# Docker

**Hypervisor**

A hypervisor allows one host computer to support multiple guest VMs by virtually sharing its resources, such as memory and processing.

A hypervisor allows a physical server to operate multiple VMs as guests run alongside each other.

Each VM can run a different OS.

A hypervisor allocates each VM resource such as CPU, memory, storage, and network to run the guest OS and applications.

The size of Guest OS in Hypervisor is in GBs whereas in Docker it is in MBs

**------------------Docker------------------ Docker Image------------------Docker Container------------------**

**Docker** is essentially a toolkit that enables developers to manage(build, deploy, run, update, and stop) containers using simple commands. It is most used tool in microservices.

Docker provides the ability to package and run an application in a loosely isolated environment called a container.

The isolation and security allow you to run many containers simultaneously on a given host.

**What is difference between image and container?**

Java world : Class and Object.

Docker world : Image and Container.

Images can exist without containers, whereas a container needs to run an image to exist. Therefore, containers are dependent on images and use them to construct a run-time environment and run an application.

The two concepts exist as essential components (or rather phases) in the process of running a Docker container.

To make a docker image, you must write script in Dockerfile. ?? image or container

Containers are runnable instance of an image. You can create, start, stop, move, or delete a container using Docker API or CLI

Suppose a container is running an application at port 8080. It cannot access the host machine as each container is running in isolation. But we have to config to access the host.

Ansible provides seamless application configuration, while Docker provides a containerized environment for building and deploying applications. Therefore, you should consider Docker for code shipping and deployment and Ansible for application configuration.

How is memory management done in docker . How is it a lightweight when compared to HyperVisor?

A hypervisor allocates each VM resource such as CPU, memory, storage, and network to run the guest OS and applications--- How does the docker do it ?

You can create containers without Docker, and you can also run and publish them.

What is in Dockerfile?

What does it do? how is it different from provisioning folder?

A document that contains commands to assemble an image. Docker reads those instructions and builds a docker image.

docker **pull** <image\_name>:<tag>

Or just

docker **run** <image\_name>:<tag> //this will pull and run the image.

docker **run** <image\_name>

docker run **-d** <image\_name> // detach mode. Run in background.

docker run **–name** <image\_name> //name the container

**Port binding with the container** :

docker run **-p**<machine\_port>:<container\_port> <name>:<tag>

docker **log** <container\_port>

docker **ps -a** // list running and stopped containers.

docker **start** <container\_ID> //to restart the container.

docker **exec** -it <container\_name> /bin/bash // to get the command line Terminal of container

docker **rm** <container\_name>

docker **rmi** <image\_name>

var/lib/docker //images , container location

https://www.youtube.com/watch?v=HMAoJoSJCyk&list=PLRAV69dS1uWTJLvDP4Veld5F05rJAmOcp&index=2

https://www.youtube.com/watch?v=s\_o8dwzRlu4

https://www.youtube.com/results?search\_query=container+orchestration

https://www.youtube.com/watch?v=rv4LlmLmVWk

https://www.youtube.com/playlist?list=PLy7NrYWoggjw\_LIiDK1LXdNN82uYuuuiC