Knowledge article

Basics of docker-container

Created 1 year, 4 months ago Active 7 months ago Last edited 1 year, 4 months ago Viewed 78 times

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docker

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10

Basics of docker-container

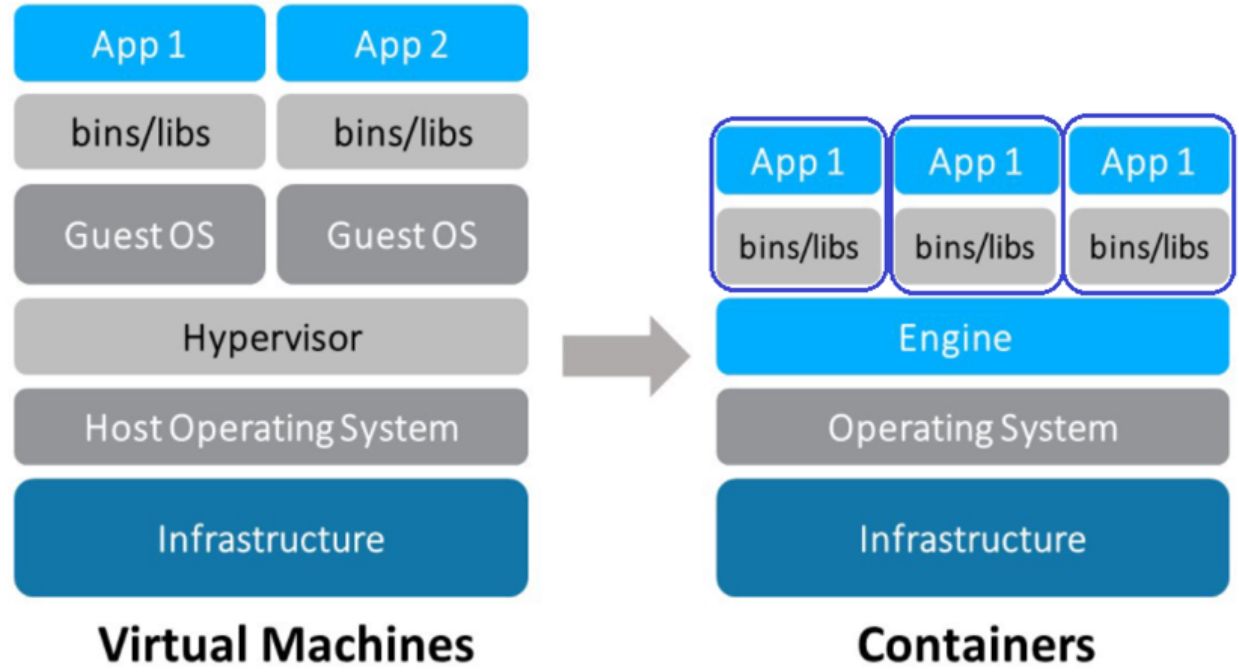
What will this article cover

- VM and Docker-Container
- What is Docker, Container
- Why Docker-Container
- Sample project
- Getting a ubuntu docker image and running it (Container)
- Building your own image
- Useful docker commands
- References
- Possibilities

VM vs Docker-Container

- VM have their own OS
  - Docker utilizes OS of underlying host
- VM reserves underlying memory
  - Docker are less taxing on hardware

- VM are slow to reboot
  - Docker containers reboots in just few seconds
- VM Images aren't very portable
  - Docker-Containers can be easily shared



