DIY RoR (PART I)

dockerize it yourself ruby on rails

a talk for malaga.rb (2019-02-26)

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WHAT IS  ?

Let's ask to Wikipedia...

WHAT IS  ?

Let's ask to Wikipedia...

Docker is a computer program that performs operating-system-level virtualization, aka "containerization". It was first released in 2013 and is developed by Docker, Inc.

- Docker started as internal project of dotCloud 2011-2013 by Solomon Hykes
- Docker has made in Golang 🤔
- You can write once, runs everywhere with ~~Java~~ Docker

VIRTUALIZATION

CONTAINER-IZATION

(LIGHTWEIGHT VIRTUALIZATION?)

FULL VIRTUALIZATION

- hypervisor
- it has hardware support

CONTAINER-IZATION

- less memory comsumpt
- runs directly in the kernel
- run without intel vt-x or AMD V
- but...
  Windows™ or OSx™ needs a VM 😅

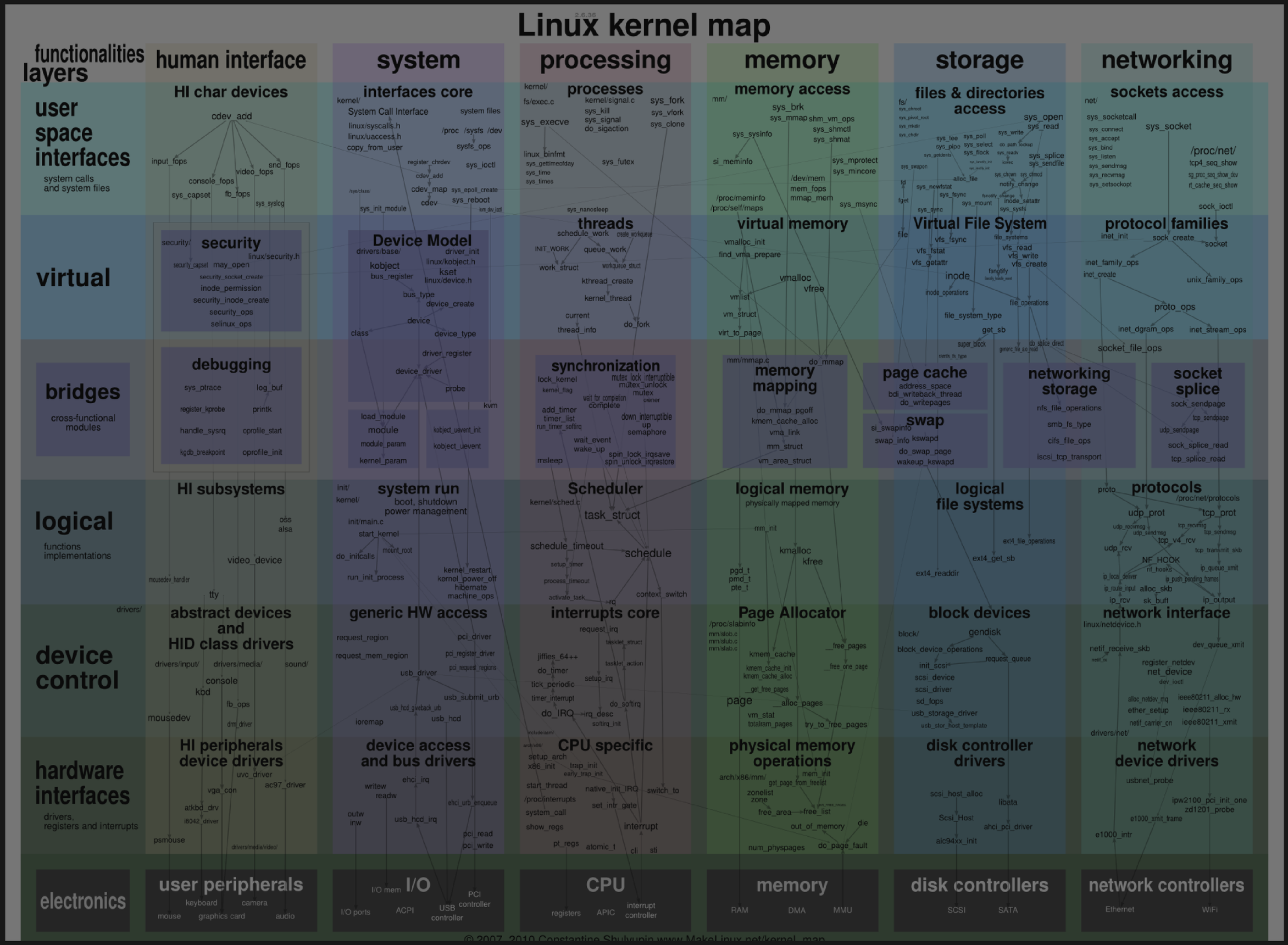
FULL VIRTUALIZATION

virtualization has many implementation

CONTAINERIZATION

(LIGHTWEIGHT VIRTUALIZATION?)

