



Microsoft Ignite

Spotlight on Switzerland

Kongresshaus Zürich

March 9, 2023





Application Deployment Best Practices in Azure Kubernetes Services

Annie Talvasto

Agenda

- Introduction
- AKS
- CNCF
 - KEDA
 - Argo
 - Kyverno
 - Falco

Who am I?

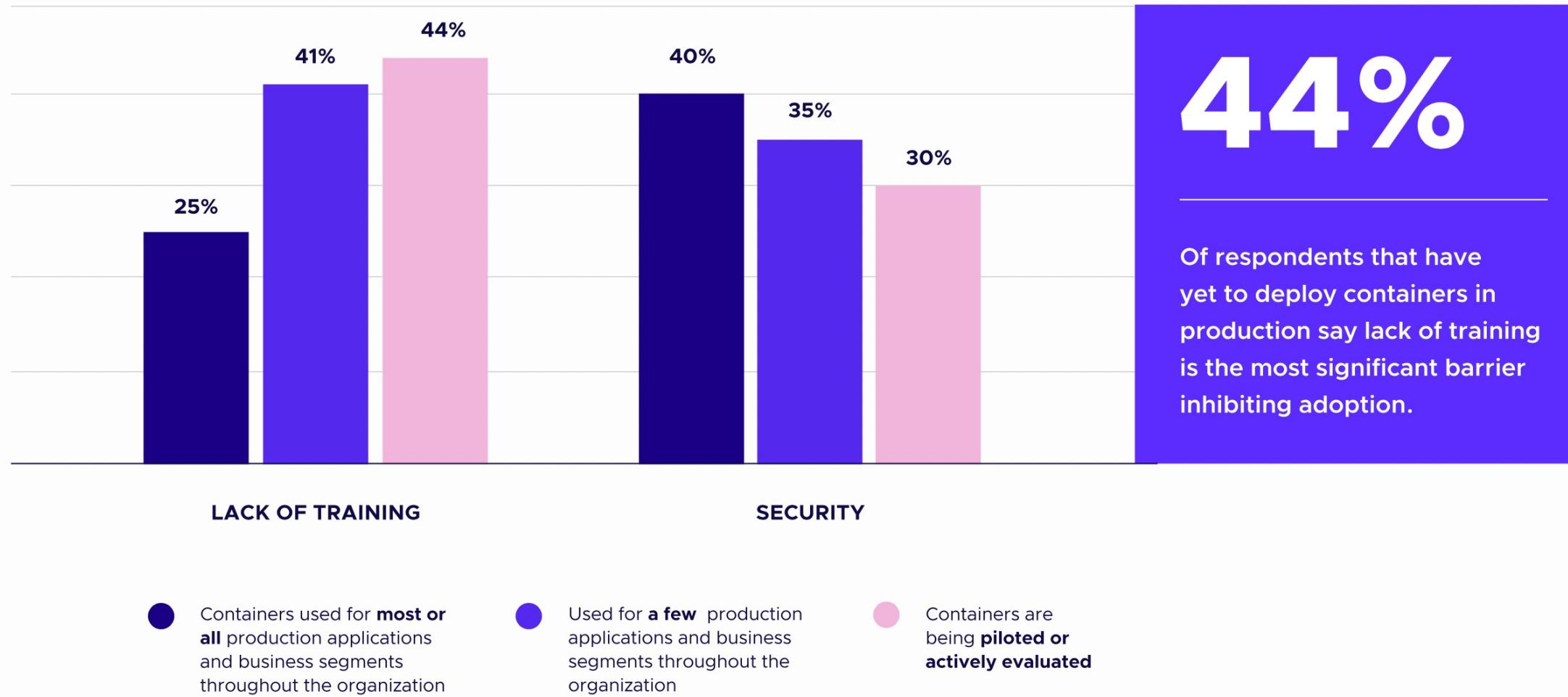
@AnnieTalvasto

- CNCF Ambassador
- Azure MVP
- Kubernetes & CNCF meetup co-organizer
- Startup-coach
- Co-host of Cloudgossip podcast - cloudgossip.net

