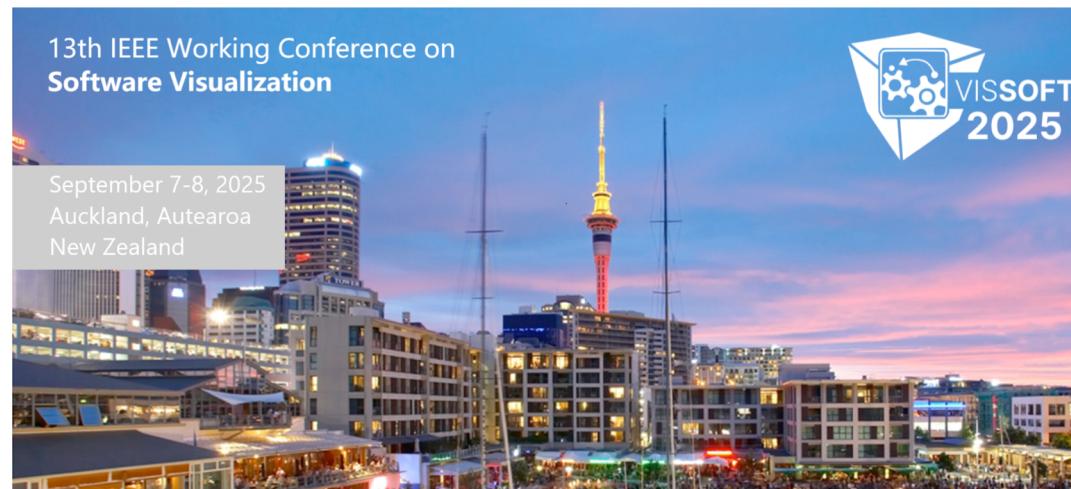


Visualizing Cloud-native Applications with KubeDiagrams

Philippe Merle - Inria Lille - France

Fabio Petrillo – ETS Montréal – Canada

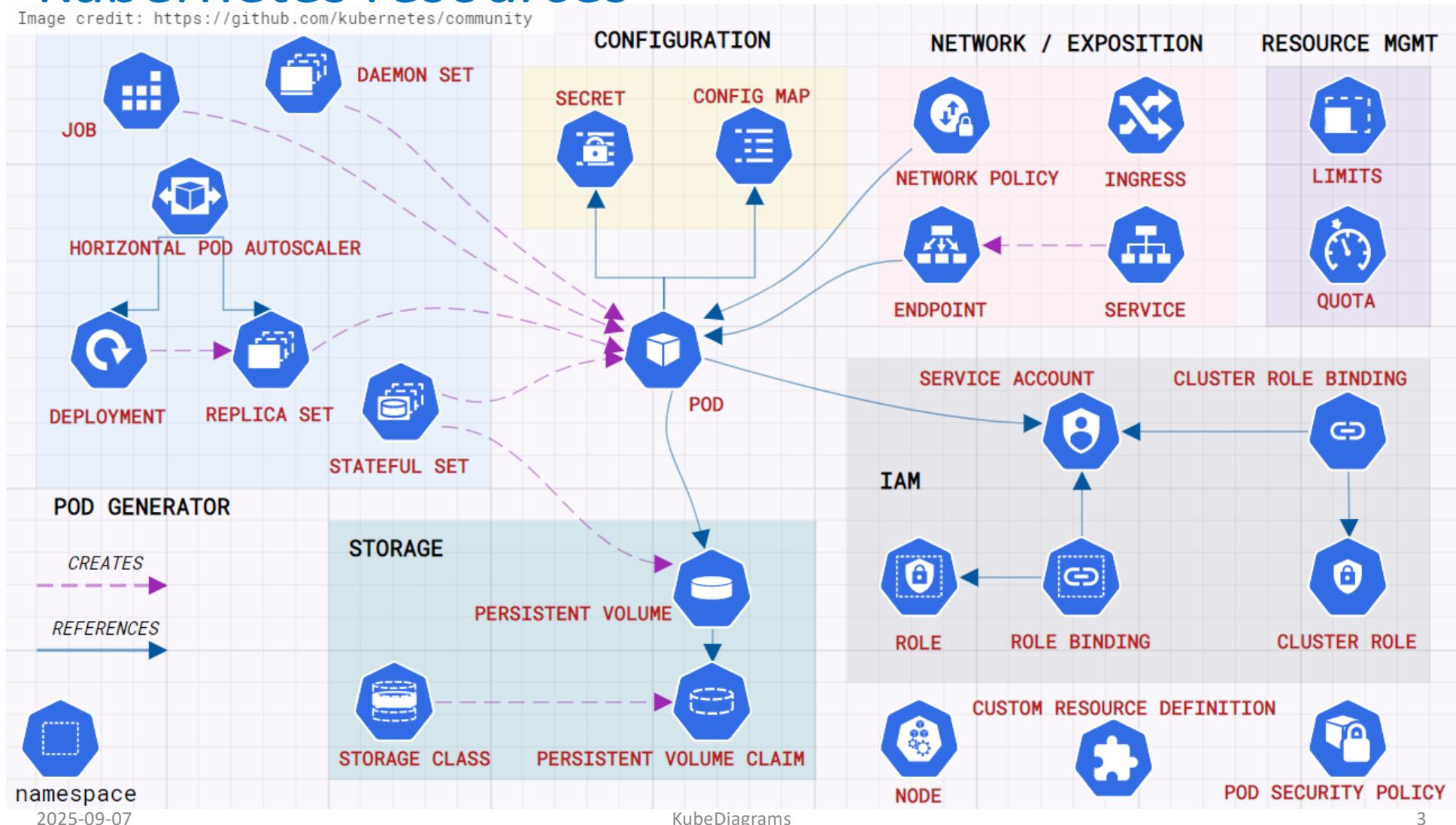


Cloud-native applications

