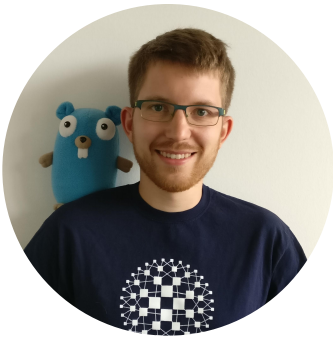




Knative

A platform to build a serverless platform on
top of the Kubernetes platform

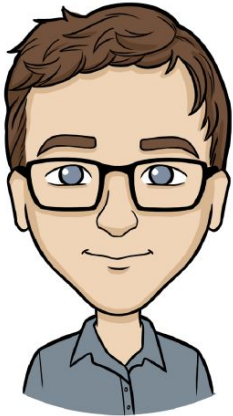


Christoph Petrausch

Wal und Gopher Dompteur

Official: Linux Systems Engineer

Unofficial: Chaos Monkey



Hendrik Still

Macht Dinge in der JVM

Official: Application Developer

Unofficial: “DROP TABLE”-Expert

Kubernetes-based platform to build,
deploy, and manage modern serverless
workloads.

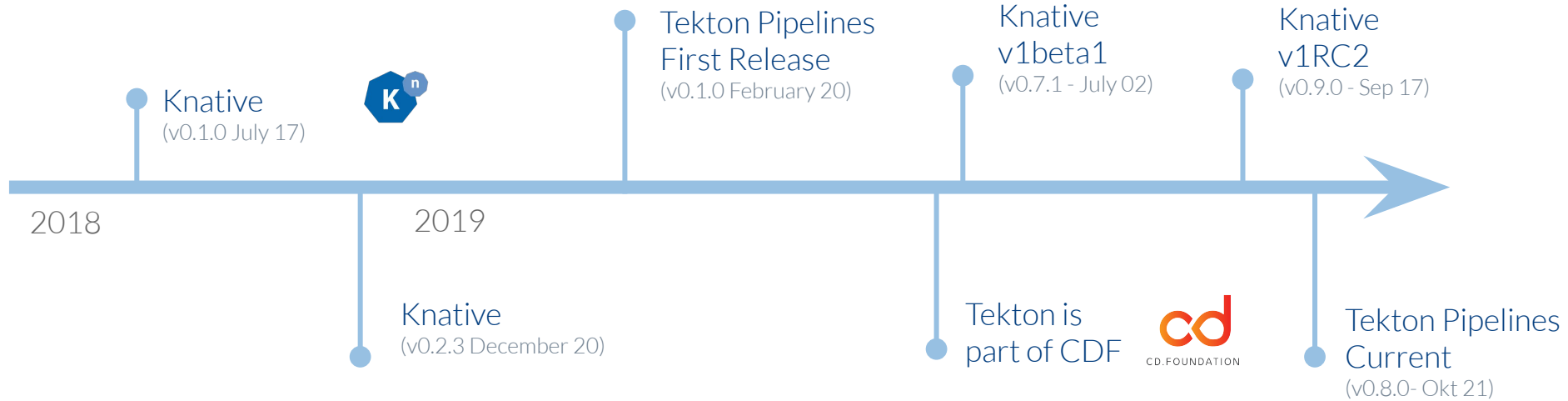
Agenda

- › Overview
- › Tekton Pipelines
- › Serving
- › Eventing
- › Conclusion

What to expect

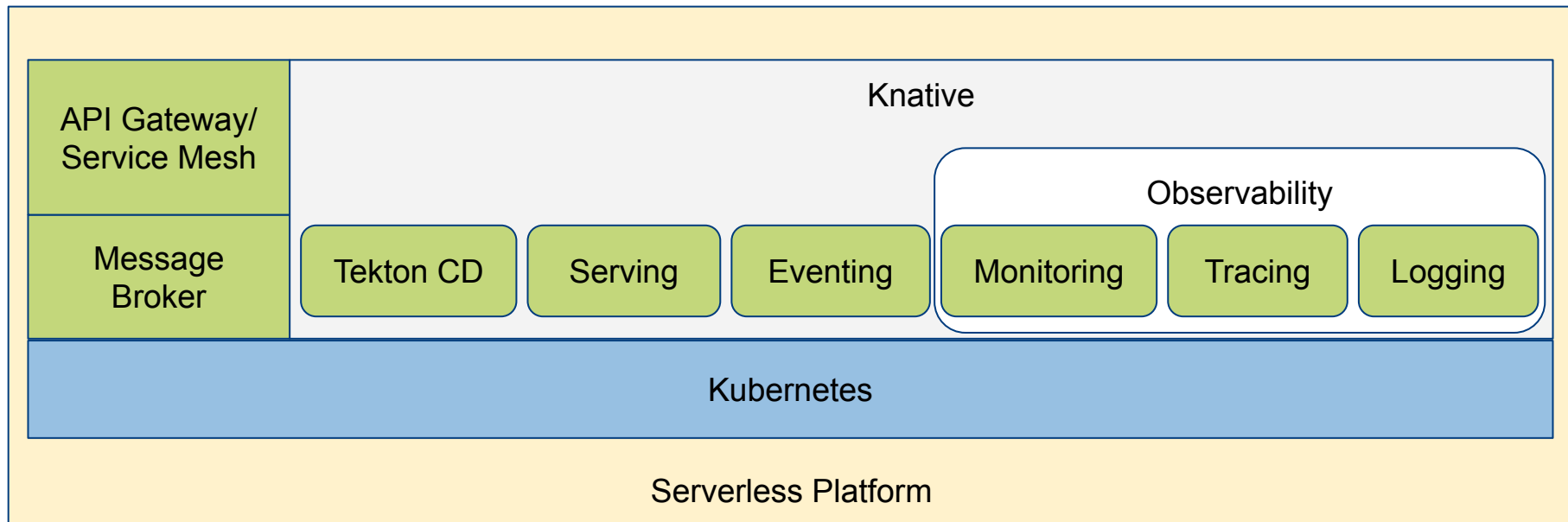
- › Get an understanding what Knative can do
- › See some Use-Cases for knative

Knative - Timeline



Knative
Target group

Overview





Tekton Pipelines





TEKTON

Tekton Examples

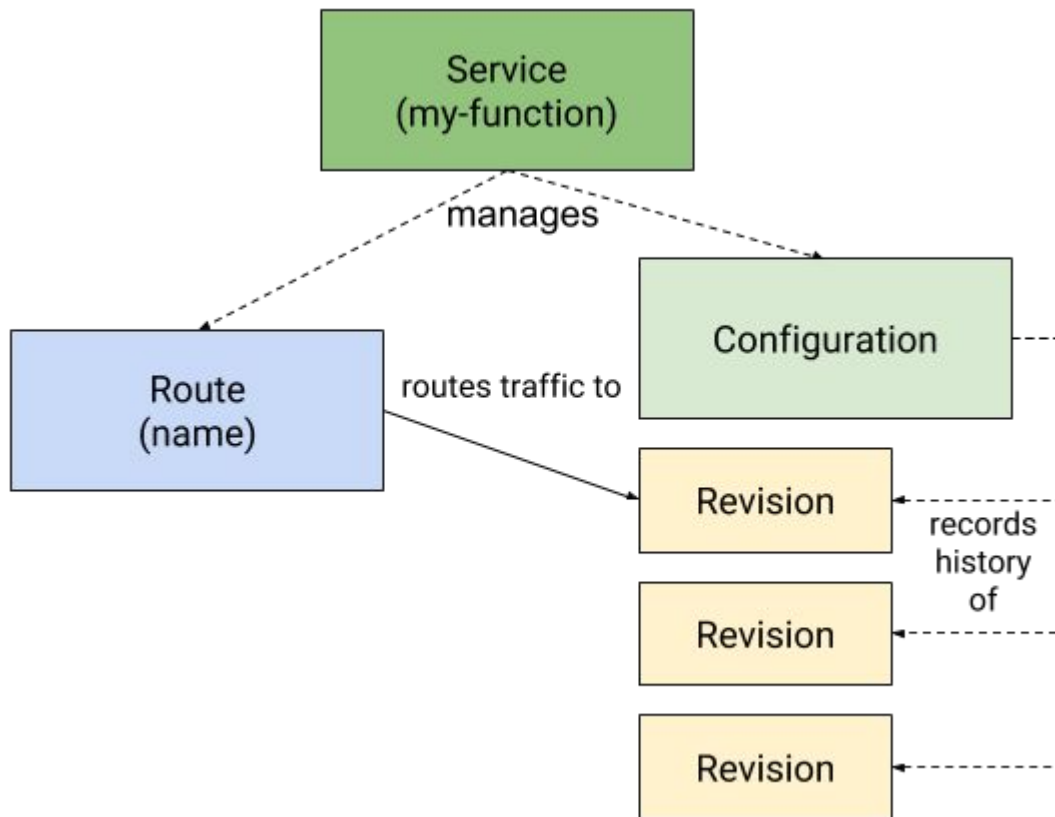
```
apiVersion: tekton.dev/v1alpha1
kind: Task
metadata:
  name: task-echo-message
spec:
  inputs:
    params:
      - name: MESSAGE
        type: string
        default: "Hello World"
  steps:
    - name: echo
      image: ubuntu
      command:
        - echo
      args:
        - "$(inputs.params.MESSAGE)"
```

```
apiVersion: tekton.dev/v1alpha1
kind: PipelineRun
metadata:
  name: pipelinerun-echo-greetings
spec:
  pipelineSpec:
    params:
      - name: MORNING_GREETINGS
        description: "greetings, default is Good Morning!"
        type: string
        default: "Good Morning!"
    tasks:
      # Task to display morning greetings
      - name: echo-good-morning
        taskRef:
          name: task-echo-message
        params:
          - name: MESSAGE
            value: $(params.MORNING_GREETINGS)
  params:
    - name: MORNING_GREETINGS
      value: "Good Morning, Bob!"
```



