Docker

Build, Ship, Run, Any App Anywhere

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Build , Ship and Run

Build, Ship, Run, Any App Anywhere

From Dev

To Ops

Any App

ASP.NET | .NET | Java | MORE

CONTAINERIZATION ENGINE

Any OS

Windows | Linux

AnyWhere

Physical | Virtual | Cloud

What is it ?

An Open Platform to Build, Ship, and Run Distributed Applications

- ❑ **It's an improved, user-friendly Linux Container technology**
- ❑ **Easy, human readable mechanism to build containers images based on recipes, aka Docker files**
- ❑ **Networking , memory, CPU, and file system boundaries for process**
- ❑ **Images for containers can be easily shared and extended**
  - **Container file system is layered , deltas used with copy-on-write**
- ❑ **Extremely fast adaptations by developers**
- ❑ **Considered as a "lightweighter" virtualization technology**
- ❑ **Runs on Linux, Windows, and Mac OS X**

A Docker image contains everything that is needed to run your software

The code, a runtime (e.g. the JVM), drivers, tools, scripts, libraries, deployments, etc.

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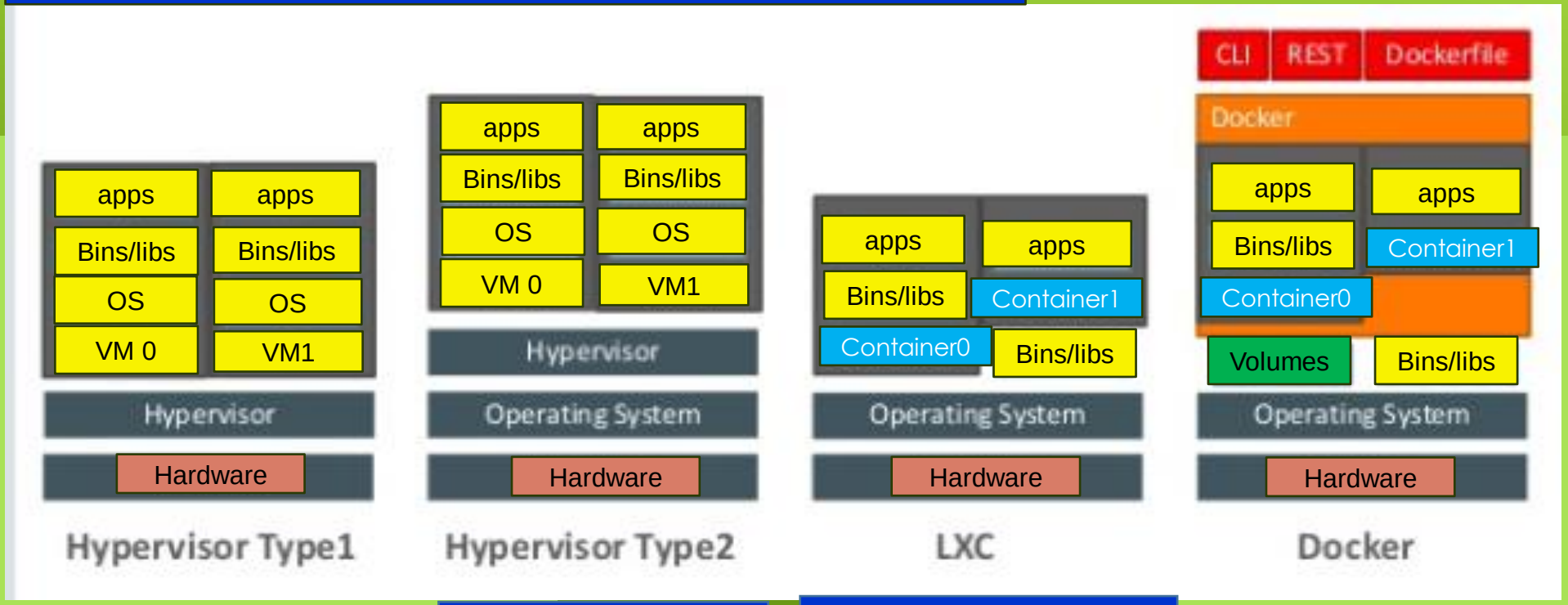
What is it ?

