



Linux Containers e Docker

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O que é um container?

No mundo físico

No mundo digital

O que é Docker?

Docker vs VM

Docker Image

Ecosistema Docker

Docker Hub/Store

Docker Registry

Docker Machine

Docker Swarm

Docker Compose

Containers

O que é?



2

May 2, 1967

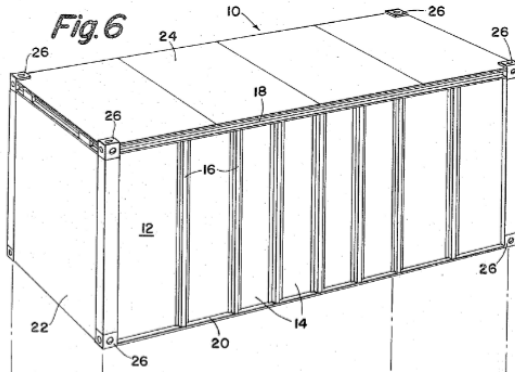
E. HINDIN ET AL

3,317,219

VEHICLE FORMED BY COUPLEABLE CONTAINERS WITH DEMOUNTABLE
ADAPTER FRAMES

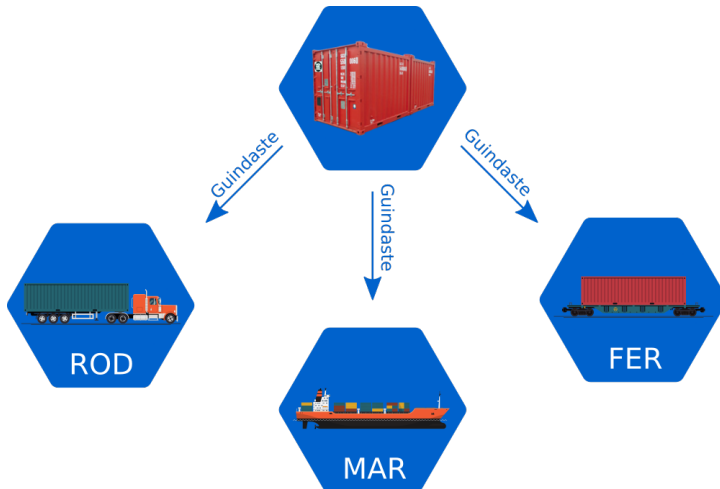
Filed June 4, 1965

5 Sheets-Sheet 3



Containers

Qual problema resolve no mundo físico?



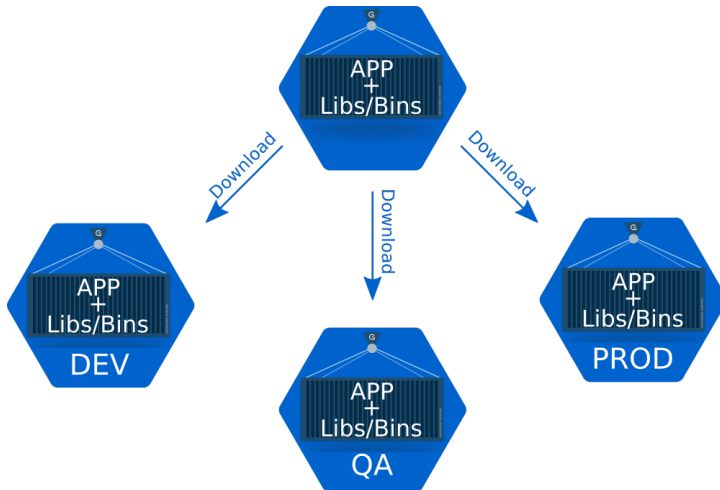
CONTROLE → AGILIDADE → PORTABILIDADE

Containers

Qual problema resolve no mundo digital?



