

never gonna fall for

Modern

walks beside me

walks on by

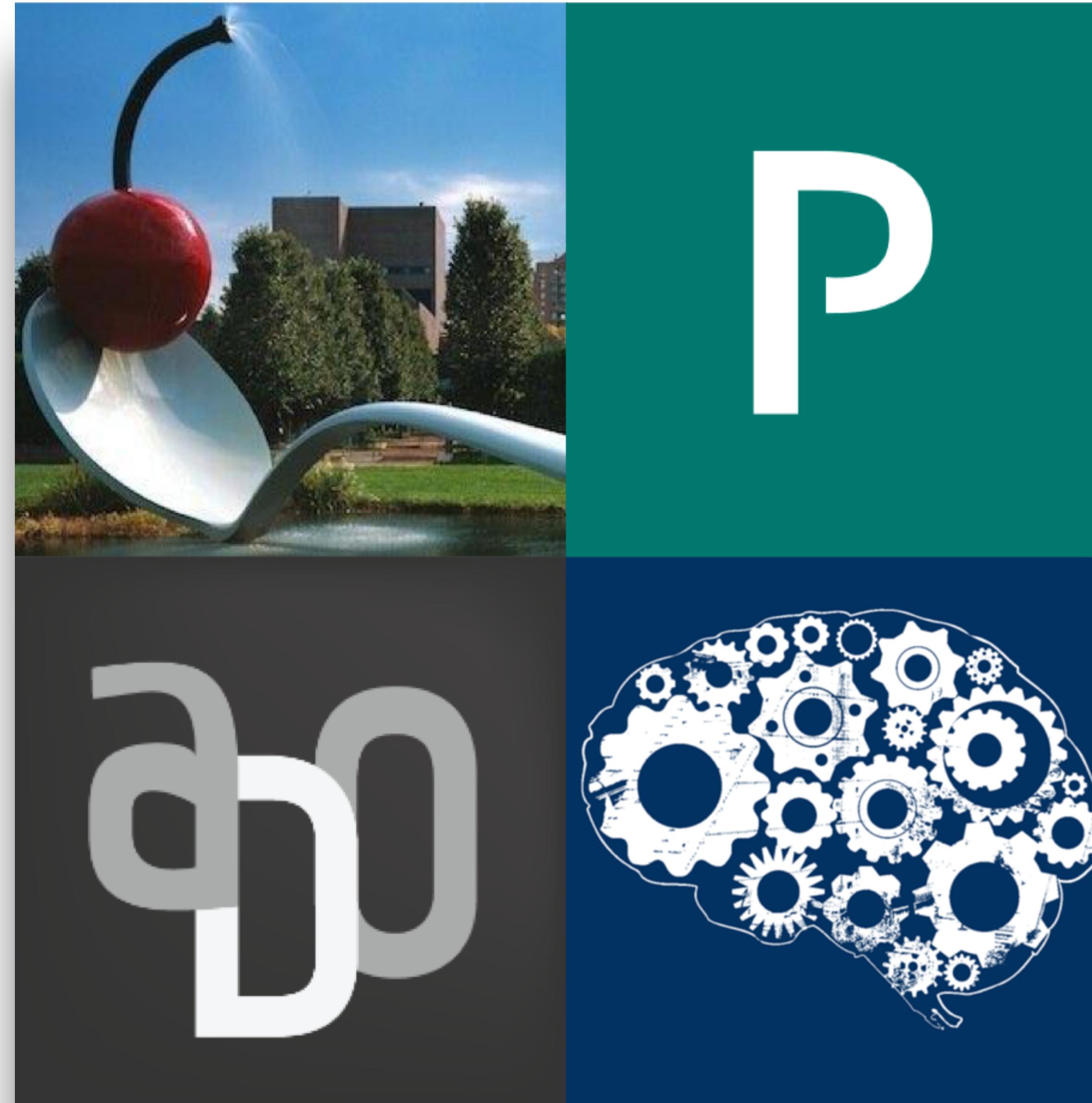
gets me to the

Monitoring

Bridget Kromhout

lives:
Minneapolis,
Minnesota

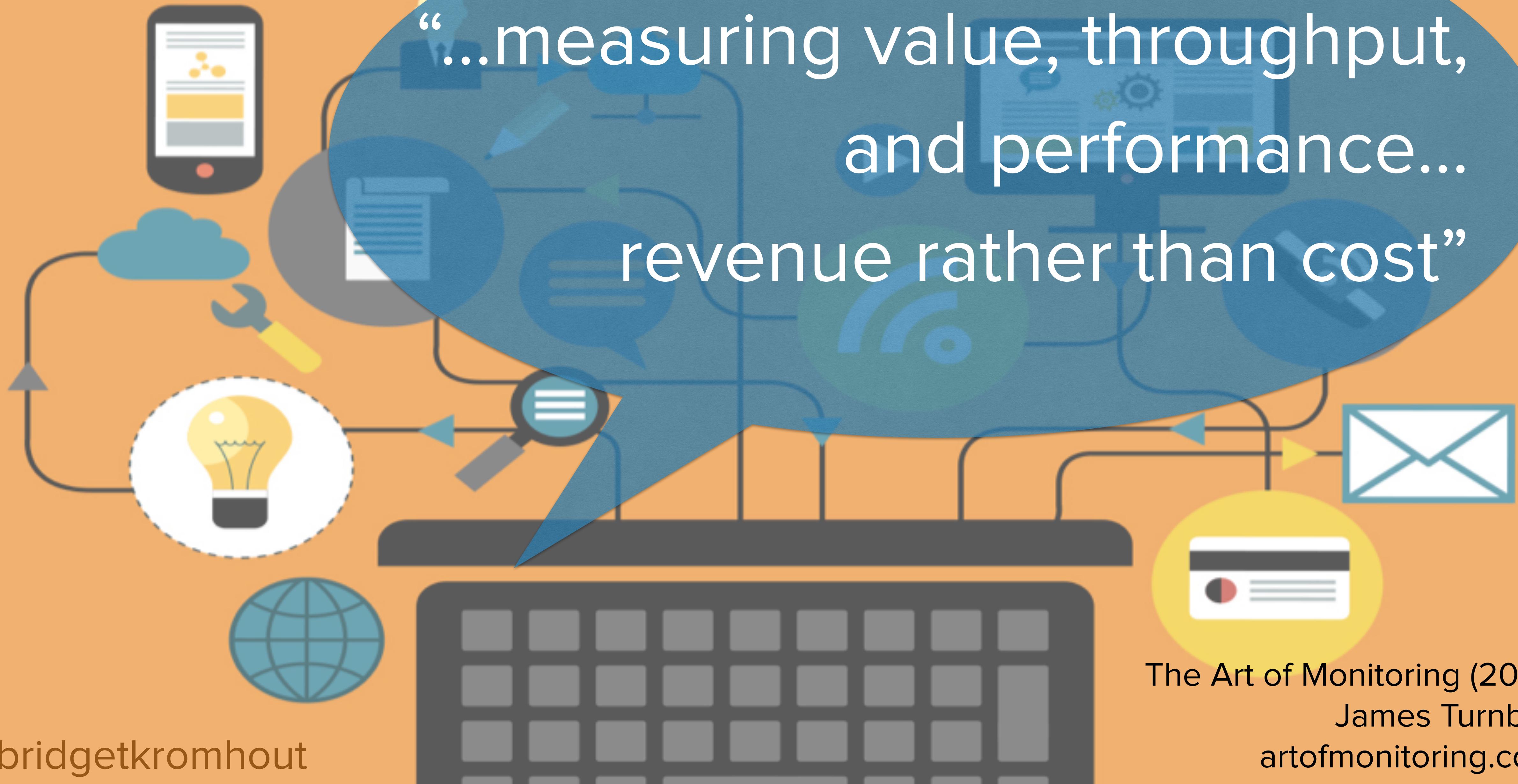
podcasts:
Arrested
DevOps



works:
Pivotal

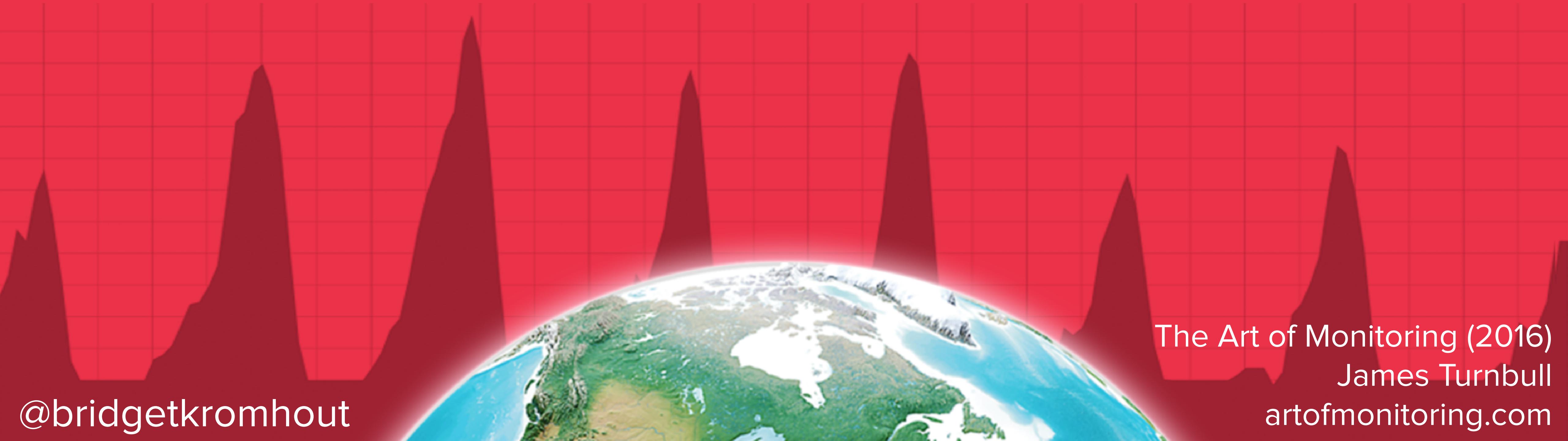
organizes:
devopsdays

“...measuring value, throughput,
and performance...
revenue rather than cost”



