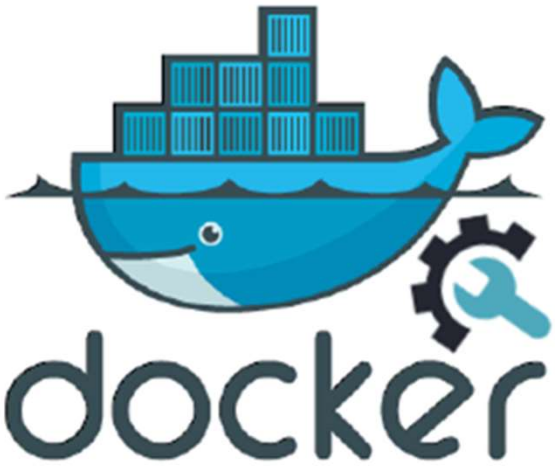
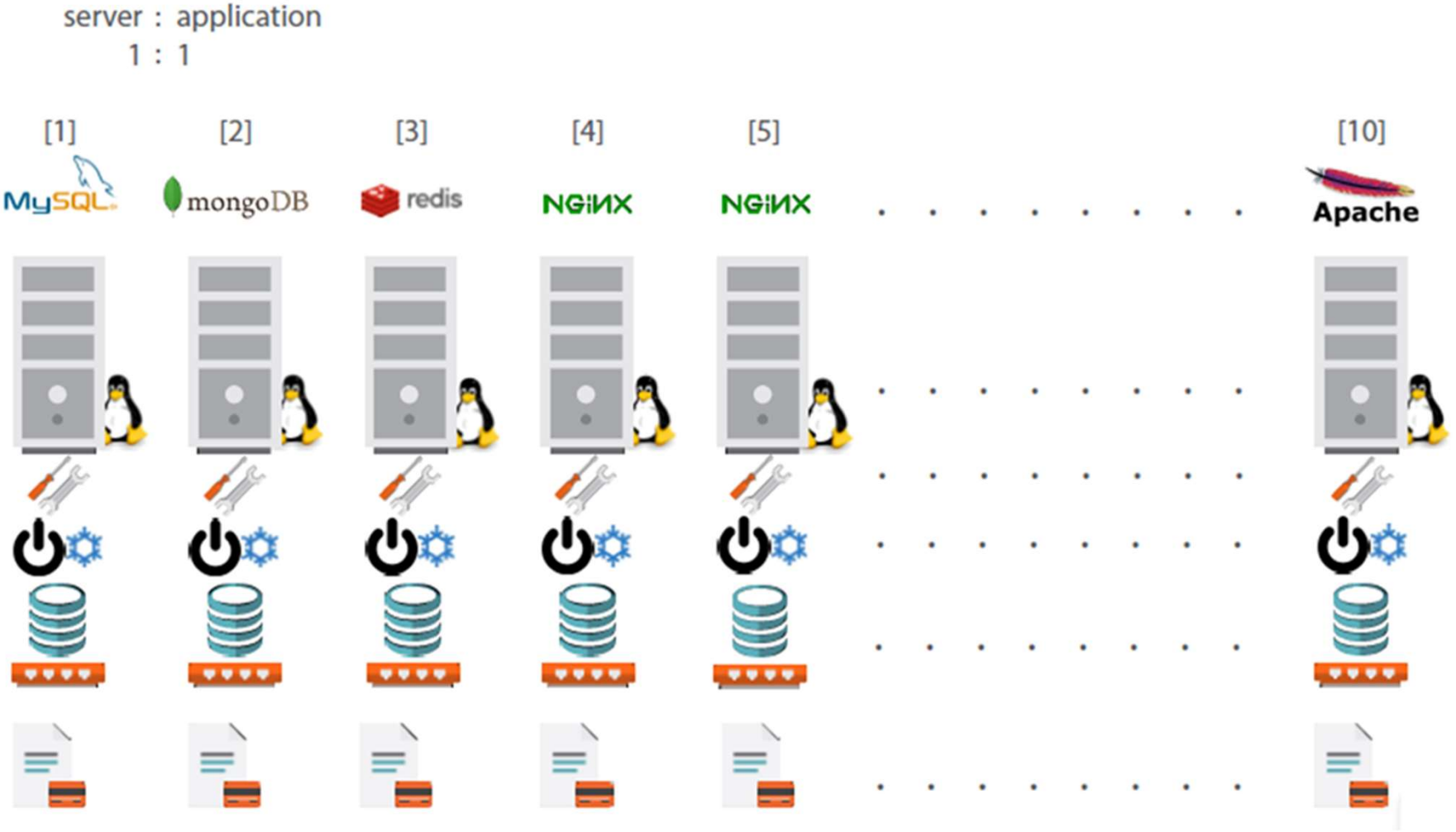
Docker Essentials

