

# **ZENDESK'S DOCKER JOURNEY**

**FROM HEY TO YAY!**

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# ZENDESK

# TOPICS

WHY DOCKER?

POD ARCHITECTURE

DEPLOYMENT

PROJECT X

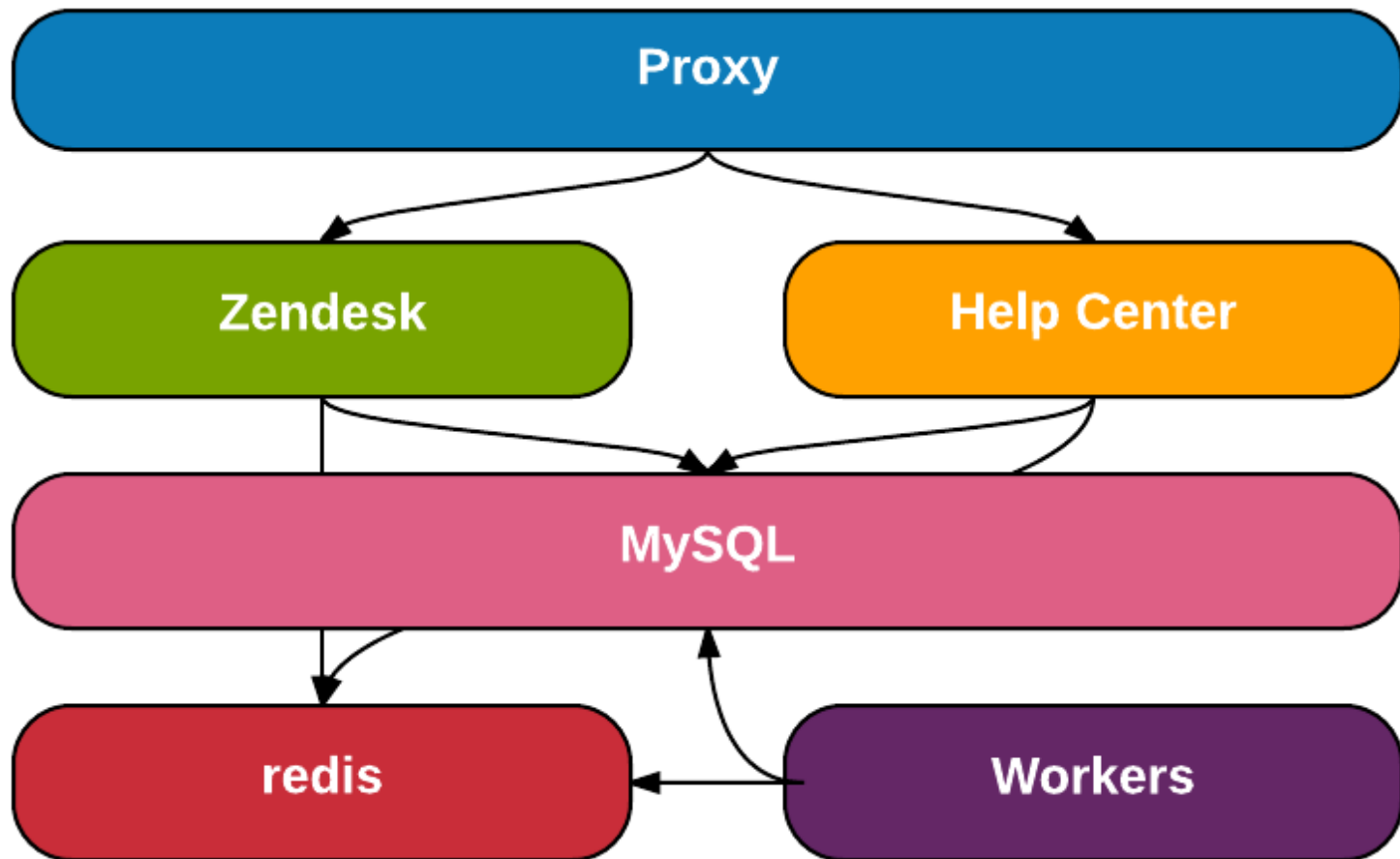
KUBERNETES

TIPS

# WHY DOCKER?

- Dockerfile, so easy! 😂
- Application isolation
- Application and operating environment described in a single repository 😂 😂
- Docker Hub
- Permeated our workflow for experimentation
- So much ❤️ from all teams

# POD ARCHITECTURE





# DEPLOYMENT

# SAMSON

[github.com/zendesk/samson](https://github.com/zendesk/samson)