The Art of Monitoring (2016)
James Turnbull
artofmonitoring.com

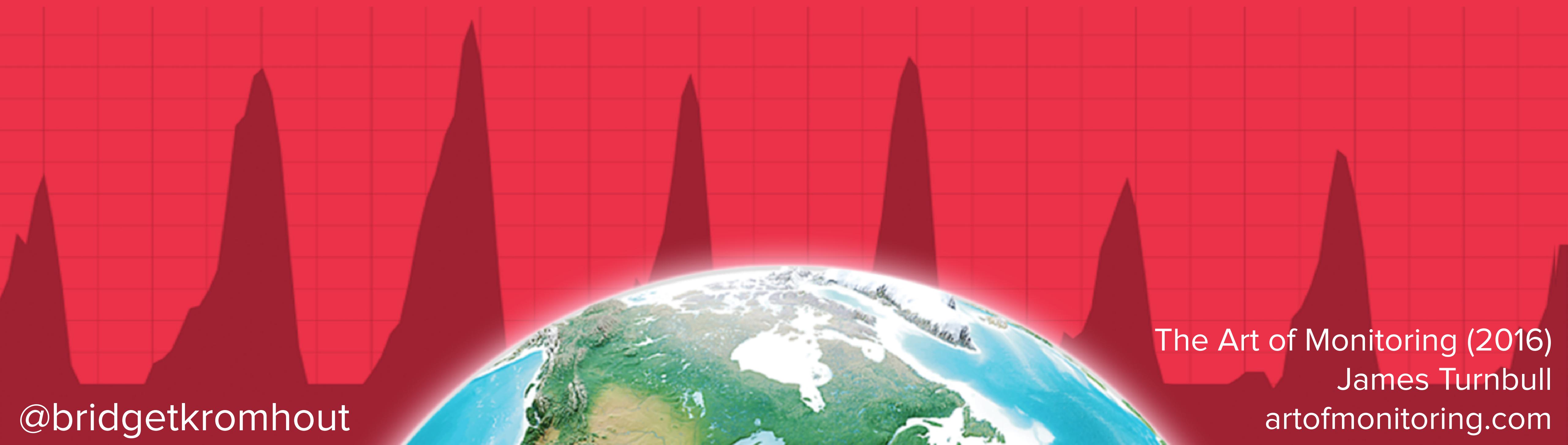
Why monitor?



The Art of Monitoring (2016)
James Turnbull
artofmonitoring.com

Why monitor?

Two customers of monitoring with different needs.



The Art of Monitoring (2016)
James Turnbull
artofmonitoring.com

@bridgetkromhout

Why monitor?

Two customers of monitoring with different needs.

The business:

UX data for product &
engineering

Measure value delivered

A globe of the Earth is centered in the foreground, showing green continents and blue oceans. Overlaid on the globe are several sharp, dark red spikes of varying heights, resembling a line graph or a series of alerts. These spikes are concentrated in the Northern Hemisphere and appear to originate from specific locations on the globe.

The Art of Monitoring (2016)
James Turnbull
artofmonitoring.com

Why monitor?

Two customers of monitoring with different needs.

The business:

UX data for product &
engineering
Measure value delivered

Information Technology:

Visibility into state and failures
Product & engineering decisions
Measure success of projects

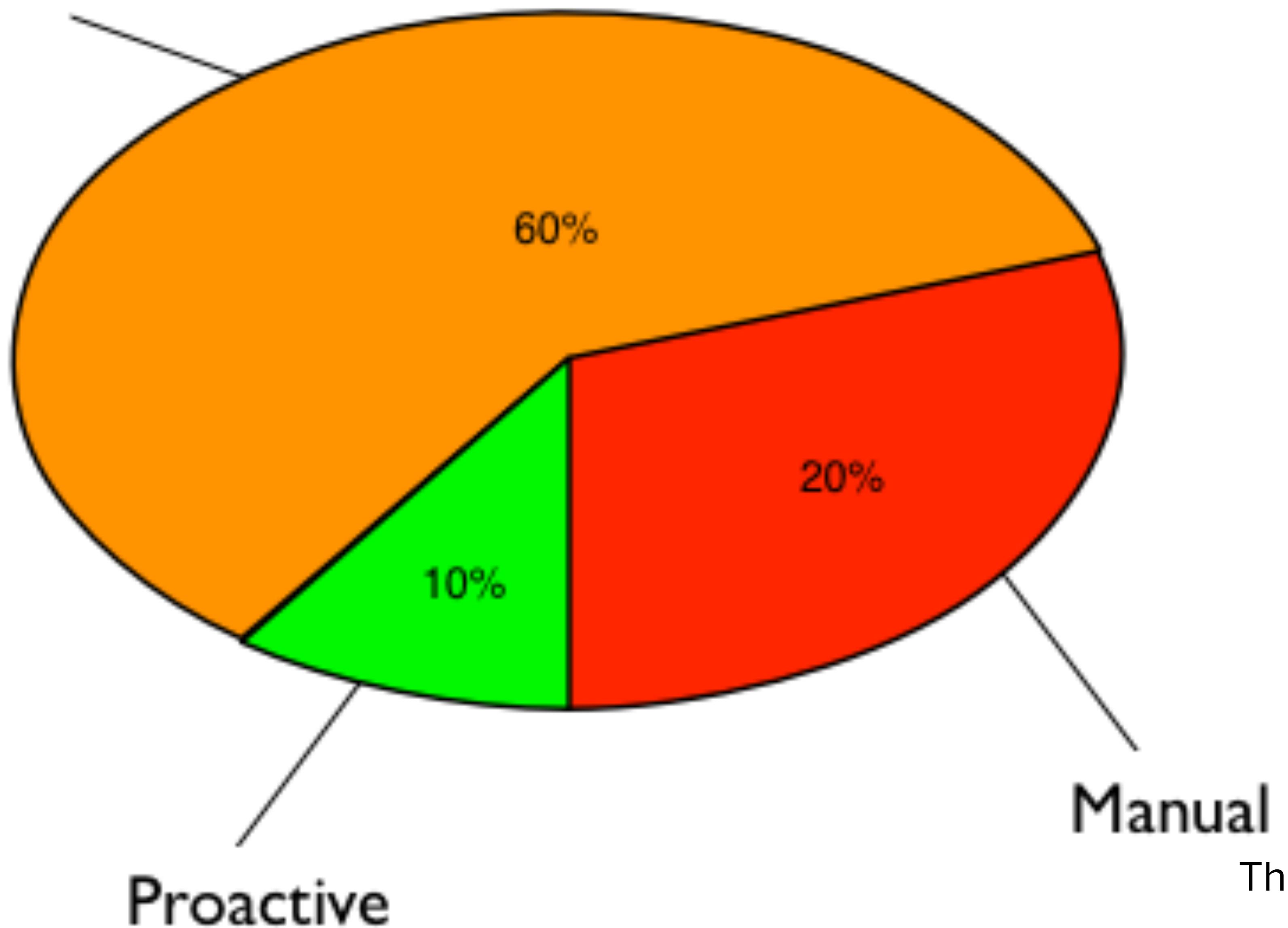
The Art of Monitoring (2016)
James Turnbull
artofmonitoring.com

Monitoring Maturity Model

	Method	Type	Focus
Manual	Checklists, simple scripts	“Tribal knowledge” of things broken in the past	Minimizing downtime, managing assets
Reactive	disk, CPU, memory checks	Thresholds, alerting; updated after incidents	Availability, assets, some customer experience
Proactive	Automatic; required for deployment	Alerting includes context, automated remediation	Application performance, business outcomes

Monitoring Maturity Model

Reactive



@bridgetkromhout

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Typical reactive notification

