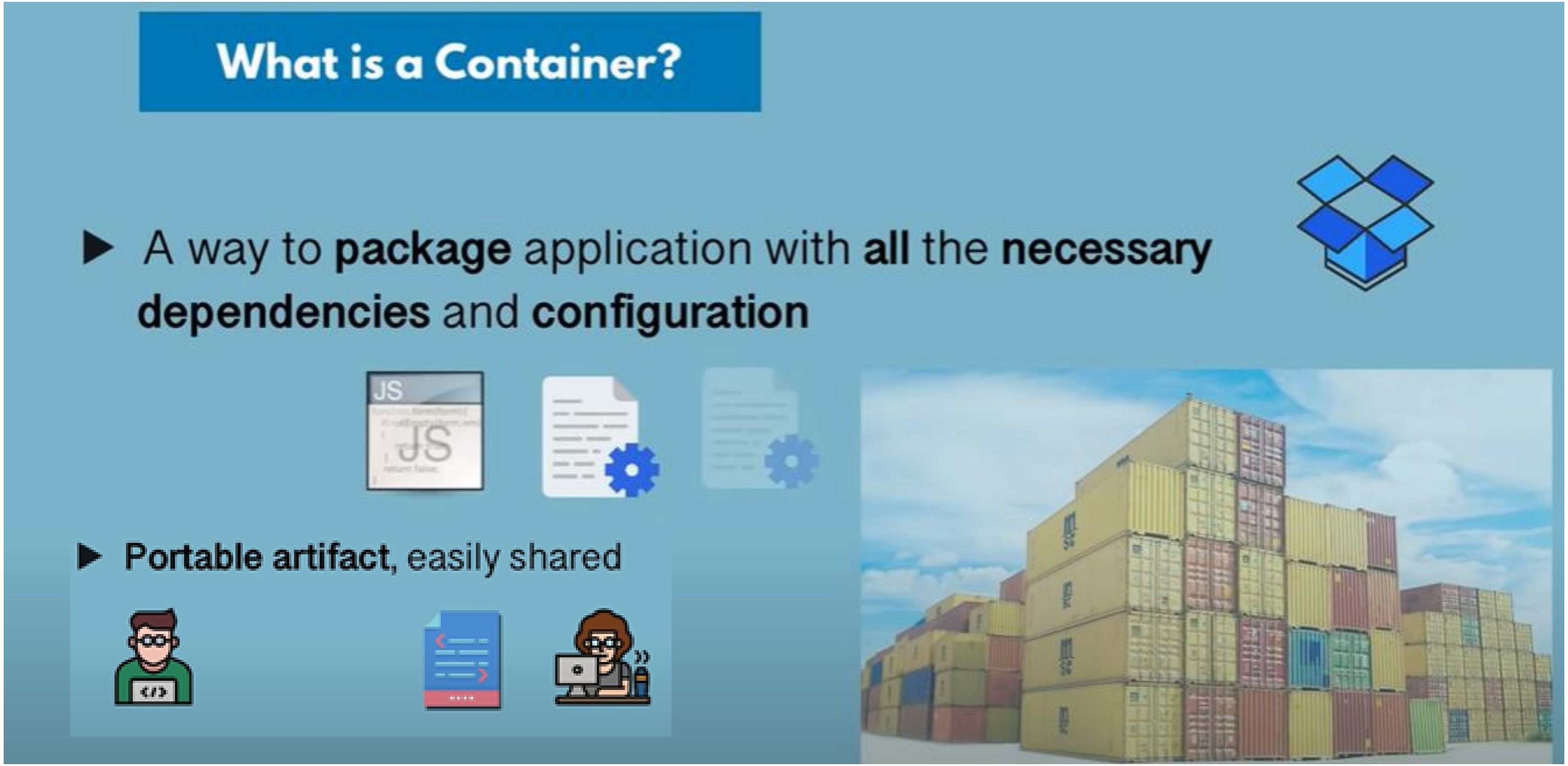
Introduction Docker

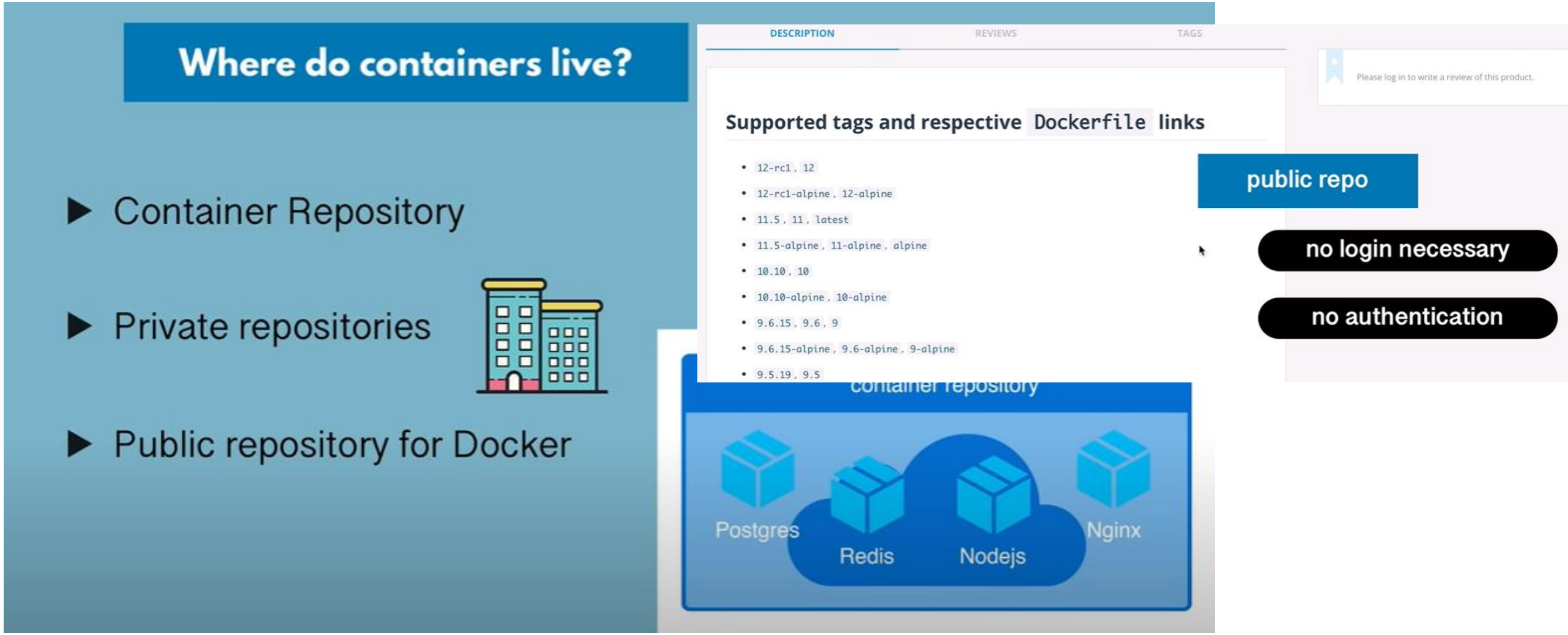
What ais Conatiner



What is a Container?

- A way to **package** application with **all** the **necessary dependencies** and **configuration**
- **Portable artifact**, easily shared

Container Storage? Docker Hub - https://hub.docker.com/



Where do containers live?

- Container Repository
