

# Introduction to Docker

## Containerization is the new virtualization

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docker

# who

- VP of Engineering at Kickstarter
- Advisor at Docker
- Open source chap
- Funny accent

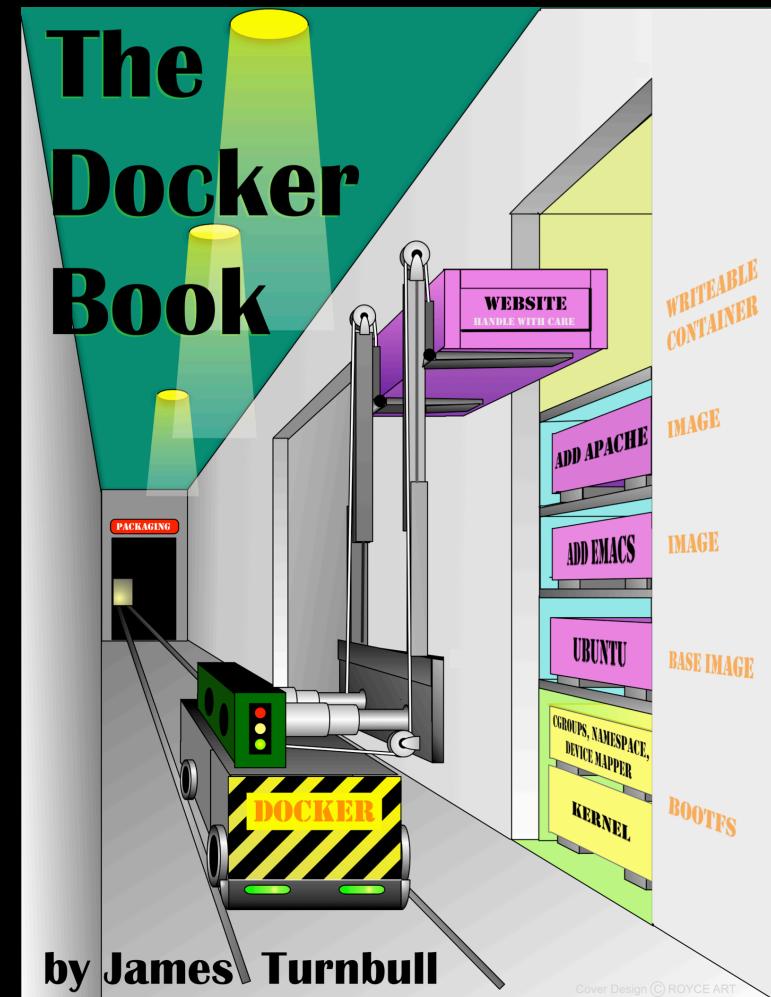
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# The Docker Book



[www.dockerbook.com](http://www.dockerbook.com)

A photograph of a large crowd of people walking down a city street. Many people are holding open umbrellas, suggesting it is raining or about to rain. In the background, there are several multi-story buildings made of light-colored stone or brick. On the far left, a portion of a church with a dark, textured facade and a small arched window is visible. The sky is overcast and grey.

**Who are you folks?**

An aerial photograph of a coastal town, likely a beach town, featuring a prominent winding road that curves along the coastline. A large bridge spans a body of water, connecting different parts of the town. The town itself is built on a hillside overlooking the sea, with numerous buildings visible. The surrounding landscape includes green fields and some rocky terrain.

