

Online Workshop

Docker & Kubernetes

Session #1 | @inicipaez



Workshop Agenda

#1: Docker fundamentals

#2: Docker image creation

#3: Multi-container management

#4: Kubernetes fundamentals 1

#5: Kubernetes fundamentals 2

#6: Kubernetes in production

Session 1 Agenda

What is Docker?

How it compares to Virtual Machines?

What are the Docker use cases?

Docker Architecture

Docker commands

Session 1 Pre-requisites

Git & Docker

Command line Tools

`curl / wget`

`dir / ls`

`cat`

Docker Desktop



Free:

Up to 250 employees

Up to \$ 10M yearly

How familiar are you with
Docker & Kubernetes?

What is Docker?

The most popular containerization tool

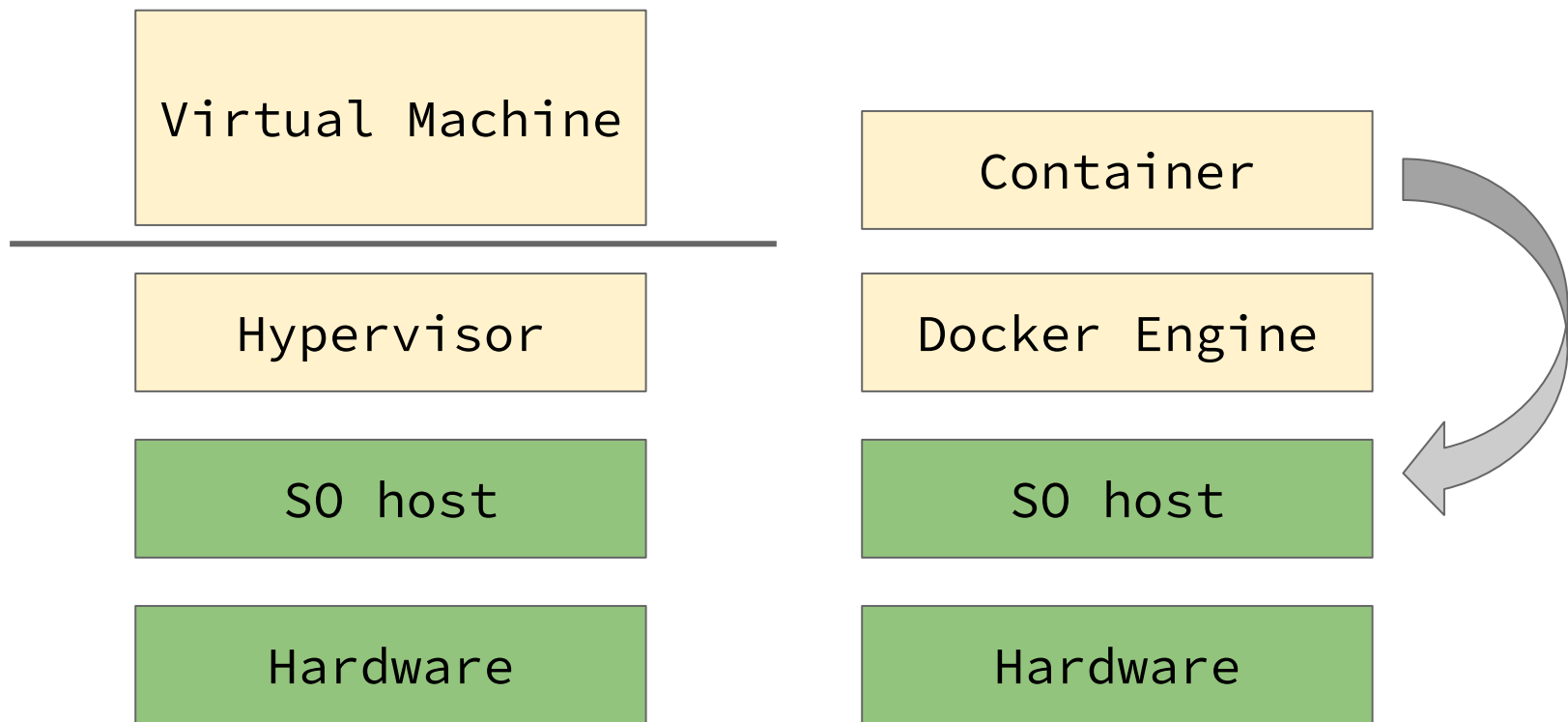
What is a container?