- Private repositories
- Public repository for Docker

Supported tags and respective `Dockerfile` links

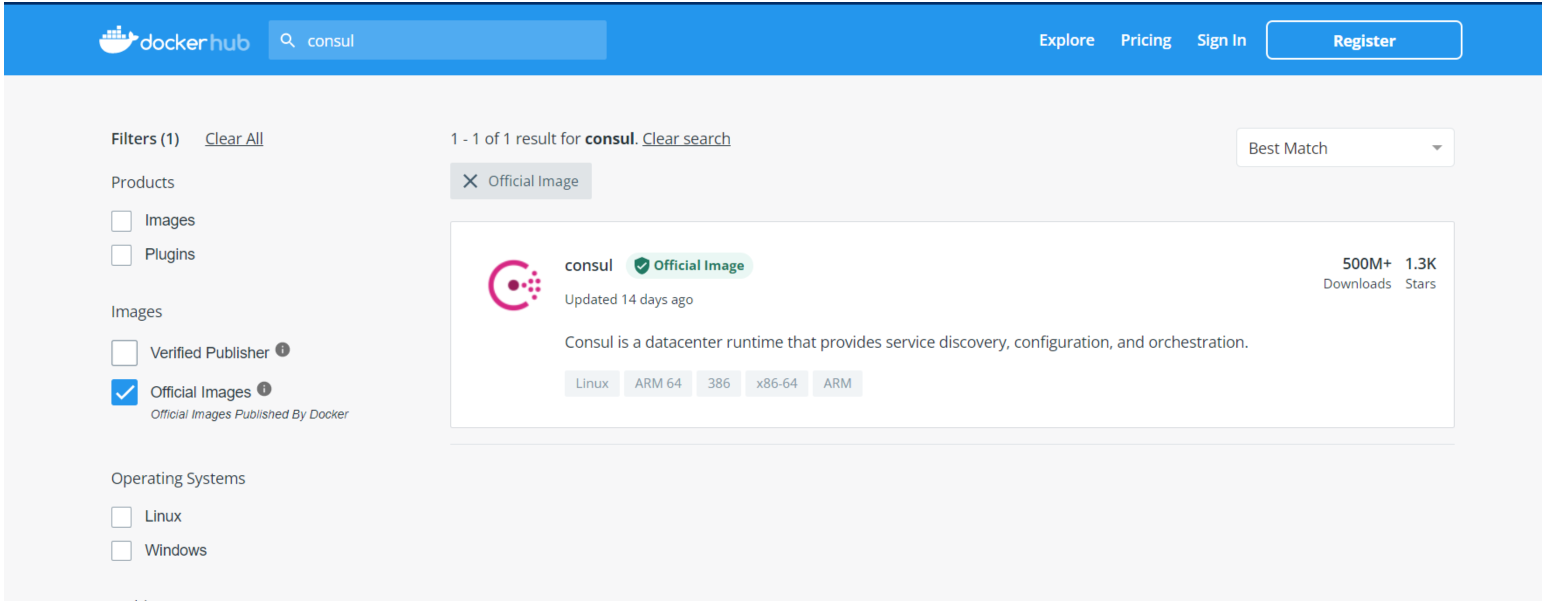
- `12-rc1`, `12`
- `12-rc1-alpine`, `12-alpine`
- `11.5`, `11`, `latest`
- `11.5-alpine`, `11-alpine`, `alpine`
- `10.10`, `10`
- `10.10-alpine`, `10-alpine`
- `9.6.15`, `9.6`, `9`
- `9.6.15-alpine`, `9.6-alpine`, `9-alpine`
- `9.5.19`, `9.5`