Serving

Serving - components



Serving - Features

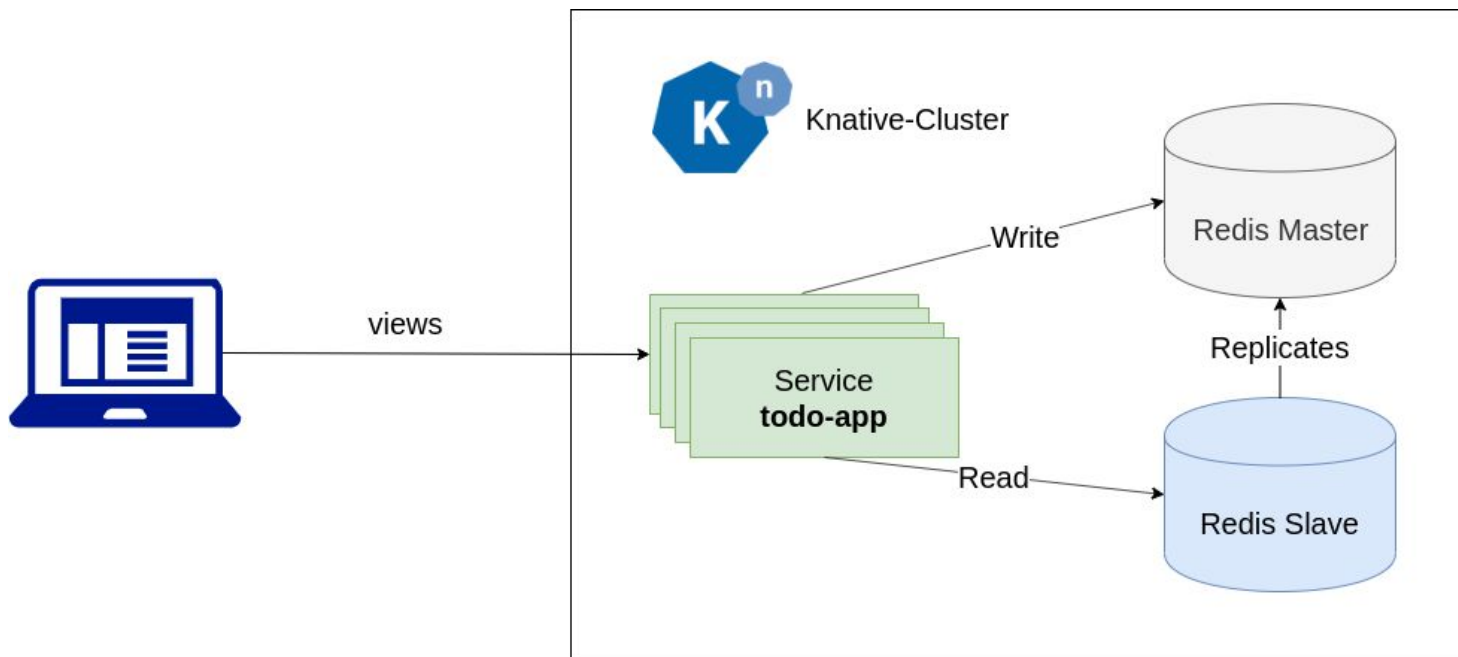
- › Rapid deployment of “serverless” containers
- › Automatic scaling up and down to zero
- › Routing and network programming for Istio (or Gloo) components
- › Point-in-time snapshots of deployed code and configurations
- › Implements own auto-scaler (more aggressive + scale-to-zero)
- › Has a runtime contract [1]