4

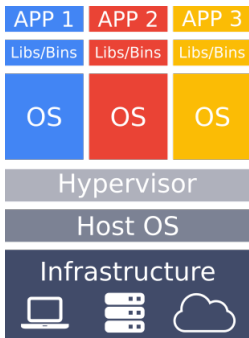


CONTROLE → AGILIDADE → PORTABILIDADE

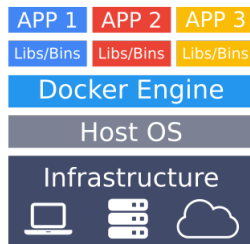


1979	•	Unix → Chroot.
2000	•	FreeBSD → Jails.
2001	•	Linux → Linux-VServer.
2005	•	Parallels → OpenVZ Open Virtuozzo.
2006	•	Google → Control Groups.
2008	•	Linux → (LXC) Linux containers.

2013	•	dotCloud → Docker.
2015	•	OCI → Docker e CoreOS.
2016	•	Microsoft → Windows Containers.



Virtual Machines



Docker Containers

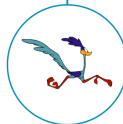
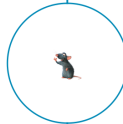
A finalidade de uma VM é emular totalmente um ambiente, enquanto que a de um contêiner é tornar os aplicativos portáteis e independentes.

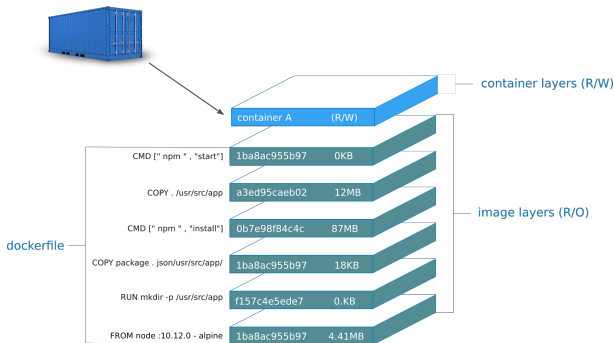


tamanho

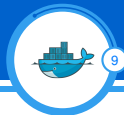
inicialização
&
desempenho

integração





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).



► 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

ENV HTTP_PORT=9090

EXPOSE $HTTP_PORT

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

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



► Dockerfile Errado

```
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
ENV HTTP_PORT=9090
EXPOSE $HTTP_PORT
CMD ["npm", "start"]
```

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

Docker

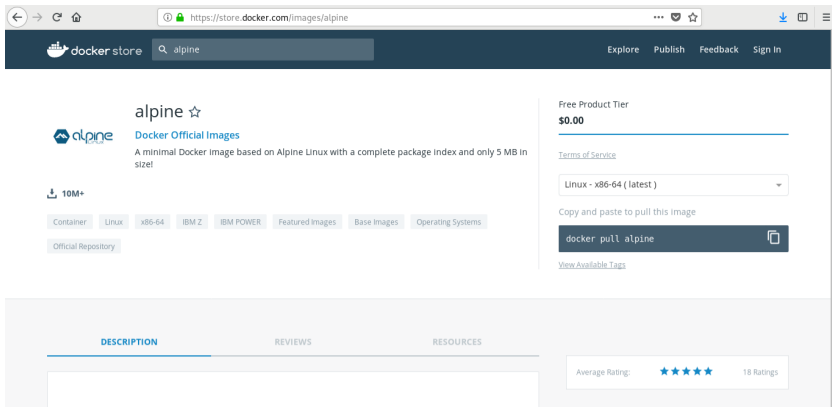
Containers são efêmeros!