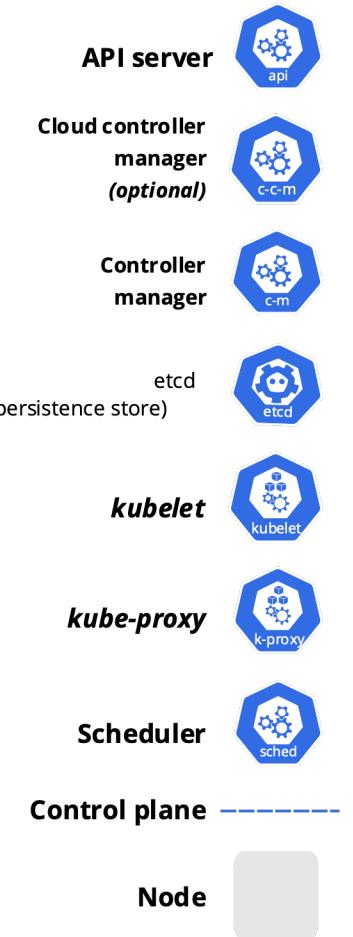
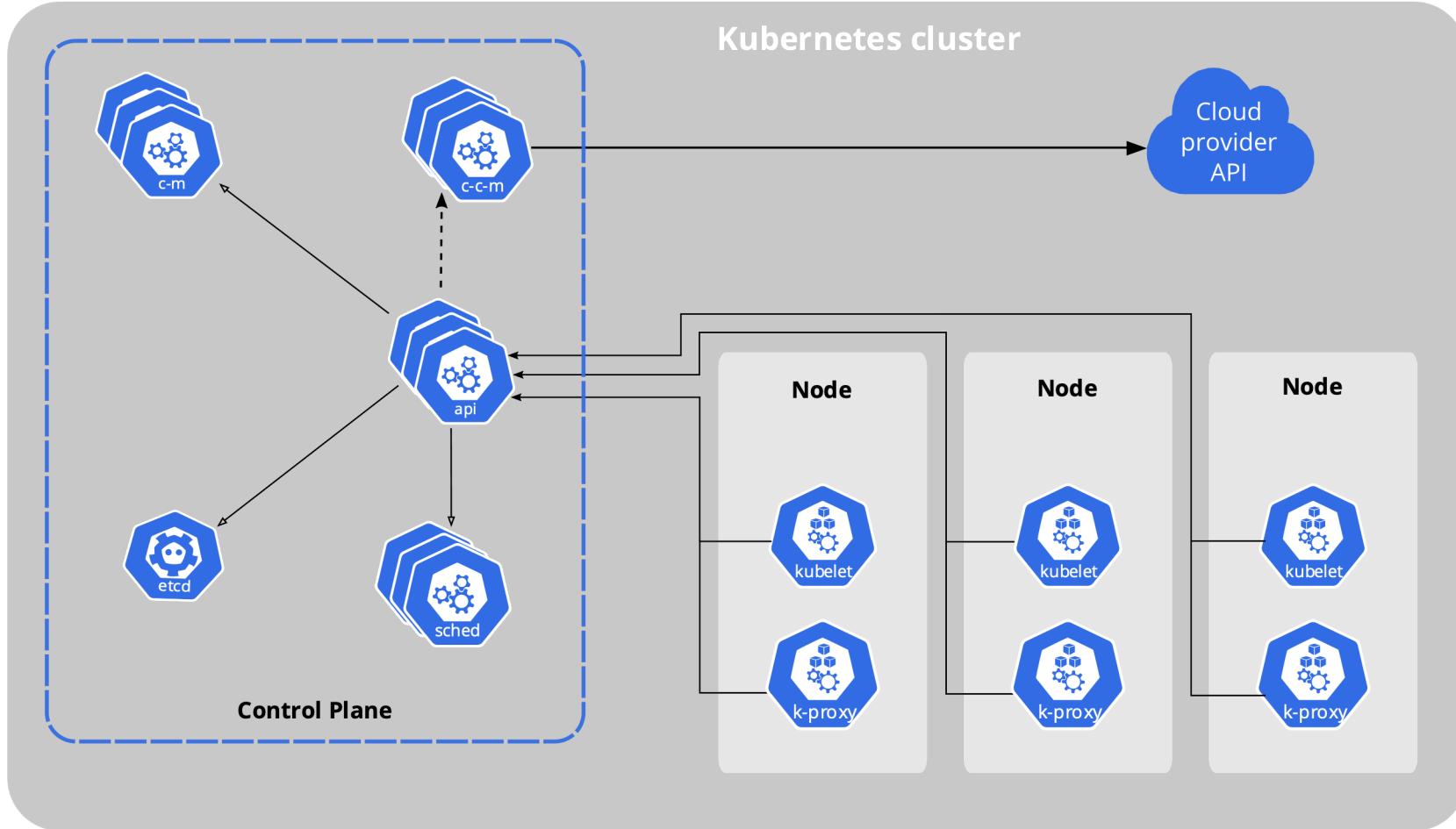


