



An Intro to Docker

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The Problem



Application 1

Application 2

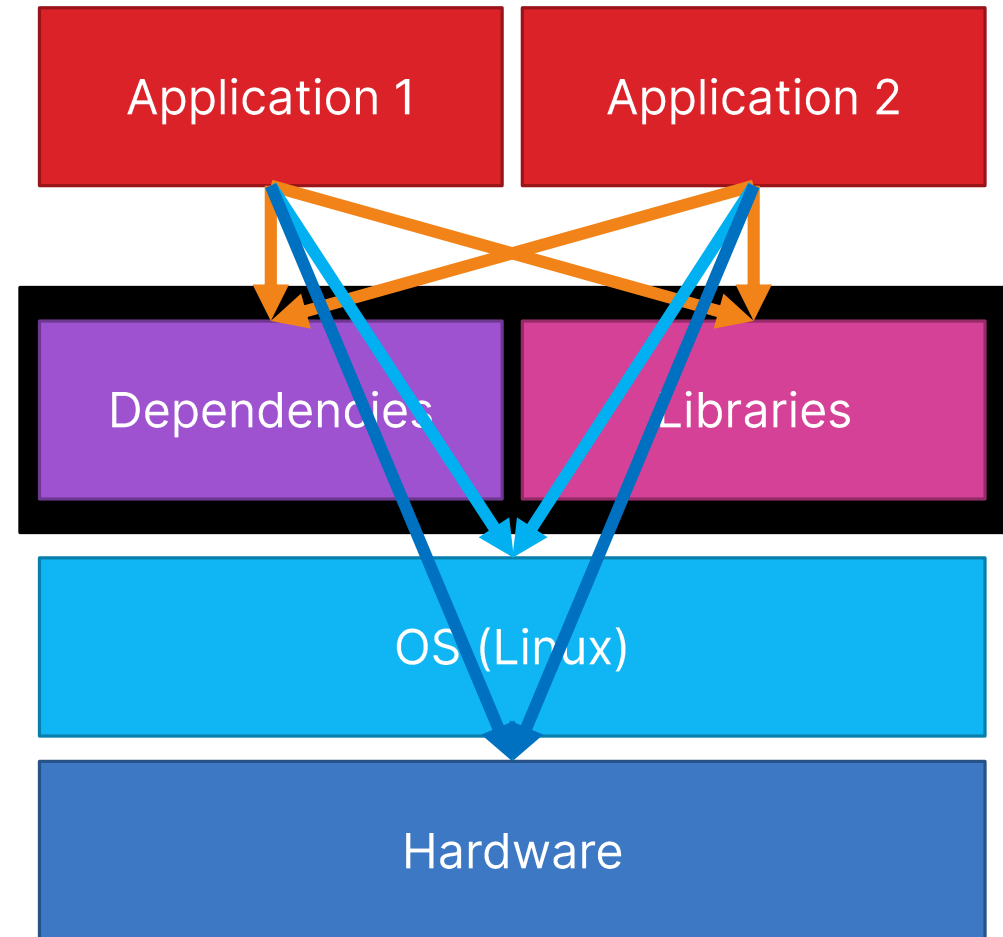