public repo

no login necessary

no authentication

Hashicorp Consul



Filters (1) Clear All

Products

□ Images

□ Plugins

Images

□ Verified Publisher

☑ Official Images

Official Images Published By Docker

Operating Systems

□ Linux

□ Windows

1 - 1 of 1 result for **consul**. Clear search

Best Match

✕ Official Image

consul ✓ Official Image

Updated 14 days ago

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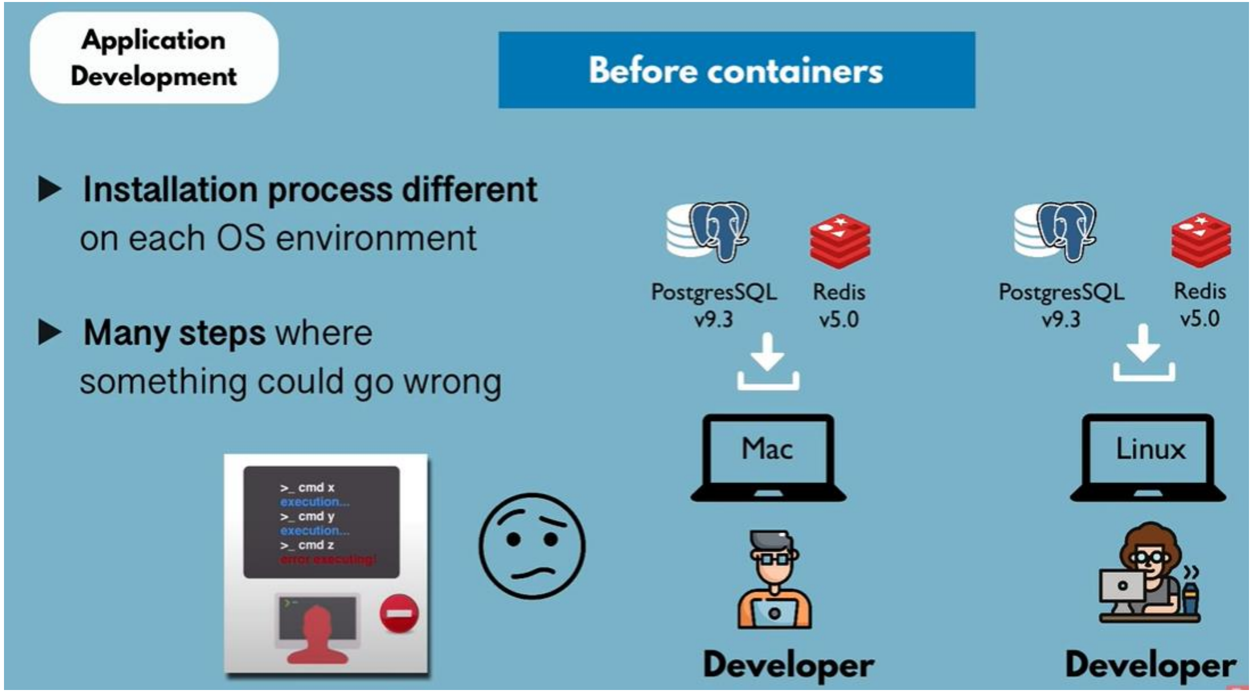
Consul is a datacenter runtime that provides service discovery, configuration, and orchestration.

