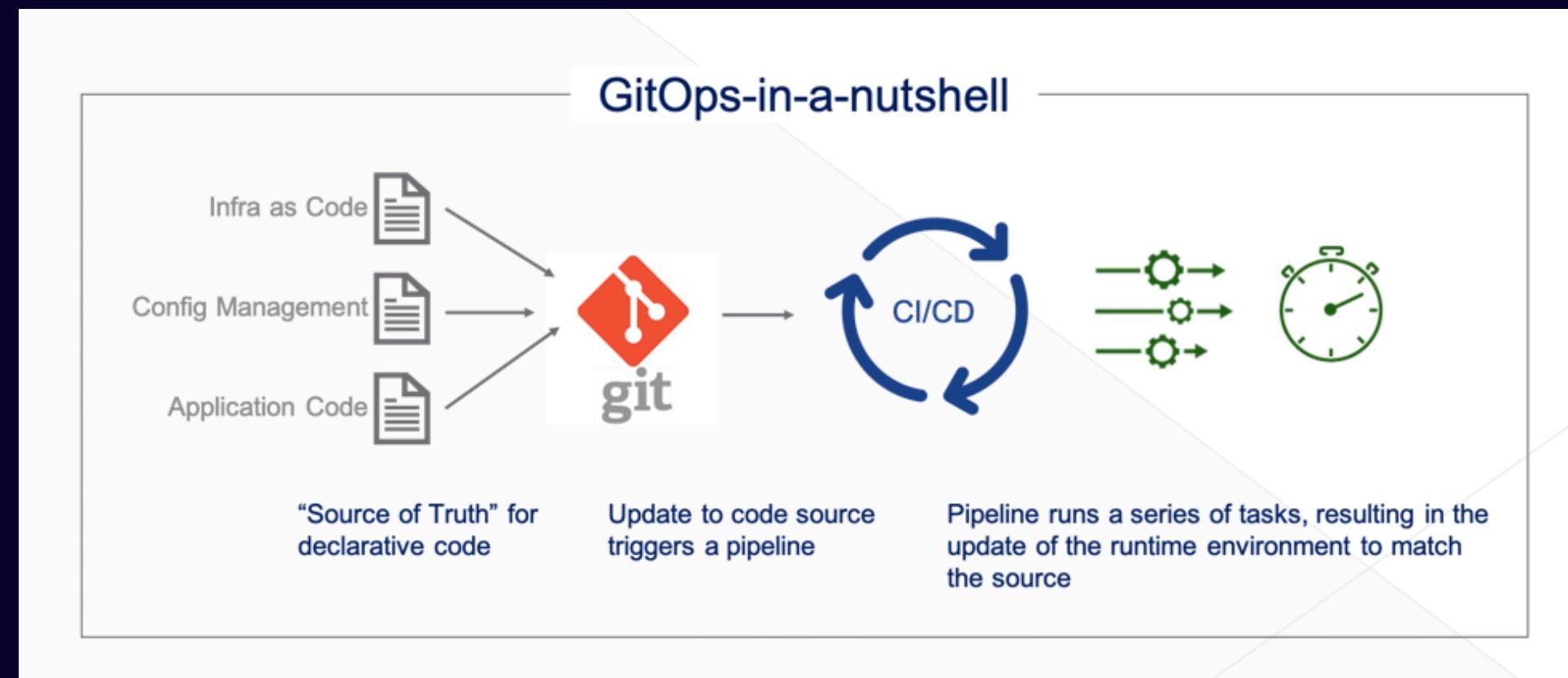
DevOps



DevSecOps



GitOps

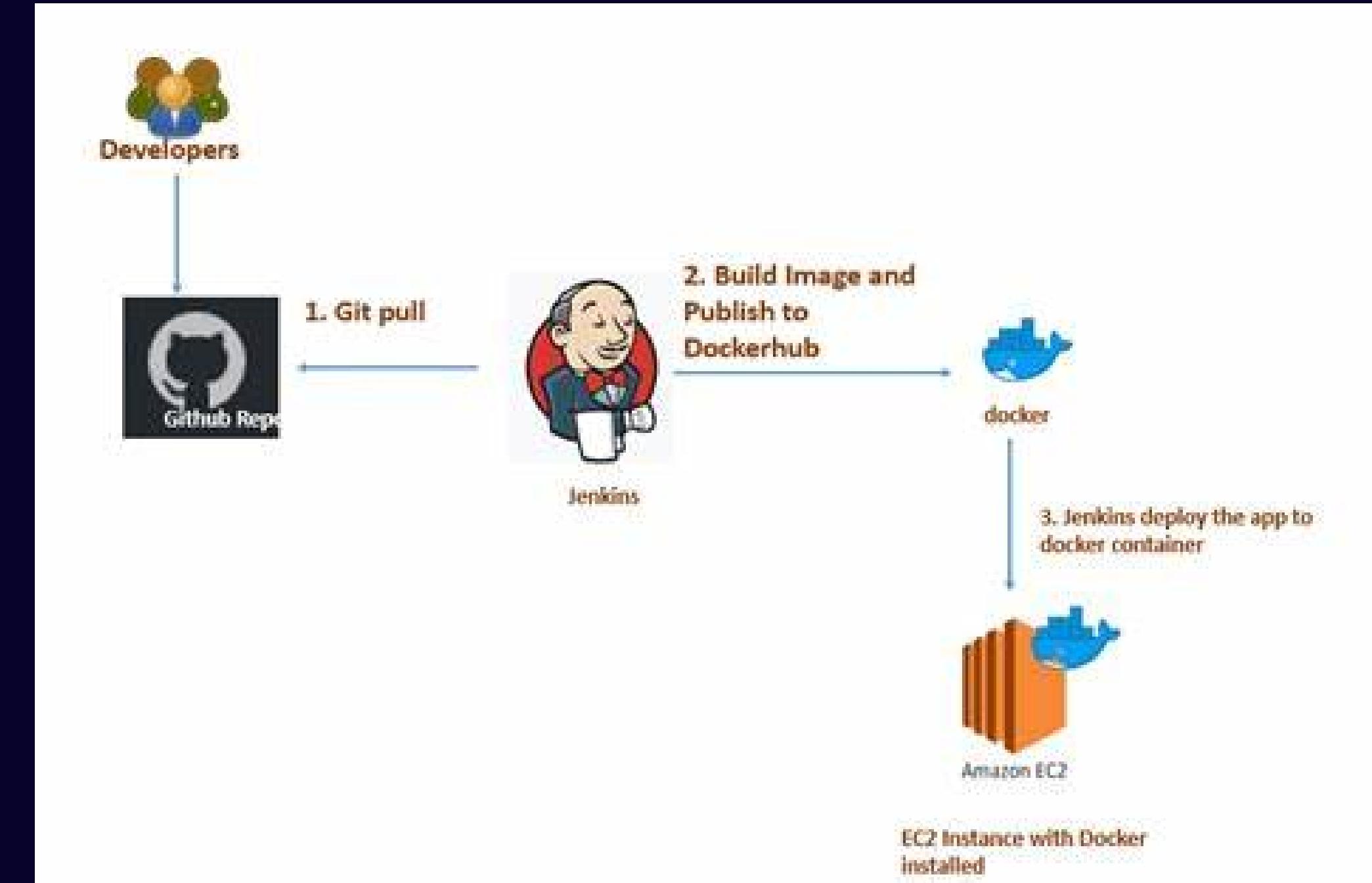


Automating Using Jenkins Tool



Key Concepts:

1. Jobs
2. Build
3. Pipeline
4. Nodes
5. Executors
6. Plugins



CONTAINERIZATION & DOCKER

Containers are an abstraction at the app layer that combines code and dependencies together.