What value do you get
by attending this talk?

CNCF 2022 Survey



Kubernetes is an orchestration tool



Azure Kubernetes Service (AKS)

Simplify the deployment, management, and operations of Kubernetes



Deploy and
manage Kubernetes
with ease



Scale and run
applications with
confidence



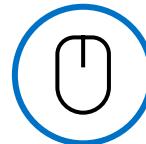
Secure your
Kubernetes
environment



Accelerate
containerized application
development



Work how you want
with open-source
tools & APIs



Set up
CI/CD in a
few clicks

Other ways to do Kubernetes on Azure

- **Azure Container Instance (ACI)**

Develop apps fast without managing virtual machines or having to learn new tools—it's just your application, in a container, running in the cloud.

- Run containers without managing servers
- Increase agility with containers on demand
- Secure applications with hypervisor isolation

- **Azure Container Apps (ACA)**

Fully managed serverless container service for building and deploying modern apps at scale

- Support for a variety of application types
- Flexibility to write code using your language, framework, or SDK of choice
- Robust autoscaling capabilities
- Simple configurations

Azure Kubernetes Service (AKS)

Simplify the deployment, management, and operations of Kubernetes



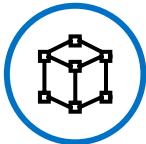
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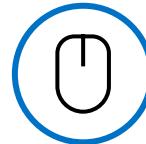
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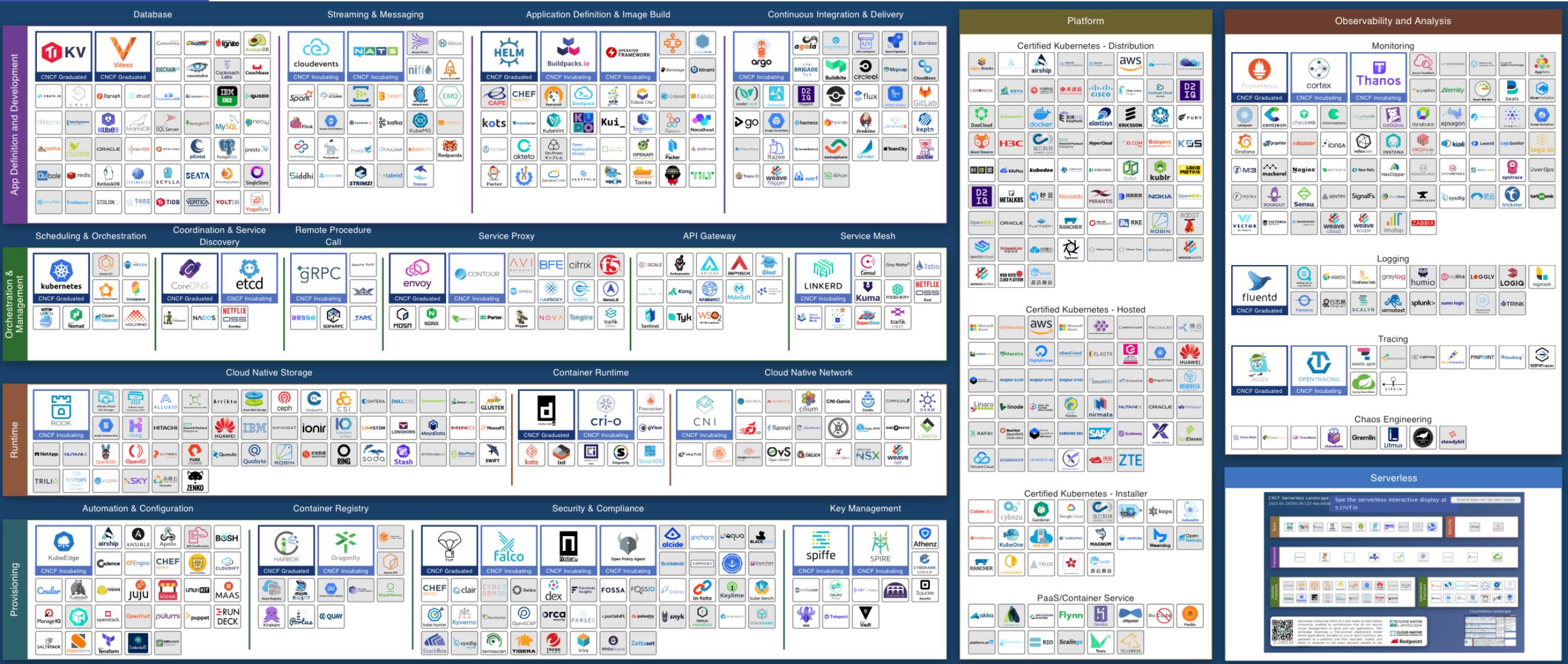