[1] <https://github.com/knative/serving/blob/master/docs/runtime-contract.md>

Serving - Demo

- › Setup ToDo App
 - › Components
- › Show Scaling with hey (oder fortio)
- › Architektur Bild (was ist wie/wo deployt)
- › Show Monitoring / Tracing ?

Serving Demo



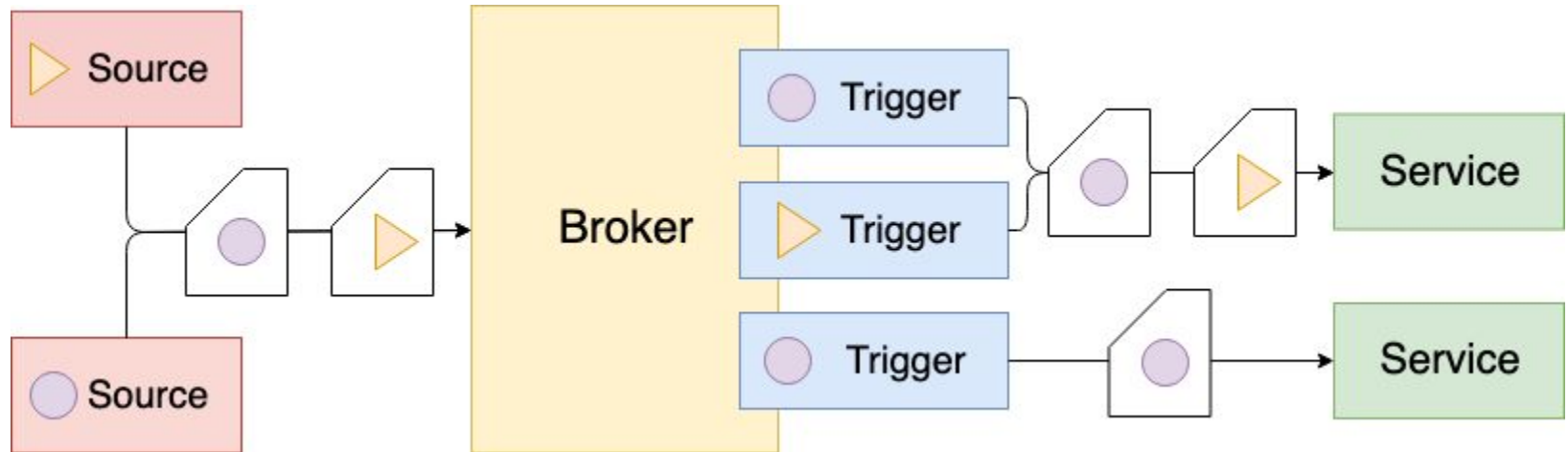
Eventing

... provides composable **primitives** to enable **late-binding** event sources and event consumers.