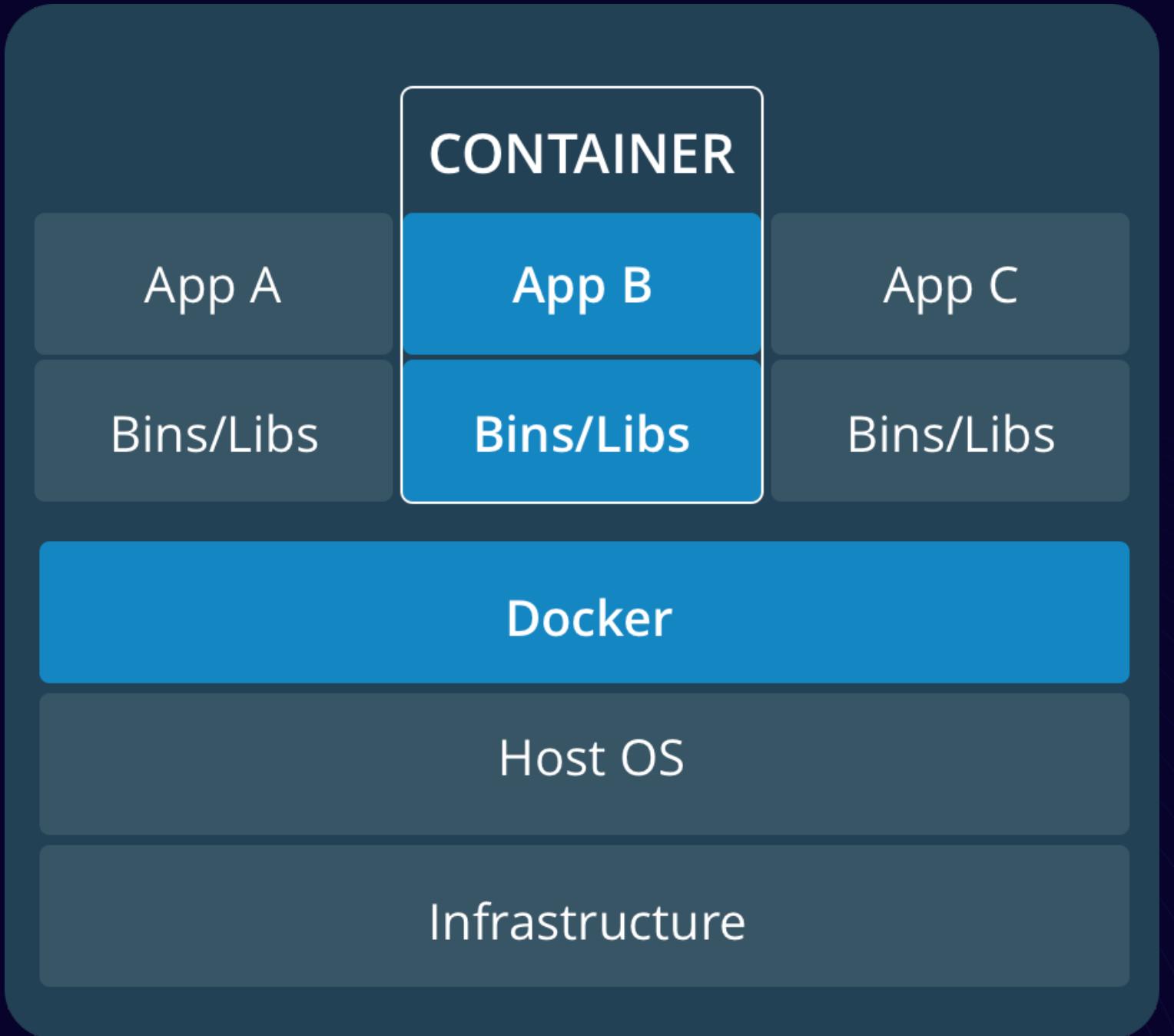
Uses:

- Resource Efficiency
- Improved Development
- Portability

Docker is an open-source platform that enables developers to build, deploy, run, update, and manage containers.