Listing 2.1: Sample Nagios notification

PROBLEM Host: server.example.com

Service: Disk Space

State is now: WARNING for 0d 0h 2m 4s (was: WARNING) after 3/3
checks

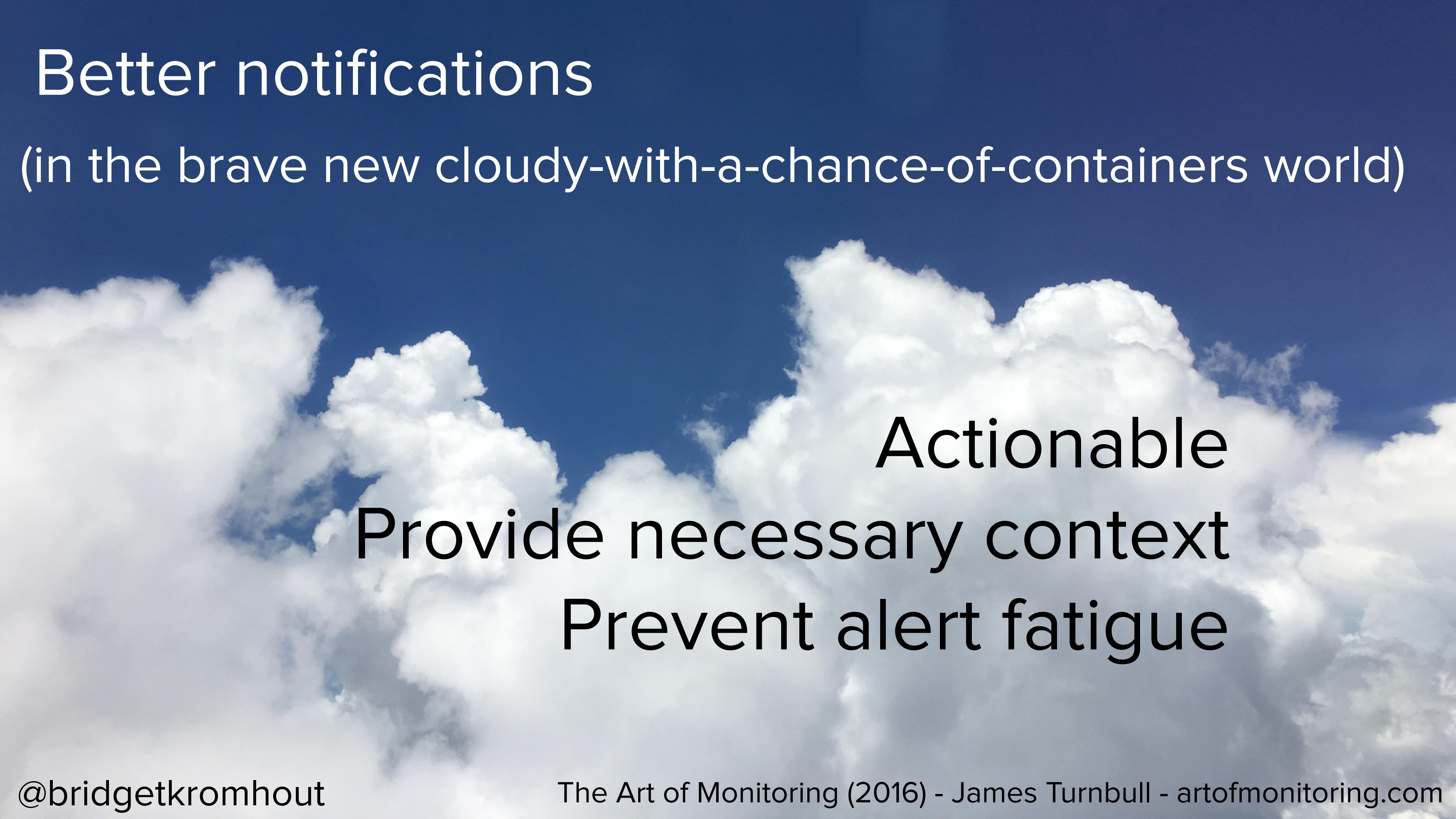
Notification sent at: Thu Aug 7th 03:36:42 UTC 2015 (notification
number 1)

Additional info:

DISK WARNING - free space: /data 678912 MB (9% inode=99%)

Better notifications

(in the brave new cloudy-with-a-chance-of-containers world)

The background of the slide features a photograph of a clear blue sky with several large, white, fluffy cumulus clouds scattered across it.

Actionable
Provide necessary context
Prevent alert fatigue

“Nothing’s the same anymore.”

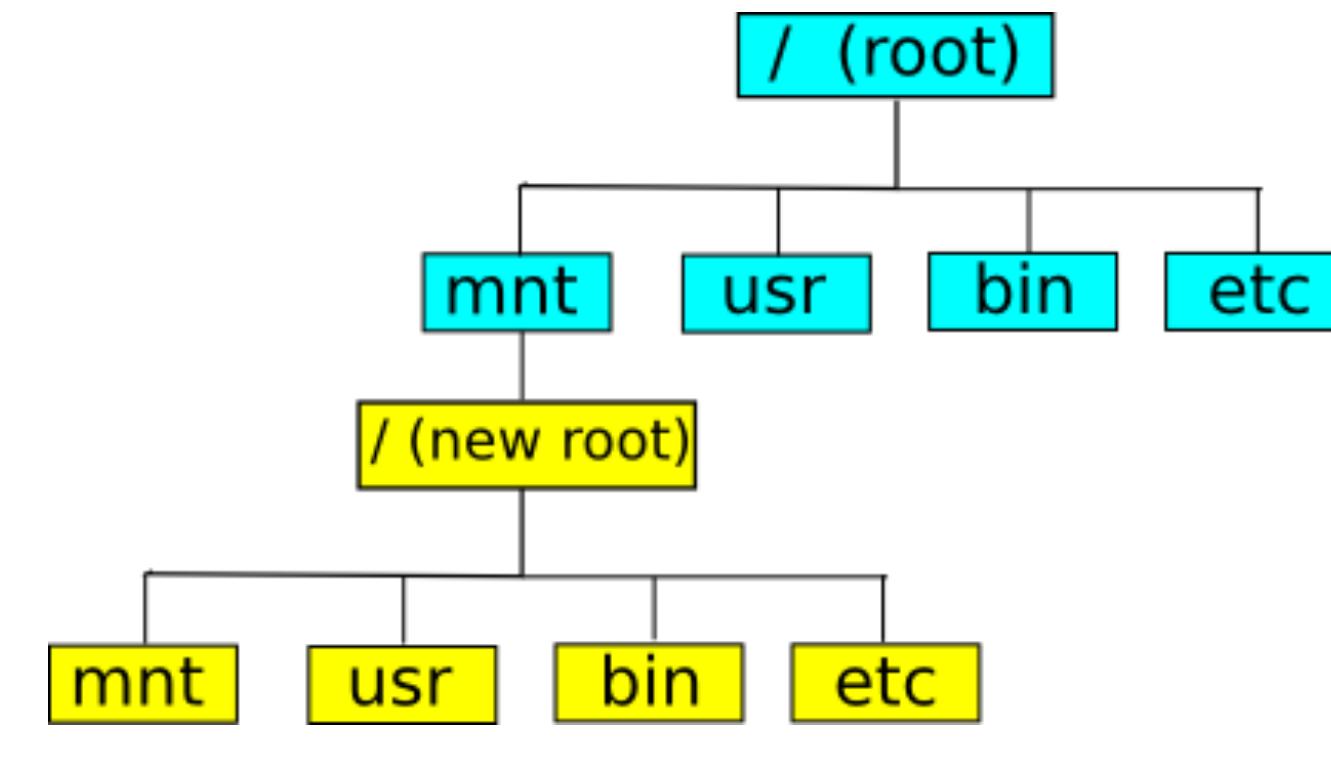
Jeffrey Sinclair
Babylon 5



containers: dawn of the third age?



