Containerization War Stories

SREcon Americas 2018   Rodrigo Menezes and Ruth Grace Wong   March 29, 2018

Rodrigo Menezes

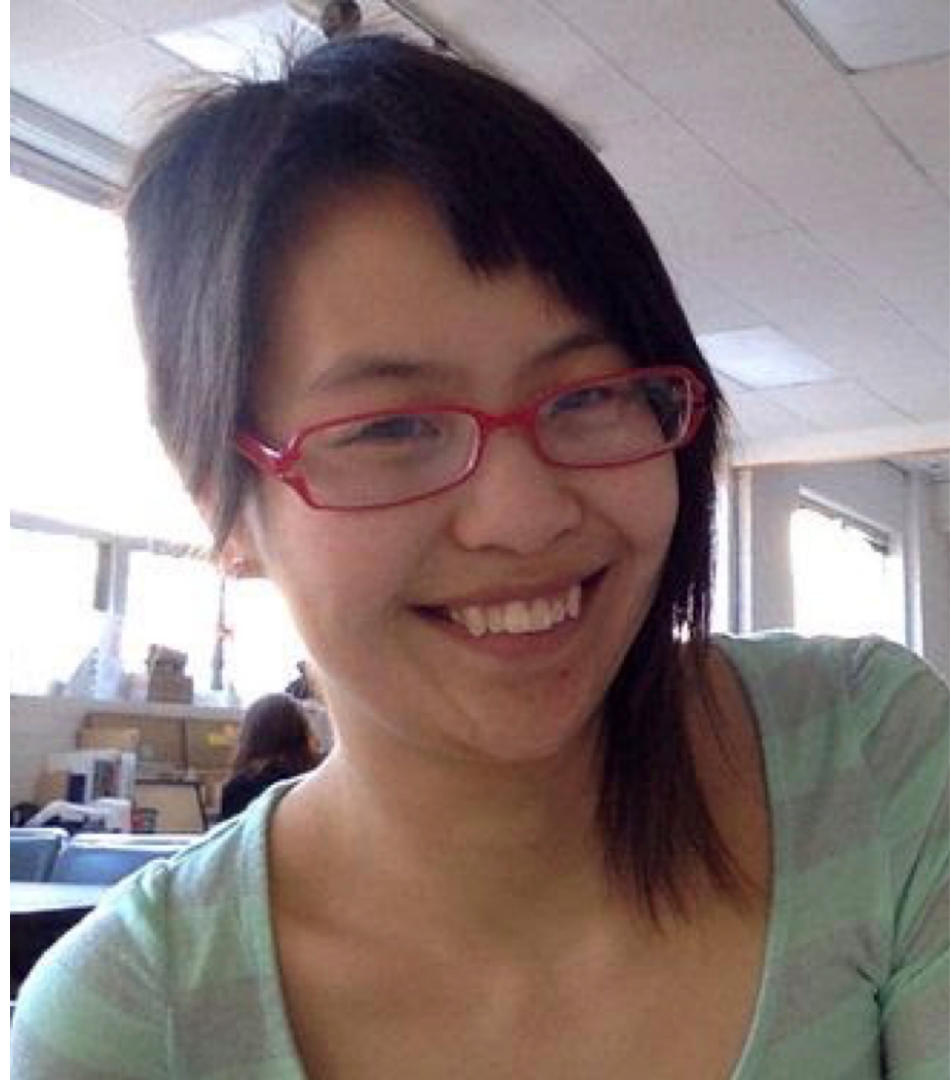## Cloud Management Platform SRE

Deployment tooling

Service framework

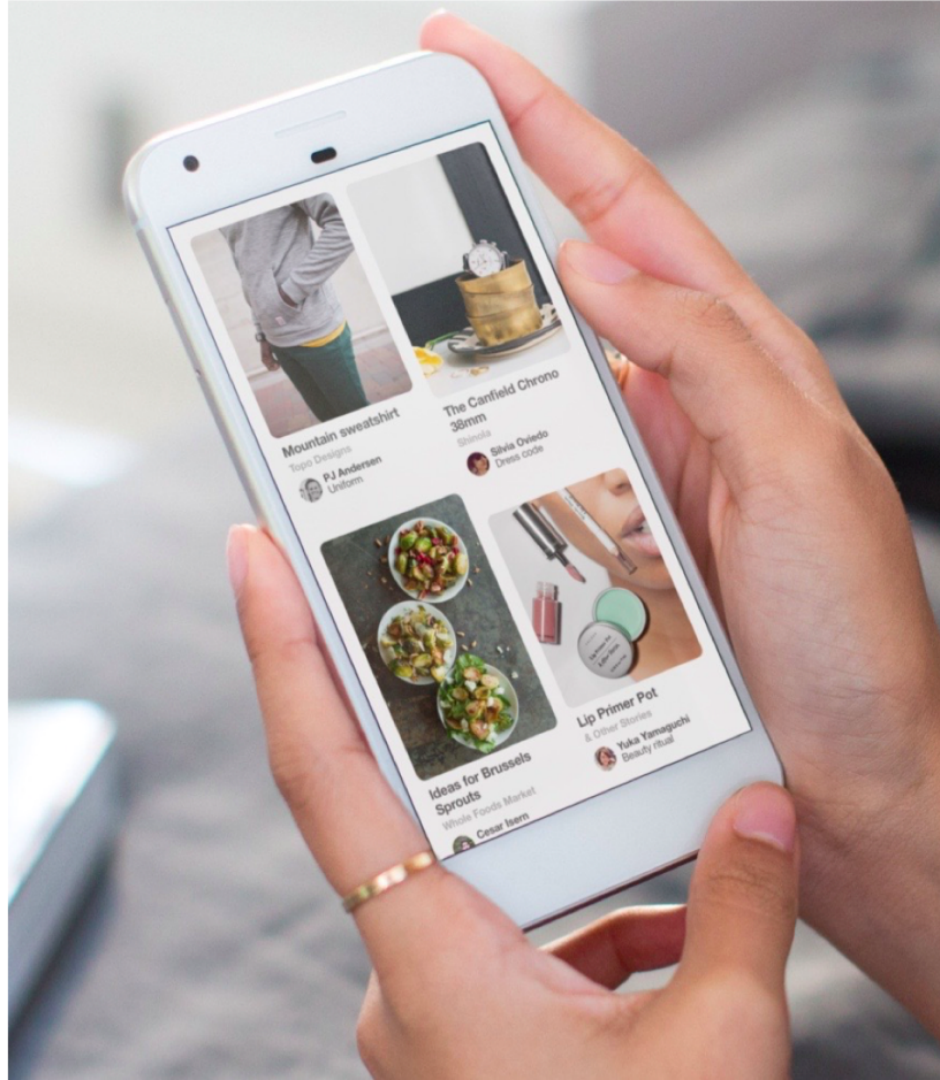# Ruth Grace Wong

Core Site Reliability Engineer

Uptime

Pinterest

Helping people discover and do what they love

- 200M+ monthly users
- 150TB data processed daily
- tens of thousands of machines
- hundreds of services

Beginner | Projects | Pattern | Backpack | Ideas | Tools | Tutorial | Template | Workbench | DIY | Bracelet | Bag | Design | Workshop | Furniture | Belts | Purse

Mascon Leather
See more

This is it man! The idea I've kept having in mind. Definitely knew it wasn't original. LOL. What's new. // Leather Card Holder
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from Instagram

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leather working table