- Transparent
- Flexible
- Audit trail
- Our (open source) deployment tool

**Samson** Projects Recent Deploys Current Deploys Admin

Jason Smale

### Dashboard

**PROJECT 1**

Release & Switch Non-Prod v46

Production Switch v44

**PROJECT 2**

Release v0.0.5

Update Latest v0.0.5

**PROJECT 3**

Staging master

Production master

**PROJECT 4**

Master 2f78476

Staging 4115628

Gamma v46

Pod1 v46

Pod2 v46

Pod3 v46

Pod4 v46

**PROJECT 5**

Master v1.0.4


Staging v1.0.4

Production v1.0.1

**PROJECT 6**

Upload v1.0.0

Release master

**Samson** Projects ▾ Recent Deploys Current Deploys Admin ▾  Jason Smale ▾

Home / Carson / Master / Deploy #15039


Carson Deploy 2f78476 to Staging Back

Travis deployed 2f78476 to Master 3 days ago, it took 1 minute 21 seconds

Output Files Commits Pull Requests Risks JIRA Issues

Expand Download log








```
Beginning git repo setup
Attempting to lock repository...
Repo locked, starting to clone...
Cloning into '/data/samson/tmp/d20140523-20260-m8czsw'...
done.
Executing deploy
2.1.1 (set by RENV_VERSION environment variable)
Using rake (10.3.1)
Using i18n (0.6.9)
Using multi_json (1.10.0)
Using activesupport (3.2.18)
Using builder (3.0.4)
Using activemodel (3.2.18)
Using erubis (2.7.0)
Using journey (1.0.4)
Using rack (1.4.5)
Using rack-cache (1.2)
Using rack-test (0.6.2)
Using hike (1.2.3)
Using tilt (1.4.1)
Using sprockets (2.2.2)
Using actionpack (3.2.18)
Using mime-types (1.25.1)
Using polyglot (0.3.4)
Using treetop (1.4.15)
Using mail (2.5.4)
Using actionmailer (3.2.18)
Using active_hash (1.2.3)
Using active_model_serializers (0.8.1)
Using arel (3.0.3)
```

**Samson** Projects ▾ Recent Deploys Current Deploys Admin ▾  Jason Smale ▾

### Recent Deploys

SEARCH USER TYPE STAGE STATUS

All ▾ All ▾ All ▾

PROJECT	USER	DEPLOY	LAST UPDATE	STATUS	
<a href="#">Project 1</a>	Travis	v93 failed to deploy to Staging	an hour ago	Failed	
<a href="#">Project 1</a>	Jason Smale	v92 failed to deploy to Staging	an hour ago	Failed	
<a href="#">Project 2</a>	Sean Caffery	v2.84.12 was deployed to Production	an hour ago	Succeeded	
<a href="#">Project 4</a>	Travis	e6c809e was deployed to Staging	an hour ago	Succeeded	
<a href="#">Project 3</a>	Beau Fabry	v0.3.13 was deployed to Production	2 hours ago	Succeeded	
<a href="#">Project 5</a>	Travis	v115 was deployed to master	2 hours ago	Succeeded	
<a href="#">Project 1</a>	Travis	v92 was deployed to Staging	3 hours ago	Succeeded	

# PROJECT X

# GOALS

- Assemble a team of engineers from all offices
- Rapidly deploy new services & applications with little involvement from Ops
- Easily scale up instances that run services & applications
- Leverage cloud providers for speed and flexibility

# IMPLEMENTATION

- Utilised Samson, Docker and consul
- X agent running on each node watches consul, for a new 'release document'
- Pulls down docker images, builds as described in release document



## Release document example:

```
{
  "doc_version": "1.0",
  "release_id": "10883",
  "release_author": "Bat Man <batman@zendesk.com>",
  "release_at": "2015-05-02 22:30:05 +0000",
  "image": "docker-registry.com/app@sha256:94c02c355ae42a9adc12",
  "env": {
    "RAILS_ENV": "production",
  },
  "encryption_key": "vault:x_encryption_key_1",
  "roles": {
    "resque_worker": {
      "command": "bundle exec rake resque:worker",
    }
  }
}
```

# OUTCOME

- It worked!
- Integrated into Samson
- Ultimately shelved because:
  - Scaling up instances was still challenging
  - Other technologies had matured, namely Kubernetes

# KUBERNETES



# WHY KUBERNETES?

- Similar core concepts to Project X (release doc vs. pod definition file)
- API drive, Samson can still drive
- Supports Open Container Format (OCF) - Docker & Rocket
- Maintained by a large group of contributors (560 according to GitHub!)

# XMAS 2015

First production release! Stay tuned 😊

# TIPS

# FROM debian:latest



Latest Debian, comes in at 119MB.

# FROM `alpine:latest`



A minimal Docker image based on Alpine Linux with a complete package index and only 5 MB in size!



# SHOREMAN

[github.com/chrismytton/shoreman](https://github.com/chrismytton/shoreman)

Bash implementation of Foreman that parses a file called `Procfile` without the need for Ruby.

Procfiles are portable and parseable by Foreman (Ruby), Honcho (Python), Forego (golang), etc.

## Procfile structure:

```
<label1>: <command1>  
<label2>: <label2>  
...
```

## Example:

```
crond:    crond -f -d 6  
app_log:  tail -f ${APP_LOG_FILE}
```

## Dockerfile example:

```
FROM alpine:latest
ENV APP_LOG_FILE /var/log/uptime.log
RUN apk --update add bash ca-certificates
RUN wget https://github.com/chrismytton/shoreman/raw/master/shc
chmod 755 /usr/local/bin/shoreman
RUN echo "* /1 * * * * uptime >> ${APP_LOG_FILE}" | crontab -
RUN touch /var/log/uptime.log
COPY Procfile /
ENTRYPOINT [ "/usr/local/bin/shoreman" ]
```

## Procfile example

```
crond:    crond -f -d 6
app_log:  tail -f ${APP_LOG_FILE}
```

## Output:

```
$ docker build -t docker_demo
$ docker run -ti docker_demo
01:26:44 crond      | '/usr/sbin/crond -f -d 6' started with pid
01:26:44 crond      | crond: crond (busybox 1.23.2) started, log
01:26:44 app_log    | 'tail -f ${APP_LOG_FILE}' started with pi
01:27:00 crond      | crond: USER root pid 19 cmd uptime >> /var
01:27:00 app_log    | 01:27:00 up 9:54, 0 users, load averag
```

# PERCHERON



[github.com/ashmckenzie/percheron](https://github.com/ashmckenzie/percheron)

Looking for a Fig / docker-compose alternative?

Try Percheron, written in Ruby, by me 😊

# THANKS!

WE'RE HIRING, SO COME AND TALK TO ME!

OR

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