

Testing in Production

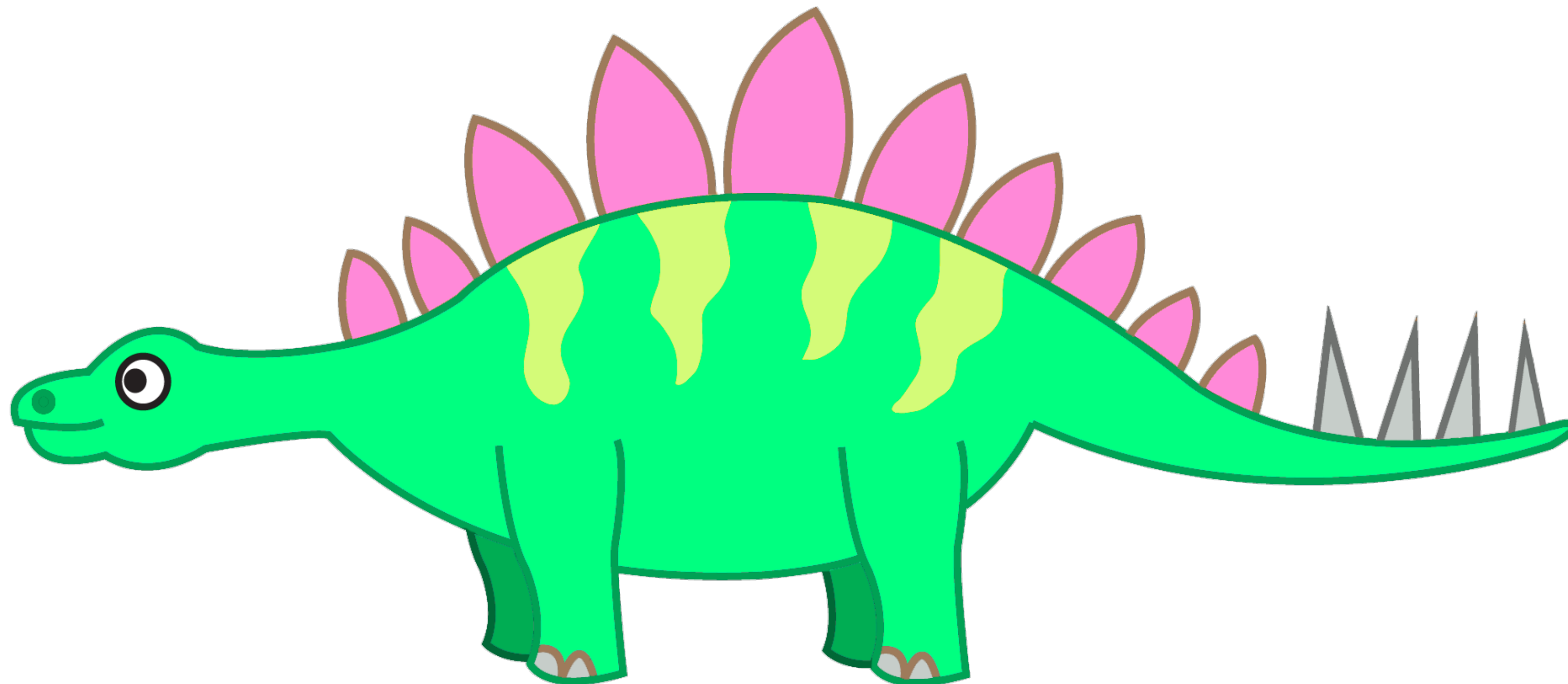
Aja Hammerly

Aja Hammerly

<http://github.com/thagomizer>

@the_thagomizer

<http://www.thagomizer.com>





Google Cloud Platform

Google ❤️ Ruby

Victory Conditions

Comfort

Already Doing It

Intentionality

Definitions

Testing

Verifying

Traditional Tests

Blackbox Tests

But Why?

Real Env \Rightarrow Real Bugs

Real Users \Rightarrow Real Load

Integrations

Seams

HesienBugs

Is It New?

