



Container Services

Virtual Server 1



Virtual Server 2



Virtual Server 3



Virtualization Software (Example - VMware)



Physical Server



VM – Issues

- Own OS, CPU, RAM and Storage
- Patching (Patch Tuesday)
- Monitoring
- License



Hello Containers



- Google (Long Time)
- All containers = One OS
- No license
- Less CPU, RAM and storage
- IBM System/360
- BSD Jails
- Solaris zones

Hardware layer
(Potentially a virtual machine)

Kernel space

User Space (Programs, etc.)



Two important Functions in the kernel Space

Cgroups (control group) = resource management

Namespaces = Process Isolation



Namespace

- Namespace isolates the resources of system, currently there are 6 kinds of namespaces in linux kernel.
 - Mount namespace
 - UTS namespace
 - IPC namespace
 - Net namespace
 - Pid namespace
 - User namespace

**Hardware layer
(Potentially a virtual machine)**

Kernel space

**Network, PID, etc.
subsystems and their
namespaces**

Filesystems

**Namespace
1**

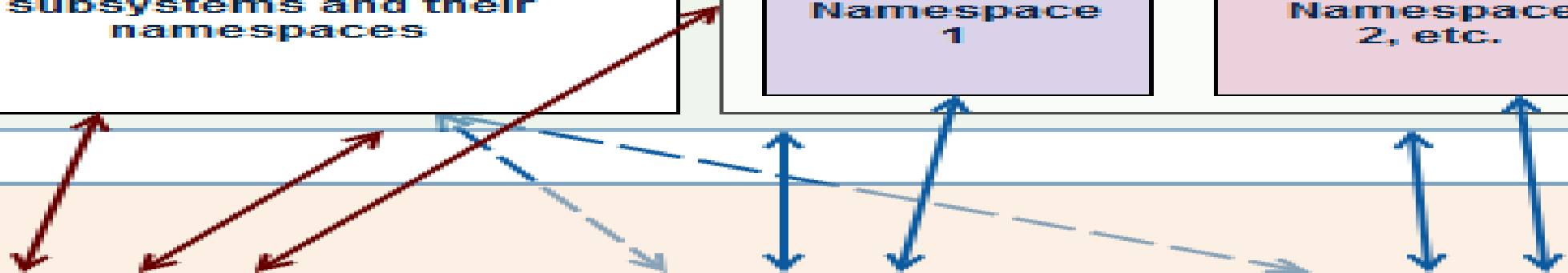
**Namespace
2, etc.**

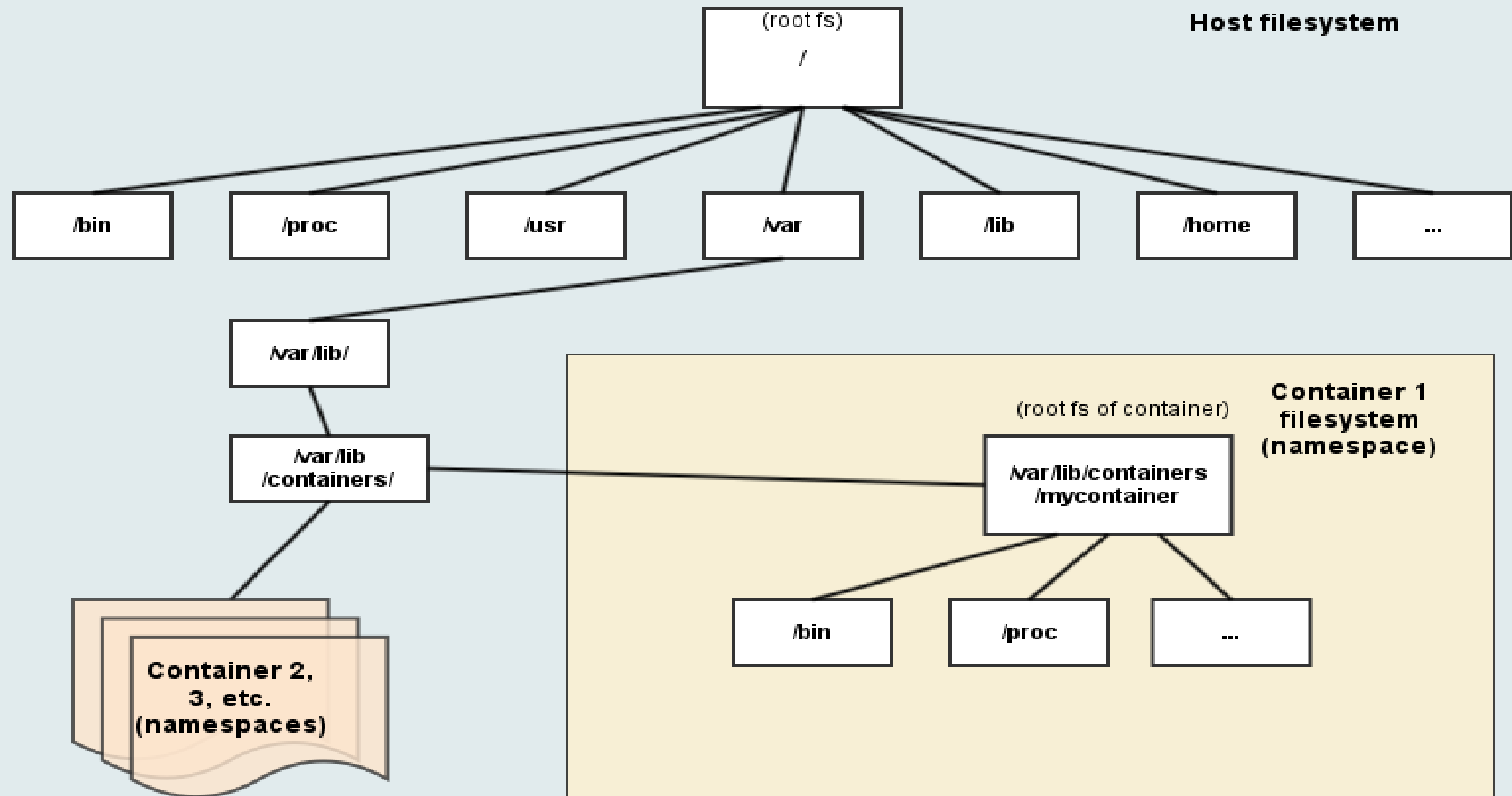
Host processes

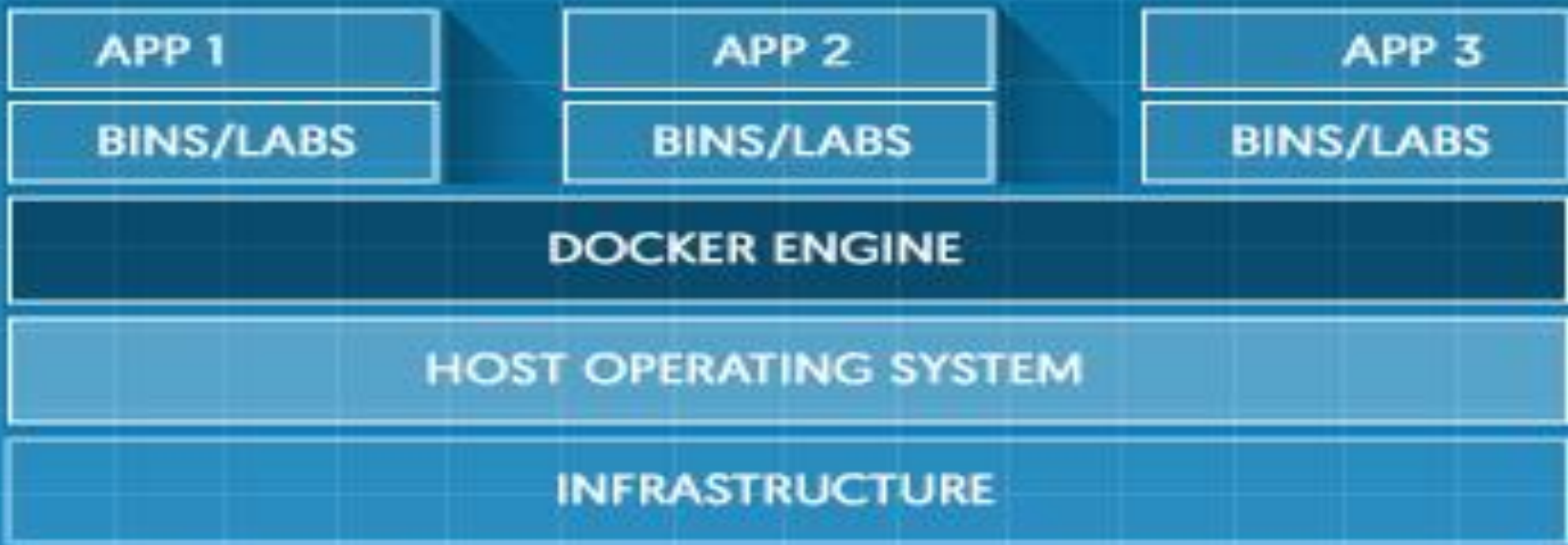
Container 1

Container 2, etc.