- Natively built to exploit **Cloud Computing**
- Based on **microservices**
- Executed in **containers**
- Orchestrated by **Kubernetes**

Kubernetes resources

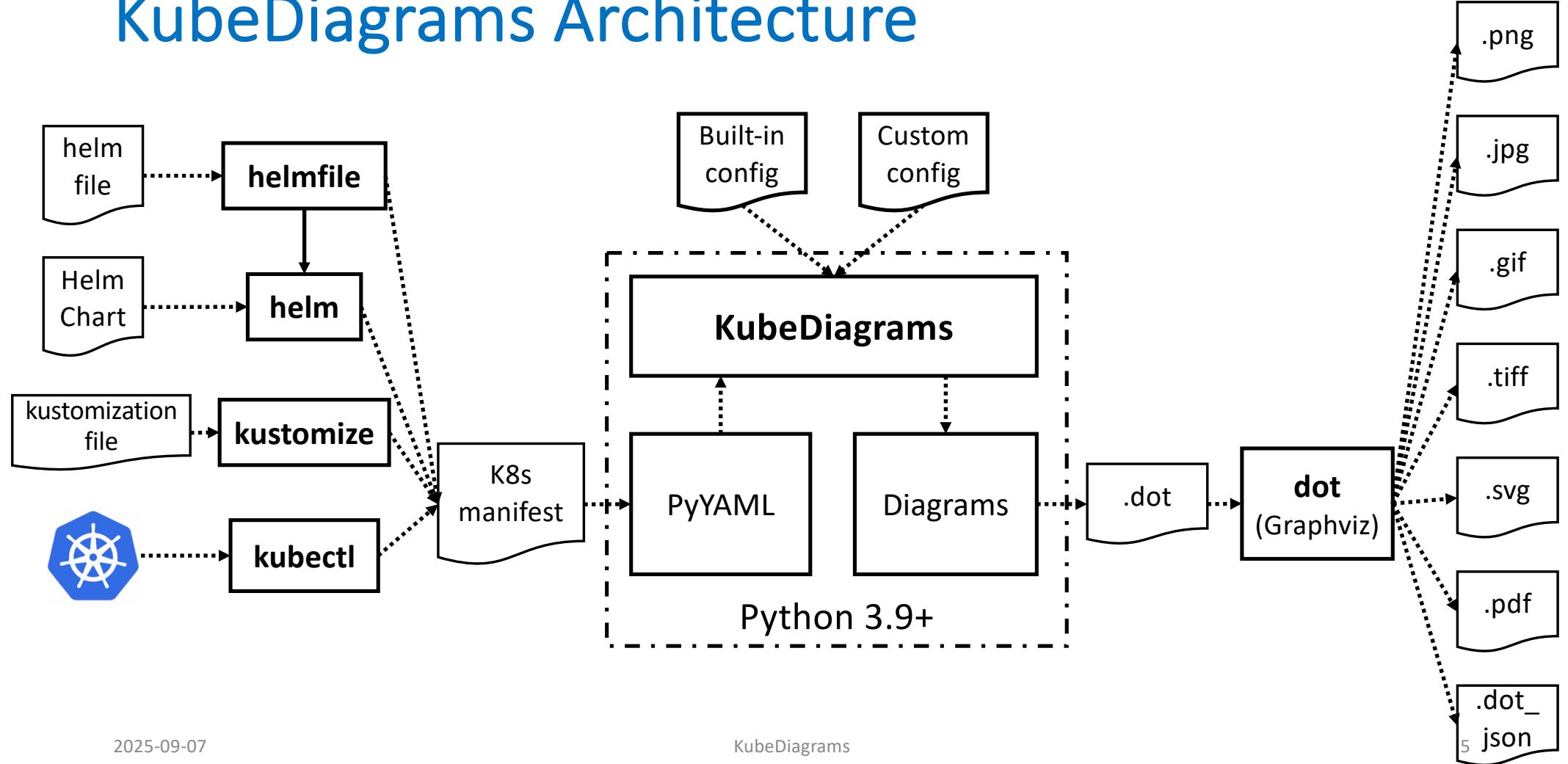
Image credit: <https://github.com/kubernetes/community>



