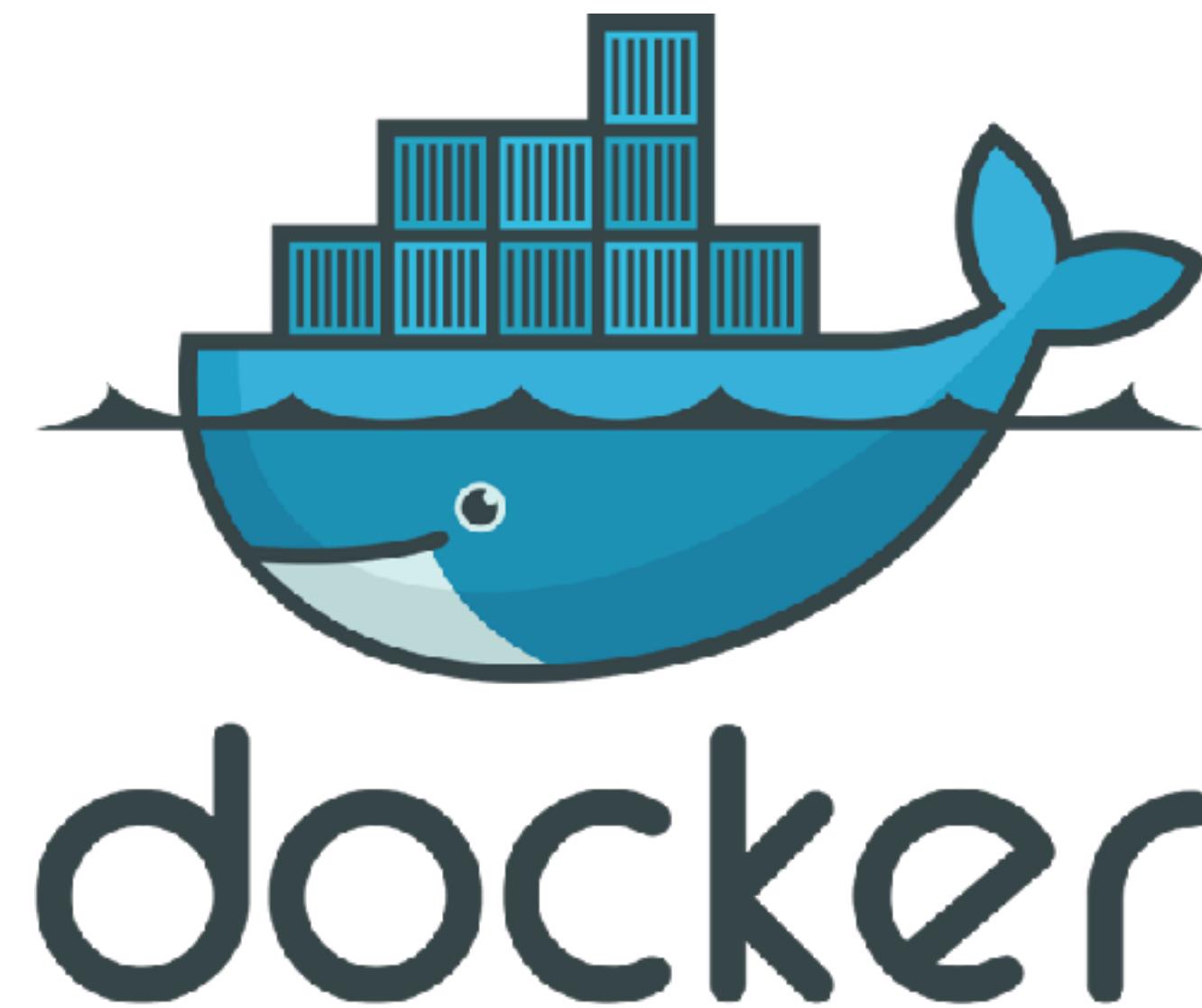


Docker 101: Getting to know Docker



Alexandru Rosianu @aluxian
Entrepreneurs Club

\$ whoami

- Student — Computer Science with AI
- Campus Ambassador + Certified Associate
- Co-founder & CTO @ futuristico.xyz
- @aluxian on Twitter, Facebook, everywhere

