

DOCKER WORKSHOP

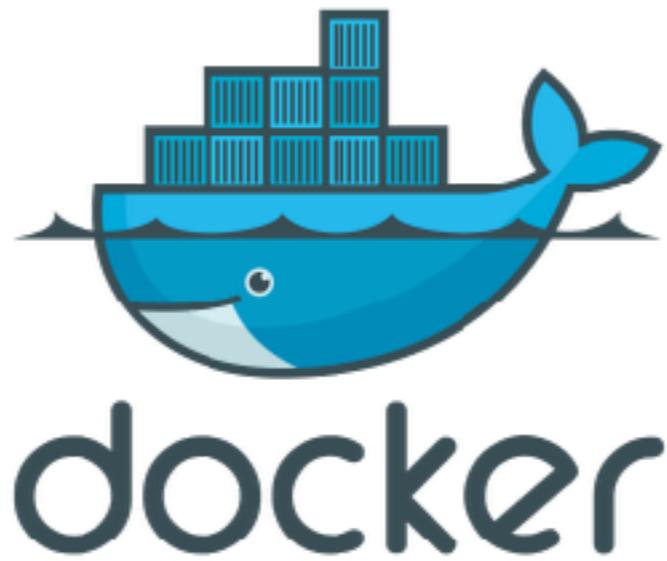


Chaturaphut Triphet

Ruk-Com Hosting & Service

<http://www.ruk-com.in.th>

WHAT IS DOCKER ?

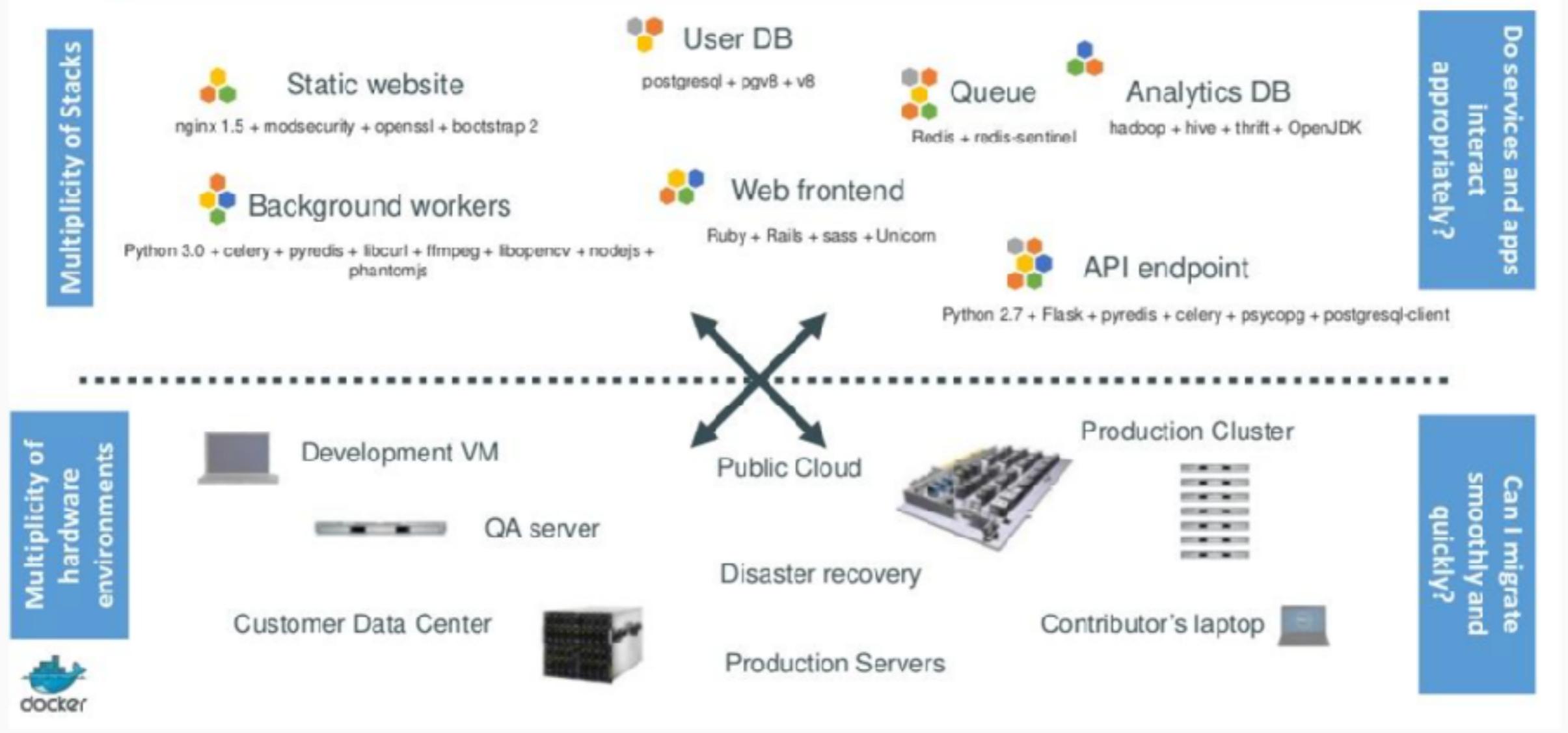


Docker is an open platform for developer and sysadmins to build , ship , and run distributed application



CONTAINER

The Challenge



THE MATRIX OF HELL

	Static website	?	?	?	?	?	?	?
	Web frontend	?	?	?	?	?	?	?
	Background workers	?	?	?	?	?	?	?
	User DB	?	?	?	?	?	?	?
	Analytics DB	?	?	?	?	?	?	?
	Queue	?	?	?	?	?	?	?
		Development VM	QA Server	Single Prod Server	Onsite Cluster	Public Cloud	Contributor's laptop	Customer Servers
								

DOCKER

Cargo Transport Pre-1960

Multiplicity of Goods



Do I worry about how goods interact (e.g. coffee beans next to spices)

Multiplicity of methods for transporting/storing



Can I transport quickly and smoothly (e.g. from boat to train to truck)



Solution: Intermodal Shipping Container

Multiplicity of Goods



A standard container that is loaded with virtually any goods, and stays sealed until it reaches final delivery.