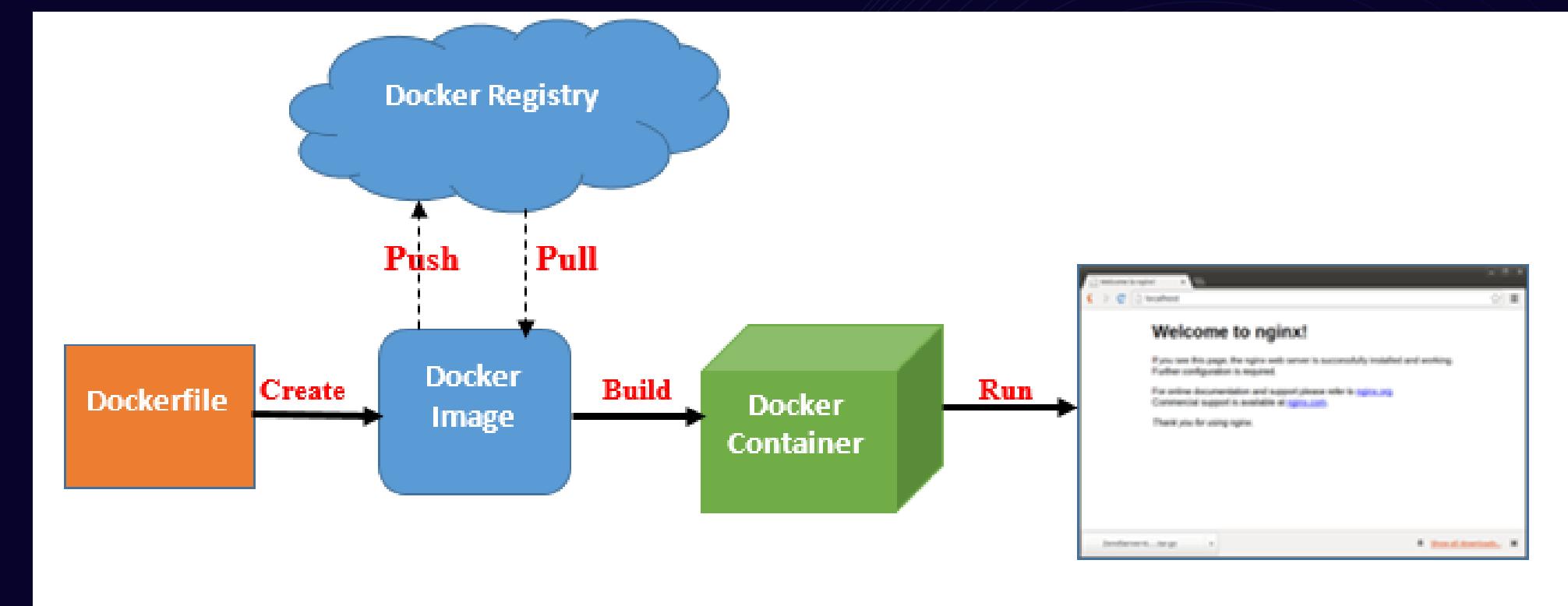
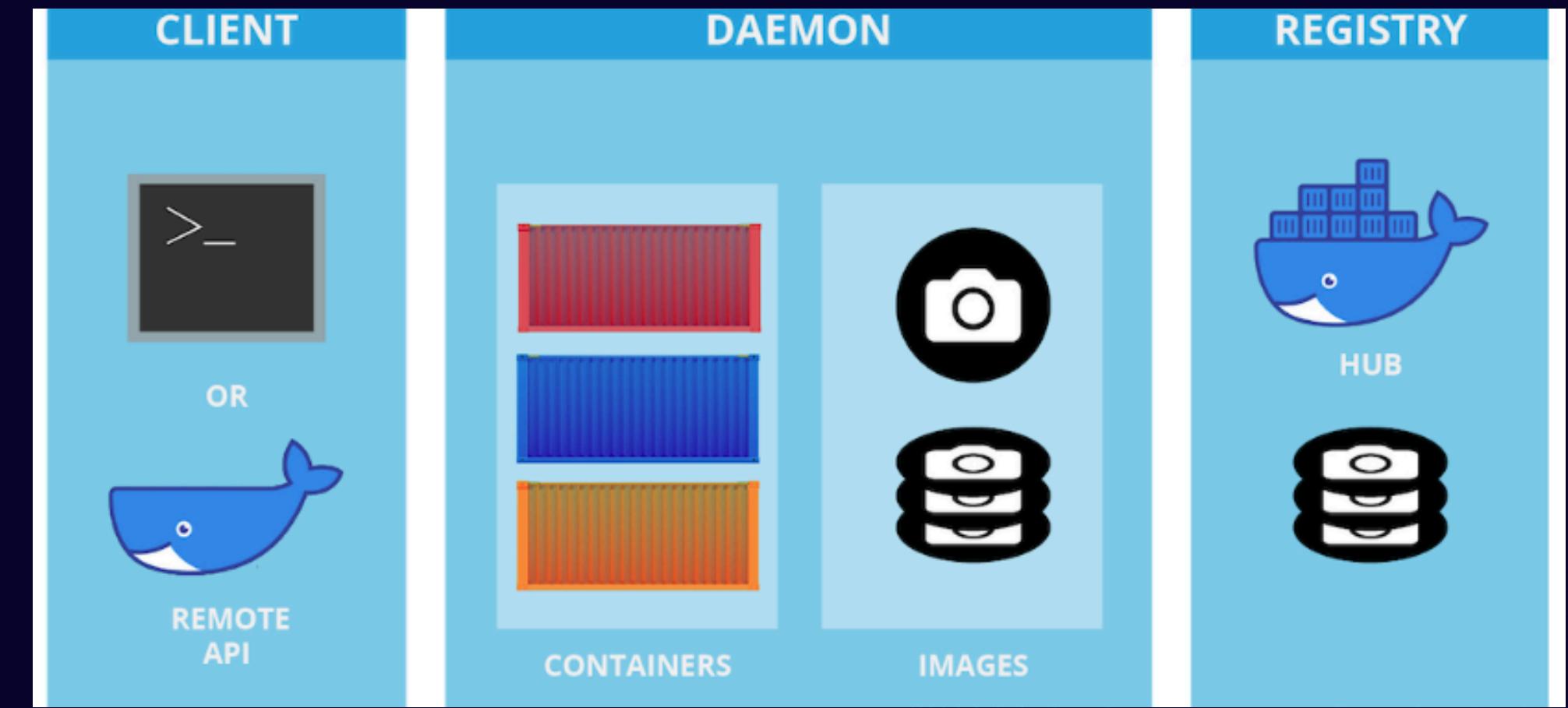
Uses:

