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DT/NT : DT

LESSON : DEVOPS

SUBJECT : Docker-2 Volume

BATCH : B224

AWS-DEVOPS

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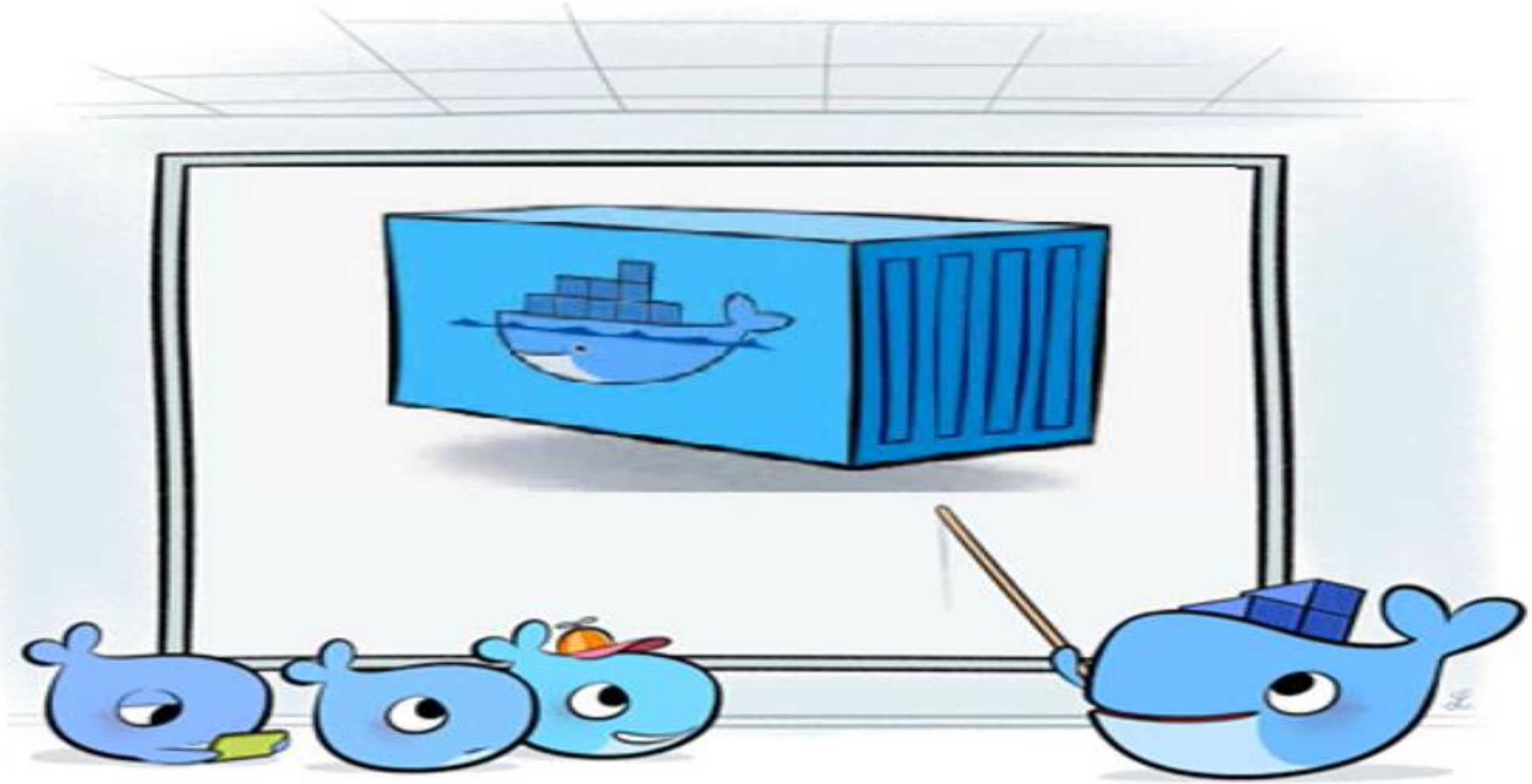
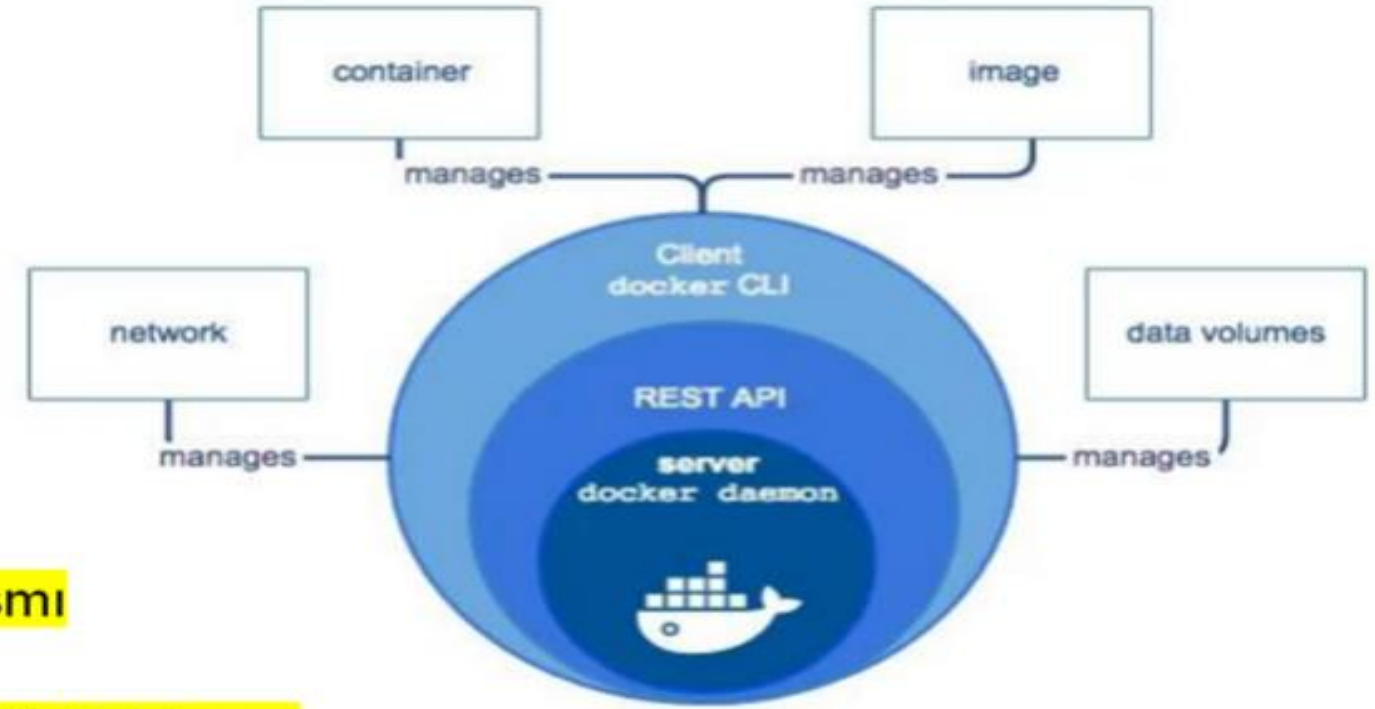
What is 