Multiplicity of
transporting/storing

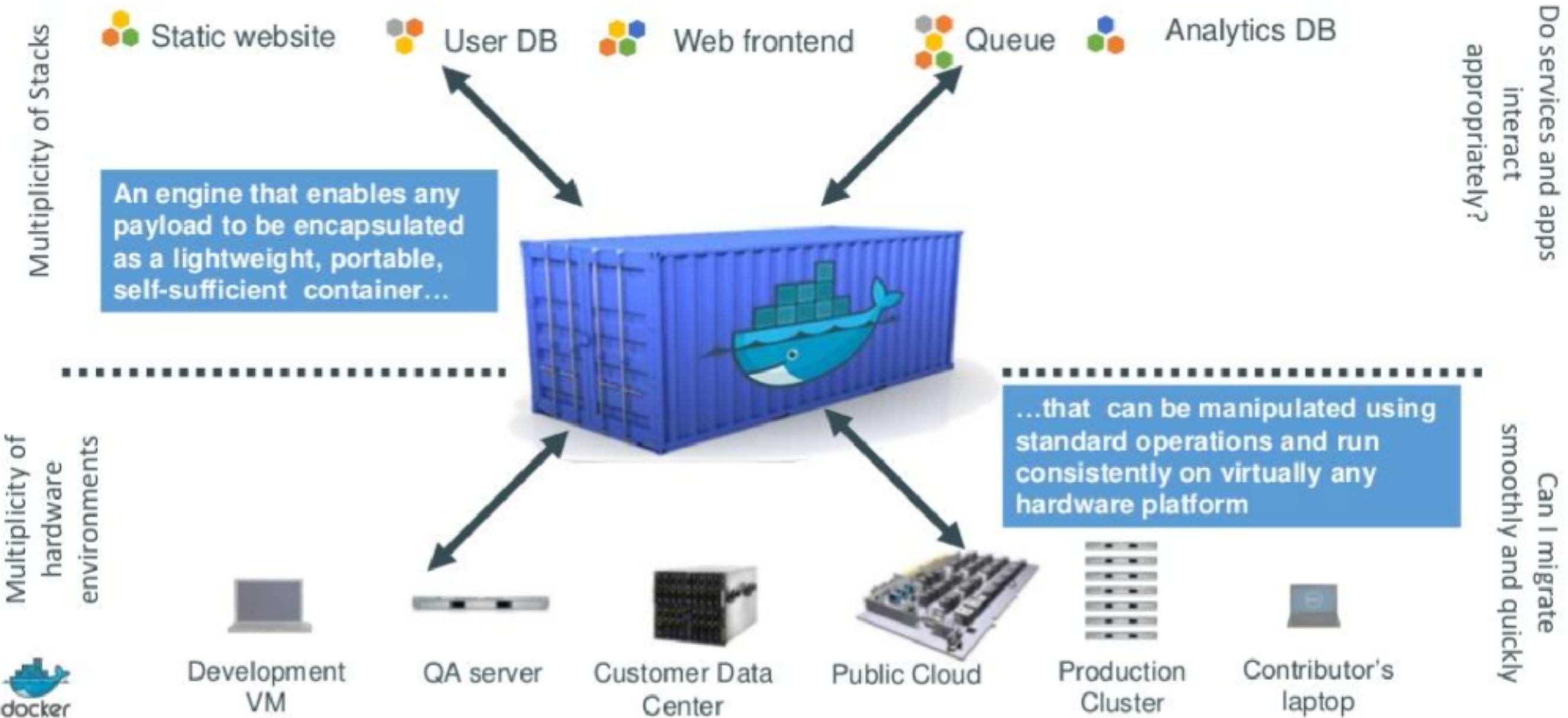


...in between, can be loaded and unloaded, stacked, transported efficiently over long distances, and transferred from one mode of transport to another

Do I worry about how goods interact (e.g. coffee beans next to spices)

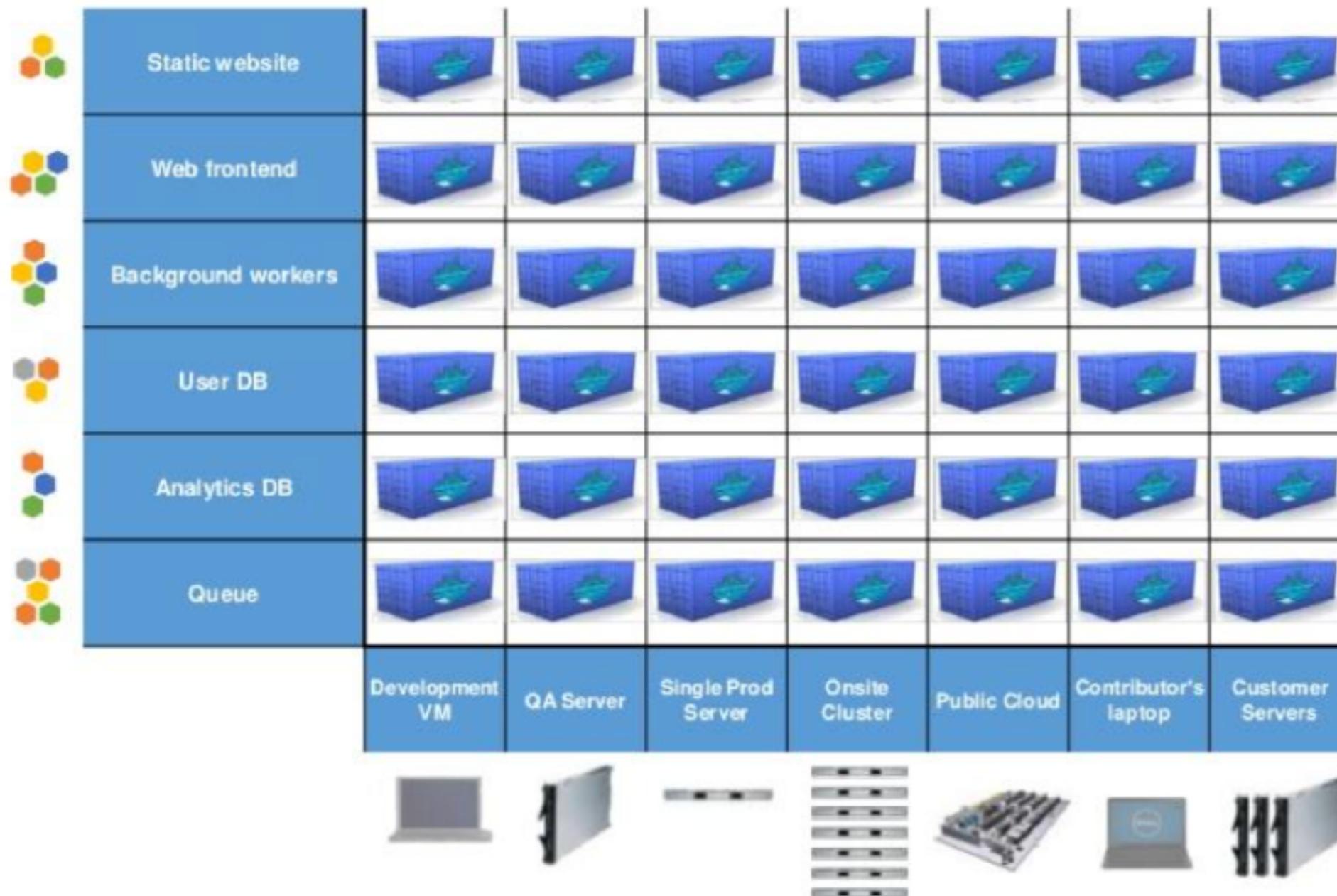
Can I transport quickly and smoothly (e.g. from boat to train to truck)

Docker is a shipping container system for code



DOCKER

Docker eliminates the matrix from Hell



The promise of Docker :

*Build once ,
run anywhere*

*Configure once ,
run anywhere*

Why Developers Care

- Build once...run anywhere
 - A clean, safe, hygienic and portable runtime environment for your app.
 - No worries about missing dependencies, packages and other pain points during subsequent deployments.
 - Run each app in its own isolated container, so you can run various versions of libraries and other dependencies for each app without worrying
 - Automate testing, integration, packaging...anything you can script
 - Reduce/eliminate concerns about compatibility on different platforms, either your own or your customers.
 - Cheap, zero-penalty containers to deploy services? A VM without the overhead of a VM? Instant replay and reset of image snapshots? That's the power of Docker



Why Devops Cares?

- Configure once...run anything
 - Make the entire lifecycle more efficient, consistent, and repeatable
 - Increase the quality of code produced by developers.
 - Eliminate inconsistencies between development, test, production, and customer environments
 - Support segregation of duties
 - Significantly improves the speed and reliability of continuous deployment and continuous integration systems
 - Because the containers are so lightweight, address significant performance, costs, deployment, and portability issues normally associated with VMs



WHY DOCKER ?