A container is an isolation mechanism that allows create self-contained sandboxed environments

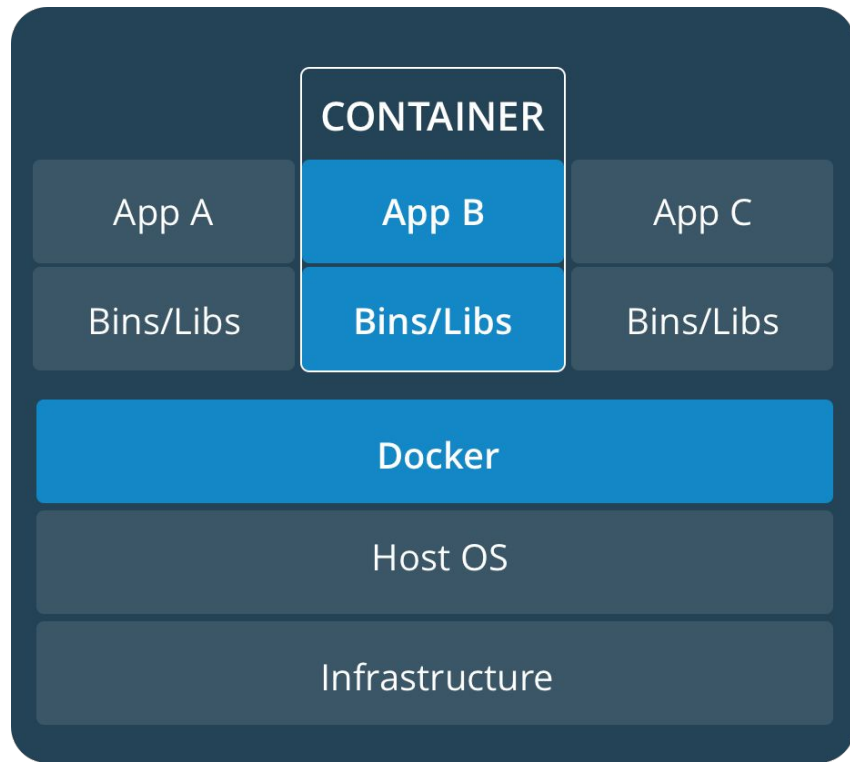
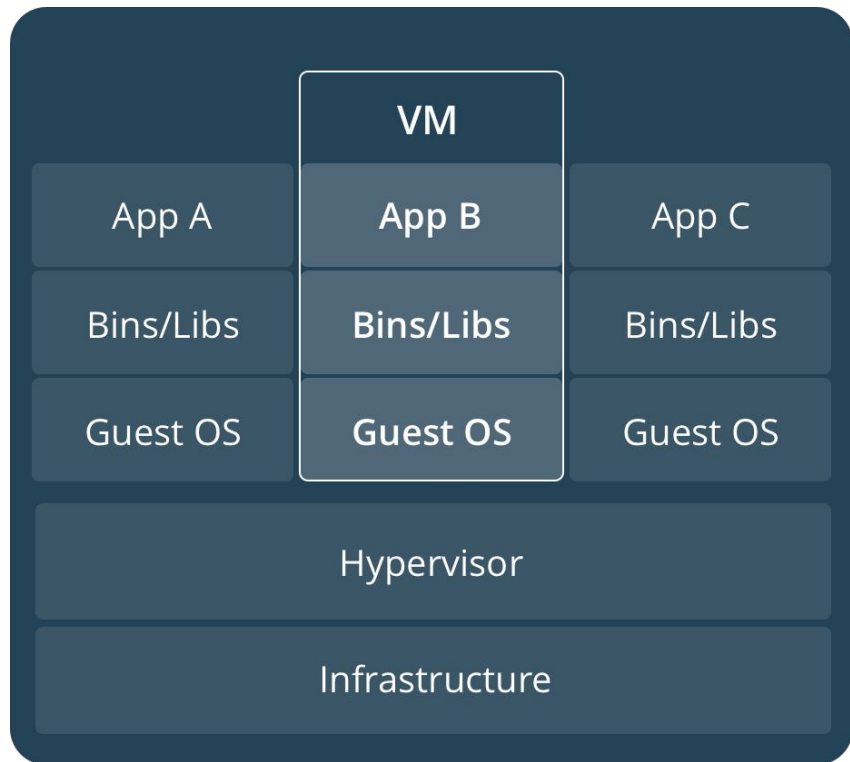
<https://opencontainers.org/>