NO

GET OFF MY LAWN

How

Deployment Testing

User Focused Testing

Reusing Tests

Implicit Testing

Deployment Techniques

Canary

Phased Rollout

c Users or c Servers

Monitor Vigorously

If 👍

Expand Canary Group

Choosing Canary Group

Internal Users

Random

Geographic

% of Servers

Demographic

Users That Sign Up

Pick As Many As You Like

Blue/Green

Blue

Live

Green

Idle

Live

Idle

Deploy New Code Here

Live
Old Code

Idle
New Code

Idle

Old Code

Live

New Code

Easy Rollback

Disaster Recovery

Database \Rightarrow Pain

Snapshots & Replication

Non-Relational

Variation

Auto Rollback

Scripted

Data[base] Migrations

Session Affinity

Separate Data Migrations

User Focused Tests

A/B Testing

Basic Experimental Design

Both Live at Once

Betas & EAPs

**EAP = Early Access
Program**

Stability & Usability

Give Users Time

Make Expectations Clear

Reusing Tests

Smoke Tests Against Prod

Smoke Test

Subset of Existing Tests

Scheduled Runs

3rd Party Integrations



Leave No Trace

Controlled Breakage

Response & Recovery

Stay in Scope

Simian Army

DiRT

Penetration Testing

Ethical Breakage

Disaster Recovery Verification

For Real

Move Traffic
Move Data Centers
Restore Database

Testing Scripts

Testing People

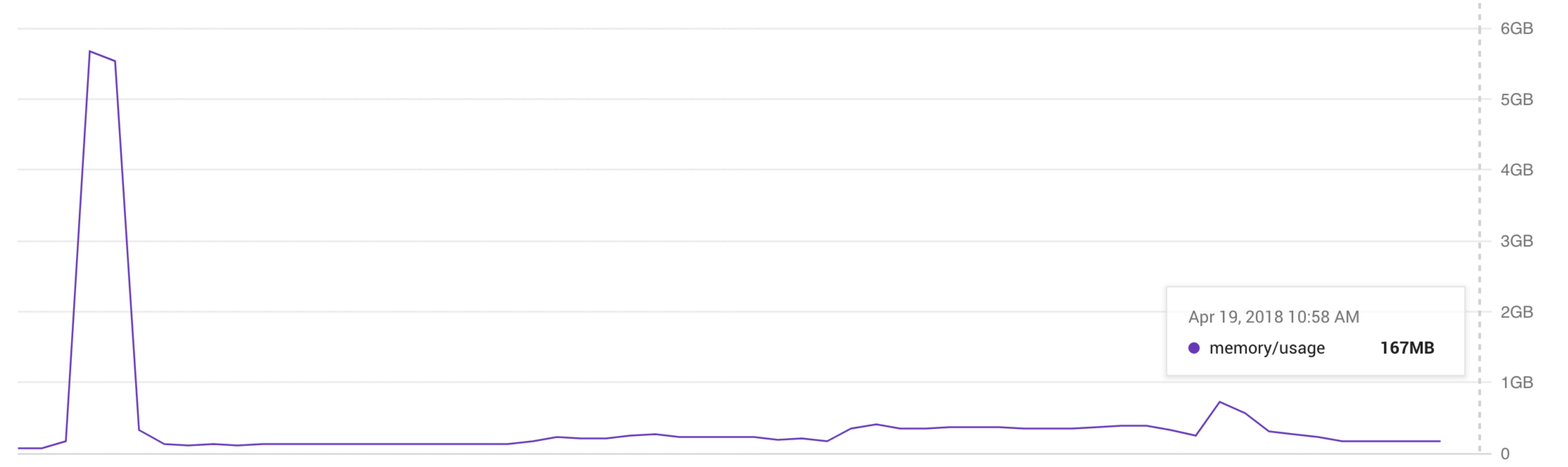
assert people.detect_issues

Implicit Testing



10 AM 10:05 10:10 10:15 10:20 10:25 10:30 10:35 10:40 10:45 10:50 10:55

Memory Usage



Apr 19, 2018 10:58 AM
● memory/usage 167MB

Name	Value
● memory/usage	167MB

Monitoring

Alerts?

Alerts

**Tell Us Something Is
Wrong**

Tell Us The System Isn't
Meeting Expectations

Expectations?

Testing

Alert if latency $>$ 500 ms

```
assert latency < 500 ms
```

Proactive

```
assert 5xx/4xx < 0.05
```


Insert Stackdriver screenshots

```
assert (Disk % Full) < 80%
```

MoM / YoY

Overview

+ CREATE NEW ANALYSIS REPORT | i LEARN TRACE API

Insights

No insights to report for the past 7 days.