A Brief History of Containers, Part 1 (before docker era)



chroot

1979 (Version 7)
1982 (BSD)



FreeBSD jails

2000



Solaris Zones

2004



LXC

2008

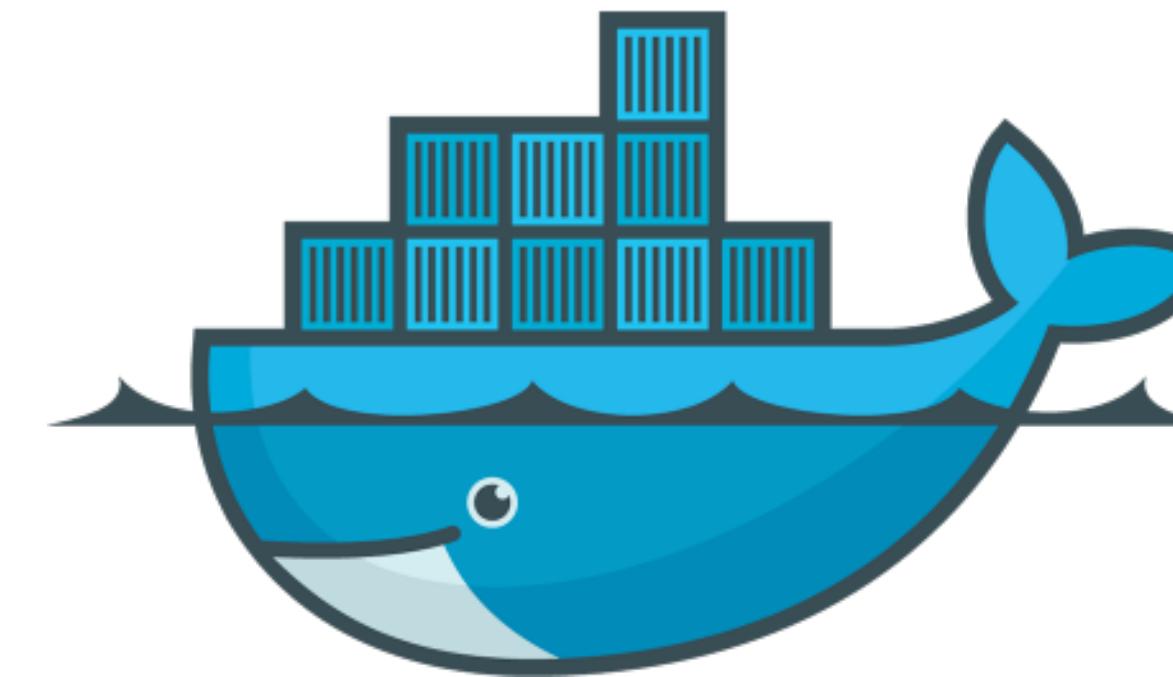
A Brief History of Containers, Part 2

(docker common era)



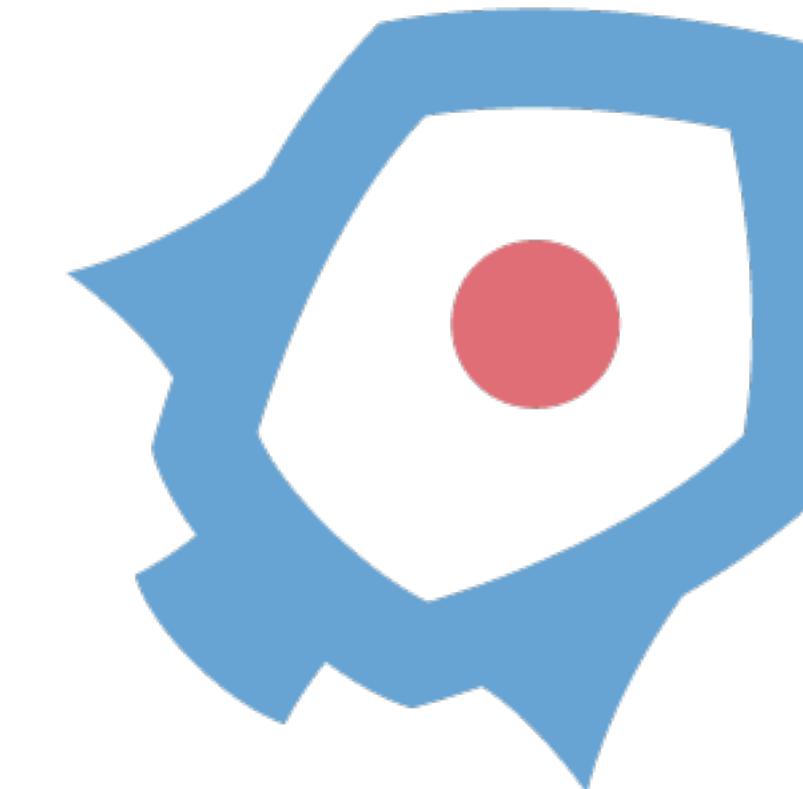
Cloud Foundry

2011



Docker

2013



Rocket (later rkt)

2014



Open Container
Initiative

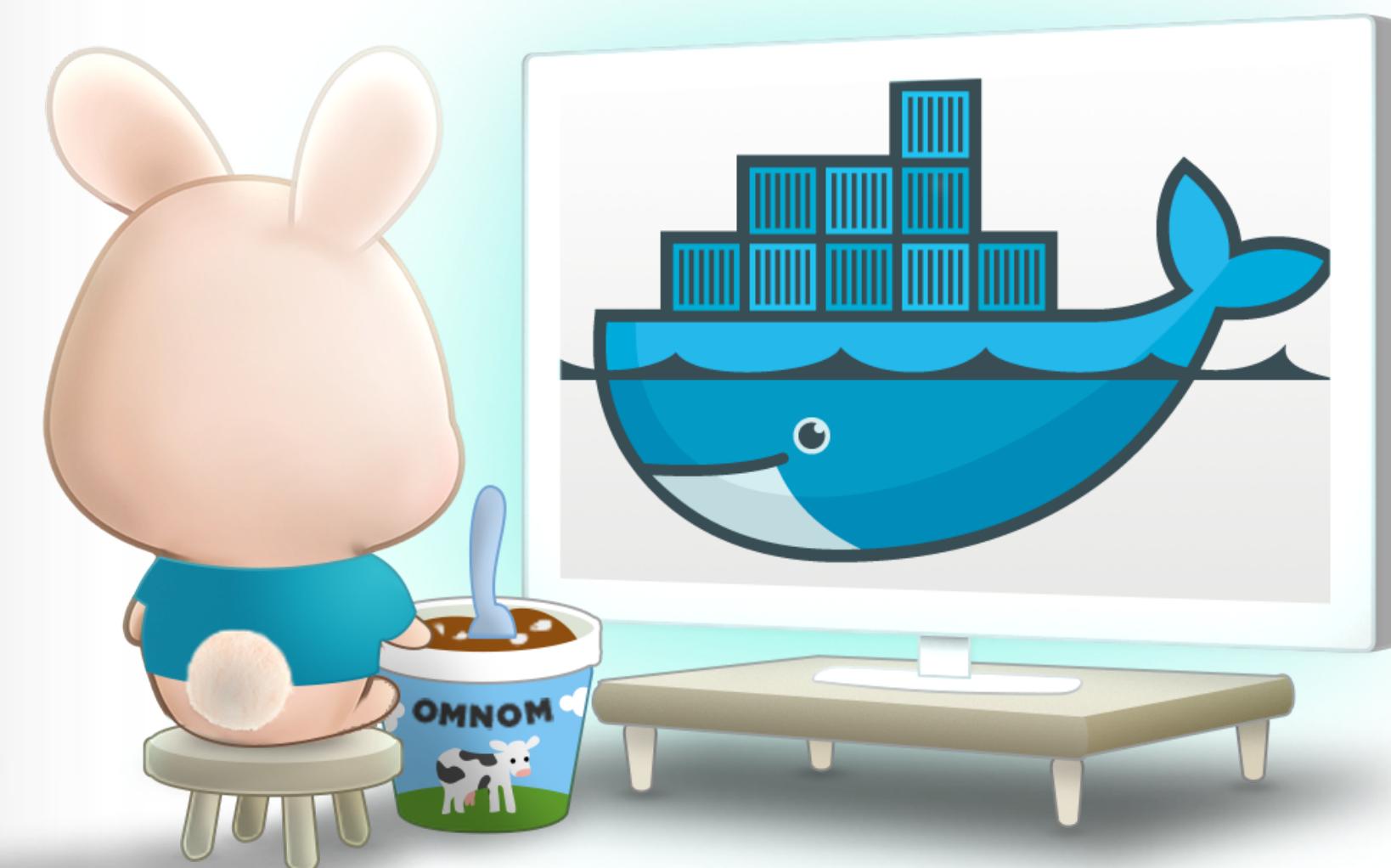
2015

The screenshot shows the DramaFever website. At the top, there's a banner for the 'WHERE TO START' collection, which includes a 'Collection' section for new users. Below the banner, there are three main drama series cards:

- Heirs**: A Romantic Comedy starring Park Shin Hye and Lee Min Ho. It's described as a trendy high school drama about chaebols forming friendships and falling in love.
- Prince of Lan Ling**: A Historical Epic. It's described as a vibrant and thrilling costume epic with edge-of-your-seat battles, political intrigue, and romance, similar to Game of Thrones.
- My Love From Another Star**: A Romance drama. It's described as a romance that broke international records.

