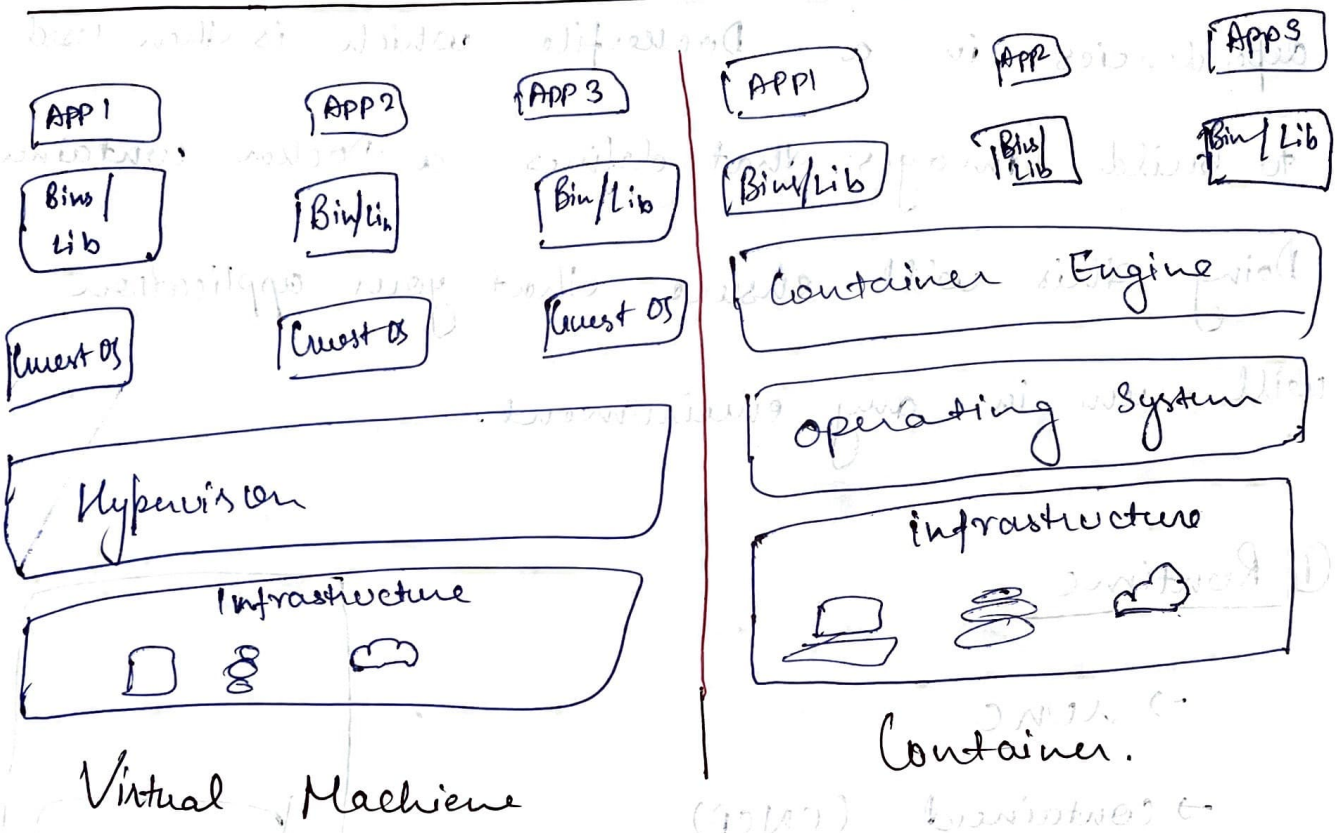
DOCKER

Vmware :- Virtual machine

Past

Virtual machine require their own ~~hardware~~ OS, hardware and resources.

Containerization Vs Virtualization



* A hypervisor is used to Create multiple machine on a host operating system and it manage virtual machine.

* Containerization is an efficient method for deploying applications.

* Container run on top of Virtual machine.

What is Docker?

Docker is a container platform that allows you to build, test and deploy applications quickly. A developer defines all the applications and its dependencies in a Dockerfile which is then used to build images that defines a Docker container. Doing this will ensure that your application will run in any environment.

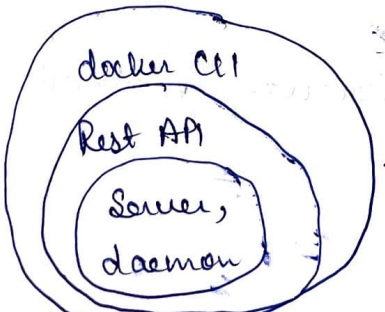
① Runtime

- → runc
- → containerd (CNCF)
  - ↓
  - managing runc.

② Engine

→ Client-server architecture.

→ Docker Daemon

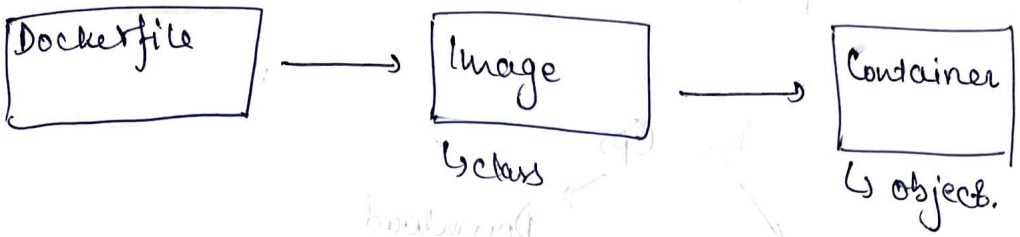


It listen to the API request being made through the Docker client and manages Docker objects such as images, container, network and volumes

③ Orchestrations

It allows us to manage containers.