- Efficiency
- Ease of Deployment
- Integration



Docker Commands

- sudo docker --version
- sudo docker ps
- sudo docker build -t my-app
- sudo docker container ls
- sudo docker stop container
- sudo docker rm containername
- sudo docker run -d -p 8080:80 --name=mycontainer docker/getting-started

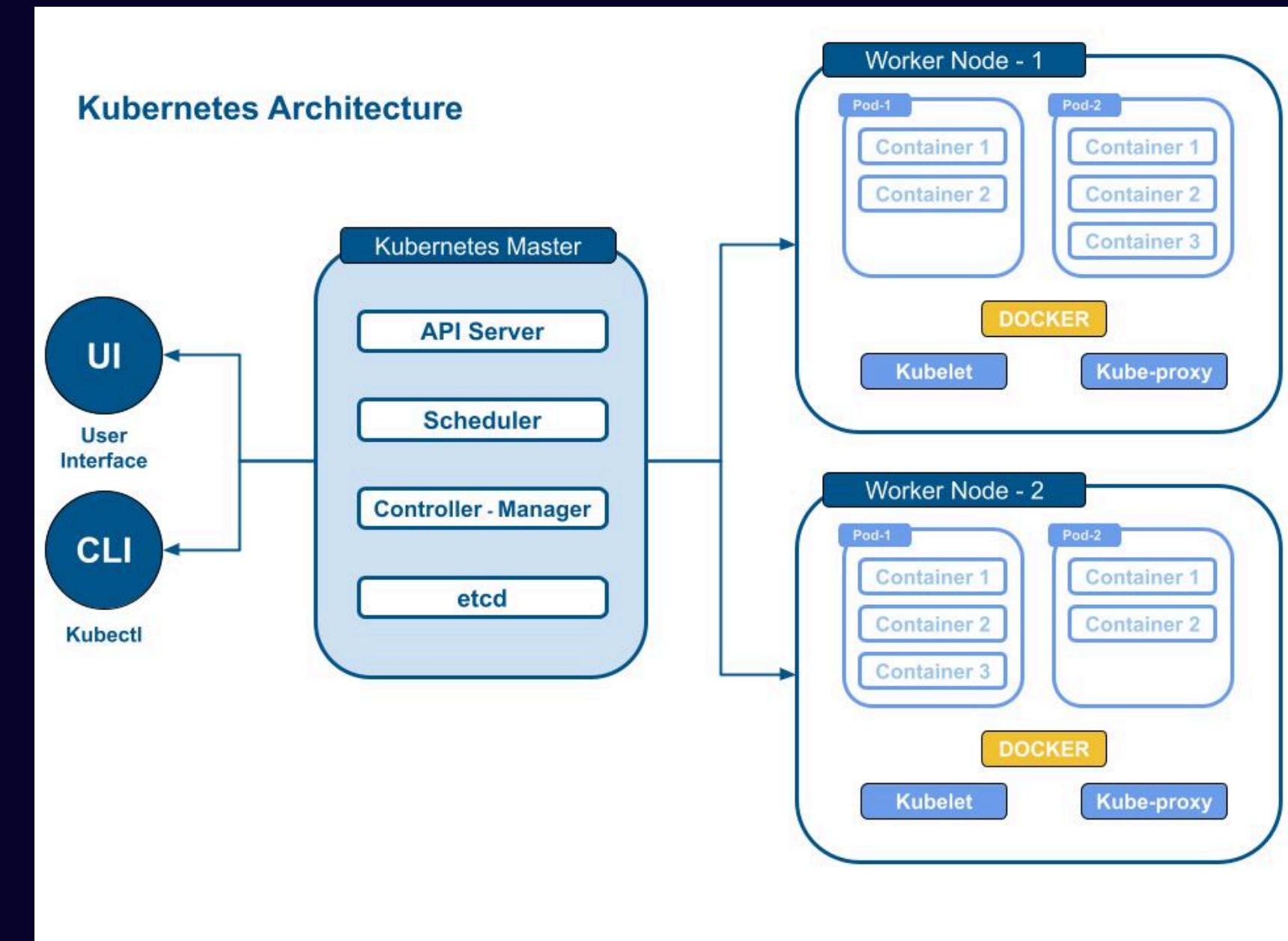


Kubernetes (K8s)

Kubernetes is an open-source container orchestration system for automating software deployment, scaling, and management

Basic Commands:

- kubectl create -f <file.yaml>
- kubectl cluster-info
- kubectl get nodes
- kubectl expose deployment <name> --type=LoadBalancer --name=<service-name>