“Make Making Container Damn Easy”

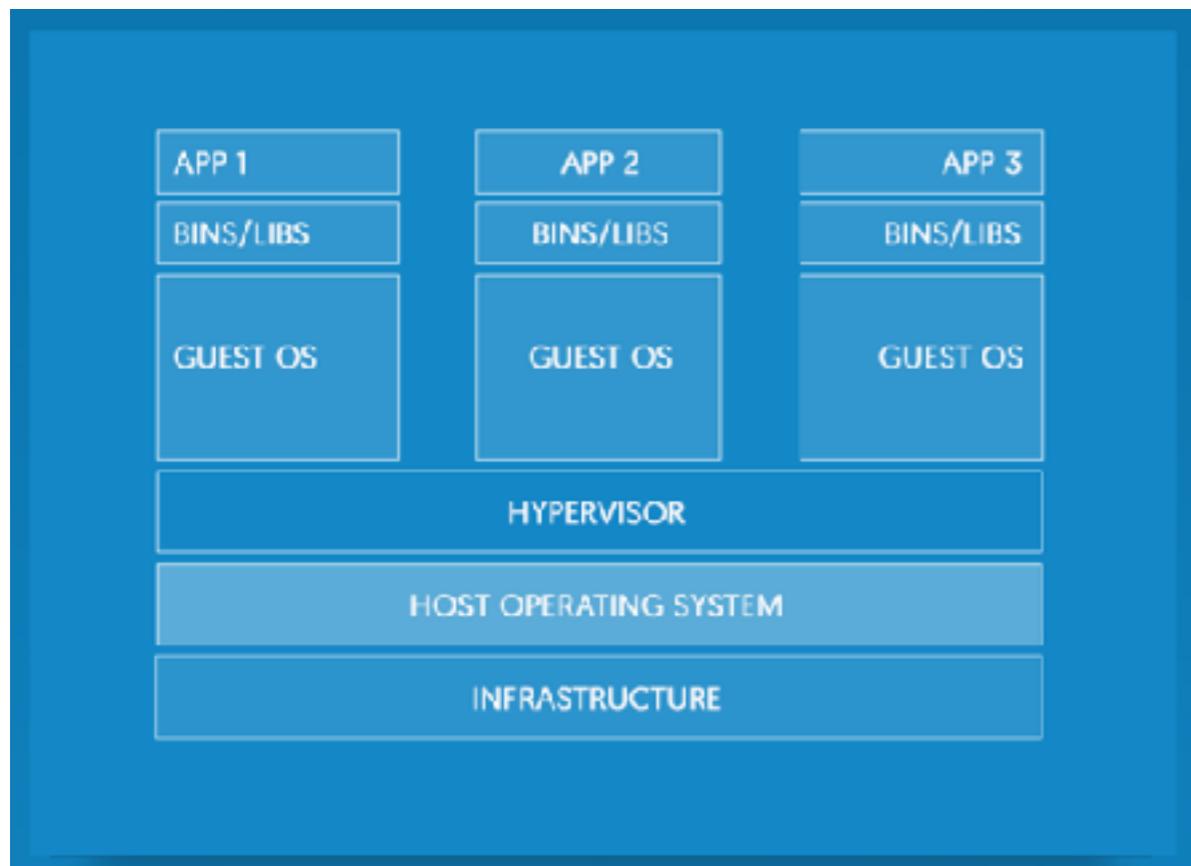
“De facto standard of Container technology”

Open source
container based
technology

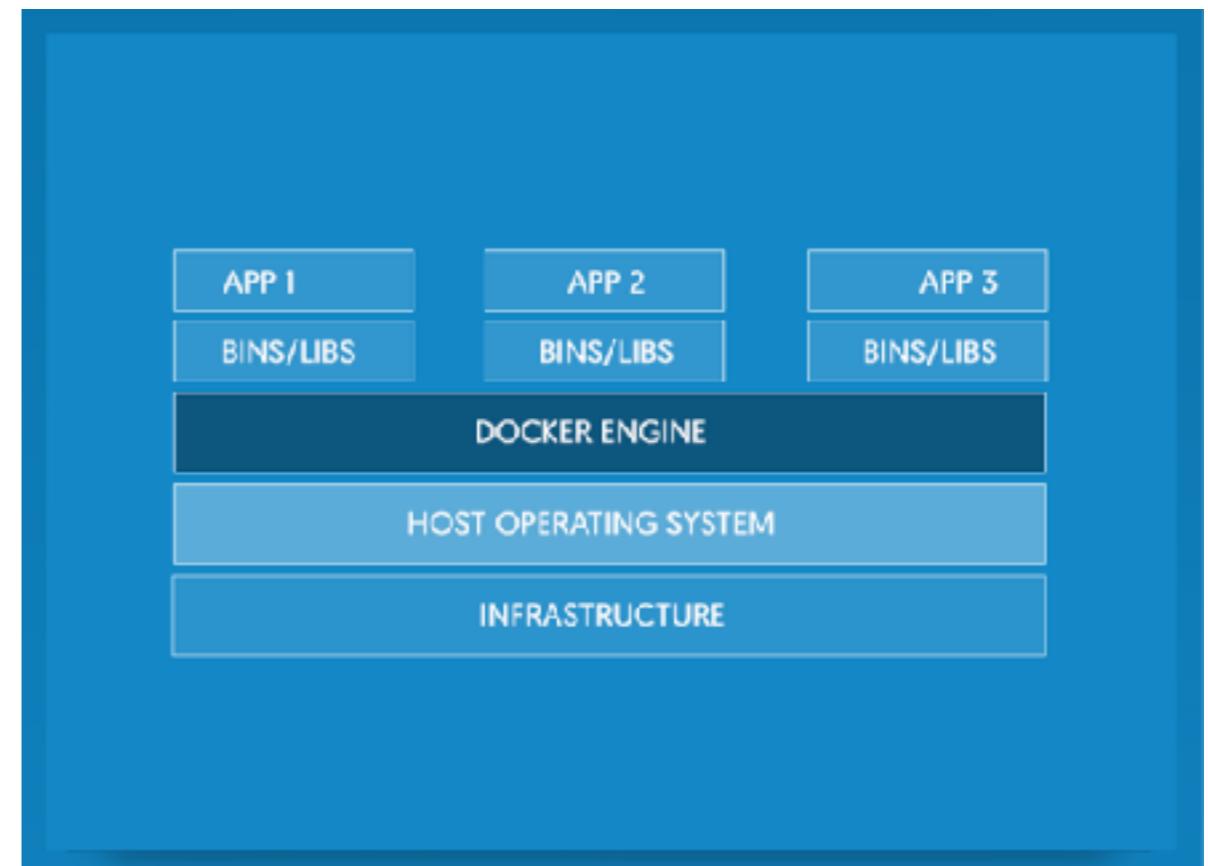
Pack all things ex:
Your App,
Lib dependencies,
Config,
OS, Network
to a single runnable file.

Isolate them
from others.