using advances features of linux kernel



DOCKER NEEDS MINIMAL VERSION OF KERNEL

- use chroot (1982), diferent root of filesystem
- use namespaces (2002), process run as unique process on system PID, namespace PID
- use cgroups (2007), limit the resources usables by process (cpu, memory, IO, network)

me.match(/(ruby|rails)+(\s|\w)+(dev)/)

Why should I use Docker?

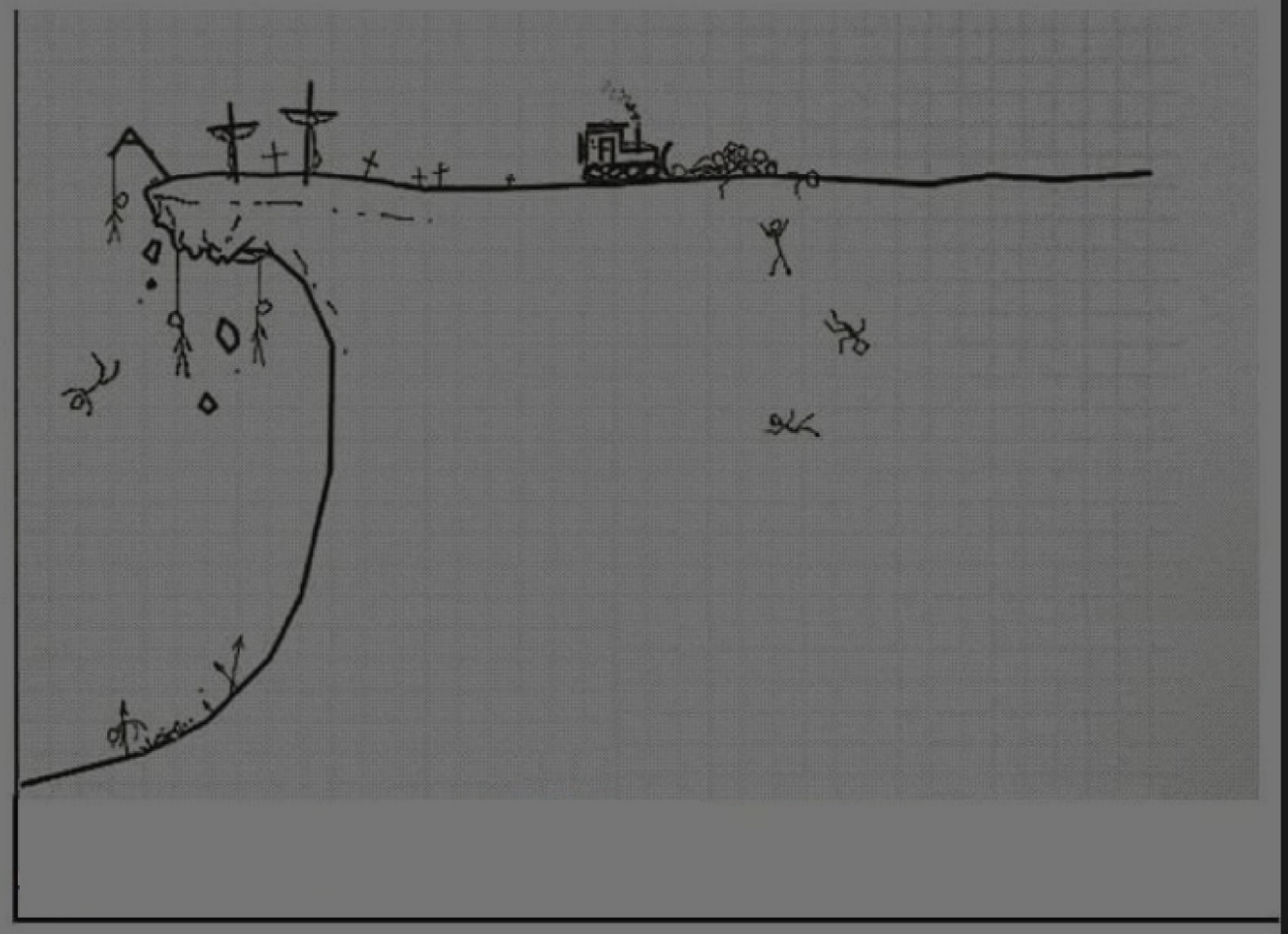
- specific version of ruby (we have rvm or rbenv)
- dependencies restricted environment (bundle exec, gemset)
- disponsable environments
- encapsulate your application with single requirement **docker installed**
- get multi-service application working on their workstation in an automated, repeatable, and efficient way.
- make easier transportation to production because use same format

FOR ME THE MORE IS NOT THE BETTER,
PROGRESSIVE IS THE BEST

I started with mixed solution, rbenv, database dockerized

BEFORE TO START LEARNING CURVE?

