

Docker

Paul Harris



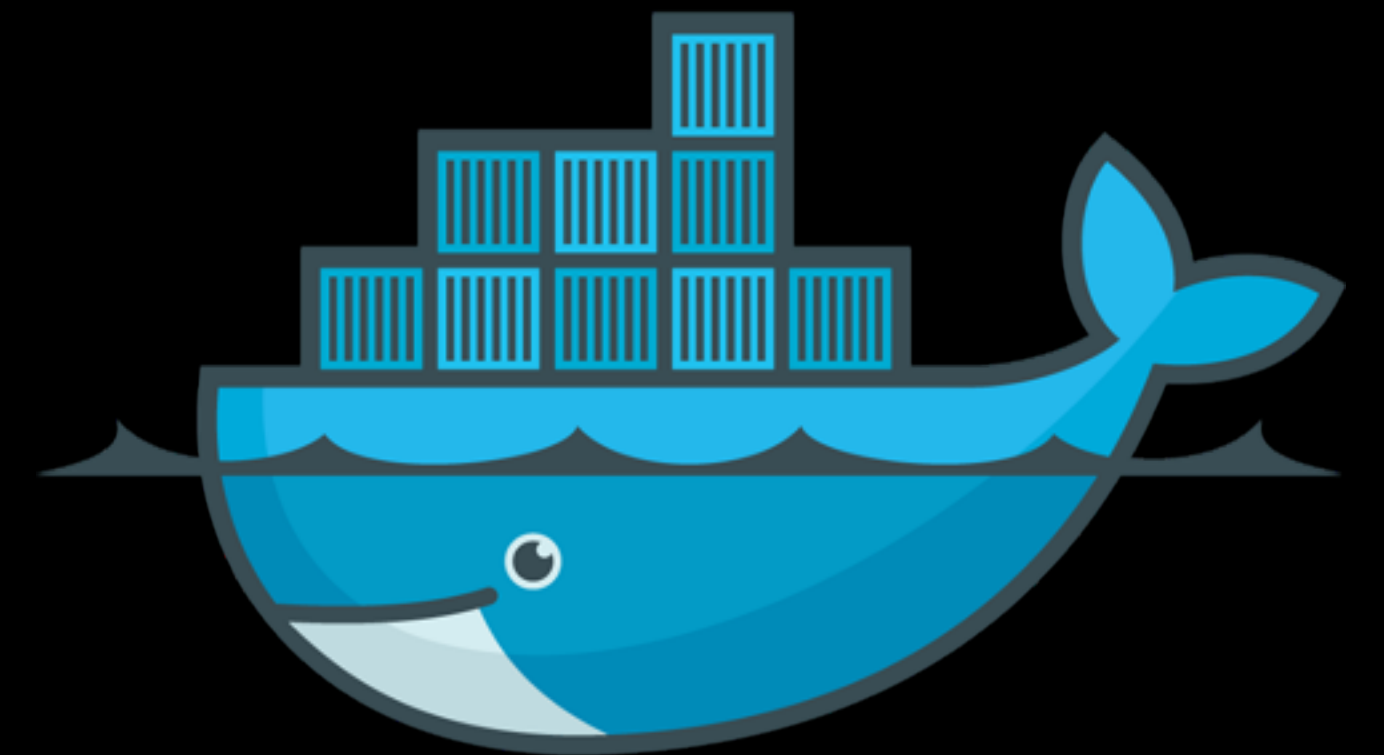
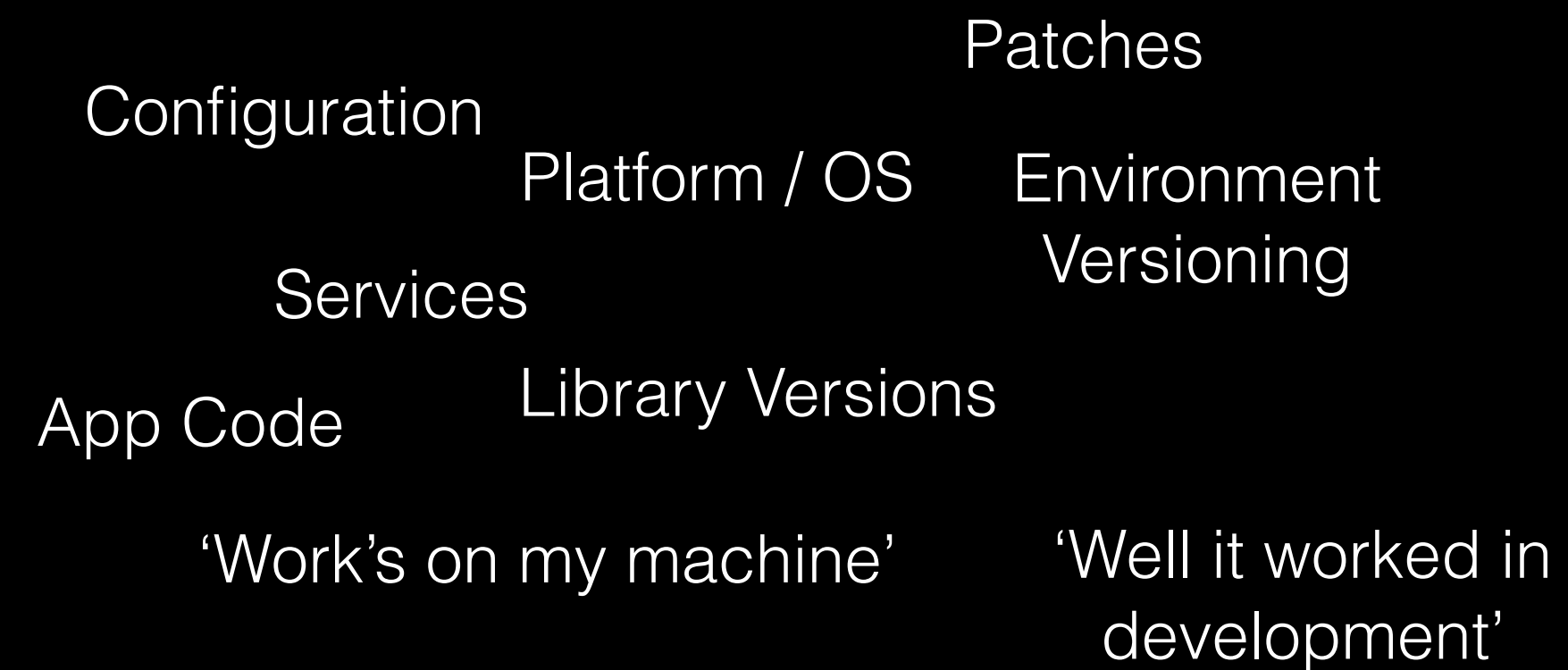
edge of the web