Dependencies

Libraries

OS

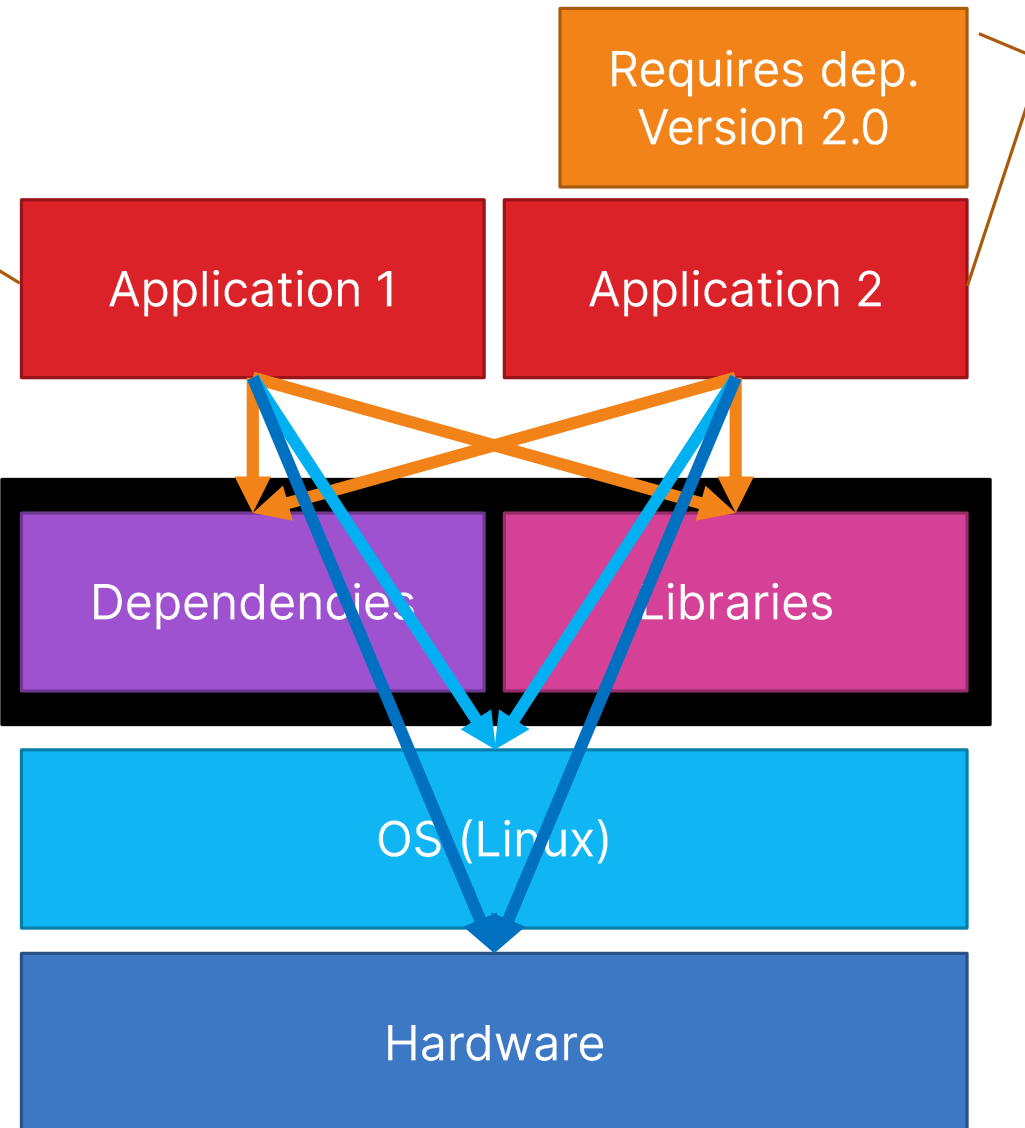
Hardware

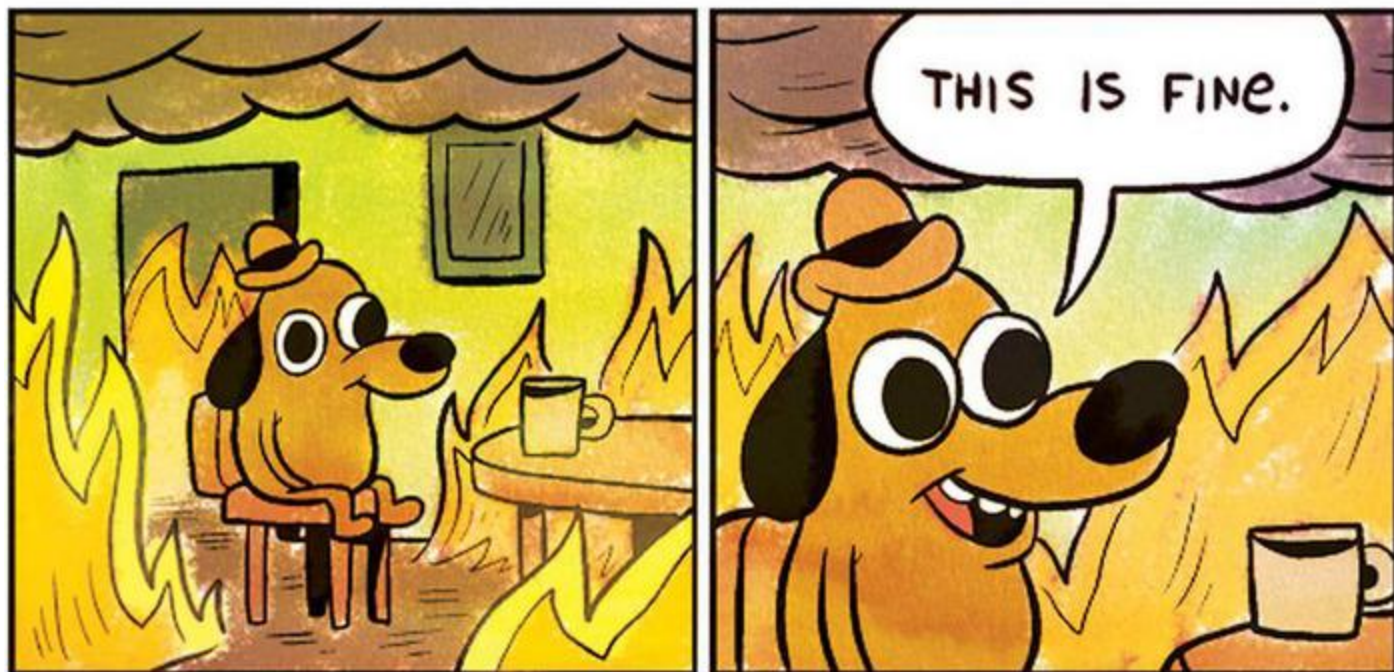
The Problem Evolves



The Problem Evolves

Requires dep.
Version 1.0





**The Problem
****ing
Evolves**



Virtual Machines

App 1

App 2

Deps./Libs.

Deps./Libs.