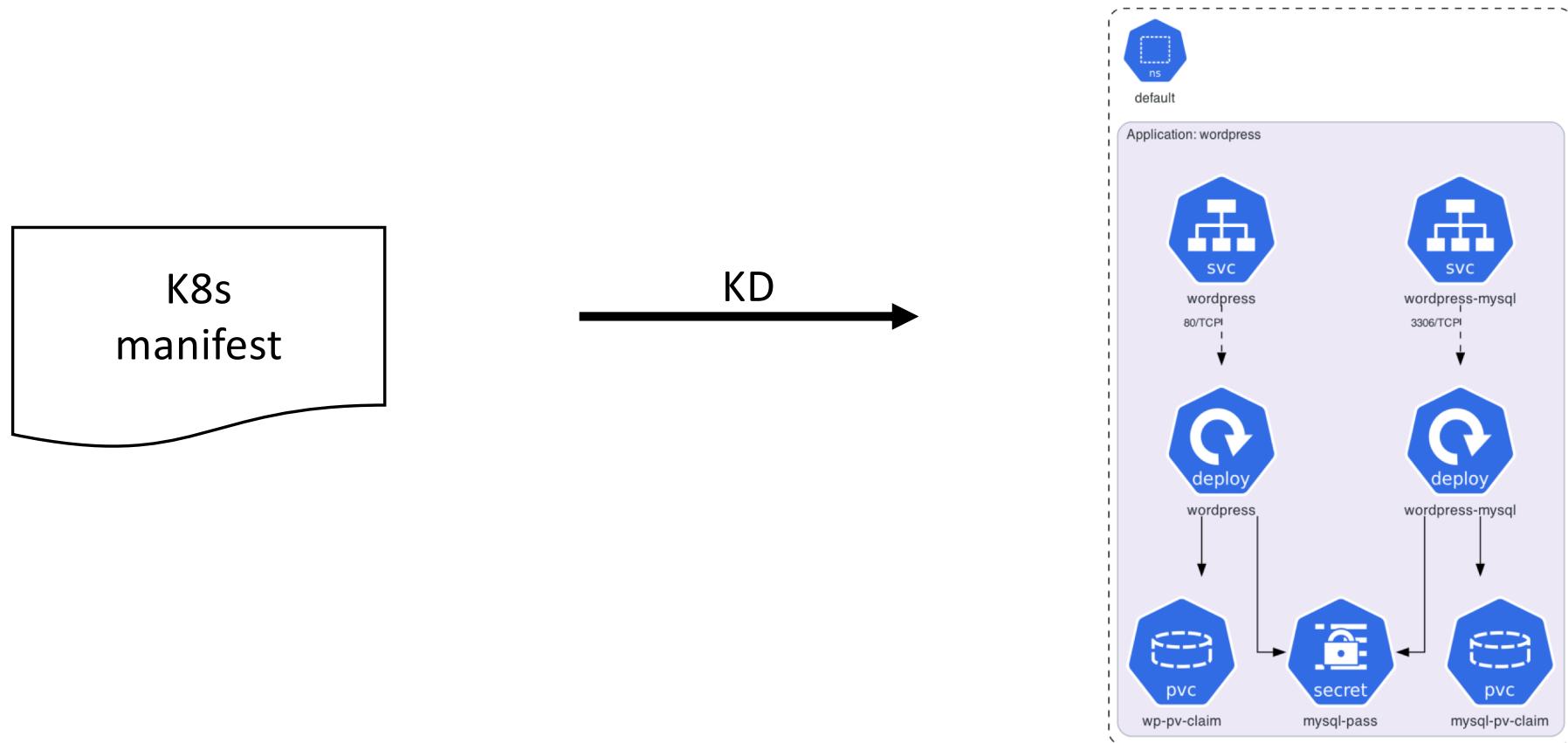
KubeDiagrams

- Generate **Kubernetes architecture diagrams** from any Kubernetes artifact, i.e., manifest files, kustomization files, Helm charts, helmfile descriptors, and actual cluster state
- Its key features are the support of:
 1. **most of all Kubernetes built-in resources**
 2. **any Kubernetes custom resources**
 3. **customizable resource clustering**
 4. **declarative custom diagrams**
 5. **an interactive diagram viewer**
 6. **a very large set of examples**
- Available as Python package, container image, NIX flake, kubectl plugin, and GitHub action