Learning Curve



because has many requeriments

the problem is prerequisites

FORTUNATELY,

- we know how to install ruby
- bundler is our friend
- we know our database favourite
- we love the CLI

BASIC CONCEPTS

to learn docker, one self have to learn:

- image vs container ✓
- image layers ✓
- volume in docker
- docker CLI ✓
- dockerfile sintax ✓
- docker-compose sintax
- docker-compose CLI
- practise, practise ...

ADVANCE CONCEPTS

- container orchestration

NEXT TALK?

- DIY RoR part II

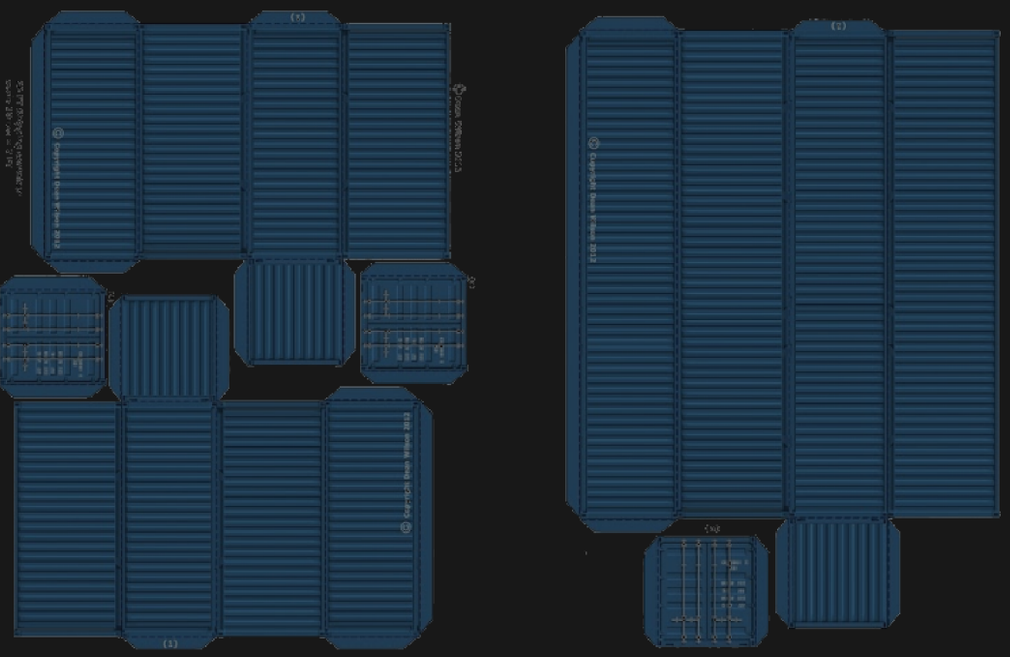
DOCKER IMAGE VS DOCKER CONTAINER

Example 1:
docker image is like a class
docker container is like an instance of class

Example 2:
docker image is like a software without install
docker container is like an installation of this software

Example 3:
docker image is like a blueprint
docker container is like a object build with this blueprint