@eotw #eotw15

#eotwdocker

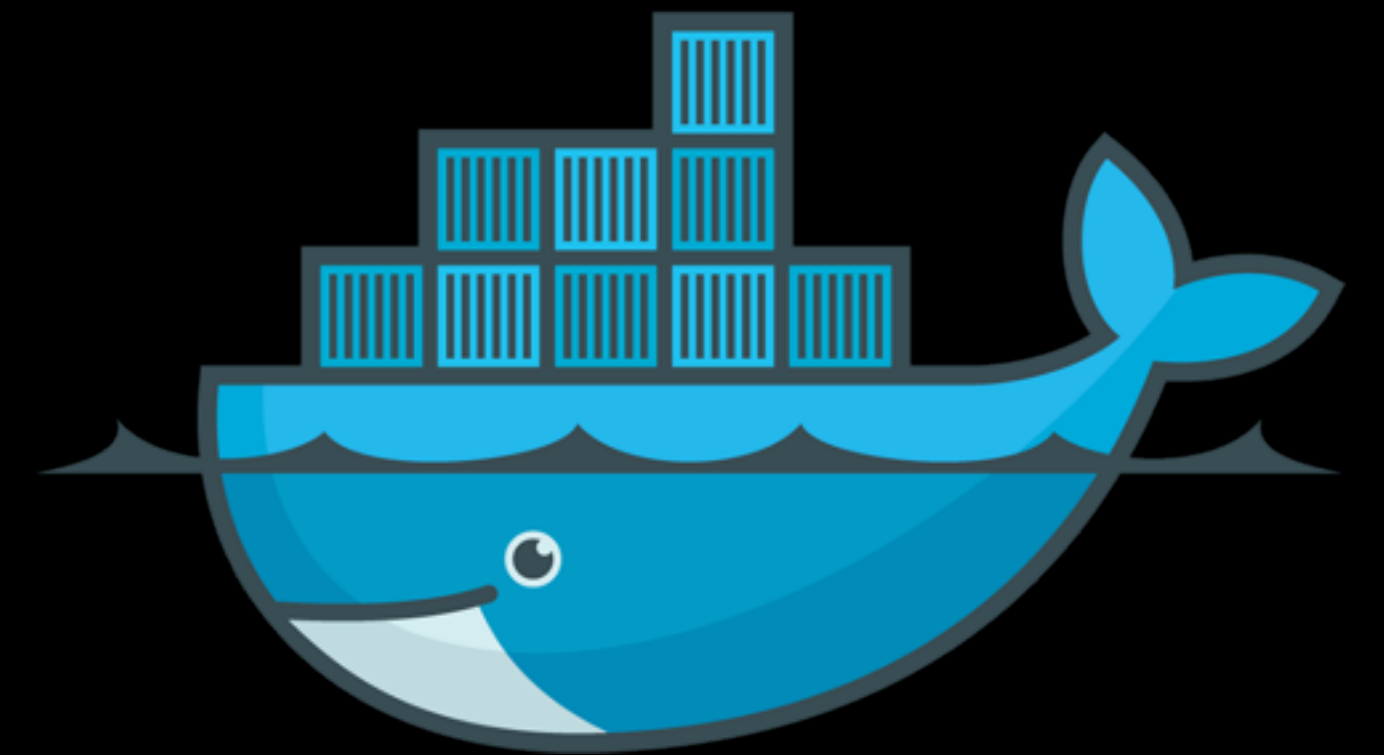
Common DevOps Problems

- Creating an environment
- Consistency within environments
- Consistency between environments
- Doing it at scale

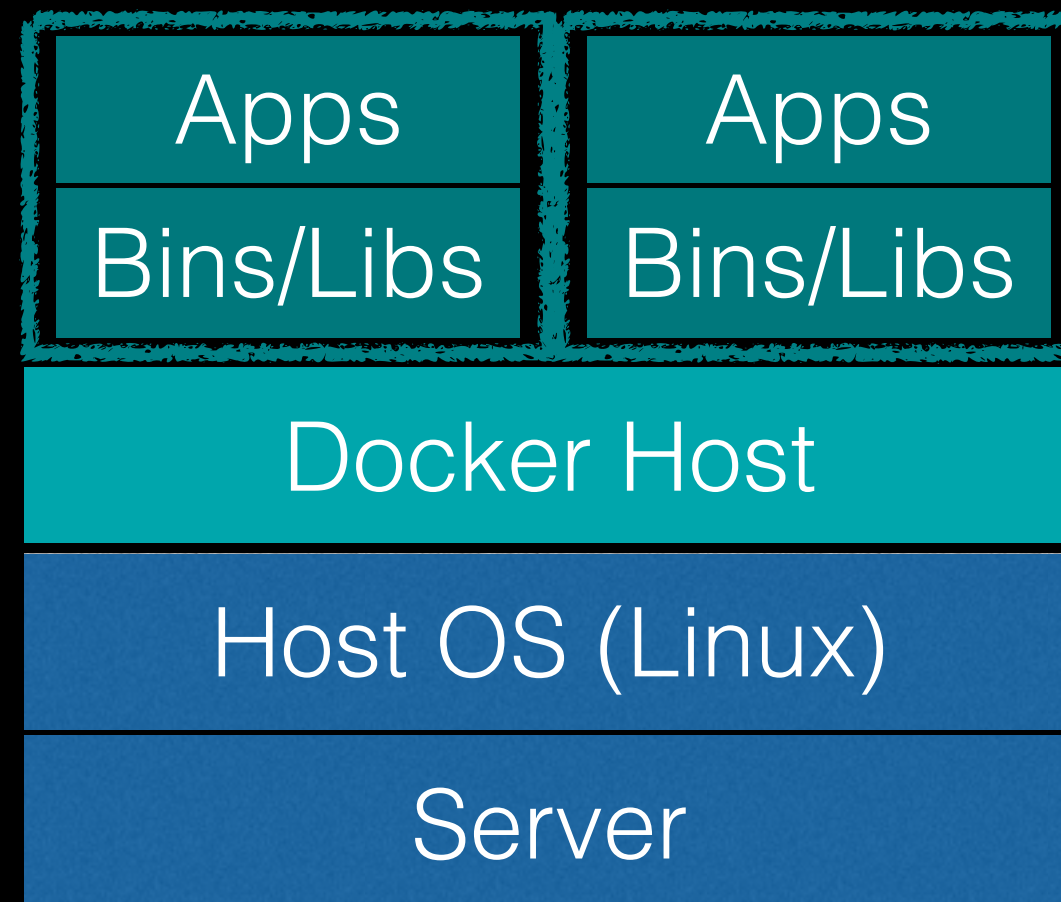


How Does Docker Help Us?

- Lightweight scripts define the environment and runtime
- It provides isolation between processes from the OS upwards
- It provides consistency between environments
- It provides a rich ecosystem for productivity