Linux ARM 64 386 x86-64 ARM

Before Containers



Application Development

Before containers

- ▶ **Installation process different** on each OS environment
- ▶ **Many steps** where something could go wrong

```
>_ cmd x
execution...
>_ cmd y
execution...
>_ cmd z
error executing!
```

PostgresSQL v9.3

Redis v5.0

Mac

Developer

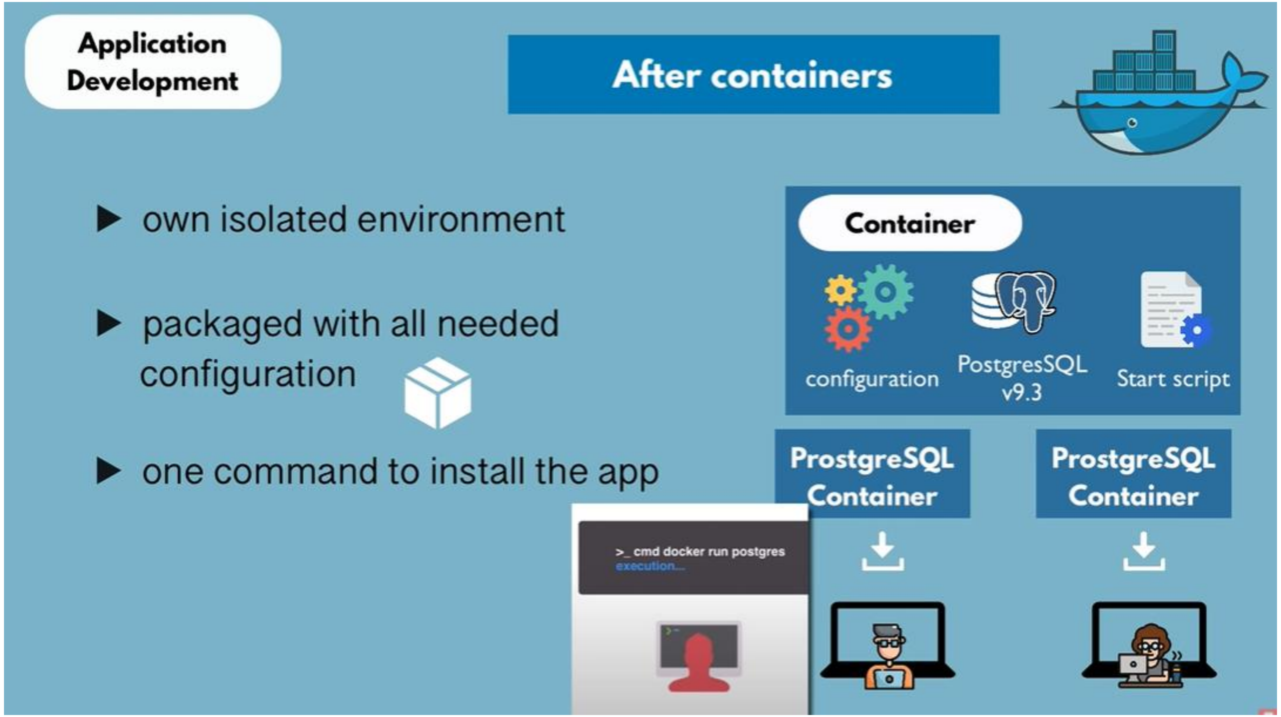
PostgresSQL v9.3

Redis v5.0

Linux

Developer

After Containers



Application Development

After containers

- own isolated environment
- packaged with all needed configuration
- one command to install the app

