

RED HAT FORUMS

Deploy your service the cloud-native way

with Tekton and Knative

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EXPAND

Agenda

- What is cloud-native ?
- What is Serverless ?
- What is Tekton ?
- What is Knative ?
- Demo !



What is cloud-native ?

What is Cloud-Native ?

Microservices in containers



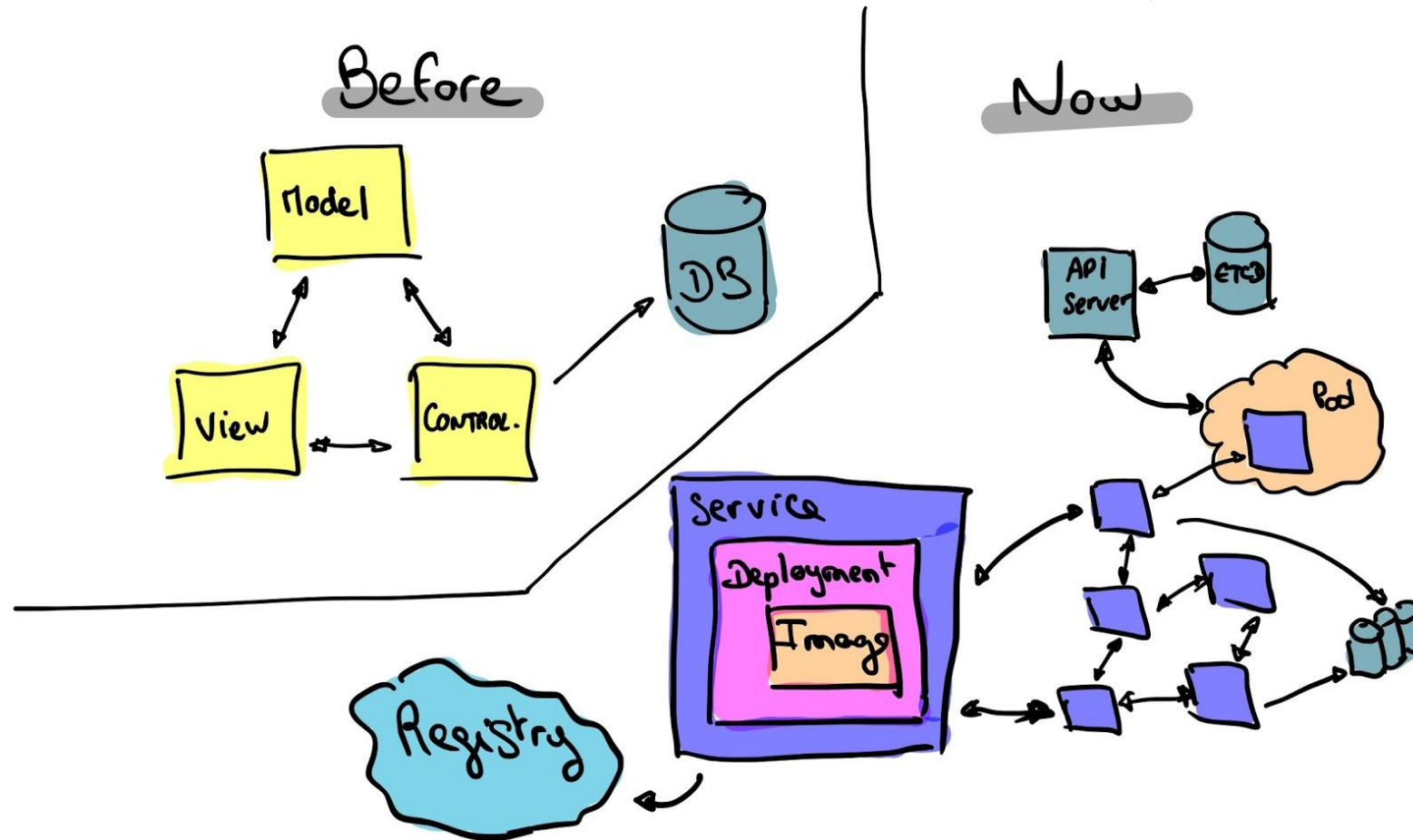
Images / Containers

Dynamically orchestrated
Optimized resource utilization



Kubernetes / OpenShift