Containers são efêmeros, nascem e morrem com a sua aplicação.



```
# bash console
docker container run -d -p 8001:9090 -e HTTP_PORT=9090 --name
    efemero efemero:share
docker container run -d -p 8002:9090 -dit --restart=always -e
    HTTP_PORT=9090 --name zumbi zumbi:share
```



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

[Terms of Service](#)

Linux - x86-64 (latest)

Copy and paste to pull this image

```
docker pull alpine
```

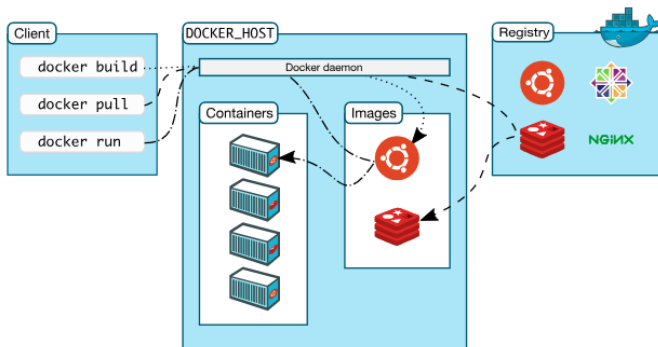
[View Available Tags](#)

DESCRIPTION REVIEWS RESOURCES

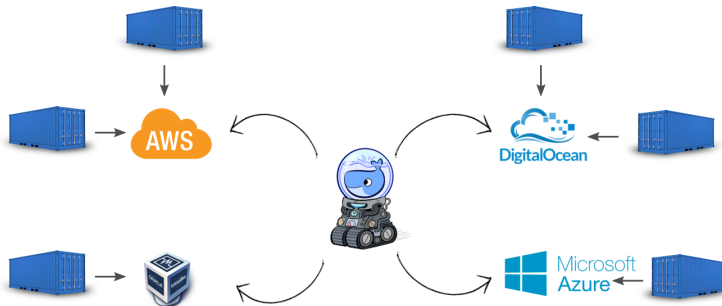
Average Rating: ★★★★★ 18 Ratings

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

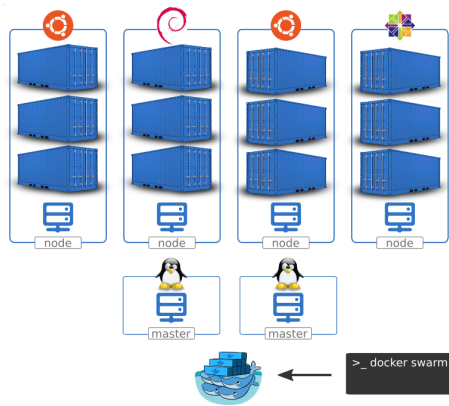
Registro (registry) é um repositório para armazenamento e distribuição de imagens.



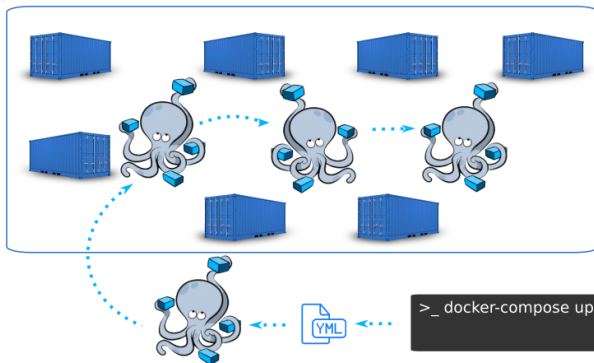
```
# bash console
docker build -t ubuntu:share .
docker pull redis
docker run --name ubuntu_share ubuntu:share
```



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.

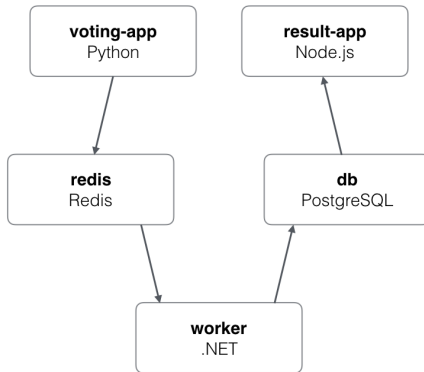


► Docker-compose

```
version: '3'

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

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



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



Obrigado e use Docker ;)