Life is a container, and then it dies

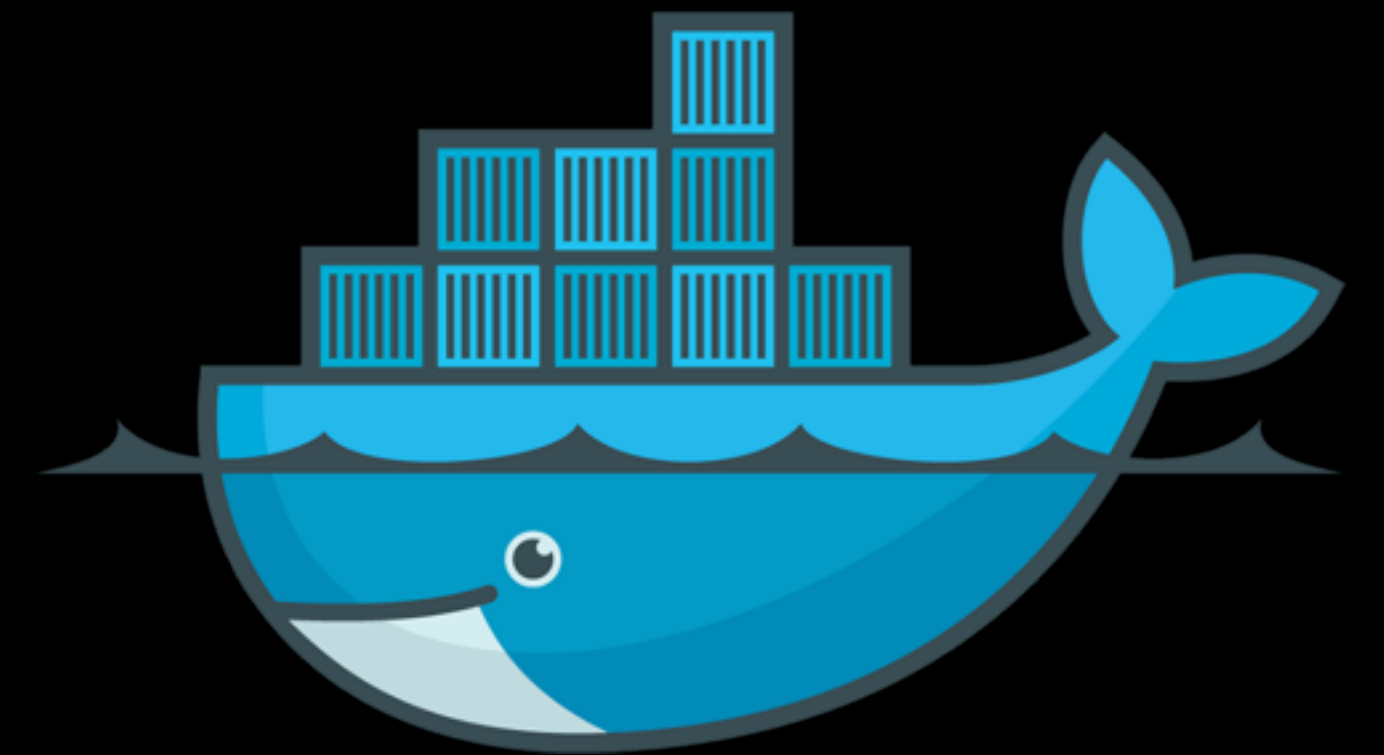


- The process is the container
- Shares the Linux kernel
- Isolated, partitioned

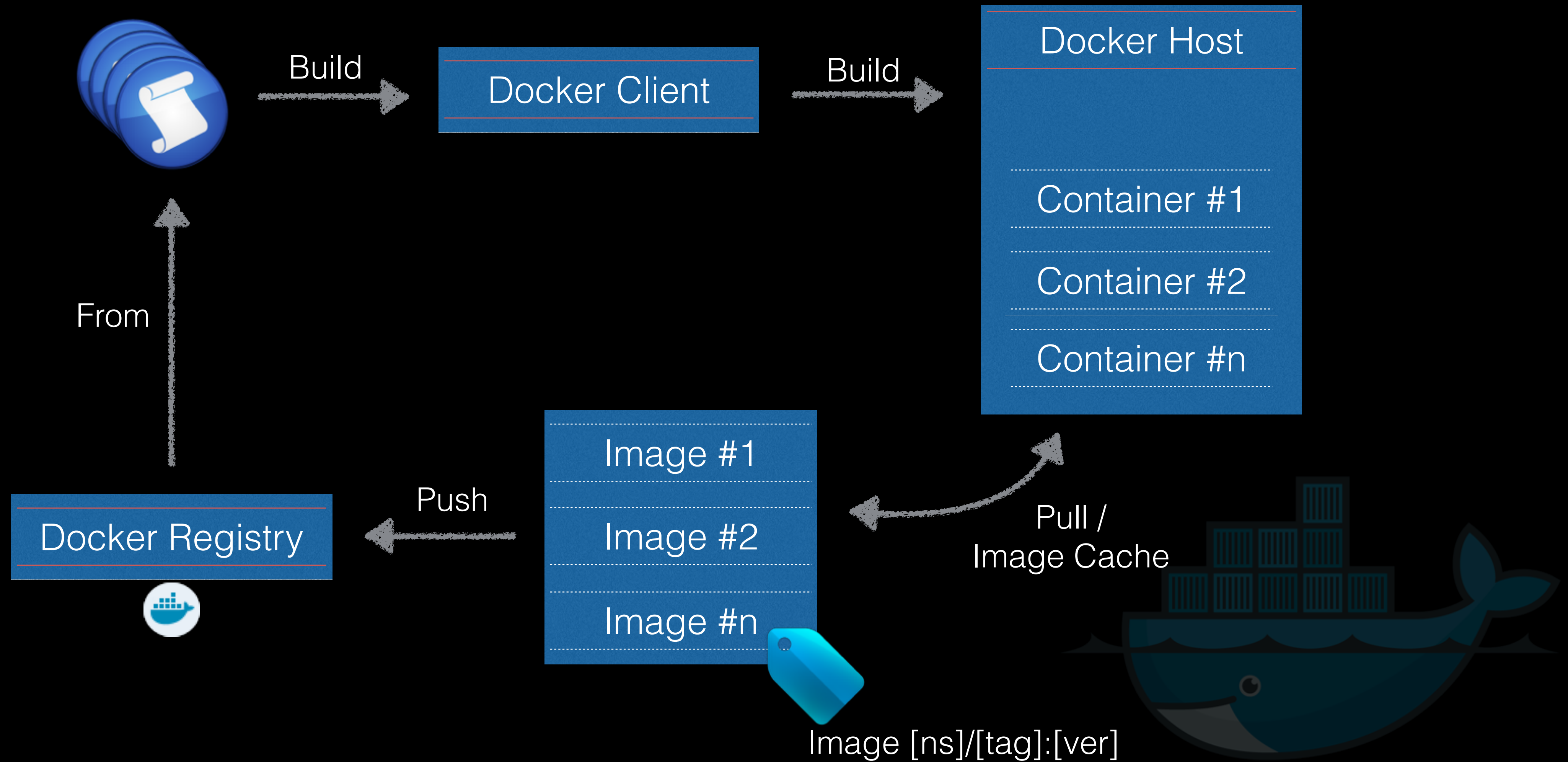


Hello Worlds | Demo

- Run an Ubuntu container
 - `docker run -it ubuntu /bin/bash`
 - `lsb_release -a`
- Run a Fedora container
 - `docker run -it fedora /bin/bash`
 - `cat /etc/issue`



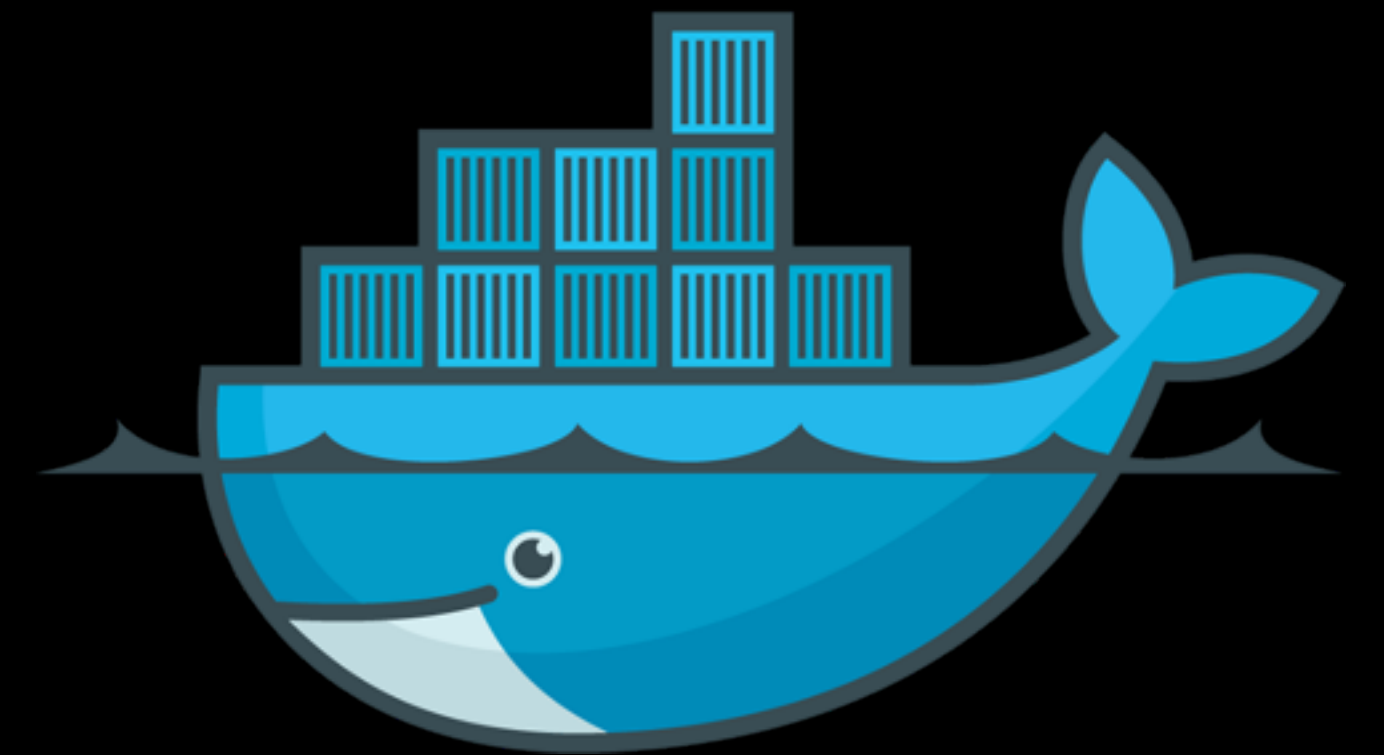
Docker Artifacts



* simplification

My First Docker | Demo

- Review a simple Dockerfile
- Build (to create image)
 - Build and tag the image
 - View the layered images
- Run (to create container)



