

Everything Worked Before

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Kubernetes



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Running Kubernetes in production for 4 years

What was
Before?

It was a simpler
time



Maybe something like this

Monolith App

Let's do services!

Oh god so many
microservices

They don't fit anymore
:(

maybe you have a different stack for machine learning

train on laptop

train on a beefy box

fleet of beefy boxes

What is running??

Meanwhile business is booming

- **Expanding Engineering team**
Plus data engineers and machine learning scientists and more
- **Gotta move fast**
- **Multi-region**
- **maybe sprinkle some GPUs!**
- **Multi-cloud**

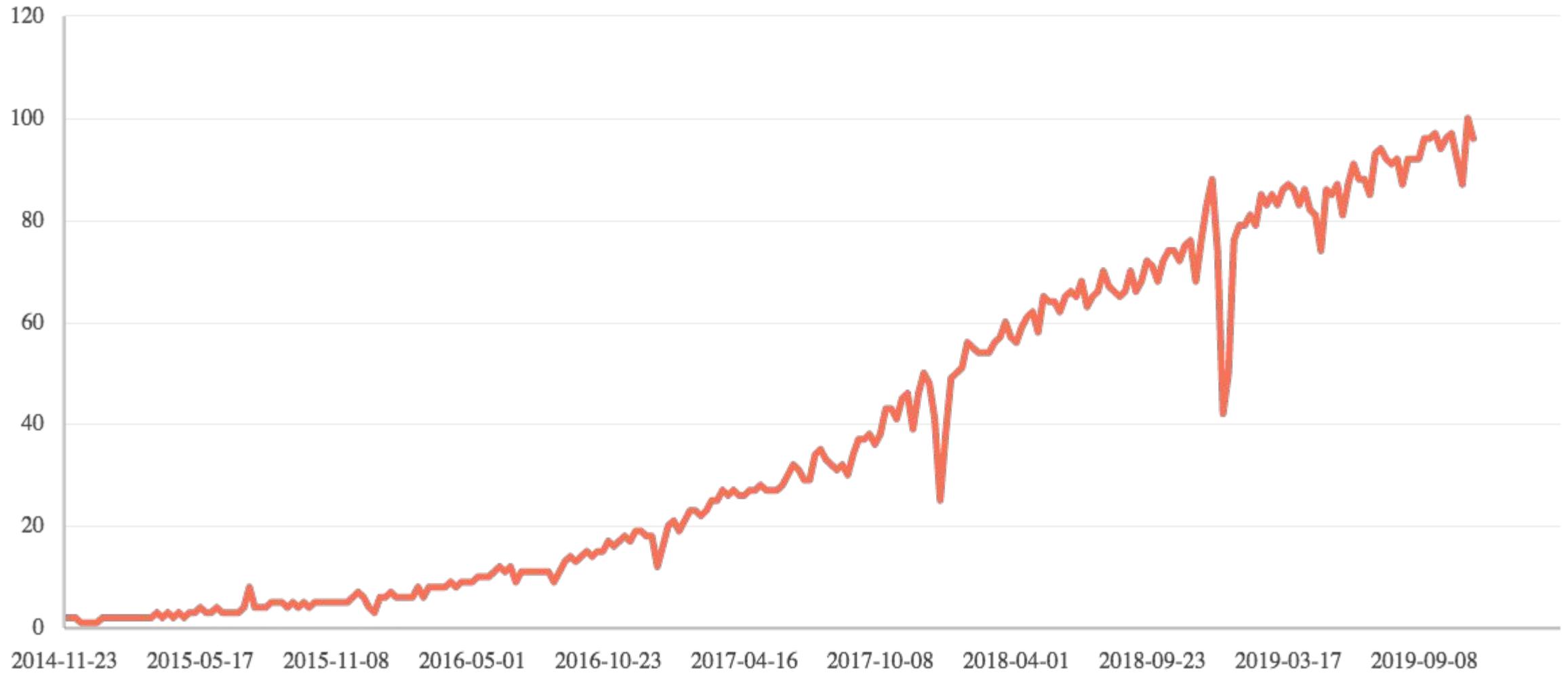
Scaling the human factor

aka your infrastructure team



So we got containers and
aka open source & Cloud
kubernetes
native

Interest in “Kubernetes”



Infrastructure engineers

Yamls. Yamls everywhere. Everything is yaml and yaml is everything.

rejoice

It's not all
rainbows
and
yet
unicorns



How do I control what's
running?

Open Policy Agent

```
package kubernetes.admission

deny[msg] {
  input.request.kind.kind == "Pod"
  some i
  image := input.request.object.spec.containers[i].image
  not startswith(image, "hooli.com/")
  msg := sprintf("image '%v' comes from untrusted registry", [image])
}
```

Open Policy Agent

Monday, November 18

11:30am ● Open Policy Agent Summit hosted by Styra (Additional Registration + Fee Required)

5:02pm ● Lightning Talk: What Makes a Good Multi-tenant Kubernetes Solution? - Victor Varza, Adobe (Description: open policy agent)

5:44pm ● Lightning Talk: CRDs All the Way Down - Using OPA for Complex CRD Validation and Defaulting - Puja Abbassi, Giant Swarm (Description: open policy agent)

Tuesday, November 19

10:55am ● OPA Introduction & Community Update - Rita Zhang, Microsoft & Patrick East, Styra (Description: open policy agent)

11:50am ● Applying Policy Throughout The Application Lifecycle with Open Policy Agent - Gareth Rushgrove, Snyk

Thursday, November 21

10:55am ● How Yelp Moved Security From the App to the Mesh with Envoy and OPA - Daniel Popescu, Yelp & Ben Plotnick, Cruise (Description: open policy agent)

2:25pm ● SIG Auth Update and Deep Dive - Mo Khan, Red Hat; Mike Danese, Google; & Tim Allclair, Google (Description: open policy agent)

How do I
develop?

 windmilleng / tilt	 Watch ▾	25	 Star	2.9k	 Fork	88
 telepresenceio / telepresence	 Watch ▾	51	 Star	2.4k	 Fork	152
 GoogleContainerTools / skaffold	 Watch ▾	190	 Star	8.4k	 Fork	745
 garden-io / garden	 Watch ▾	34	 Star	1.3k	 Fork	64
 Azure / draft	 Watch ▾	147	 Star	3.6k	 Fork	378

AND SO MANY
MORE...

Learn more at the **Application & Development** track!

How do I
debug?

Ephemeral Containers

```
{
  "apiVersion": "v1",
  "kind": "EphemeralContainers",
  "metadata": {
    "name": "example-pod"
  },
  "ephemeralContainers": [{
    "command": [
      "sh"
    ],
    "image": "busybox",
    "imagePullPolicy": "IfNotPresent",
    "name": "debugger",
    "stdin": true,
    "tty": true,
    "terminationMessagePolicy": "File"
  }]
}
```

Ephemeral Containers

```
# Attach a debian debug image to a running pod!  
$ kubectl debug debugtest --image debian --attach
```

We're iterating on user
aka higher level problems
experience

THANKS TO THE COMMUNITY AND EVERYONE HERE

We're getting there