Container

configuration

PostgresSQL v9.3

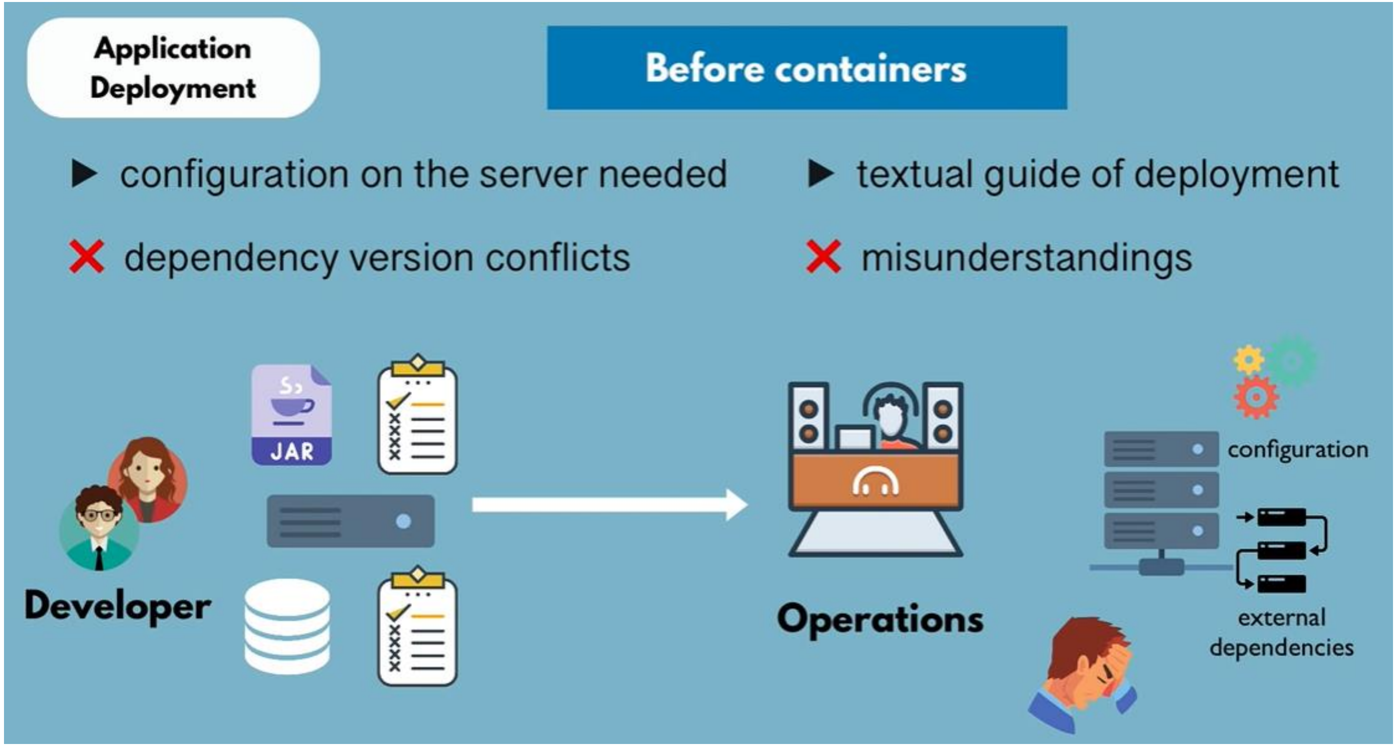
Start script

ProstgreSQL Container

ProstgreSQL Container

```
>_ cmd docker run postgres
execution...
```

Before Container

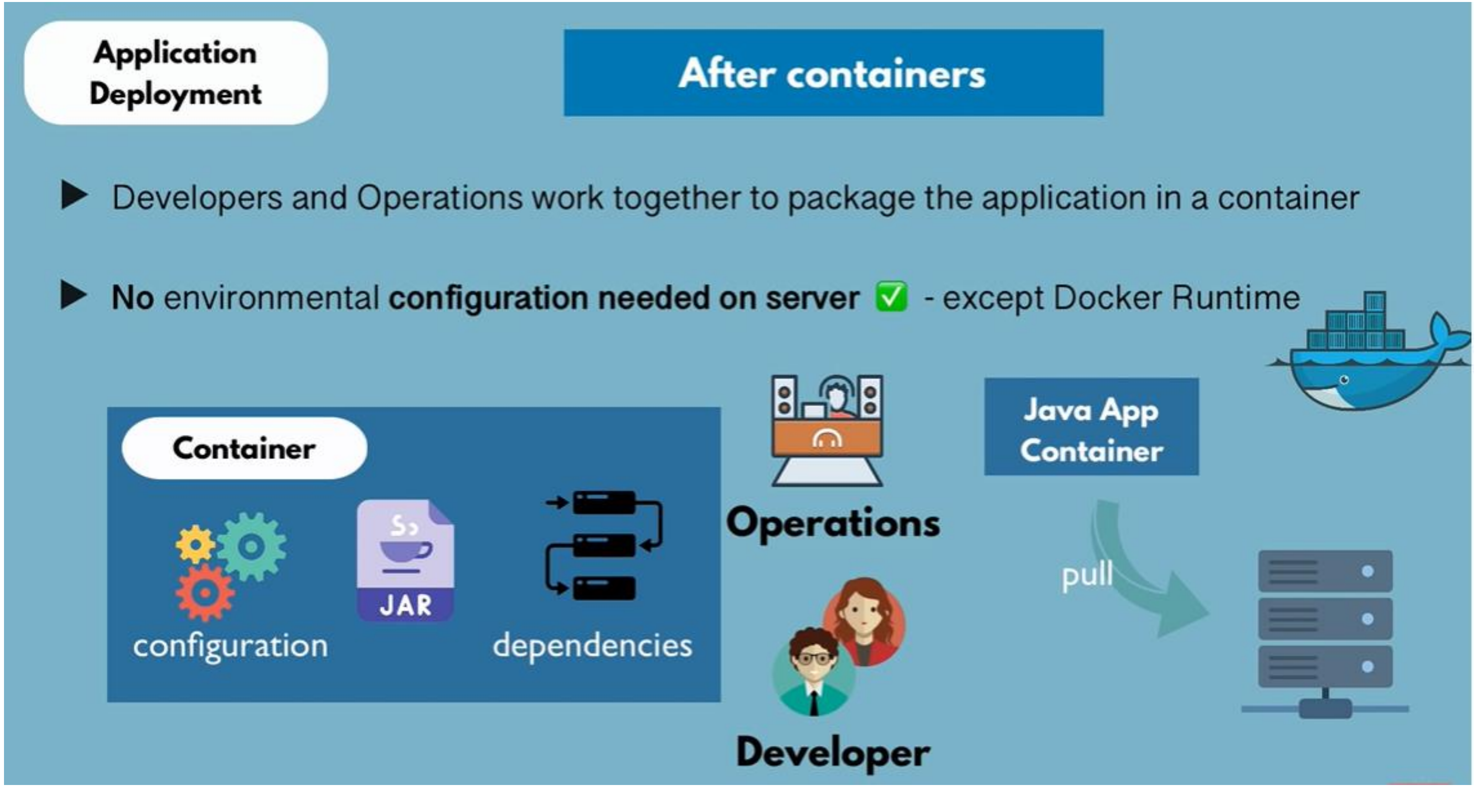


Application Deployment

Before containers

- ▶ configuration on the server needed
- ▶ textual guide of deployment
- ✗ dependency version conflicts
- ✗ misunderstandings

