

ABHIJIT AGARWAL / DSR

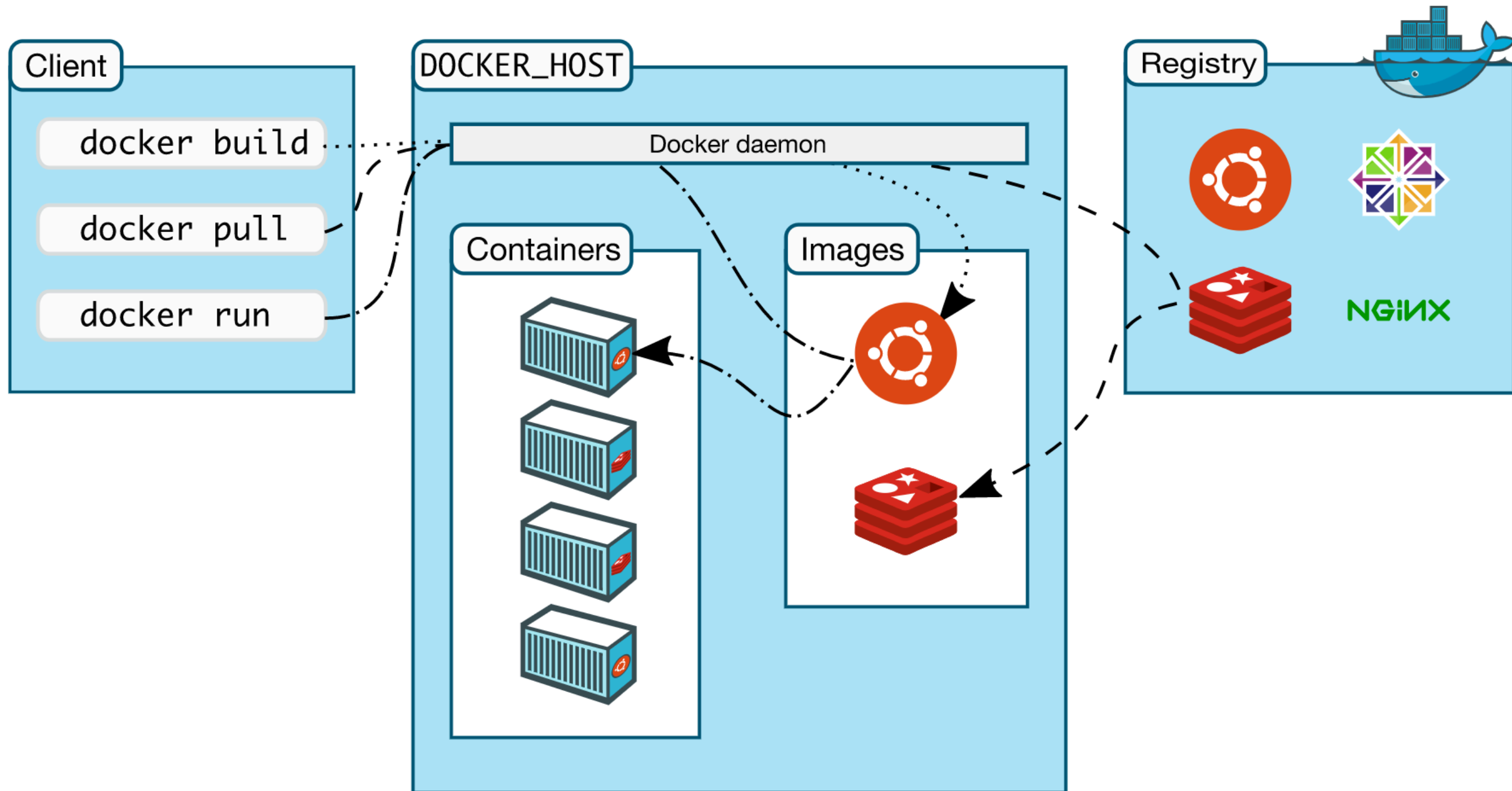
DOCKER INTRODUCTION

WHAT IS DOCKER

- Creates a “virtual machine” to run your code in
- Separates applications from Infrastructure
- Can be used in development and in production
- Solves the “works on my machine” problem
- Available for Windows, Mac, Linux

DOCKER

ARCHITECTURE



DAEMON AND CLIENT

- The Docker daemon (dockerd) is the process that manages all docker resources
- The Docker client (docker) is the primary way that Docker users interact with the Daemon
- In our case, the daemon and the client will be on the same machine: our laptops!

IMAGES AND CONTAINERS

- An image is a read-only template with instructions for creating a Docker container.
- Often, an image is based on another image, with some additional customization. Example of popular images: Ubuntu, Python, MySQL, etc.
- By default images are available on hub.docker.com
- A container is a runnable instance of an image. One image can have multiple containers running

BASIC COMMANDS

List all docker images

docker images

Pull a docker image

docker pull ubuntu:16.04

List all running containers

docker ps

List all running and stopped containers

docker ps -a

Start a container from an image

docker run -it --rm --name ubuntu-container ubuntu:16.04 /bin/bash

Execute commands on an already-running container

docker exec -it <container-name-or-id> /bin/bash

Stop a running container, from outside the container

docker stop <container-name-or-id>

EXERCISE 1

- Find the image for Ubuntu on Docker Hub (use google)
- Start a container with Ubuntu. Version 18.04
- Install wget utility inside this container
- Exit this container
- The container is now stopped. Restart the container
- Install python 3.7 in this container
- Exit this container again
- Delete this container
- Delete the image

EXERCISE 2

- Find the image for Mysql
- Read instruction on "How to use this image"
- Start a container with Mysql. Version 5.7
- Run a mysql container in the background
- Run mysql client inside the same container, using "root" user
- Run ``SHOW DATABASES``
- Exit the mysql client
- Stop the container
- Don't delete the image! We'll use it later.