Effectively Extending Kubernetes Resource

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Extending Kubernetes Resource

- Kubernetes Resource
  - Core API
  - CustomResourceDefinition
    - CRD
  - Extending Kubernetes Resource

- Kube-controller-manager
  - Node Controller
  - Replication Controller
  - Endpoints Controller
  - Service Account & Token Controller

Controller
Develop Controller

Main entry point, Signal handler

API type

Scheme register

Code Generation: deepcopy-gen

Versioned clientset: client-gen

Informer:informer-gen

Lister:lister-gen

Kubernetes rest client

EventHandler/HandlerFuncs

Controller run and worker funcs

Workqueue processing

Reconciler

This diagram is from k8s.io/sample-controller
Extend Kubernetes by KubeBuilder

- KubeBuilder
  - Command Line Tool
  - Framework and SDK

- Code repository:
  [https://github.com/kubernetes-sigs/kubebuilder/](https://github.com/kubernetes-sigs/kubebuilder/)
Kubebuilder Sequence

User → Cluster → Kubebuilder → API type → Controller → Webhook

1. Controller-tool
2. Controller-runtime

Scaffolding Project
   domain, vendor (optional)

(1) Kubebuilder init (--domain)
dep ensure (Y/N)

Run kubebuilder from CLI

Docker registry

(2) Create API type by Group, Version, Kind
   (Y/N)

(TODO) User implements API

(2) Create Controller
   (Y/N)

(TODO) User implements reconcile

(2) Create Webhook
   (Y/N)

(TODO) User implements Handler

Build and Test CRD and controller by make tool

Deploy CRD

Build and publish image

Deploy Controller and Webhook by Manager
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Thank You!