◆ Geek 😎 Student 🎓 Developer 💻 Hacker ➡️

\$ whoareyou

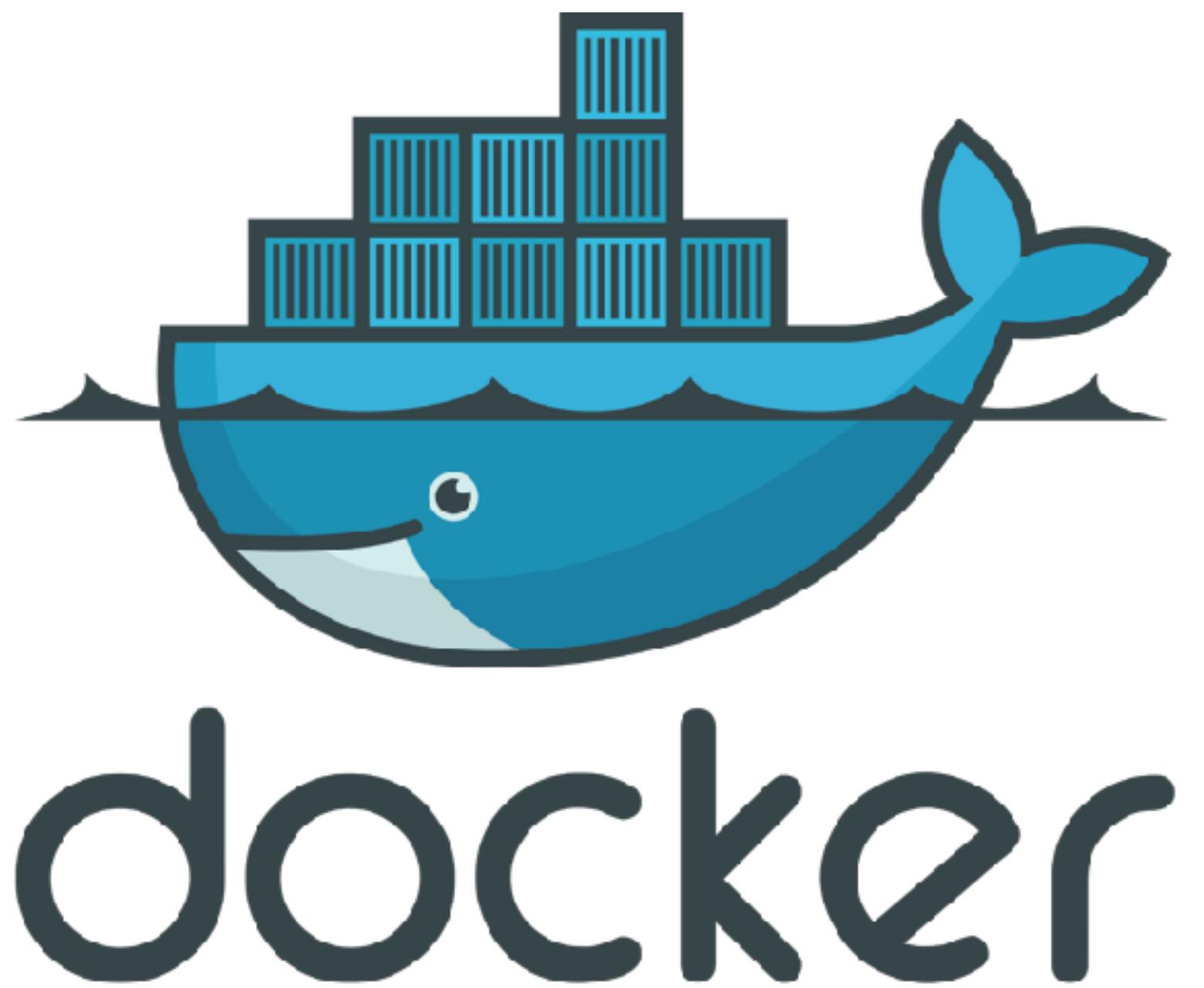
- Why do you want to learn Docker?

Agenda

and stickers

- What is Docker?
 - But why?
 - Basic docker commands
 - The mighty Dockerfile
 - Cat gifs demo
 - Now you try it!
 - Q&A
 - Workshop
 - Pizza
- and t-shirts

What is Docker?





Docker containers are NOT VMs

- Easy connection to make
- Fundamentally different architectures
- Fundamentally different benefits

