

# Docker

Machine Learning Architects Basel

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# Agenda

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- **Some Docker Vocabulary**
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# What and Why Docker ?

Docker is an open-source project that automates the deployment of applications inside software containers written in Go languages.

Docker have many advantages such as :

- Isolation
- Lightweight
- Simplicity
- Workflow
- Community



# Some Docker Vocabulary

- **Docker Engine:**

Creates, ships and runs Docker containers deployable on a physical or virtual ,host locally ,in a datacenter or cloud service provider.

- **Docker Image:**

The basis of a Docker container. Represents a full application

- **Docker Container:**

The standard unit in which the application service resides and executes

- **Registry Service(Docker Hub):**

Cloud or server-based storage and distribution service for your images

# Docker Engine

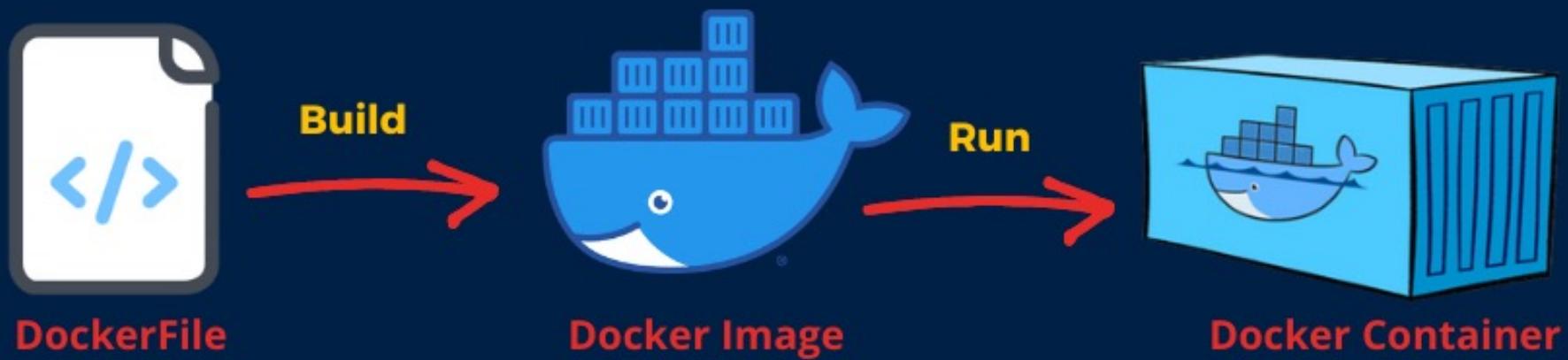
- **Docker Daemon:**

- ❖ Builds Images
- ❖ Runs and Manages Containers
- ❖ Restful Api

- **Docker CLI:**

- ❖ docker Build Dockerfile #Build an image from
- ❖ docker images Docker host #List all images on a
- ❖ docker run #Run an image
- ❖ docker stop #Stop a running instances
- ❖ docker rm #Remove an instance
- ❖ docker rmi #Remove an image

# Docker Process



# DockerFile

```
● ● ●  
FROM some_image_name  
  
WORKDIR directory_on_image  
  
COPY client_files image_files  
  
ADD source image_destination  
  
RUN command  
  
ENV enviornment_variable_name=environment_variable_value  
  
EXPOSE port_number  
  
USER username  
  
ENTRYPOINT command_in_image[options]  
  
CMD command_in_image[options]
```