My First Docker | Dockerfile

From BaseImage:Tag

FROM ubuntu:latest

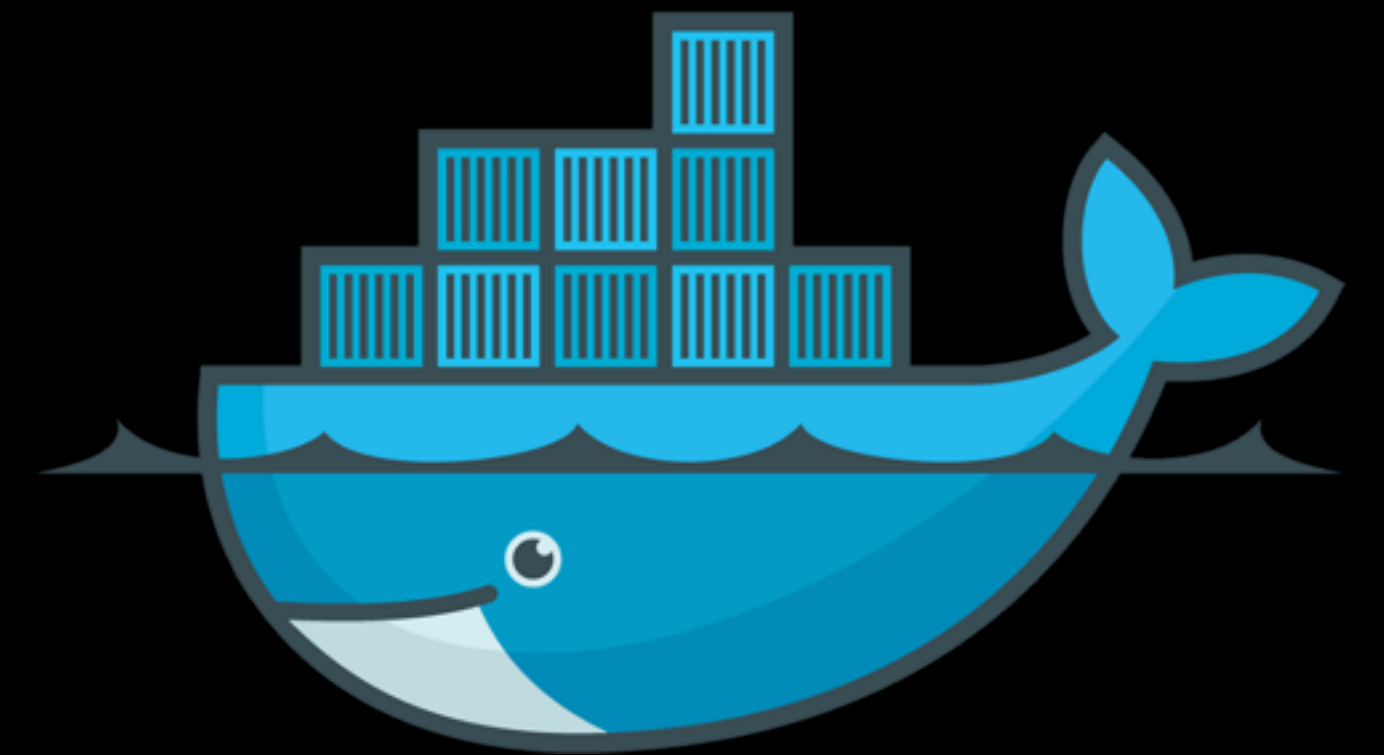
Maintainer Info

MAINTAINER trickbooter <paul@trickbooter.com>

Install base tools

RUN apt-get install -y curl

CMD ["/bin/bash"]