**what's this all about?**



# what is Docker?

# Container virtualization

WESTFALIA EXPRESS  
LONDON



**Build, ship, run**



**Build once**

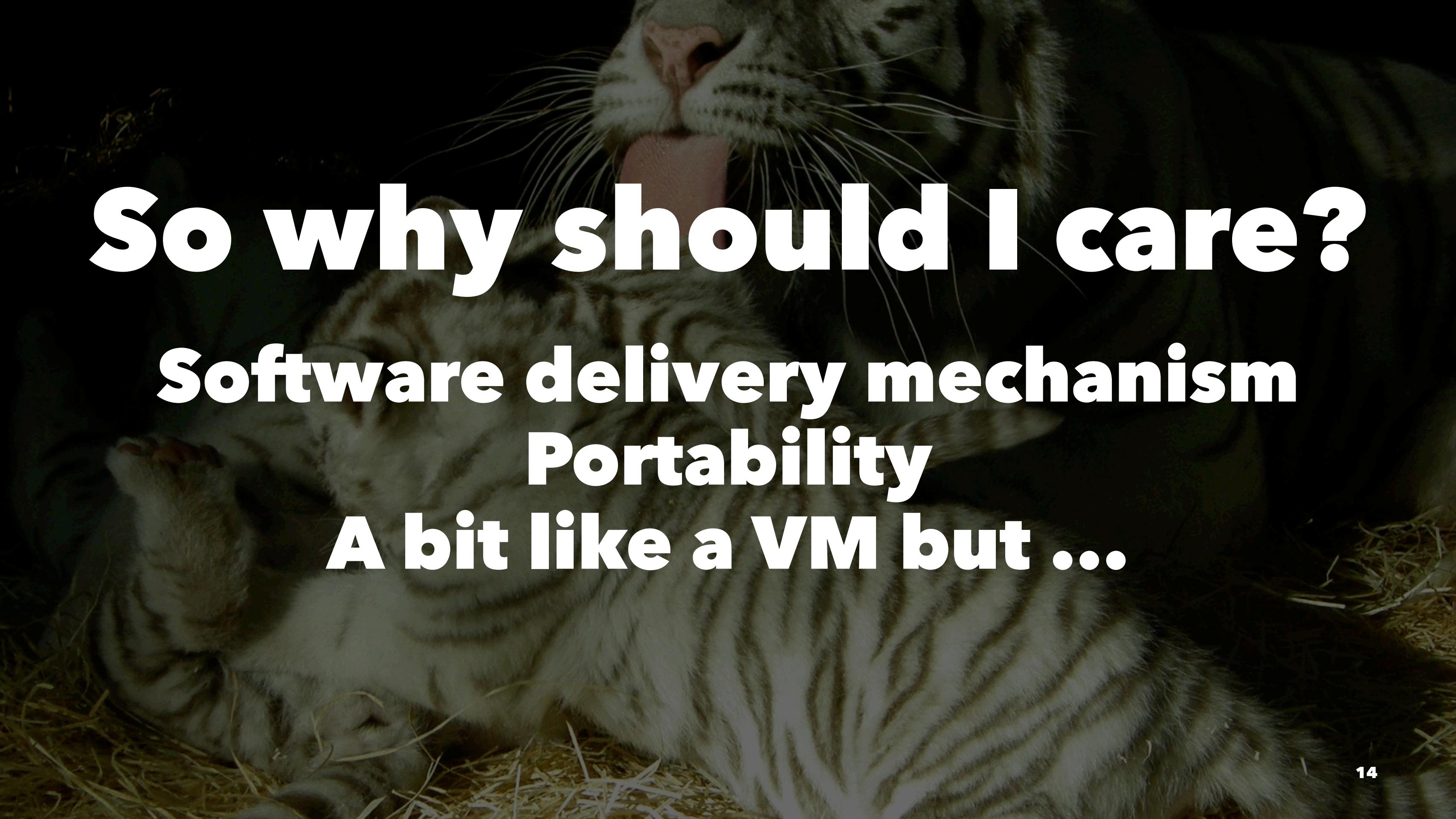
A photograph of two people jogging on a wooden boardwalk. One person is in the foreground, facing away from the camera, wearing a grey jacket and dark shorts. The other person is further back, facing towards the camera, wearing a black jacket and dark shorts. They are running along a path made of large wooden planks. In the background, there is a body of water with a large ship visible on the horizon under a hazy sky.

Run in many places

**Isolated  
Layered  
Standard  
Content agnostic**



**But this isn't new?!?**



# **So why should I care?**

**Software delivery mechanism**

**Portability**

**A bit like a VM but ...**

# ... not like a VM

1. Containers boot faster
2. Containers have less overhead
3. Containers bring native performance
4. Containers are Cloud & VM-compatible



**Devs care about their  
app**

**Ops cares about the  
containers**

# Why developers care...

- Clean, safe, hygienic and portable
- No worries about dependencies
- Encourage good architecture

# Why operations care...

- Make the lifecycle more efficient
- Eliminate inconsistencies
- Support segregation of duties

# What can I use Docker for?

- Docker for CI/CD
- Packaging and deploying applications
- Build your own PaaS
- Deploy applications at hyperscale!

# Does this work with Puppet or Chef?

- Chef and Puppet are state management tools
- Less complex
- Docker images are version controlled and layered
- Smaller, self-contained and lightweight

# Technology Stack

- Runs on most Linux distros
- Boot2Docker for OSX and Windows
- **Windows in the works!**
- Uses Linux kernel features

# Docker Basics

Image & Dockerfile

The Docker Hub

Container

# Building Docker images

```
FROM         ubuntu
MAINTAINER  James Turnbull <james@example.com>

RUN apt-get -qqy update
RUN apt-get install -qqy apache2
ADD index.html /var/www/

ENV APACHE_RUN_USER www-data
ENV APACHE_RUN_GROUP www-data
ENV APACHE_LOG_DIR /var/log/apache2

VOLUME [ "/var/log/apache2" ]
EXPOSE 80

ENTRYPOINT [ "/usr/sbin/apache2" ]
CMD [ "-D", "FOREGROUND" ]
```

# Building the image

```
$ sudo docker build -t="jamtur01/0redev" .
```

# Sharing the image

```
$ sudo docker push jamtur01/0reddev
```

# Running the container

```
$ sudo docker run --name mywebsite -ti -p 80:80 jamtur01/0reddev
```



**But there's more!**

**what if we could  
componentize . . .**

R-AUDIO-L

Y PB/CB PR/CR  
**COMPONENT VIDEO OUT**

Dikes Move Me  
Trekking, Biking & Hiking - Photography - Traveling

SSH

# Managing a container

```
$ sudo docker exec -ti mywebsite /bin/bash
```

# Scheduling and jobs

**DAYS OF  
OPERATION**

**MON THROUGH SAT**

**8 AM TO 7 PM**

**SUN 1:00 TO 7:00**

The background of the image is a dense stack of cut logs, likely from a logging operation. The logs are piled high, filling the frame. They are various sizes and shades of brown and tan, with some showing distinct growth rings and others appearing more weathered. The lighting is somewhat dim, suggesting an overcast day or a shaded area.

# Logging

# Logging container

```
$ sudo docker run --volumes-from mywebsite -ti ubuntu tail -f /var/log/apache2/access.log
```



**Creates a new  
architecture**

# A new architecture that ...

- Separates orthogonal concerns
- Don't rebuild your app to change services
- Have different policies in domains
- Ship lighter apps



# Questions?