COMPARING CONTAINERS AND VIRTUAL MACHINES

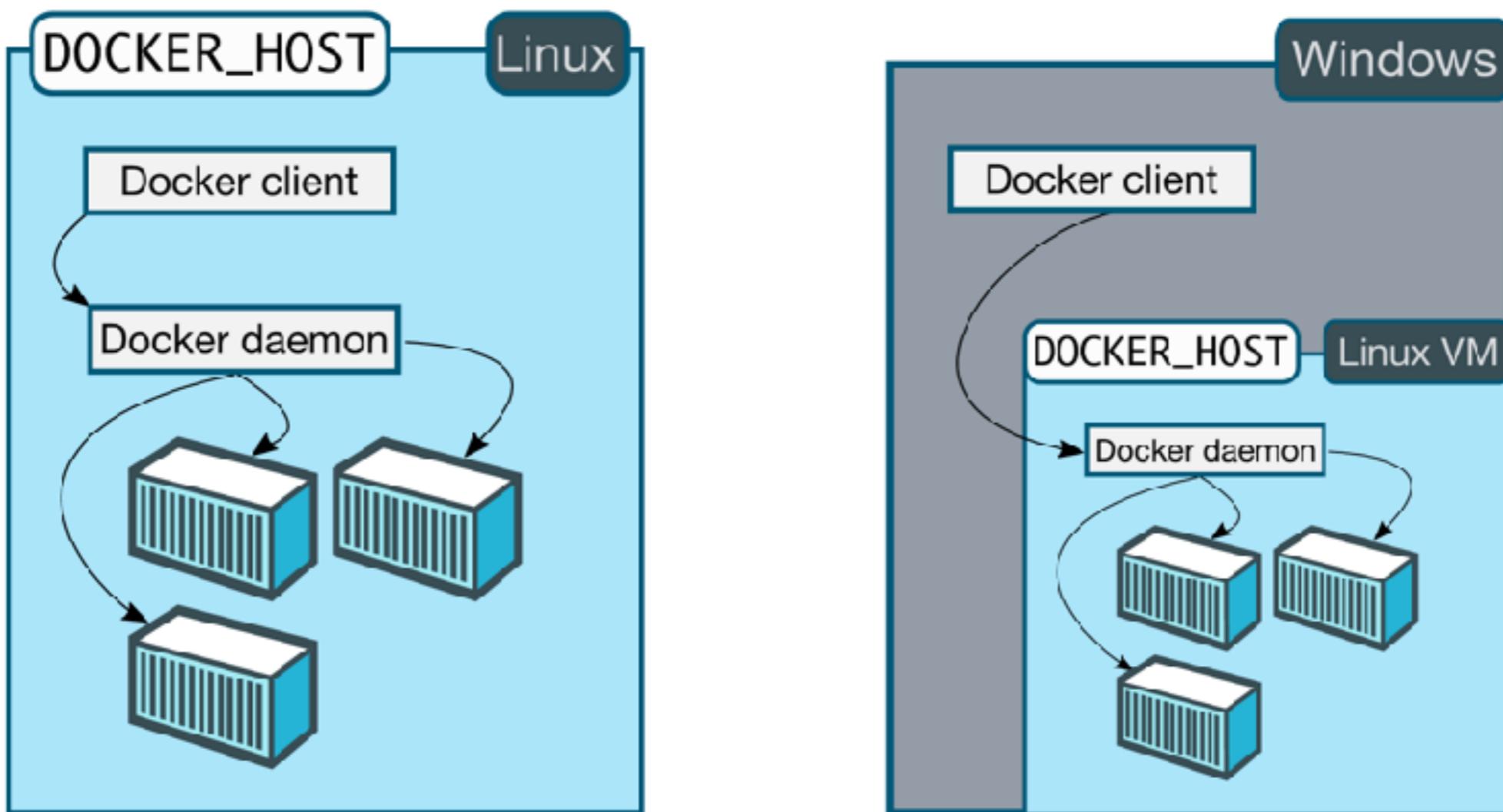


Virtual Machine



Container

SUPPORT WINDOW ?



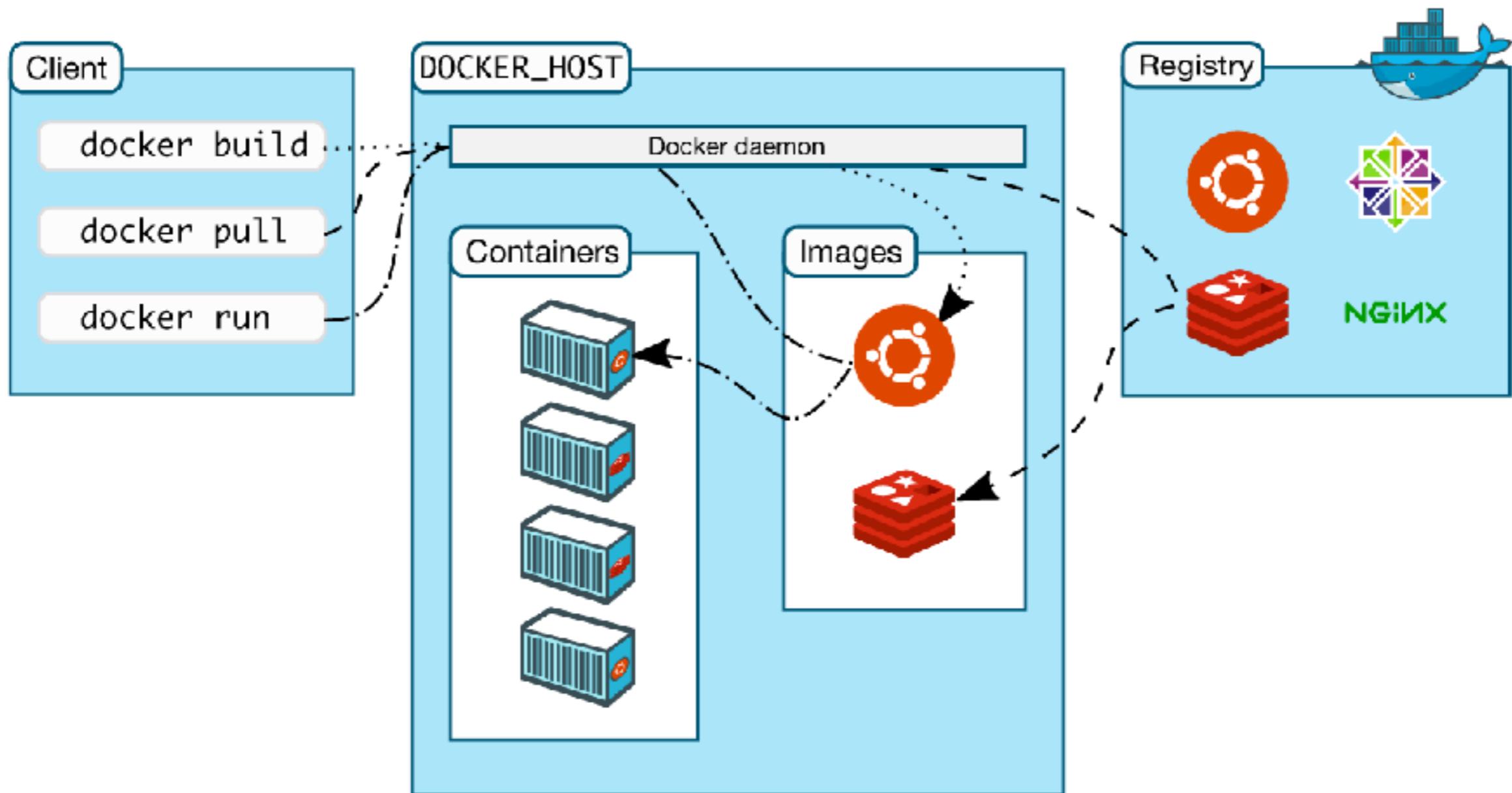
LET'S START WITH SOME DOCKER VOCABULARY

- *Docker*
- *Docker Engine*
- *Docker Client*
- *Docker Daemon*
- *Docker Cluster*
- *Docker Images*
- *Docker Container*
- *Docker Registry (Hub)*