Set up
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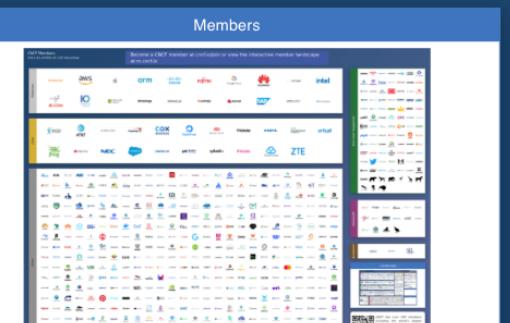
Cloud Native Computing Foundation

Building sustainable ecosystems
for cloud native software.





This landscape is intended as a map through the previously uncharted terrain of cloud native technologies. There are many routes to deploying a cloud native application, with CNCF Projects representing a particularly well-traveled path.



Project levels



Keda

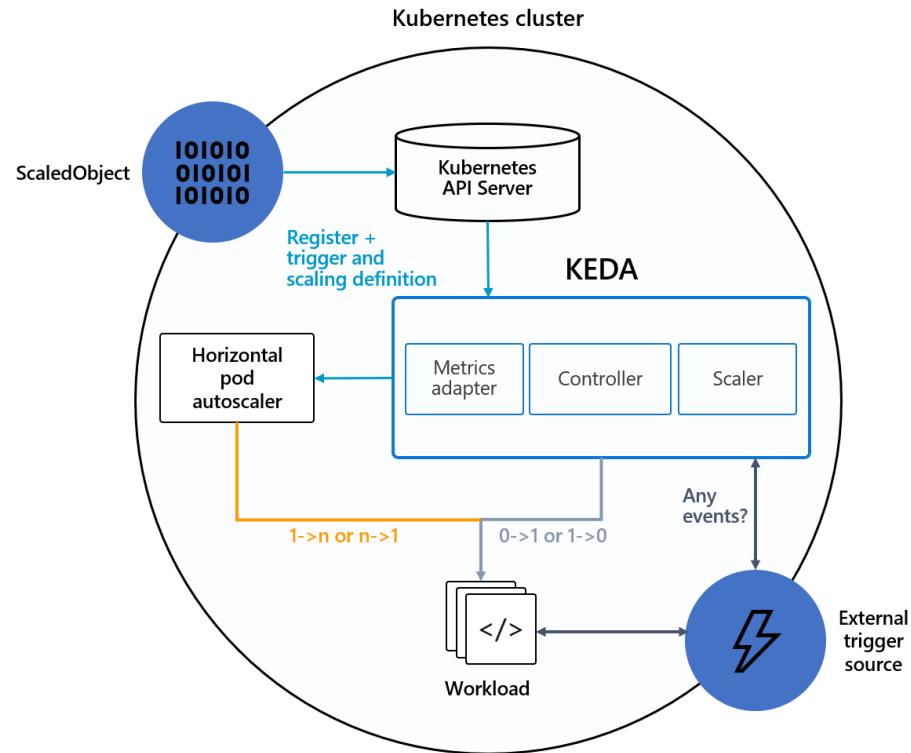
Kubernetes Event-Driven
Autoscaling



What is Keda?

