

Top new CNCF projects to look out for

What value do you get by attending this talk?

- Get inspired
- Get to know cool CNCF projects

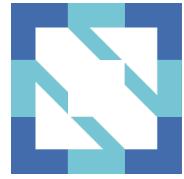
Who am I?

@AnnieTalvasto

Tech and startup community



- Marketing at Microsoft
- Kubernetes & CNCF meetup co-organizer
- Startup-coach
- Co-host of Cloudgossip podcast - cloudgossip.net
- Hobbies: Running, playing tennis and web comics



**CLOUD NATIVE
COMPUTING FOUNDATION**

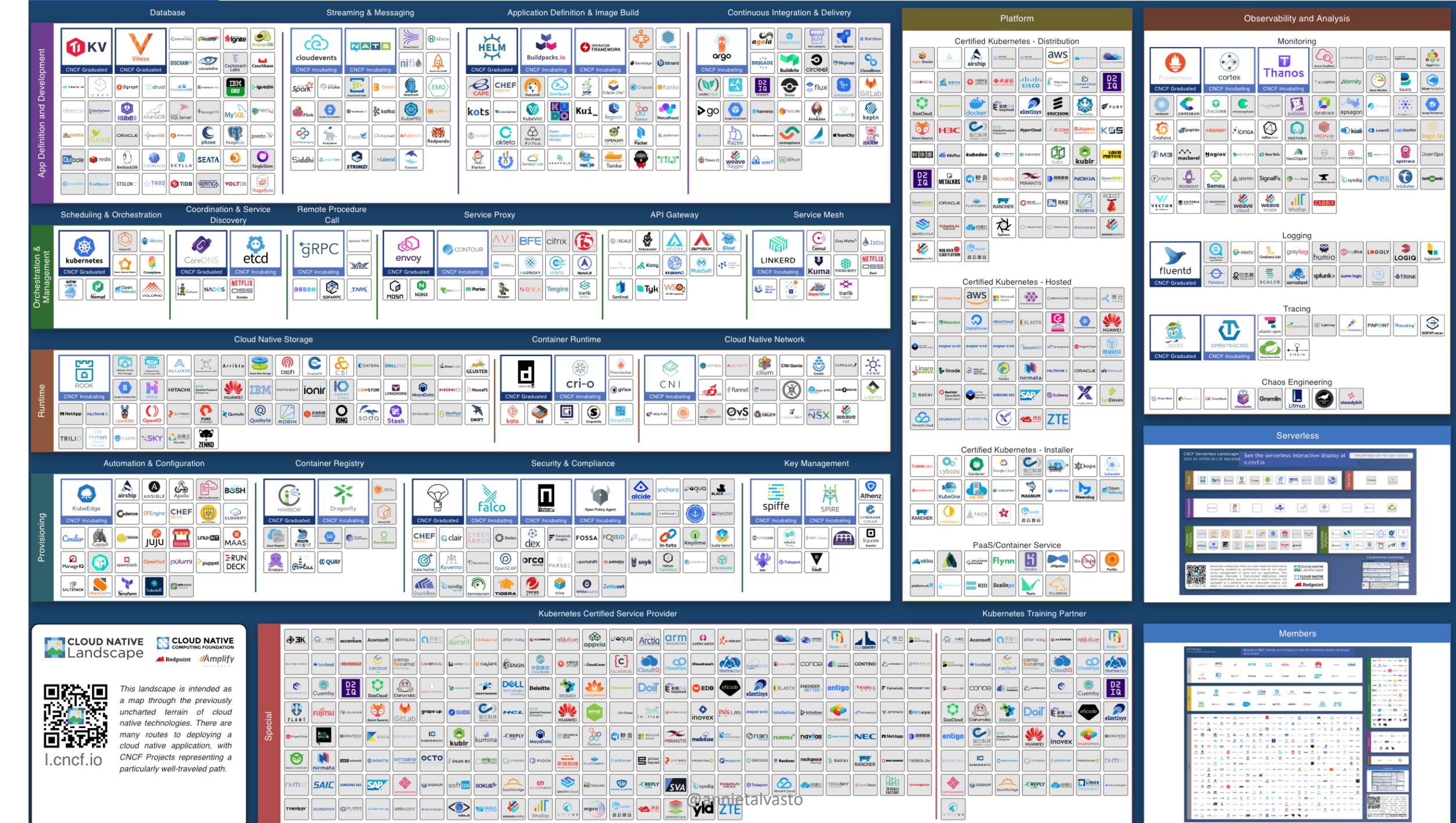
Building sustainable ecosystems for cloud native software