After Container



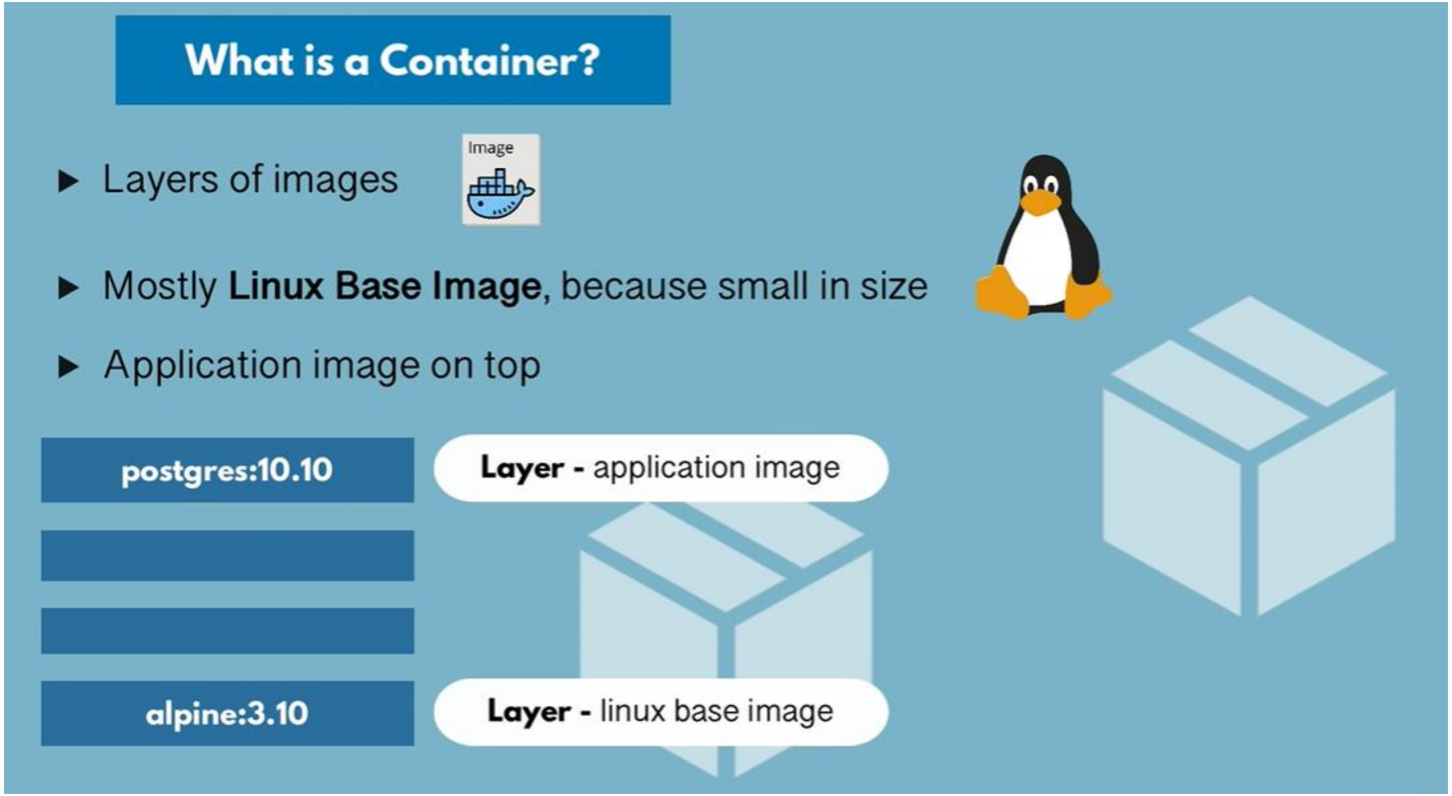
Application Deployment

After containers

- Developers and Operations work together to package the application in a container
- **No** environmental **configuration needed on server** ✅ - except Docker Runtime

Container
configuration
JAR
dependencies
Operations
Developer
Java App Container
pull