- kubectl scale --replicas=<num-replicas> deployment/<name>
- kubectl delete -f <filename>



Web Development



Hyper Text Markup Language

Example of HTML:

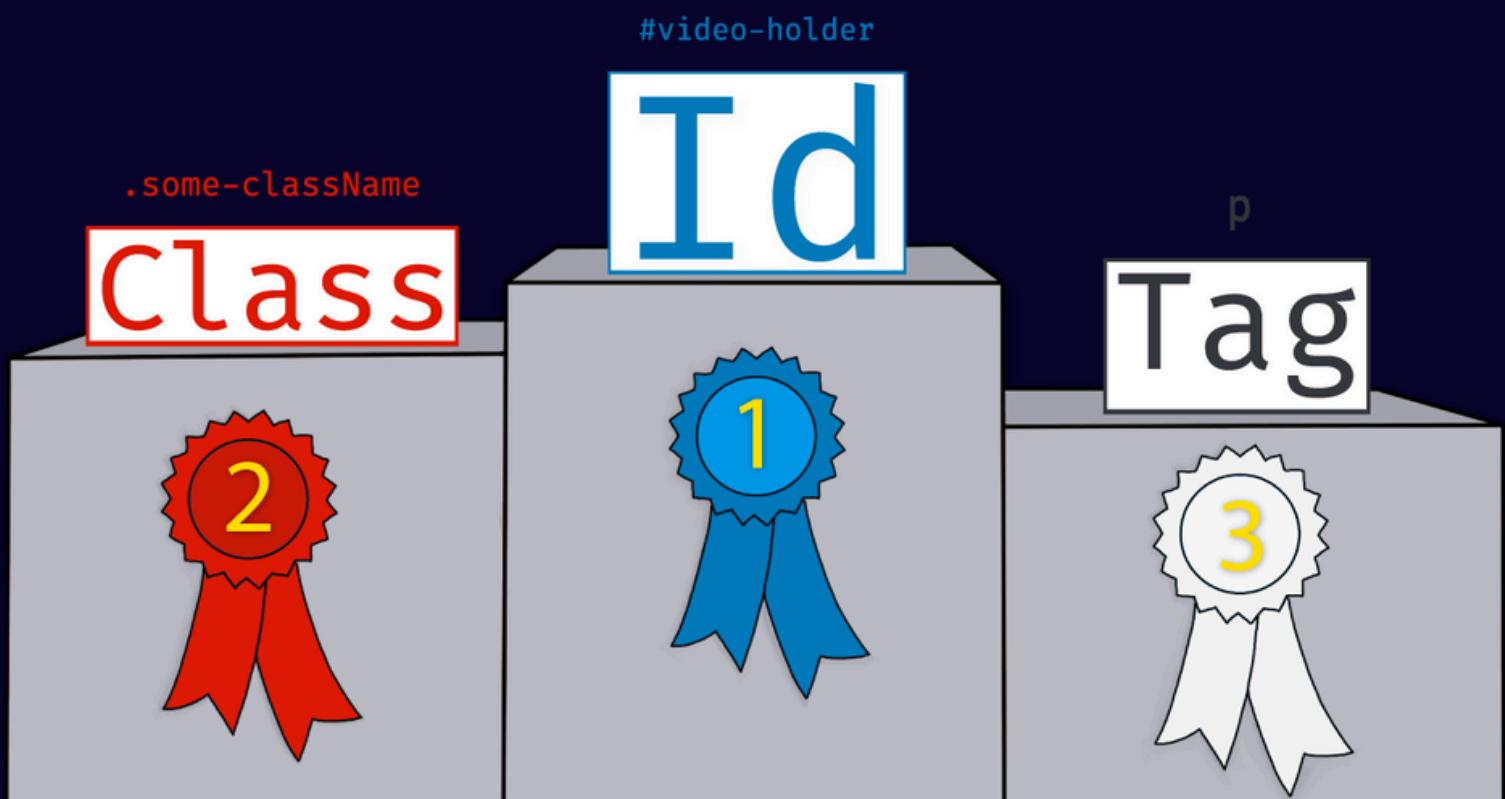
```
<!DOCTYPE html>
<html lang="en">
<head>
<meta charset="UTF-8">
<meta name="viewport" content="width=device-width, initial-scale=1.0">
<title>First Page</title>
</head>
<body>
<h1>MindSprint</h1>
<hr>
<p>We are a leading edge technology and business services firm that provides impact driven solutions to businesses, enabling them outpace speed of change.</p>
<a href="about.html">About Us</a>
<h2>History of MindSprint</h2>
<h3>Launched In?</h3>
<h4>CEO Details</h4>

</body>
</html>
```



