

Docker

WHAT IS A DOCKER ?

Production

**But in Production it
doesn't work properly**

Developers experince it a lot



The Reason could be due to :

- Dependencies
- Libraries and versions
- Framework
- OS Level features
- Microservices

That the developers machine has but
not there in the **production environment**

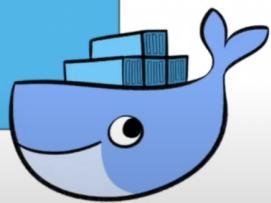


What is DOCKER ?



Docker is a tool designed to
make it easier to deploy and
run applications by using
containers

Docker makes the process of application deployment very easy and efficient and resolves a lot of issues related to deploying applications



- World's largest software container platform
- Containers allow a developer to package up an application with all of the parts it needs, such as libraries and dependencies, and make it as one package.

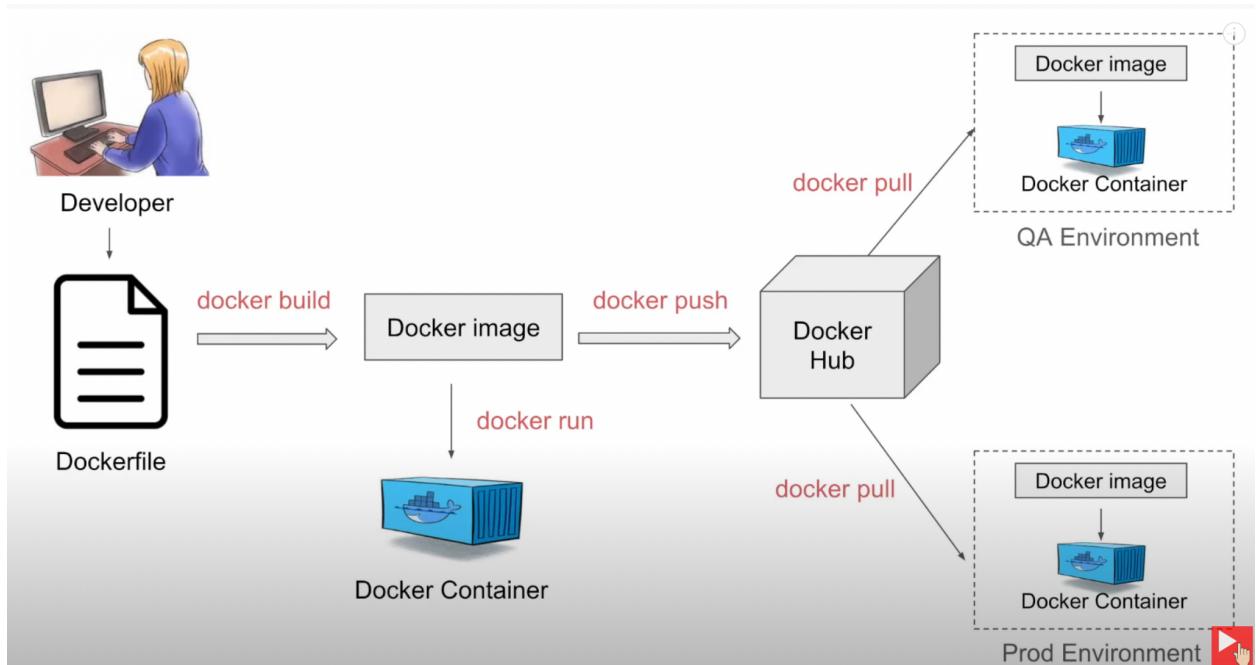
Portability

Docker containers can run on any platform.