- Default Kubernetes Scaling is not well suited for event driven applications, kubernetes is more for resource based scaling (CPU and memory).
- Keda: Event driven scale controlling that can run inside any kubernetes cluster.

What are the Keda principles?



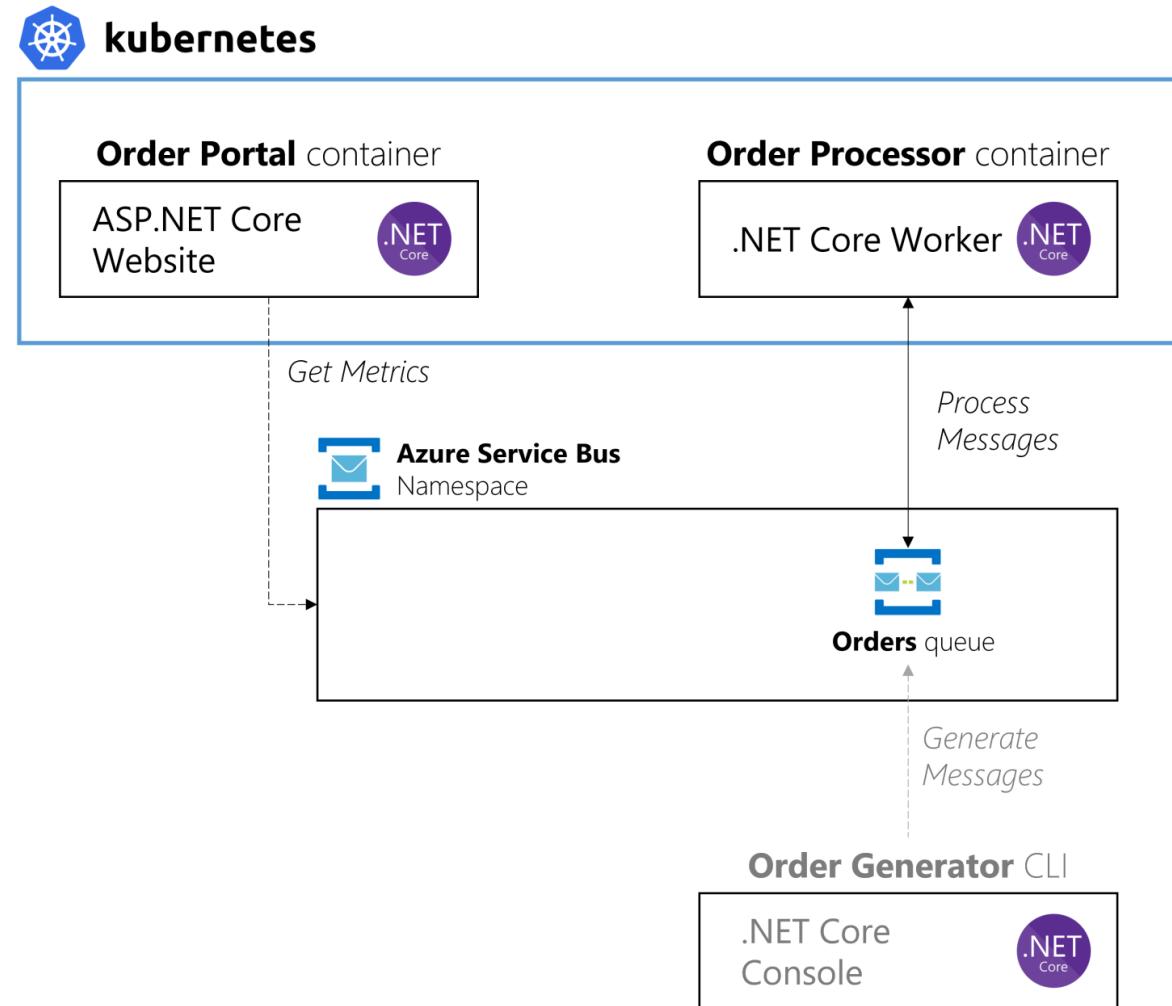
Not rebuilding anything that
Kubernetes offers out of the box.

Single purpose, simple, non-
intrusive.