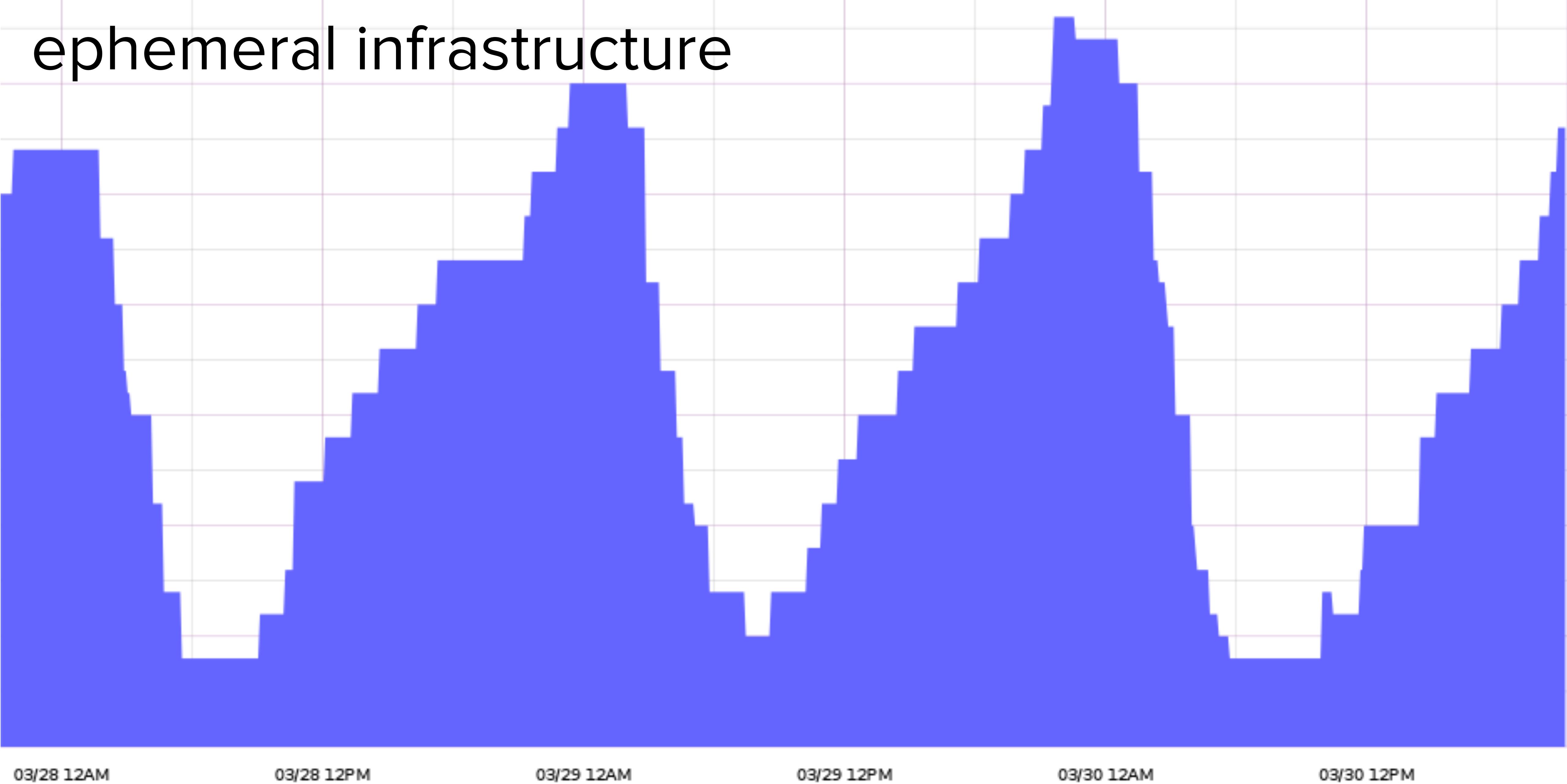
Each card has a 'Watch Now' button and a 'Watch Later' button. There are also social sharing icons for Google+, Facebook, and Twitter, and a 'Search DramaFever' bar at the top right.

containing dramas



@bridgetkromhout

ephemeral infrastructure



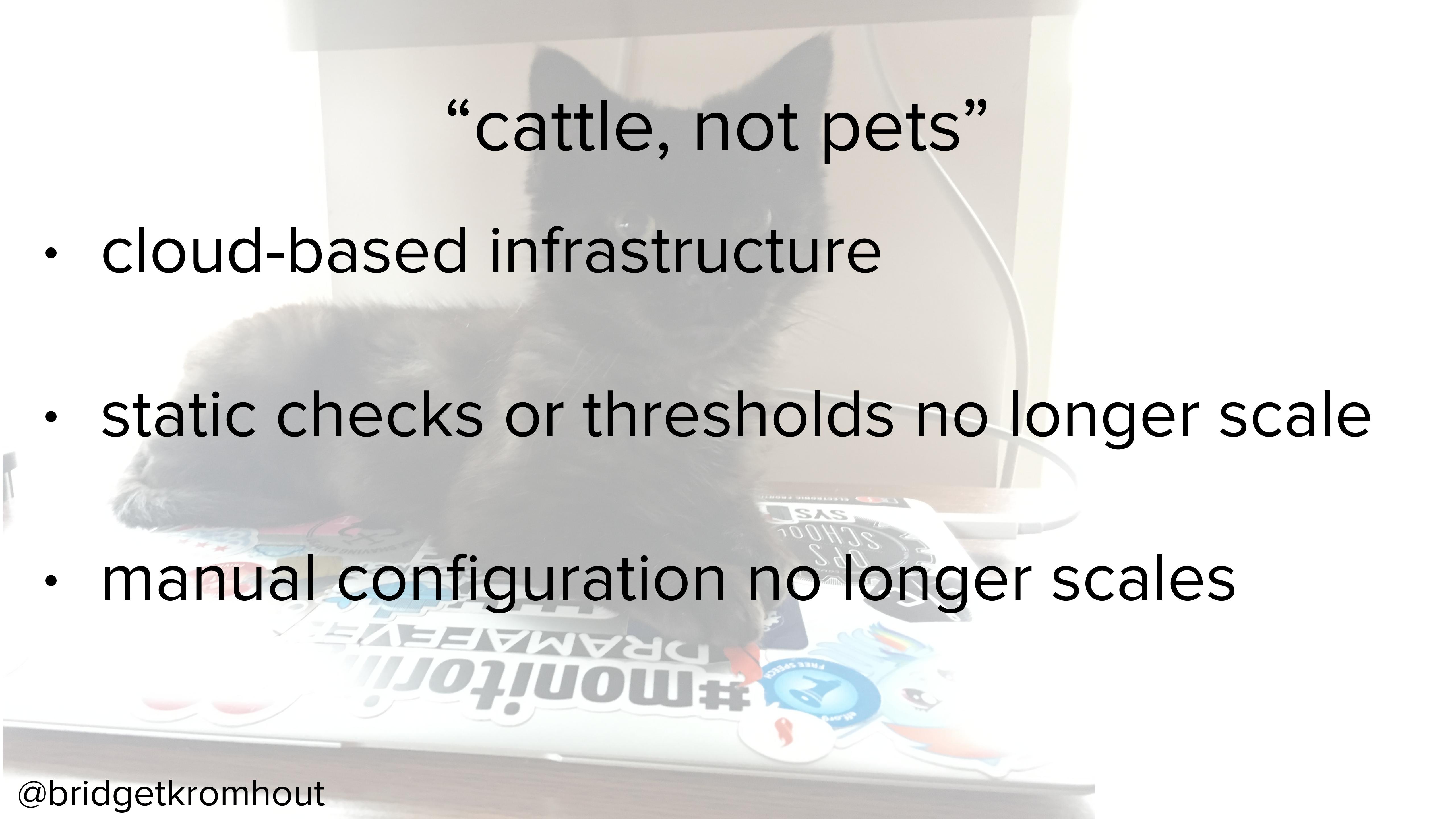
@bridgetkromhout

(autoscaling EC2 instances up & down over time)

“cattle,
not pets”

(even
adorable
Attack
Kittens)



