Docker for Developers

An Introduction for Startups

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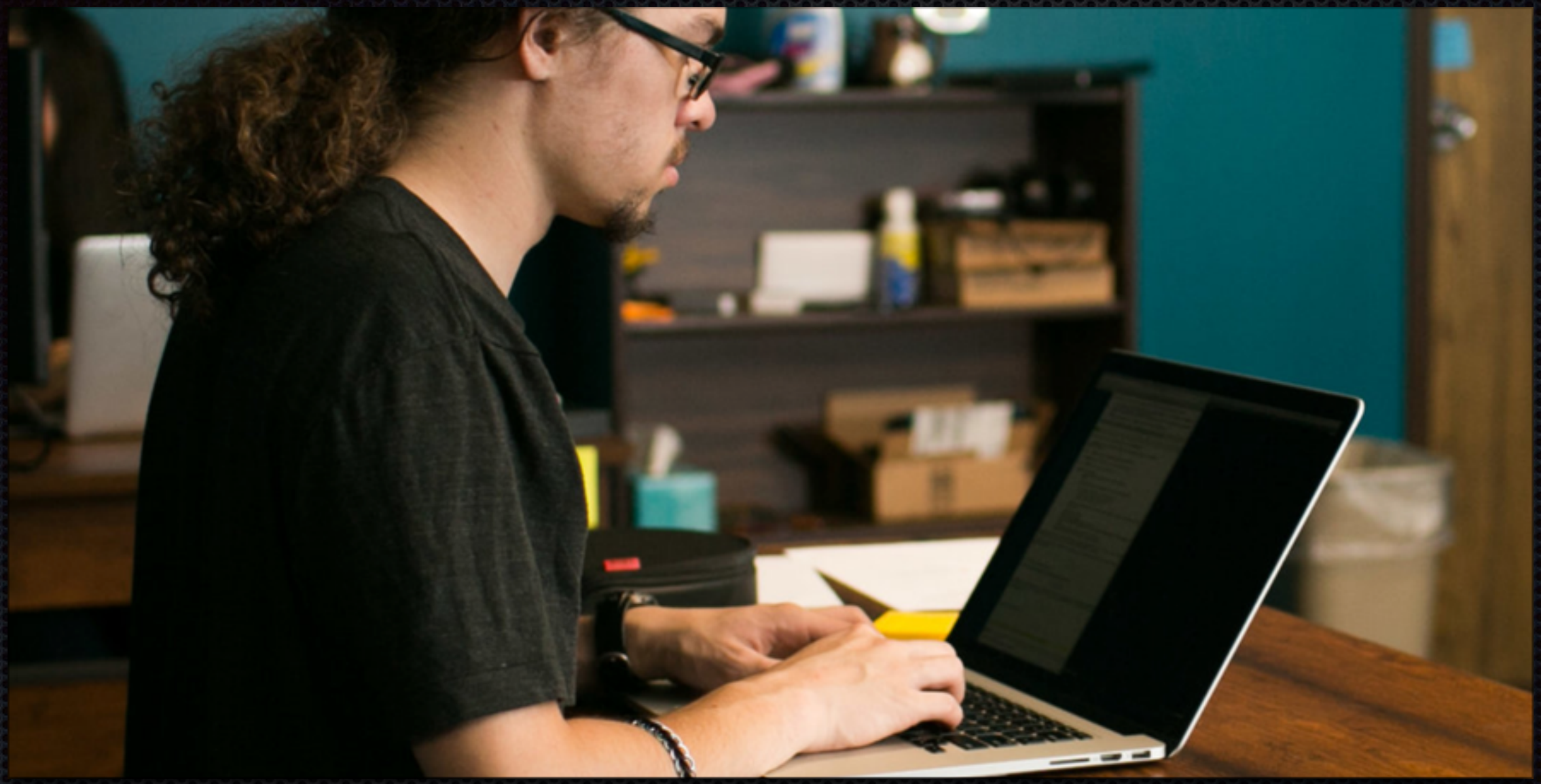

About Developers

Big Assumptions

- As Developers We Are Coding Less
- Instead We Are Builders & Integrators
- We Learn Just Enough About A Lot of Libraries
- We Learn Deeply About A Few Libraries
- A Developer’s Job Is To Create or Bring Value

Bigger Assumptions

- You Are an Entrepreneur (or work with one)
- You Need to Make Something of Value
- The Value Requires a Key Feature of Containers
- Reproducible, Portable, Scalable

Startup Value: Reduce Risk

- Huge Libraries of Pre-Built Applications
- Set up Once, Deploy Many
- Change & Rebuild Quickly esp. With CI/CD Pipelines
- Scale From Laptop to Cloud (AWS, Azure, Rackspace)
- **Focus On Customer Experiments & Value**

Docker Container is an open source software development platform. Its main benefit is to package applications in “containers”, allowing them to be portable among any system running the Linux operating system (OS).

“Enterprise organizations are seeking and sometimes struggling to make applications and workloads more portable and distributed in an effective, standardized, and repeatable way. Just as GitHub stimulated collaboration and innovation by making source code shareable, Docker Hub, Official Repos, and commercial support are helping enterprises answer this challenge by improving the way they package, deploy, and manage applications.”

Jay Lyman, senior analyst at 451 Research

“Specifically, Docker makes it possible to set up local development environments that are exactly like a live server, run multiple development environments from the same host that each have unique software, operating systems, and configurations, test projects on new or different servers, and allow anyone to work on the same project with the exact same settings, regardless of the local host environment.”

Ben Lloyd Pearson http://opensource.com/

But What About VMs?

- A Virtual Machine Emulates Hardware
- Shared Hardware is More Efficiently Used
- But Carries “Hardware Knowledge” Cost

Containers Are Different

- A Container Shares The Operating System
- Shared Operating Systems Are VERY Efficient
- No “Hardware Knowledge” Means Better Portability

The Basic Startup Model

- A Static Web Page
- An API
- Python Flask
- Nginx
- uWSGI with Supervisor

Static Web Page

https://github.com/peterfinlan/Sedna

Code Repo

https://github.com/Archethought/lsw17-api

Get Code Repos

```
git clone https://github.com/Archethought/lsw17-api
git clone https://github.com/peterfinlan/Sedna
```

Docker Installation Linux

install-docker.sh

```
curl -fsSL https://download.docker.com/linux/ubuntu/gpg | sudo apt-key add -
sudo add-apt-repository "deb [arch=amd64] https://download.docker.com/linux/ubuntu \
$(lsb_release -cs) stable"
sudo apt-get update
sudo apt-get install -y docker-ce
```

[Pull A Docker Image]

```
docker pull tiangolo/uwsgi-nginx-flask:flask-upload
```

Copy Webpage & Deploy

```
cp -R Sedna/* lsw17-api/app/static
cd lsw17-api
sh deploy.sh
```

Deploy (roll your own)

```
#!/bin/bash

dockerName=api
port=8886
logging=syslog

docker stop $dockerName;
docker rm $dockerName;
docker rmi $dockerName;

docker build --no-cache=true -t $dockerName .;
docker run -d --name $dockerName -p $port:80 --log-driver $logging \
$dockerName
```

The Dockerfile

```
FROM tiangolo/uwsgi-nginx-flask:flask-upload

COPY ./app /app
```

Thank You

Resources

- What is a Docker Container?
- What is Docker and why is it so darn popular?
- Who's using Docker?
- Docker Hub
- Data Science