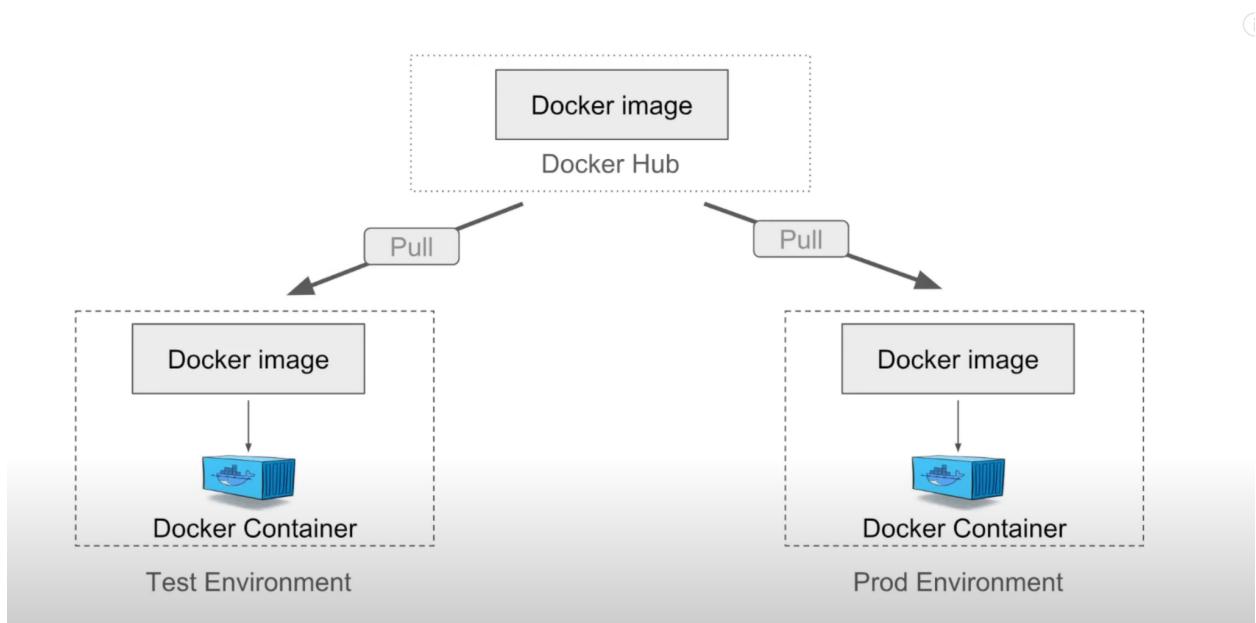
It can run on your local system, Amazon ec2, Google Cloud platform, Rackspace server, VirtualBox..etc.

A container running on AWS can easily be ported to VirtualBox

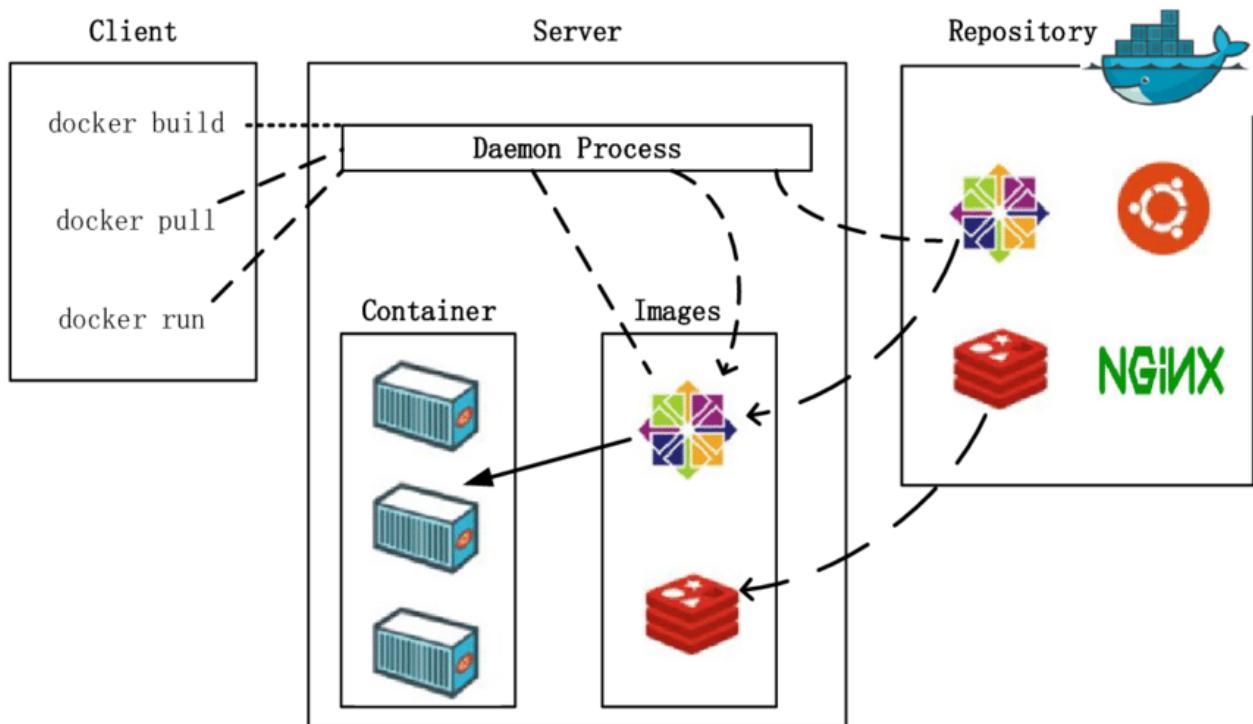
How Docker works



An application inside a container can run on any system that has docker installed. So, there is no need to build and configure apps multiple times on different platforms.