Recent traces

LATENCY	URI	TIME
56 ms	/material/edit	9:...
64 ms	/api/v1/item/...	10...
11 ms	/api/v1/user	3:...
61 ms	/api/v1/event...	10...
95 ms	/api/v1/item/...	6:...
9 ms	/api/v1/event...	10...

[See more ...](#)

Most frequent URIs

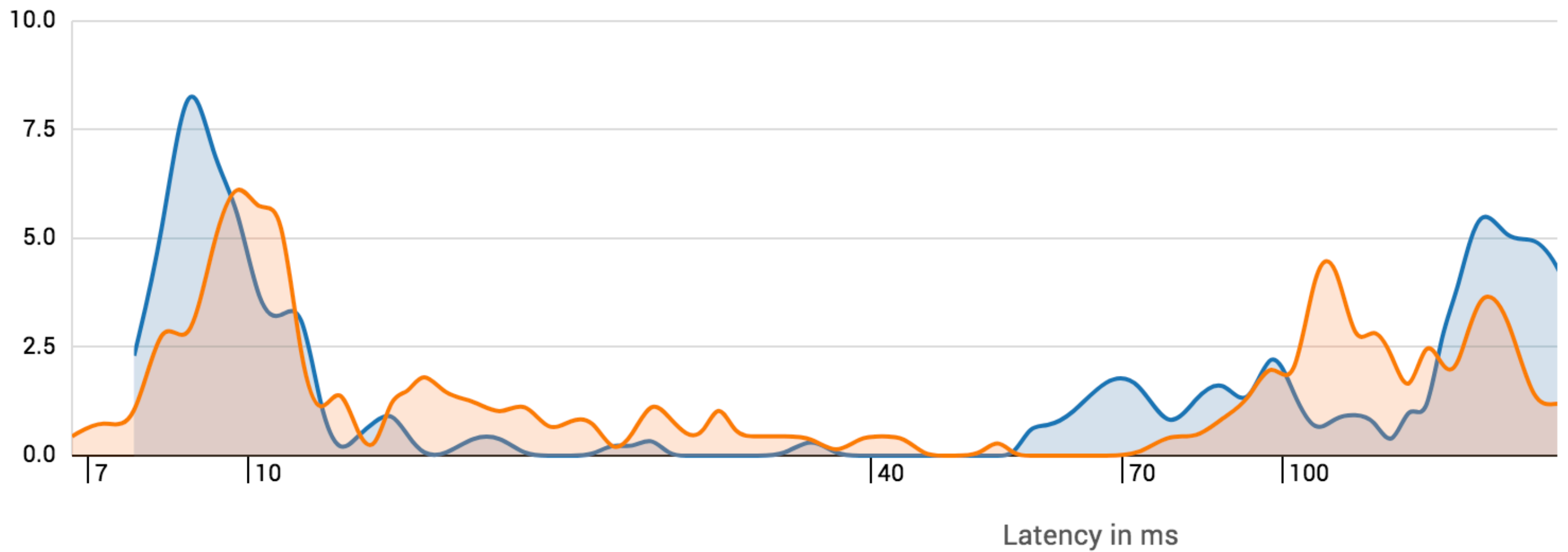
LATENCY	URI	REPORT
59 ms	/api/v1/item/...	vi...
596 ms	/api/v1/item/...	
524 ms	/api/v1/item/...	
531 ms	/api/v1/item/...	
550 ms	/api/v1/item/...	

Daily analysis reports

/api/v1/item/tag/title/podcast

Density distribution | Cumulative distribution

Overall latency for requests that make remote procedure calls
% of total requests



●

Start	End
2018-04-10 (20:00:00)	2018-04-11 (20:00:00)

●

Start	End
2018-04-17 (20:00:00)	2018-04-18 (20:00:00)

Build CL: 193277706
Build label: yttriferous-union-201804150902-rc01
Built on Tue Apr 17 17:45:13 2018 (1524012313)
[Hide build data](#)

Latency

```
assert_equal error_rate_old, error_rate_new
```

```
assert error_rate_new < error_rate_old
```

Dos and Don'ts

Do Have Clear Goals

Don't DDoS Yourself

Do Test Your Seams

Don't Mess With User Data



Do Clean Up After Yourself

Make Alerts Actionable

Do Verify Your Integrations

Do Act Methodically

Have Clear Goals

Test Your Seams

Verify Your Integrations

Clean Up After Yourself

Don't DDOS Yourself

Leave User Data Alone

Keep Alerts Actionable

Thank You

Get Off My Lawn



Questions?