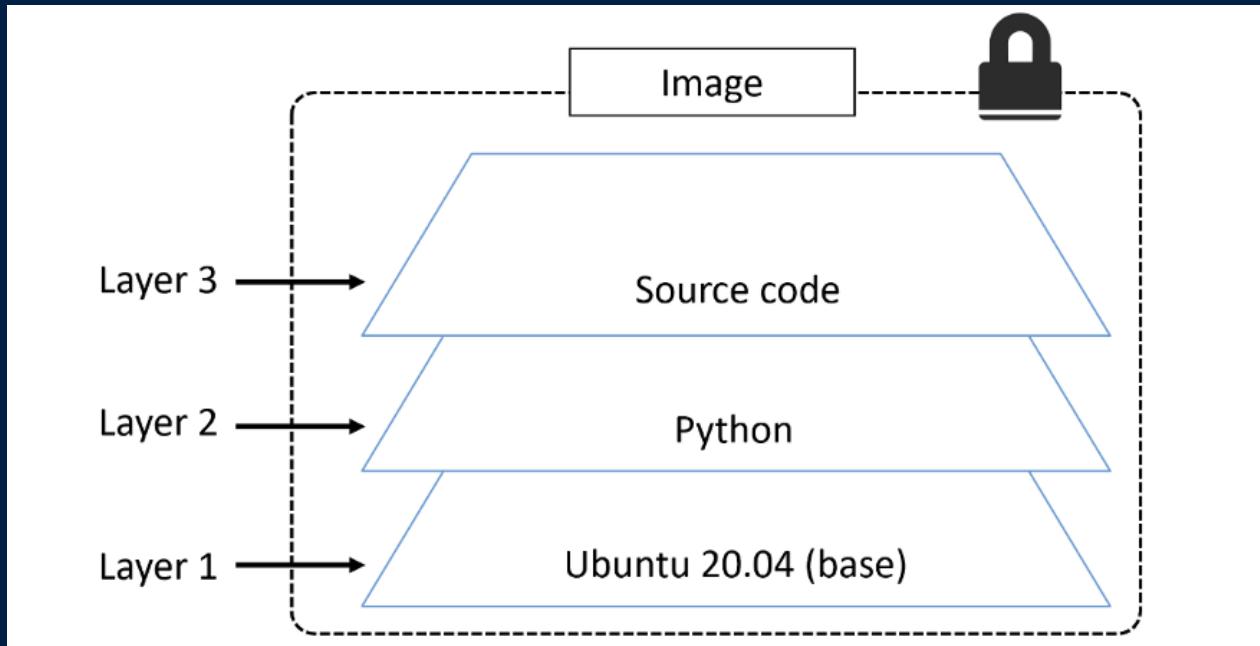
# Docker Image

- **Base image:**

The user can build this first layer entirely from scratch with the build command.

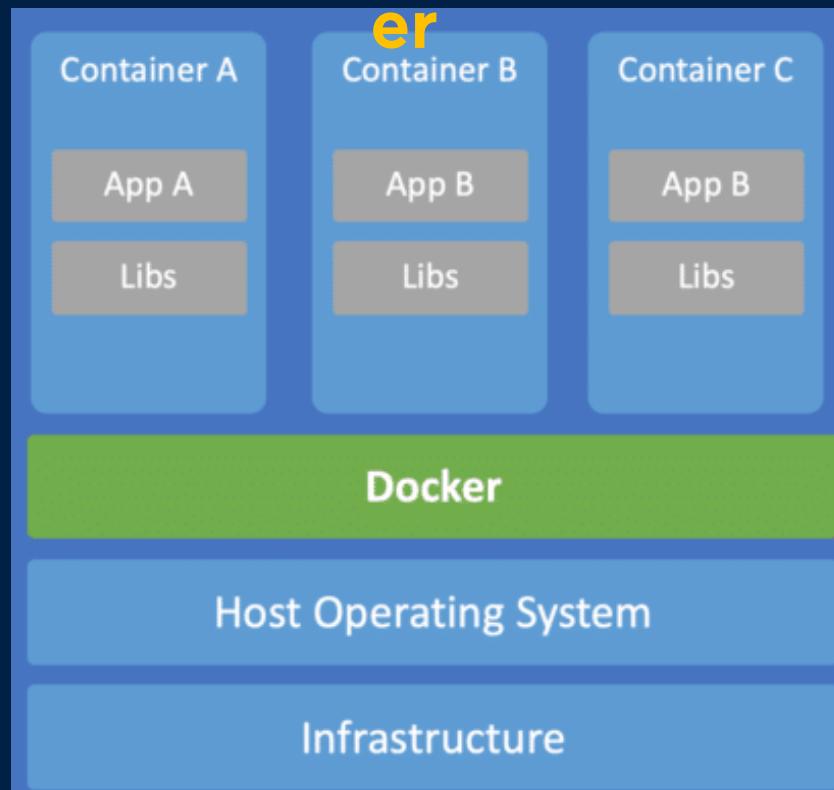
- **Layers:**

Layers are added to the base image, using code that will enable it to run in a container.