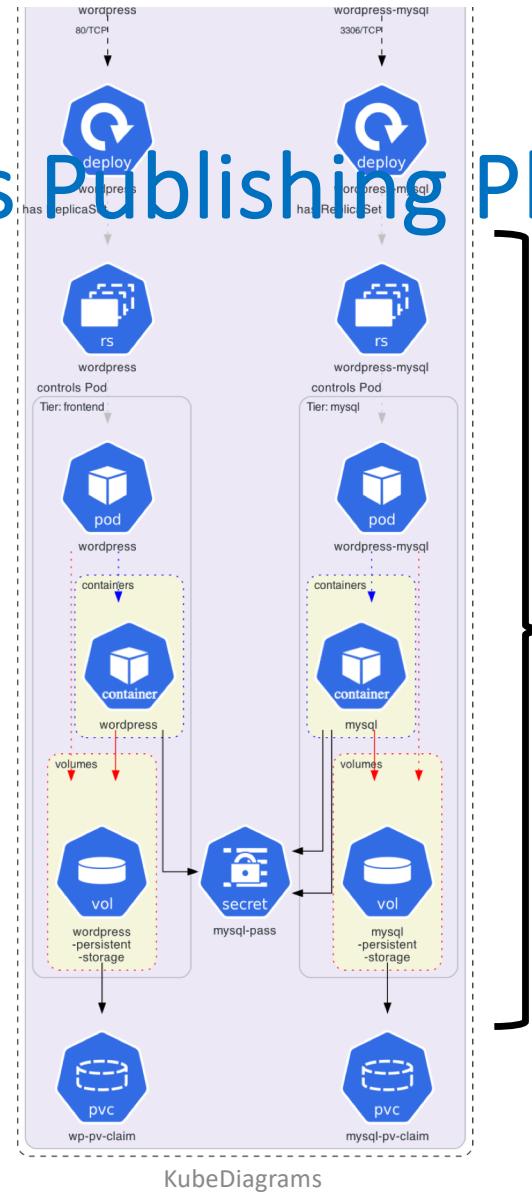
KubeDiagrams Architecture



UC#1: WordPress Publishing Platform



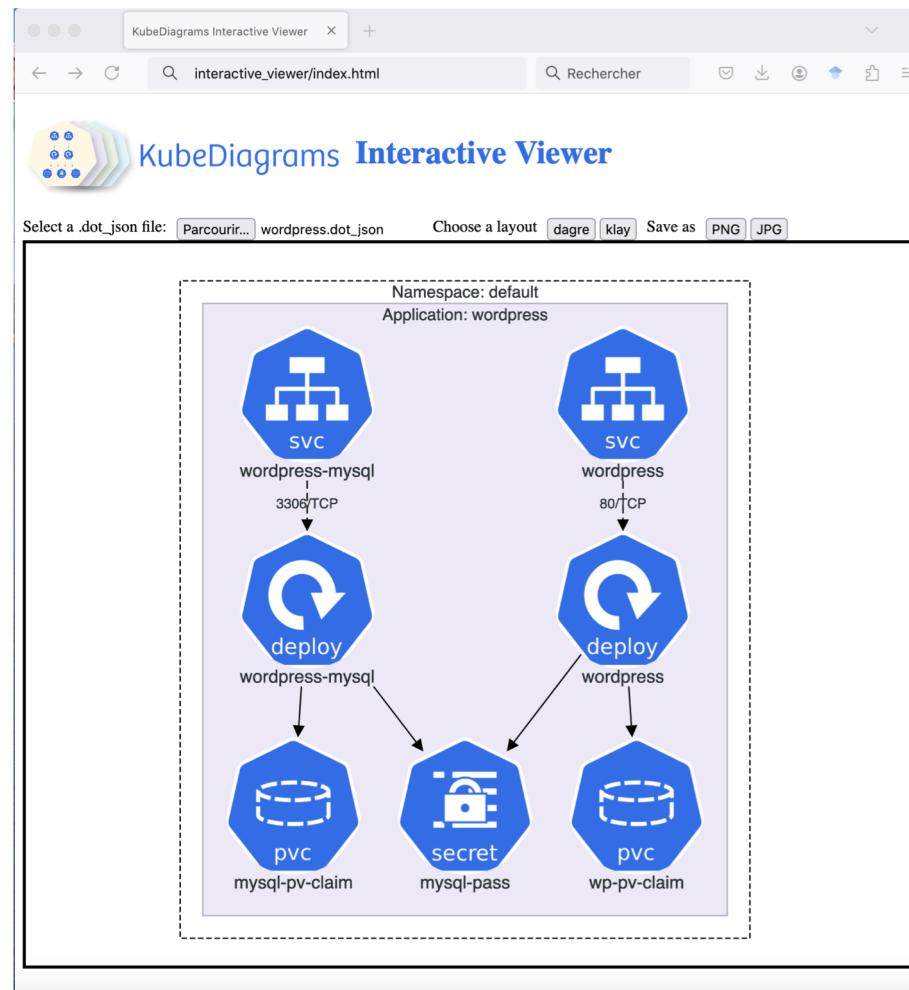
UC#1: WordPress Publishing Platform