Podman

Virtual Machines & Containers



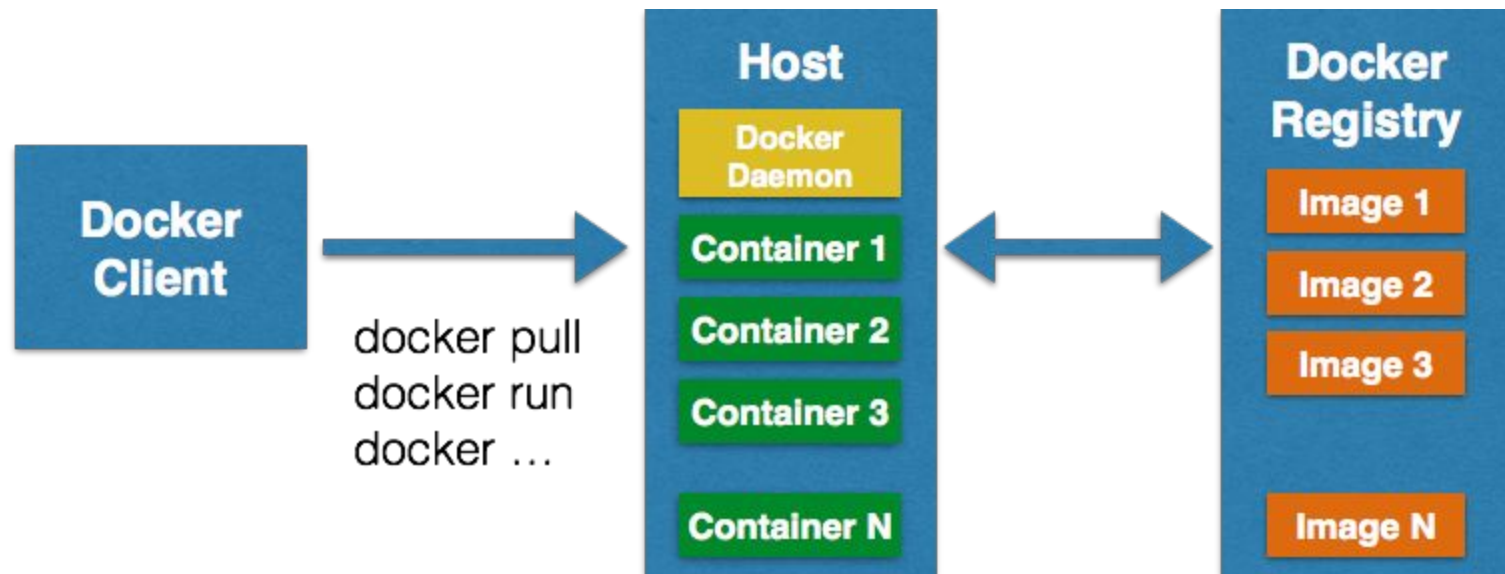
Virtual Machines vs Containers



Docker outside Linux

WindowsCore & WindowsNano

Docker Architecture



About Docker versions, Syntactic Sugar & Docker Desktop


```
docker run hello-world
```

<https://labs.play-with-docker.com/>

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

<https://github.com/docker-library/official-images>

```
docker run nicopaez/holanico
```

```
docker run nicopaez/holanico:2.0.0
```

```
docker run -it alpine /bin/sh
```

```
docker run -P -d nicopaez/pingapp
```


Docker commands (containers)

run

stop

rm

ps

Docker commands (images)

build

images

rmi

pull / push / login

Docker “not-popular” commands

`docker save`

`docker stats`

`docker system prune`

`docker inspect # jq`

Docker main benefit?

