Living on the Edge

Running Kubernetes and Istio in the Cloud

My Bio

Site Reliability Engineer for Lumin Digital

2+ Years Site Reliability Engineering Experience

9+ Years Software Engineering Experience

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github.com/aaronmell/presentations

What Did We Want To Achieve?

- Multiple deployments a day
- No weekly maintenance windows
- Self healing services
- Automated rollbacks
- Immutable infrastructure and microservices

Why did we pick Kubernetes?

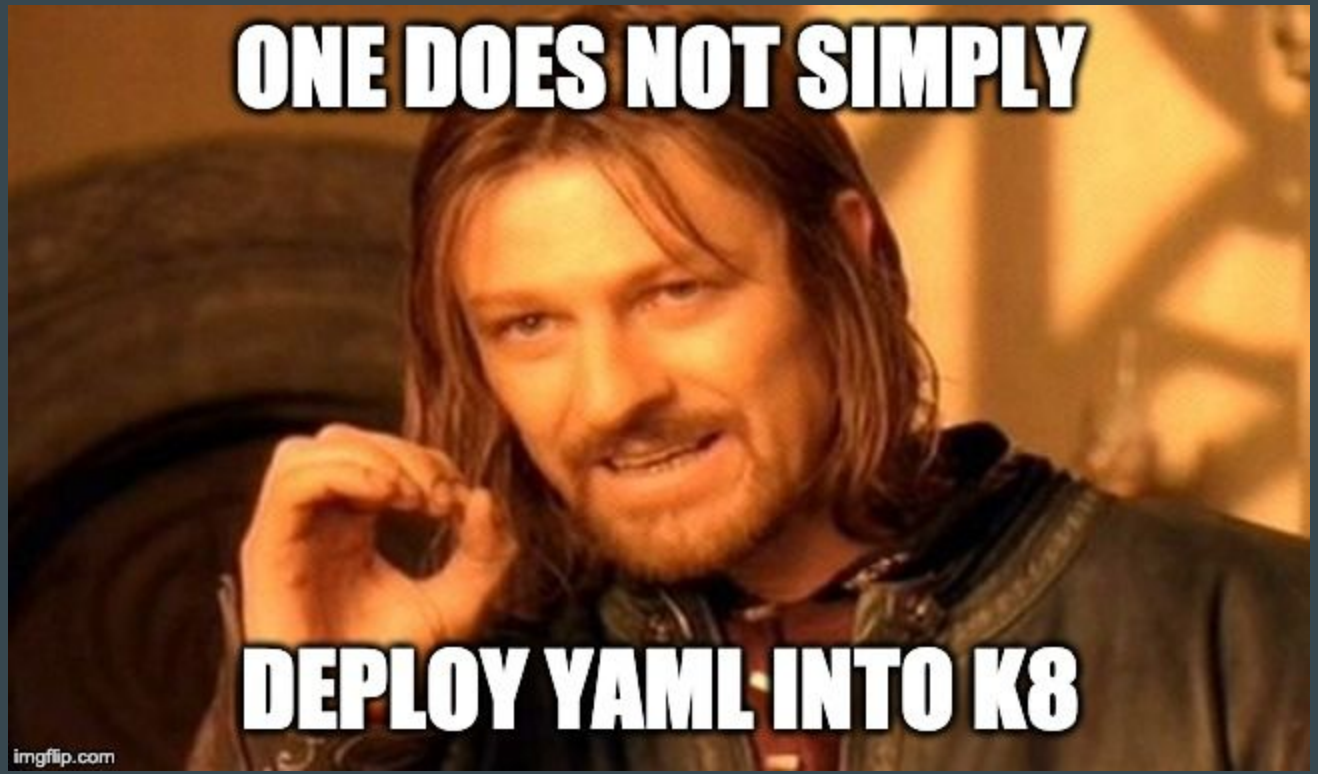
- Auto-healing
- Auto-scaling
- Service discovery
- Load balancing

June 15th, 2018
EKS Goes GA

Why Did We Pick EKS?

- Ease of use compared to running our own cluster and control plane
- We don’t have to manage/maintain the Kubernetes control plane

How Do We Install Applications onto Kubernetes?


ONE DOES NOT SIMPLY
DEPLOY YAML INTO K8
imgflip.com

Helm and Terraform

- Package manager for Kubernetes
- Our application is configuration heavy
- Helm makes transforming Kubernetes config easy
- Terraform plugin for Helm makes config even easier

MARCH 19, 2019
Istio 1.1 is Released

Why Did We Pick Istio?

- Traffic management
- Security (authentication, authorization, encryption)
- Observability (tracing, monitoring, access logs)

August 20th, 2019
We Go Live

August 21st 2019
It’s Still Running!

Kubernetes Lessons Learned

You Don’t Have Enough IP’s in Your EKS Subnets

Incorrect Resource Settings Can Crash Your Nodes

- Pod’s requests / limits
- Namespace requests / limits
- Kube-reserved
- System-reserved

Don’t Let Kubernetes Evict Your High Priority Workloads

Rolling Restarts Are Challenging

- Drain nodes gracefully
- Anti-affinity rules
- Pod disruption budgets

Istio is Still Rough Around The Edges

Most of the Tools are Open Source

Any Questions?