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A hardened leather thimble to make stitching leather easier!
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from Instagram

Mert Leathercraft, Leathercraft Pattern, Leatherwork Patterns, Leather Templates, Leather Tooling Patterns, Tooling Ideas, Patrons Leather, Leather Stuff, ...
See more

How to hand tool leather

Ruth Grace Wong

February 19, 2018   3 likes

Yum! A little eggy but good! I put mine in an 8x8 pan which I guess made it thicker because it took 10 minutes extra to cook (47 minutes). I had some extra pear after covering the bottom and I just ate it but I think if I did this again and had extra pear I would put some pear in the middle of the batter.
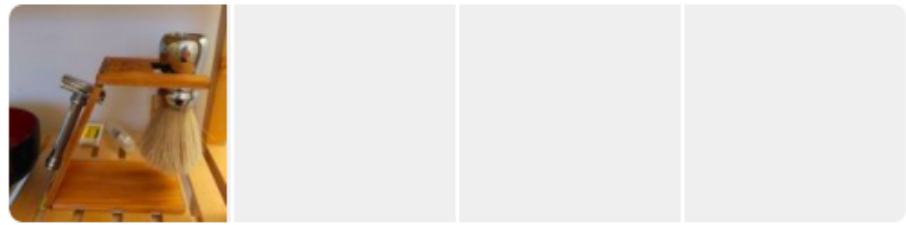
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1 photo   Comments

You saved to **things i want to laser cut**
Safety Razor Stand

1 **Intro**

2 **Architecture**

3 **War stories**

01

Intro

Why Containers?