???



Docker Architecture

Docker uses a client-server architecture. The Docker client talks to the Docker daemon, which does the heavy lifting of building, running, and distributing your Docker containers. The Docker client and daemon can run on the same system, or you can connect a Docker client to a remote Docker daemon. The Docker client and daemon communicate using a REST API, over UNIX sockets or a network interface.

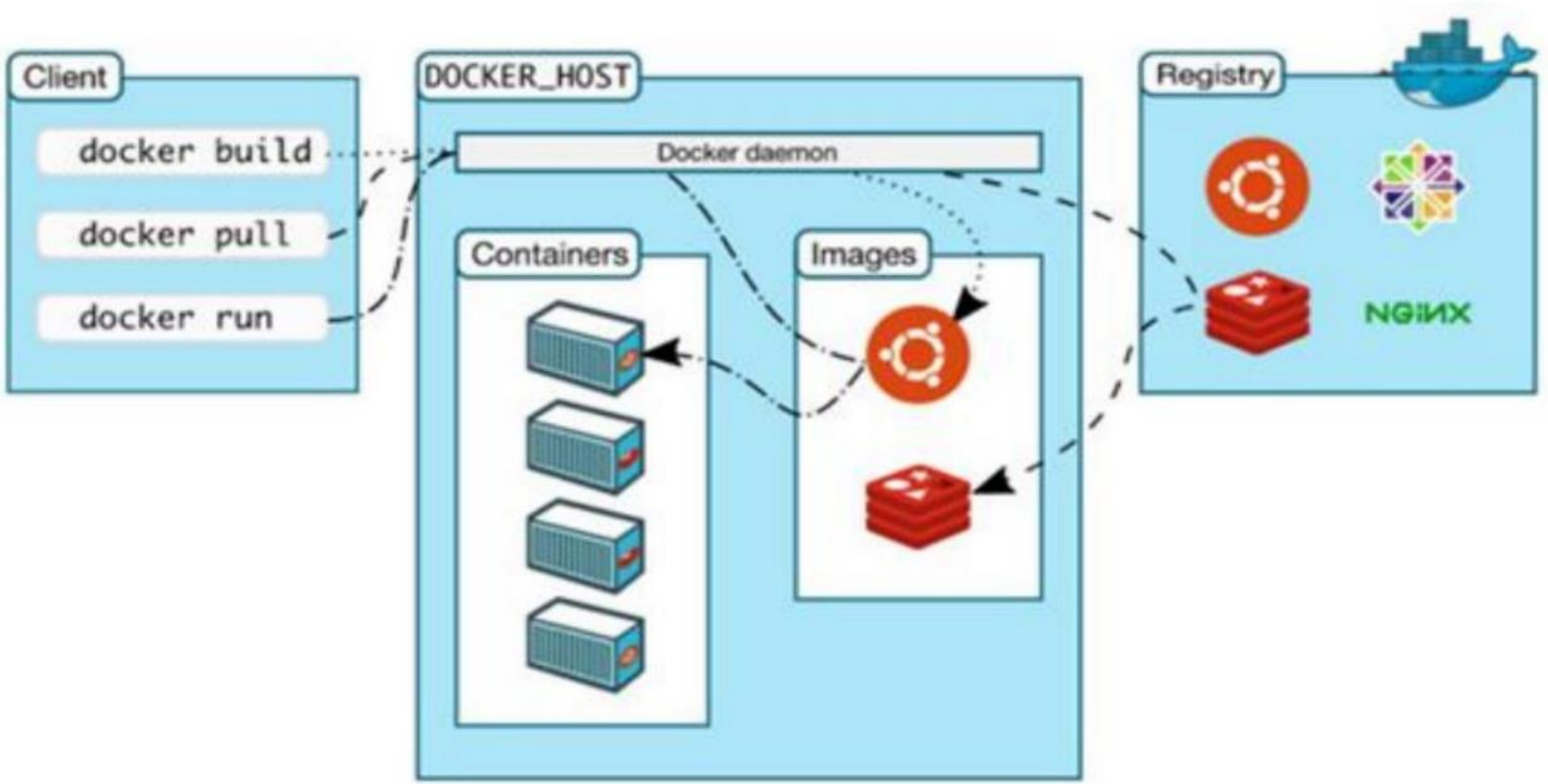


Docker daemon programları çalıştıran kısmı

Docker CLI bizim kullandığımız ara yüz.