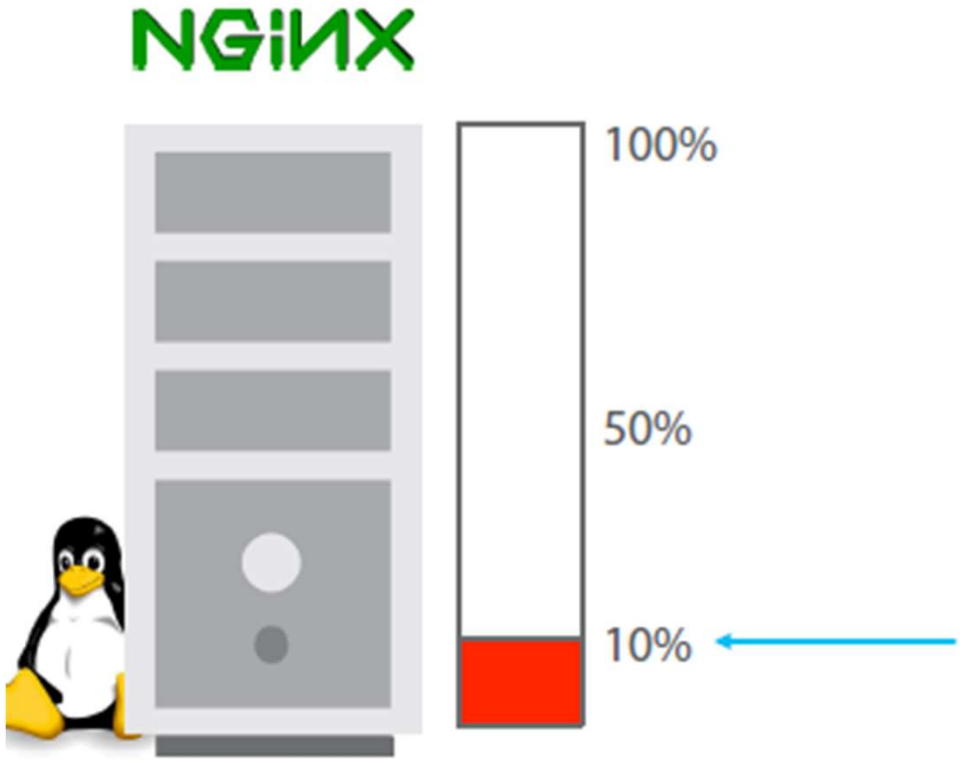
Docker



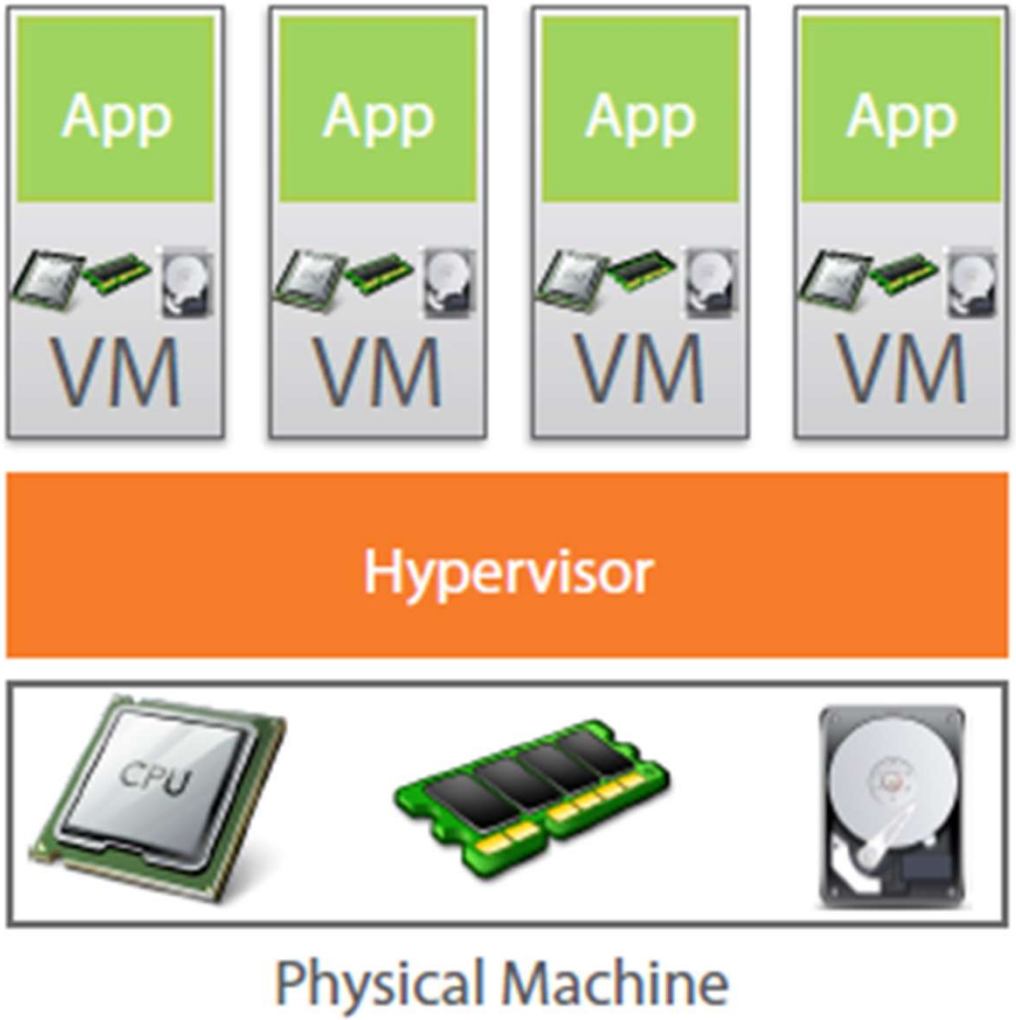
Deployment Architecture using Physical Machines