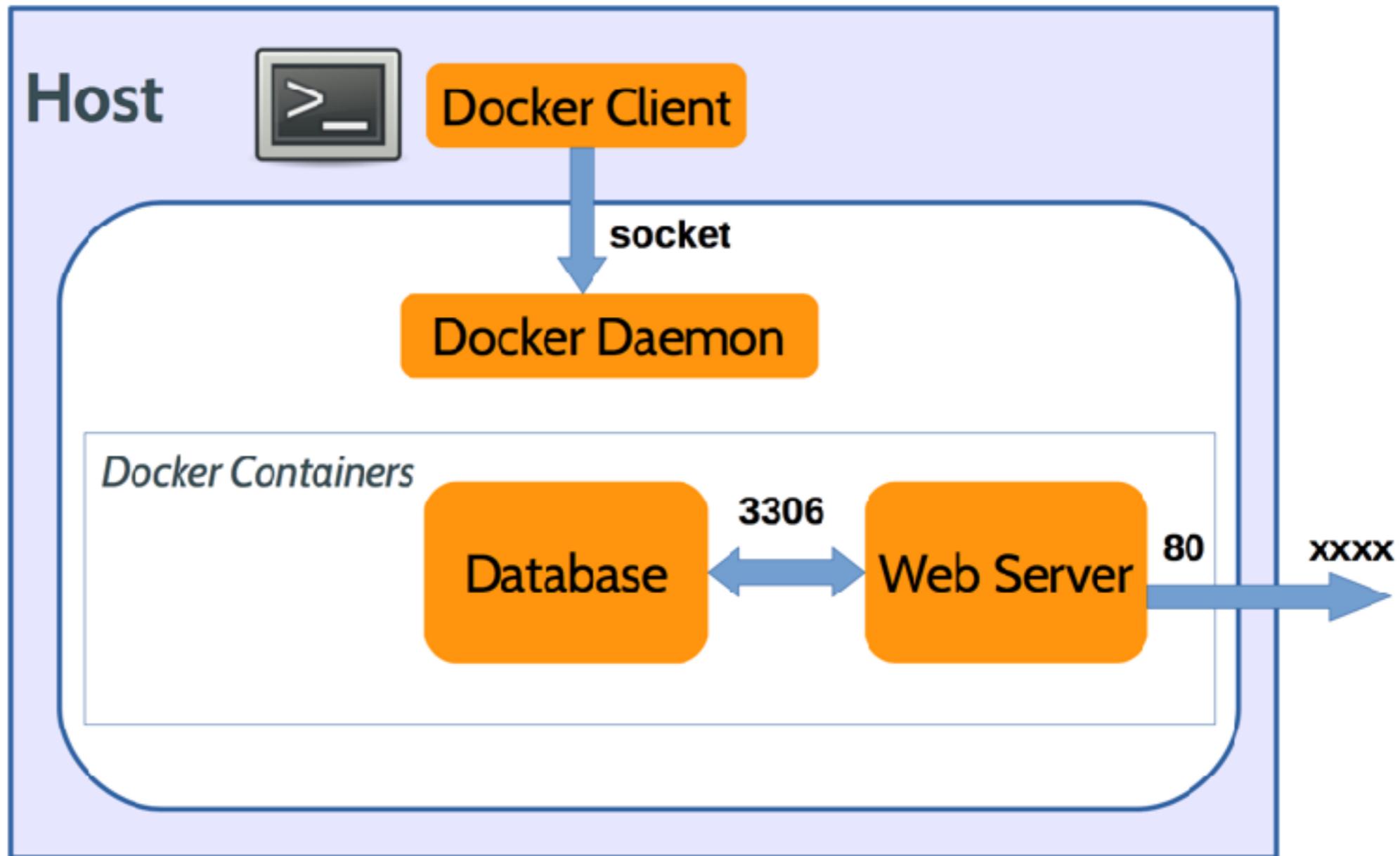


<https://docs.docker.com/engine/reference/glossary/>

DOCKER'S ARCHITECTURE?



DOCKER'S ARCHITECTURE?