Kubernetes.



Dockerfile :-

Describe steps to create a Docker image. It's like a recipe with all ingredient and steps necessary in making your dish. This file can be used to create Docker Image.

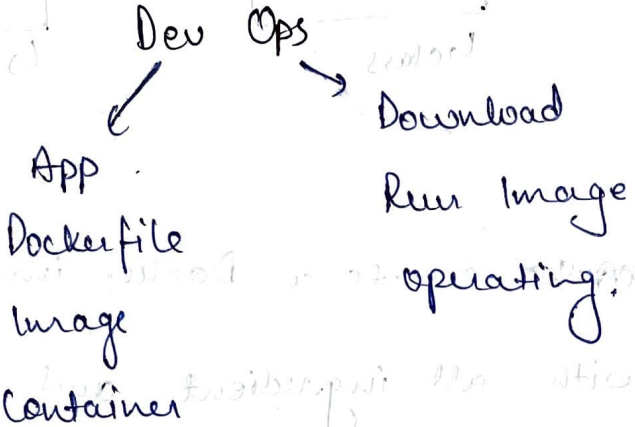
Docker Image

A Docker Image is a file that Defines a Docker Container. It is similar in concept to Snapshot of a VM. A container that moves from one Docker enviroment to another with the same OS will work without changes because the image includes all of the dependencies needed to execut the code. Docker Image is run to create a docker container.

Open Container Initiative (OCI)

The OCI is a linux foundation project to design open standards for container

OCI currently contains two specifications: Runtime Specification and the Image Specification



$ docker run hello-world
↳ Image name

$ docker run -it ubuntu
↓ interacting
↳ Images

$ docker run -it ubuntu:16.04 (run specific version)

$ docker images → list all images

$ docker pull mysql. (directly download image

$ docker pull ubuntu:16.04 (download a specific version)

$ docker ps (Container that are currently running)

" docker container ls

$ docker container exec -it "container id" bash

!! The container should be running.

$ docker stop "Container id" (Stops the container

$ docker ps -a (list all container that are stopped.

$ docker inspect "Container id" → all information about container.

$ docker container prune -f (delete all the container that are stopped)

force

$ docker run -d alpine ping www.civo.com

detach mode.

$ docker logs "Container id"

$ docker rm "Container id"

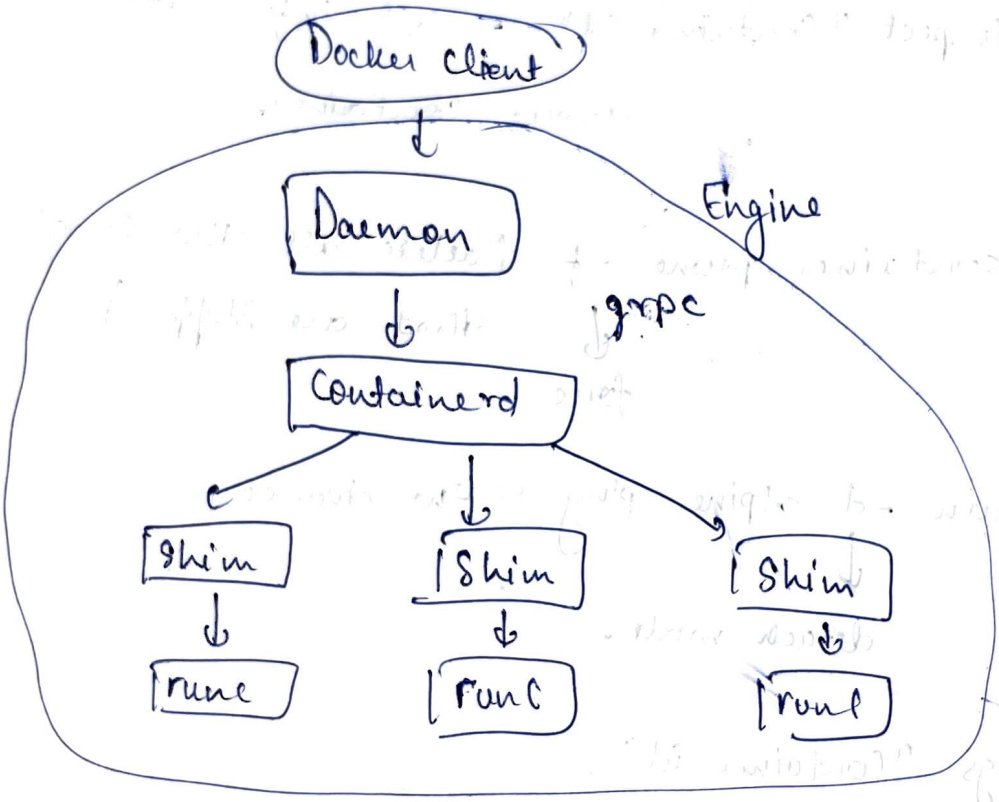
$ docker commit -m "added index.txt file" "Container id" index-ubuntu:1.01 (commit)

$ docker rmi $(docker images -q) (Removes all the image)

Dockerfile

```
FROM ubuntu
MAINTAINER Mohit <mohit@gmail.com>
RUN apt-get update
CMD ["echo", "Hello-world"]
```

$ docker build -t myImage:1.01 . (Builds Image of Dockerfile)



TLS → Transport layer Security

Client HTTP (2375) Server.