The Cloud Native Computing Foundation (CNCF) hosts critical components of the global technology infrastructure. CNCF brings together the world's top developers, end users, and vendors and runs the largest open source developer conferences. CNCF is part of the nonprofit Linux Foundation.

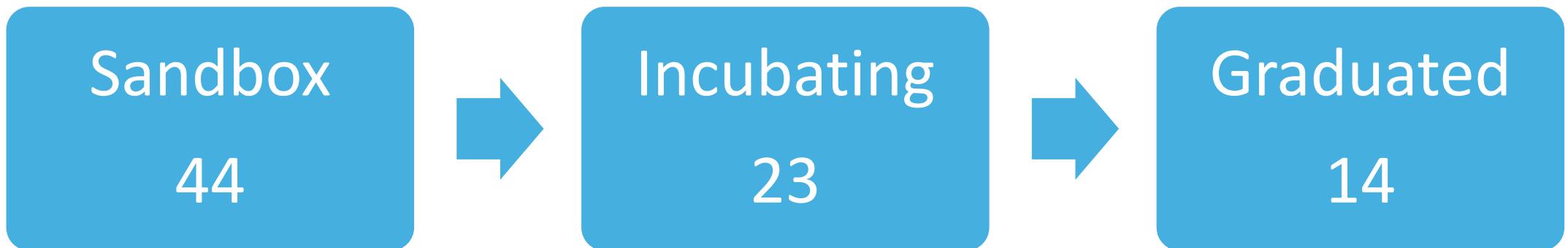
Impact of cloud native

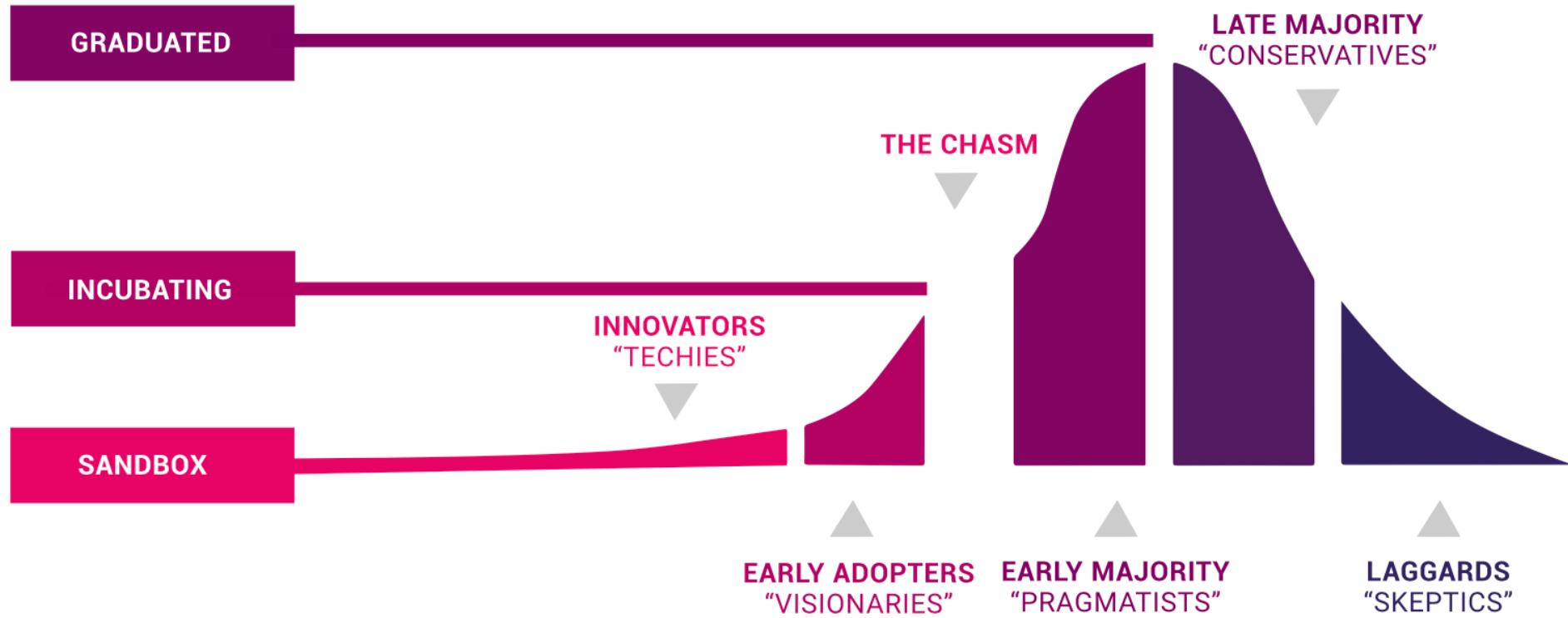
- The use of containers in production has increased to 92%, up from 84% last year, and up 300% from our first survey in 2016.
- Kubernetes use in production has increased to 83%, up from 78% last year.

- CNCF 2020 Survey



3 stages of CNCF projects





The projects in this session

- This is not scientific selection method, nor is it fortune telling
- Expectation management: usually CNCF intro to projects talks are around 30 to 45 minutes – this is a 45 min talk covering 4 projects.
- What matters to me – what I think is cool
- Helm, Linkerd, Kudo, Keda



The package manager for Kubernetes

Helm is the best way to find, share, and
use software built for Kubernetes.



What is Helm?

- Package manager for Kubernetes
- Homebrew, snap or chocolatey for kubernetes
- **Helm maintainer:**
- Package management: Tooling that enables someone who has knowledge of an application and a platform to package up an application so that **someone else who has neither** extensive knowledge of the application or the way it needs to be run on the platform **can use it.**

What are the benefits of Helm?