VMS

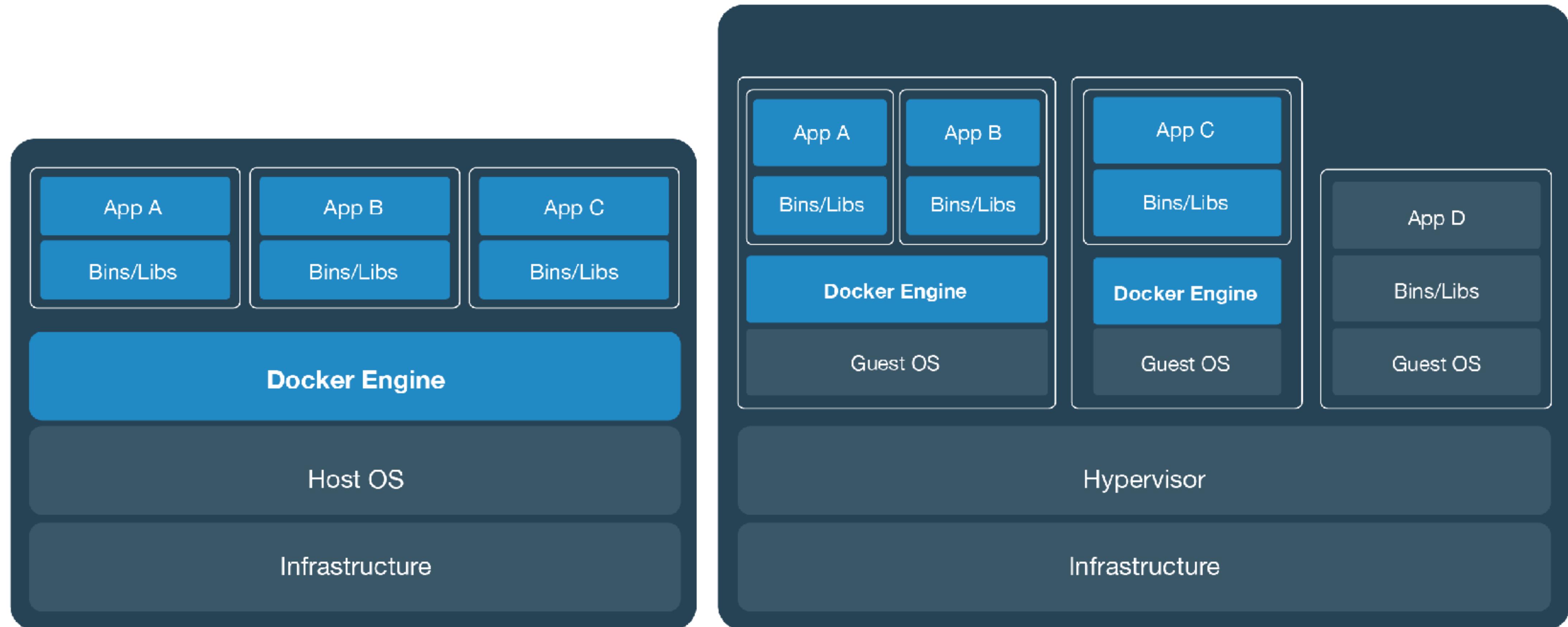


Containers

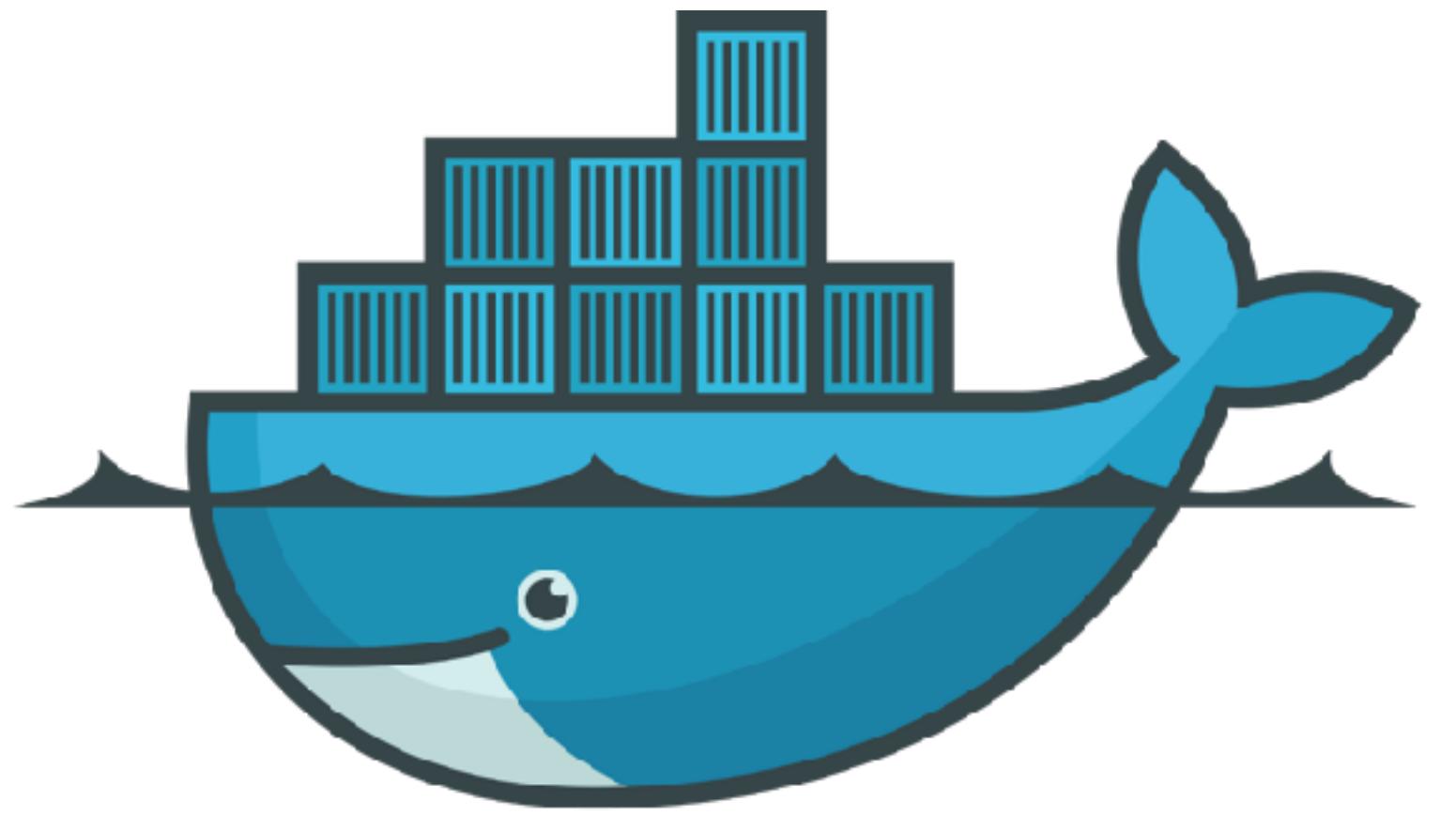




They're different, not mutually exclusive



But why?