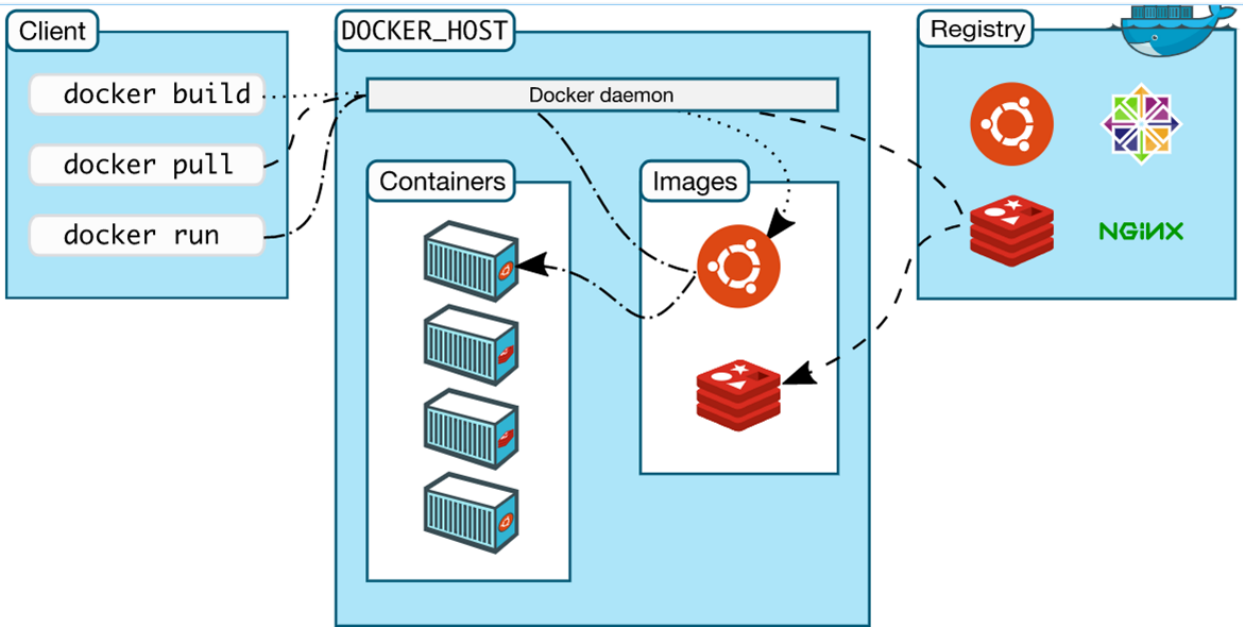
What is Docker & What is Container

Docker

- Docker is an open platform for developing, shipping, and running applications.
- Docker enables you to separate your applications from your infrastructure so you can deliver software quickly

Container

- A container is a runnable instance of an image. You can create, start, stop, move, or delete a container using the Docker API or CLI.
- By default, a container is relatively well isolated from other containers and its host machine.
- When a container is removed, any changes to its state that are not stored in persistent storage disappear.



Some useful docker commands

- To find docker images on machine
  docker image ls
- To find running docker-containers
  docker ps
- To run a docker image
  docker run
- To run docker image in interactive mode
  docker run –it /bin/bash
- To copy content from host machine to docker-container
  docker cp :/file/path/within/container
  - Example if cmd prompt is where the file to be copied exist then do
    docker cp . :/file/path/within/container
- To copy content from docker-container to host machine
  docker cp :/file/path/within/container
- To build a docker image
  docker build –t .
  . Is the place where Dockerfile exist

Few references

https://www.simplilearn.com/tutorials/docker-tutorial/docker-vs-virtual-machine
https://www.cloudsavvyit.com/14005/whats-the-difference-between-copy-and-add-in-

dockerfiles/

Few possibilities with docker-container usage, you could have similar OR many more!!!

1. Container running platform-Python Test Server, finishing test, pushing results to git repo
2. A compact DTC compiler for given SDK, container takes dts file as input and outputs dtb file
3. Container that downloads final image and create a upgradable USB and copies to host machine
4. Instead of VMDK, platform team releases just the Dockerfile with necessary updates
5. Updated toolchain from latest build etc
6. Release of container for RTOS builds, we ensure all paths are set as needed
7. A container running with all platform image and another container running with server application
8. This could be a good way to avoid needed hardware dependency
9. Container with pre-configured IOT (AWS & Azure) stacks with inbuild applications having ability to connect to cloud and perform telemetry
10. Multiple dockers (pods) integrated to perform load tests

edited Oct 9, 2021 at 12:14

created Oct 9, 2021 at 12:00

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