



# Linux containers e Docker

Eugênio Cunha  
[genio.py@gmail.com](mailto:genio.py@gmail.com)

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## O que é um container?

- No mundo físico

- No mundo digital

- Timeline

## O que é Docker?

- Docker vs VM

- Docker Image

## Ecossistema Docker

- Docker Hub/Store

- Docker Registry

- Docker Machine

- Docker Swarm

- Docker Compose

# Containers

O que é?



May 2, 1967

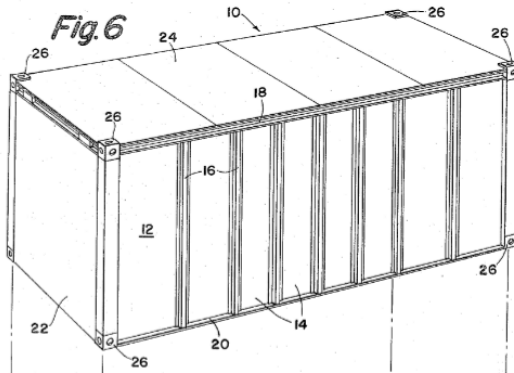
Filed June 4, 1965

E. HINDIN ET AL

VEHICLE FORMED BY COUPLEABLE CONTAINERS WITH DEMOUNTABLE  
ADAPTER FRAMES

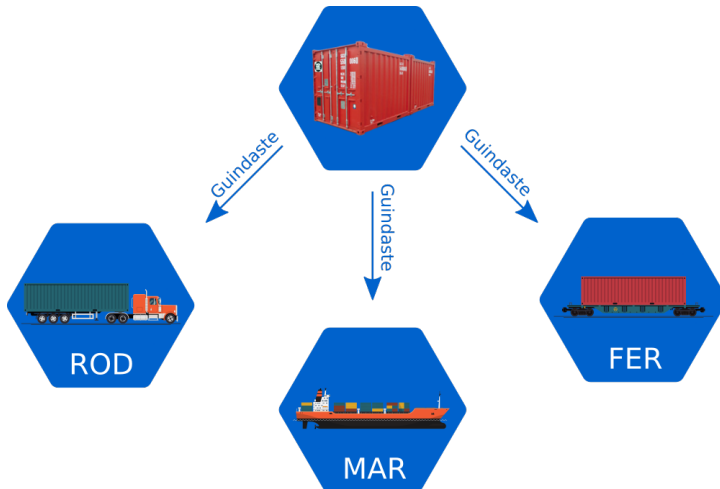
3,317,219

5 Sheets-Sheet 3



# Containers

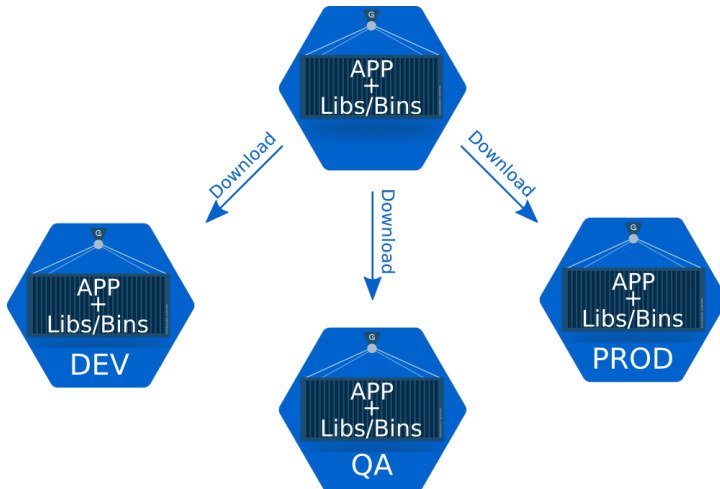
Qual problema resolve no mundo físico?



CONTROLE > AGILIDADE > PORTABILIDADE

# Containers

Qual problema resolve no mundo digital?