docker





Agility

13X

More software releases

65%

Reduction in developer onboarding time

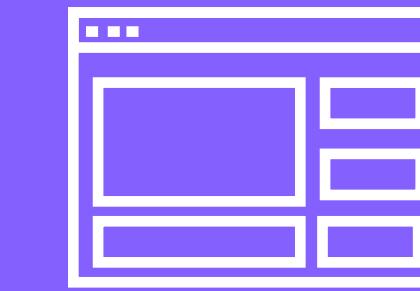


Portability

41%

Move workloads across private/public clouds

Eliminate
“works on my machine” issues



Control

62%

Report reduction in MTTR

10X

Cost reduction in maintaining existing apps

State of App development Survey: Q1 2016, Cornell University case study

Build, Ship, Run, Any App Anywhere

From Dev



Any App



MORE



Any OS



Windows



Linux

Anywhere



Physical



Virtual

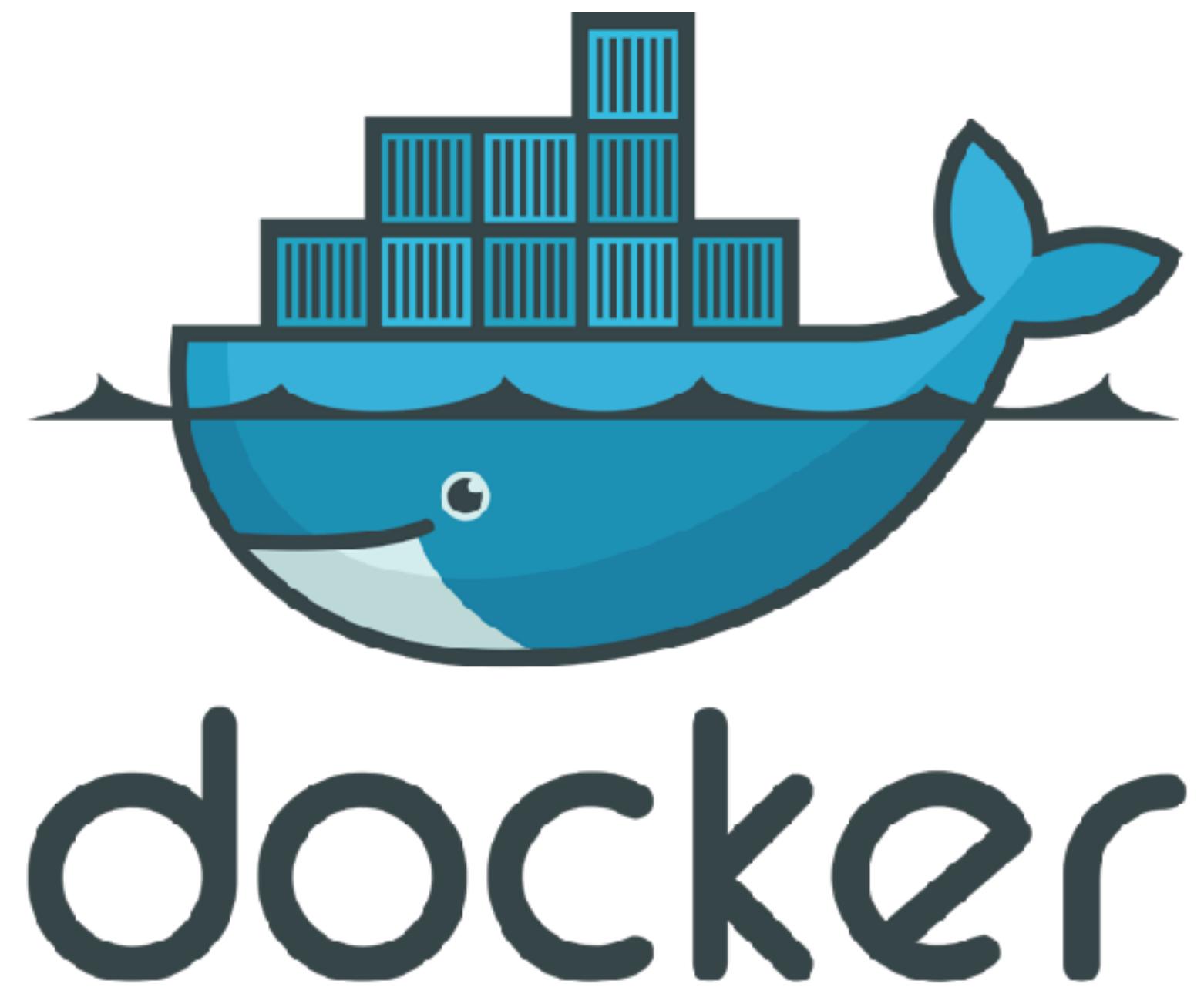


Cloud





Basic docker
commands

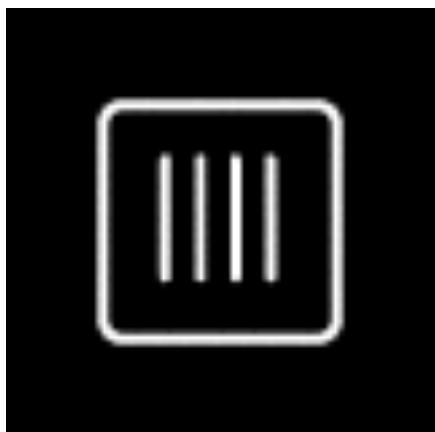


Some Docker vocabulary



Docker Image

The basis of a Docker container, represents a full application



Docker Container

The standard unit in which the application resides and executes



Docker Engine

It creates and runs Docker containers



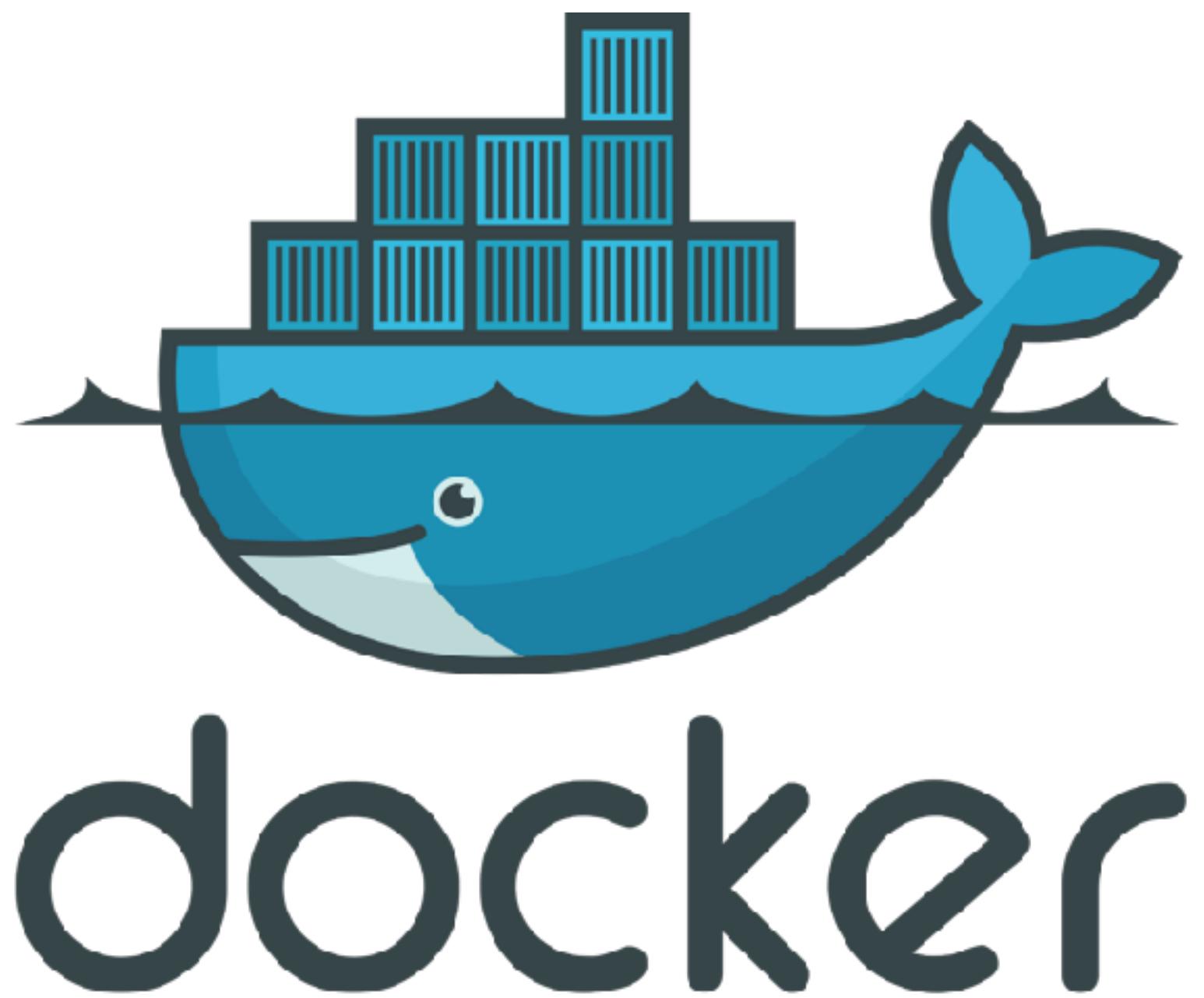
Registry Service (Docker Hub or Docker Trusted Registry)

A storage and distribution service for your images

Basic docker Commands

```
$ docker pull aluxian/catweb:1.0  
  
$ docker images  
  
$ docker run -d -p 5000:5000 --name catweb aluxian/catweb:latest  
  
$ docker ps  
  
$ docker stop catweb (or <container id>)  
  
$ docker rm catweb (or <container id>)  
  
$ docker rmi aluxian/catweb:latest (or <image id>)  
  
$ docker build -t aluxian/catweb:2.0 .  
  
$ docker push aluxian/catweb:2.0
```

The mighty
Dockerfile



Dockerfile: Linux example

```
1 # our base image
2 FROM alpine:latest
3
4 # Install python and pip
5 RUN apk add --update py-pip
6
7 # upgrade pip
8 RUN pip install --upgrade pip
9
10 # install Python modules needed by the Python app
11 COPY requirements.txt /usr/src/app/
12 RUN pip install --no-cache-dir -r /usr/src/app/requirements.txt
13
14 # copy files required for the app to run
15 COPY app.py /usr/src/app/
16 COPY templates/index.html /usr/src/app/templates/
17
18 # tell the port number the container should expose
19 EXPOSE 5000
20
21 # run the application
22 CMD ["python", "/usr/src/app/app.py"]
```

- Instructions on how to build a Docker image
- Looks very similar to “native” commands
- Versioned and 100% reproducible