However, unlike in traditional virtualization with a type 1 or type 2 hypervisor, a Docker container runs on the kernel of the host operating system. Within a Docker image there is no separate operating system

Docker against LXC and Hypervisors Compared



Server Virtualization

Type 1 hypervisor = on bare metal

Desktop Virtualization

Type 2 hypervisor = with host OS

The **namespace subsystem** and the **cgroup subsystem** are the basis of lightweight process virtualization. They form the basis of Linux containers

Docker Container in Linux with own FS, network stack / IP address, process space and resource limits -- isolation

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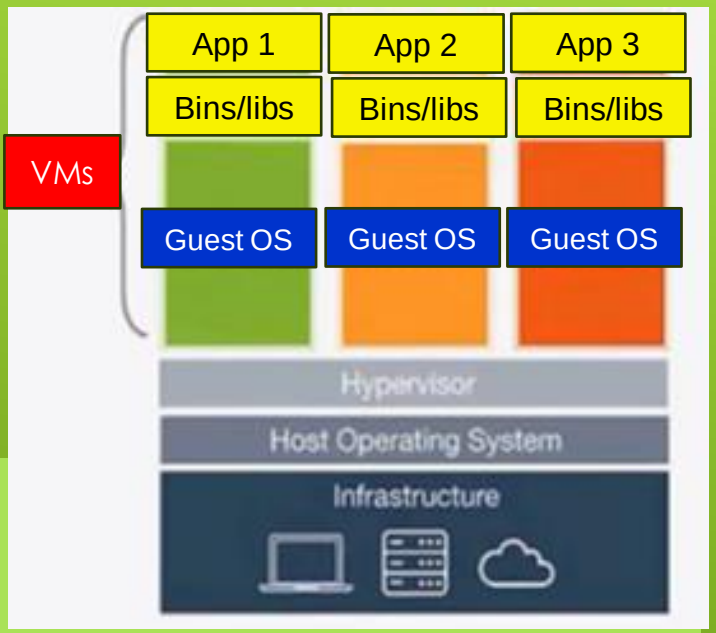
Virtualizations VS Containerization



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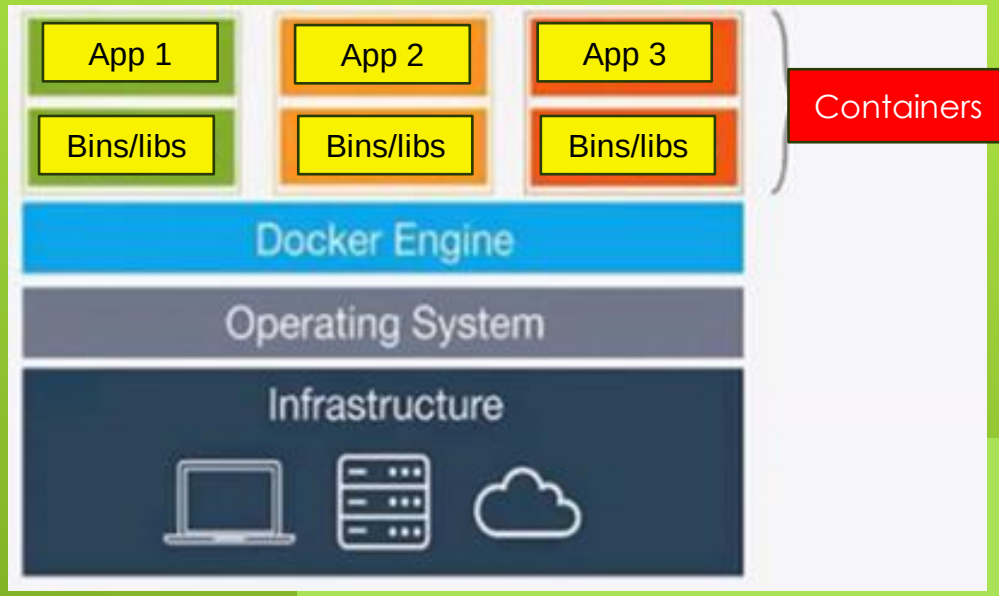

Guest OS Sits on the Hypervisor

- Each VM includes the app, necessary binaries , libraries and entire guest OS

Docker Sits on the OS

- Containers include app & all of its dependencies but share the kernel with other containers
- Run as an isolated process in userspace on the host OS
- Not tied to any specific infrastructure, containers run on any computer , infrastructure and cloud.

