A platform to build a serverless platform on top of the Kubernetes platform
Johannes M. Scheuermann
Macht Dinge mit der Cloud

Official: Cloud Platform Engineer
Unofficial: Chaos Monkey

Hendrik Still
Macht Dinge mit in der JVM

Official: Application Developer
Unofficial: “DROP TABLE”-Expert
Kubernetes-based platform to build, deploy, and manage modern serverless workloads.
Agenda

› Overview
› Build
› Serving
› Eventing
› Conclusion
Overview
Overview

Users and Systems (IoT) use applications developed and deployed by developers and hosted by operators.

Developers build and deploy apps.

API

Operators deploy and manage Knative instances using Kubernetes API and tools.

Knative

Platform Providers (such as Google Cloud Platform) provide underlying infrastructure.

Kubernetes

GitHub

Contributors develop and contribute code and docs to the OSS project.

Gloo
Kubernetes native builds
Build Templates → Build → Build Step

Each step is a init-container inside a pod
Build - Features

› Authentication
  › git / basic auth / Docker

› Build-templates: [https://github.com/knative/build-templates](https://github.com/knative/build-templates)
  › Predefined templates
  › Can be customized

› Pods share workspace over emptydir
Bonus Question:
Why init-containers?
Serving
Set of APIs that help you host applications that serve traffic. Provides features like custom routing and autoscaling.
Serving - components
Serving - Features

› Rapid deployment of serverless containers
› Automatic scaling up and down to zero
› Routing and network programming for Istio (or Gloo) components
› Point-in-time snapshots of deployed code and configurations
› Source-to-App
› Implements own auto-scaler (more aggressive + scale-to-zero)
Eventing
... provides composable **primitives** to enable **late-binding** event sources and event consumers.
Eventing - Primitives

› Source
› Subscription
› Channel

› Broker
› Trigger
Eventing - Brokers and Triggers
Demo Overview
Conclusion
Conclusion

› Better abstraction than “bare” Kubernetes
› Simple Deployment model
› Can be used to build a “platform”
› Google Product: Cloud Run
› Gloo doesn’t support all features (issues with events)
› Same cluster one worked one didn’t
› Still in the early days (alpha/experimental)
› Adding complexity (istio+ knative)
› Many stakeholders
Q&A
Vielen Dank

Hendrik Still / Johannes M. Scheuermann

inovex GmbH
Ludwig-Erhard-Allee 6
76131 Karlsruhe

hstill@inovex.de
jscheuermann@inovex.de
Reading list

› https://cloud.google.com/knative
› https://github.com/knative/build-templates
› https://github.com/GoogleCloudPlatform/knative-build-tutorials
› https://codelabs.developers.google.com/codelabs/knative-intro
Images

› https://www.pexels.com/photo/black-and-white-dartboard-1552617
› https://www.pexels.com/photo/person-holding-square-white-ceramic-plate-687824