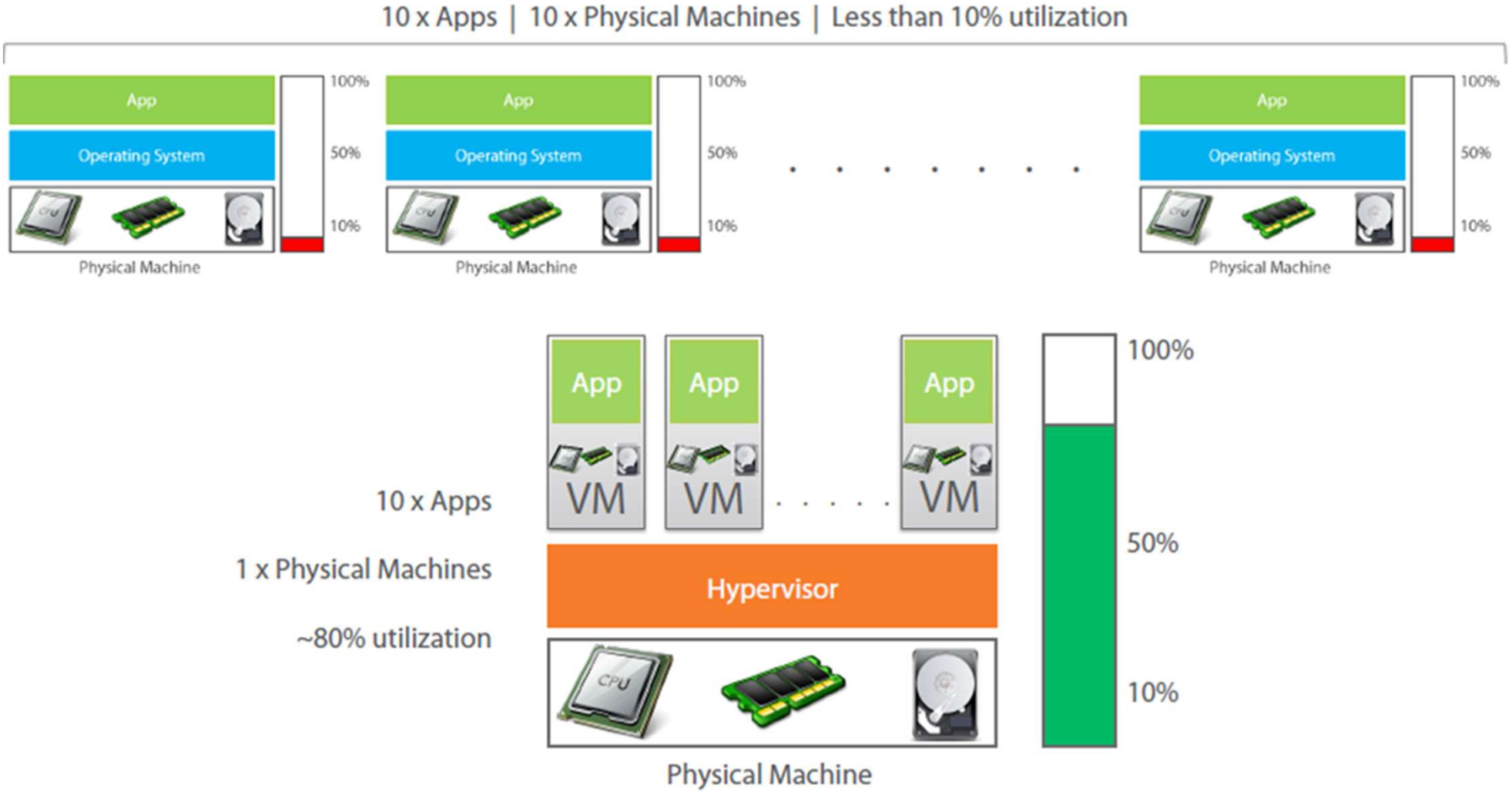
Less Utilization in Traditional Architecture