Zoom inside workloads

ReplicaSet
Pods
Containers
Pod Volumes

UC#1: WordPress Publishing Platform



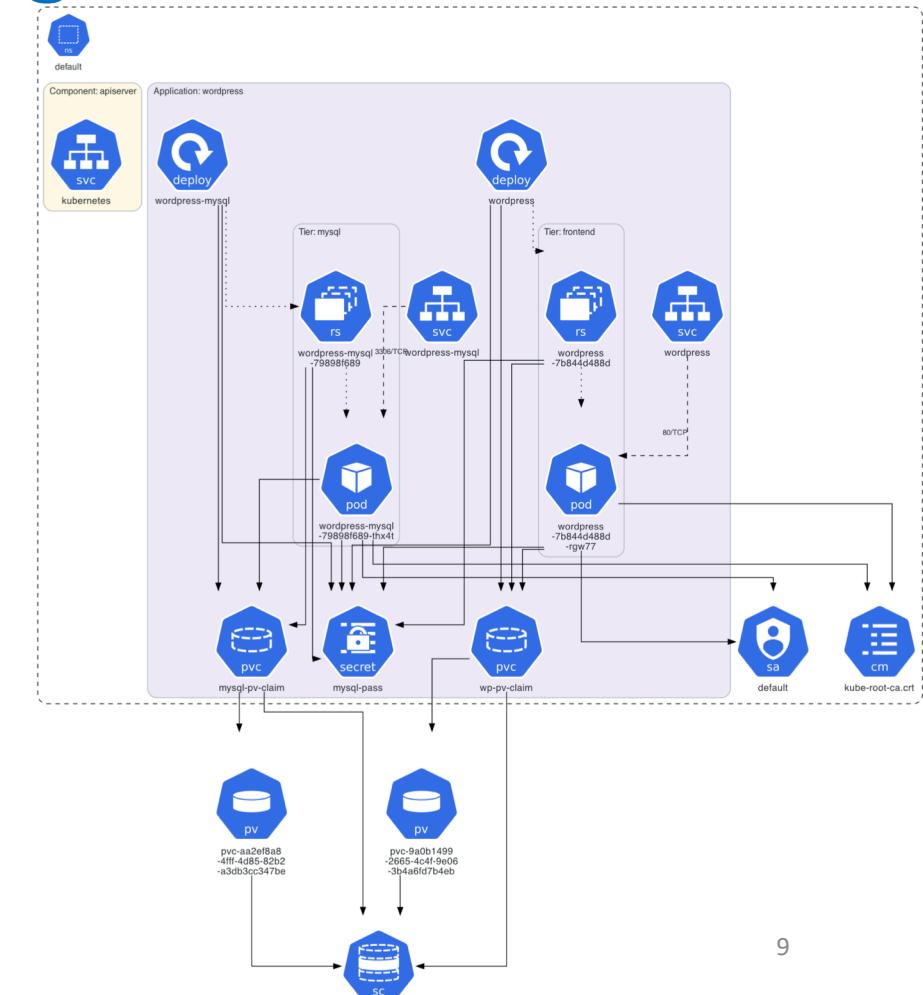
Zoom in/out
Open/close clusters
Move nodes
Tooltips everywhere