Config management is hard
(We are bad at it)

Masterful vs masterless puppet

masterful puppet war stories

- Multiple ways to do things (dashboard, repo)
- Weapon of mass destruction
- Puppet master failures

masterful to masterless puppet migration

- Over 10,000 machines

- Over 100 services

- Over 3.5 years

- Still ongoing

Just migrate to Docker…

Config management
wrong tool for the job

Docker

vs.

upstart/SysVinit/monit/supervisorctl/systemd

The container runs the same way on dev and prod

Architecture

Old model

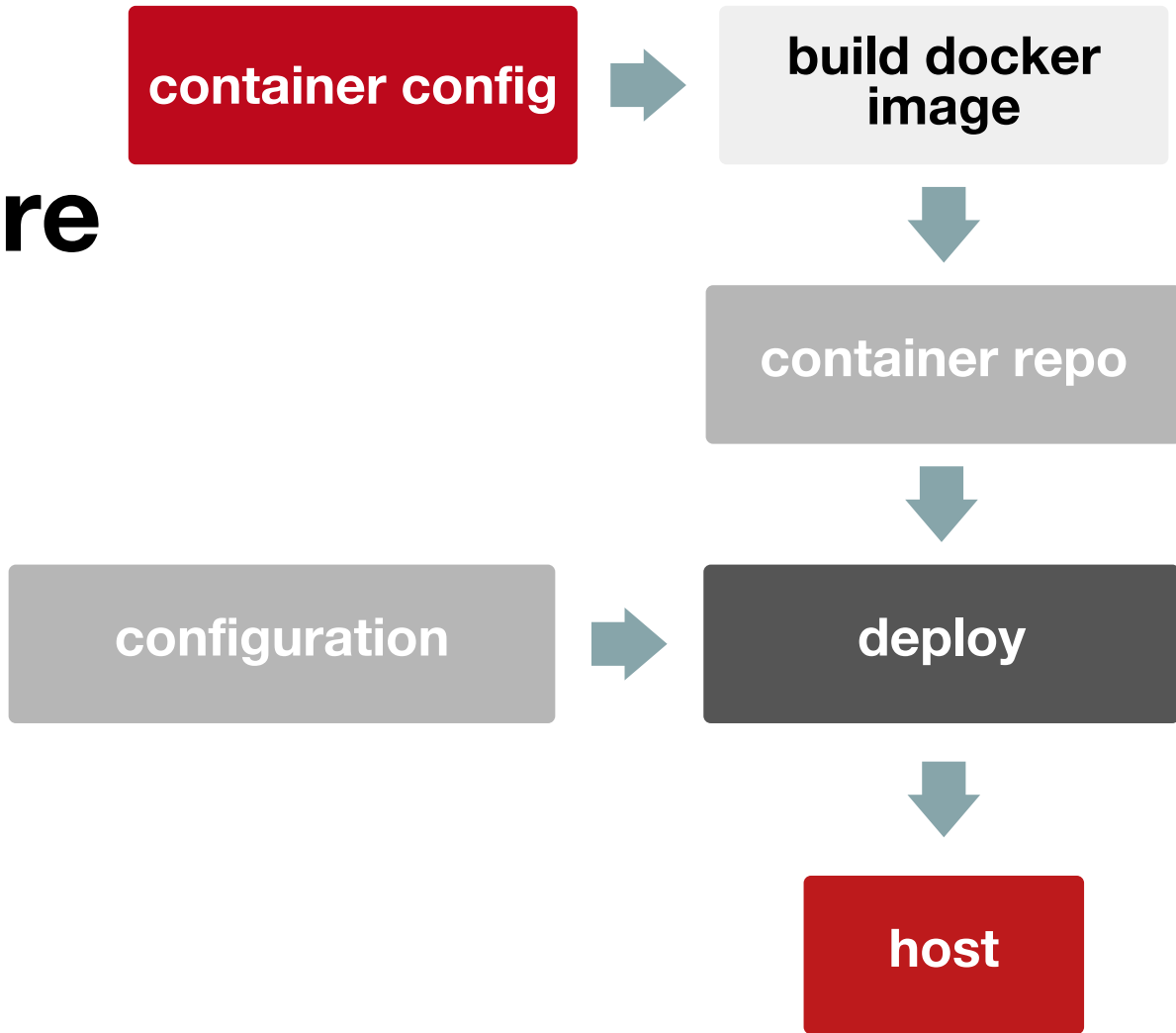**Each service has its own profile with configuration**