User Space (Programs, etc.)









Docker = Dock + Worker



- Docker Inc (Company) = 425 ++
- Docker (Container Runtime & Orchestration Technology)
- Docker (Open source Project) = Moby



Docker Inc (Mirantis)



- San Francisco
- Solomon Hykes (French-Born) American Developer
- Paas (dot cloud)
- Docker Conf (Docker con = 2019 = April 29 – May 2 (San Francisco))
- Docker Conf (Docker con = 2020 = Nov 17 – Nov 20)



Docker runtime & Orchestration Engine



- Community Edition (4 months = support)
- Enterprise Edition (12 months = support)
- Version = YY.MM-xx (18.06.0-ce)
- 18.06.1-ce
- Prior (2017) = major.minor (1.13) = last
- Quaterly releases
- Latest = 19.03.13



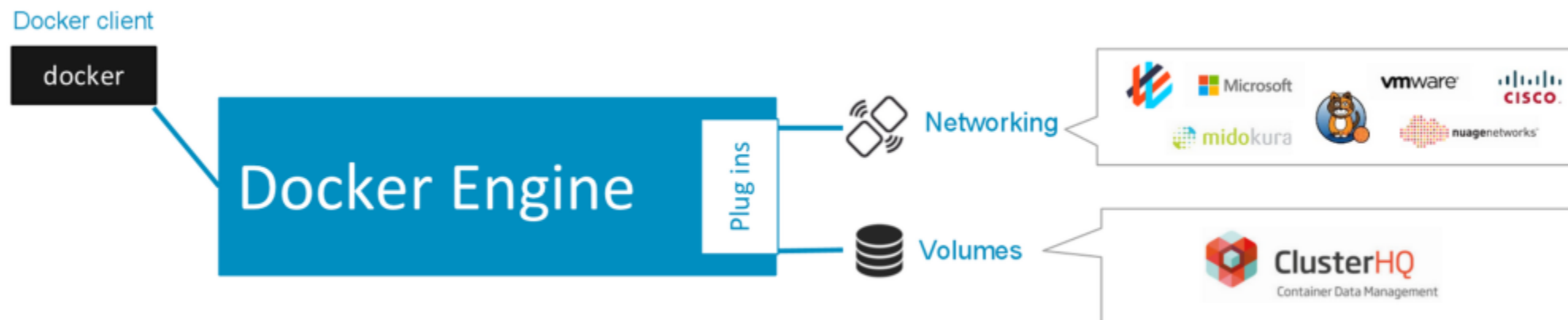
Docker Open-Source Project (Moby)

