Docker

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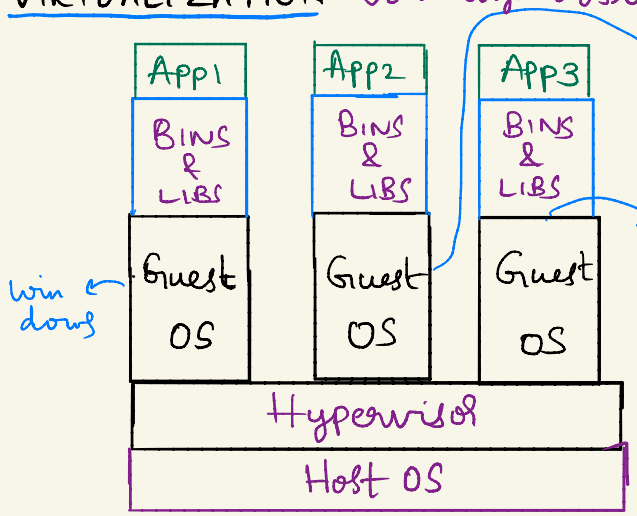
VIRTUALIZATION: It brings abstraction to the hardware.



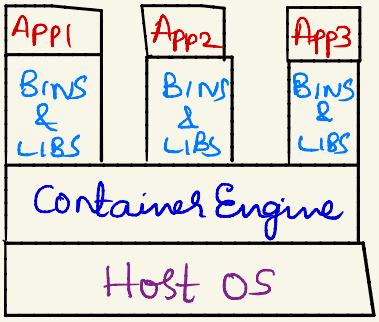
Advantages:

- Multiple OS on single machine
- Easy maintenance & recovery
- Lower Total cost of ownership

Disadvantages:

- Multiple VMs lead to unstable perf
- Hypervisors are not as efficient as Host OS

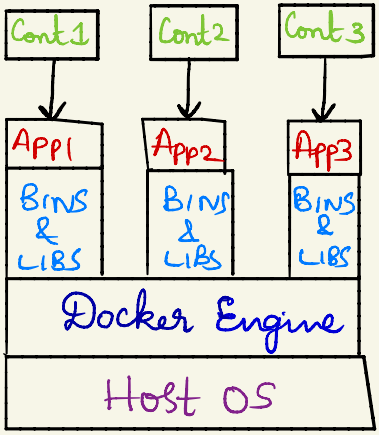
CONTAINERIZATION: It is virtualization at OS level. It brings abstraction to the software.



Advantages over virtualization

- Containers on same OS kernel are lighter & smaller
- Better resource utilization compared to VMs.
- Short boot up time

Docker: • Containerization platform which packages application and all its dependencies together in the form of Containers so as to ensure appn works seamlessly in any environment be it dev, test, prod.



• Ensures that there is process level isolation. (Each appn is independent of other appns).

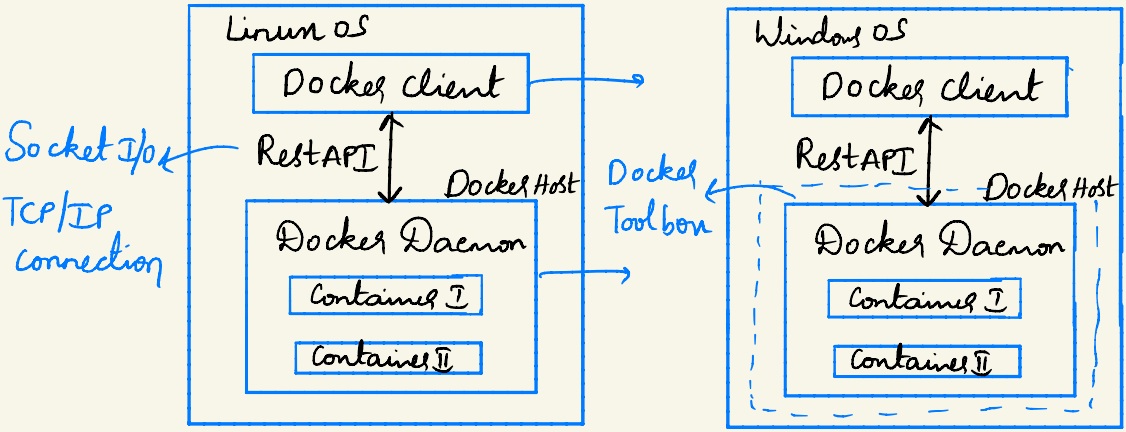
Advantages of Docker:

- Size
- Startup
- Integration (Easily scalable)