Cloud-Native complexity



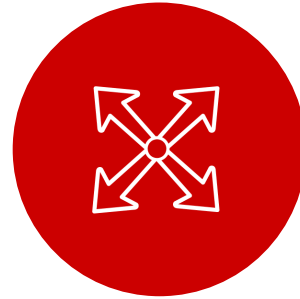
What is Cloud-Native CI/CD?

Continuous Integration and Continuous Delivery



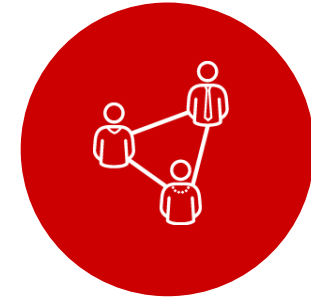
Containers

Built for container apps and runs on Kubernetes



Serverless

Runs serverless with no CI/CD engine to manage and maintain



DevOps

Designed with microservices and distributed teams in mind



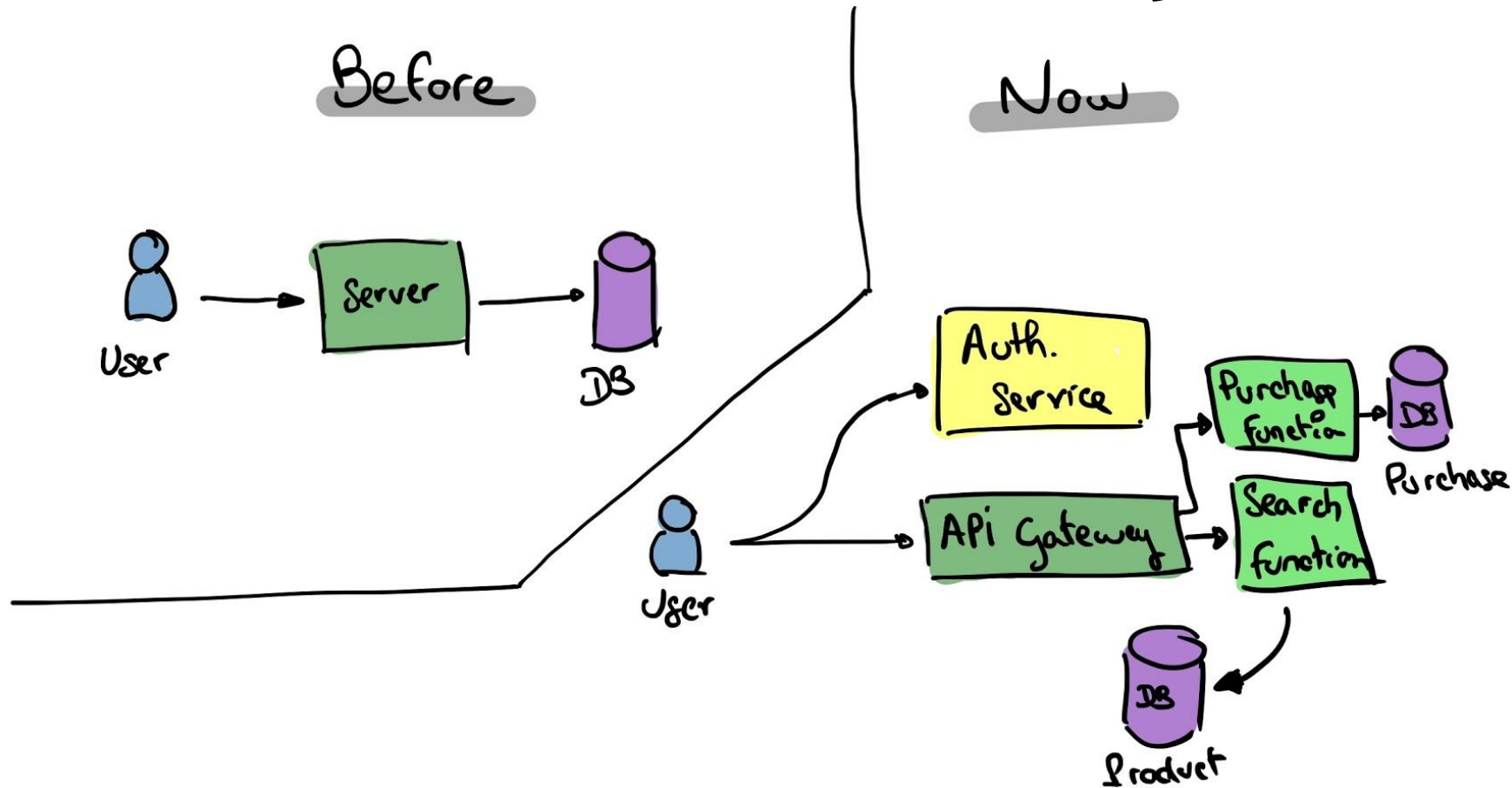
What is serverless ?