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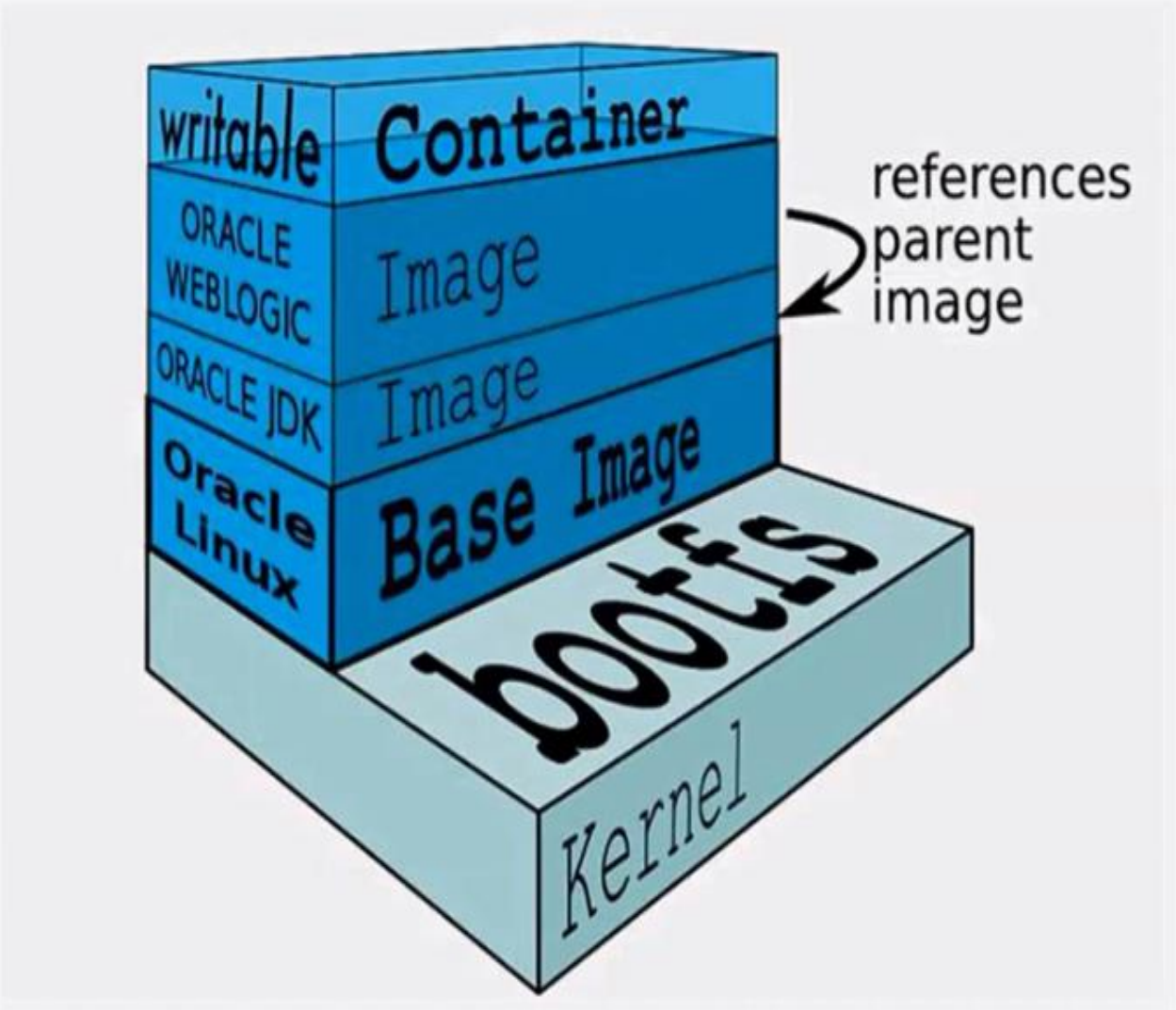
Images and Containers

Docker Images

- Containers have writeable file system
- Recipes, the Dockerfiles, can be easily shared
  - Container as code
- Images have layered file systems
- Images can be extended
- Images can be shared as binary files



