



Docker

Docker for Developers

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Warning

- Opinions expressed are my own
- Views of a developer
(not a Cloud Operator)
- Getting started

What is Docker?

- Lightweight “VM”
- Tooling
 - Creation, Distribution, Deployment
 - Versioning
- for Linux

Lightweight!?

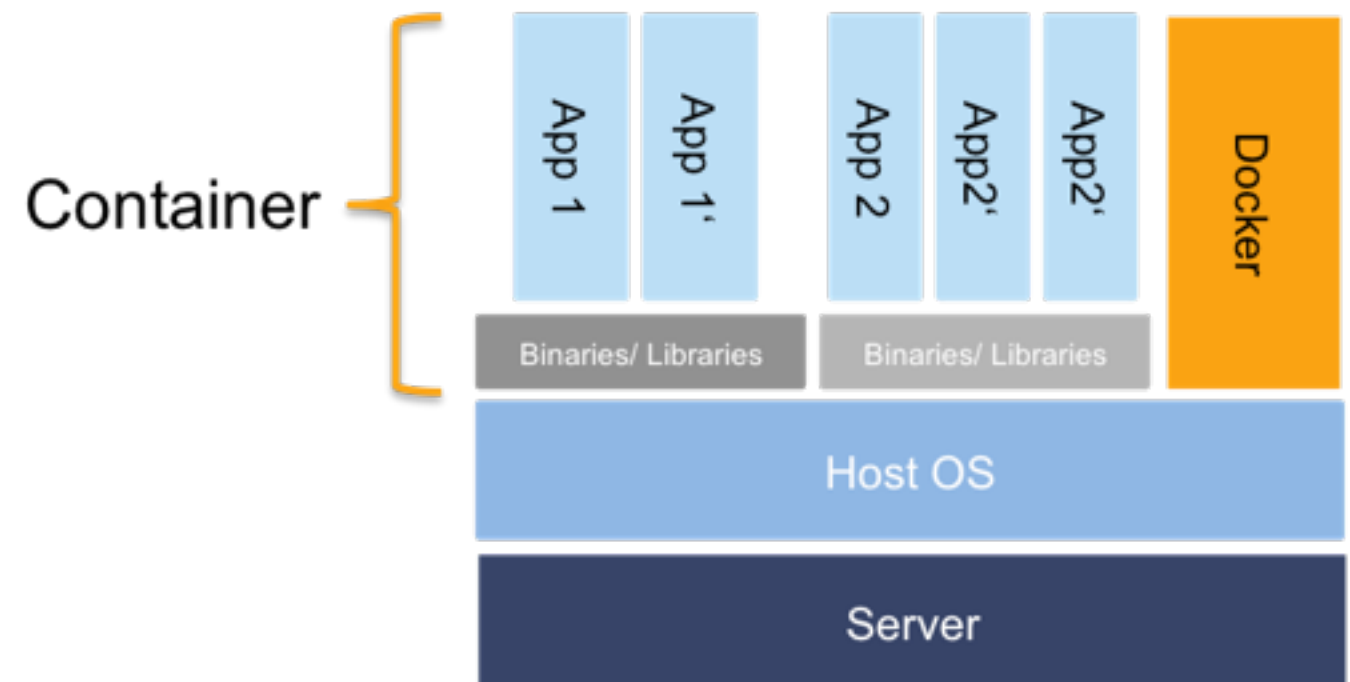
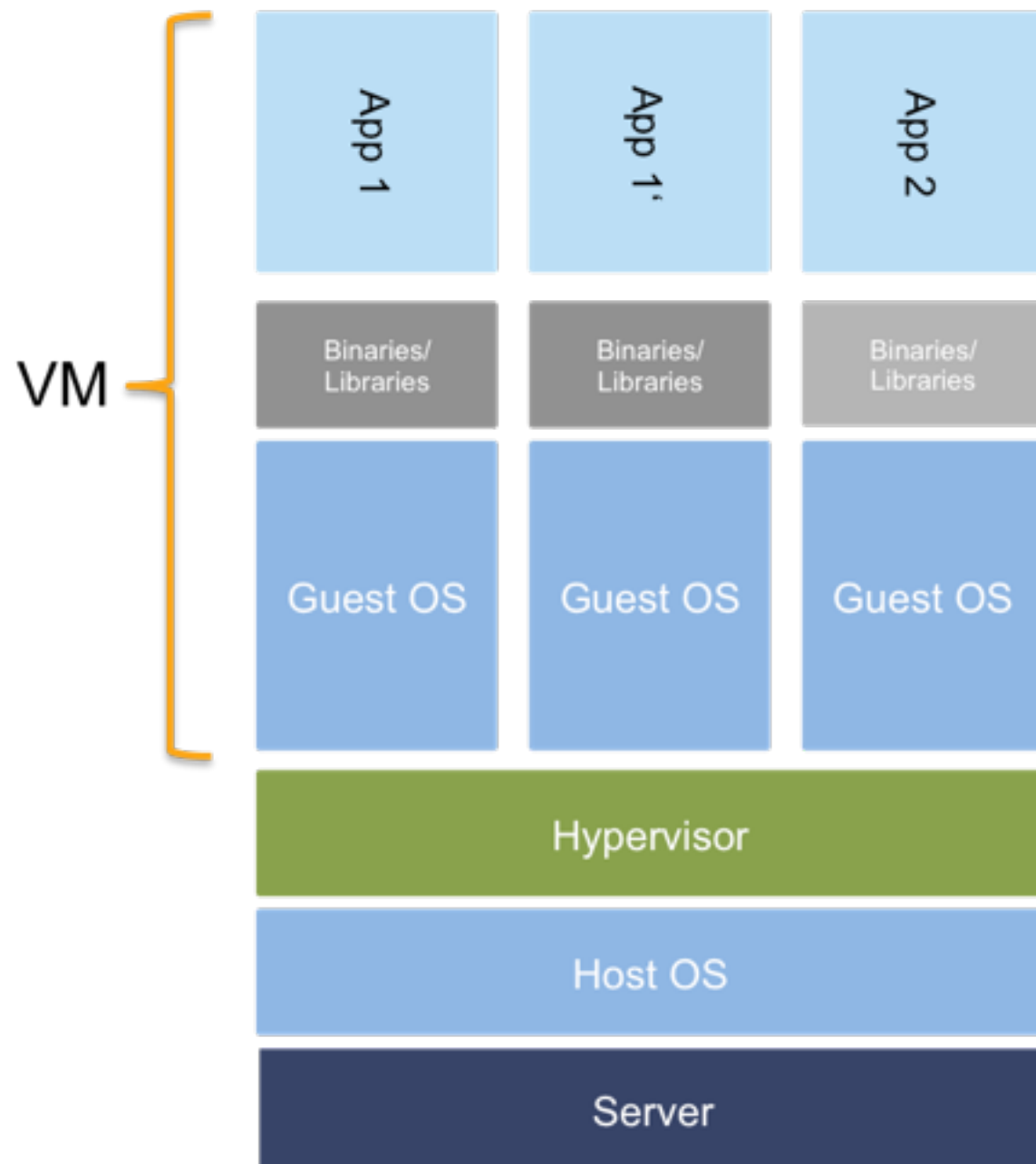
Native

```
$ time cat /etc/issue
Ubuntu 12.04.4 LTS (Precise Pangolin) \n \l
real  0m0.002s
user  0m0.001s
sys   0m0.002s
```