Guest OS 1

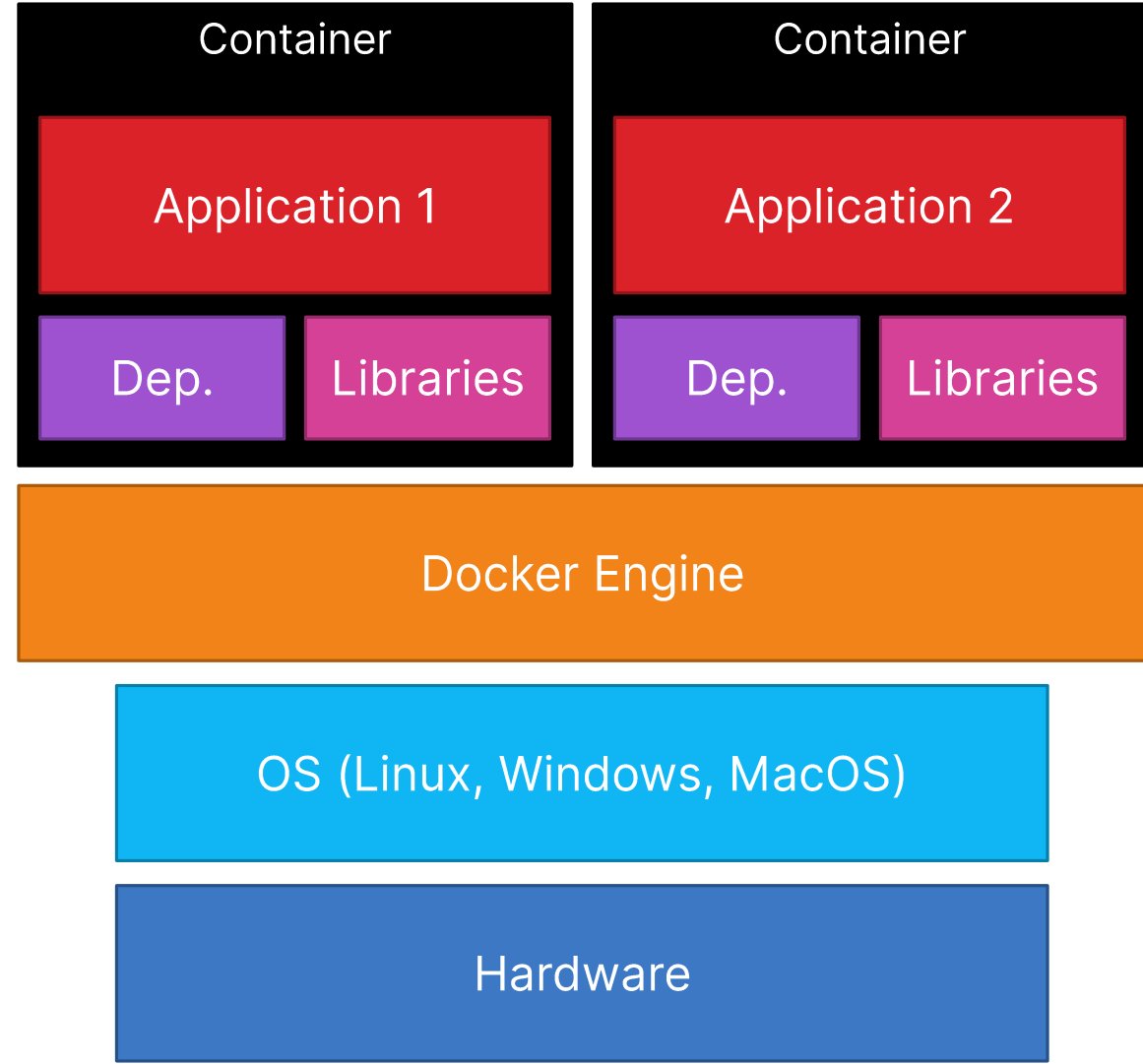
Guest OS 2

Hypervisor

Host OS

Hardware

The Proper Solution



**~~Docker ==
Virtualization~~**

When To Use

- For local development/testing
- For CI/CD
- For production (Docker Swarm)
- For multiple sub-projects
- For scaling/replicas
- When you depend on third-party products (databases, etc.)
- When you target many different OS
- When you want to decouple from dependencies
- When you want to save time
- Many more...

Terminology

Registry

Image

- e.g. nginx, node, mongo, etc.

Dockerfile

Container

Volumes

Networks

Hands on

Custom Image

- Download and install Docker Desktop on your machines
 - Linux users, go to get.docker.com
 - Make sure you enabled virtualization before
- Navigate to <https://github.com/ginomessmer/intro-to-docker>
- Refer to README and start hacking

```
FROM node:alpine

WORKDIR /app

RUN npm install -g @angular/cli

COPY . .

RUN npm install --silent
RUN ng build

CMD ng serve --host 0.0.0.0
```

Diagram illustrating the mapping of Dockerfile instructions to their corresponding commands in a shell:

- `FROM node:alpine` maps to `FROM node:alpine`
- `WORKDIR /app` maps to `WORKDIR /app`
- `RUN npm install -g @angular/cli` maps to `RUN npm install -g @angular/cli`
- `COPY . .` maps to `COPY . .`
- `RUN npm install --silent` maps to `RUN npm install --silent`
- `RUN ng build` maps to `RUN ng build`
- `CMD ng serve --host 0.0.0.0` maps to `CMD ng serve --host 0.0.0.0`



Cheers

Further Links & Steps

- Docker Introduction — What You Need To Know To Start Creating Containers:
https://medium.com/@kelvin_sp/8ffaf064930a
- A Beginner-Friendly Introduction to Containers, VMs and Docker: <https://www.freecodecamp.org/news/a-beginner-friendly-introduction-to-containers-vms-and-docker-79a9e3e119b/>
- What is Docker? <https://docs.microsoft.com/en-us/dotnet/architecture/microservices/container-docker-introduction/docker-defined>
- *Add Docker to your CI/CD environment*
- *Docker Compose*
- *Docker Stack*