What is serverless again ?

“Serverless computing refers to the **concept of building and running applications** that **do not require server management**. It describes a finer-grained deployment model where applications, ~~bundled as one or more functions~~ are uploaded to a platform **and then executed, scaled, and billed** in response to the exact **demand** needed at the moment”

-- CNCF Definition, <https://www.cncf.io/blog/2018/02/14/cncf-takes-first-step-towards-serverless-computing/>

Serverless in images



What is Tekton 🐱 ?



An open-source project for providing a set of shared and standard components for building Kubernetes-style CI/CD systems



CD.FOUNDATION

Governed by the Continuous Delivery Foundation

Contributions from Google, Red Hat, Cloudbees, IBM, Pivotal and many more

Tekton in a nutshell



Standard Kubernetes-style pipelines

Declarative pipelines with standard Kubernetes custom resources (CRDs) based on Tekton*



Run pipelines in containers

Scale pipeline executions on-demand with containers on Kubernetes



Powerful command-line tool

Run and manage pipelines with an interactive command-line tool



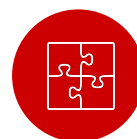
Build images with Kubernetes tools

Use tools of your choice (source-to-image, buildah, kaniko, jib, etc) for building container images



Deploy to multiple platforms

Deploy applications to multiple platforms like serverless, virtual machines and Kubernetes



Integrated CI/CD experience**

A CI/CD experience integrated with OpenShift Pipelines, OpenShift Developer Console, Visual Studio Code Plugin, Eclipse Che Plugins and more

Pipelines Concepts

Step

Run commands in a container with volumes, env vars, etc

Task

A list of steps that run sequentially in the same pod

Pipeline

A graph of tasks with inputs and outputs executed in a certain order

Pipeline Resource *

Inputs and outputs to tasks and pipelines (git, image, etc)

