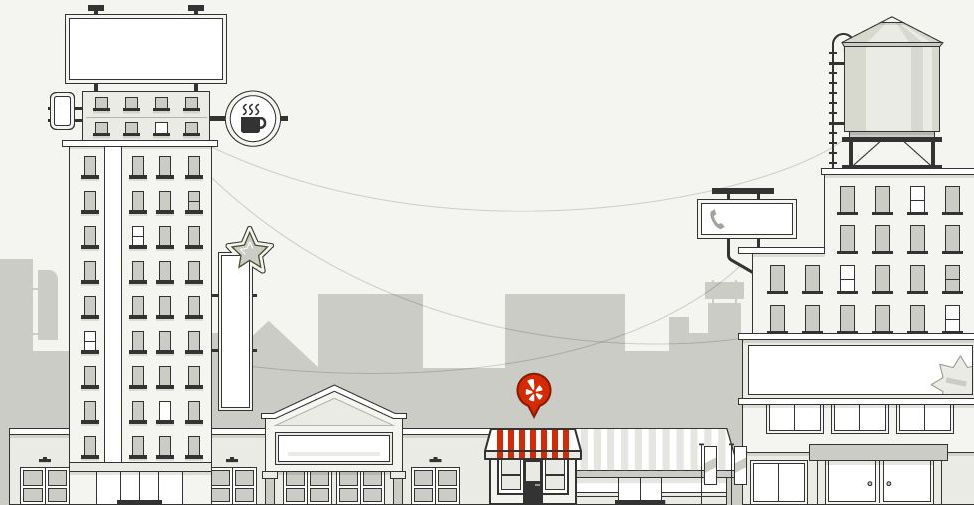


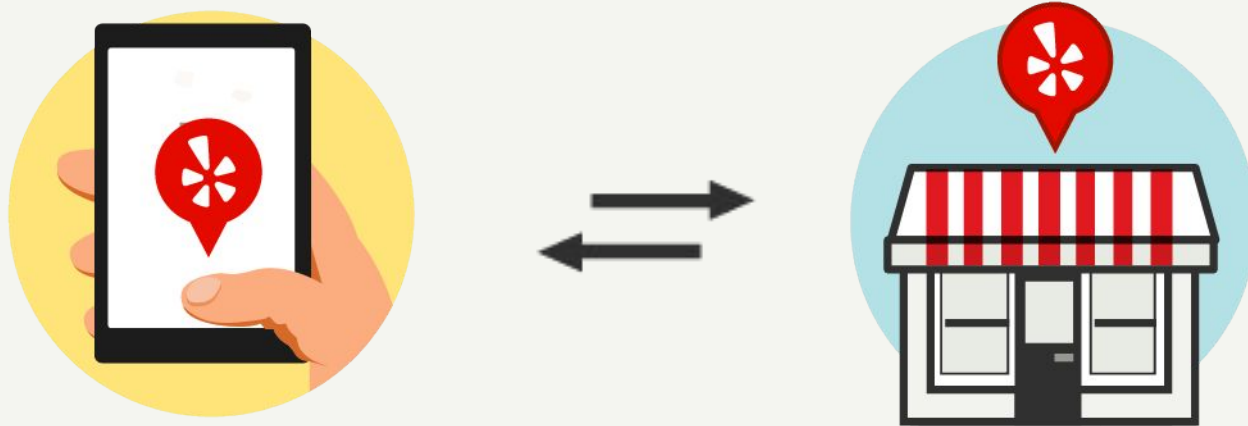
Getting the Most out of Your Mesos

David R. Morrison, PhD
drmor@yelp.com



Yelp's Mission

Connecting people with great local businesses.



What can you learn from this talk?

How Yelp grew its SOA infrastructure on top of Apache Mesos

How Yelp has gained Observability into its Mesos clusters to increase reliability

How Yelp uses data about its infrastructure to move from Observability to Predictability



(A few) Examples of Mesos Applications at Yelp



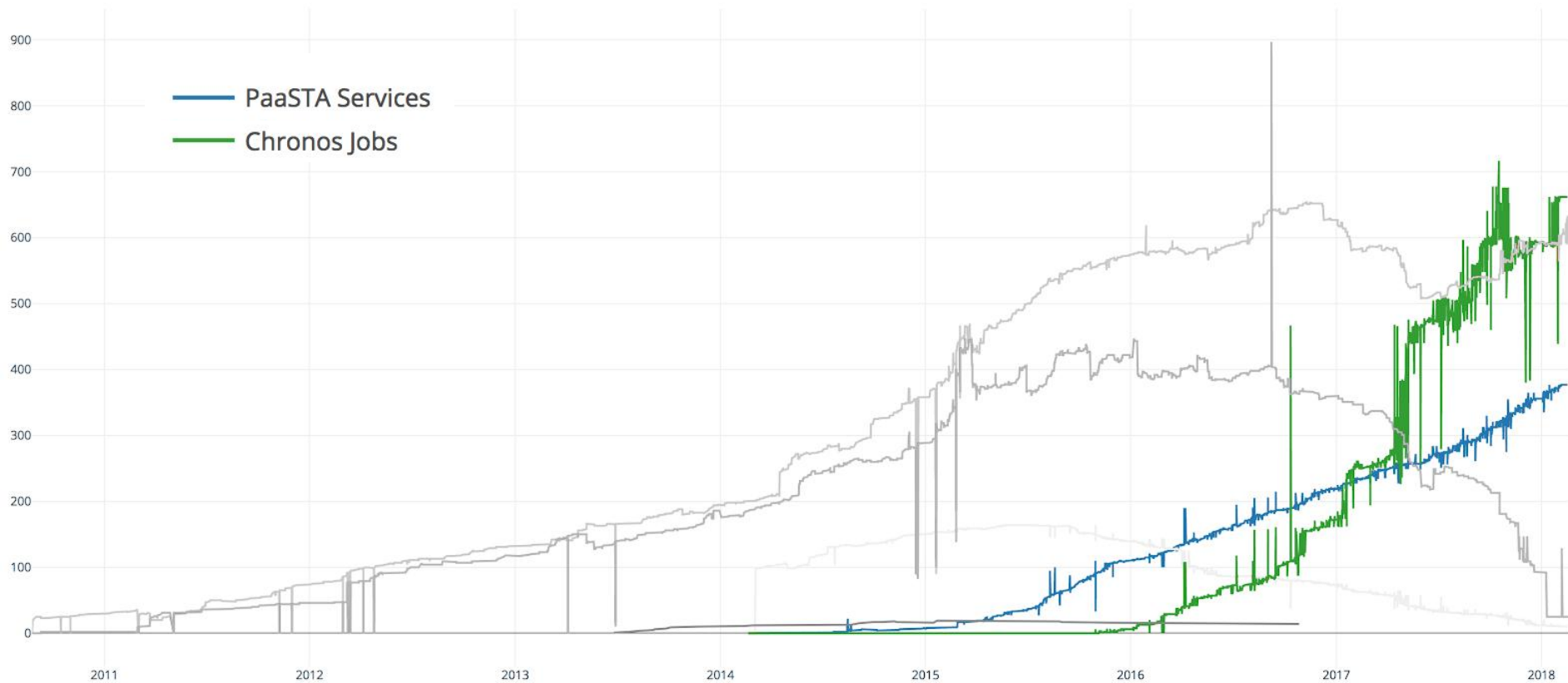
<https://github.com/Yelp/paasta>

<https://github.com/Yelp/tron>

https://github.com/Yelp/task_processing



Mesos Adoption at Yelp



Why are we (still) using Mesos?