My First Docker | Kick the Tyres

Build

```
docker build -t my-first-docker
```

Run

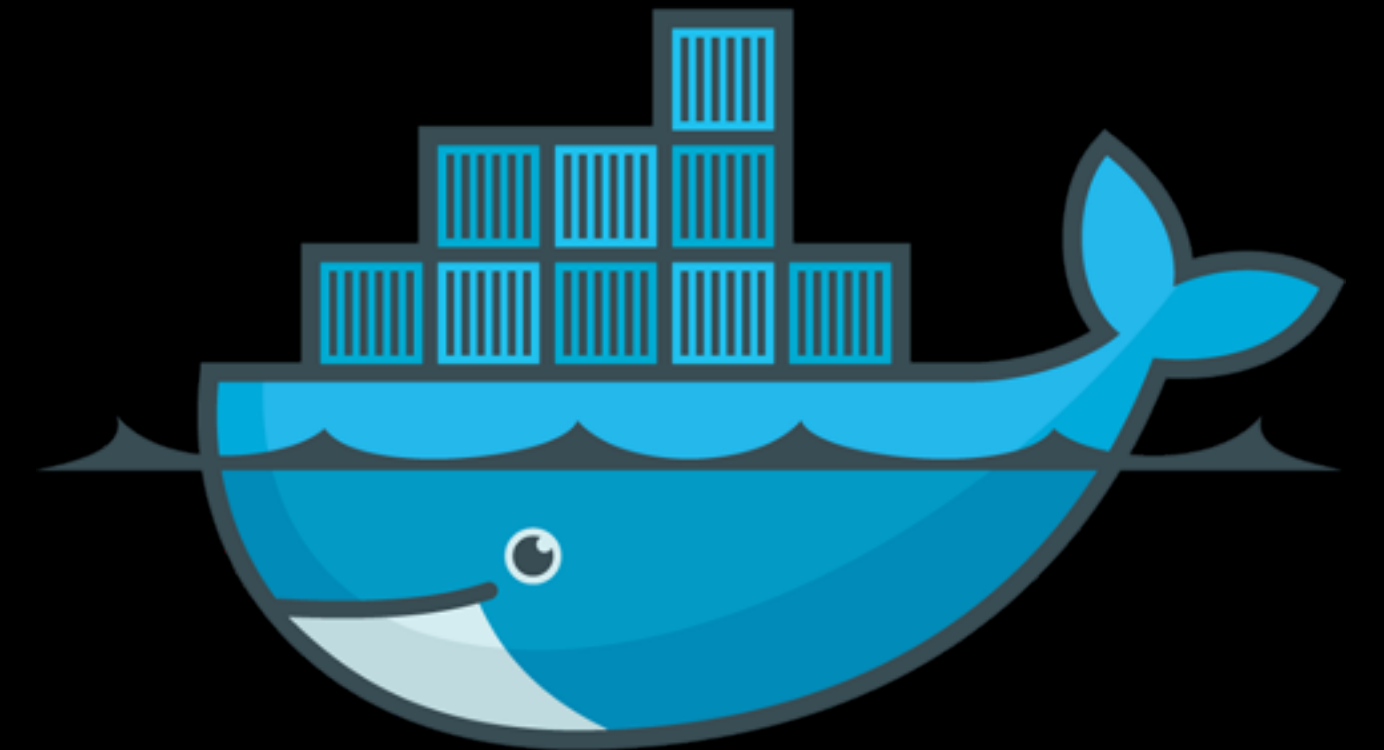
```
docker run -it my-first-docker
```

Containers

```
docker ps -a
```

Images

```
docker images -a
```

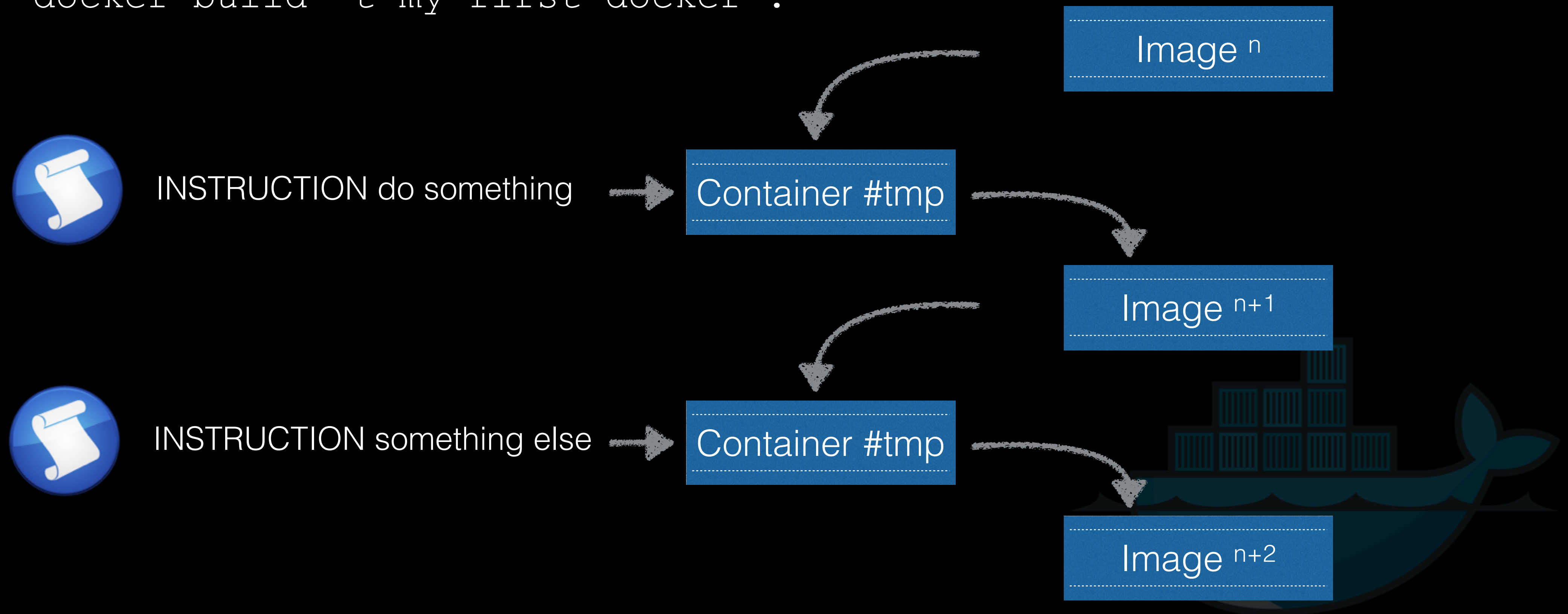


Building Images

Build & Tag

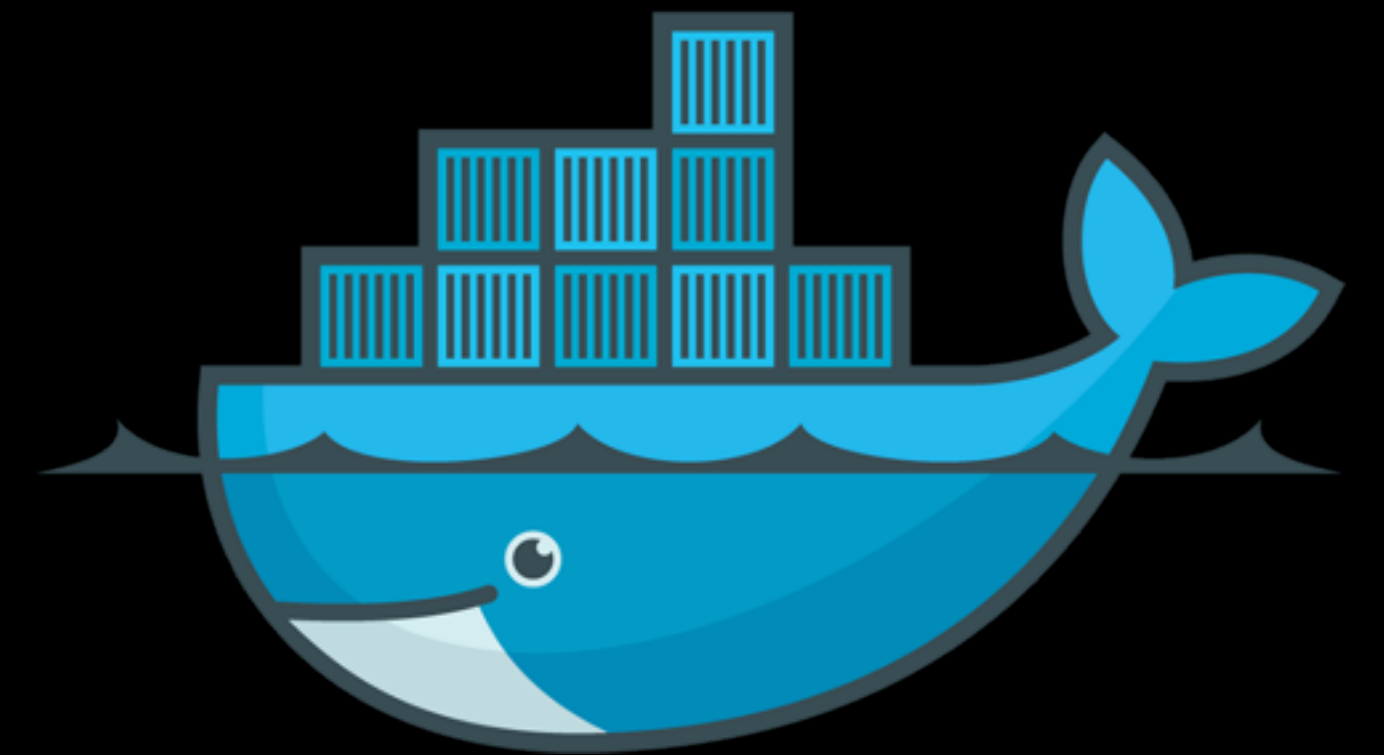
```
cd /path/to/dockerfile
```

```
docker build -t my-first-docker .
```



Docker-Redis

- Review the Redis Dockerfile
- Externalising
 - Exposing ports
 - Mounting volumes
- Automating Startup



Docker Redis | Dockerfile

```
FROM ubuntu:latest
```

```
MAINTAINER trickbooter <paul@trickbooter.com>
```

```
RUN RedisInstall #pseudocode
```

```
# Advertise port to Docker Host
```