Eventing - Primitives

- › Broker (since 0.5)
- › Trigger (since 0.5)
- › Event Registry (since 0.6)
- › Sequence (since 0.7)
- › Parallel (since 0.8 / 0.9)

Eventing - Brokers and Triggers

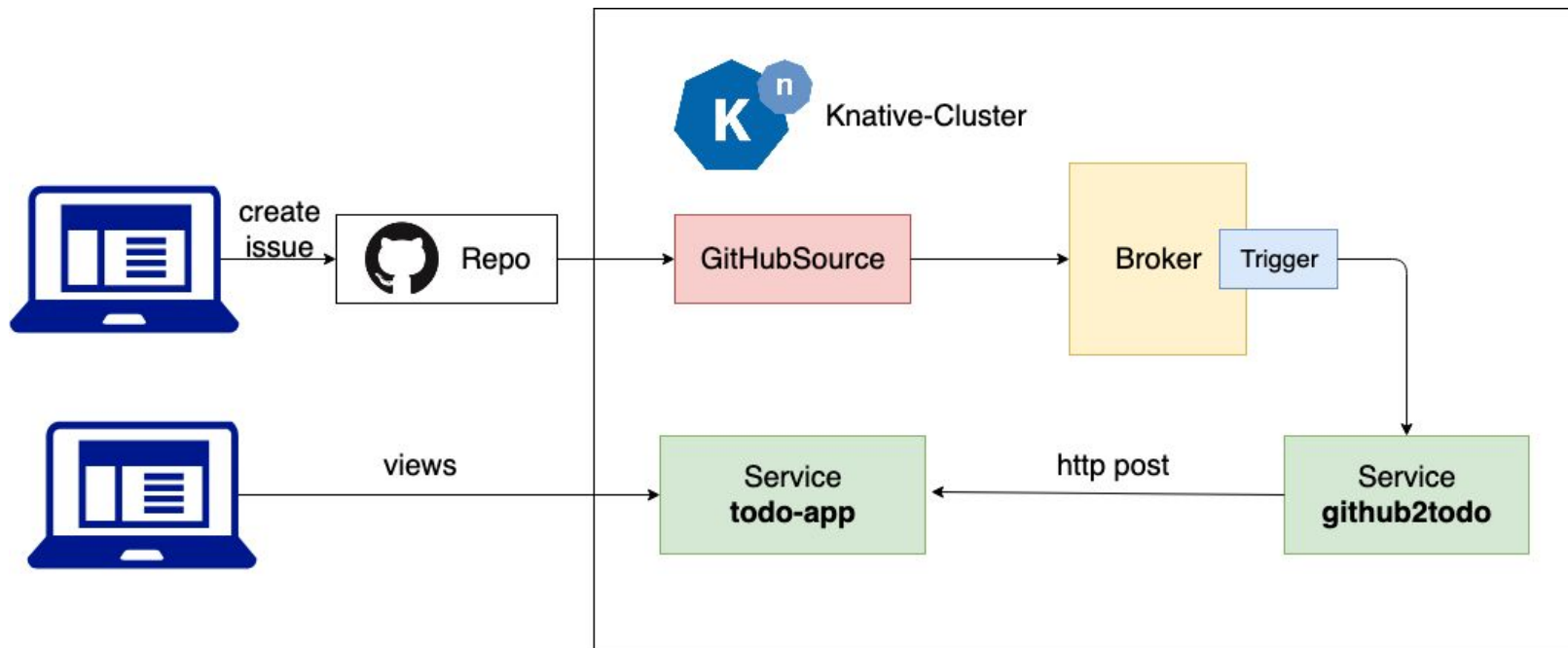


A photograph of two LEGO minifigures standing on a beer label. The minifigure on the left is a male figure with brown hair and sunglasses, wearing a blue t-shirt with the 'inovex' logo. The minifigure on the right is a penguin wearing sunglasses. They are standing on a label for 'SchreckenSKen Kölsch', which features a circular crest with a crown, crossed oars, and the number '14'. The background shows a dark, out-of-focus setting with some papers.

Demo



Eventing - Demo



Conclusion



Projects-based on Knative

- › <https://kabanero.io>
- › <https://kyma-project.io>
- › <https://www.redhat.com/de/openshift-4>
- › <https://cloud.google.com/run>

Contributor Stats

- › <https://knative.teststats.cncf.io/>

Conclusion

- › Better abstraction than “bare” Kubernetes
- › Simple Deployment model
- › Can be used to build a “platform”
- › Still in the early days (v1beta1)
 - › Rapid development
- › Adding complexity (Istio + knative)
- › No CNCF project



Q&A

Vielen Dank

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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>