Why are we (still) using Mesos?



Observability: What are our Mesos clusters actually doing?



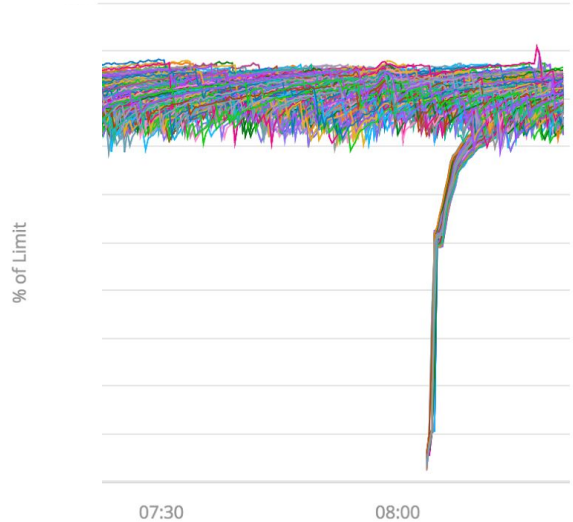
Metrics and Monitoring

Memory usage (% of limit)

20s



Per-container memory usage. Going over 100% will kill a process in...

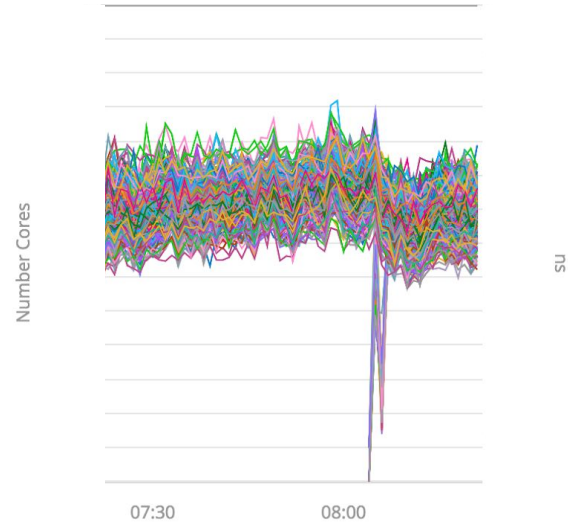


CPU Usage

1m



Per-container cpu usage. Includes the configured upper bound as ...



Instances

20s



Number of copies running. Includes lines for the autoscaling setpoi...



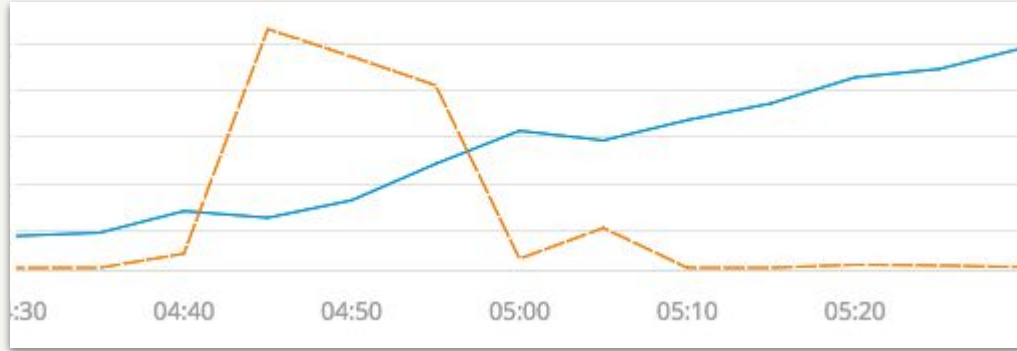
Tracing and Logging



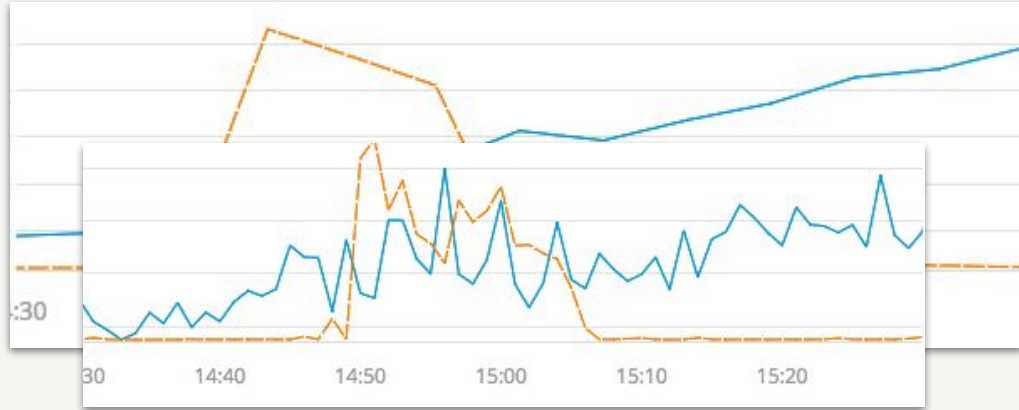
We had a few problems in 2017



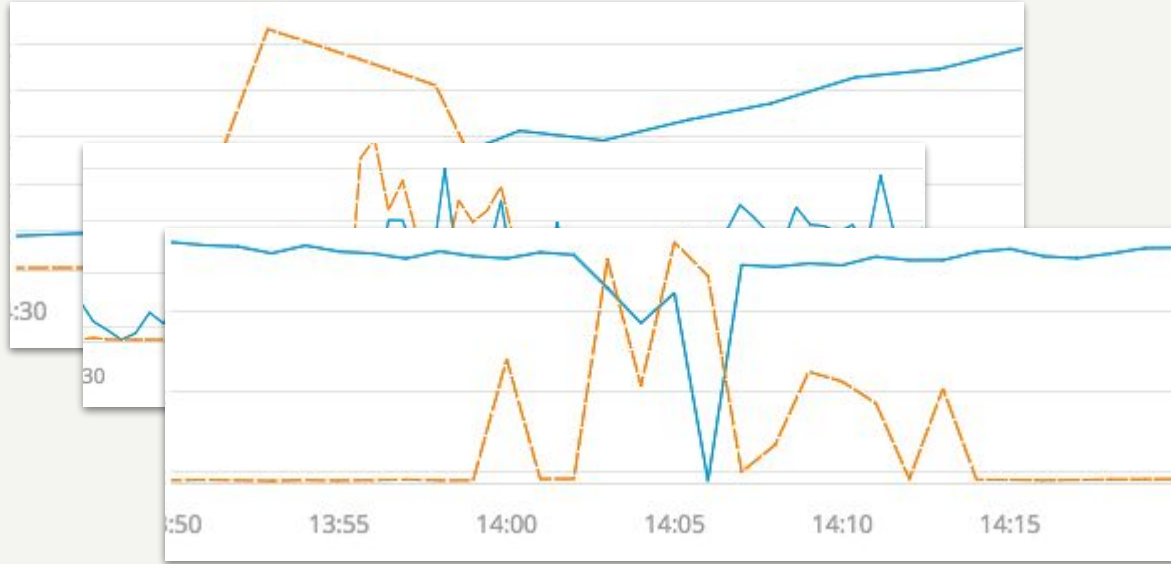
How many services can we support?