TOOL THAT MAKES CONTAINER COMMODITY

Build - Create / Destroy container easy and distributed Application

Ship : multi file system support use benefit of UnionFS

- AUFS
- DeviceMapper Thin Provision
- BTRFS
- Overlay File System
- ZFS

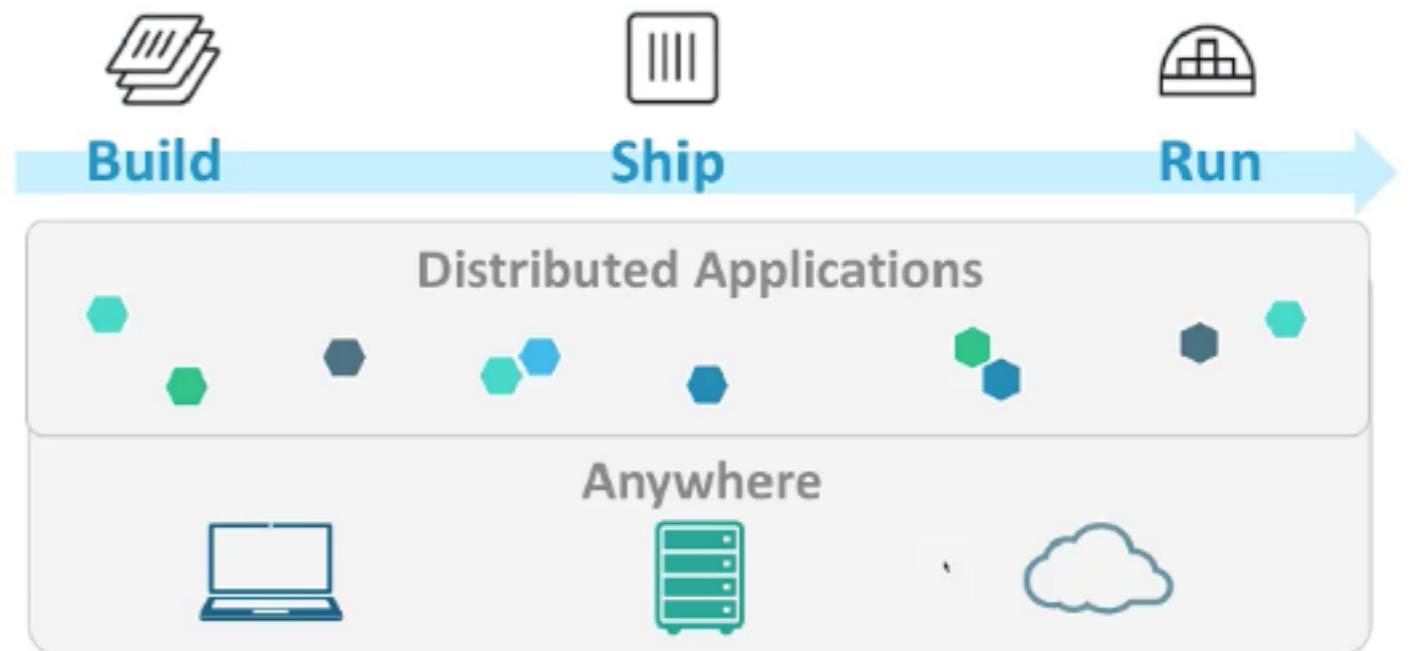
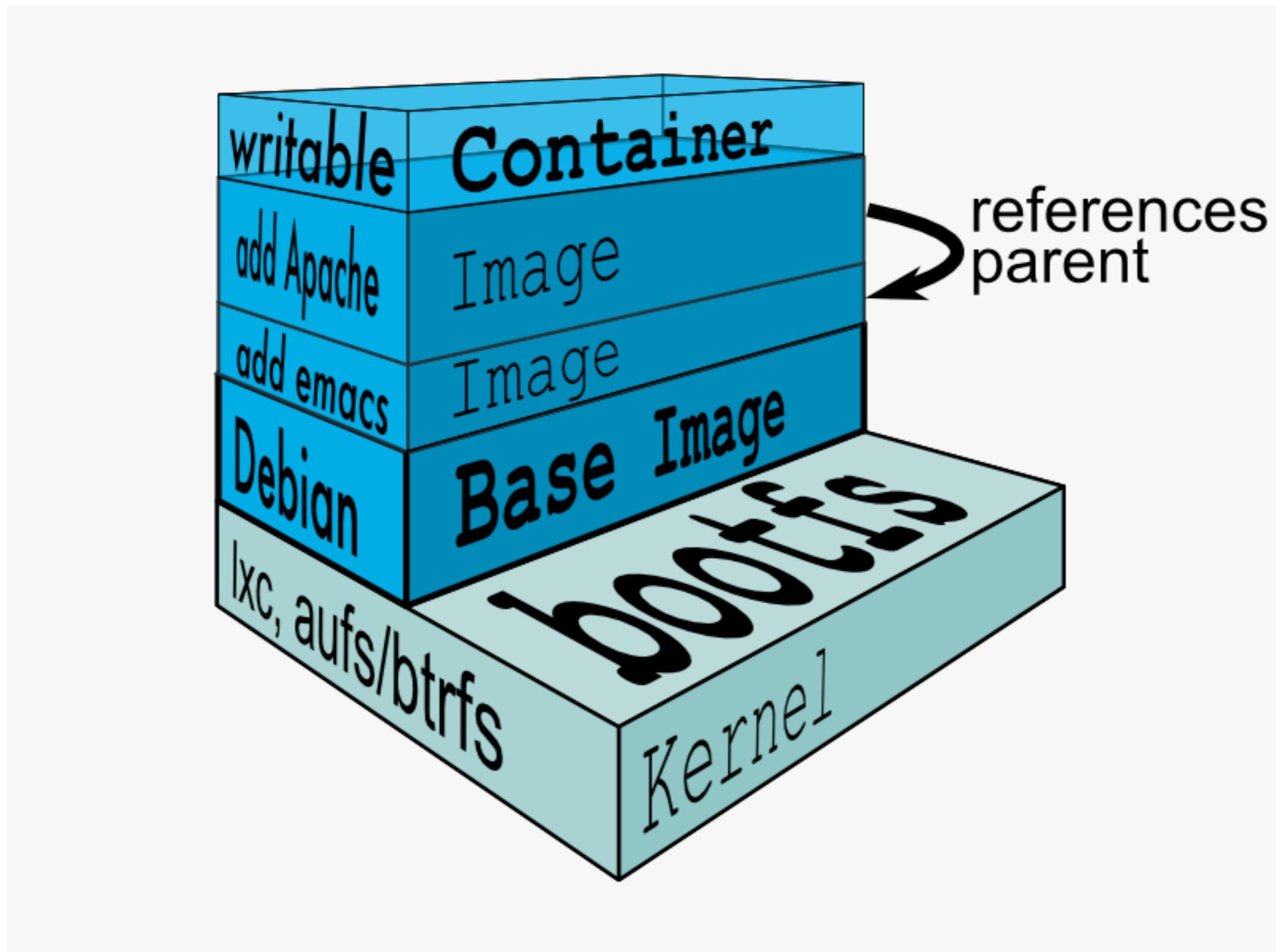
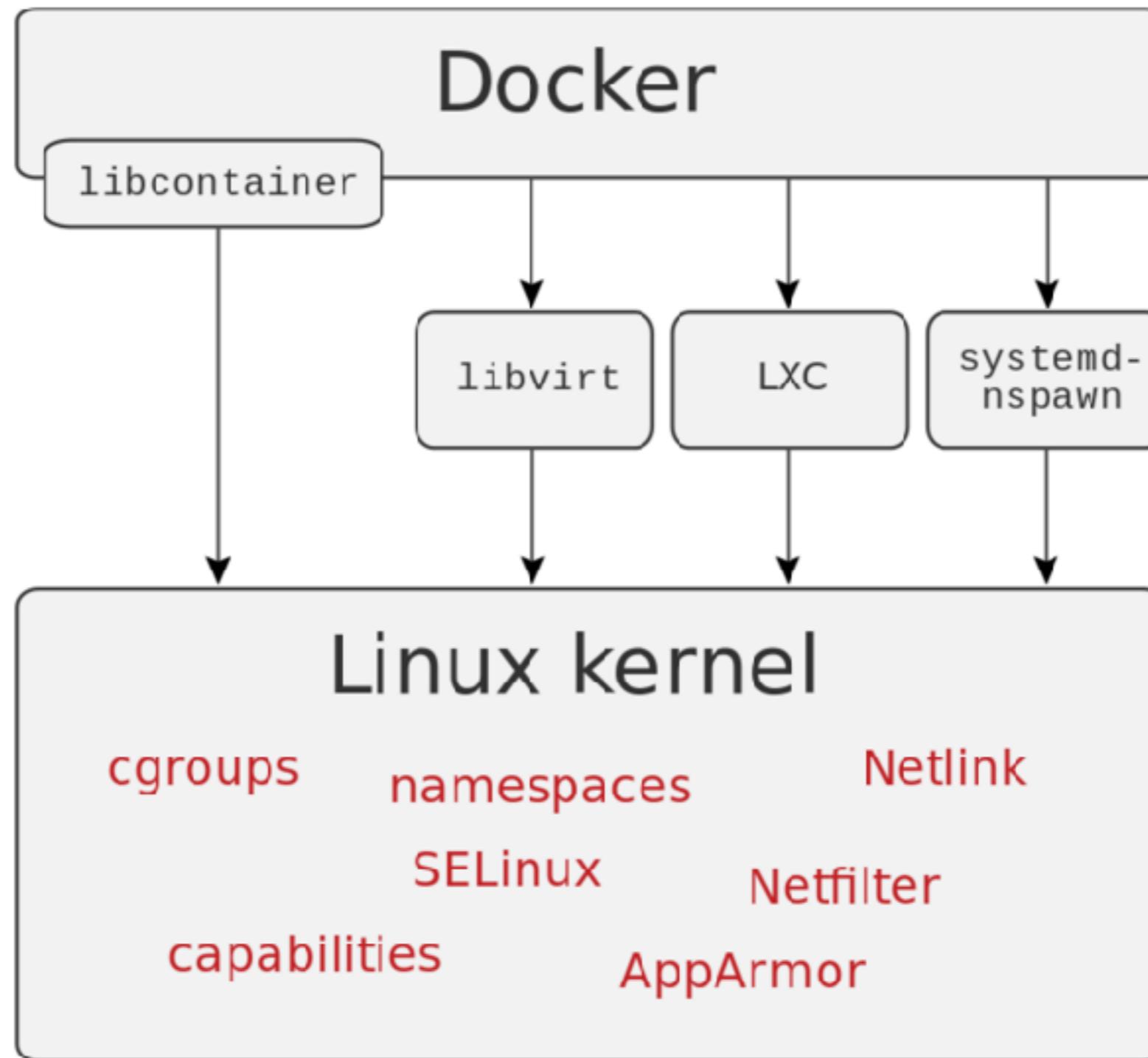


IMAGE LAYER





DOCKER COMPONENT ?