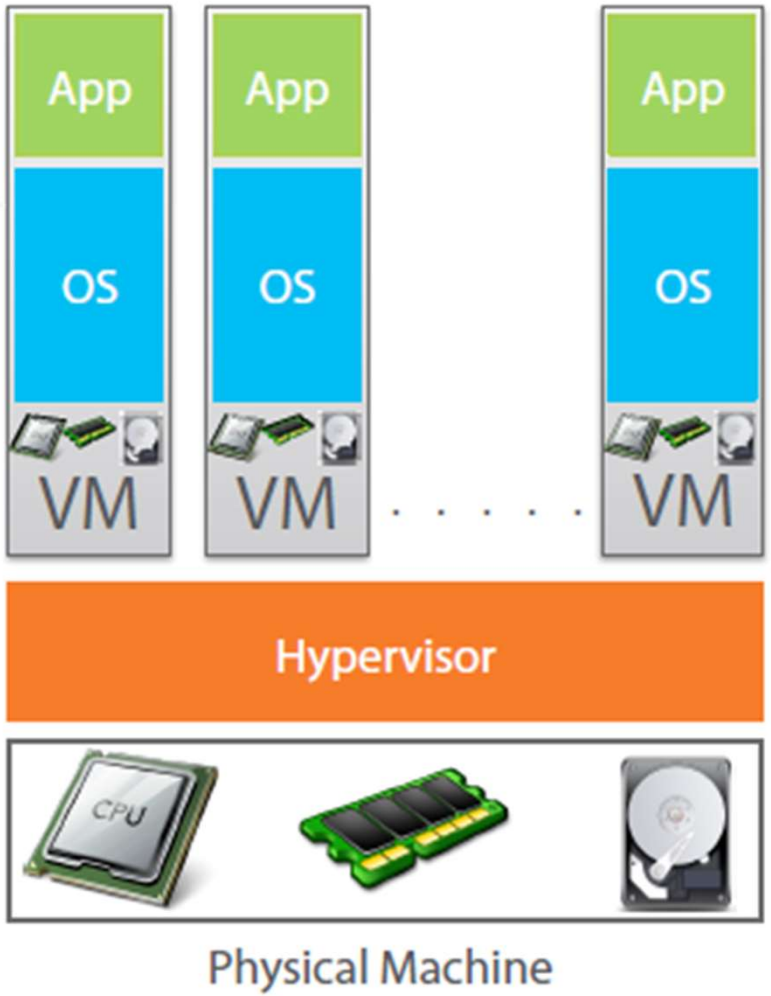
Virtual Machine to the Rescue



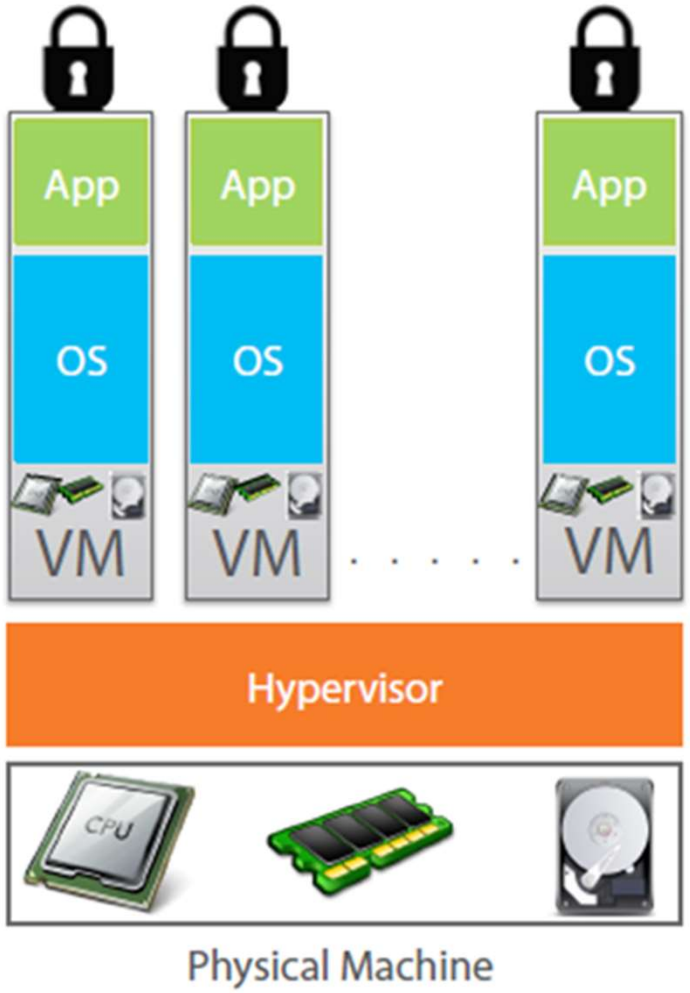
Virtual Machine provides better utilization