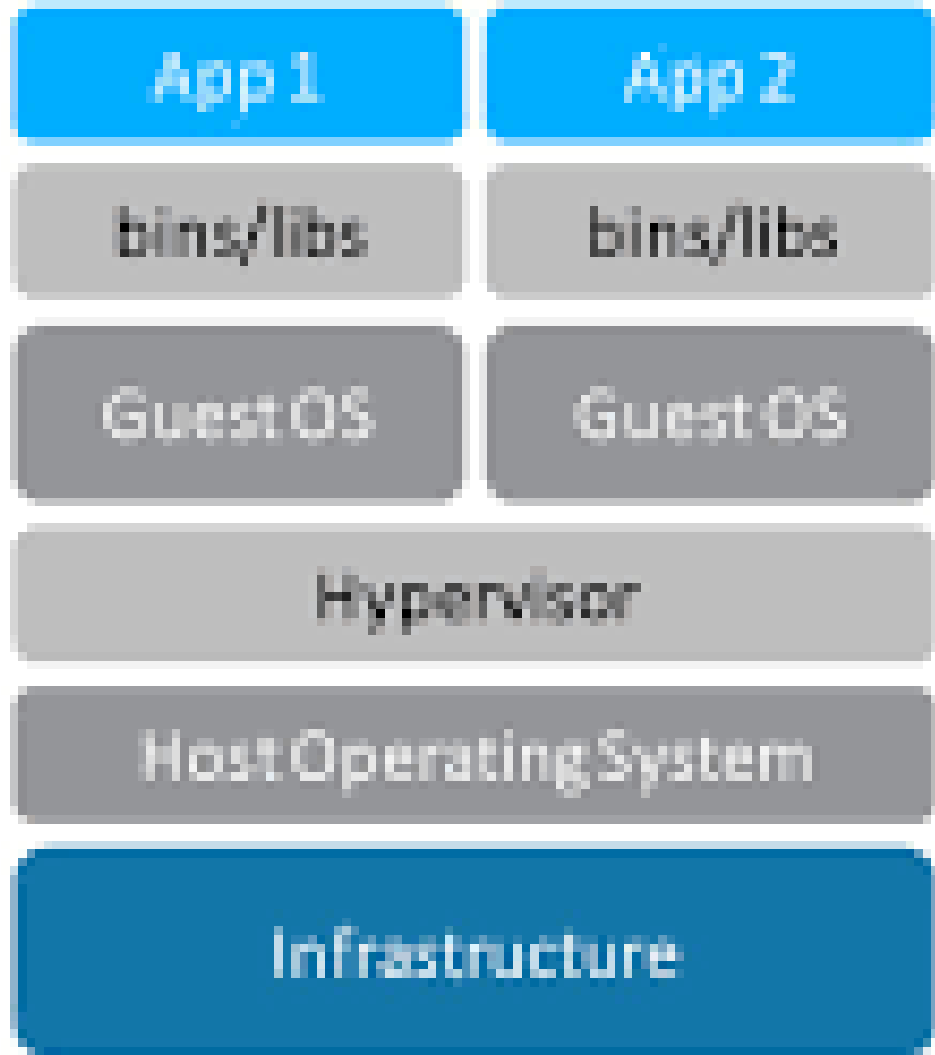


- Dockercon 2017 = Moby
- <https://github.com/moby>
- Golang (system-level programming) from Google