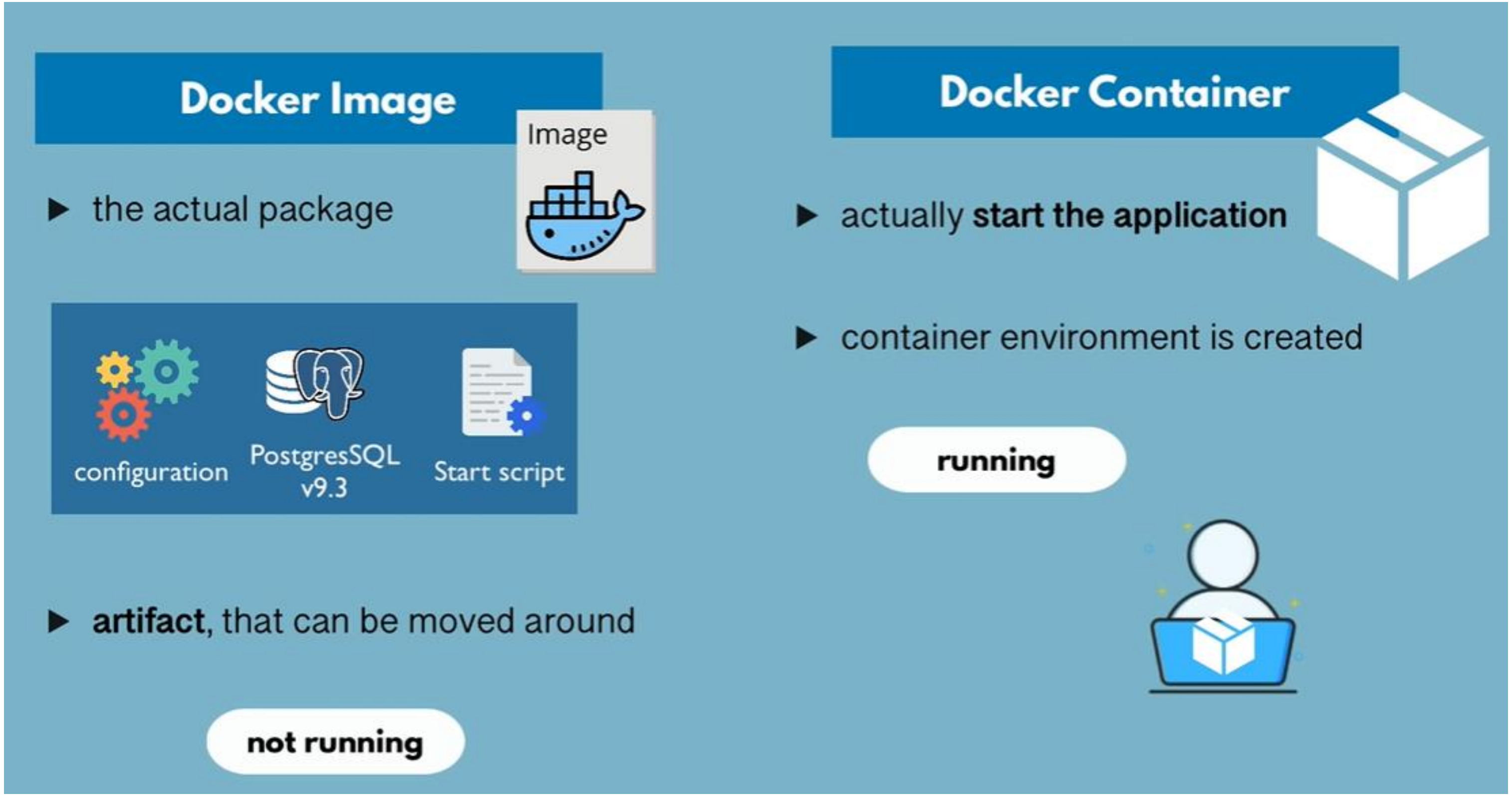
Layers in container



What is a Container?

- Layers of images
- Mostly **Linux Base Image**, because small in size
- Application image on top