Docker Machine

Automated Docker provisioning



Docker Swarm

Host clustering and container scheduling



Docker Compose

Define multi-container applications



Docker Registry

Open source Docker image distribution (not included)



Docker Engine

Creates and runs Docker containers



Kitematic

Desktop GUI for Docker



DOCKER HUB

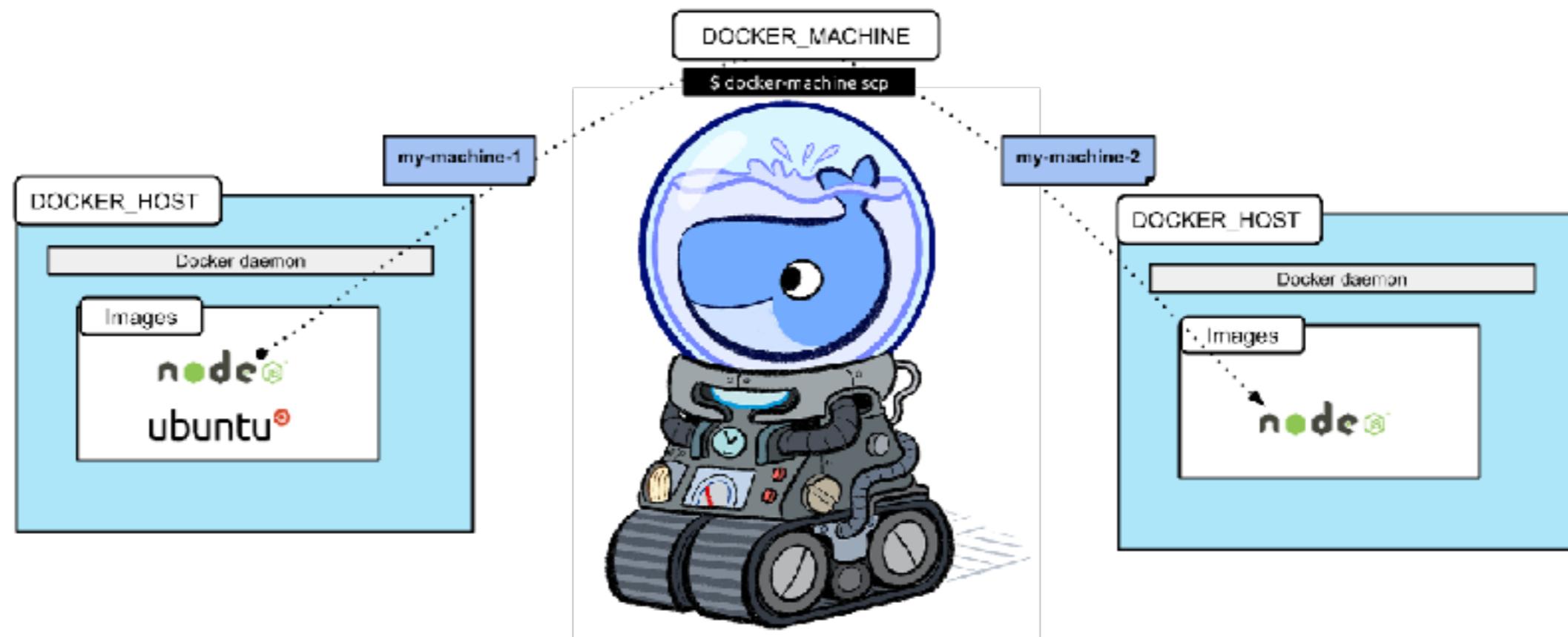
.....

Explore Official Repositories

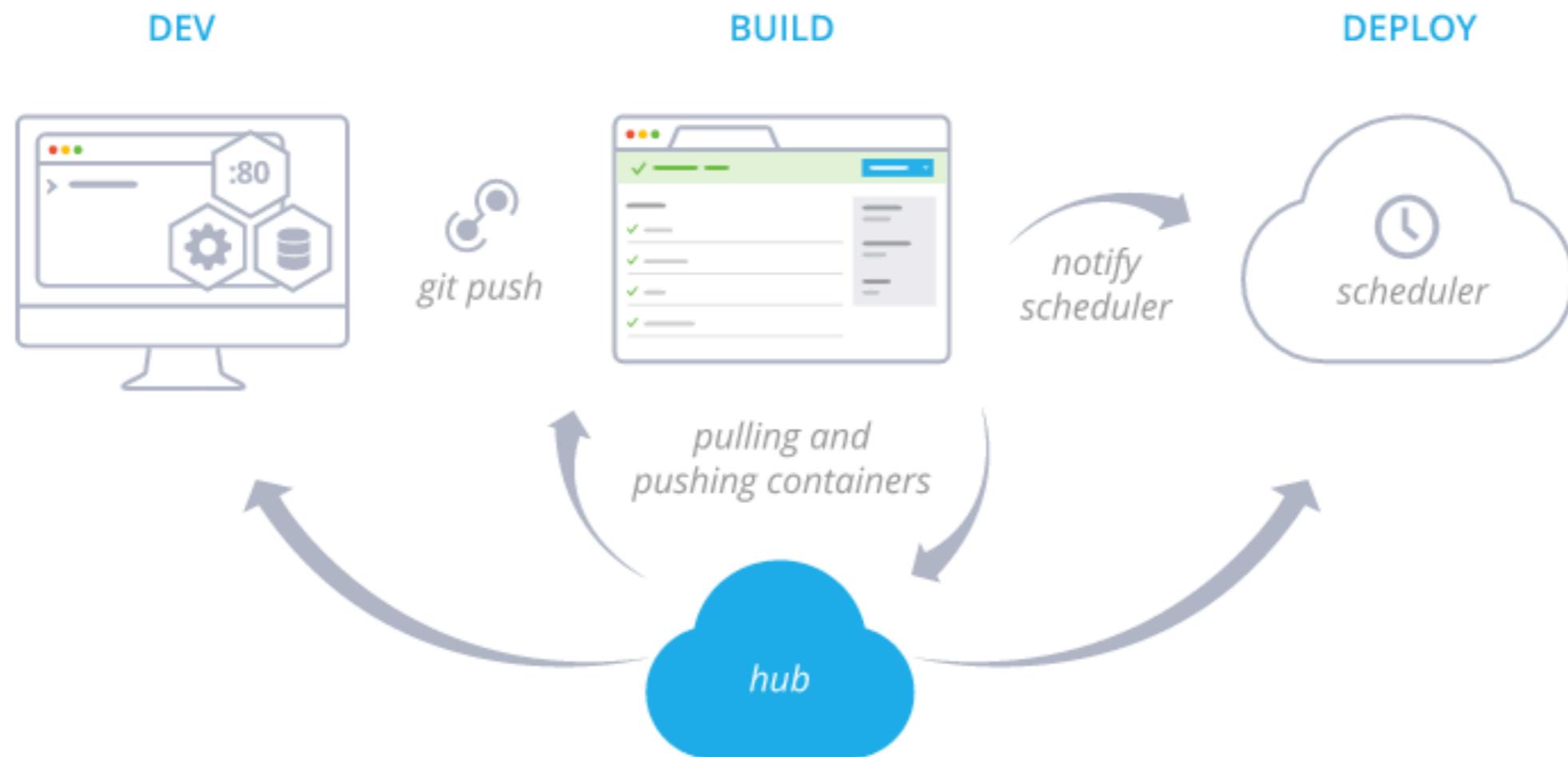
 nginx official	4.3K STARS	10M+ PULLS	DETAILS
 busybox official	820 STARS	10M+ PULLS	DETAILS
 redis official	2.8K STARS	10M+ PULLS	DETAILS
 ubuntu official	4.8K STARS	10M+ PULLS	DETAILS
 registry official	1.1K STARS	10M+ PULLS	DETAILS
 mongo official	2.4K STARS	10M+ PULLS	DETAILS