How many services can we support?



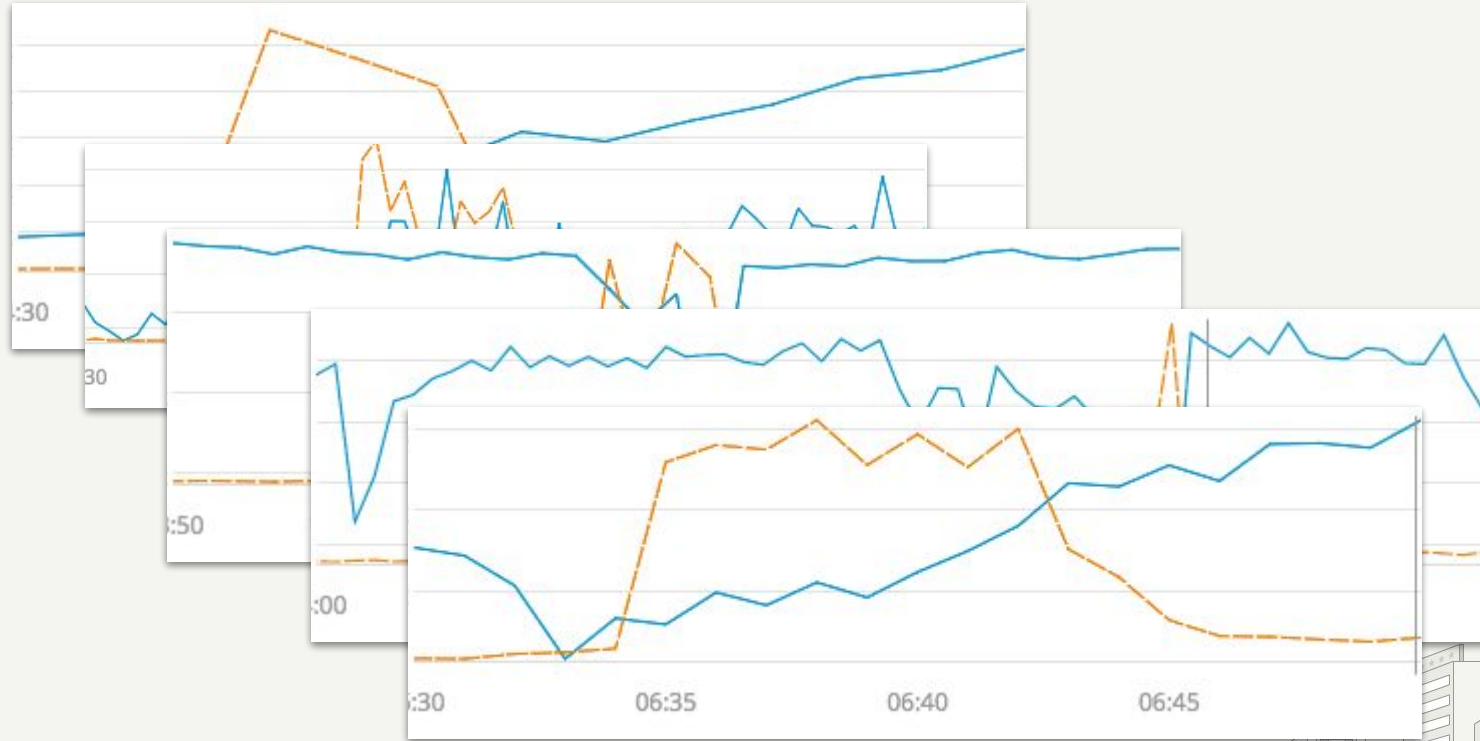
How many services can we support?



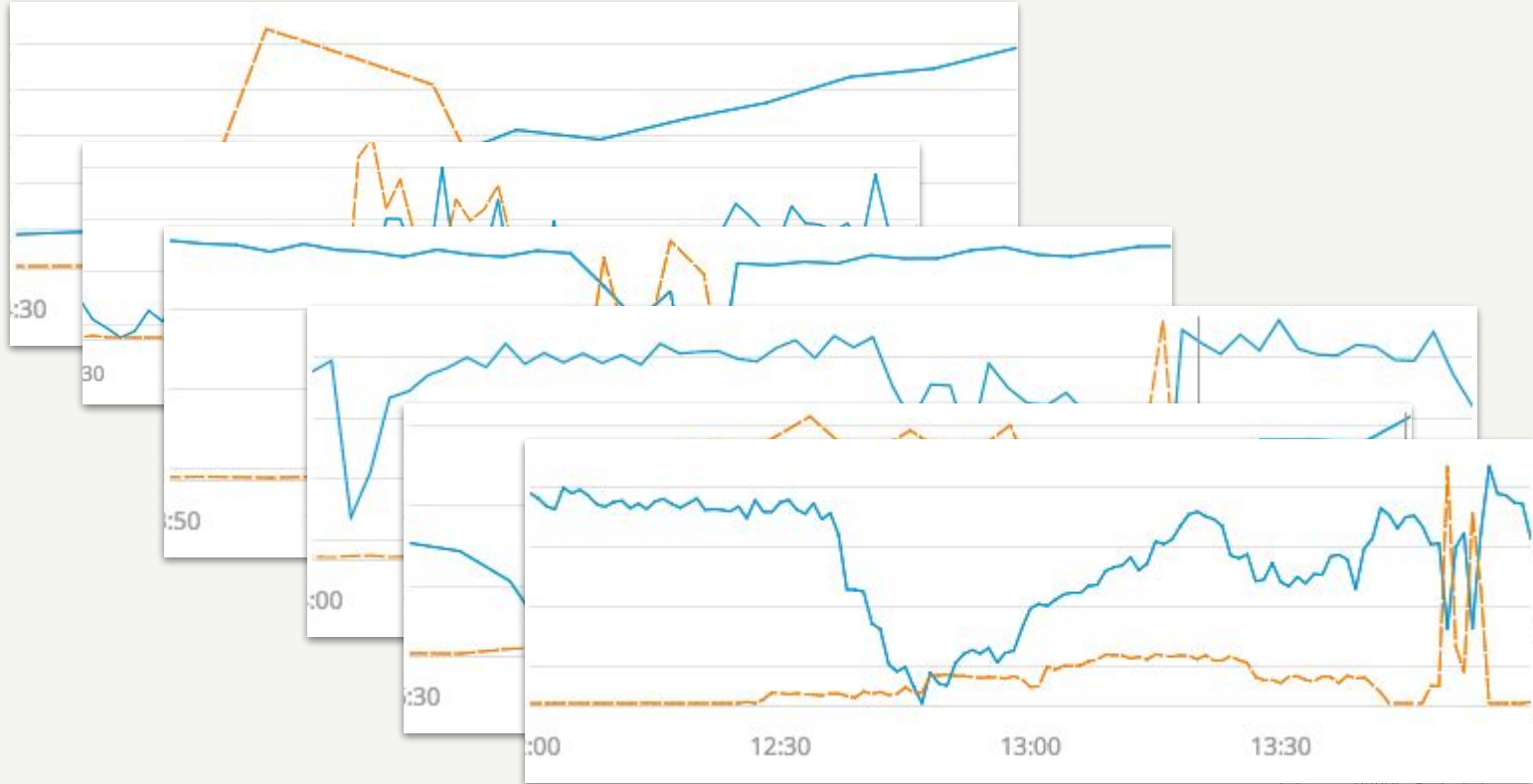
How many services can we support?