Cascading Style Sheets

CSS (Cascading Style Sheets) is a simply designed language intended to simplify the process of making web pages presentable





Bootstrap 5 is the newest version of Bootstrap, which is the most popular HTML, CSS, and JavaScript framework for creating responsive, mobile-first websites.

Methods of incorporating Bootstrap 5:



Install via package manager

Install Bootstrap's source Sass and JavaScript files via npm, RubyGems, Composer, or Meteor. Package managed installs don't include documentation or our full build scripts. You can also [use any demo from our Examples repo](#) to quickly jumpstart Bootstrap projects.

```
$ npm install bootstrap@5.3.3
```



```
$ gem install bootstrap -v 5.3.3
```



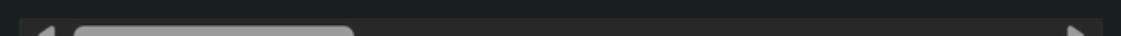
[Read our installation docs](#) for more info and additional package managers.



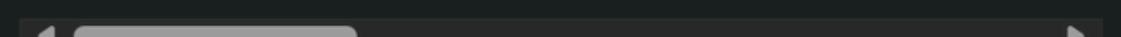
Include via CDN

When you only need to include Bootstrap's compiled CSS or JS, you can use [jsDelivr](#). See it in action with our simple [quick start](#), or [browse the examples](#) to jumpstart your next project. You can also choose to include Popper and our JS [separately](#).

```
<link href="https://cdn.jsdelivr.net/npm/bootstrap@5.3.3/dist/css/bootstrap.min.css" rel="stylesheet">
```



```
<script src="https://cdn.jsdelivr.net/npm/bootstrap@5.3.3/dist/js/bootstrap.bundle.min.js">
```



JavaScript

JavaScript is a programming language that adds interactivity to your website. This happens in games, in the behavior of responses when buttons are pressed etc.

Syntax - <script> //code </script>

Primitive types

- Number
- String
- Boolean
- Undefined

Variables

Variables are like Labels for values

- let
- const
- var

Strings

Strings represent text and must be wrapped in quotes.

```
const person = {  
    name:'kamal',  
    age:30,  
    friends:[  
        'Shola', 'Ade', 'Ibraheem'  
    ],  
    greet:function(){  
        alert('Hello World')  
    }  
}
```

Objects

Objects are collection of properties which are key-value pair.

Document Object Model

- The DOM is a JavaScript presentation of the webpage.
- Its just a bunch of objects that you can interact with via JS.

THANK YOU