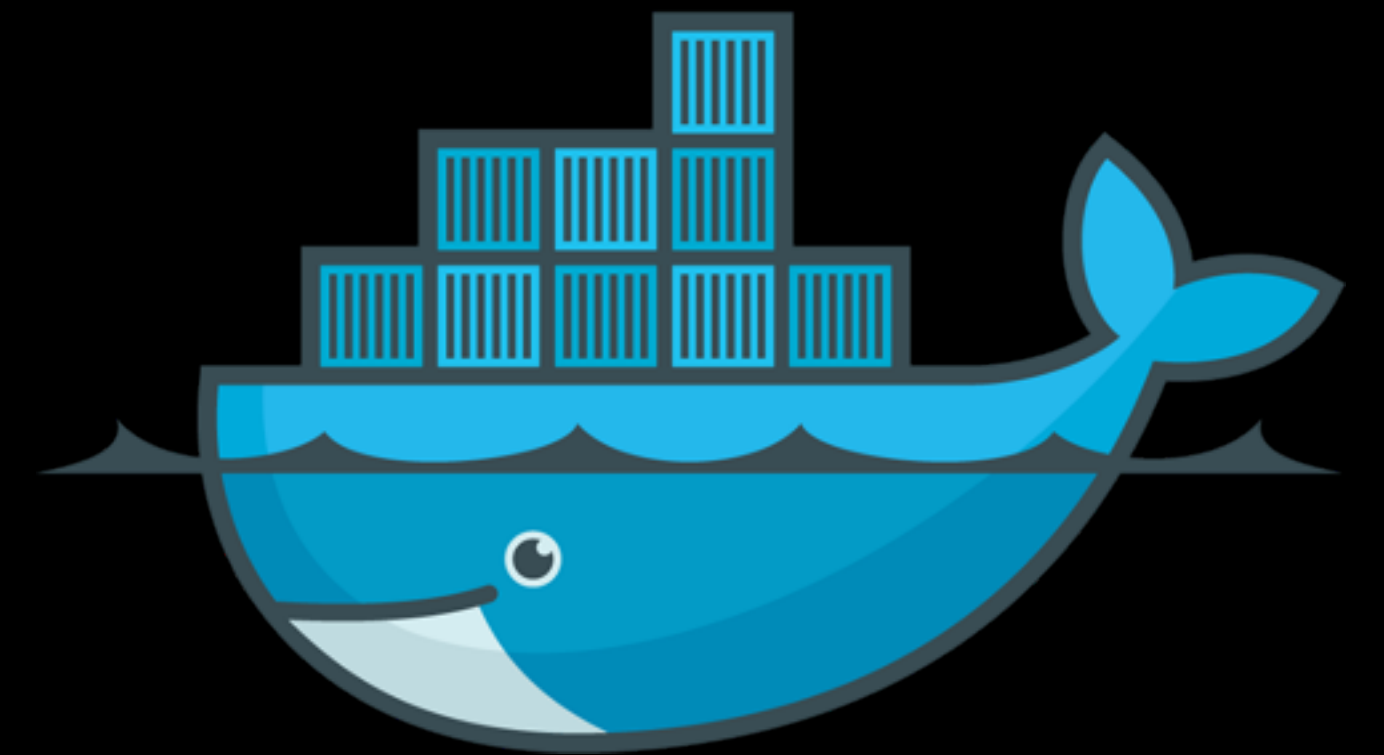
```
EXPOSE 6379
```

```
# Advertise volume to Docker Host
```

```
VOLUME ["/data"]
```

```
# Start Redis
```

```
CMD ["/usr/bin/redis-server", "/etc/redis/redis.conf"]
```



Docker Redis | Kick the Tyres

Run

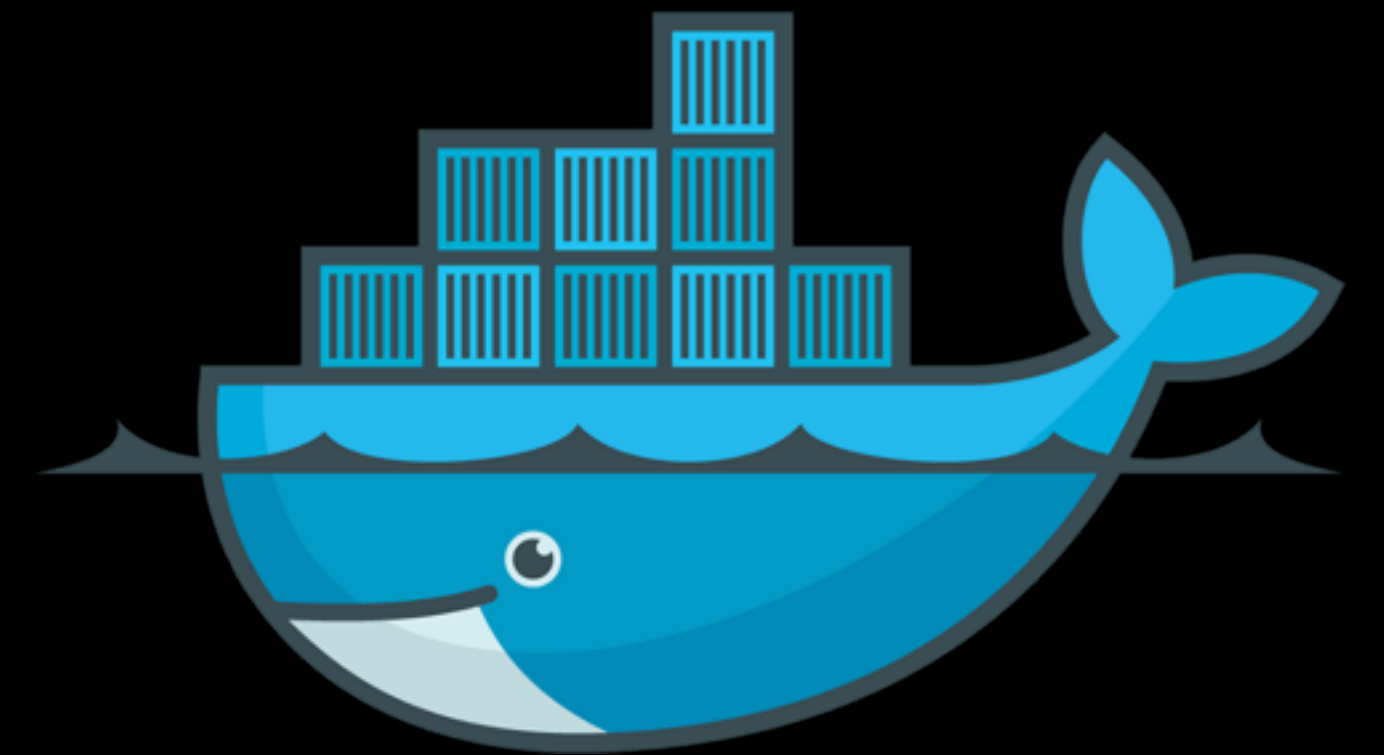
```
docker run -d --name redis  
  -p 6379:6379  
  -v /Users/paul/tmp:/data  
  redis
```