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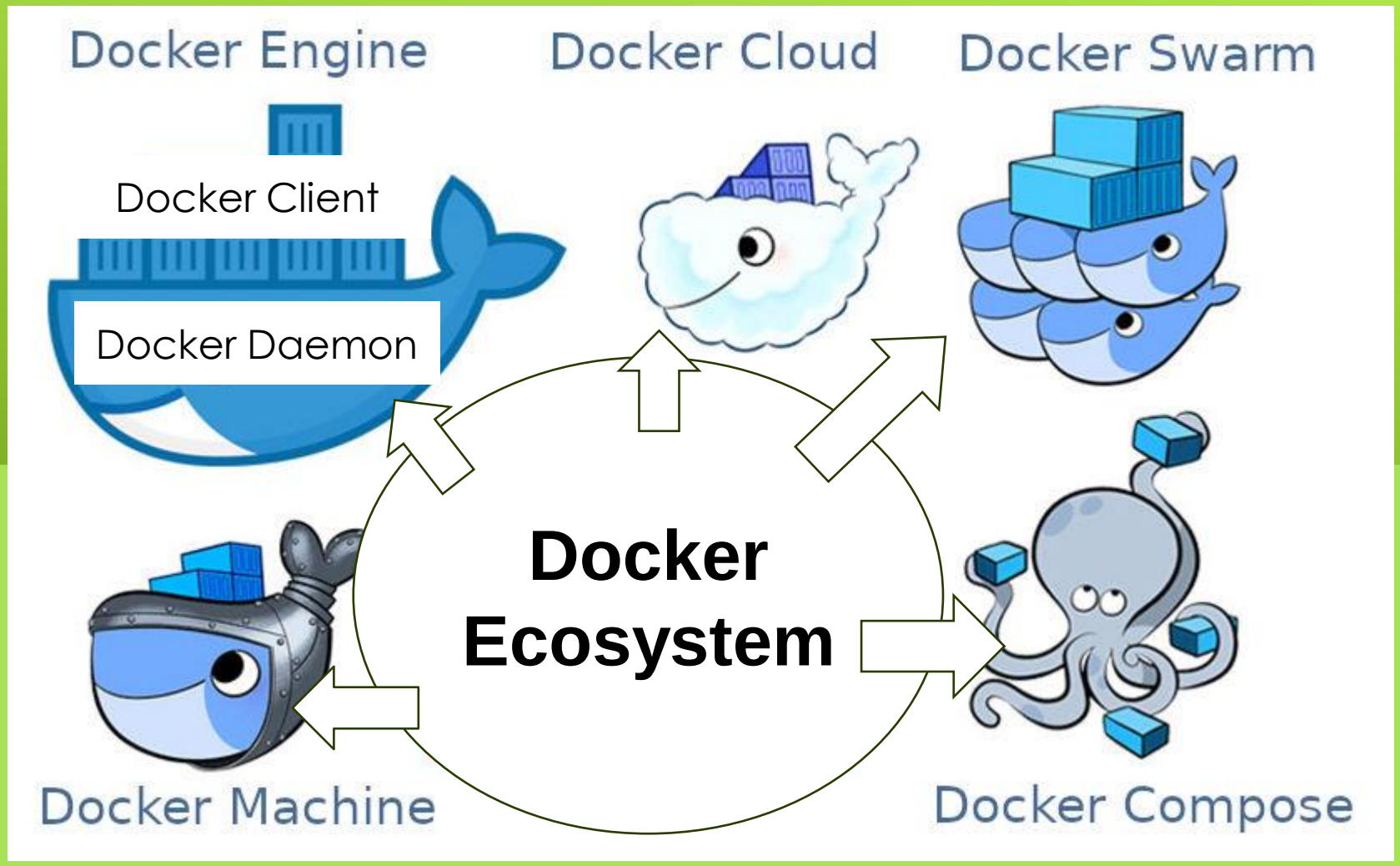
Docker Ecosystem



Docker EE

Get Docker

Docker CE

Docker Daemon CLI

DTR CLI

Docker CLI

UCP CLI

Docker Machine CLI

Docker Compose CLI

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Dockerfile


```
# syntax=docker/dockerfile:1
FROM node:12-alpine
RUN apk add --no-cache python g++ make
WORKDIR /app
COPY . .
RUN yarn install --production
CMD ["node", "src/index.js"]
```

```
docker build -t getting-started .
```

```
docker run -dp 3000:3000 getting-started
```

After a few seconds, open your web browser to http://localhost:3000. You should see our app.

Ref : https://docs.docker.com/get-started/02_our_app/

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To be the ultimate knowledge hub for the most demanding technologies in the industry.

tnhwithlaksiri@gmail.com

Technology Innovation Hub

Thank You.

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