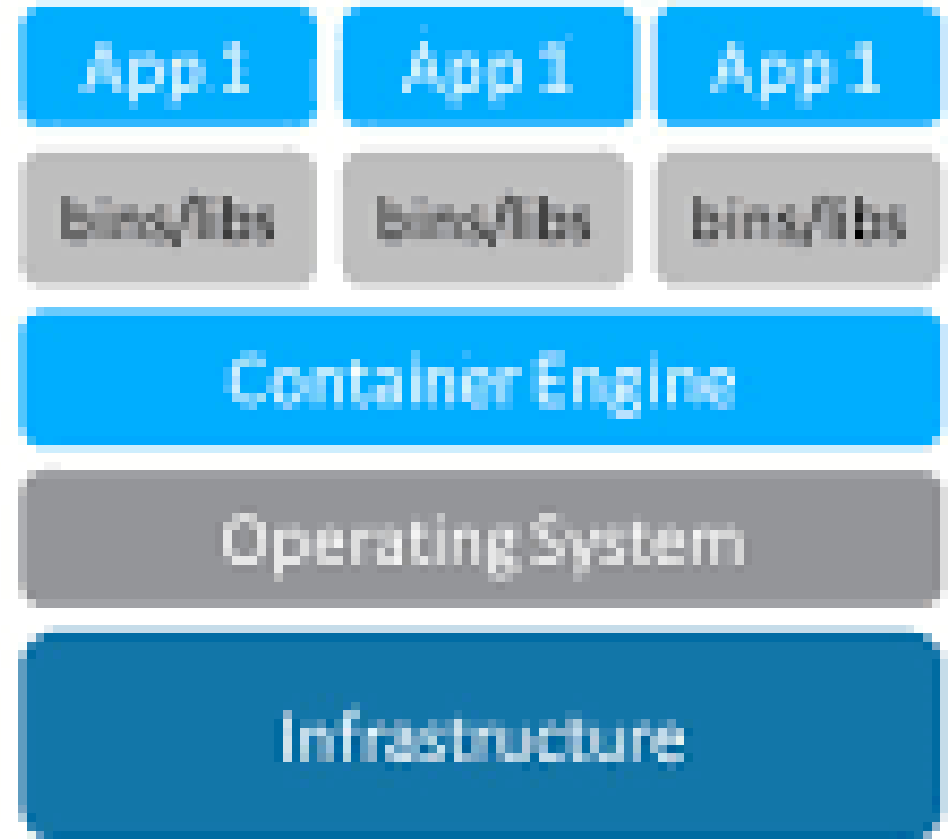


Batteries Included but removable

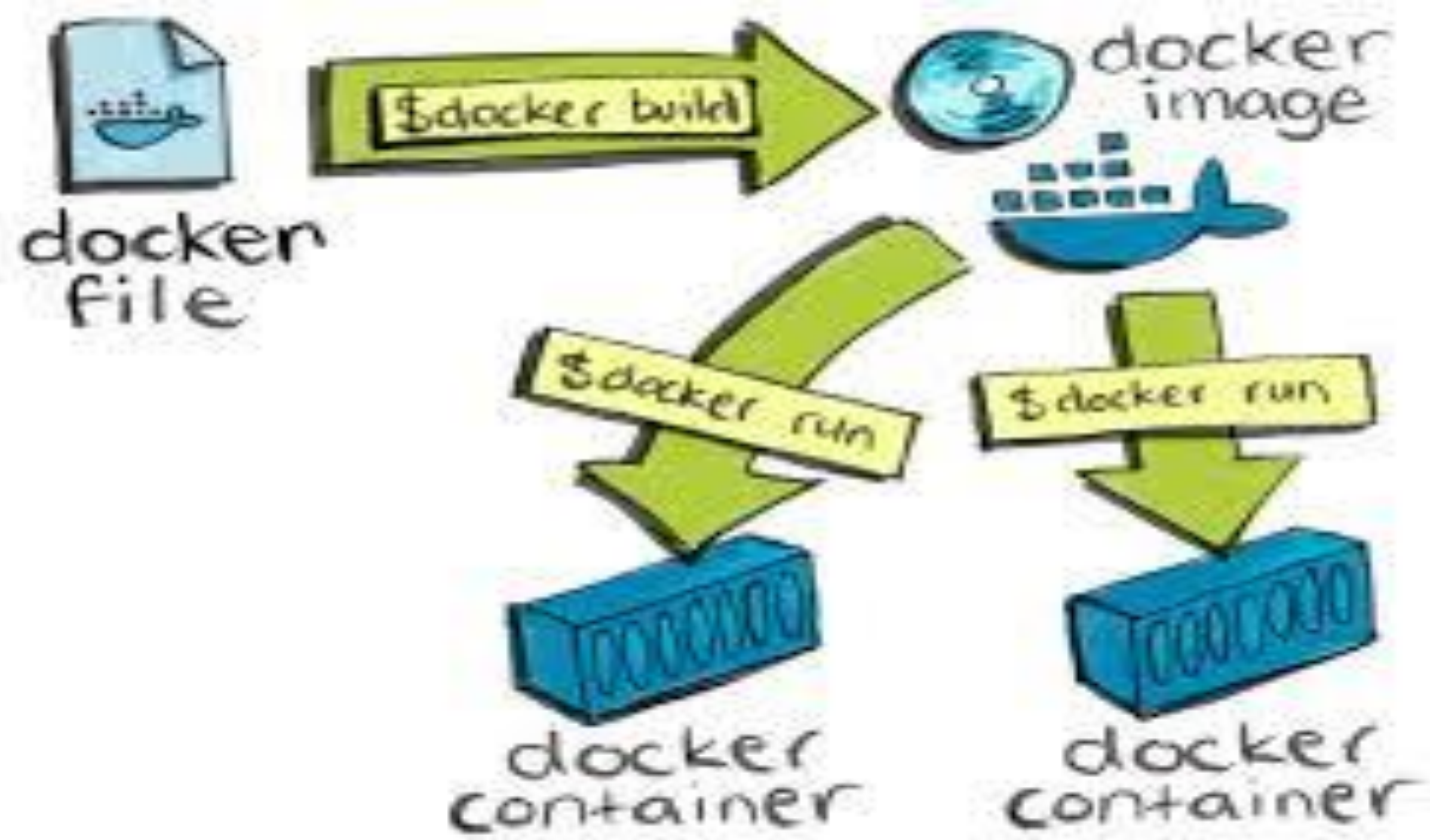


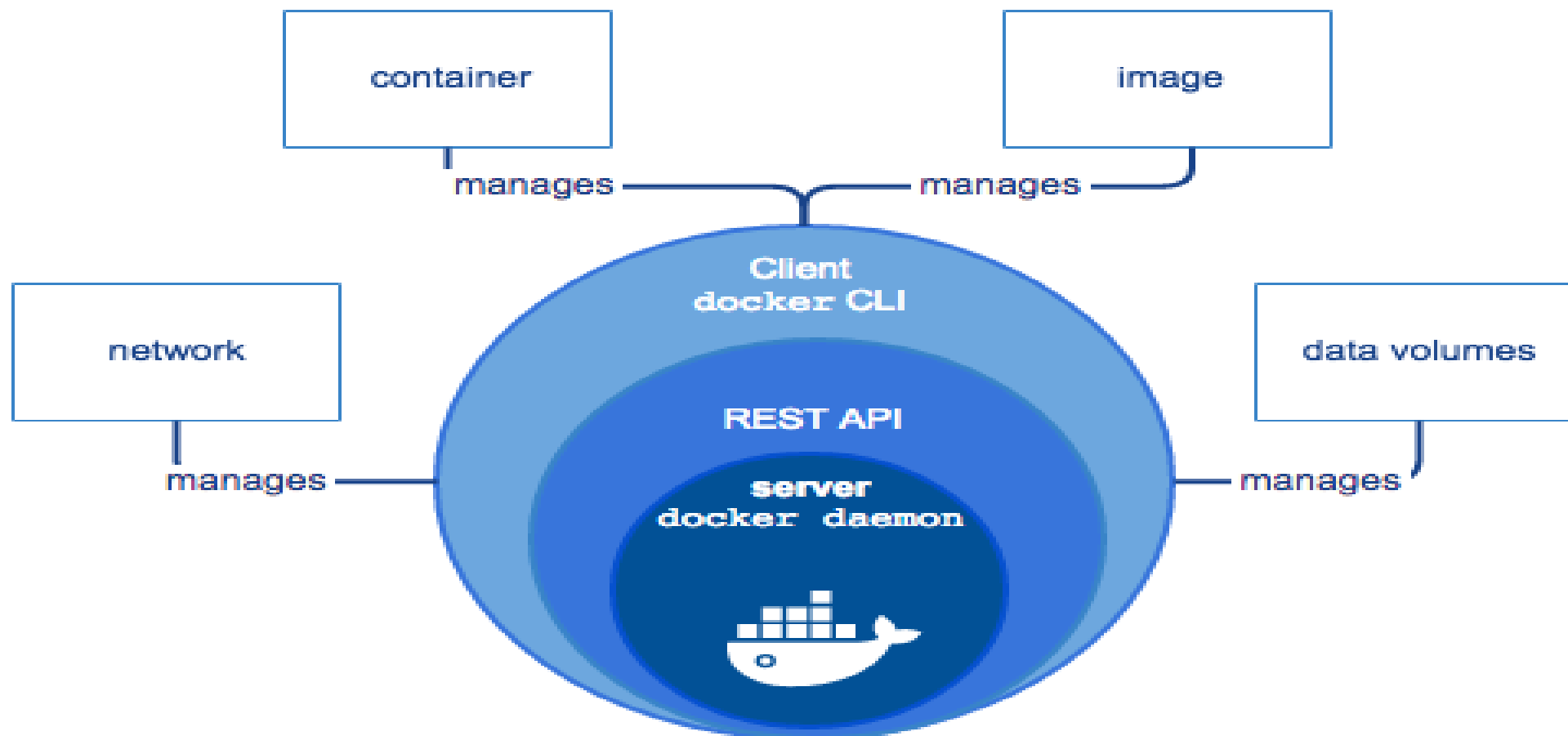


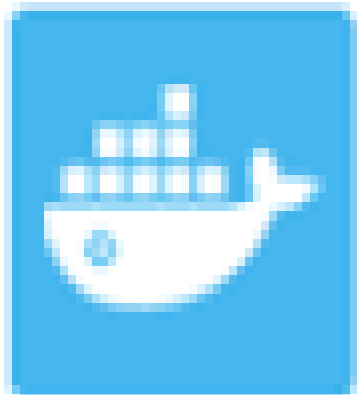
Virtual Machines



Containers



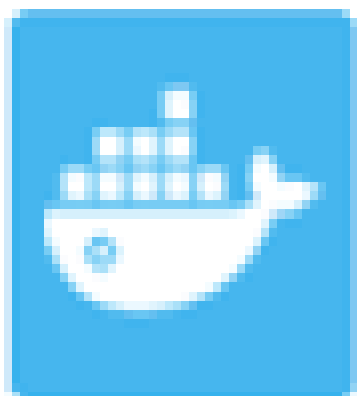




alpine
official

465
STARS

1.1 M
PULLS



ubuntu
official

3.1 K
STARS

39.3 M
PULLS