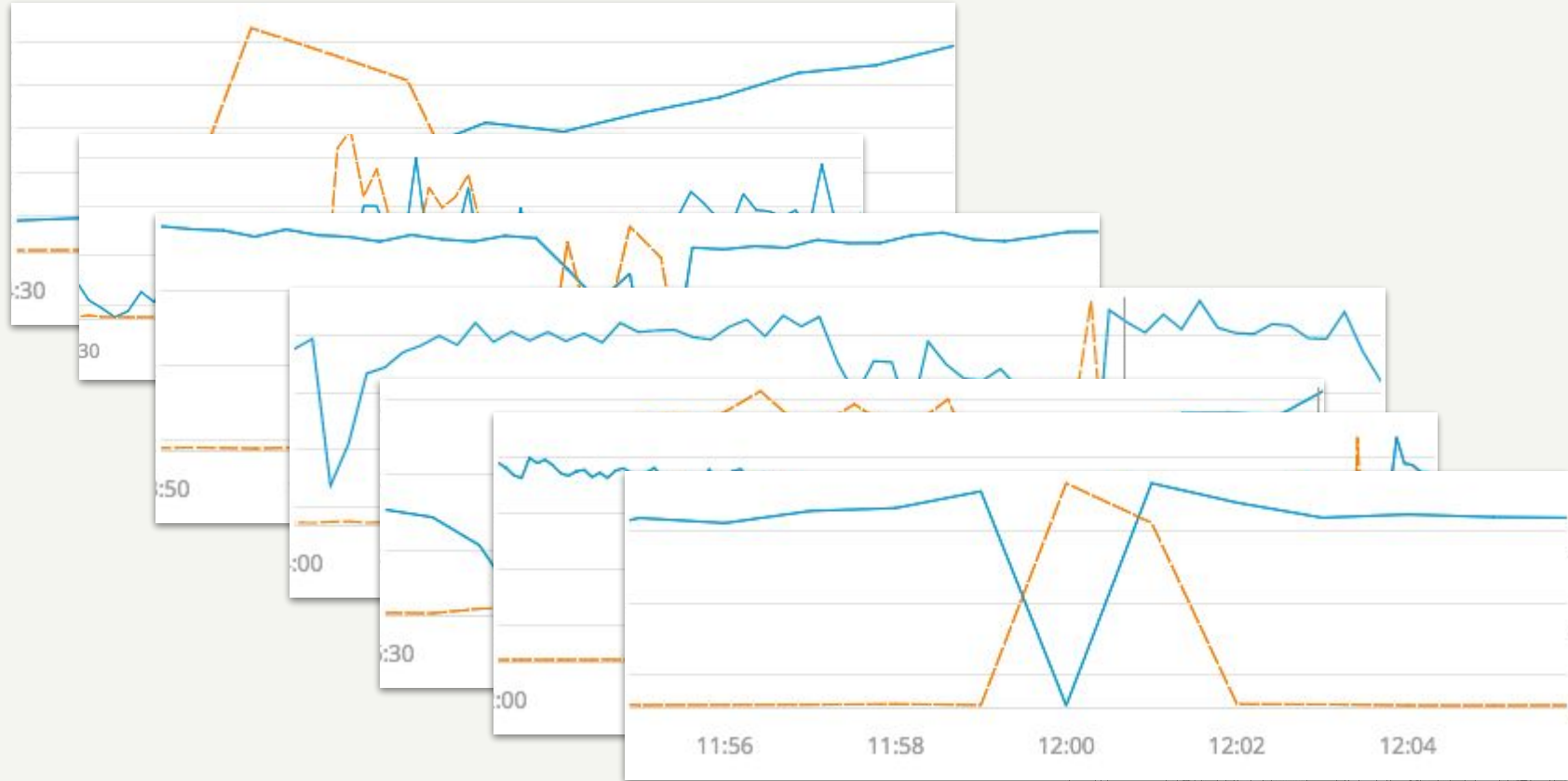
How many services can we support?



How many services can we support?



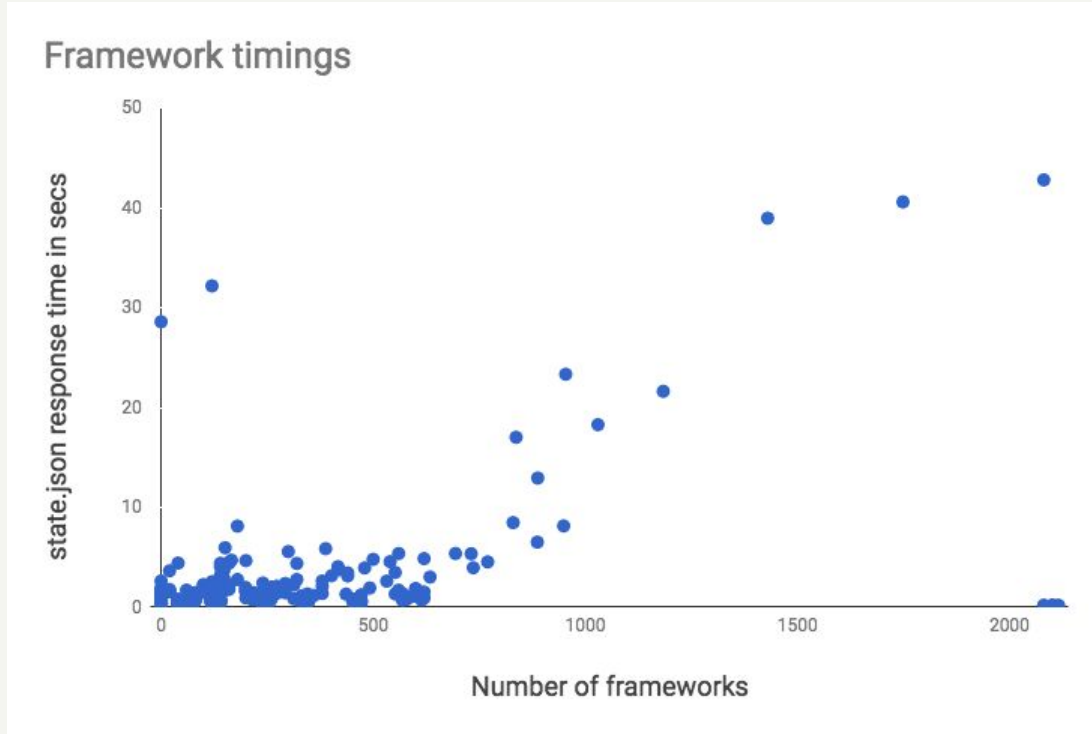
How many services can we support?



How many frameworks can we run?