Test

```
telnet localhost 6379
```

Inspect

```
docker inspect redis
```

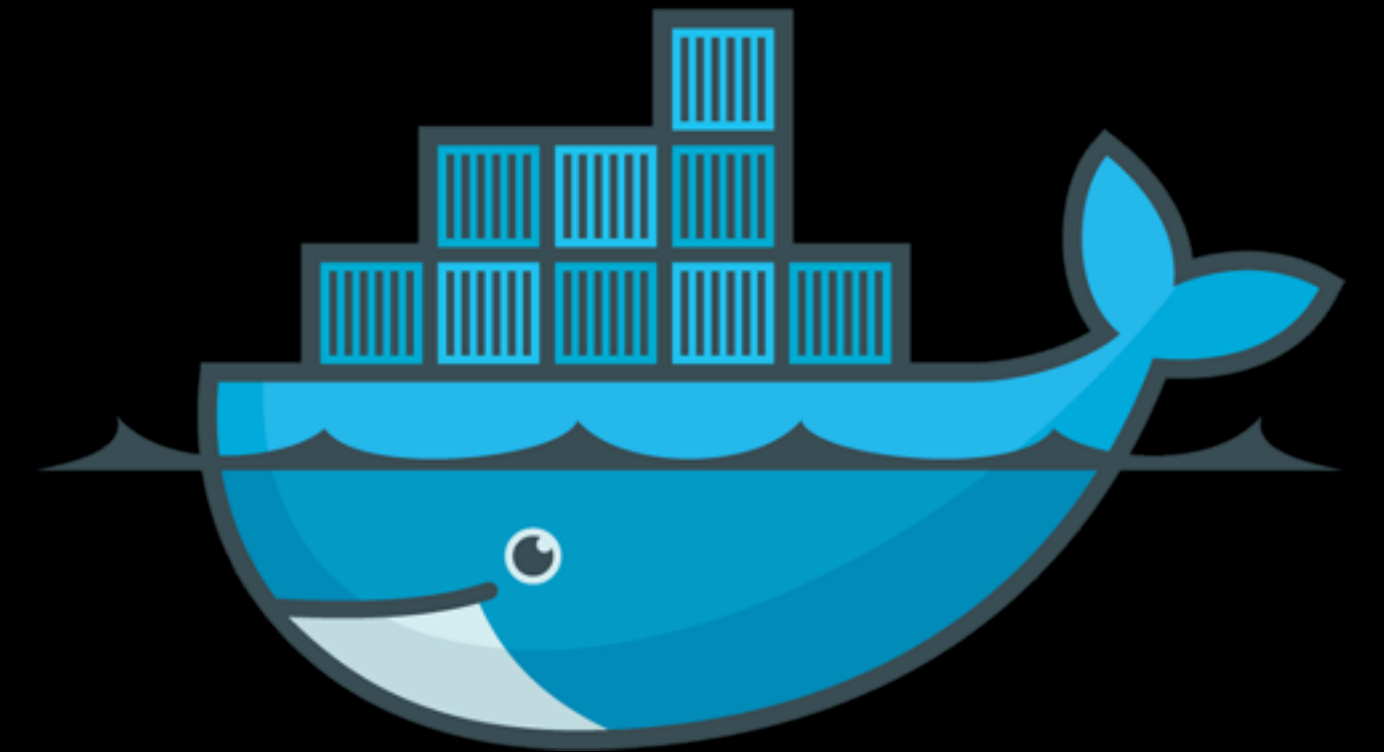
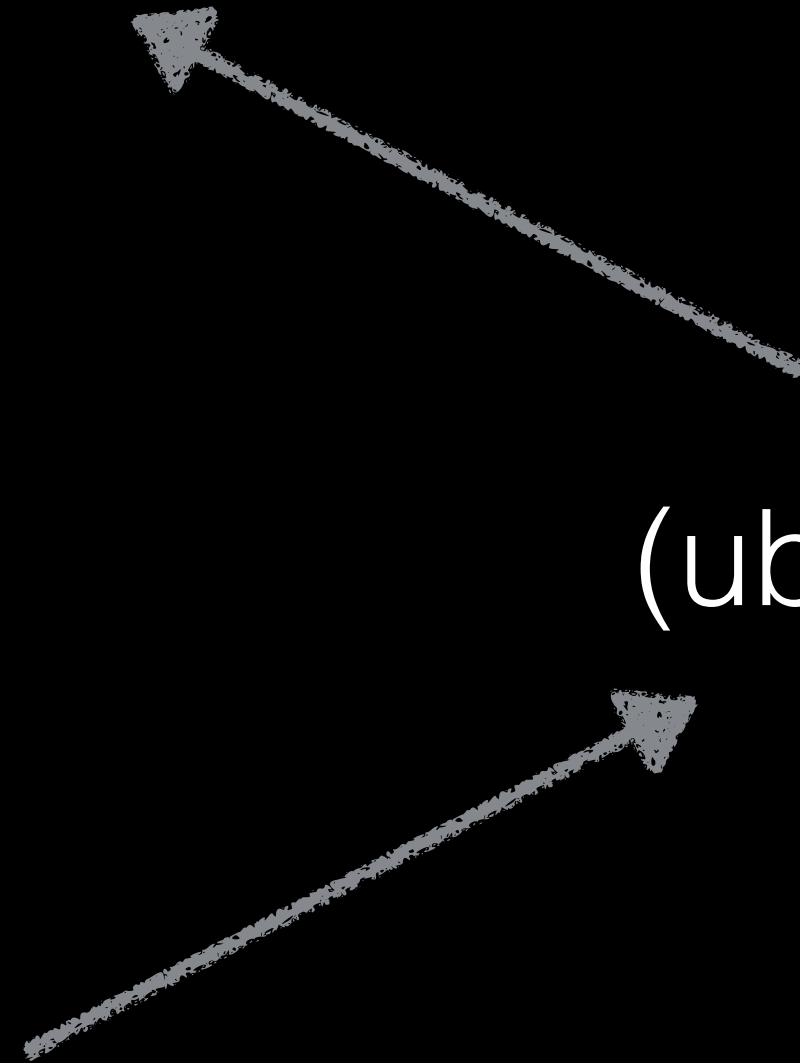


A Redis Backed node.js App

node.js web app
(ubu-node-r)

Redis
(ubu-redis-1)

node.js writer
(ubu-node-w)



Docker Redis | Kick the Tyres

Run Redis (pu:128.199.66.71 pr:10.130.143.155)

```
docker run -d --name redis  
-e [BINDIP]:6379:6379  
trickbooter.redis
```

Run Web Node (pu: 128.199.78.238 pr: 10.130.143.157)

```
docker run -d --name node-r -p 8080:8080  
-e REDIS_IP=[BINDIP]  
trickbooter/node-r
```

Run Writer Node (pu: 128.199.72.148 pr: 10.130.143.158)

```
docker run -d --name node-w  
-e REDIS_IP=[BINDIP]  
trickbooter/node-w
```