Each VM needs a separate OS

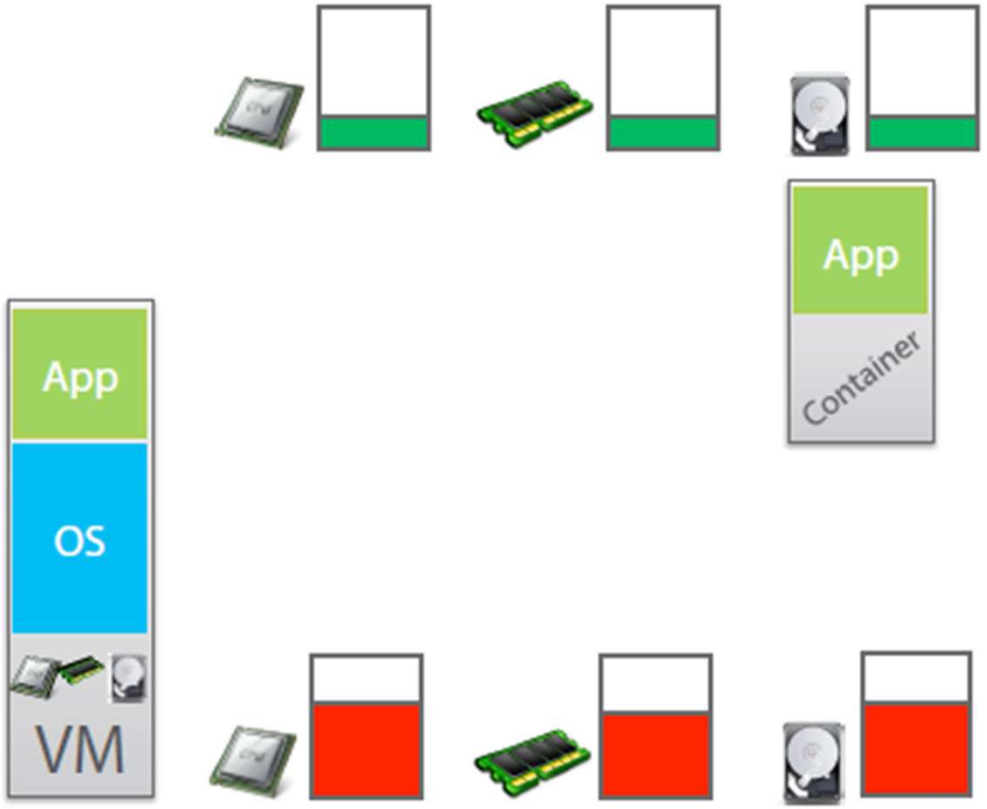


OS takes most of the Resources



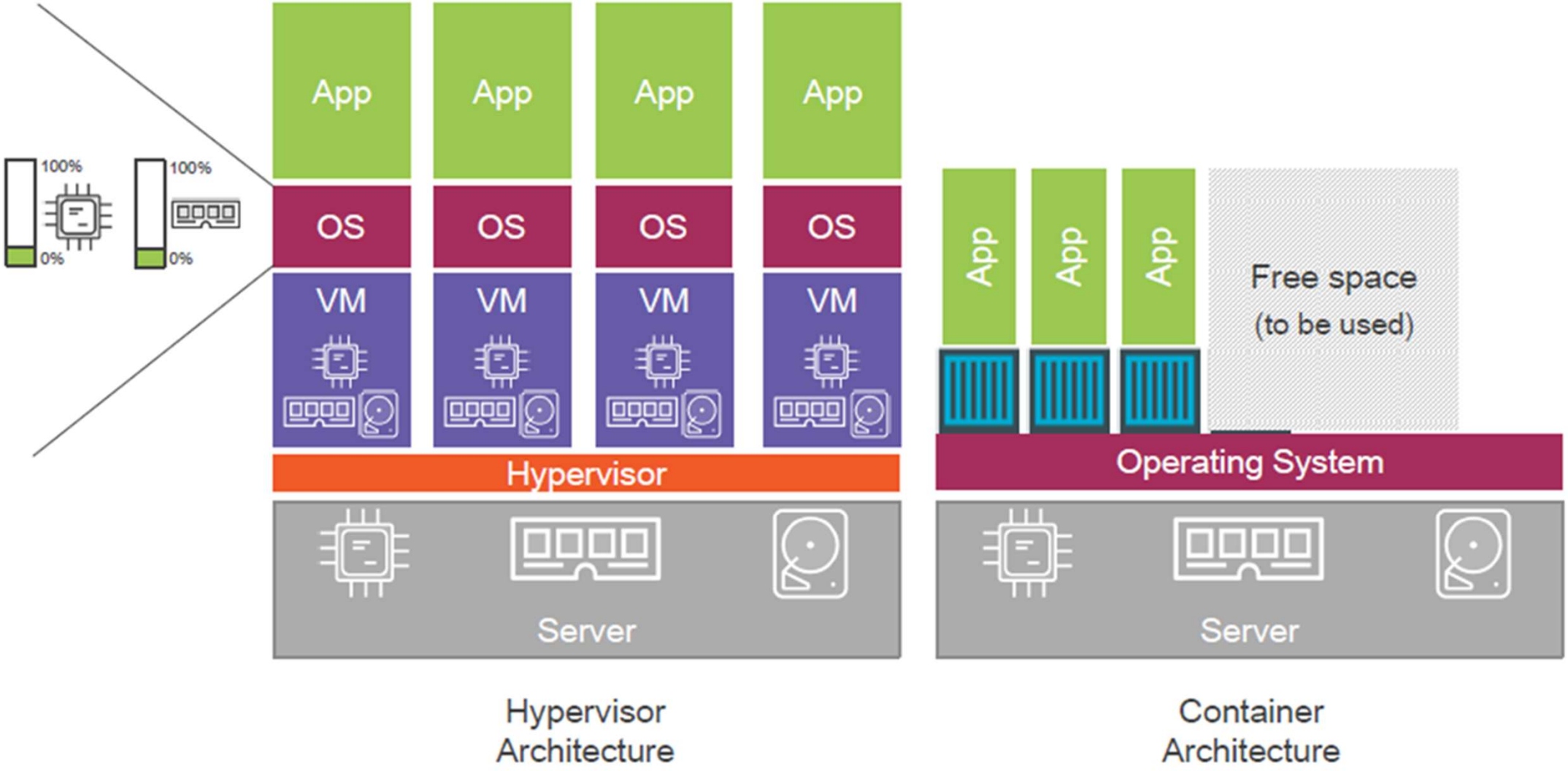
Why use separate OS for each App?