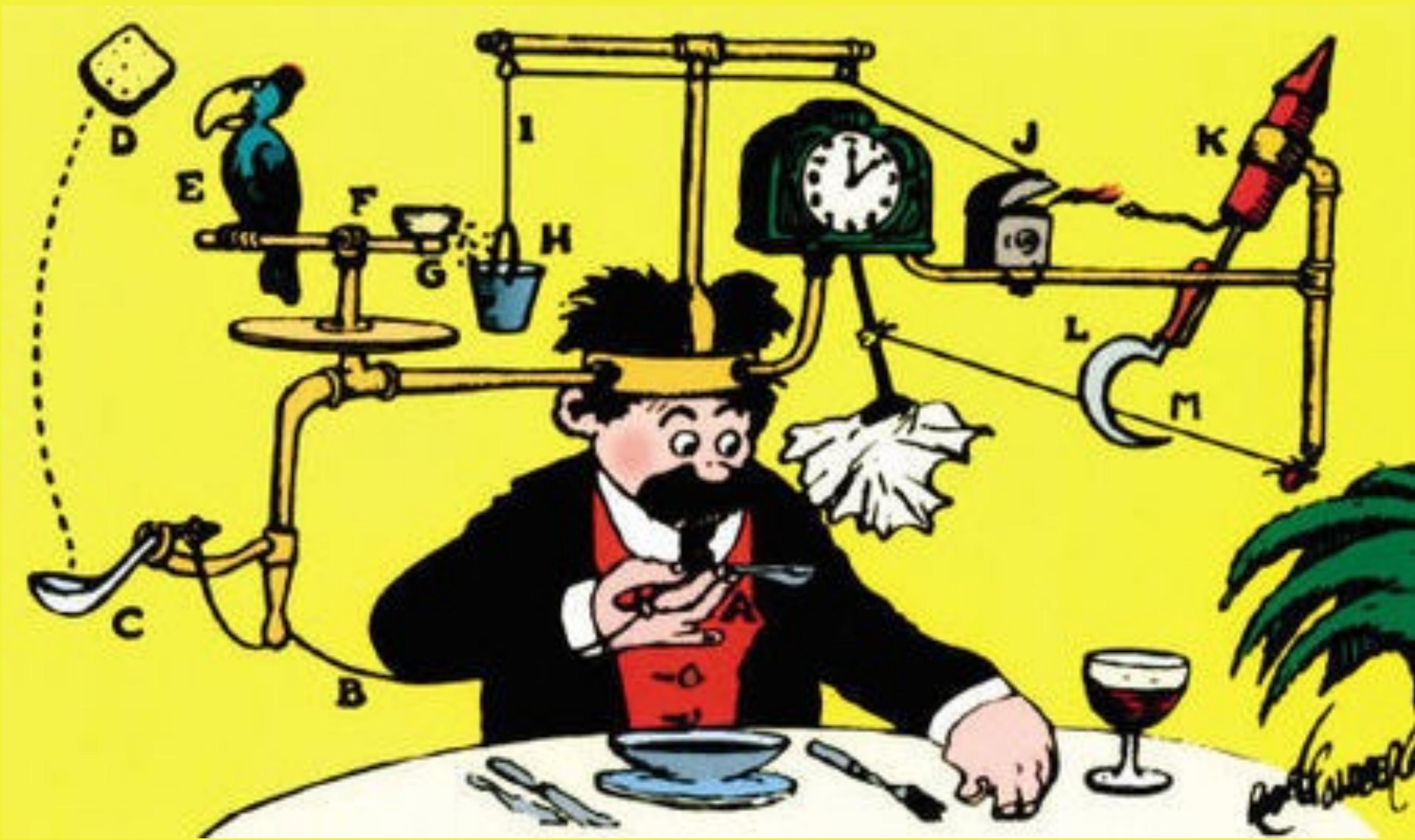
A fluffy white dog is sitting on a bed. The bed has a colorful blanket with various text and graphics, including '#MonitorIt', 'Drama Free Zone', and 'SCHOOL'.

“cattle, not pets”

- cloud-based infrastructure
- static checks or thresholds no longer scale
- manual configuration no longer scales

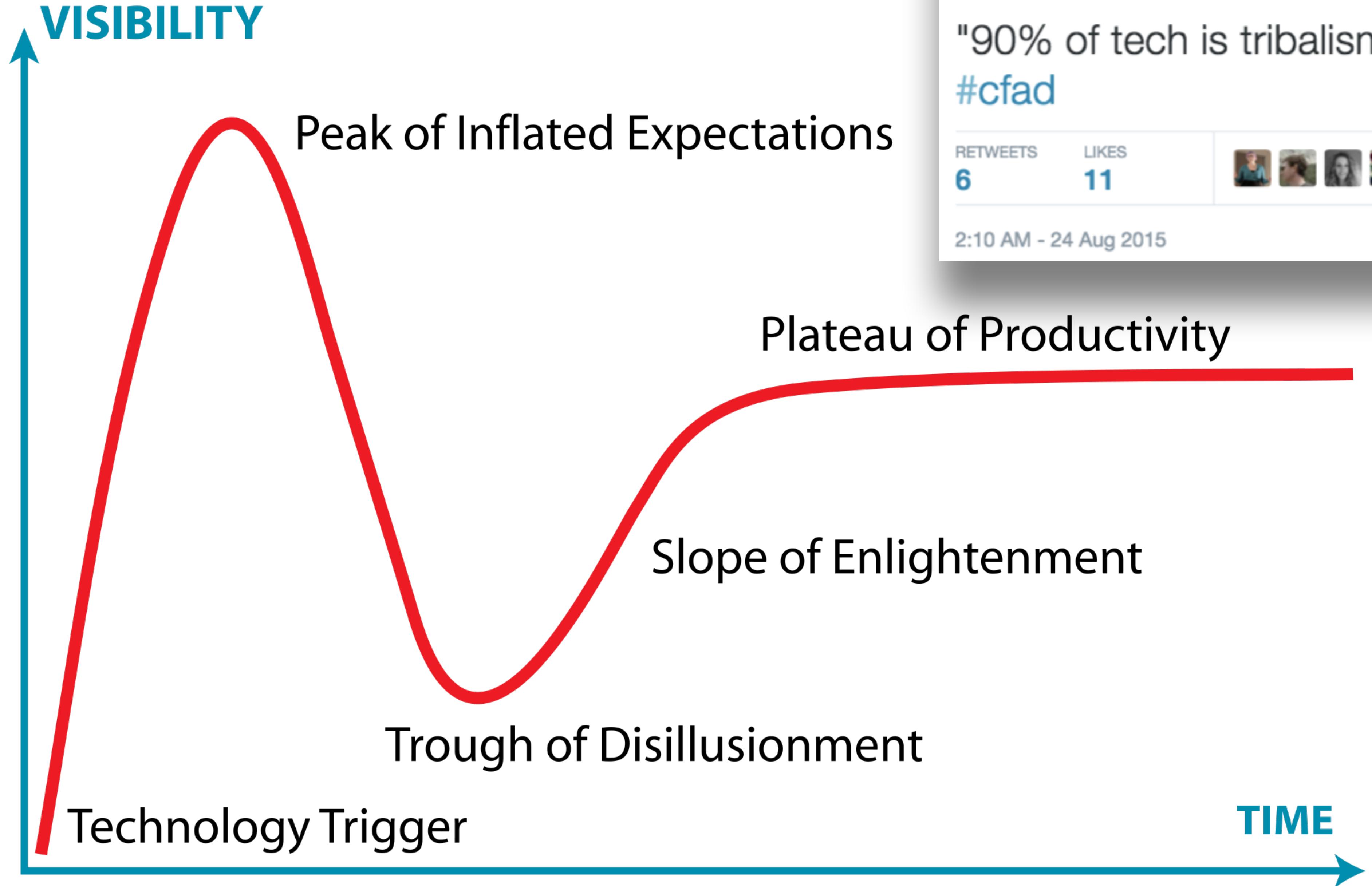
automation: solution? or problem?

(it depends)