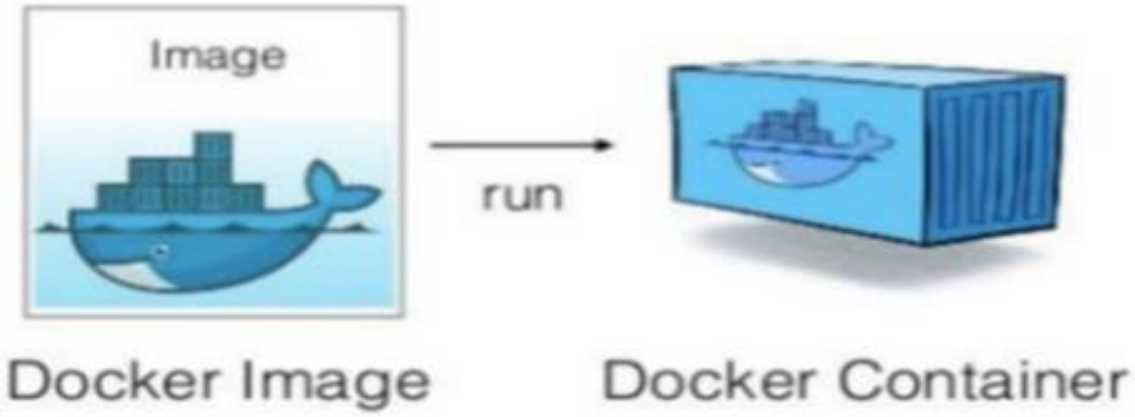
REST API ise CLI ile daemon arasındaki ilişkiyi kurar.

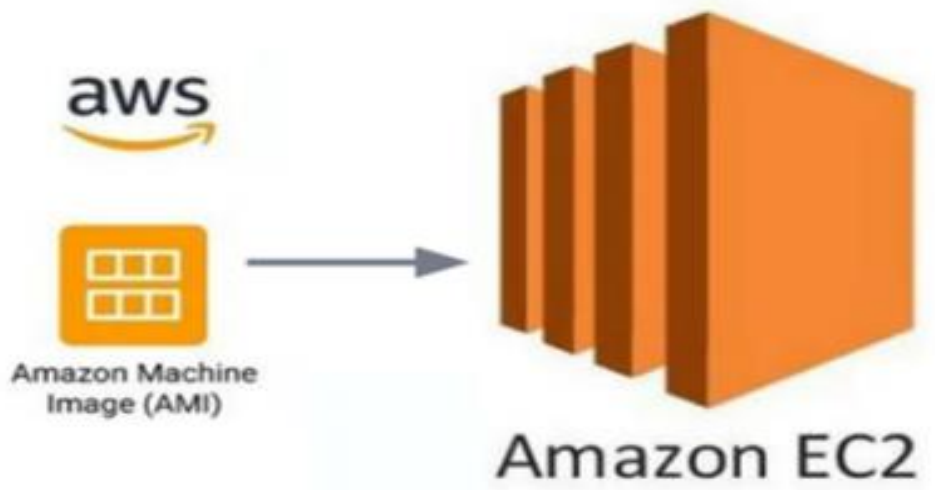
Docker Architecture



Images and Containers

- An image is a read-only template with instructions for creating a Docker container.
- A container is a runnable instance of an image.