Containers to the Rescue

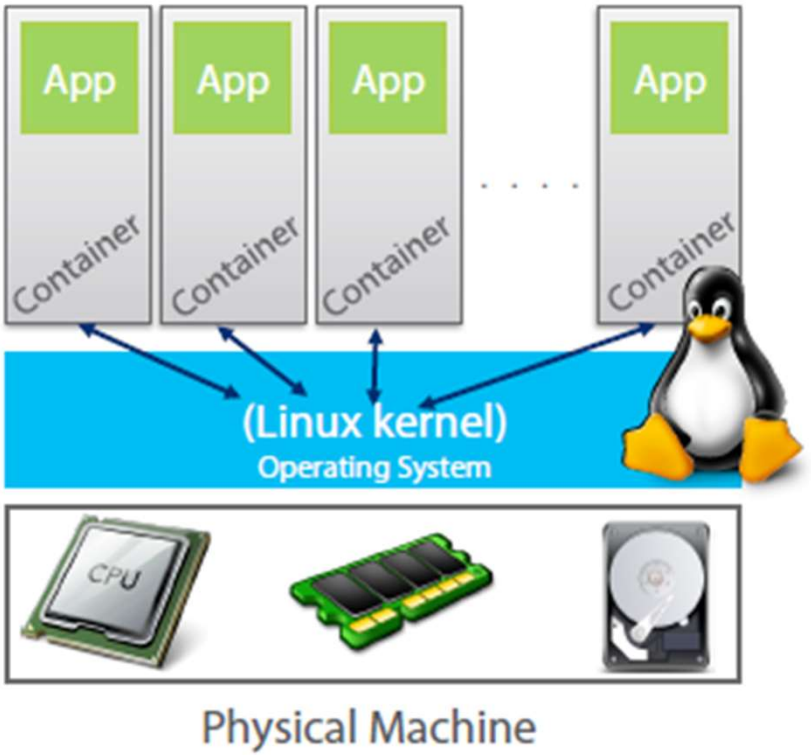


Containers are more lightweight than Virtual Machines

Containers vs VM



Containers takes less resources



Containers consume less CPU, RAM and disk resource than Virtual Machines

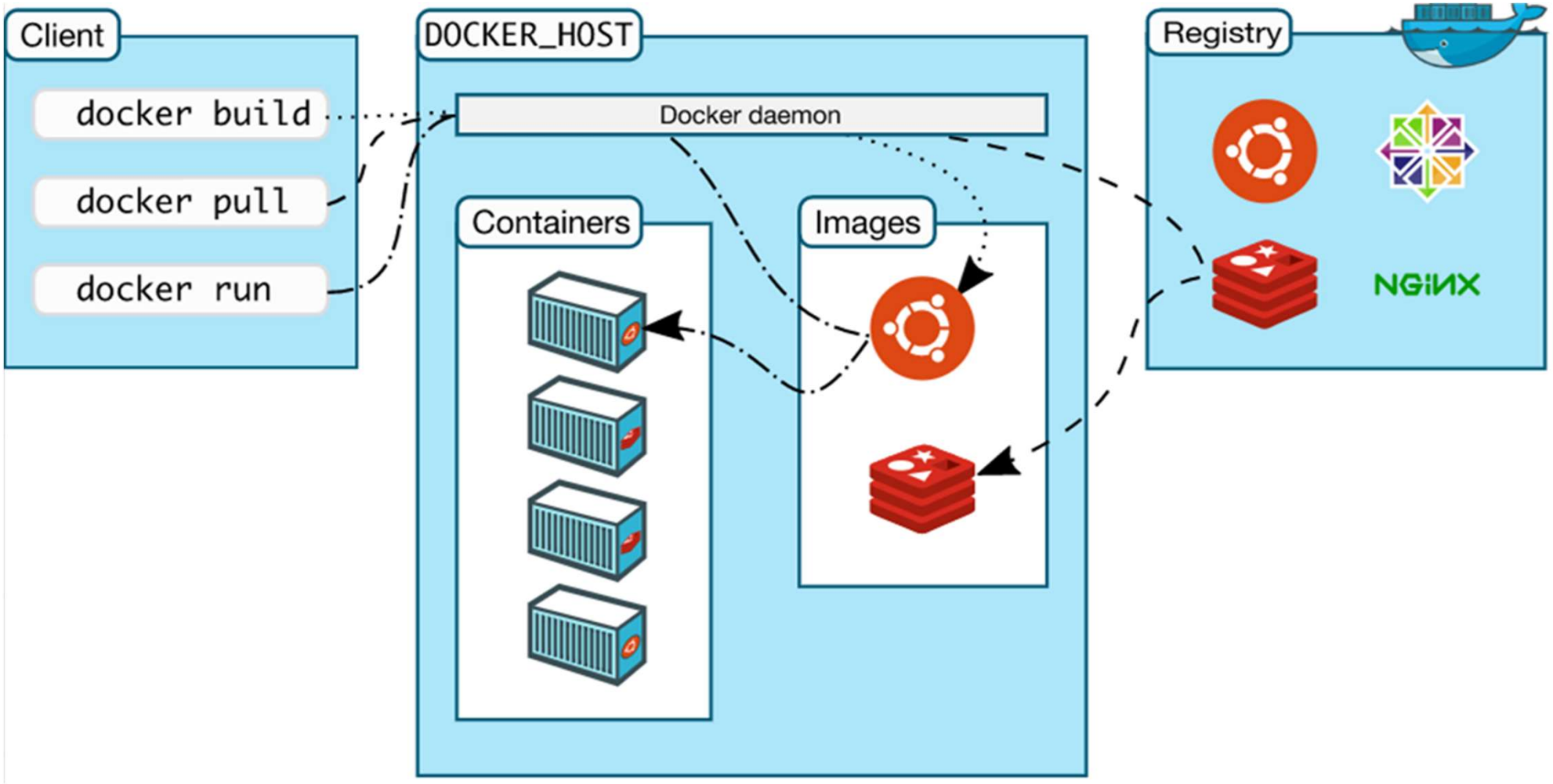
What is Docker?

- Docker is an open-source project
  - that automates the deployment of applications inside software containers,
  - by providing an additional layer of abstraction and
  - automation of operating system–level virtualization on Linux.