BLUEPRINT



OBJECT ITSELF

DOCKER IMAGE

DOCKER CONTAINER

DOCKER IMAGES

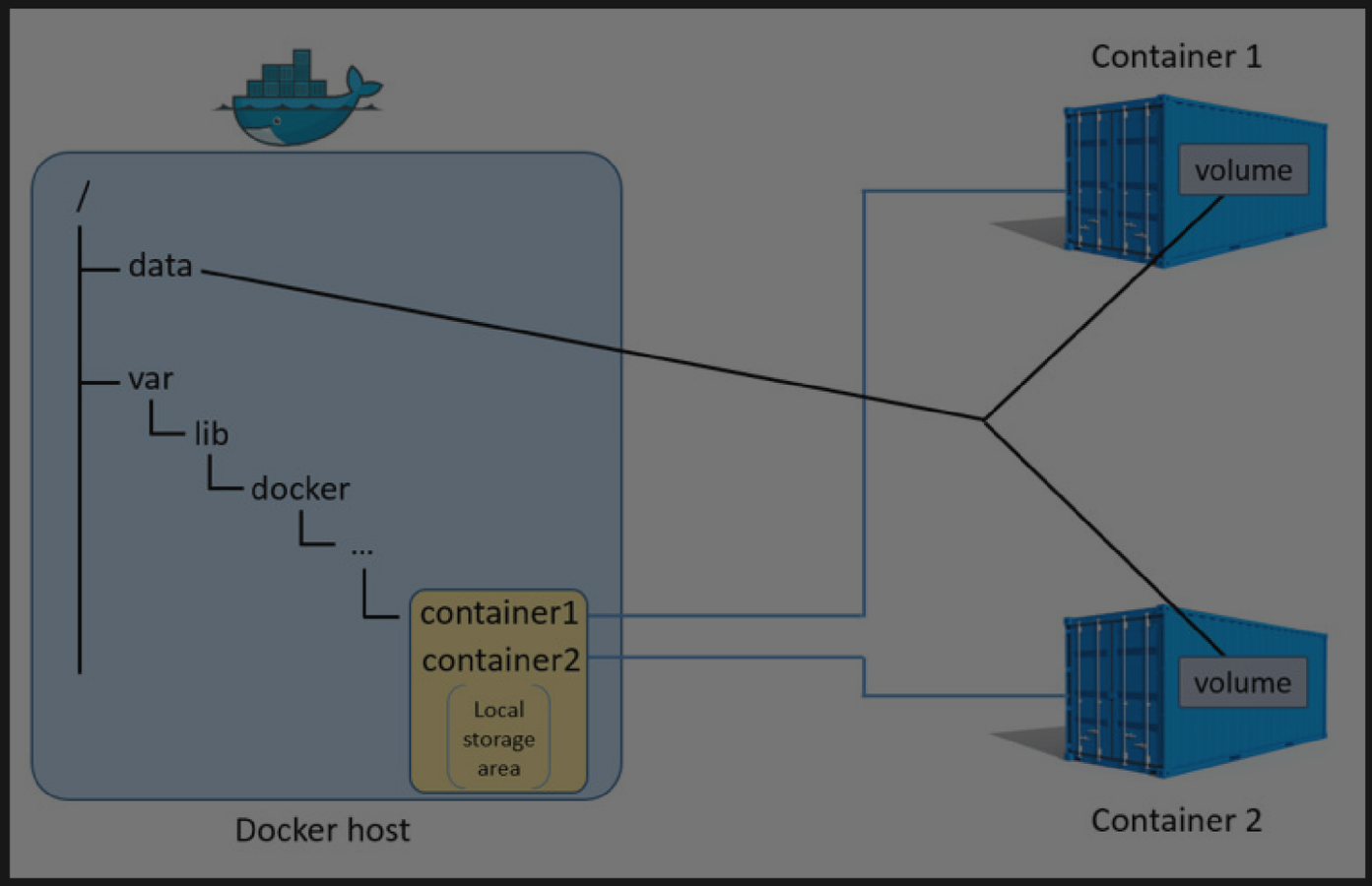
https://hub.docker.com/

images of ruby

DOCKER VOLUME

- docker philosophy is disponsable
- remove container => remove data

docker rm != docker stop



volume is the solution, A mounted volume acts like a shared directory between the container and the host

DOCKER CLI (IMAGE)

```
docker image --help
# docker [image]
docker image ls
docker image ls --all
docker image pull
docker image rm # docker rmi $SHA_IMAGE
docker image prune
docker image tag
docker image inspect
docker image build

docker images
docker images --all
```

see more CLI at

DOCKER CLI (CONTAINER)

```
docker container --help
# docker [container]
docker container create
docker container start
docker container run
docker container exec
docker container logs
docker container pause
docker container restart
docker container rm
docker container prune
```

see more CLI at

DOCKER CLI (VOLUME)

```
docker volume --help
# docker volume
docker volume create
docker volume rm
docker volume ls
docker volume inspect
docker volume prune
```

see more CLI at

DOCKERFILE SINTAX

```
FROM ruby:2.3

RUN apt-get update \
        && apt-get install -y --no-install-recommends \
                postgresql-client \
        && rm -rf /var/lib/apt/lists/*

WORKDIR /usr/src/app
COPY Gemfile* ./
RUN bundle install
COPY . .

EXPOSE 3000
CMD ["rails", "server", "-b", "0.0.0.0"]
```

see more sintax at

WHAT ARE DOCKER IMAGES MADE OF?