- **Manage Complexity**
- **Easy Updates**
- **Simple Sharing**
- **Rollbacks**

What are the principles of Helm?

- Helm takes security very seriously
- Multiple maintainers, multiple companies.
- Power user email lists, release candidates.
- Supports mac, linux, windows
- Passed 1 million downloads a month already in 2019

How is Helm used?

- Charts
- What are the prerequisites?
 - A Kubernetes cluster
 - Deciding what security configurations to apply to your installation, if any
 - Installing and configuring Helm.



Artifact HUB - CNCF sandbox project

- Find Helm charts easily
- Find, install and publish Kubernetes packages
- The Artifact Hub goal is to provide a single experience for consumers that any CNCF project can leverage.

Helm Demo:

Easily deploy complex
application (WordPress) to
Kubernetes using a helm chart

Announcing Linkerd 2.9! mTLS for all TCP, and much more. [Read more »](#)



A different kind of service mesh

Ultra light, ultra simple, ultra powerful. Linkerd adds security, observability, and reliability to Kubernetes, *without* the complexity. CNCF-hosted and 100% open source.

[Get Started](#)[Join the Community](#)

 Star 6,489  Watch 184  Fork 703



Thriving open source community

Linkerd is 100% Apache-licensed, with an incredibly fast-growing, active, and friendly community.

[Come join the fun!](#)

Simple, minimalist design

No complex APIs or configuration. For most applications, Linkerd will "just work" out of the box.