UC#1: WordPress Publishing Platform

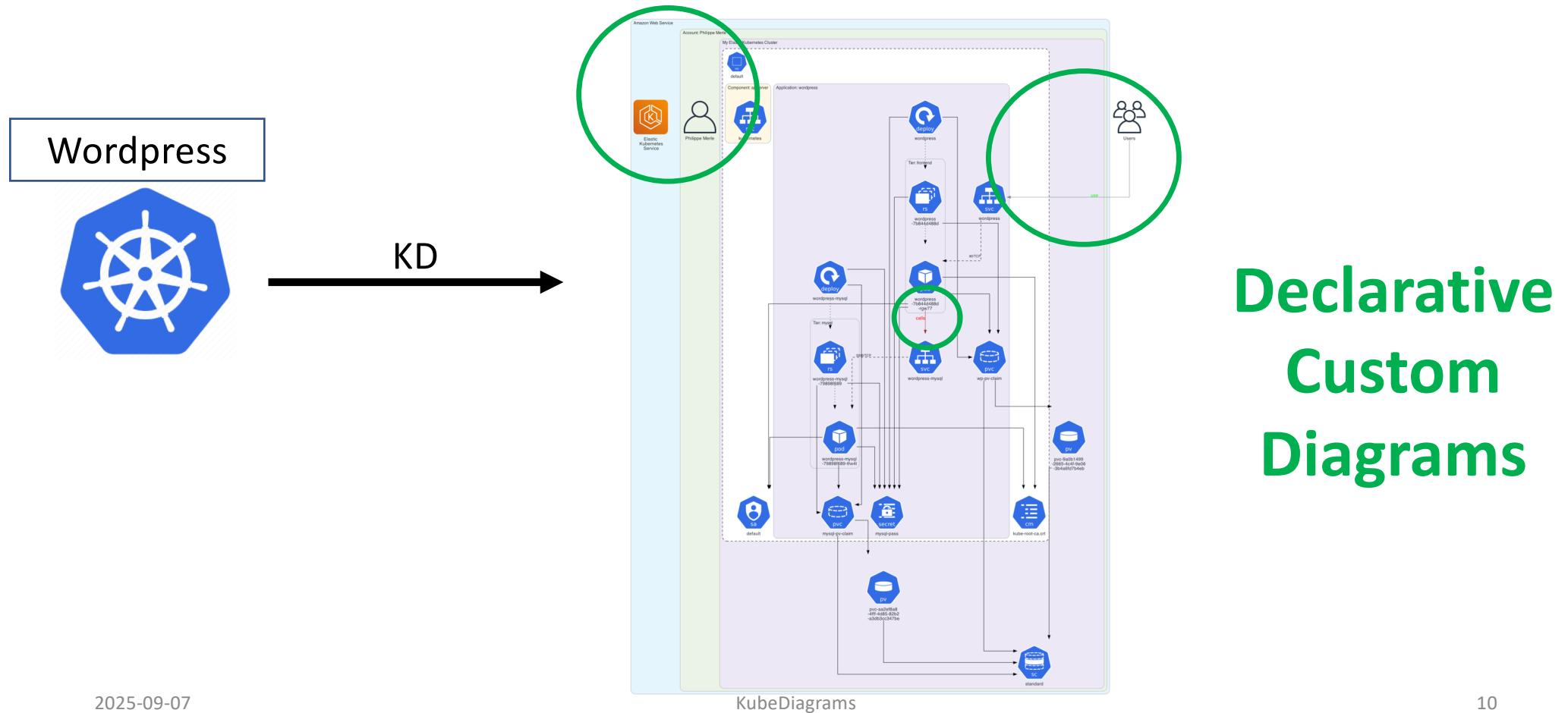
Wordpress



KD



UC#1: WordPress Publishing Platform



UC#2: cert-manager Operator



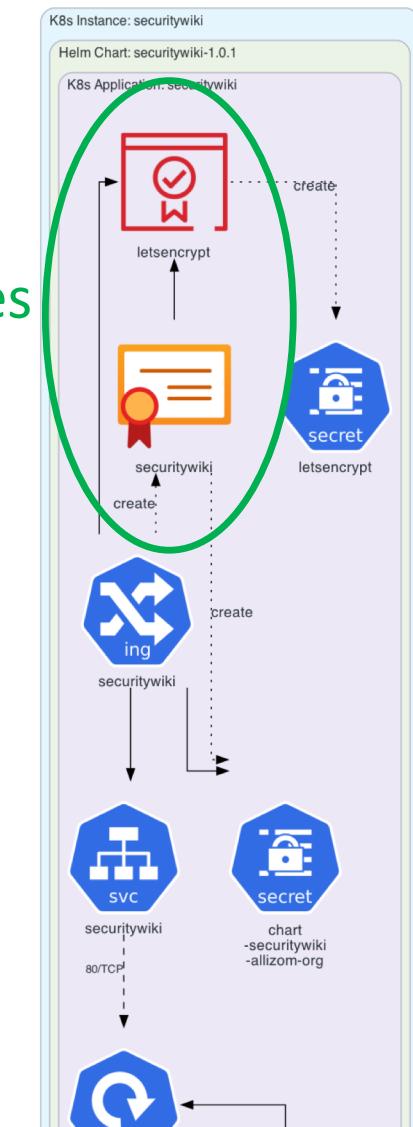
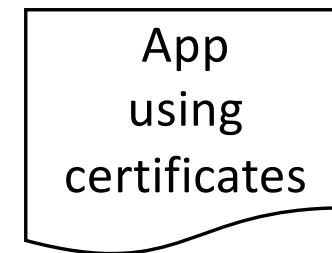
2025-09-07