Docker Container

```
$ time docker run -i -t ubuntu:14.04 cat /etc/issue
Ubuntu 14.04.1 LTS \n \l
real  0m0.455s
user  0m0.017s
sys   0m0.005s
```

Virtualisierung: Virtuelle Maschinen vs. Docker-Container



Quelle: Docker, Crisp Research, 2014

Docker vs. VM

- No Init
- No Services
- * Shared Kernel
- + Isolation:
 - + Process & Memory
 - + Network

Inside Docker

- Images
- Containers
- Layers

Inside Docker: Images

- **Images**
- Containers
- Layers



```
$ docker pull ubuntu:latest
```

```
$ docker images
```

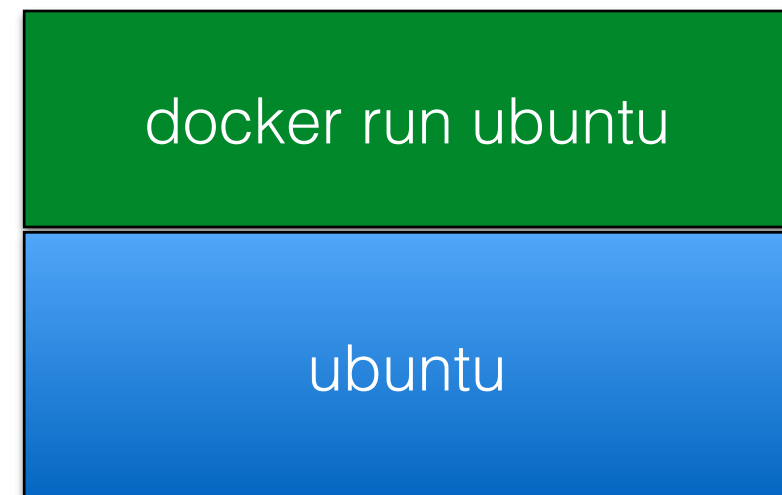
REPOSITORY	TAG	IMAGE ID	CREATED	VIRTUAL SIZE
ubuntu	latest	826544226fdc	5 days ago	194.2 MB

```
...
```

...