Ultralight and ultra fast

Built in Rust, Linkerd's data plane proxies are incredibly small (<10 mb) and blazing fast (p99 < 1ms).



Installs in seconds with zero config

Linkerd's control plane installs into a single namespace, and services can be safely added to the mesh, one at a time.

Linkerd

- Service mesh
- Ultralight, ultrafast, security-first service mesh for Kubernetes.
- The overall goal is to reduce mental overhead of having service mesh
- What does it do?
 - Observability
 - Reliability
 - Security

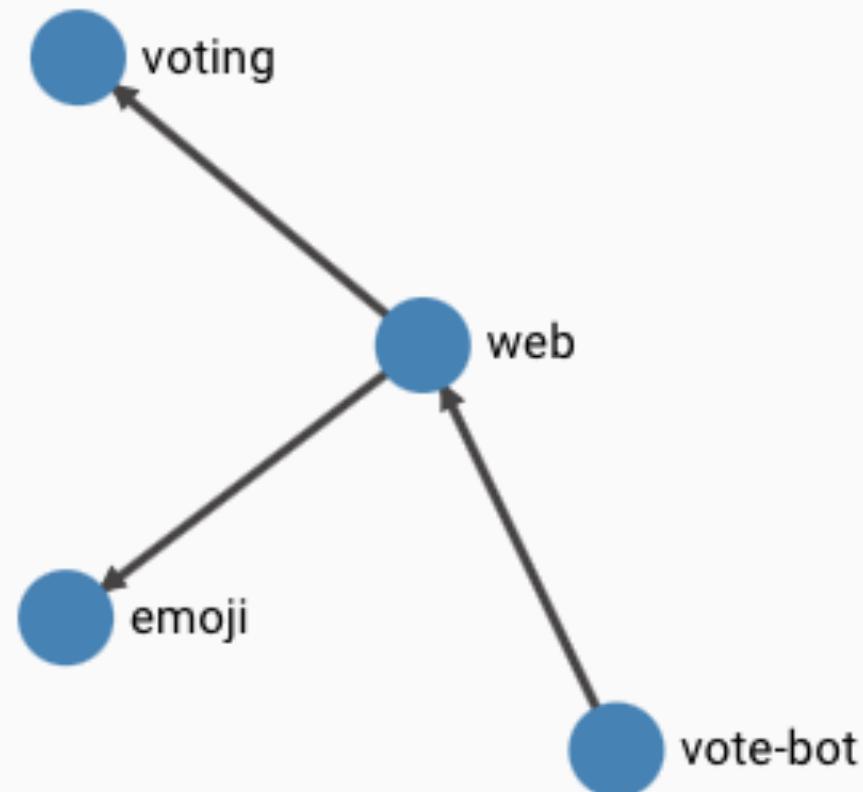
What are the benefits of Linkerd?

- **Thriving open source community**
- **Simple, minimalist design**
- **Deep Runtime Diagnostics**
- **Ultralight and ultra fast**
- **Installs in seconds with zero config**
- **Actionable service metrics**

What are the Linkerd principles?

- Just works
- Ultralight
- Simple
- Security first
- Linkerd has a custom proxy, Linkerd2-proxy.

Linkerd demo app



What is needed to use Linkerd:

```
cat deployment.yml | linkerd inject - | kubectl apply -f -
```

Linkerd Demo: Easy real-time service metrics



The Kubernetes Universal Declarative Operator

↔ Get Started ↔

Focus on your software ...

The Kubernetes Universal Declarative Operator (KUDO) is a highly productive toolkit for writing Kubernetes Operators.

... not on deploying to Kubernetes

Using KUDO you can deploy your applications, have the tools needed to operate them, and understand how they're behaving – all without a Ph.D. in Kubernetes.

Automate Day-2 Operations

KUDO lets you configure an Operator's entire lifecycle using a declarative spec, including things like backup/restore. You don't have to write Go unless you want to.