Image immutability & Container Isolation

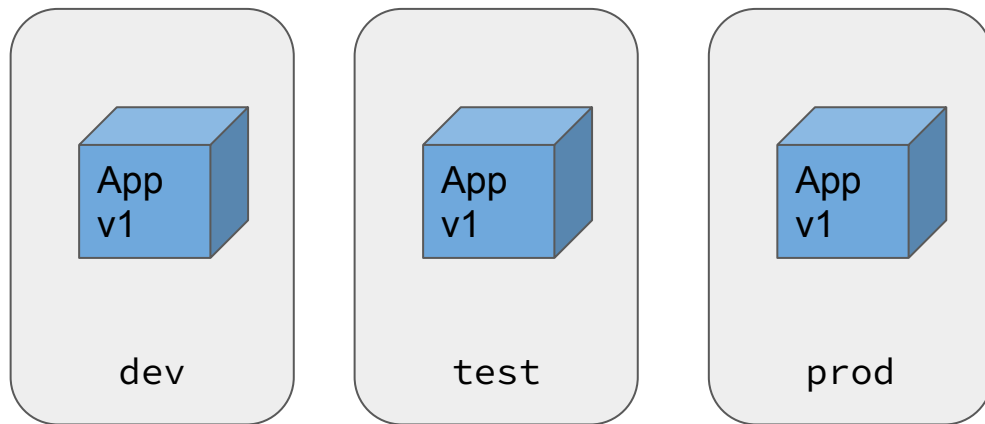
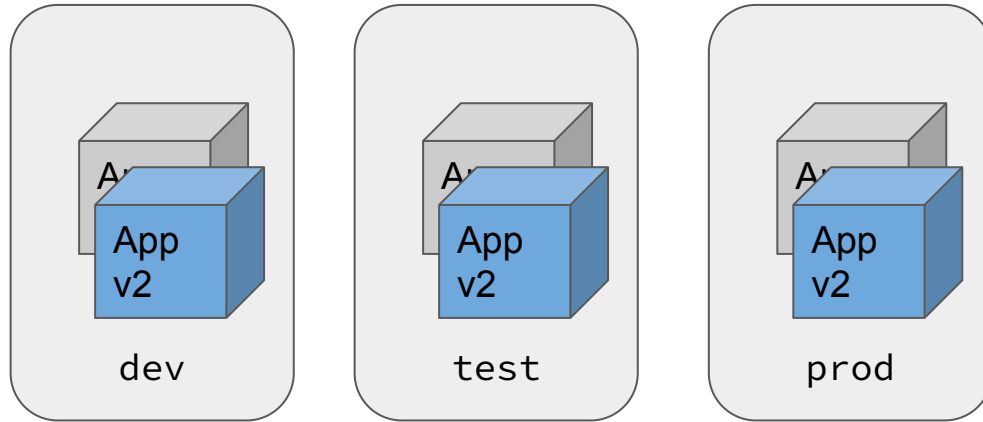
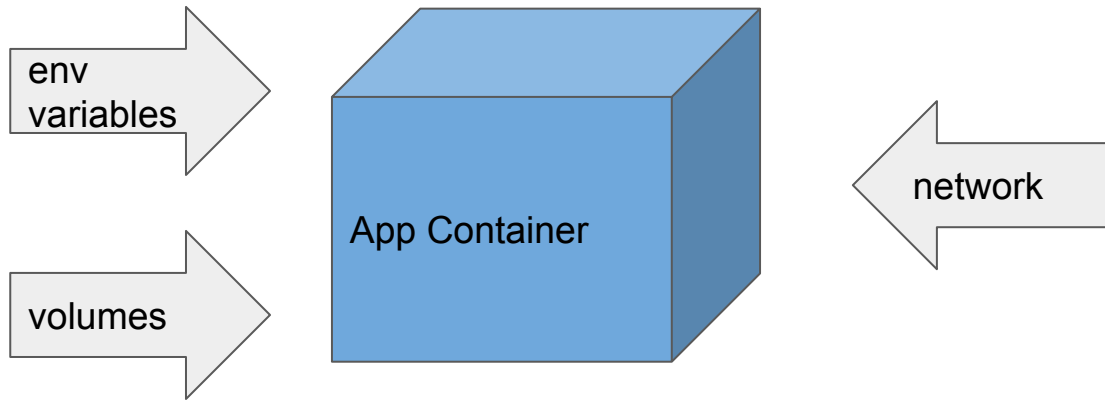


Image immutability & Container Isolation

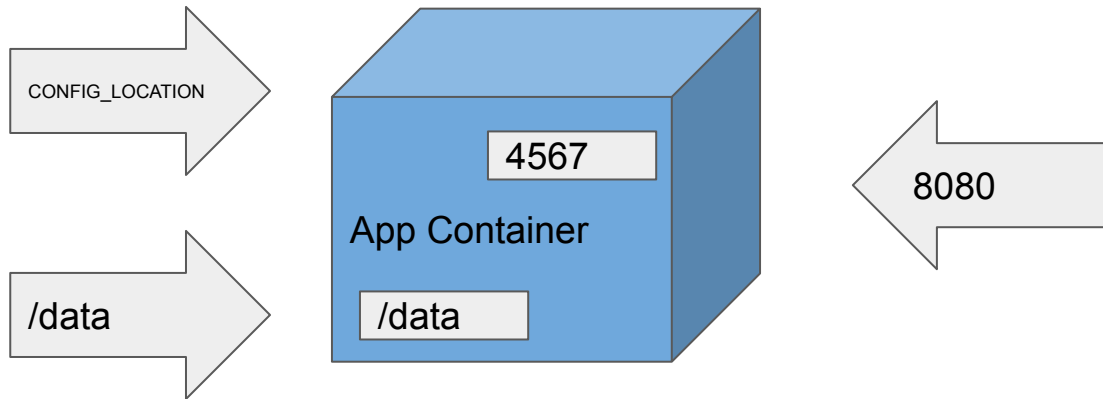


Container configuration



```
docker run --name pingapp -p 8080:4567 --rm -e CONFIG_LOCATION=/data/config.json -v $PWD/pingappdata:/data nicopaez/pingapp
```

Container configuration



```
docker run --name pingapp -p 8080:4567 --rm -e CONFIG_LOCATION=/data/config.json -v $PWD/pingappdata:/data nicopaez/pingapp
```


Docker impacts on App Architecture

Tooling

Dive: <https://github.com/wagoodman/dive>

Portainer: <https://www.portainer.io/>

Extension: Disk Usage

End of Session 1