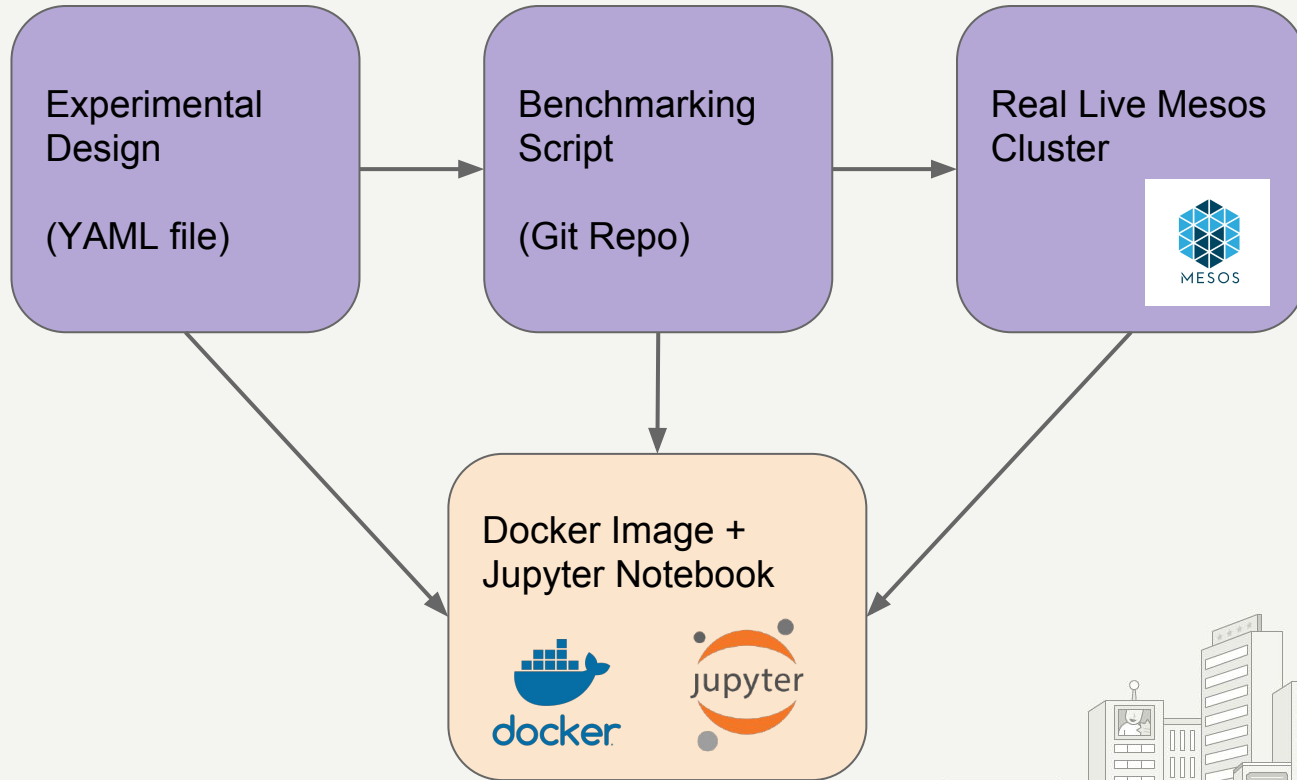
How many frameworks can we run?



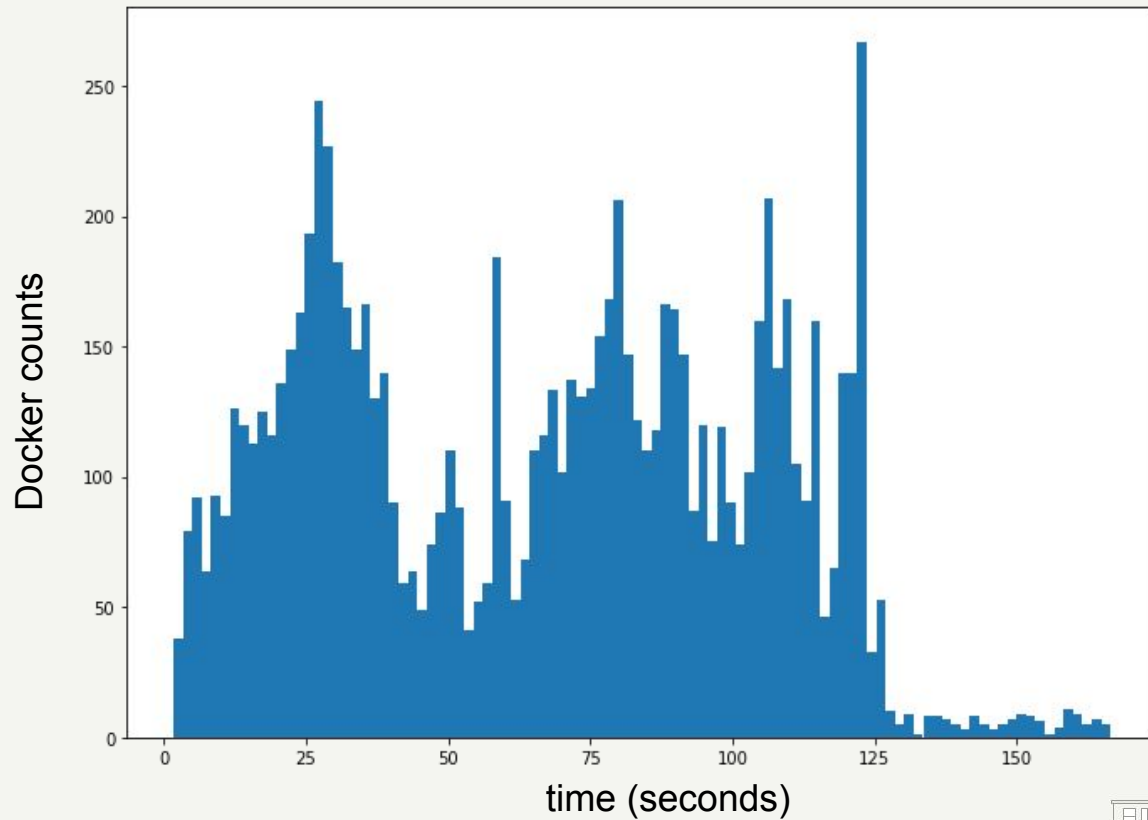
Moving from Observability to Predictability (Part 1)



