Developers Thought

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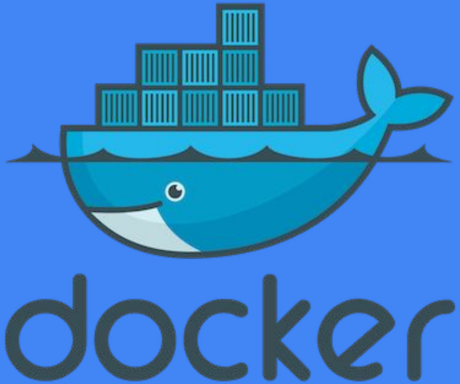
Docker Deep Dive (Part-1)



https://www.youtube.com/c/DevelopersThought

Source

Docker Logo: https://www.theverge.com/circuitbreaker/2018/5/25/17386716/docker-kubernetes-containers-explained

Types of Mounts: https://docs.docker.com/storage/#choose-the-right-type-of-mount

Poll Result

Question	Correct Answer	Total Response
Which instruction in dockerfile is use to add metadata to docker image ?	Label	8
Which Dockerfile instruction is deprecated out of the following ?	MAINTAINER	8
In docker build -t command 't' stands for ?	TAG	8
Docker container is creating a file inside a container on start. Will that file be persisted even after container stop/remove ?	No	10
Which one is recommended to use in Production ?	User Defined Bridge	9

Dockerfile

Docker build [OPTIONS] PATH | URL

- Dockerfile is a text document containing set of instructions to build a docker image
- The docker build command builds an image from a Dockerfile and context.
- The build context is the set of files at a specified location PATH or URL. The PATH is a directory on your local filesystem. The URL is a Git repository location. Context process recursively
- The build is run by docker daemon not by docker cli. docker cli send all the files/context from the path/URL to daemon. Hence It’s always a best practice to put relevant file in the context

Dockerfile (Contd.)

Commonly used instructions

FROM

RUN

ENTRYPOINT

ADD

ENV

EXPOSE

LABEL

CMD

WORKDIR

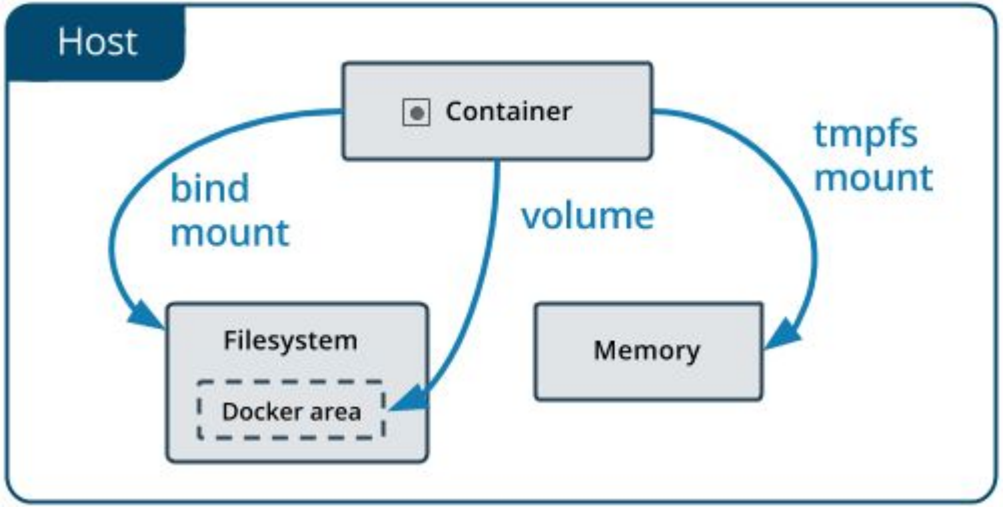
COPY

Docker Volumes

Why do we required volume ?

- Data no longer present once container is stop/remove. Hence it become difficult for another process to access that data.
- Writing into a container’s writable layer requires a storage driver to manage the filesystem.which slows down the performance.

Docker Volumes (Contd.)



Docker Volumes (Contd.)

Volume:

- Volumes are stored as part of host file system but managed by Docker. For e.g. in Linux it is stored at /var/lib/docker/volumes.
- Volumes can be created explicitly using **docker volume create** or docker will create at the time of container creation if specified in the docker run command.
- When the volume is mounted in a container, It's the directory which is created by docker volume is actually mounted
- A volume can be mounted to multiple containers. Volume is not removed on removal of containers. It has to be explicitly removed using **docker volume prune** command.

Docker Volumes (Contd.)

Where we can use Volumes ?

- Sharing data among multiple containers.
- When you want to backup, restore or migrate data among multiple docker hosts.

Docker Volumes (Contd.)

Bind Mounts:

- They can store anywhere in the host file system.
- When Bind Mount is used a file or a directory on the host machine is mounted into a container.
- It involves tight coupling between the host file system & the container.
- Docker CLI cannot be used to manage the bind mounts.

Use Cases:

- Sharing source code or build artifacts between a developer environment on a host machine & a container
- When the host machine guarantees the directory structure required by the container.

Docker Networking

Docker’s networking subsystem is pluggable, using drivers which are as follows:

- Bridge
- Host
- Overlay
- Mcvlan
- None

Docker Networking (Contd.)

Bridge:

- Bridge network uses software bridge which allows containers to communicate with each other that are connected to same bridge network while providing the isolation from containers those are not connected to different bridge network.
- A default bridge network with name **bridge** is created by default when docker starts.
- Bridge network is use for communication between container which are on the same docker host.
- User defined bridge network is superior than default bridge network.

Docker Networking (Contd.)

How user defined bridge is superior than default bridge ?

- Container connected to same user defined bridge network has ports exposed for each to communicate and no port for outside world.
- User-defined bridges provide automatic DNS resolution between containers.
- Containers can be attached and detached from user-defined networks on the fly.

Host Network:

- If you use the host network driver for a container, that container’s network stack is not isolated from the Docker host.

Docker Images

- Docker images is a tar file containing container’s file system + metadata (OS Binaries)
- Images are shared and distribute with other so that they can create containers at their respective environments
- If docker image is not present in the local registry then it is downloaded for the first time and subsequently it is referred from cache.
- Dockerfile is used to create Docker Images. We can also create a image out of running containers.

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Be in touch...

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Upcoming Meetups...

Helm for beginners Saturday, February 9, 2019

http://meetu.ps/e/G9CSW/m5TBq/f

Docker Deep Dive (Part-2)

Date yet to decide...