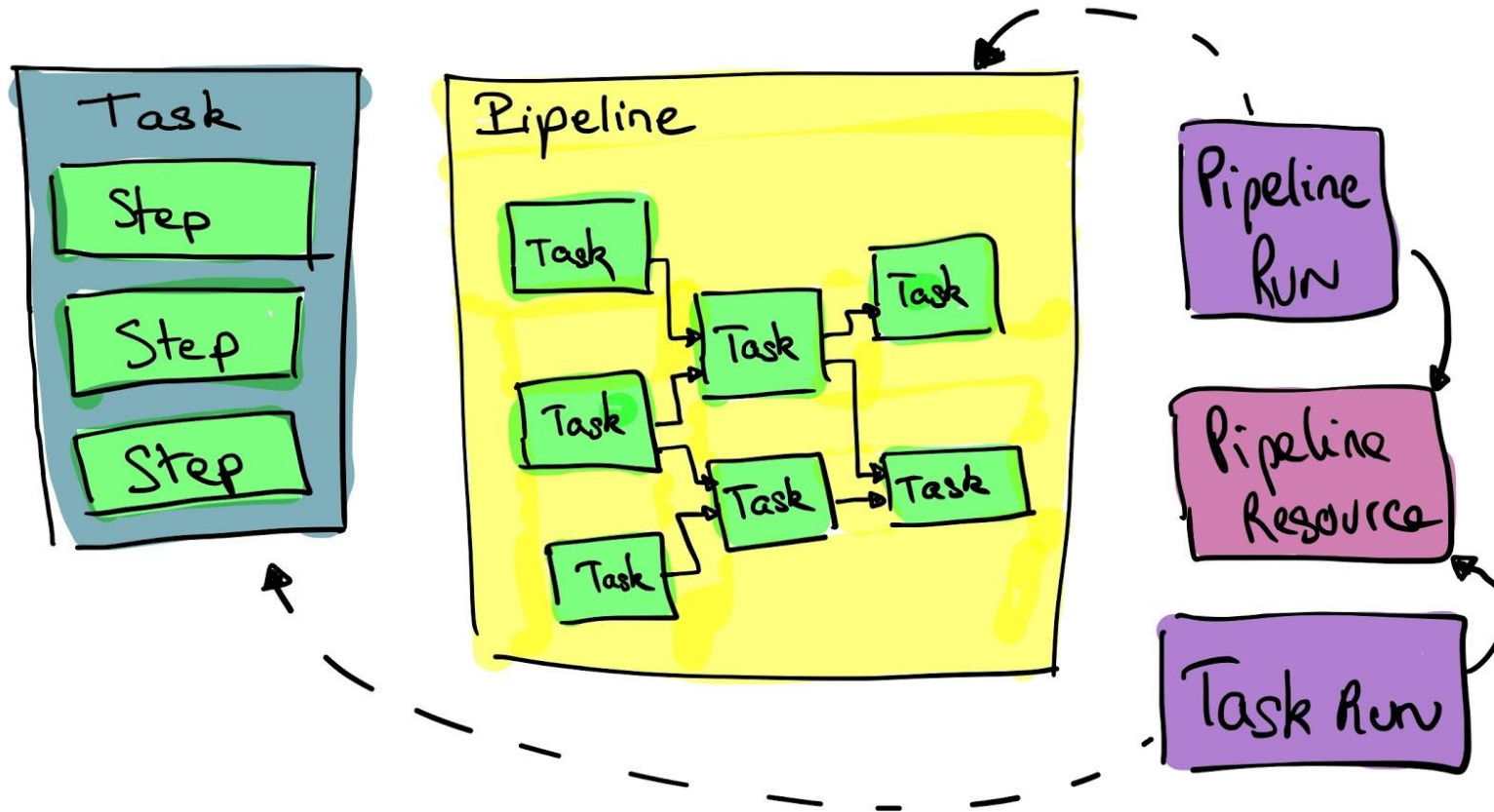
Task Run

An invocation of a task with inputs and outputs

Pipeline Run

An invocation of a pipeline with inputs and outputs

Pipelines Concepts



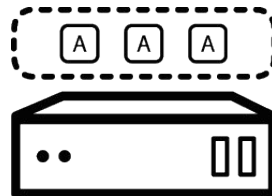
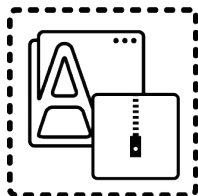
What is Knative ?

Knative in a nutshell



Serving
A request-driven model that serves the container with your application and can "scale to zero".

