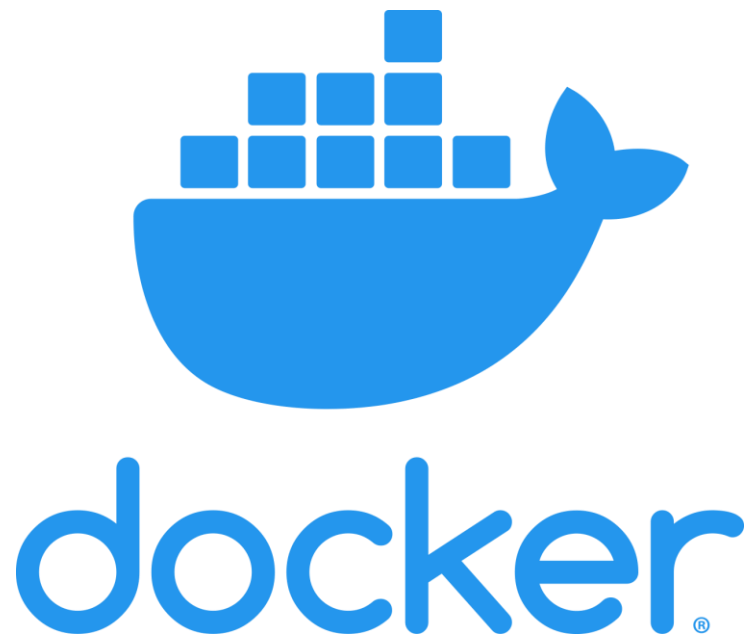




**ISEL**  
INSTITUTO SUPERIOR DE  
ENGENHARIA DE LISBOA



Apresentação Individual  
Rodrigo Leal, nº44823

# Index

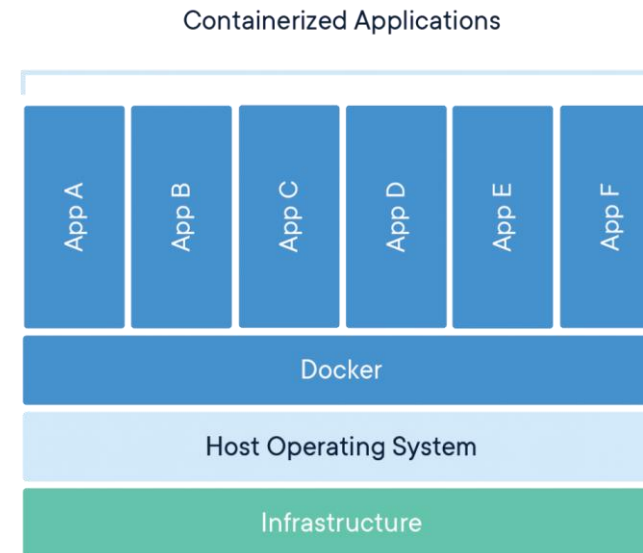
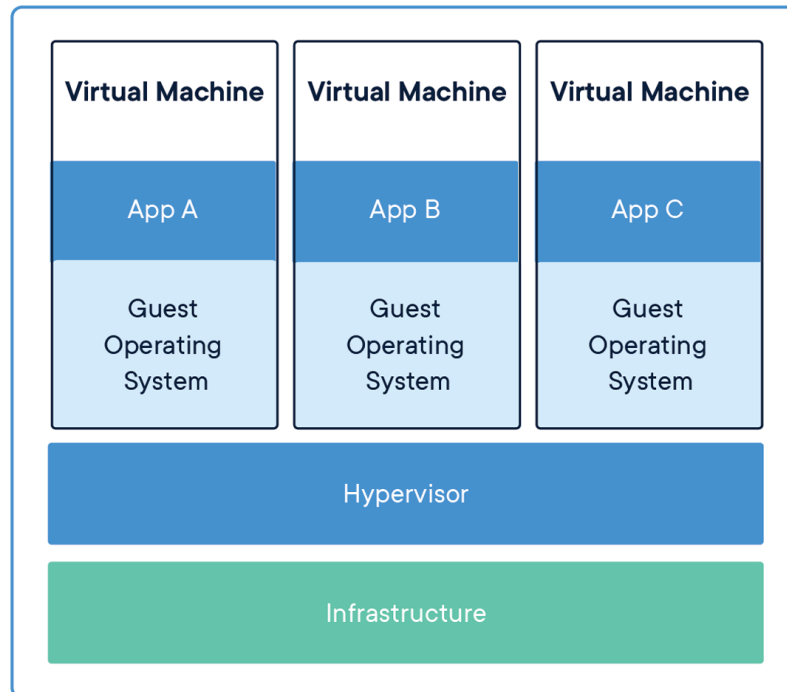
- What is Docker?
- Container VS Virtual Machine
- Under The Hood
- Docker Image
- Dockerfile
- Dockerfile Example