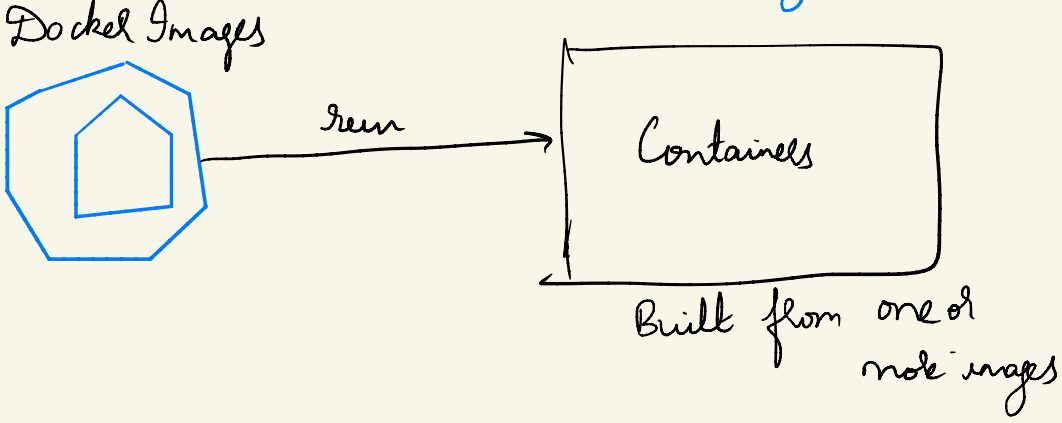
• Containerization: It consists of an entire runtime environment, an application, all its dependencies, libraries & other binaries & configuration files needed to run it, bundled into one package.

Docker works on client-server architecture.

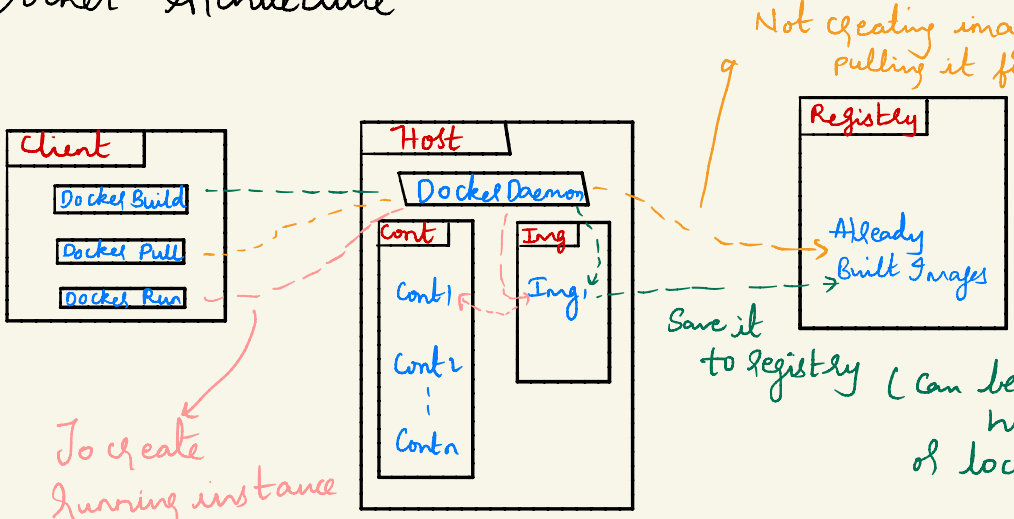
Docker Engine:



- **Docker Images** are executable files.
- Read only template used to create containers
- Built by Docker users.
- Stored in Docker Hub or Local registry.



Docker Architecture

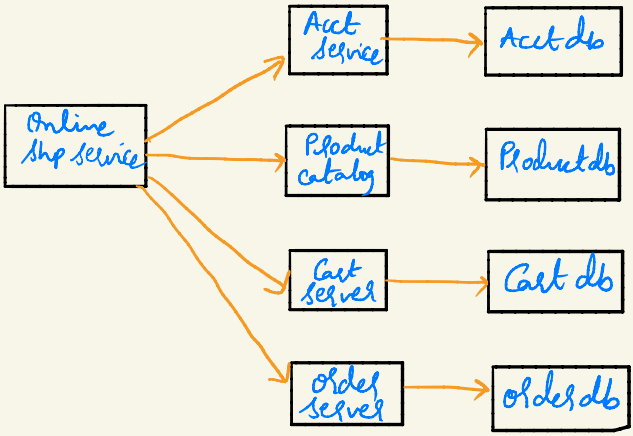


Not creating image, rather pulling it from registry

Save it to registry (can be docker hub or local repo)

To create running instance of docker image, we issue run command which creates container

Micro Services: It's easy to build & maintain applications when they are broken down to smaller, composable pieces which work together.



Basically, developing an application requires starting of several micro services in one machine. So if 5 svcs we require 5 VMs on that machine.

(if more services micro service arch won't work)