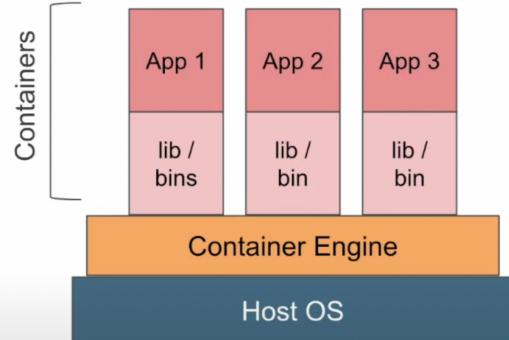
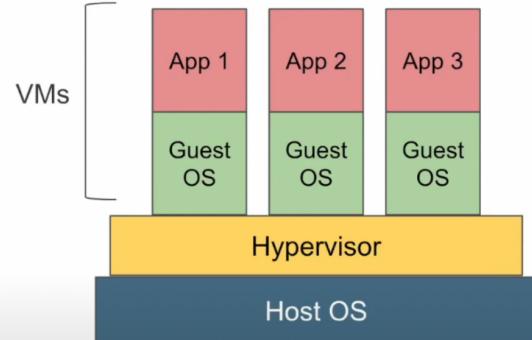
Docker Architecture



Productivity

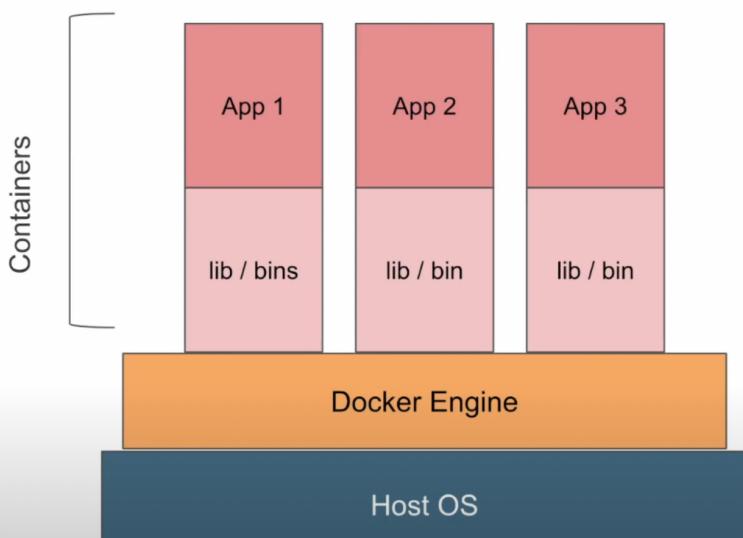
Docker allows faster and more efficient deployments without worrying about running your app on different platforms.

It increases productivity many folds.

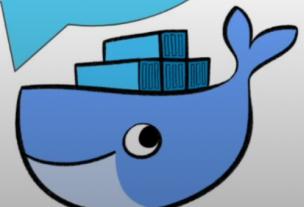


Virtualization

Containerization



Every app works in its own container and does not interfere with other apps



Isolation

With Docker every application works in isolation in its own container and does not interferes with other applications running on the same system.

So multiple containers can run on same system without interference.

For removal also you can simply delete the container and it will not leave behind any files or traces on the system.



More sleep and less worry



With Docker you test your application inside a container and ship it inside a container.

This means the environment in which you test is identical to the one on which the app will run in production.

Docker Images



What are Images

Docker Images are templates used to create Docker containers

Container is a running instance of image

Where are images stored

Registries (e.g. docker hub)
Can be stored locally or remote



Docker Images Commands

docker images

docker pull

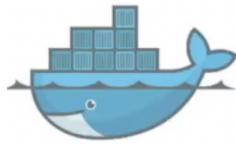
docker push

docker run

docker rmi

docker inspect

docker history



Docker Container Commands

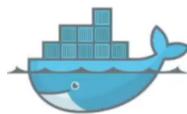
docker ps

docker run

docker start

docker pause

docker unpause



Containers Features

Lightweight

Less resources are used

Booting of containers is very fast

Can start, stop, kill, remove containers easily and quickly

Operating System resources can be shared within Docker



Dockerfile

A text file with instructions to build image

Step 1 : Create a file named Dockerfile

Step 2 : Add instructions in Dockerfile

Step 3 : Build dockerfile to create image

Step 4 : Run image to create container



Docker Compose

tool for defining & running multi-container docker applications

use yaml files to configure application services
docker-compose.yml

can start all services with a single command
docker compose up

can stop all services with a single command
docker compose down

can scale up selected services when required



Docker Compose Working : 5 Steps

Step 1 : Install docker compose

Step 2 : Create docker compose file at any location
on your system - docker-compose.yml

Step 3 : Check the validity of file by command
docker-compose config

Step 4 : Run docker-compose.yml file by command
docker-compose up -d

Step 5 : Bring down application by command
docker-compose down

Google Drive -

https://docs.google.com/document/d/1o84_kYvdybTmijqlx2nXSTmOV9V4BAs6_UUaxymmNFGg/edit