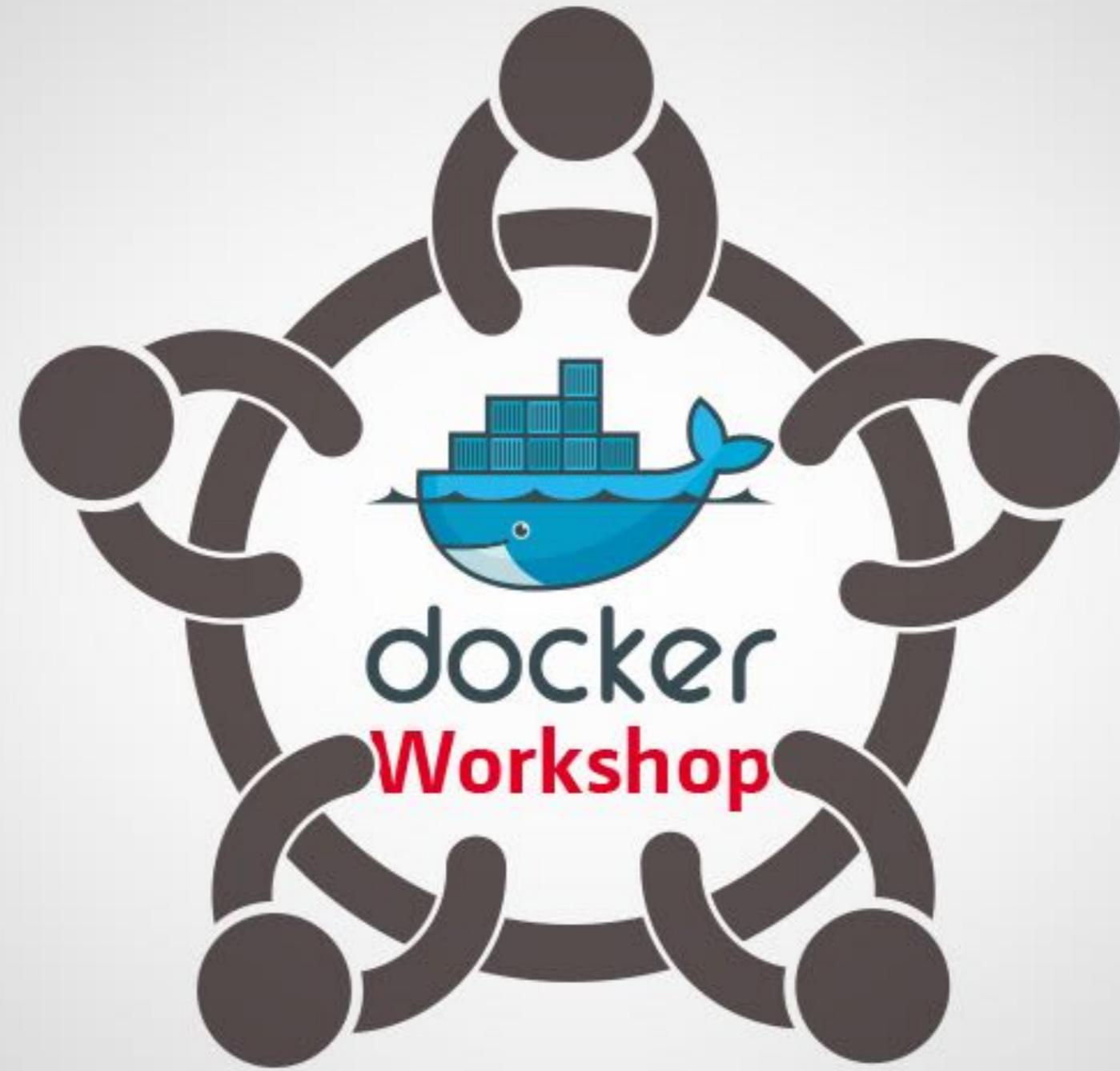
<https://hub.docker.com/explore/>

DOCKER MACHINE



DEVELOPMENT WORKFLOW

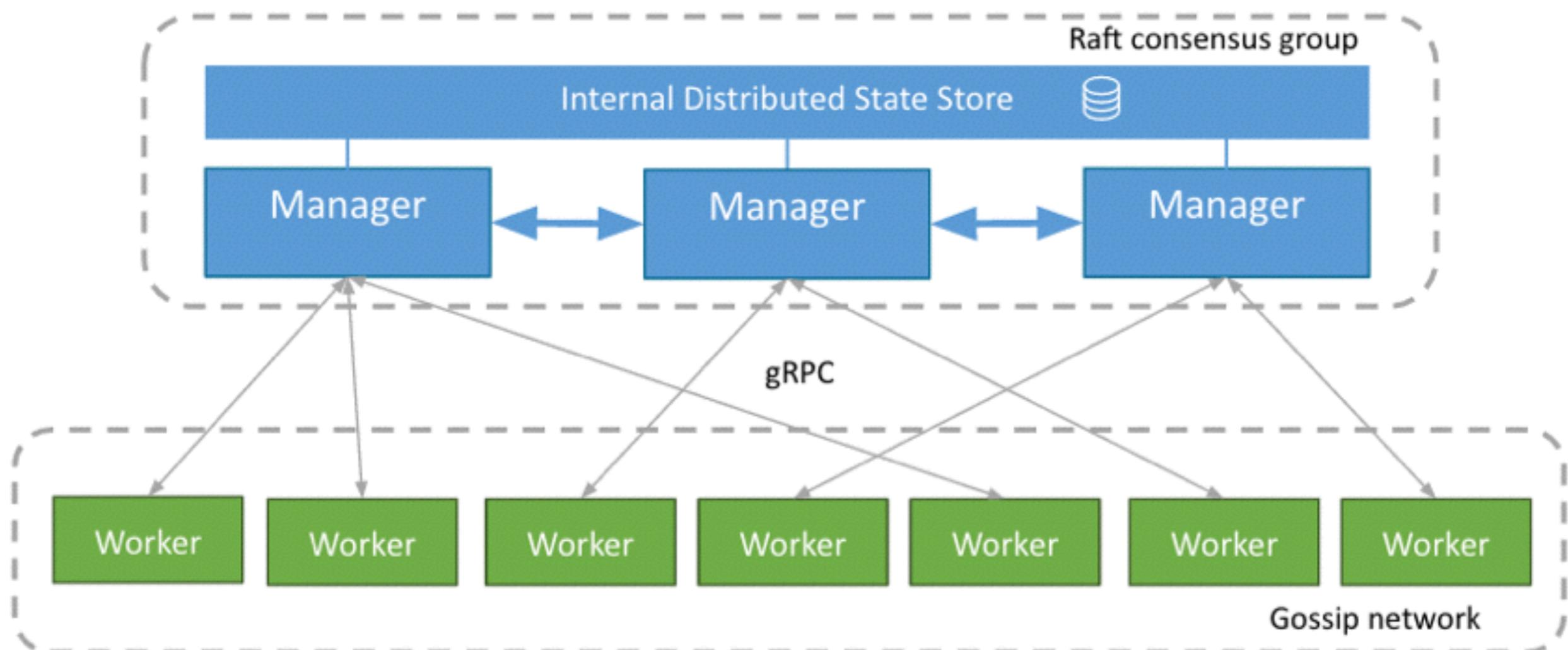




WORK SHOP DOCKER FOR DEVELOPMENT

- 1) go to <https://github.com/Chaturaphut/Docker-Workshop>
- 2) Docker Command
- 3) Docker Volume
- 4) Docker link
- 5) Dockerfile
- 6) Docker Compose

DOCKER SWARM





WORK SHOP DOCKER FOR DEVELOPMENT

- 1) *create overlay network*
- 2) *create Docker Swarm cluster*
- 3) *join host to cluster*
- 4) *create Application*
- 5) *scale Application*
- 6) *multi master for high availability*

Q & A