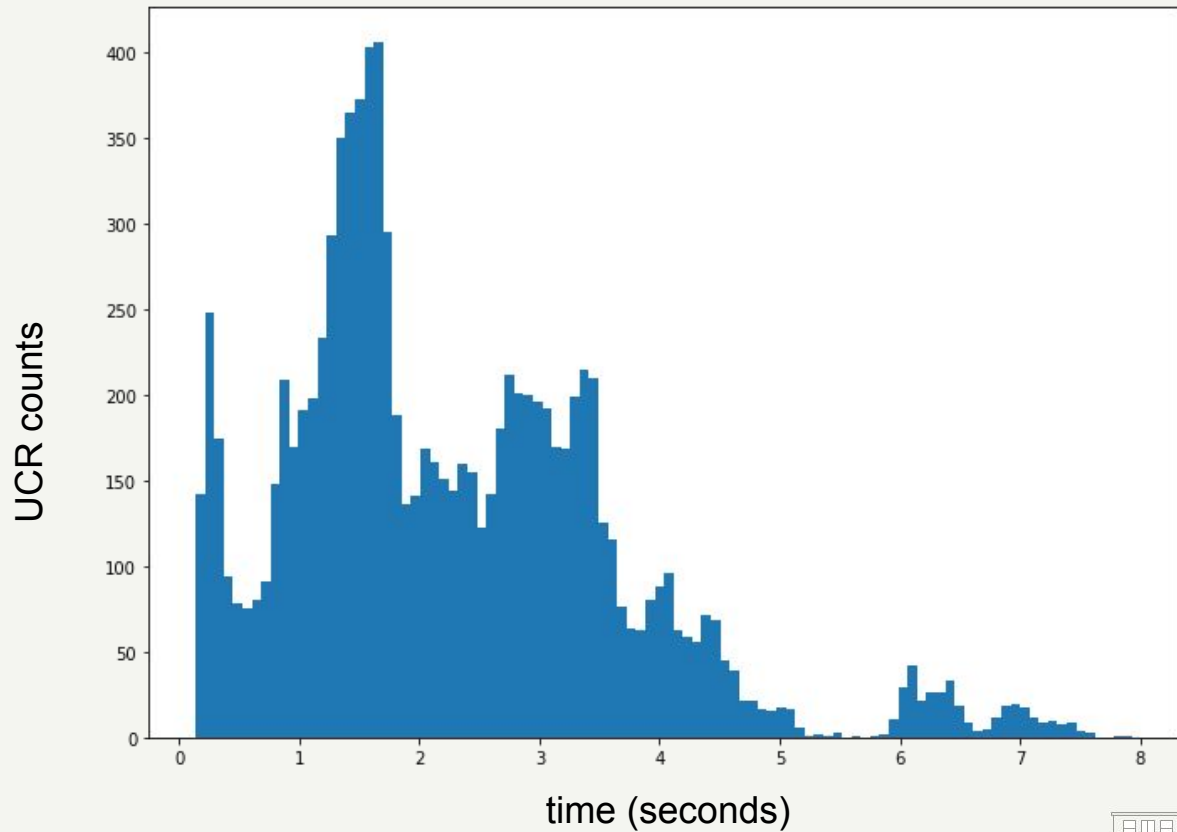
Load Testing Apache Mesos



Docker Containerizer vs UCR



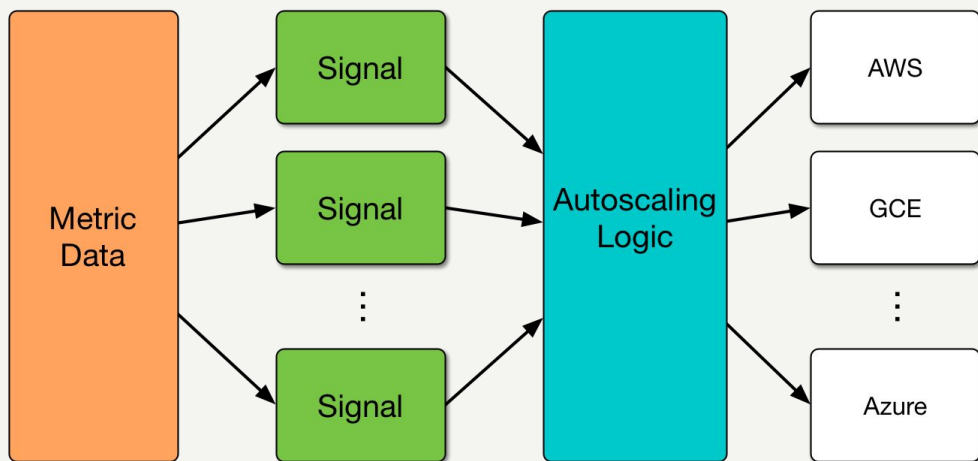
Docker Containerizer vs UCR



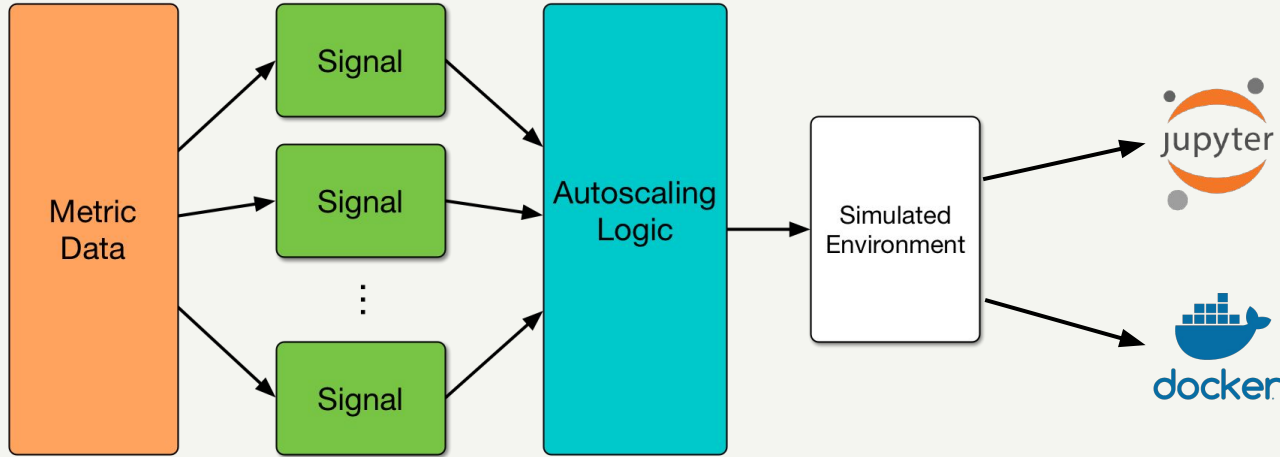
Moving from Observability to Predictability (Part 2)



Clusterman: Yelp's Pluggable Autoscaling Engine for Apache Mesos



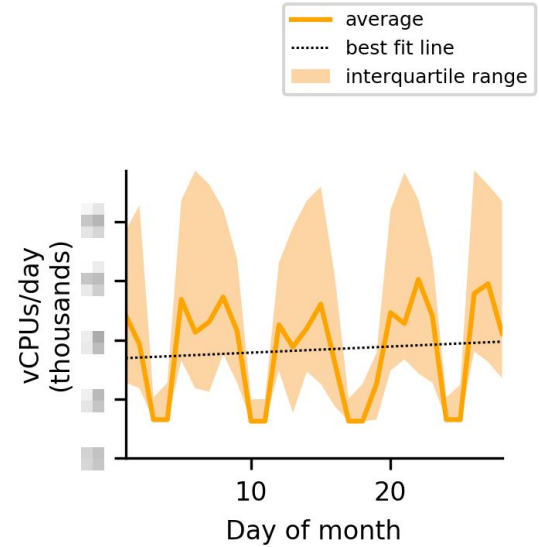
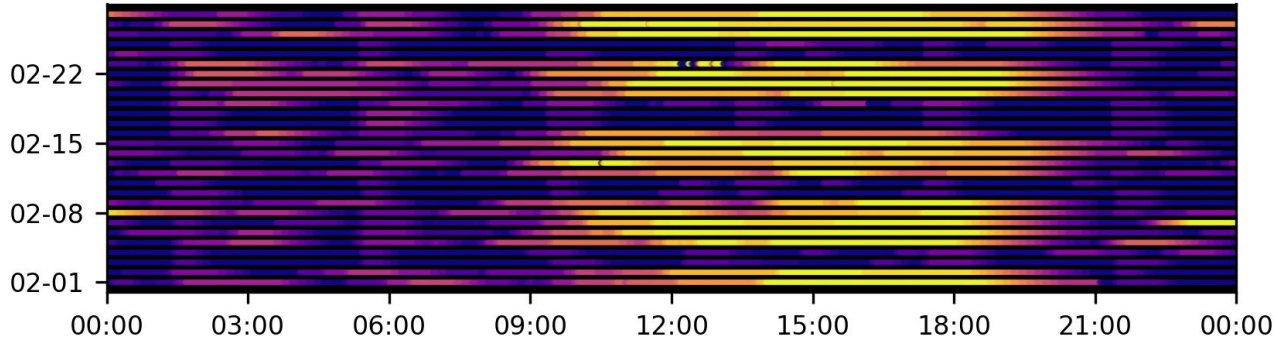
Clusterman: Yelp's Pluggable Autoscaling Engine Simulator for Apache Mesos