# What is Docker?

- Tool
  - Easier to create, deploy, and run applications by using containers
- Docker Container
  - Standardized unit of software
  - Virtualized run-time environment
  - Allow developers to isolate their app from its environment
  - Lightweight
  - Secure

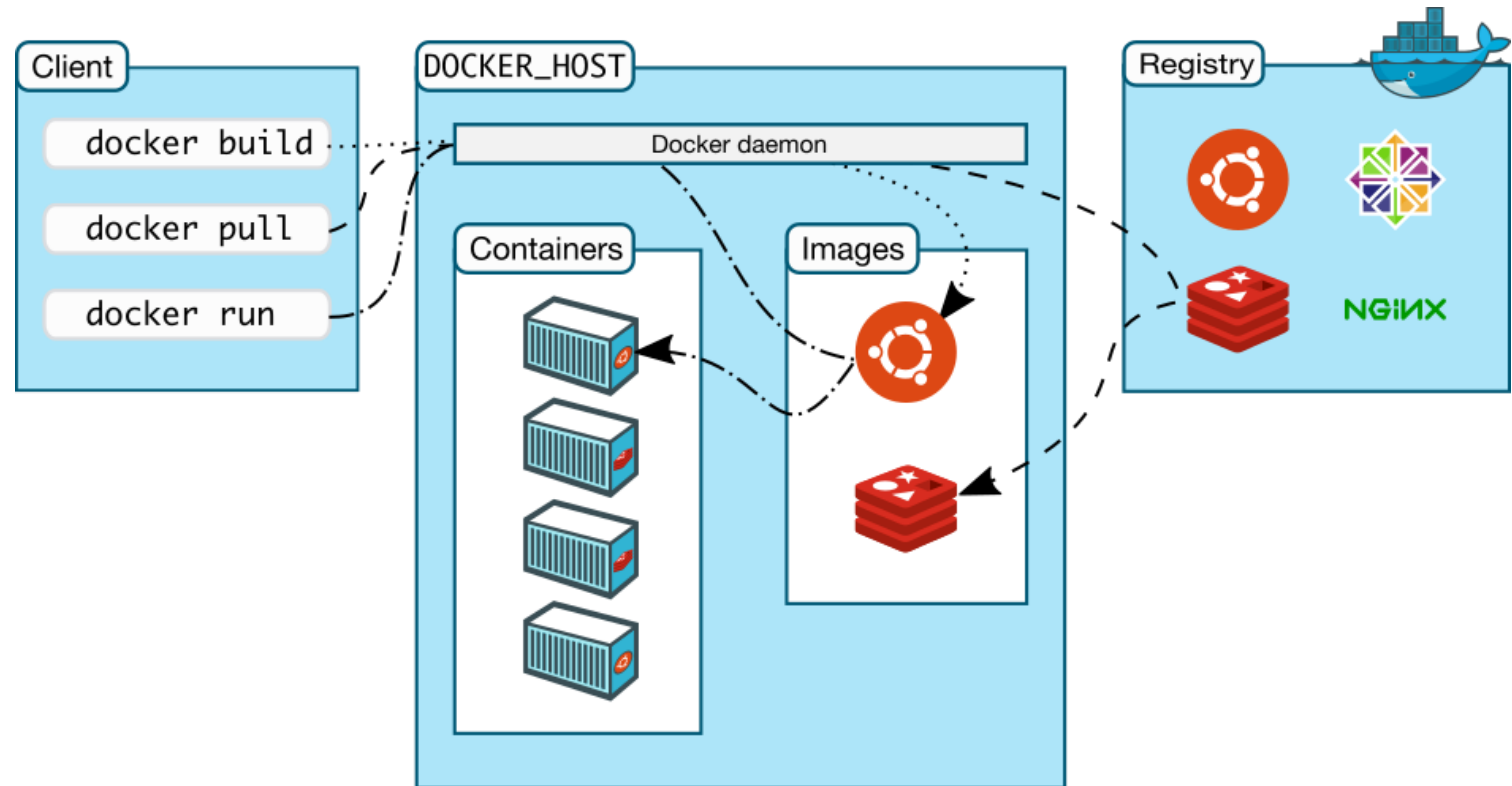
# Container VS Virtual Machine

- Similar resource isolation and allocation benefits
- Containers share system kernel