architectural considerations





Bridget Kromhout
@bridgetkromhout

"90% of tech is tribalism and fashion." @littleidea

#cfad

RETWEETS

6

LIKES

11

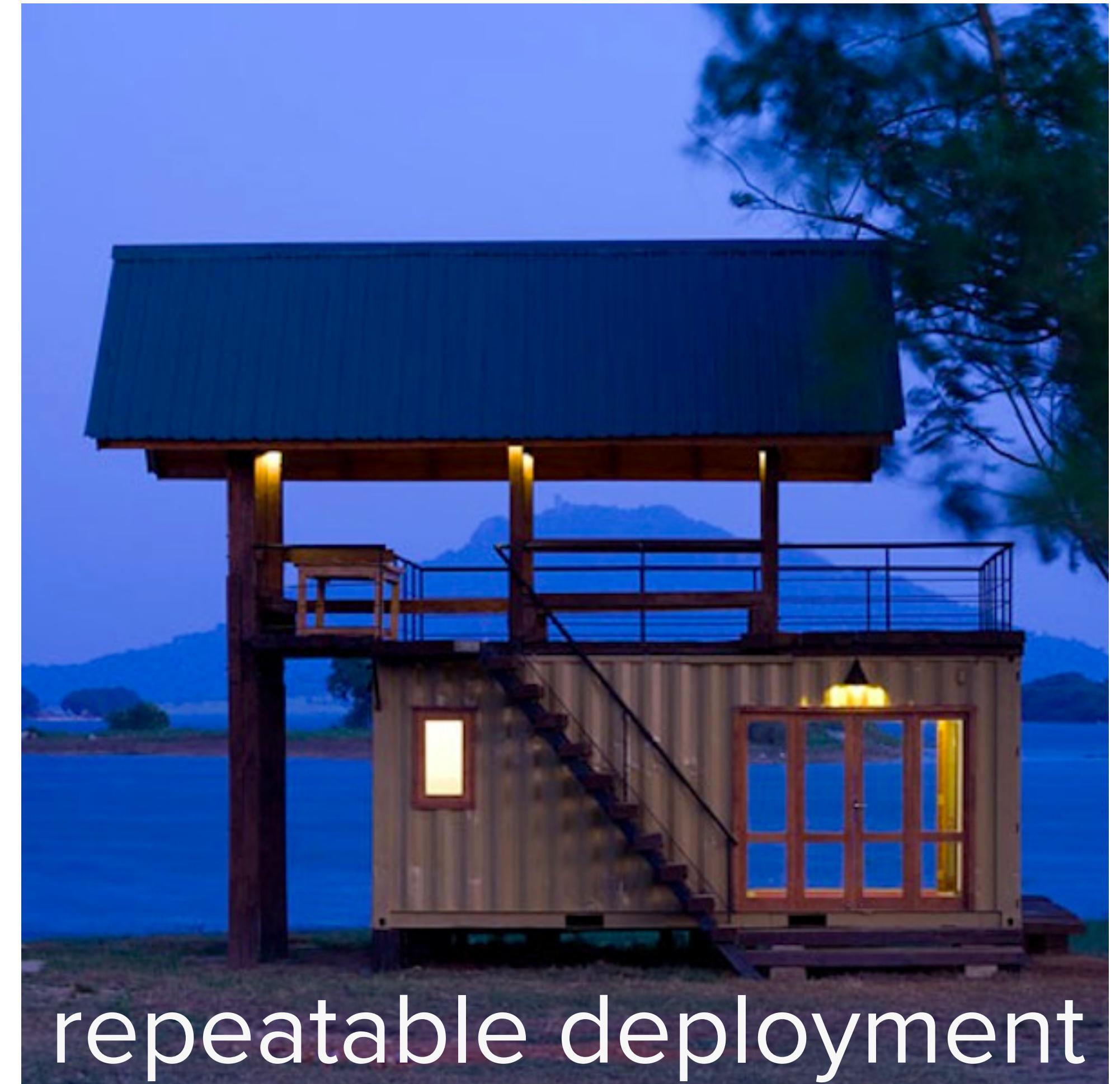


2:10 AM - 24 Aug 2015

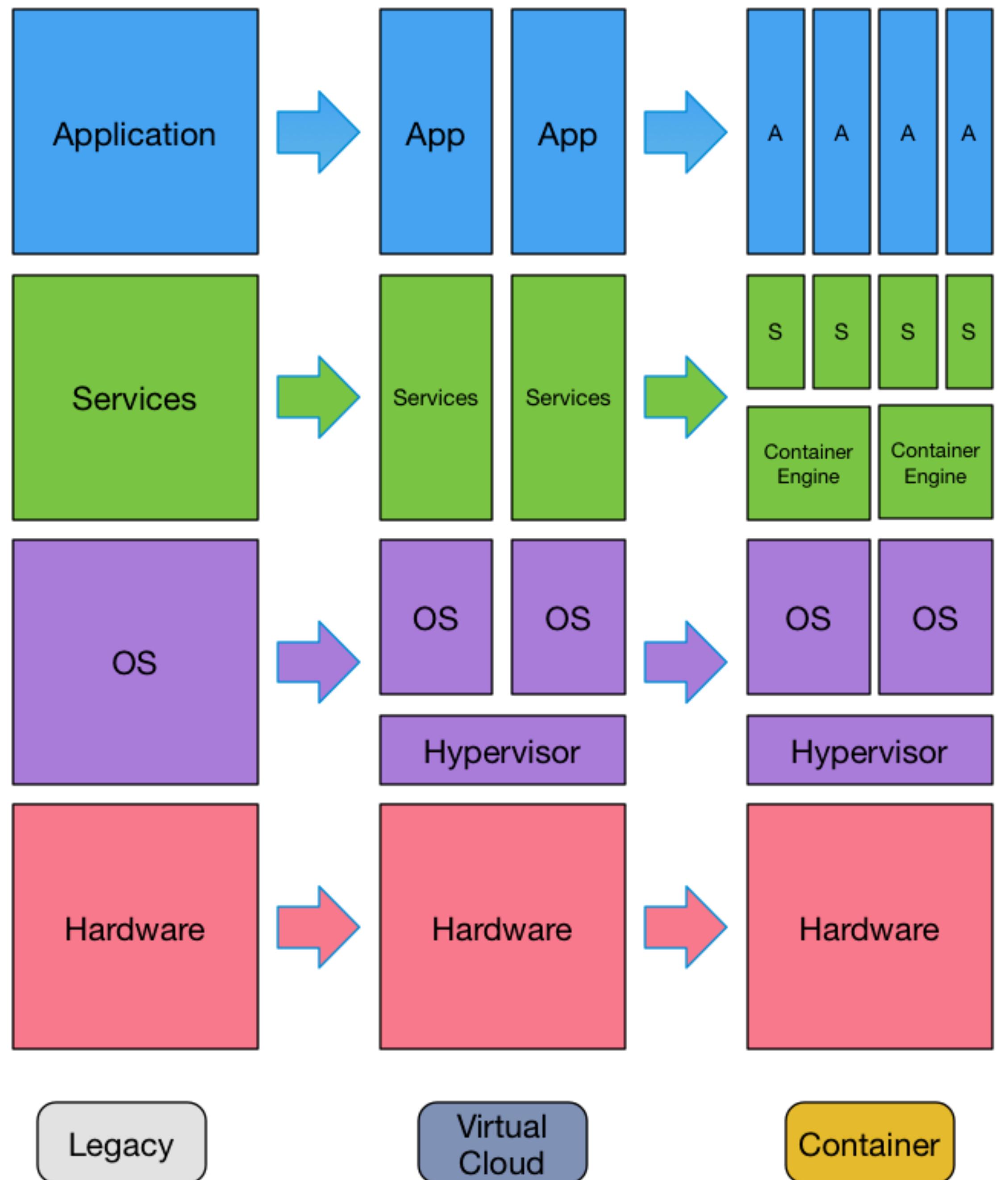
Why containers?