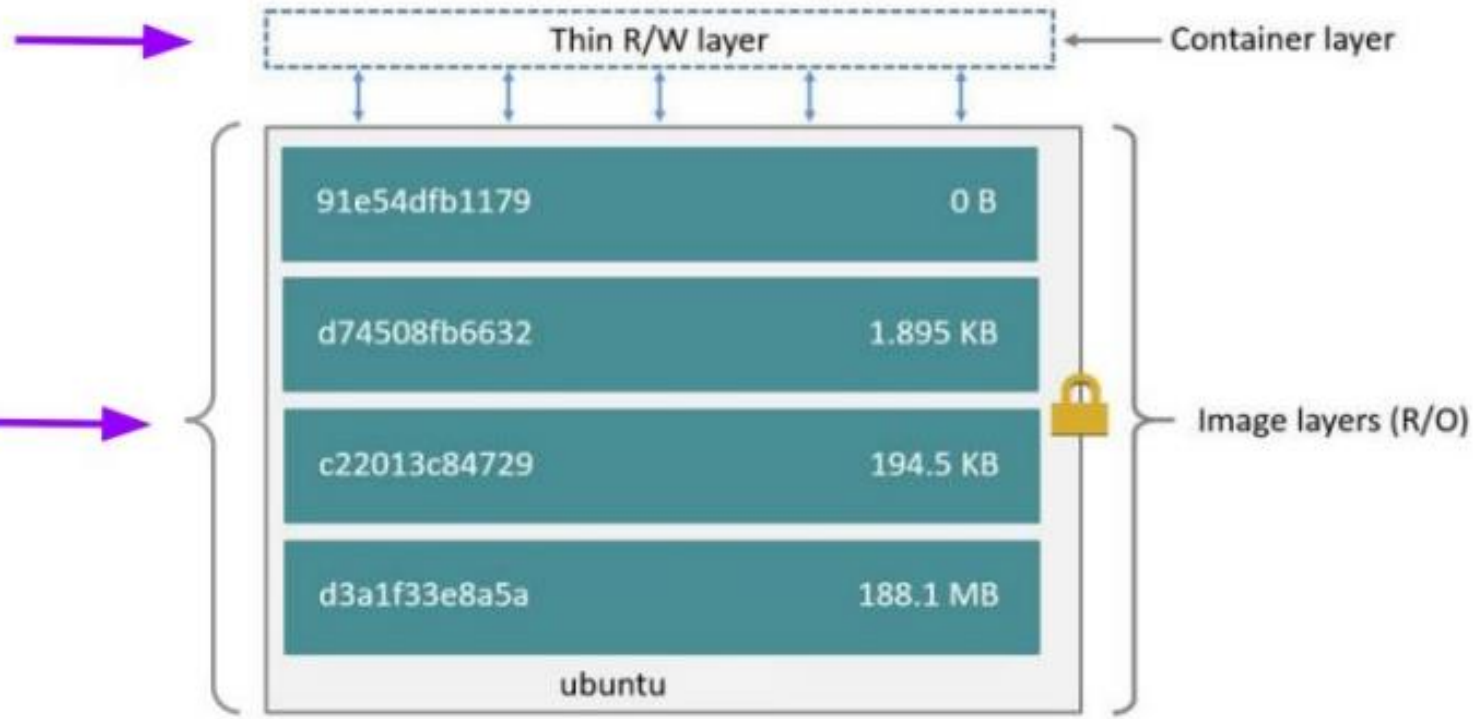
Container Layers

- A Docker image is built up from a series of layers. Each layer represents an instruction in the image's Dockerfile. Each layer except the very last one is read-only.

```
docker run imageName
```

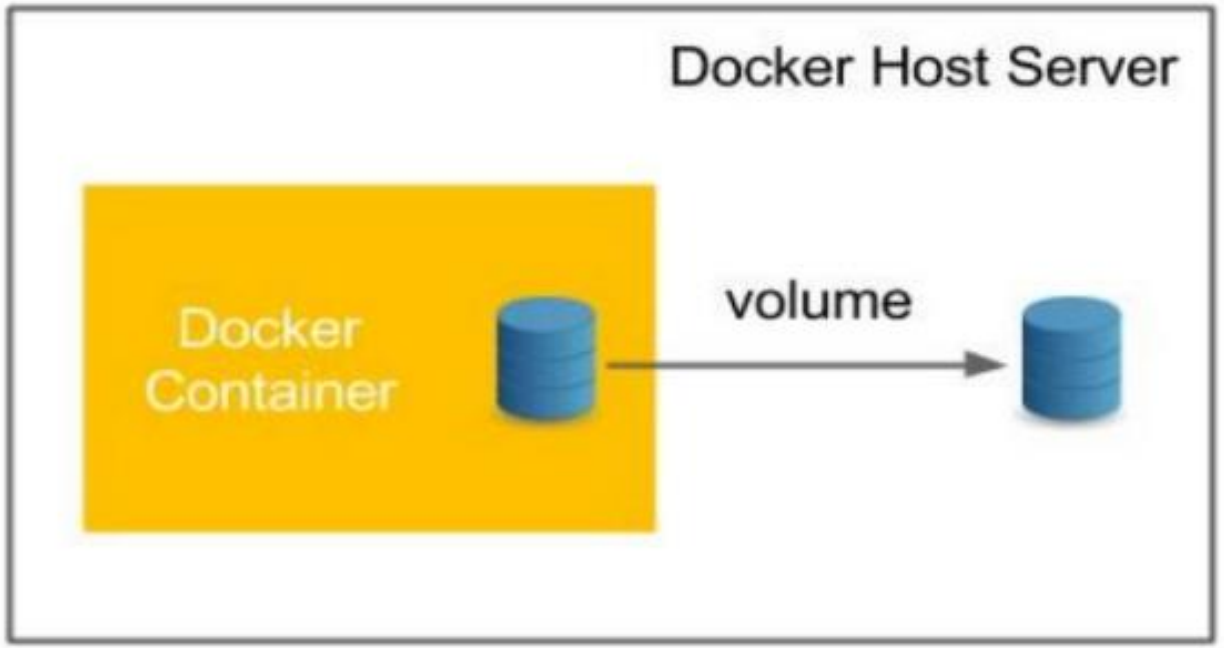
```
FROM ubuntu
COPY . /app
RUN apt-get install python3.6
CMD python3 /app/index.py
```