Docker Image vs Docker Container



Docker Image

Image

- ▶ the actual package

configuration

PostgresSQL v9.3

Start script

- ▶ **artifact**, that can be moved around

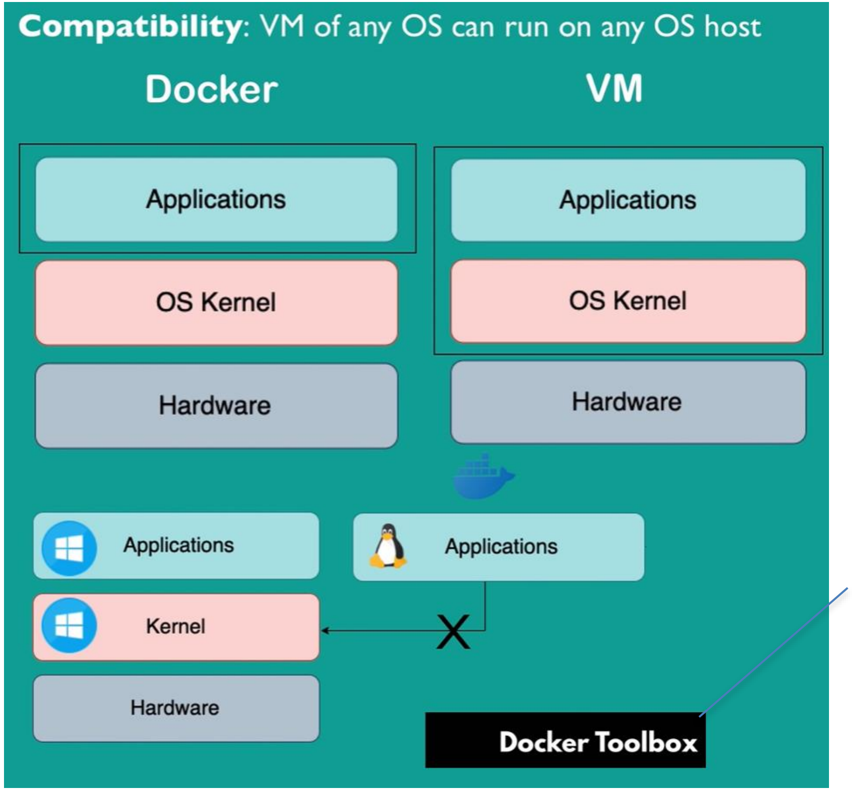
not running

Docker Container

- ▶ actually **start the application**
- ▶ container environment is created

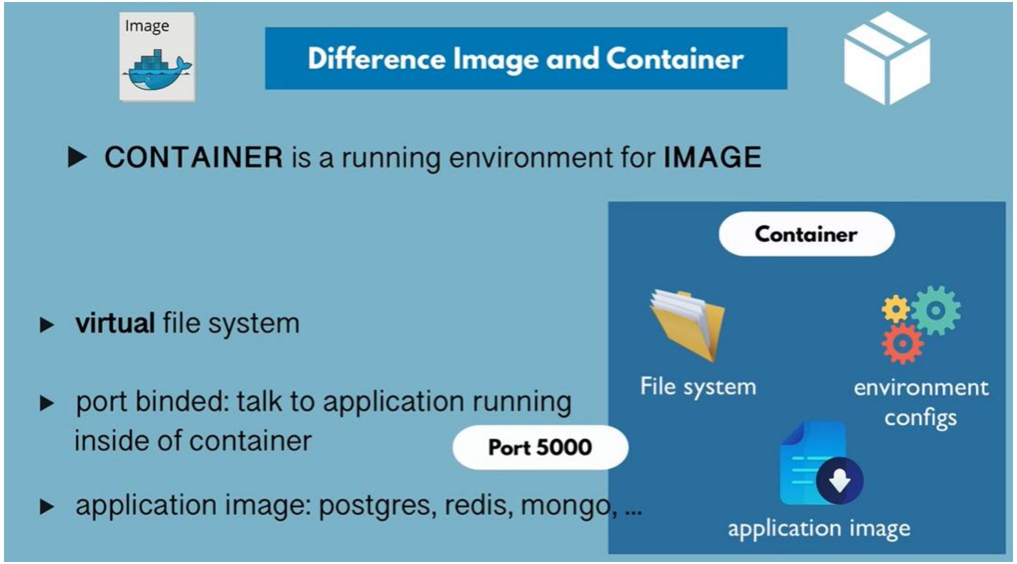
running

Docker vs VM



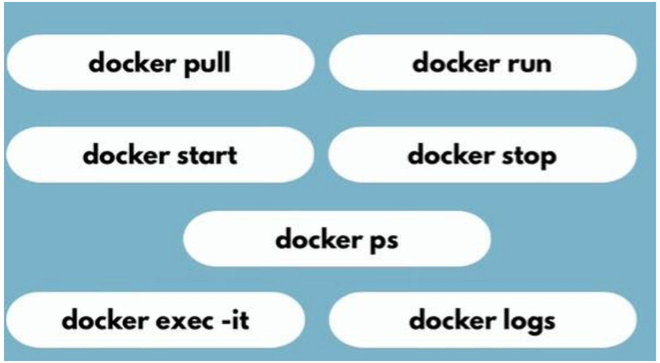
Windows 10 Below

Few Commands in Docker



Difference Image and Container

- **CONTAINER** is a running environment for **IMAGE**
- **virtual** file system
- port binded: talk to application running inside of container
- application image: postgres, redis, mongo, ...



docker pull
docker run
docker start
docker stop
docker ps
docker exec -it
docker logs

docker ps -a = lists running and stopped container

New commands -- (Working fine)
$ docker stop <cotainerId)
$ docker rm
$docker run

Old commands -- (Not working anymore)
$ docker stop
$ docker rm
$ docker run
Ctrl + C / Ctrl + Z
$ docker start

Docker commands

https://docs.docker.com/engine/reference/commandline/docker/

Demos

How to create docker image using **Dockerfile**
What is docker compose and how to create/use **docker-compose.yml** file

To build springboot application into image and start container

https://spring.io/guides/gs/spring-boot-docker/

Appendix

- Docker: Copying files from Docker container to host
- Docker cannot start on Windows
- https://www.educba.com/docker-ps/
- docker container rm | Docker Documentation
- How to name Dockerfiles