Old model

New model

container config

Container architecture

container config → **build docker image**

↓

container repo

↓

configuration → **deploy**

↓

host

sidecars

Container configuration

```
version: 1
myservice:
    docker:
        user: prod
        image: myservice
        environment:
            - LOG4J_CONFIG_FILE=config/log4j_myservice.xml
            - CONFIG_FILE=config/config.myservice.docker-prod.properties
    sidecars:
        service_discovery:
            deps:
                - myservice.dep
        logging:
            log_configs:
                - myservice.log_configs
```
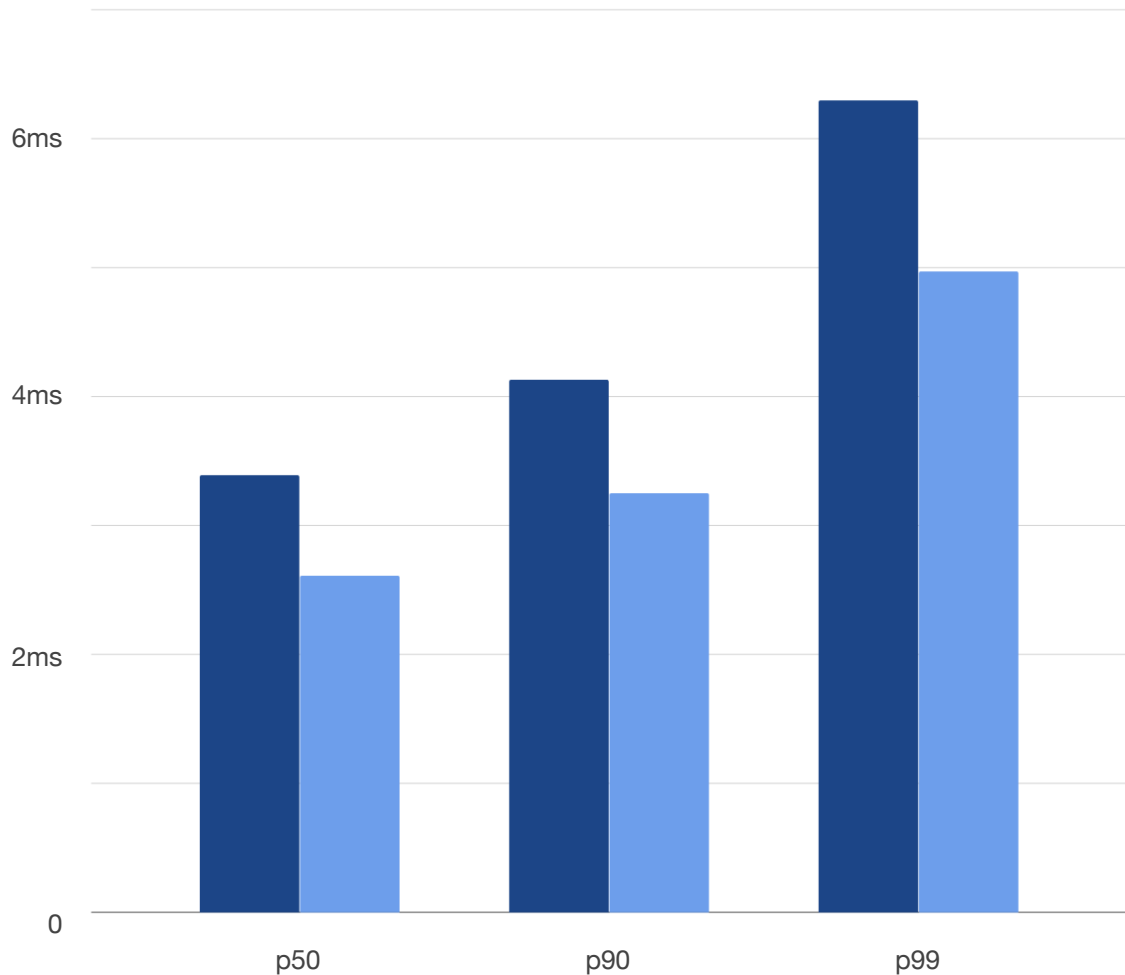
Aspiring towards container orchestration

War stories

Why use containers?

Packaged immutable dependencies.

Increased Network Latency

Docker Bridge Network
Docker Host Network

6ms

4ms

2ms

0

p50   p90   p99

Docker and Logging to STDOUT

The JSON File driver by default runs in a blocking mode.

OverlayFS and Cron

Entrypoint:
bash -c touch /etc/cron.d/* && cron -f

Auto recovery

--restart unless-stopped

--init

Self preservation

OOM killer is coming...

Often "Docker issues" aren't Docker issues.

Make sure you're aware of what is being migrated.

Consider staging migrations.

Migrating from Puppet to Containers

How do you convert your puppet manifests into a Dockerfile?

Where we are today.

- Provisioning time: 30 → 5 mins

- Migrated ¼ of infra in 1 year

- New services onboarded weekly.

Takeaways

- Immutable deployments

- Autorecovery

- Migrate one thing at a time

- Automate

Containers are easy
migrations are hard

We're hiring!

hiring-srecon2018@pinterest.com