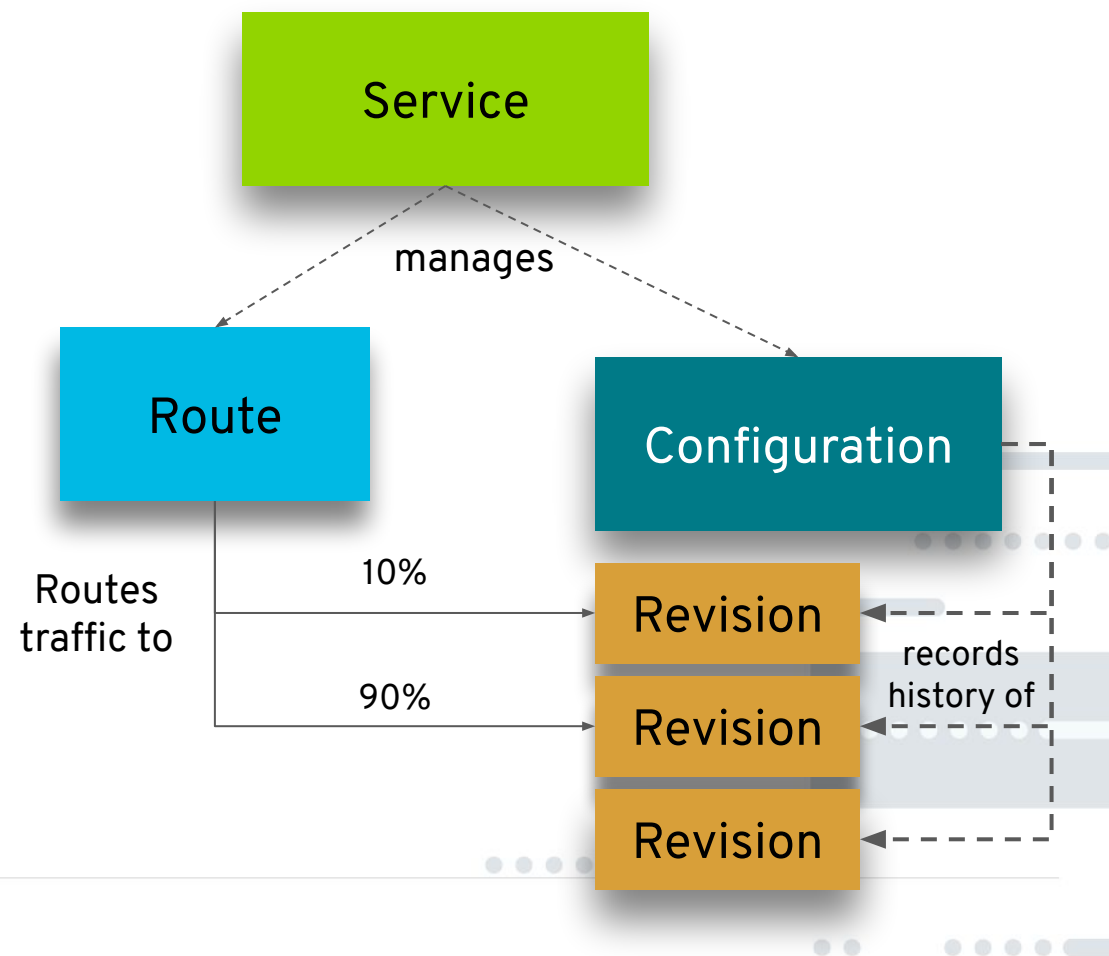
Eventing
Common infrastructure for consuming and producing events that will stimulate applications.