Works with any container and
any workload

Demo

KEDA:
**Scaling .NET Core
worker with Azure
Service Bus**



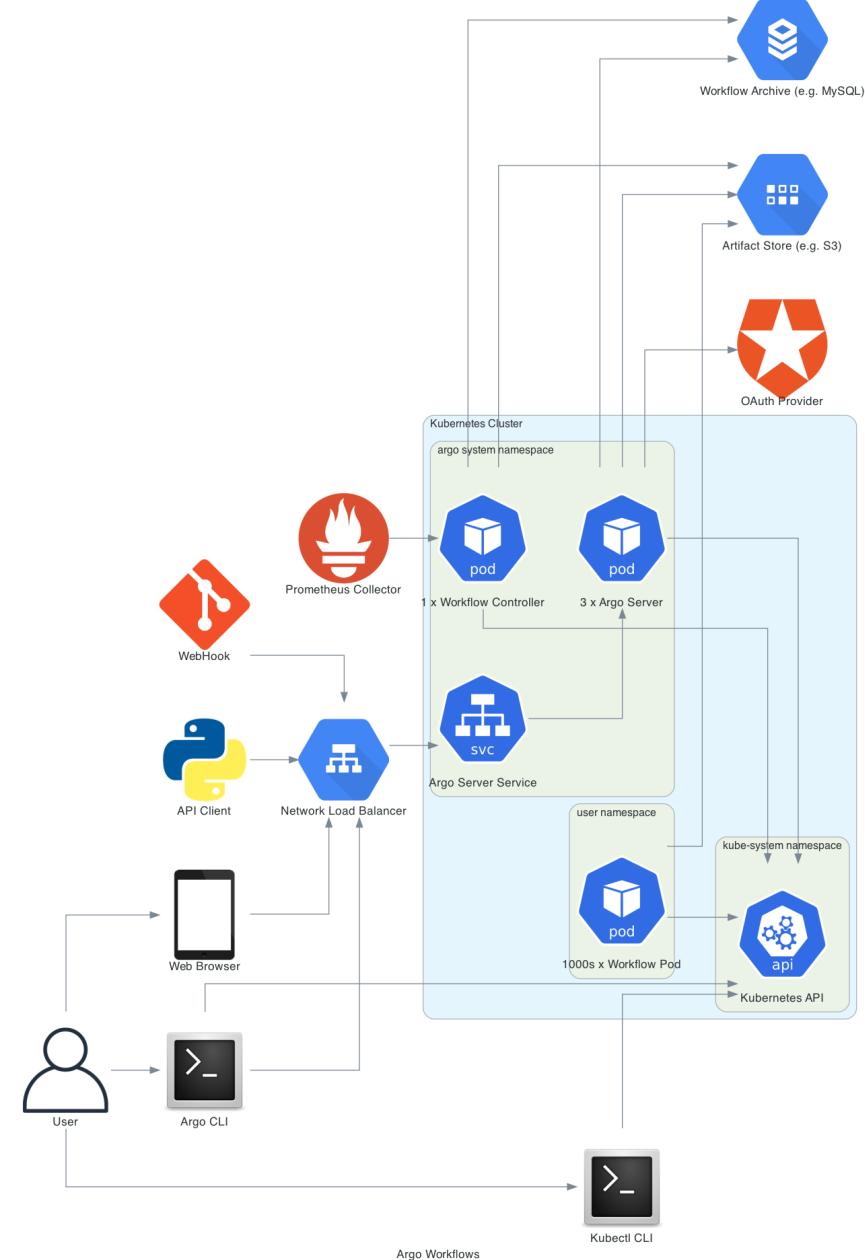
Argo

Get work done with Kubernetes



What is Argo?