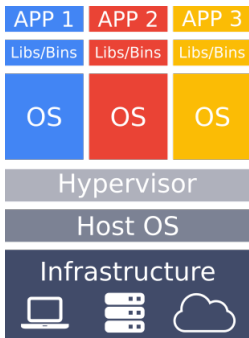
CONTROLE > AGILIDADE > PORTABILIDADE



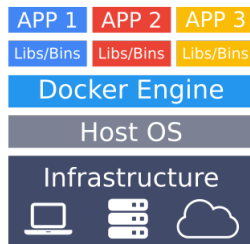
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<b>1979</b> .....	•	<b>Unix</b> → Chroot.
<b>2000</b> .....	•	<b>FreeBSD</b> → Jails.
<b>2001</b> .....	•	<b>Linux</b> → Linux-VServer.
<b>2005</b> .....	•	<b>Parallels</b> → OpenVZ Open Virtuozzo.
<b>2006</b> .....	•	<b>Google</b> → Control Groups.
<b>2008</b> .....	•	<b>Linux</b> → (LXC) Linux containers.
<b>2013</b> .....	•	<b>dotCloud</b> → Docker.
<b>2015</b> .....	•	<b>OCI</b> → Docker e CoreOS.
<b>2016</b> .....	•	<b>Microsoft</b> → Windows Containers.

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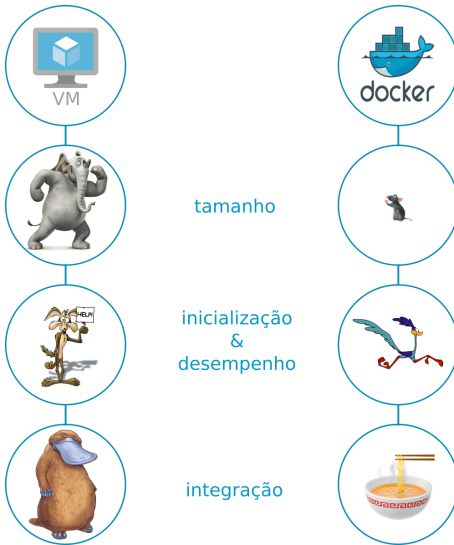


Virtual Machines



Docker Containers

A finalidade de uma VM é emular totalmente um ambiente, enquanto que a de um contêiner é tornar os aplicativos portáteis e independentes.







## ► Dockerfile Correto

```
FROM node:10.12.0-alpine

ADD . /usr/src/app

WORKDIR /usr/src/app

RUN npm set progress=false && npm install && npm cache clean --force

EXPOSE 3000

ENV HTTP_PORT=9090

CMD ["npm", "start"]
```

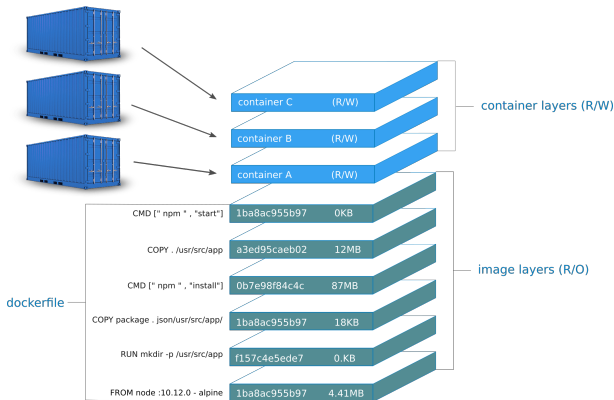
```
# bash console
docker image build -t minha_primeira_imagem:share .
```



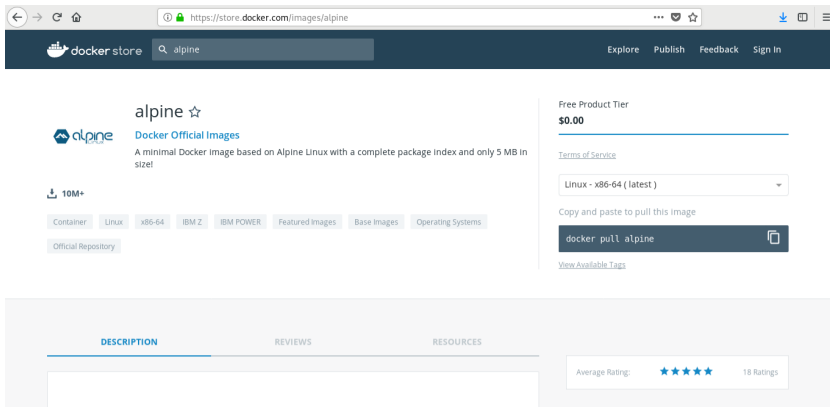
## ► Dockerfile Incorreto

```
FROM node:10.12.0-alpine
RUN mkdir -p /usr/src/app
WORKDIR /usr/src/app
COPY . /usr/src/app
RUN npm set progress=false
RUN npm install
RUN npm cache clean --force
EXPOSE 3000
ENV HTTP_PORT=9090
CMD ["npm", "start"]
```

```
# bash console
docker image build -t minha_primeira_imagem:share .
```



A imagem Docker é um modelo somente leitura a partir do qual os contêineres são instanciados. Cada imagem consiste em uma série de camadas (layers).



alpine ☆

Docker Official Images

A minimal Docker image based on Alpine Linux with a complete package index and only 5 MB in size!

