Containerization

Links

You can find course resources at: https://github.com/saedx1/devops_course

Our facebook group: https://www.facebook.com/groups/devops.palestine

Meetings' link: https://meet.google.com/emv-vvua-sow (not going to change)

Recorded (& live) at: https://www.youtube.com/c/SaadSayedx1

You can find me at: https://saedx1.xyz

What is Containerization?

A portable way of “packaging” an application/program with along with all its dependencies and configs. Those packages are called “images”, and when you run them, they are called containers.

Makes development and deployment much smoother; all one needs is to get the image and run it.

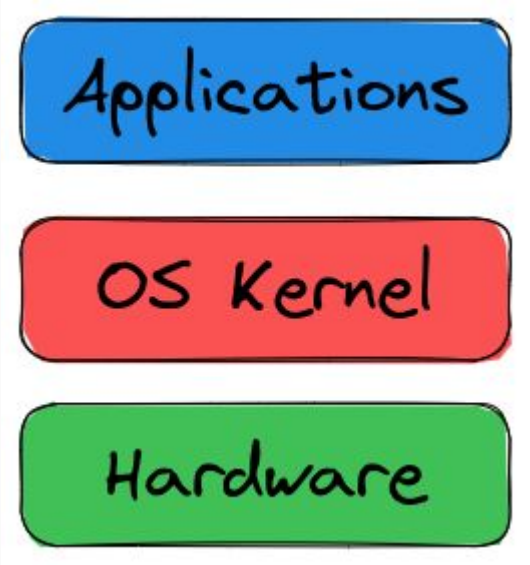
Why Containerization?

- Isolated Environments
- Portability; can run almost anywhere (windows, linux, mac, cloud, on-premise, …)*
- Convenience; no need to have pre-knowledge about the app to install it or run it
- Easily switch between versions
- It makes DevOps easier
    - Instead of exe, jar, js, … files, you will only need an image

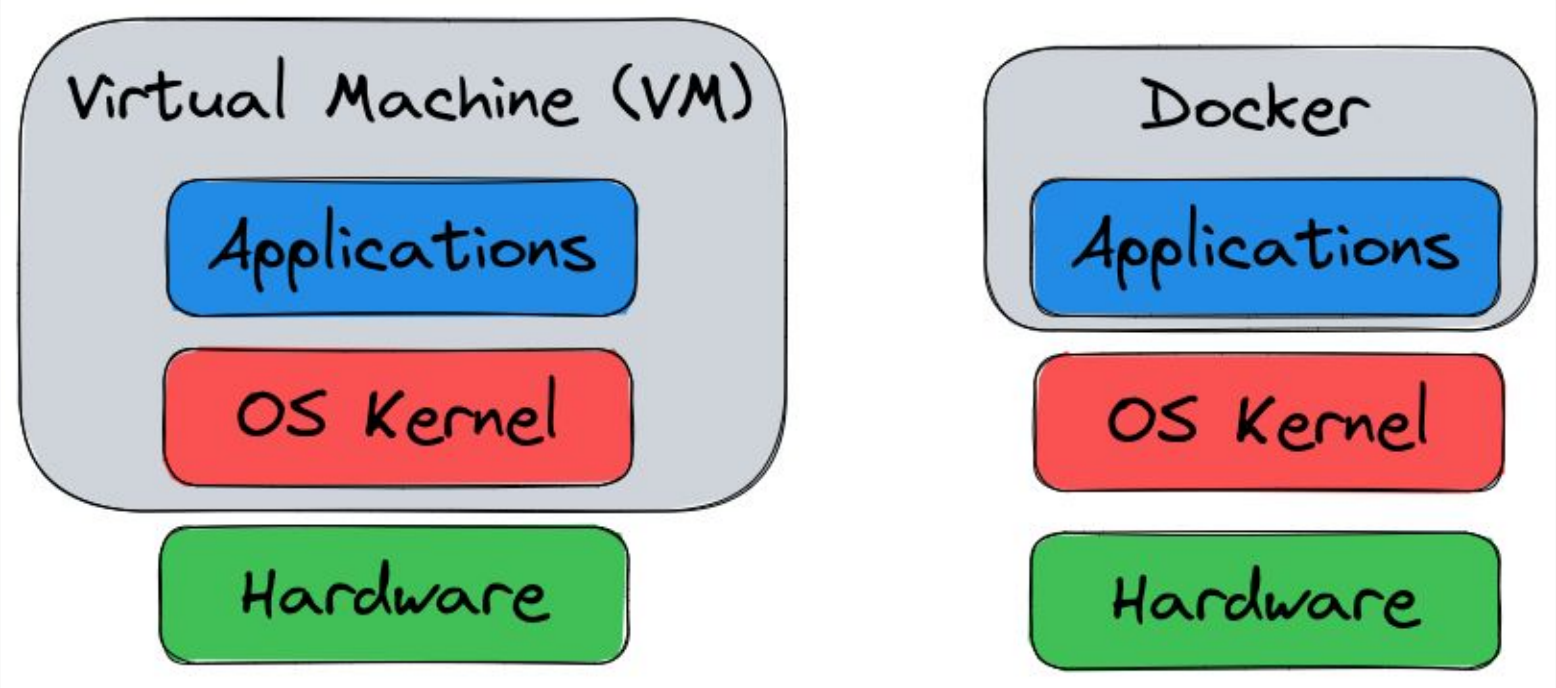
How does it work?

- You have an image; an image consists of layers; each layer is an image
- When you run it, you call it a container (think of those as a class and object)
- Example:
  - You create a .NET application docker image
  - You build it on top of a .NET image
  - The .NET image is built on top of a ubuntu image

How does it work?



How does it work?



Alternatives to Docker

- podman
- containerd
- rkt
- lxd
- …

Install it on Debian

```
sudo apt-get update

sudo apt-get install ca-certificates curl gnupg lsb-release

sudo mkdir -p /etc/apt/keyrings

curl -fsSL https://download.docker.com/linux/debian/gpg | sudo gpg --dearmor -o /etc/apt/keyrings/docker.gpg

echo "deb [arch=$(dpkg --print-architecture) signed-by=/etc/apt/keyrings/docker.gpg]
https://download.docker.com/linux/debian $(lsb_release -cs) stable" | sudo tee /etc/apt/sources.list.d/docker.list >
/dev/null

sudo apt-get update

sudo apt-get install docker-ce docker-ce-cli containerd.io docker-compose-plugin

sudo systemctl start docker

docker run hello-world
```

Install on Windows

- Download & Install Docker Desktop
  https://docs.docker.com/desktop/windows/install/