- Argo Workflows
- Argo CD
- Argo Rollouts
- Argo Events



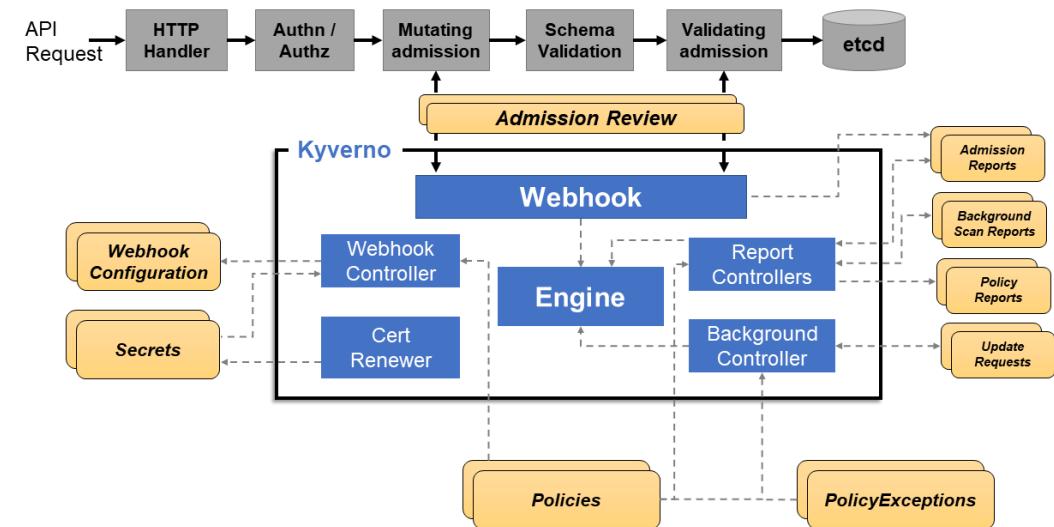
Kyverno

Kubernetes Event-Driven
Autoscaling



What is Kyverno?

- Designed for Kubernetes
- Policies managed as Kubernetes resources
 - Kubectl
 - Git
 - kustomize
- Validate, mutate and generate



Falco

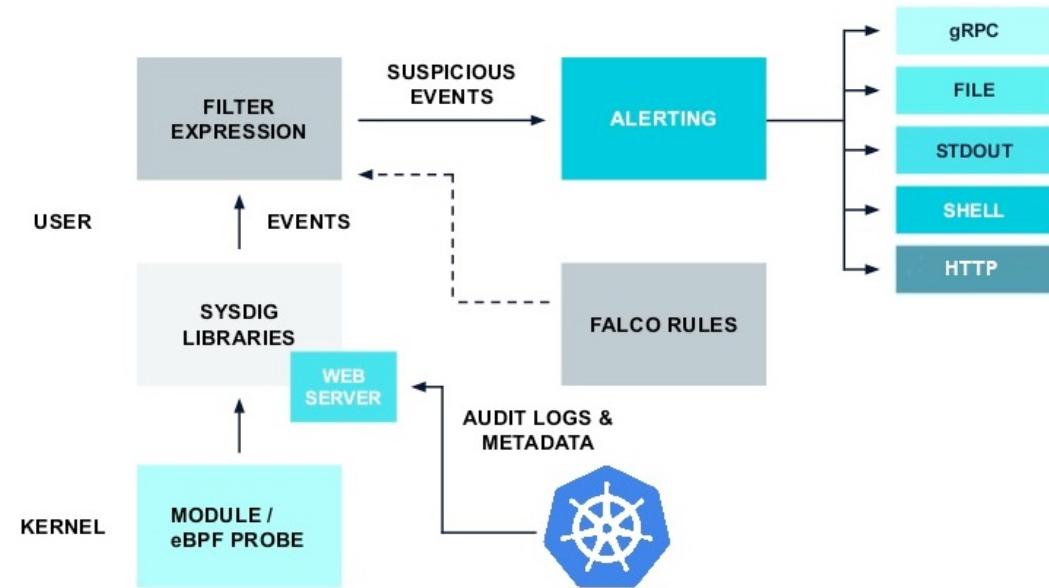
Falco, the cloud-native runtime security project, is the de facto Kubernetes threat detection engine



What is Falco?

- Runtime security tool
- Uses system calls to secure and monitor a system
- Falco ships with a default set of rules that check the kernel for unusual behavior

Falco extended architecture



CNCF helps you along the way



CLOUD NATIVE TRAIL MAP

The Cloud Native Landscape (*Landscape*) has a large number of options. This Cloud Native Trail Map is a recommended process for leveraging open source cloud native technologies. At each step, you can choose a vendor-supported offering or do it yourself, and everything after step #3 is optional based on your circumstances.