Practical

Practical Guide

Docker Architecture



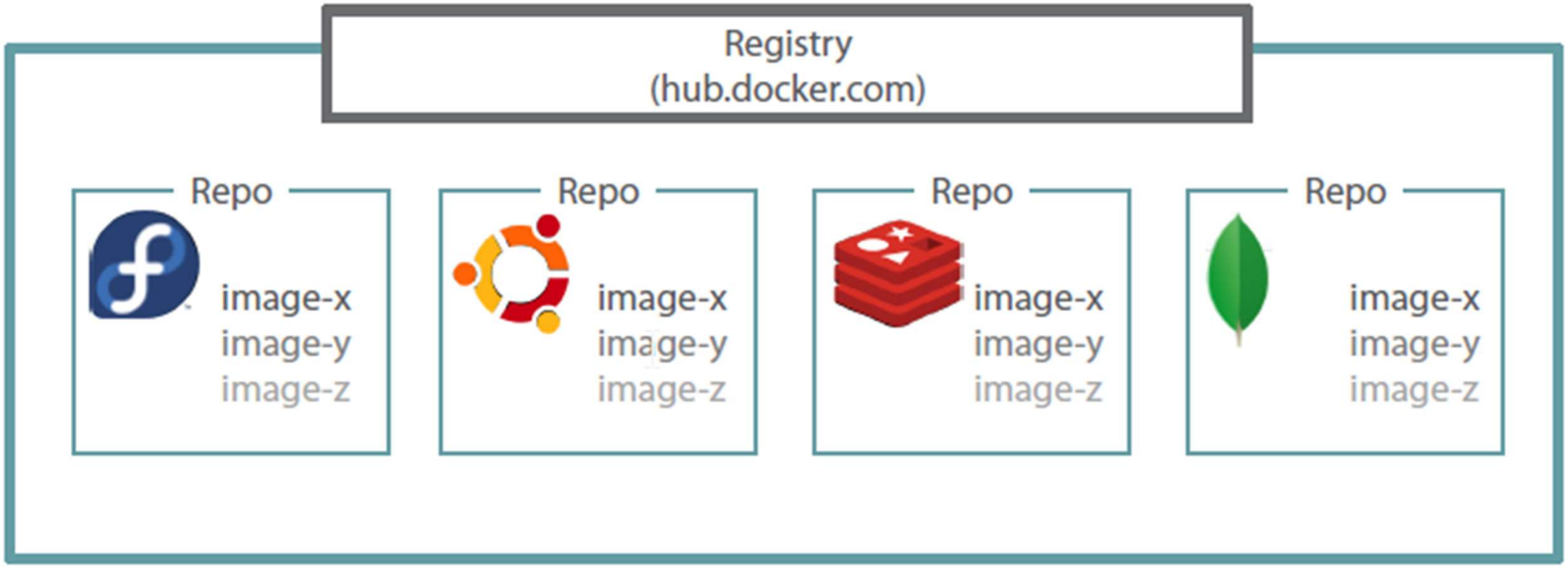
Image

- Persisted snapshot that can be run
- Common Docker Commands:
  - images: List all local images
  - run: Create a container from an image and execute a command in it
  - tag: Tag an image
  - pull: Download image from repository
  - rmi: Delete a local image

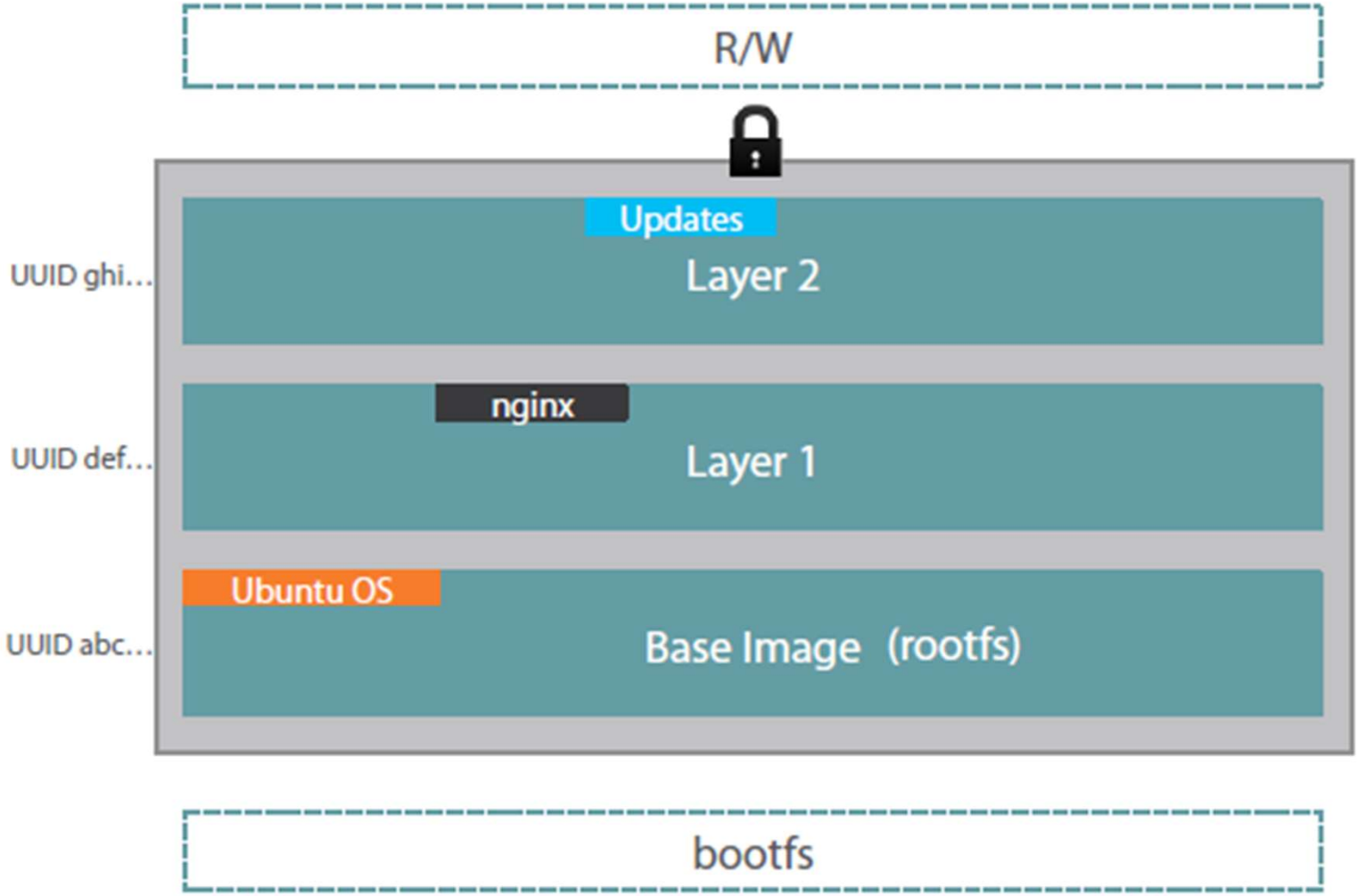
Container

- Runnable instance of an image
- Common Docker Commands
  - ps: List all running containers
  - ps –a: List all containers (incl. stopped)
  - top: Display processes of a container
  - start: Start a stopped container
  - stop: Stop a running container
  - pause: Pause all processes within a container
  - rm: Delete a container
  - commit: Create an image from a container