Knative serving

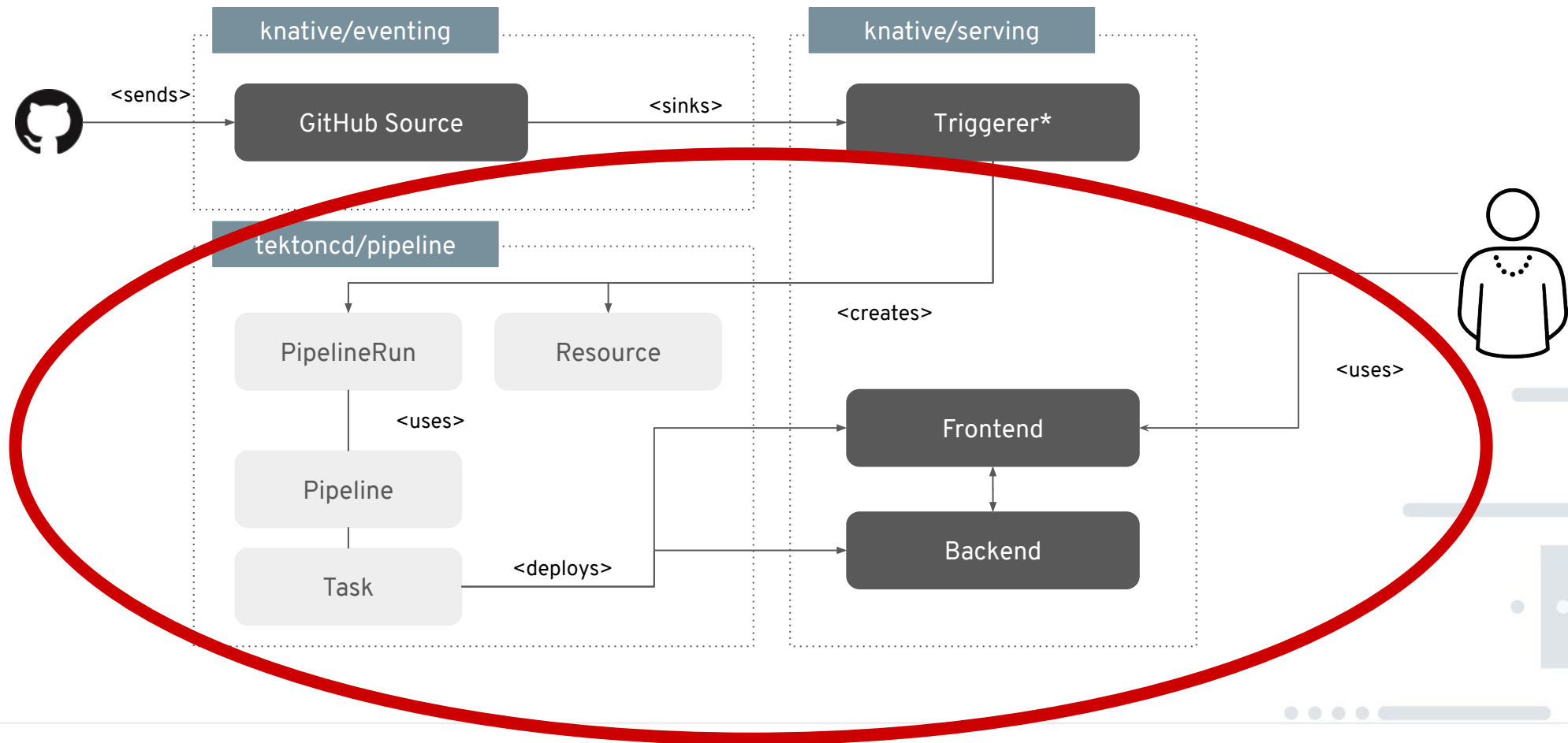
Route, scale-to-zero and track application revisions with ease.

- Separation of code and configuration
- Immutable Revisions
- Autoscaling include scale-to-zero
- Traffic Splitting
- Simplified and opinionated deployment model
 - Single Port
 - No Persistent Volumes
 - Single Container
- Callable by Knative eventing



Demo 📺 🐱

Tekton Pipeline ❤️ Knative



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THANK YOU



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