Inside Docker: Containers

- Images
- **Containers**
- Layers



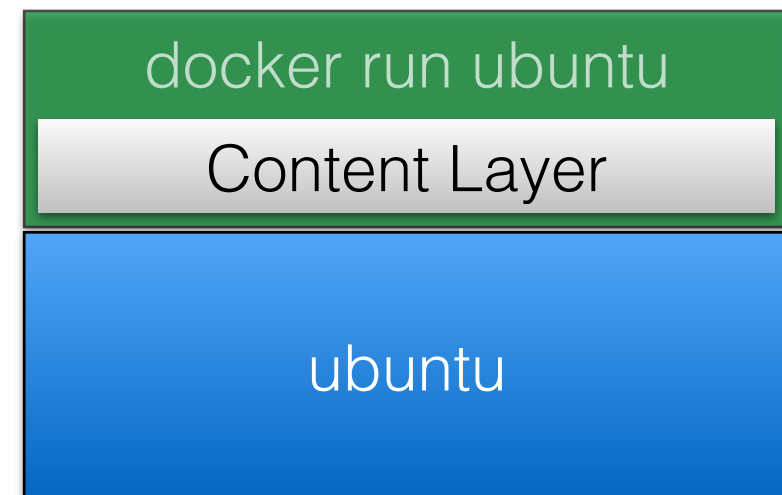
```
$ docker run -i -t ubuntu
```

```
$ docker ps
```

CONTAINER ID	IMAGE	COMMAND	CREATED	STATUS	PORTS	NAMES
589e9d33c919	ubuntu:latest	"/bin/bash"	24 seconds ago	Up 24 seconds		thirsty_almeida

Inside Docker: Layers

- Images
- Containers
- **Layers**



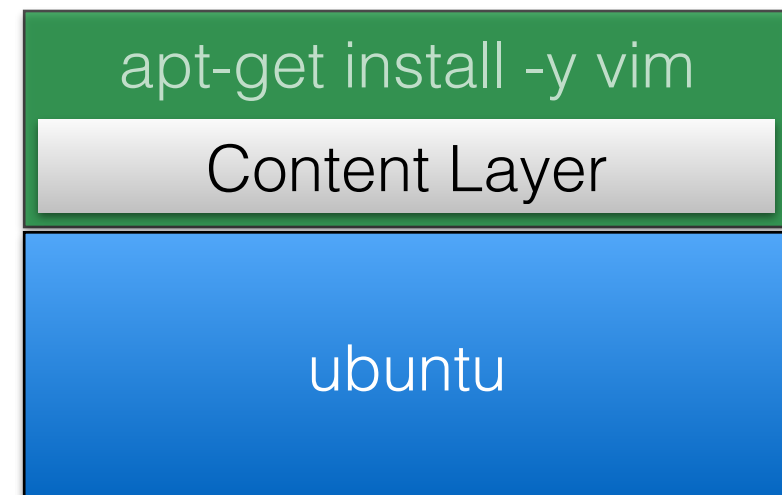
```
$ docker run -i -t ubuntu
```

```
$ docker ps
```

CONTAINER ID	IMAGE	COMMAND	CREATED	STATUS	PORTS	NAMES
589e9d33c919	ubuntu:latest	"/bin/bash"	24s ago	Up 24s		thirsty_almeida

Inside Docker:

- **Images** =
Image + Layer



```
# apt-get update
# apt-get install vim
```

```
$ docker commit -p 589e9d33c919 ubuntu_vim
$ docker images | grep ubuntu_v
ubuntu_vim    latest    33e231eca143    2 minutes ago    237.7 MB
```


Inside Docker

- **Images** =
Image + Layer

```
# Dockerfile
FROM ubuntu
RUN apt-get update -y
RUN apt-get install -y vim
```

```
$ docker build -t ubuntu_vim .
```

```
$ docker images | grep ubuntu_v
ubuntu_vim latest 2d7bea1fd284 4m ago 258 MB
```