What is KUDO?

KUDO is a toolkit that makes it easy to build [Kubernetes Operators](#), in most cases just using YAML.

It provides a set of pre-built Operators, that you can use out of the box or easily customize.

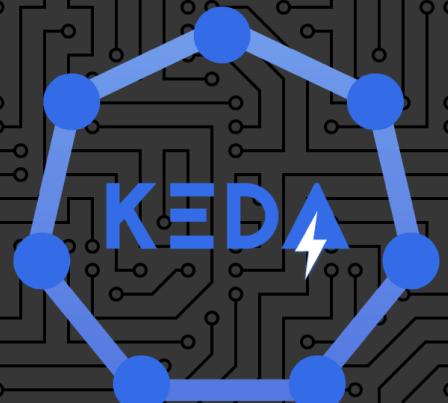
Finally, KUDO lets you standardize the way you run Operators.

What is Kudo?

- Stateless vs stateful app
- Kubernetes has been very focused on stateless apps – and stateful apps do not like it -> solution: operators.
- Building operators requires deep expertise and may require thousands of lines of code -> substantial engineering resource needed.
- **Kudo = Kubernetes Universal Declarative Operator**

What are the benefits of Kudo?

- Kudo can create operators without needing deep knowledge of kubernetes or coding – by defining lifecycle stages.
- Just kubernetes APIs, a lot easier to learn
- Has kubernetes native management, aka using of kubectl and other familiar tools



Kubernetes Event-driven Autoscaling

Application autoscaling made simple

[Concepts](#)[Deploying KEDA](#)[Architecture](#)[Scalers](#)[Blog](#)

What is KEDA?

KEDA is a [Kubernetes](#)-based Event Driven Autoscaler. With KEDA, you can drive the scaling of any container in Kubernetes based on the number of events needing to be processed.

KEDA is a single-purpose and lightweight component that can be added into any Kubernetes cluster. KEDA works alongside standard Kubernetes components like the [Horizontal Pod Autoscaler](#) and can extend functionality without overwriting or duplication. With KEDA you can explicitly map the apps you

@annietalvasto

What is Keda?

- Serverless – focus on your code, event driven code and scaling, on-demand compute, pay-per-use
- Default Kubernetes Scaling is not well suited for event driven applications, kubernetes is more for resource based scaling (CPU and memory).
- Event driven scale controlling that can run inside any kubernetes cluster.
- You can install it into new or existing clusters.

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

Wrap up

CNCF overview

Projects:

- Helm
- Linkerd
- Kudo
- Keda
- (+ Artifact hub)

Learn more

- All project sites
 - Helm - helm.sh
 - Linkerd - linkerd.io
 - Kudo - kudo.dev
 - Keda - keda.sh
- Support your favorite projects in GitHub!
- CNCF survey - <https://www.cncf.io/blog/2020/11/17/cloud-native-survey-2020-containers-in-production-jump-300-from-our-first-survey/>
- Keynote: Predictions from the Technical Oversight Committee (TOC) - Liz Rice, CNCF TOC Chair - <https://www.youtube.com/watch?v=bESogtuHwX0&feature=youtu.be>
- Techworld with Nana - <https://www.youtube.com/channel/UCdngmbVKX1Tgre699-XLIUA>
- CNCF youtube - <https://www.youtube.com/channel/UCvqbFHwN-nwalWPjPUKpvTA>
- Links and slides: aka.ms/anniematerials

[BACK TO EPISODES](#)

Adventures in open source with Tom Kerkhove

JANUARY 14TH, 2021 | 46:06 | S2:E4

[SHARE](#)[EMBED](#)[RECAST](#)[SUBSCRIBE](#)[DOWNLOAD MP3](#)EPISODE DETAILS / [TRANSCRIPT](#)

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.

He's going to talk about how GitHub is helping the world of Open Source projects and how he uses the platform to engage with the users.



One thing to take away