Dockerfile



Manage data in Docker

- By default, all files created inside a container are stored on a **writable container layer**. This means that the data doesn't persist when that container no longer exists.
- Docker volumes, which are special directories in a container, store files in the host machine so that the files are **persisted** even after the container stops.



Manage data in Docker

Volumes are created and managed by Docker. We can create a volume explicitly using the docker volume create command.

```
$ docker volume create firstvolume
```

Manage data in Docker

- When we create a volume, it is stored within a directory on the Docker host. When we mount the volume into a container, this directory is what is mounted into the container.

```
$ docker volume inspect firstvolume
[
    {
        "CreatedAt": "2020-07-12T13:19:27Z",
        "Driver": "local",
        "Labels": {},
        "Mountpoint": "/var/lib/docker/volumes/firstvolume/_data",
        "Name": "firstvolume",
        "Options": {},
        "Scope": "local"
    }
]
```

DOCKER

Declaration of volumes

- Volumes can be declared on the command-line, with the --volume or -v flag for docker run.
- v or --volume: Consists of three fields, separated by colon characters (:). The fields must be in the correct order.

```
--volume <volume_name>:<path>:<list of options>
```

Docker Volume

CONTAINERLAR DOGAR, BUYUR VE OLUR. BEYINLERINDEKI BILGILERI BIR YERE YEDEKLEMEMIZ GEREKIYOR; BURADA DA DEVREYE VOLUMELER GIRIYOR.

- harici bir disk alanına sahip değilseniz veya harici tutulan bir veritabanına kayıt yapılmıyorsa veriler kaybolur.
- Container yaşam süresinden daha uzun saklanması gereken verileriniz varsa bunları container içinde tutmayız. Bunun için Volume ‘ler kullanılır.

* Volume ‘leri container dışında tutmamız ve her yeni container ile ilintilendirmemiz(mount), paylaşılabilir ve erişilebilir yapmamız gerekir.

Boş-Dolu Volume Mount Edildiğinde Ne Olur?

1. Eğer bir volume mount edildiği klasör mevcut değilse bu klasörü yaratır. Ve o anda volume içerisinde hangi dosyalar varsa bu klasörde de o dosyaları görürsünüz. Boşsa boş görürsünüz.
2. Eğer bir volume imaj içerisinde bulunan mevcut bir klasöre mount edilirse:

A: Klasör boşsa o anda volume içerisinde hangi dosyalar varsa bu klasörde de o dosyaları görürsünüz.

B: Klasörde dosya varsa ve volume boşsa bu sefer o klasördeki dosyalar volume'e kopyalanır.

C: Klasörde dosya var ya da yok fakat volume'de dosyalar varsa yani volume boş değilse, bu sefer siz o klasörün içerisinde volume'de ne dosya varsa onu görürsünüz.

Docker Volume Commands

Command	Description
docker volume create	Create a volume
docker volume inspect	Display detailed information on one or more volumes
docker volume ls	List volumes
docker volume prune	Remove all unused local volumes
docker volume rm	Remove one or more volumes

Hands-on Docker-03 : Handling Docker Volumes

Outline

- Part 1 - Launch a Docker Machine Instance and Connect with SSH
- Part 2 - Data Persistence in Docker Containers
- Part 3 - Managing Docker Volumes
- Part 4 - Using Same Volume with Different Containers
- Part 5 - docker volume behaviours
- Part 6 - Bind Mounts