Clusterman Example: what happened

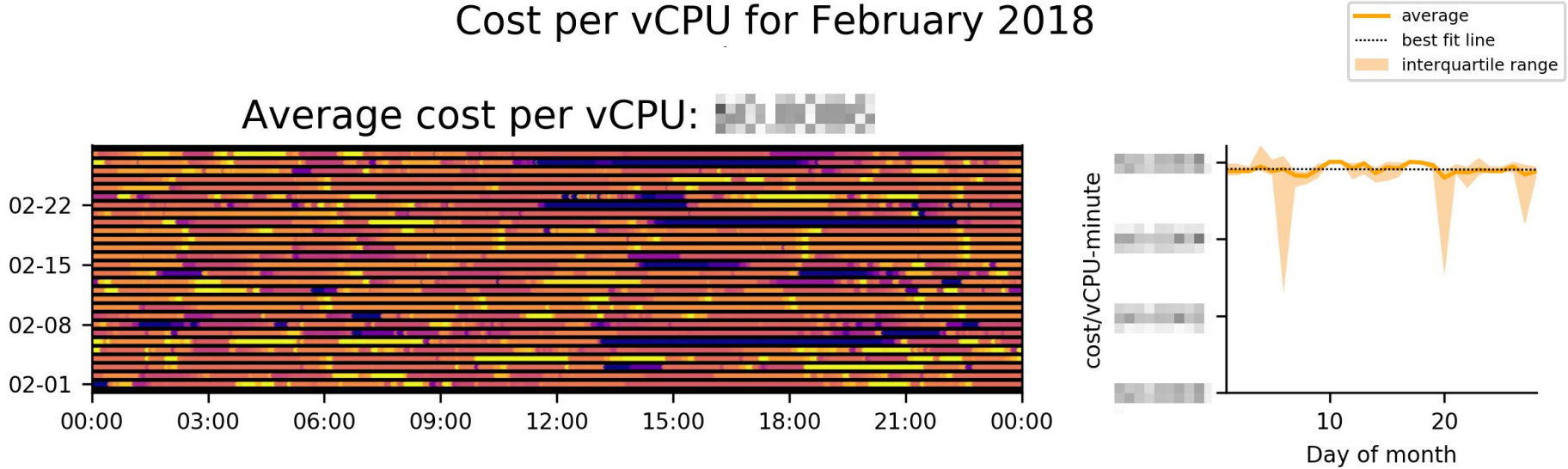
vCPU capacity for February 2018

Average capacity:  vCPUs

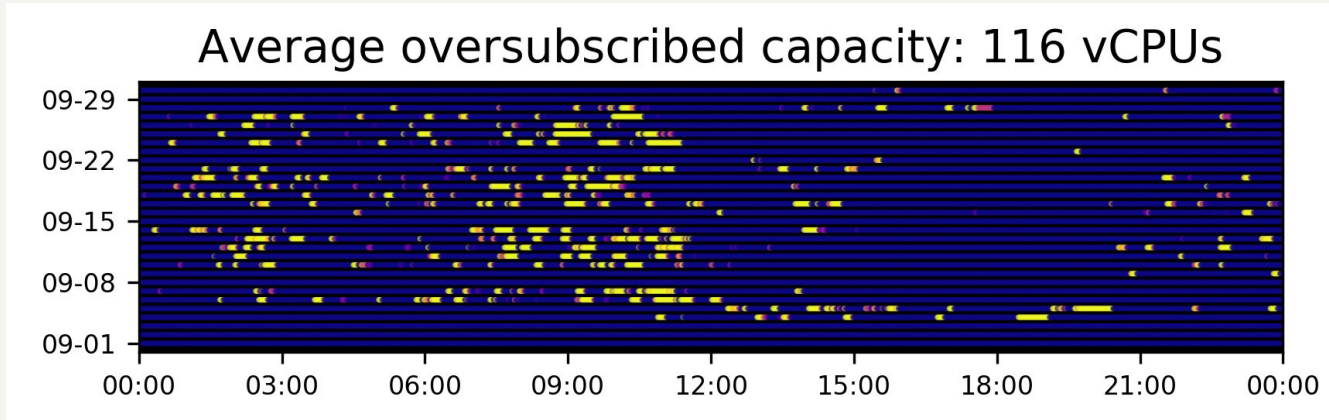


Clusterman Example: what happened

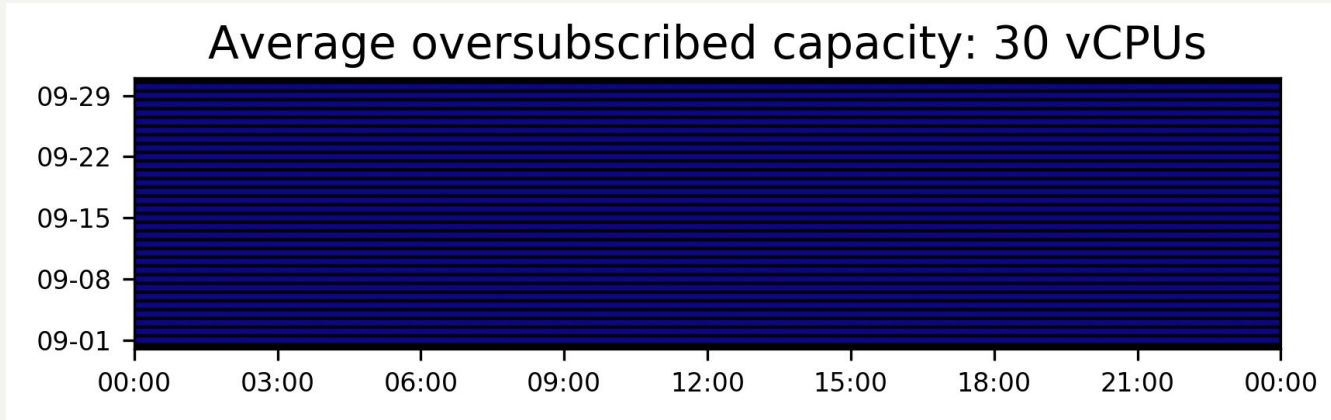
Cost per vCPU for February 2018



Clusterman Example: What *will* happen



Clusterman Example: What *will* happen



What comes after Predictability?