consistent development



repeatable deployment



Monitoring containers

The Art of Monitoring (2016)
James Turnbull
artofmonitoring.com

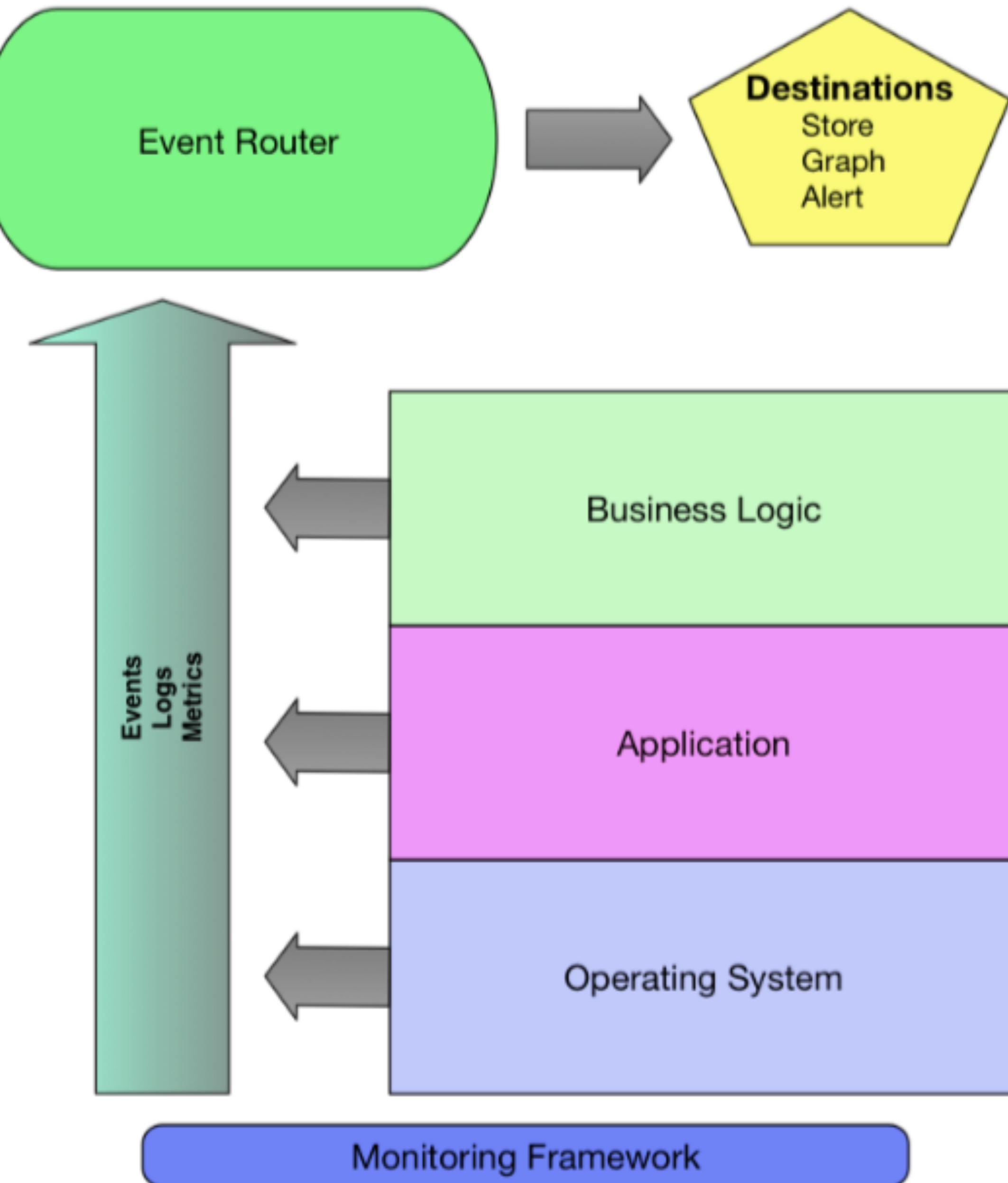


Events - changes in your environment

Logs - diagnosis & troubleshooting

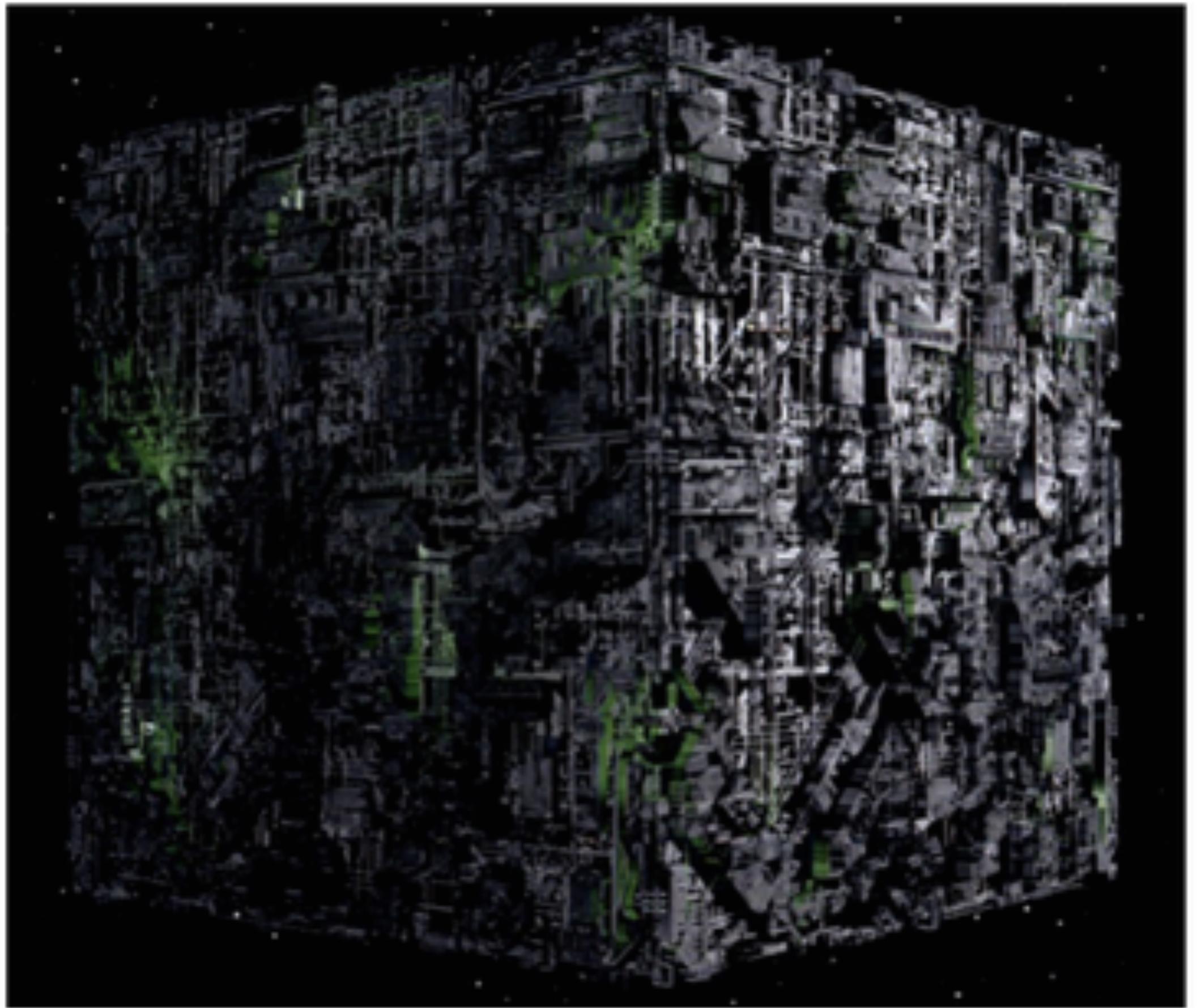
Metrics - seeing state in real time for
anomaly detection & pattern analysis

Open source & SaaS



- choose TCP over UDP
- configurable granularity
- “push” vs “pull”

“Almost every task run under Borg contains a built-in HTTP server that publishes information about the health of the task and thousands of performance metrics”



Large-scale cluster management at Google with Borg - Verma et al. 2015



Honest Status Page

@honest_update

[Follow](#)

We replaced our monolith with micro services so that every outage could be more like a murder mystery.

RETWEETS LIKES
2,271 1,649



4:10 PM - 7 Oct 2015

Image credit: James Ernest

esq Rule and S



@bridgetkromhout

Containers limit attack surface & emitters don't need ports open

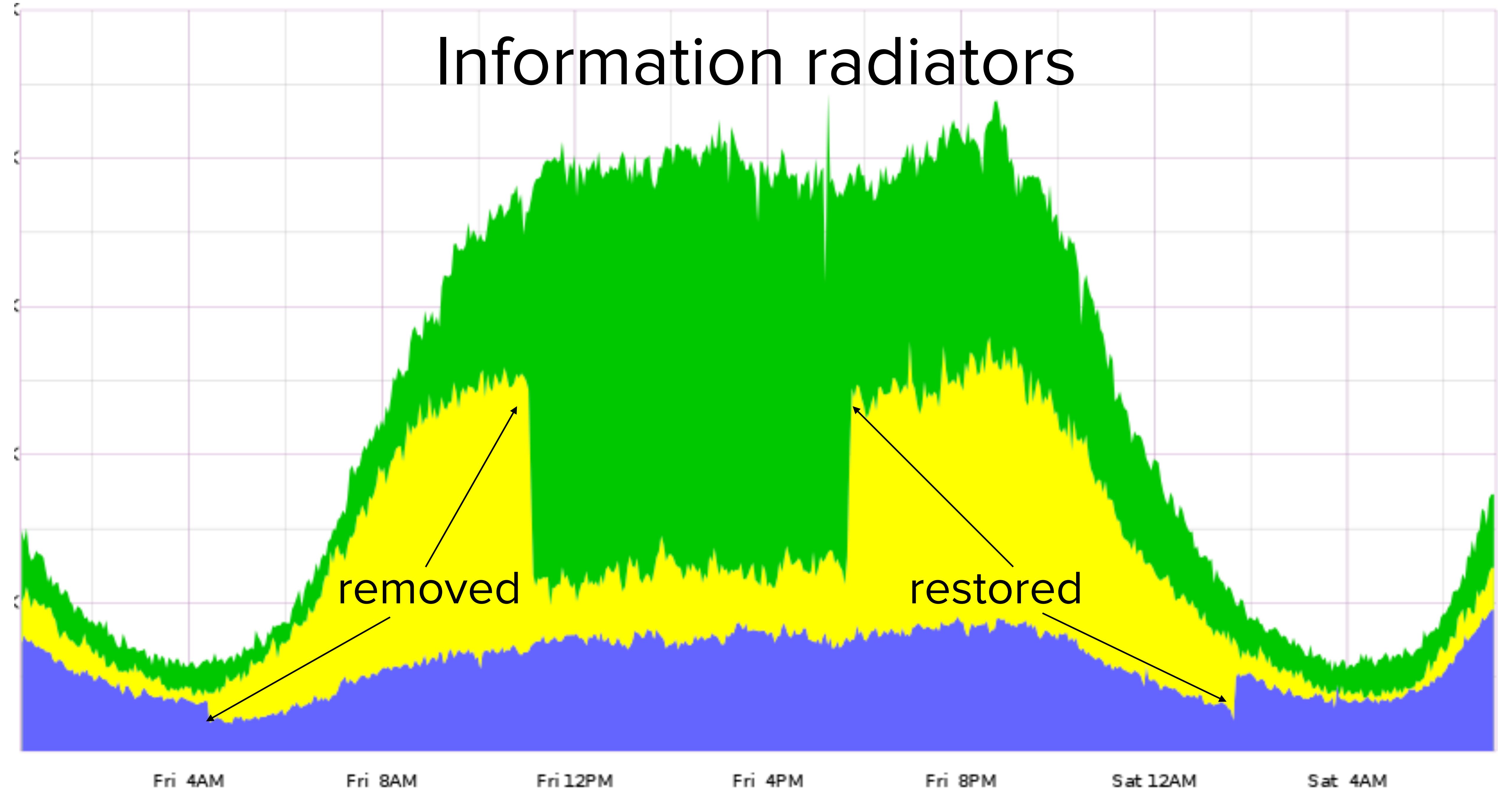
but...

Microservices move IPC to network transactions & complexity is distributed

Security Pros & Cons



Information radiators



monitoring: the old way



@bridgetkromhout

monitoring: the new way





@bridgetkromhout

Thanks!