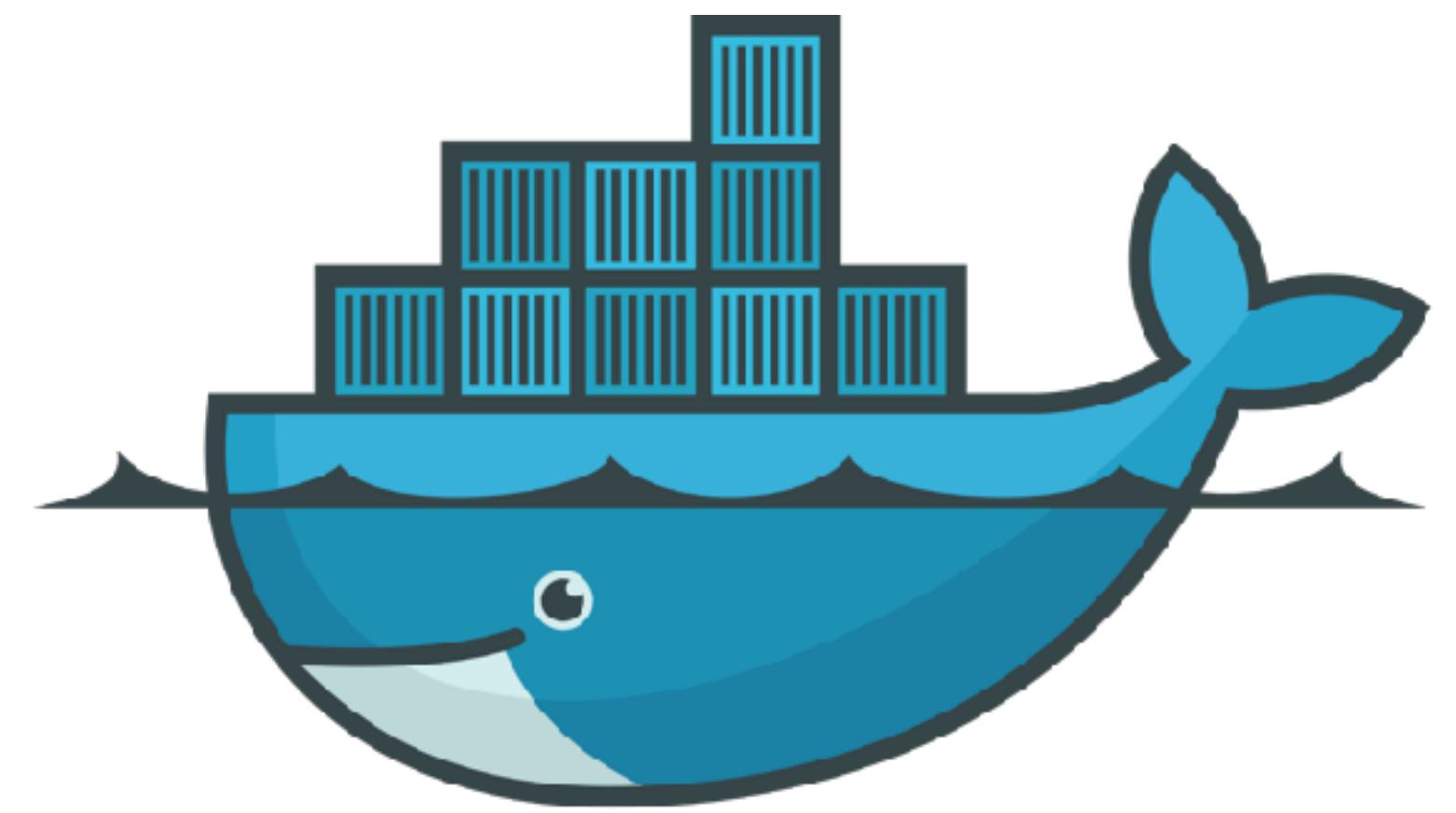
Dockerfile: Windows example

19 lines (15 sloc) | 832 Bytes

Raw Blame History

```
1 FROM microsoft/windowsservercore
2
3 ENV NPM_CONFIG_LOGLEVEL info
4 ENV NODE_VERSION 6.5.0
5 ENV NODE_SHA256 0c0962800916c7104ce6643302b2592172183d76e34997823be3978b5ee34cf2
6
7 RUN powershell -Command \
8     $ErrorActionPreference = 'Stop' ; \
9     (New-Object System.Net.WebClient).DownloadFile('https://nodejs.org/dist/v%NODE_VERSION%/node-v%NODE_VERSION%-win-x64.zip', 
10    if ((Get-FileHash node.zip -Algorithm sha256).Hash -ne $env:NODE_SHA256) {exit 1} ; \
11    Expand-Archive node.zip -DestinationPath C:\ ; \
12    Rename-Item 'C:\node-v%NODE_VERSION%-win-x64' 'C:\nodejs' ; \
13    New-Item '%APPDATA%\npm' ; \
14    $env:PATH = 'C:\nodejs;%APPDATA%\npm;' + $env:PATH ; \
15    [Environment]::SetEnvironmentVariable('PATH', $env:PATH, [EnvironmentVariableTarget]::Machine) ; \
16    Remove-Item -Path node.zip
17
18 CMD [ "node.exe" ]
```