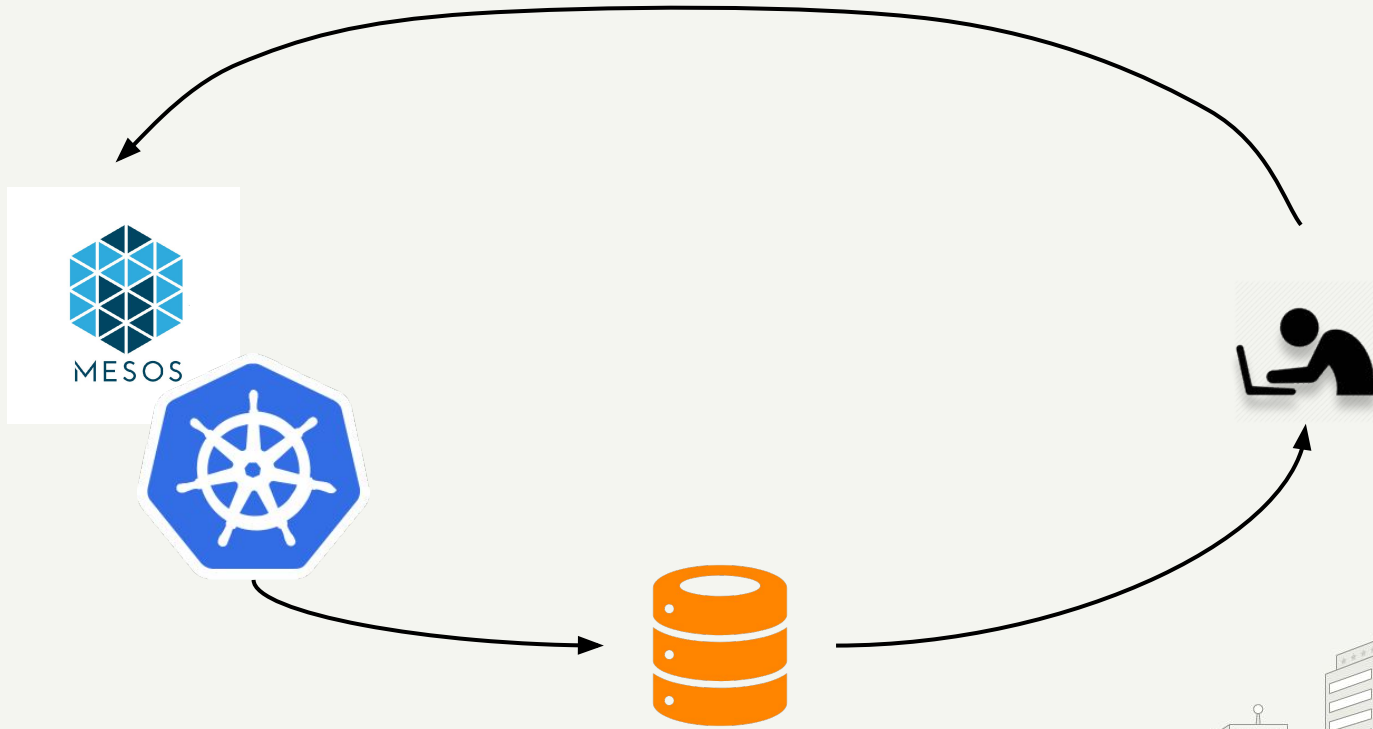
Feedbackability



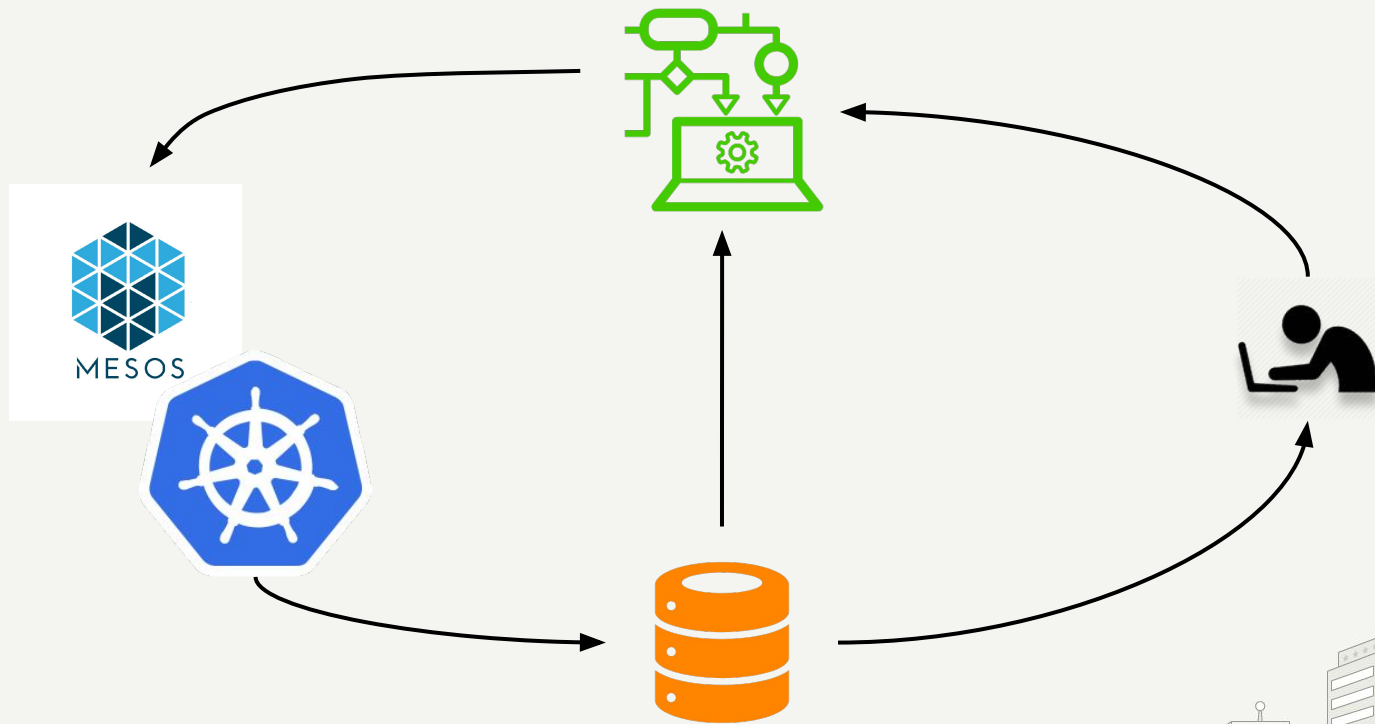
Feedbackability



Feedbackability



Feedbackability



What did we learn?

We collect *a lot* of data about our infrastructure -- using that data intelligently can make us more reliable and save us money!





We're Hiring!

www.yelp.com/careers/



fb.com/YelpEngineers



[@YelpEngineering](https://twitter.com/YelpEngineering)



engineeringblog.yelp.com



github.com/yelp