Docker Registry



Layers in Images



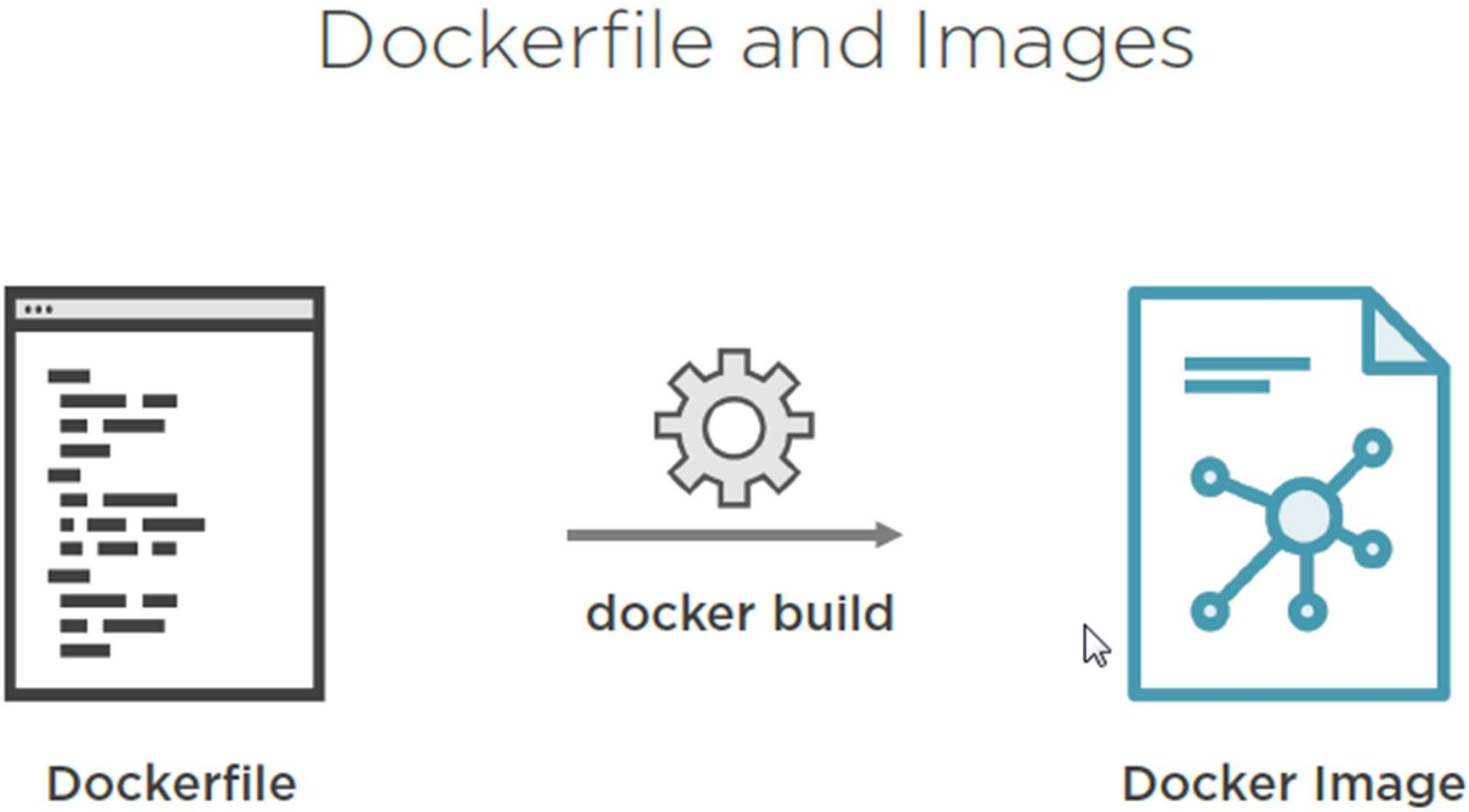
Hands-On

- We need to do the below hands-on:
  - ssh to Ubuntu server
  - Install Docker on Ubuntu 18.04
  - Validate docker engine is successfully installed
  - Launch a docker container
  - Login to container
  - Work in a container
  - List containers
  - Pause a container
  - Un-pause a container
  - Delete container
- Refer to the command guide for instructions

Create Dockerized Application

- We can dockerize our application using dockerfile
  - Dockerfile Create images automatically using a build script: «Dockerfile»
  - It Can be versioned in a version control system like Git
  - Docker Hub can automatically build images based on dockerfiles on Github
- This is a basic Dockerfile we need to dockerize a node application
  - FROM node:4-onbuild
  - RUN mkdir /app
  - COPY . /app/
  - WORKDIR /app
  - RUN npm install
  - EXPOSE 8234
  - CMD ["npm", "start"]

Dockerfile


Dockerfile and Images
docker build
Dockerfile
Docker Image

Dockerfile Template


thanks