KubeDiagrams

11

UC#2: cert-manager Operator

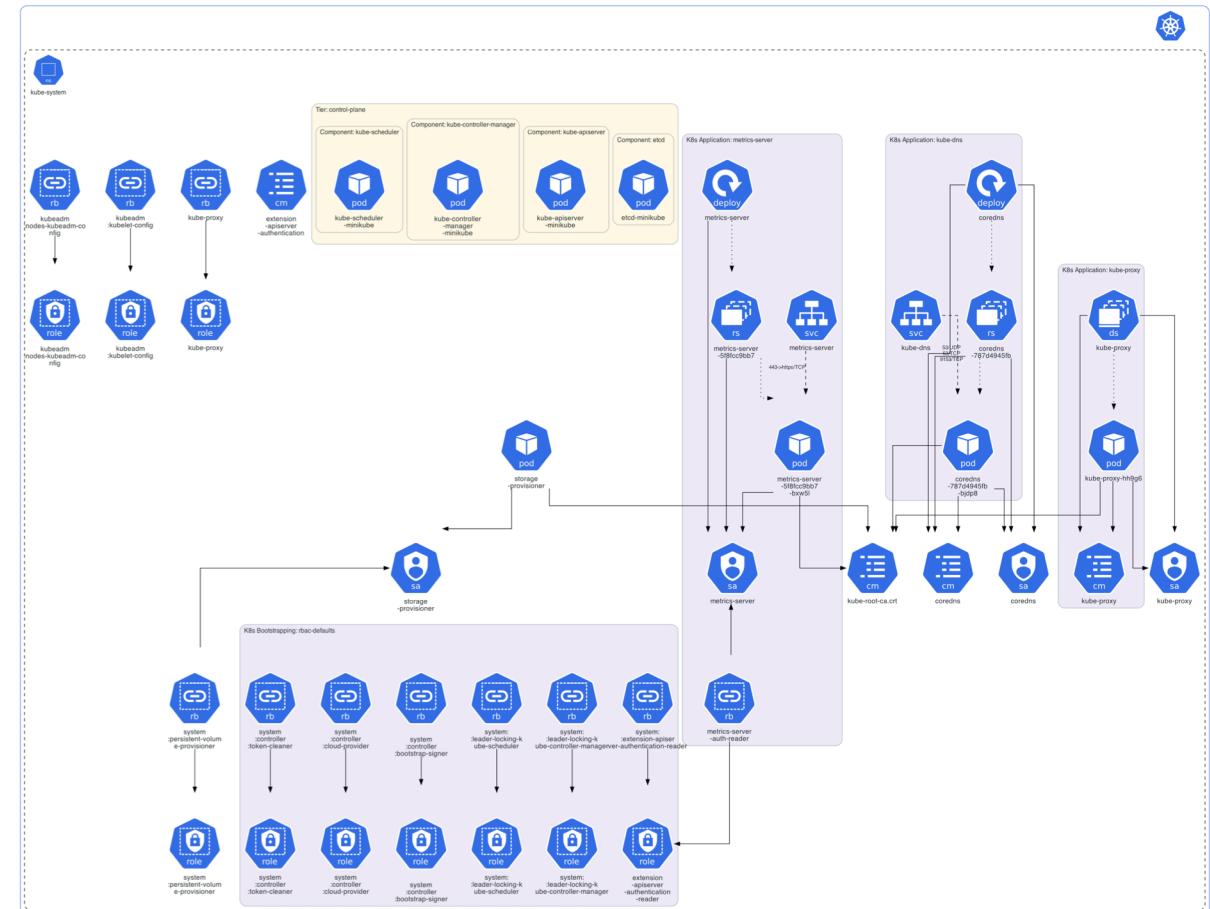
Custom
Resources



UC#3: minikube control plane

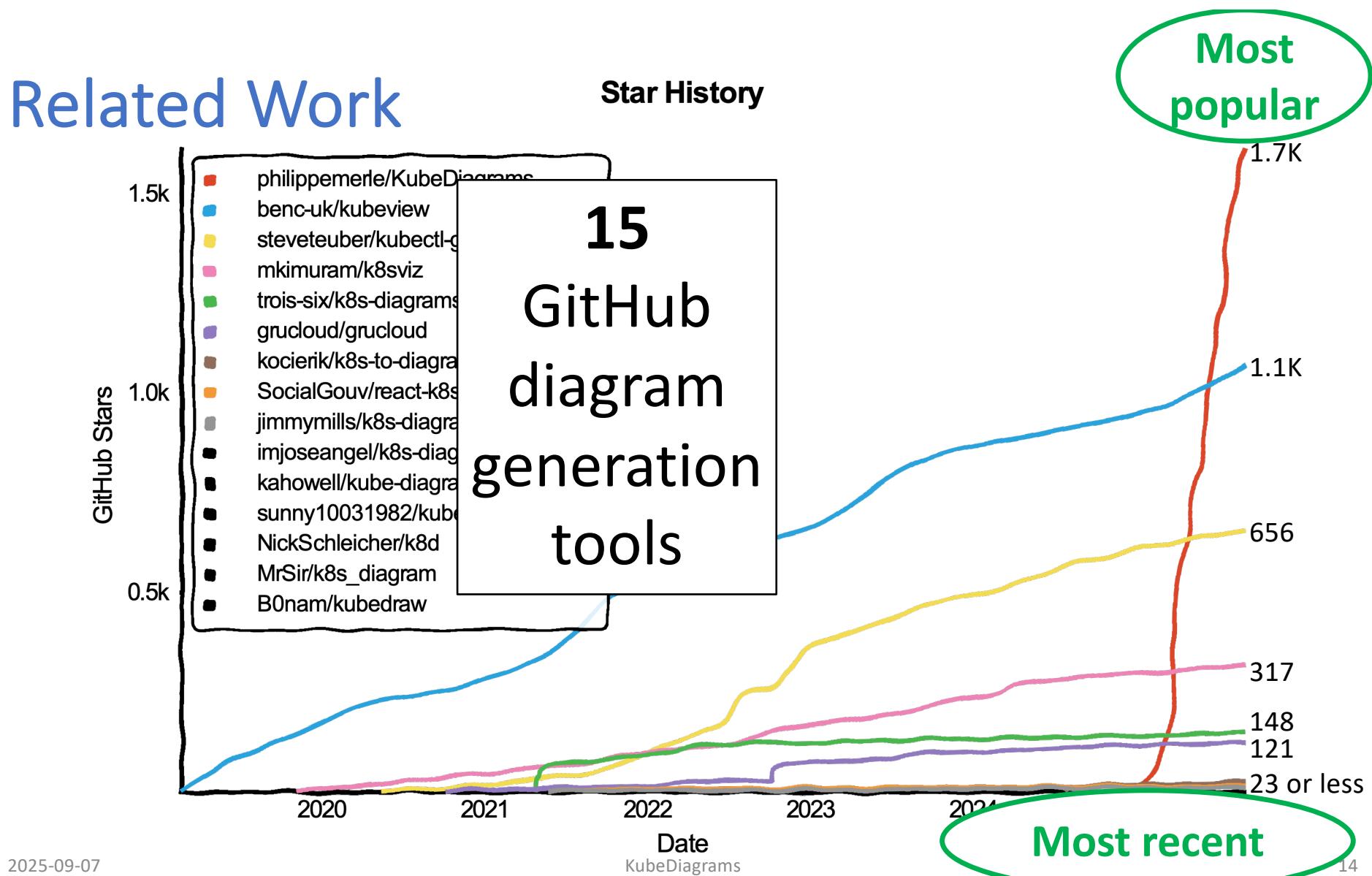


KD →

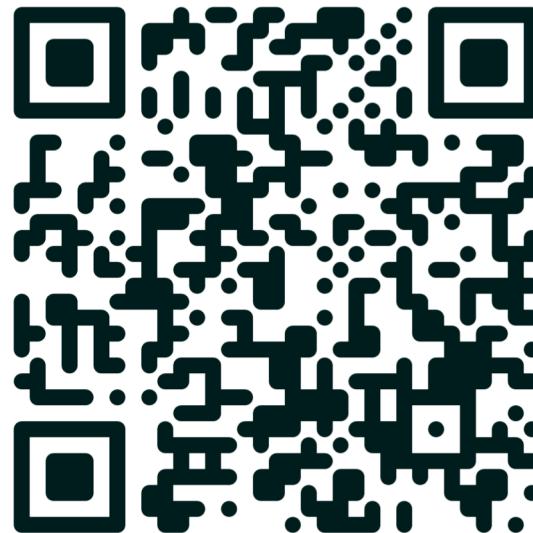


Related Work

Star History



Thank you for your attention!



<https://github.com/philippemerle/KubeDiagrams>

Try KubeDiagrams and you'll love it!