HELP ALONG THE WAY

A. Training and Certification

Consider training offerings from CNCF and then take the exam to become a Certified Kubernetes Administrator or a Certified Kubernetes Application Developer cncf.io/training

B. Consulting Help

If you want assistance with Kubernetes and the surrounding ecosystem, consider leveraging a Kubernetes Certified Service Provider cncf.io/kcsp

C. Join CNCF's End User Community

For companies that don't offer cloud native services externally cncf.io/enduser

WHAT IS CLOUD NATIVE?

Cloud native technologies empower organizations to build and run scalable applications in modern, dynamic environments such as public, private, and hybrid clouds. Containers, service meshes, microservices, immutable infrastructure, and declarative APIs exemplify this approach.

These techniques enable loosely coupled systems that are resilient, manageable, and observable. Combined with robust automation, they allow engineers to make high-impact changes frequently and predictably with minimal toll.

The Cloud Native Computing Foundation seeks to drive adoption of this paradigm by fostering and sustaining an ecosystem of open source vendor-neutral projects. We democratize state-of-the-art patterns to make these innovations accessible for everyone.

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Wrap up

- Introduction
- AKS
- CNCF
 - Keda
 - Argo
 - Kyverno
 - Falco
- Wrap up

Learn more

- CNCF survey: <https://www.cncf.io/reports/cncf-annual-survey-2022/>
- All project sites
- Support your favorite projects in GitHub!
- CNCF End User Technology Radar: <https://radar.cncf.io>
- Keynote: Predictions from the Technical Oversight Committee (TOC) - Liz Rice, CNCF TOC Chair
- https://youtu.be/bVijUeXV_is
- CNCF Youtube
- Microsoft:
- Workshop: <https://www.microsoft.com/azure/partners/news/article/azure-kubernetes-service-workshop>
- MSFT Learn: <https://learn.microsoft.com/en-us/training/modules/intro-to-azure-kubernetes-service/>
- Links and slides: github.com/annietalvasto

[BACK TO EPISODES](#)

Adventures in open source with Tom Kerkhove

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EPISODE SUMMARY

Today's guest on Cloud Gossip is Tom Kerkhove!

Tom works as an Azure Architect at Codit, he's a Github Star, CNCF Ambassador, Azure MVP and he's active as maintainer of Promitor and Keda.

Tom is going to talk to us about how the world of Open-Source projects works, the importance of supporting them, and his personal experience as a maintainer.

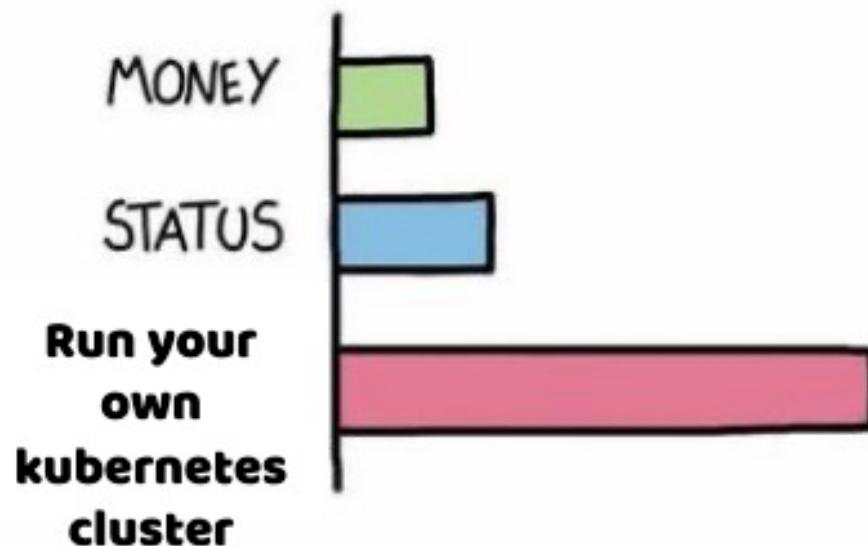
EPISODE NOTES

We're going to learn about KEDA and CNCF Sandbox projects, what they are and how they work, and learn about some of Tom's insights in the industry.



WHAT GIVES PEOPLE FEELINGS OF POWER

Thank you!



@ianholowayuk..