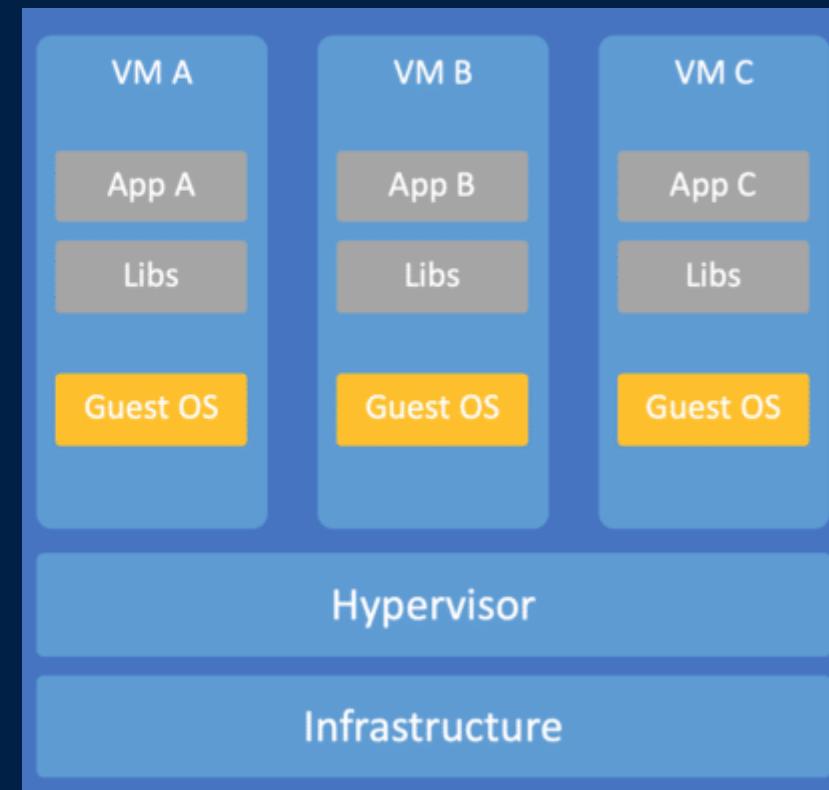
# Container Vs VM

Contain



**VS**

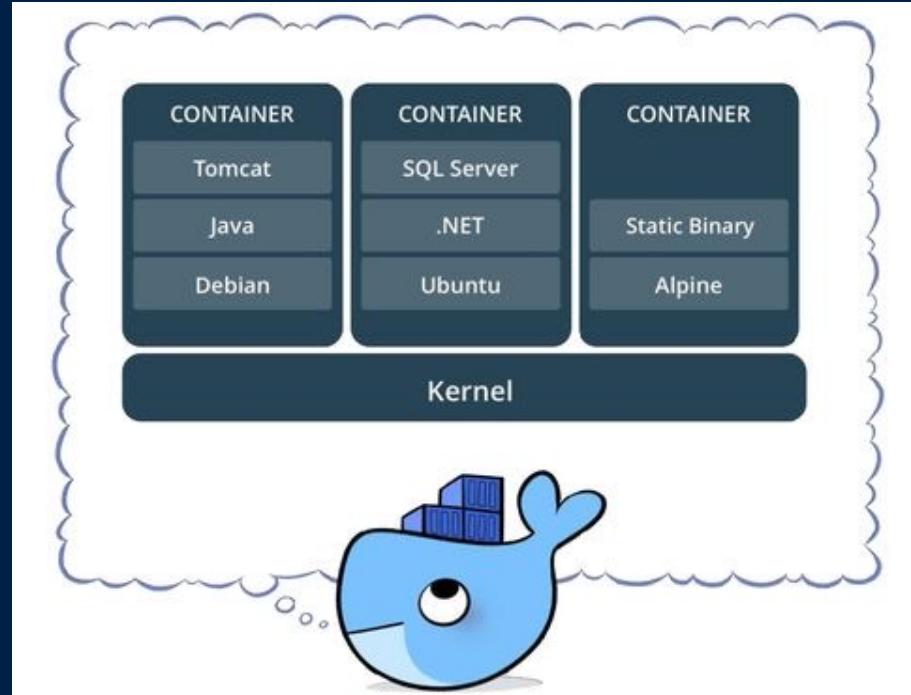
VM



# Docker Container

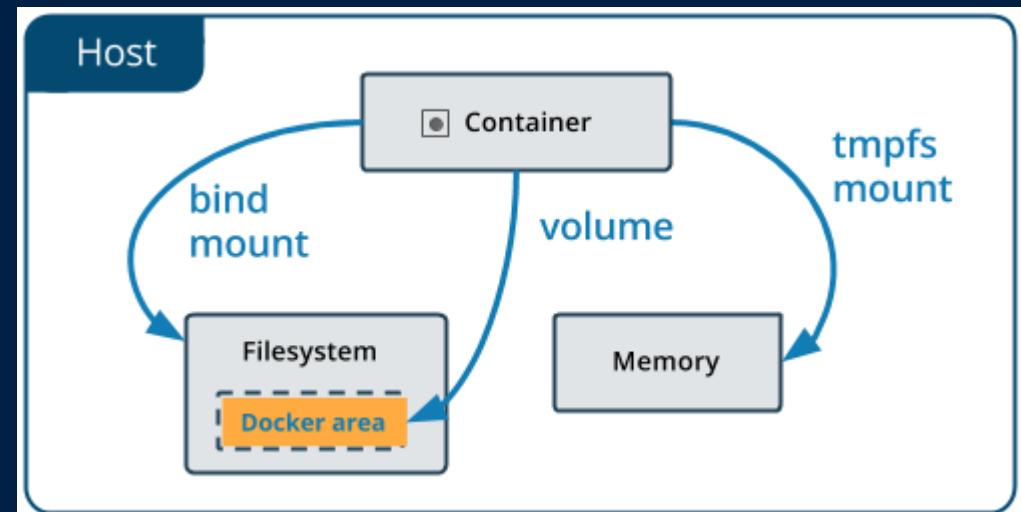
Containers allow us to:

- Standardized packaging for software and dependencies
- Isolate apps from each other
- Share the same OS kernel
- Work for all major Linux distributions

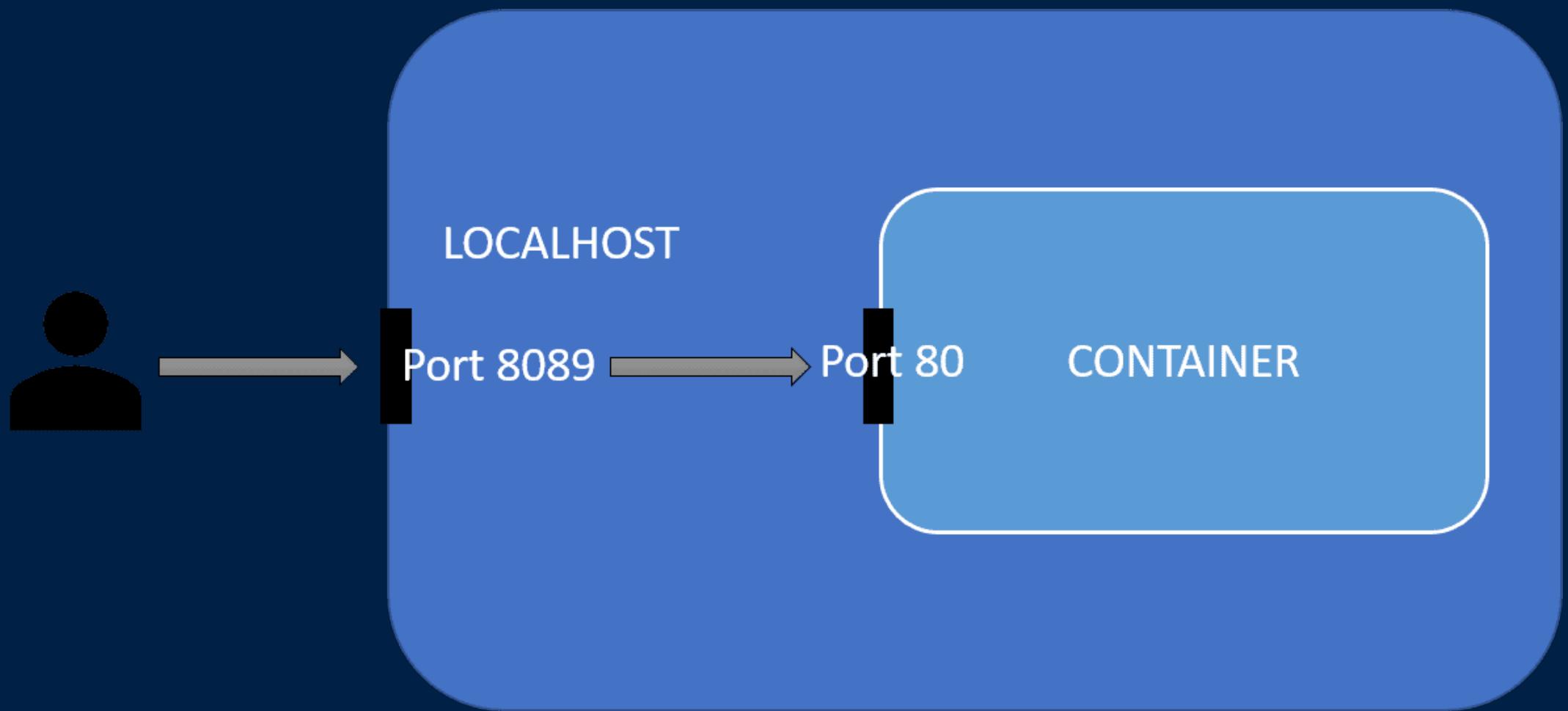


# Docker Volume

- Volumes mount a directory on the host into the container at a specific location
- Can be used to share and persist data between containers
- Can be created in a Dockerfile or via CLI



# Docker Networking(Container Ports)





Implementing reliable  
machine learning solutions



Operating Models – Technologies – Culture & Skills

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