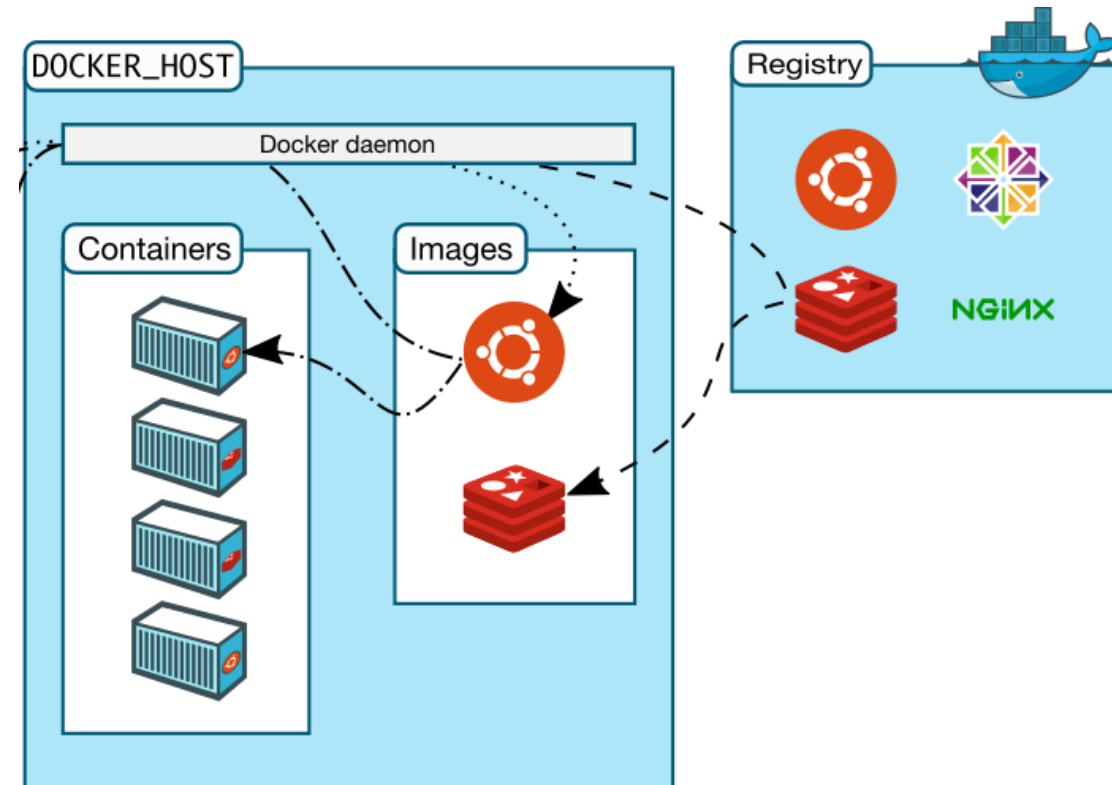
# Under the Hood

- Docker Engine
  - Container runtime
  - Client-server architecture
    - CLI
    - API
    - Daemon
  - Manages containers
  - Handles docker objects
    - Containers
    - Images
    - Services
    - Networks
    - Volumes



# Docker Image

- Docker Image
  - Immutable (read-only)
  - Everything needed to run an application
  - Images become containers
- Docker registry
  - Contains Docker images
  - Public
    - Docker Hub
  - Private
    - Docker
    - Artifactory
    - Amazon Elastic Container Registry



# Dockerfile

- Text file which includes instructions to build a Docker image
  - FROM
  - ARG
    - `docker build --build-arg user=what_user .`
  - RUN
  - ENV
  - ADD
  - COPY
  - CMD
  - ENTRYPOINT
  - EXPOSE
  - USER

# DockerFile Example

```
FROM openjdk:13
RUN yum -y update \
    && yum -y install wget
RUN wget https://github.com/JetBrains/kotlin/releases/download/v1.3.71/kotlin-
compiler-1.3.71.zip -O temp.zip
RUN yum -y install unzip
RUN unzip temp.zip
RUN rm temp.zip
ENV PATH="/kotlinc/bin:${PATH}"
COPY KotlinExecutionEnvironment-1.0.0-SNAPSHOT-spring-boot.jar .
COPY ./libs ./libs
ENTRYPOINT java -jar KotlinExecutionEnvironment-1.0.0-SNAPSHOT-spring-boot.jar
EXPOSE 8080
```



Thank you

# References

- <https://opensource.com/resources/what-docker>
- <https://www.docker.com/>
- <https://docs.docker.com/>
- <https://phoenixnap.com/kb/docker-image-vs-container>
- <https://docs.docker.com/glossary/>