docker images has layers

```
root@vps      :~# docker pull mysql:latest
mysql:latest: The image you are pulling has been verified

30d39e59ffe2: Pull complete
c90d655b99b2: Pull complete
b5e97c78b45c: Pull complete
cb0fa0867097: Pull complete
3b38456294dc: Pull complete
491473ad28e9: Pull complete
e08c168b0f0c: Pull complete
898e7d81a8a4: Pull complete
44411e160dec: Pull complete
efd4c068d187: Pull complete
fa460b916d16: Pull complete
6e416a2b810d: Pull complete
dfb53cb56e99: Pull complete
a4987fecc1d7: Pull complete
0beee7f478c8: Pull complete
511136ea3c5a: Already exists
Status: Downloaded newer image for mysql:latest
```

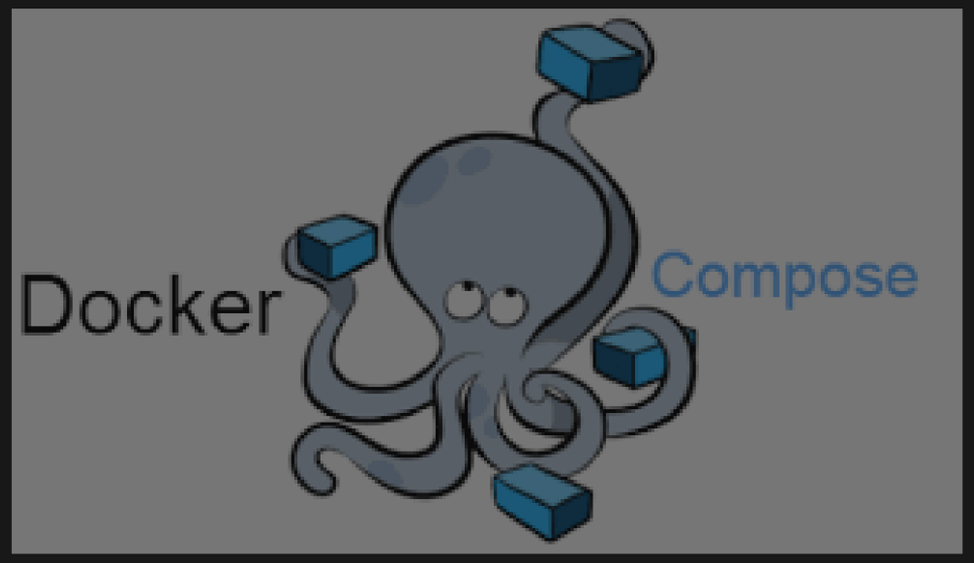
we do not cover important improvements

- Dockerignore
- Clean best practise (rm -rf /var/lib/apt/list/*)
- Sorting layers for improve cache
- Multistage images

DEMO TIME!!

We pray to lord of the light, For the demo is dark and full of terrors

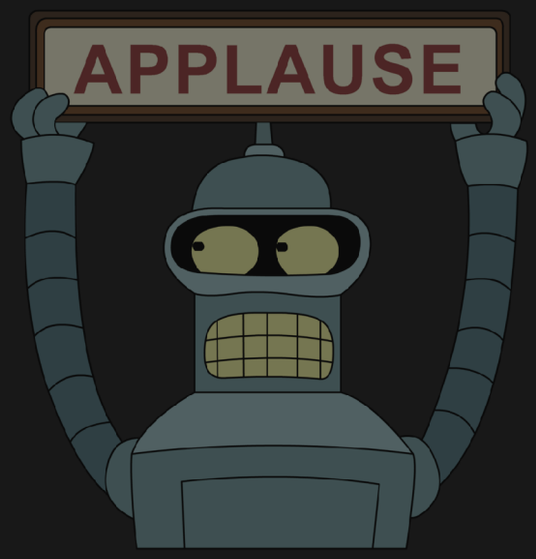
ONE DOESN'T SIMPLY RUNS ONE CONTAINER




```
version: '1'
services:
  db:
    image: postgres
    volumes:
      - ./tmp/db:/var/lib/postgresql/data
  web:
    build: .
    command: bash -c "rm -f tmp/pids/server.pid && bundle exec rails s -p 3000 -b '
    volumes:
          - .:/myapp
    ports:
      - "3000:3000"
        depends_on:
      - db
```

```
docker-compose build
docker-compose run
```

TO BE CONTINUED...



THANKS TO

- codespaceacademy
- malaga.rb

PLEASE VISIT ANDALUCIA.ONRUBY.EU

powered by docker and reveal.js