Turtles Layers all the way down

Containers and the World

Filesystem



Content

Code

Networking



Content

Code

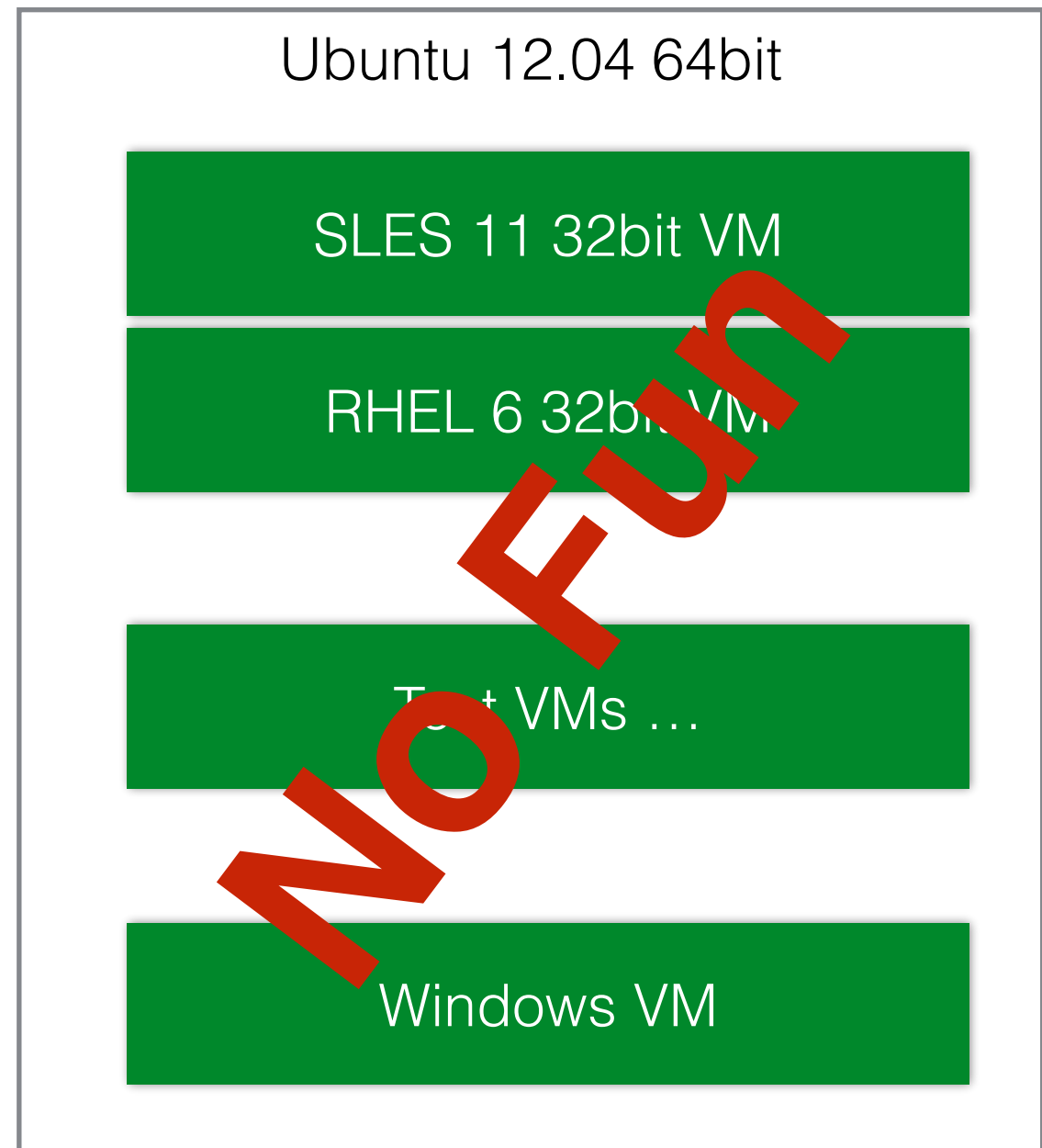
Use Cases

**WORKED FINE IN
DEV**

OPS PROBLEM NOW

Multi-platform Development

- Workstation: Ubuntu 12.04 64bit
- Target 1: SLES 11 32bit
- Target 2 RHEL 6 32bit
- ...



Version Management

Replace

- rvm
- npm
- CLASSPATH
-

Boot2Docker

(Windows & Mac OS X)

Create VM

\$ **boot2docker init**

Start VM

\$ **boot2docker start**

Get the endpoint for the client

\$ **boot2docker socket**

Export Endpoint

\$ **export DOCKER_HOST=tcp://<IP>:<PORT>**

Happy Dockering

\$ **docker run -t -i ubuntu**

Users

Docker Users



Security