Cat gifs demo

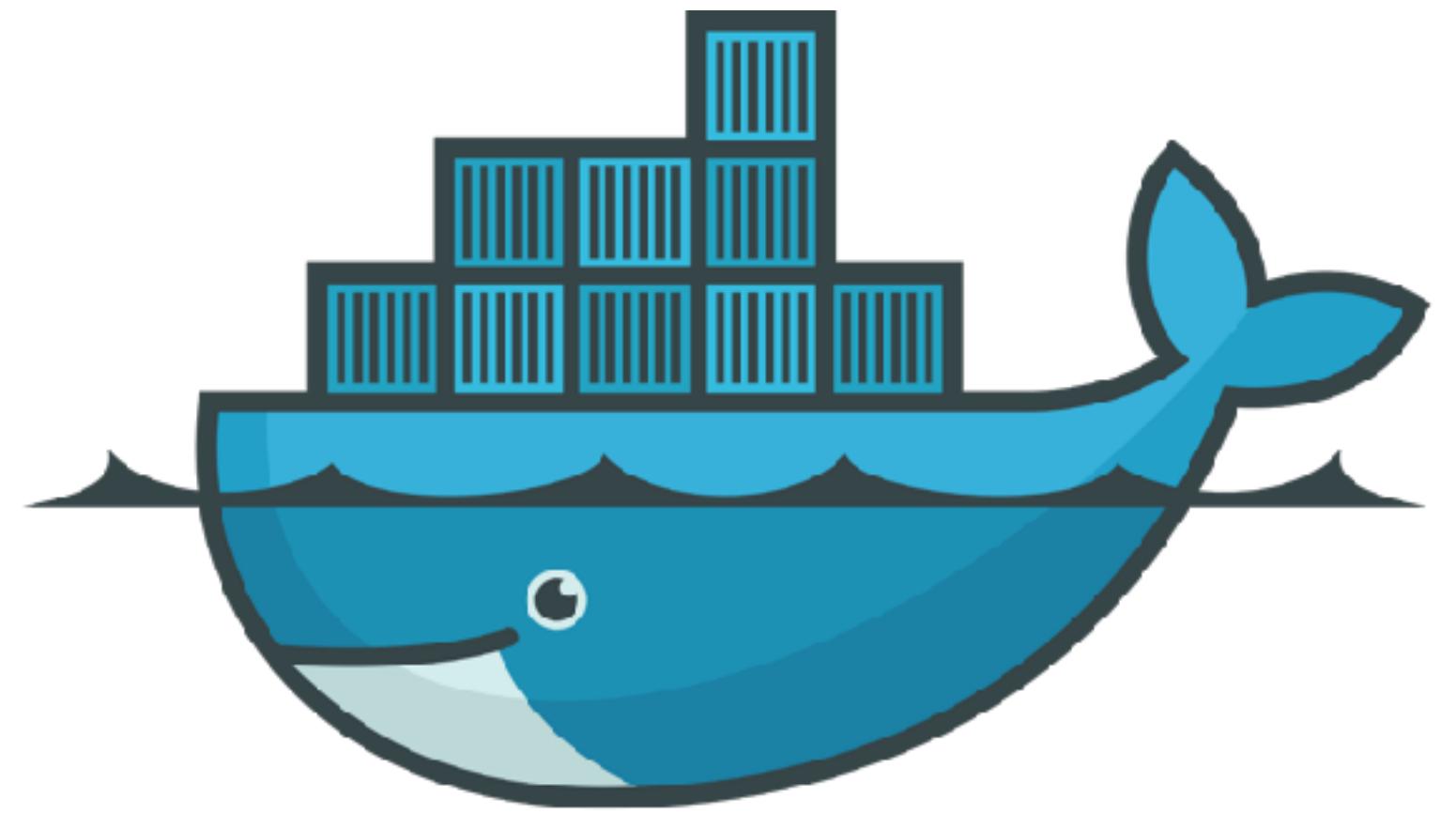


docker

What about data persistence?

- Volumes allow you to map a directory from your host into a container
 - e.g. map `/home/docker/mydbdata` on the host to the `/data` directory inside my MongoDB container
- They can also be used to share data between containers

Now you try it!



docker

Try at home

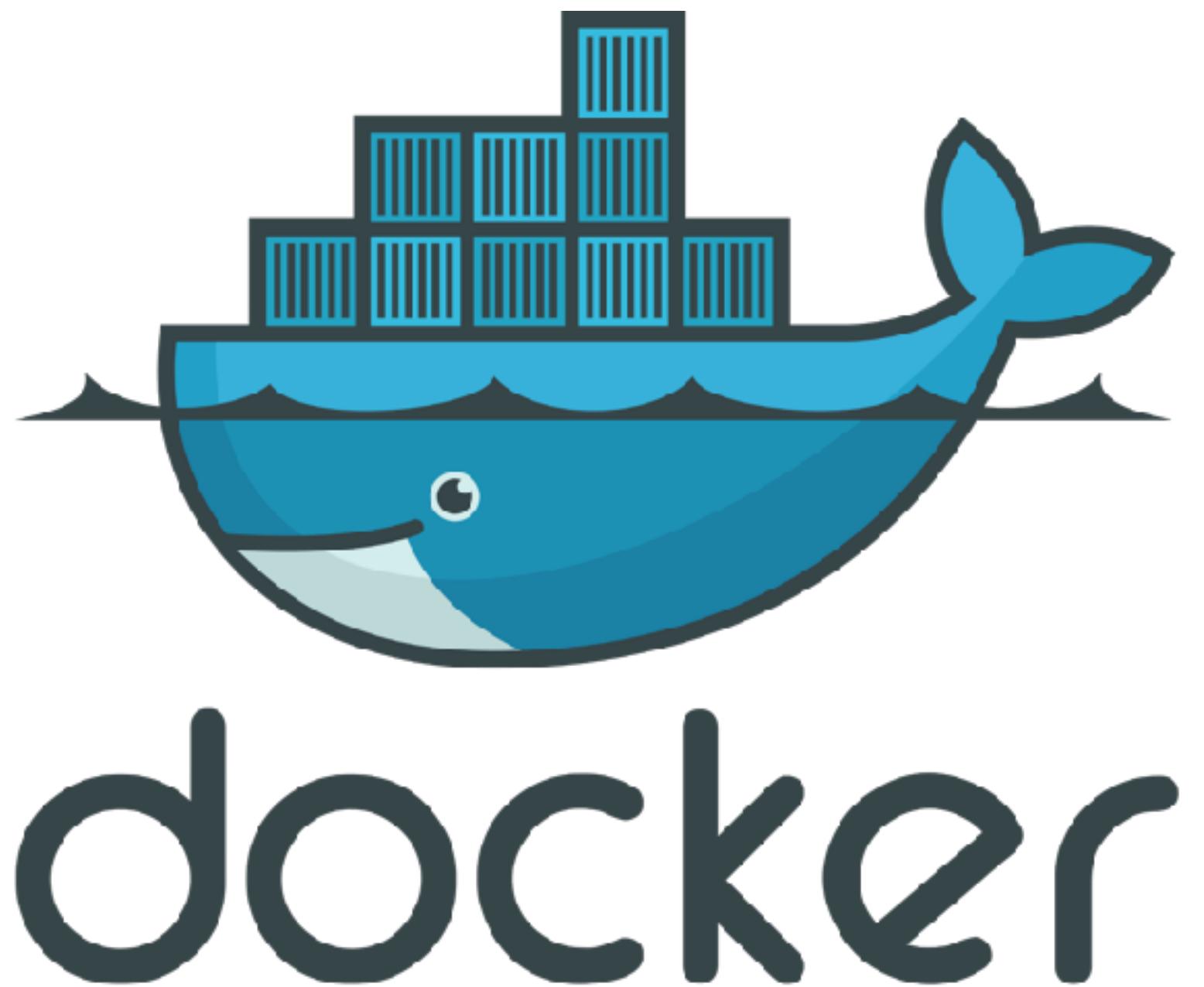
- Visit <https://docs.docker.com/installation>
- Install the right version for your machine: Mac, Windows, Linux
- After Docker is installed, run catweb
 - `docker run -d -p 5000:5000 --name catweb aluxian/catweb:1.0`
- Browse to port 5000 on your machine
 - <http://localhost:5000>

Learn at home

- <https://docs.docker.com>
- <https://github.com/docker/labs>
- <https://training.play-with-docker.com>
- I'll post these slides on the event page

Thank You ;)

Q&A



Feedback

- I'd love to know if you enjoyed this
- <https://goo.gl/P3BVGc>
- Another presentation/workshop on 13 March
- Send us suggestions!