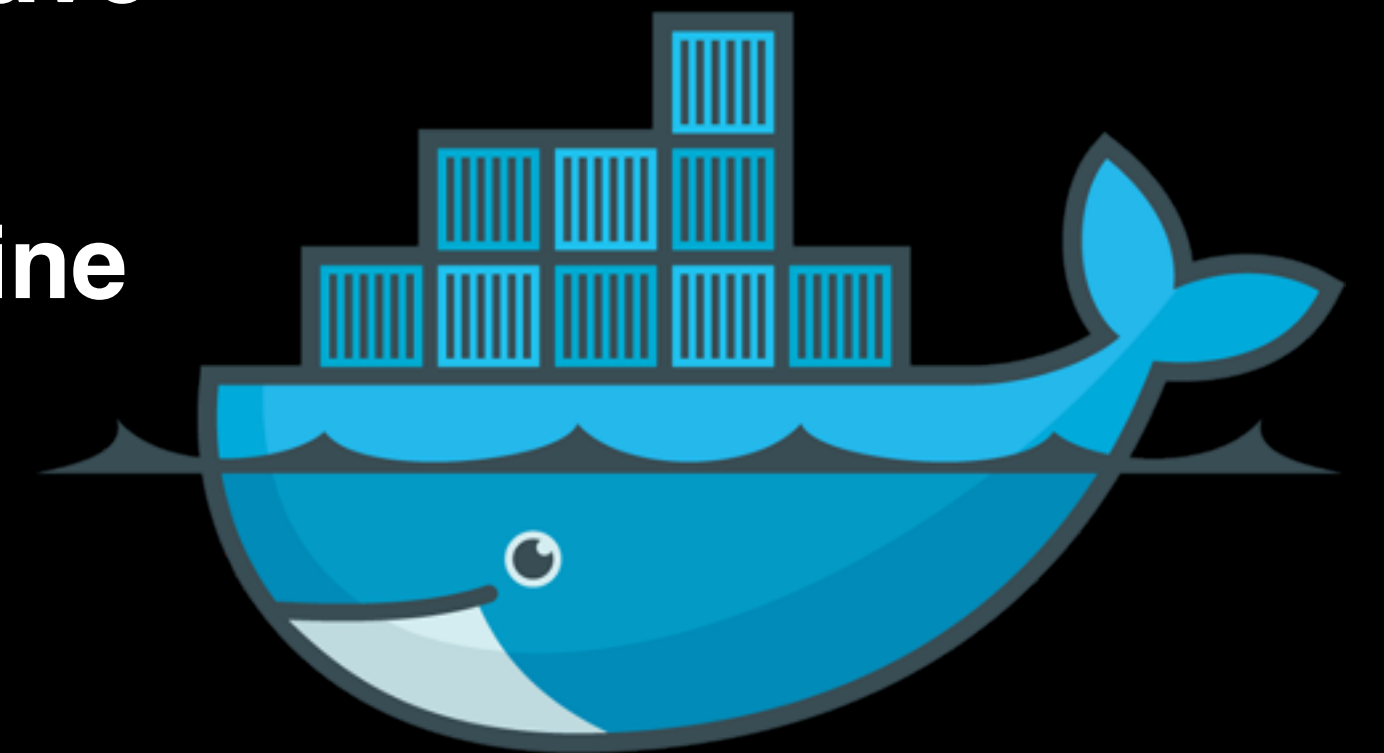
What's Next & Other Projects

What's Next

- **Try It**, Boot2Docker, VirtualBox, Any Cloud Provider

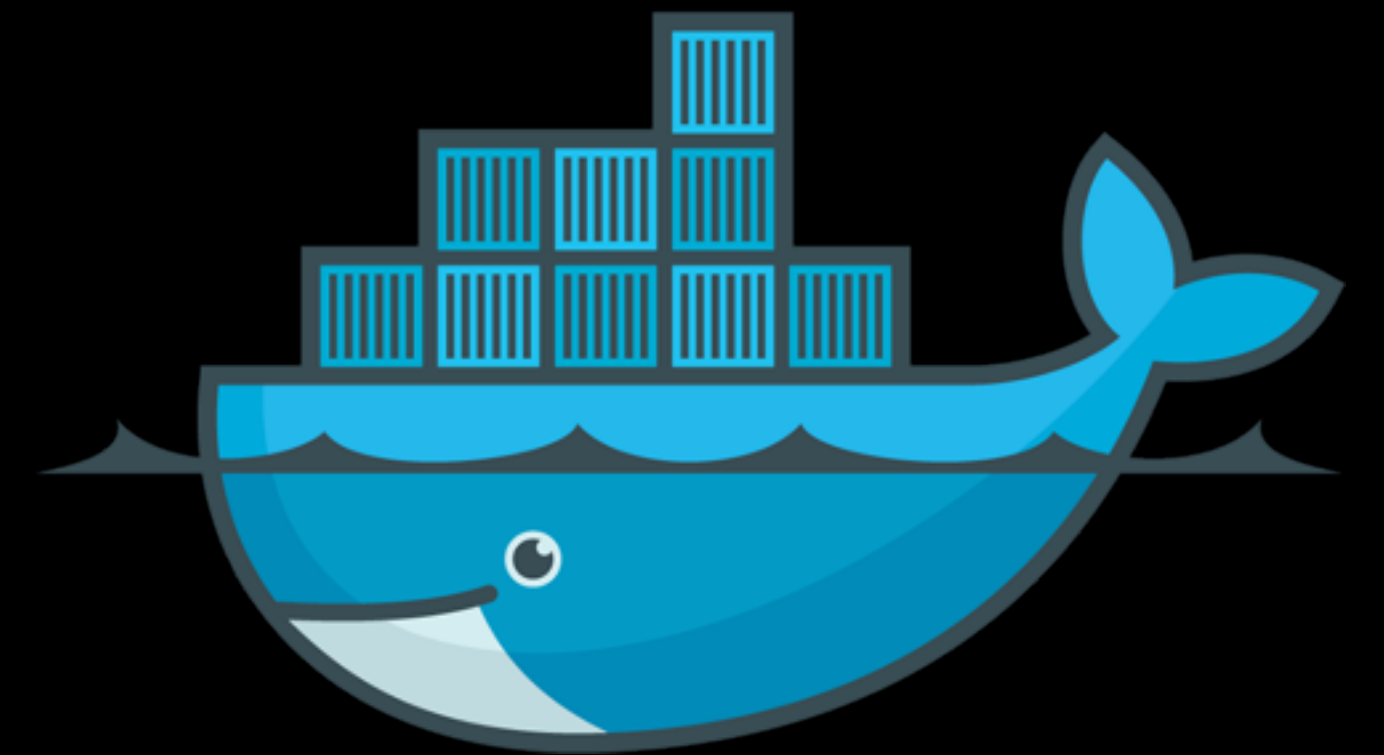
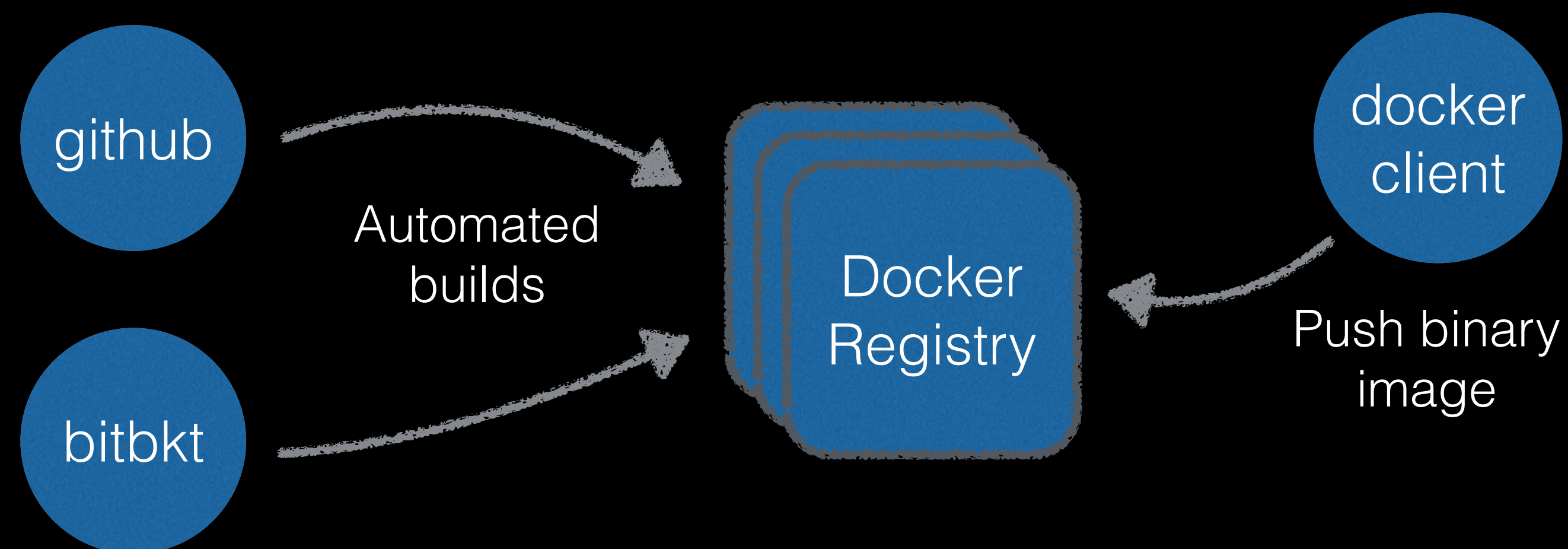
Other Projects

- Clustered Cross-Host Services (Redis, Cassandra) - **Weave**
- Multi-Container Applications - **Swarm, Compose, Machine**



The Docker Registry

- A library of built images
- Public and private (\$) repositories
- Images can be built from a known source or pushed
- Many registry options



Q&A

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Cheat sheet

<https://github.com/wsargent/docker-cheat-sheet>

These examples

<https://github.com/trickbooter/eotw-docker>

Docker

www.docker.com

Docker docs

docs.docker.com

Docker registry

hub.docker.com