10M+

Container Linux x86-64 IBM Z IBM POWER Featured images Base images Operating Systems

Official Repository

Free Product Tier  
**\$0.00**

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Linux - x86-64 ( latest )

Copy and paste to pull this image

```
docker pull alpine
```

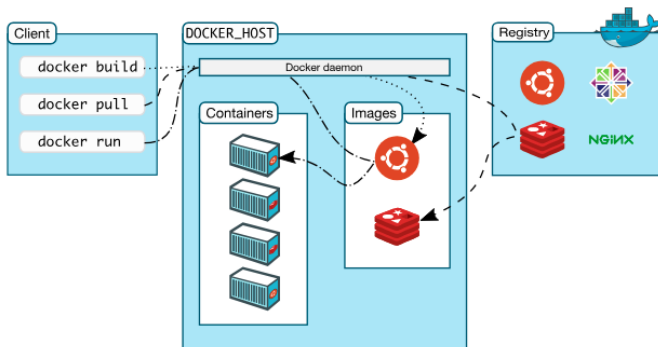
[View Available Tags](#)

DESCRIPTION REVIEWS RESOURCES

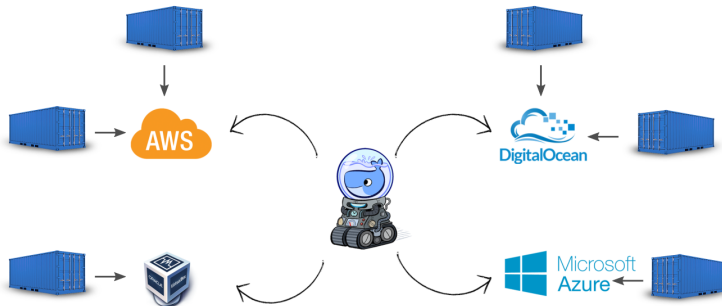
Average Rating: ★★★★★ 18 Ratings

```
# bash console
docker push $DOCKER_ID_USER/minha_primeira_imagem:share
```

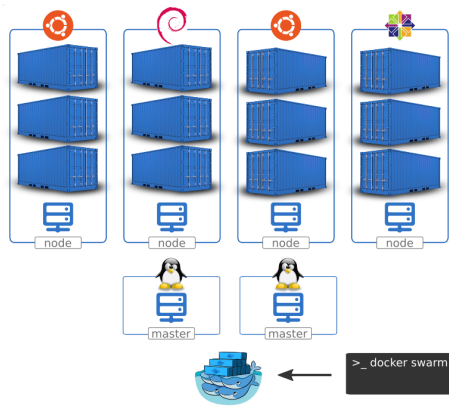
Registro (registry) é um repositório para armazenamento e distribuição de imagens.



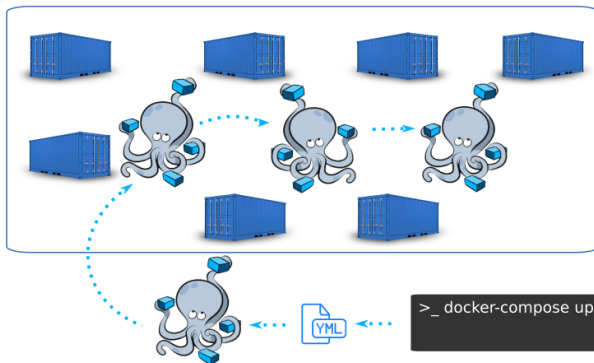
```
# bash console
docker build -t ubuntu:share .
docker pull redis
docker run --name ubuntu_share ubuntu:share
```



Docker machine é a ferramenta usada para gerência distribuída, permite a instalação e gerência de docker hosts de forma fácil e direta.



O Docker Swarm permite que containers executem distribuídos em um cluster, controlando a quantidade de containers, balanceamento de carga, registro, deploy, replicas e update de serviços.



Docker Compose é um orquestrador de containers da Docker, facilita a criação e administração de um conjunto de containers a partir do uso de um simples arquivo de configuração em formato YAML.



## ► Docker-compose

```
version: '3'

services:
  web:
    build: .
    ports:
      - "9090:5000"
    volumes:
      - ../code
  redis:
    image: "redis:alpine"
```

```
# bash console
docker-compose up
```



Obrigado e use Docker ;)