Next from Entrepreneurs Club

The image features a dark background showing two people working on laptops, with code visible on the screens. In the upper left corner, there is a white circular logo containing the letters 'ef.' and a QR code. Below the QR code, the text 'Apply before 1 March' is displayed. The main title 'BUILDING THE FUTURE' is centered in large, bold, white capital letters. A horizontal line separates the title from the descriptive text below. The descriptive text reads: 'Entrepreneur First is inviting the most ambitious and talented students who are interested in building the future for an evening of networking.' At the bottom, the event details are provided: '8 March 2018, 6.30pm' and 'Block M, The Biscuit Factory, London, SE16 4DG'.

ef.

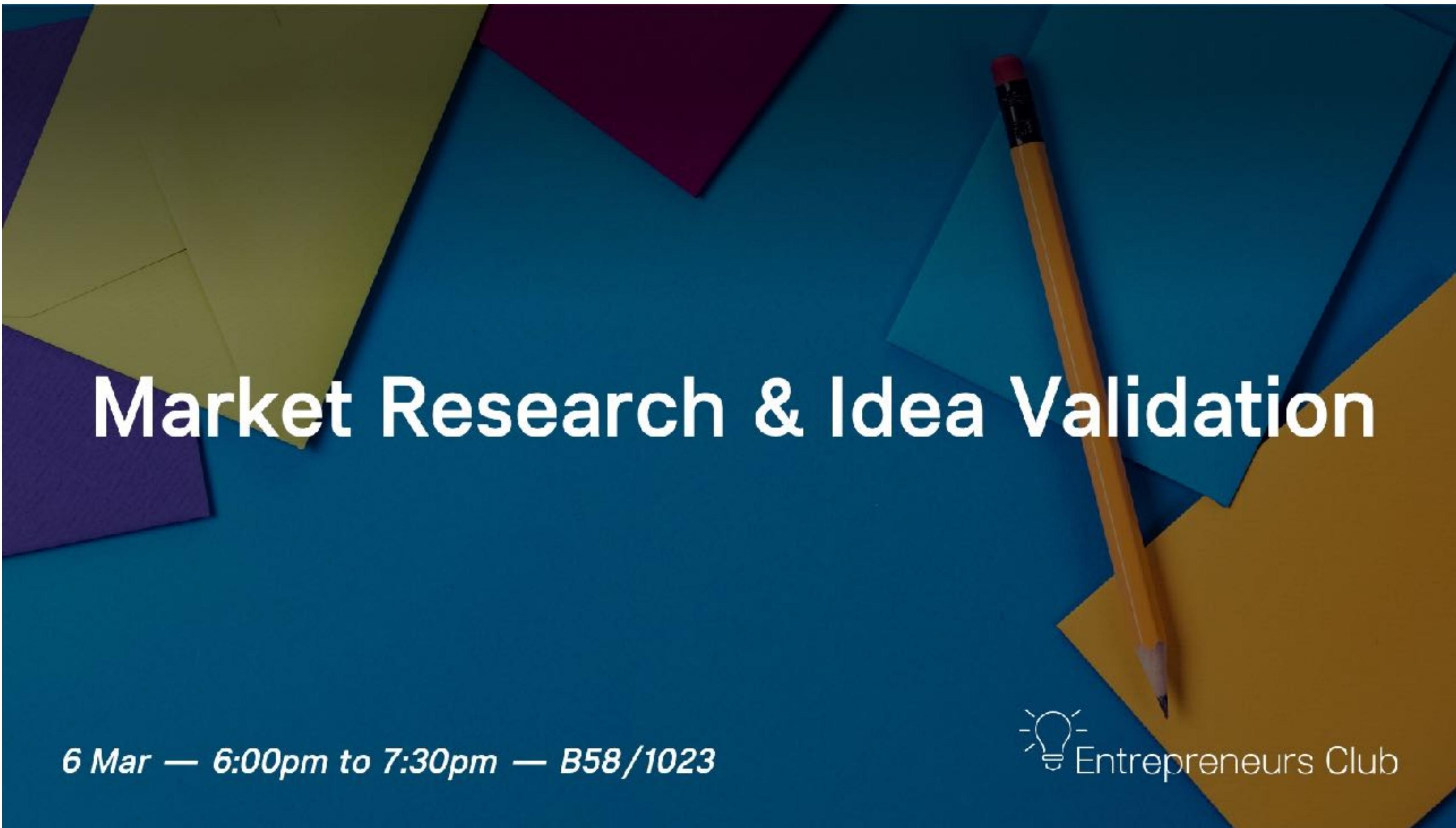
Apply before
1 March

BUILDING THE FUTURE

Entrepreneur First is inviting the most ambitious and talented students who are interested in building the future for an evening of networking.

8 March 2018, 6.30pm
Block M, The Biscuit Factory, London, SE16 4DG

Next from Entrepreneurs Club



Market Research & Idea Validation

6 Mar — 6:00pm to 7:30pm — B58/1023

 Entrepreneurs Club

Play With Docker — Workshop

- Go to

<https://training.play-with-docker.com/beginner-linux/>

- Do as much as possible
- If you finish it, you'll get a t-shirt

The End (ok, now
you can leave)

