Inside Knative Serving

KubeCon Shanghai 2019
Introduction

介绍
Extension
Knative
Lifecycle Management

Overview
Architectural Perspective
Operational Perspective

Gateway

Service

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Gateway Service Instance of Revision 1

Operational Perspective

create(Workload Specification for Revision 1)
create(Traffic Split Specification (Revision 1, 100%))
Service Gateway Instance of Revision 1

Operational Perspective

create(Workload Specification for Revision 2)
Operational Perspective

Immediate Rollout

Gateway

100%

Instance of Revision 1

0%

Instance of Revision 2

Ready. Set. Go.
update(Traffic Split Specification (Revision 1, 0%), (Revision 2, 100%))
Ready. Set. Go.

Operational Perspective
Gradual Rollout

Instance of Revision 1

Instance of Revision 2

Gateway

100%

0%
Operational Perspective

Gradual Rollout

update(Traffic Split Specification (Revision 1, 60%), (Revision 2, 40%))

update(Traffic Split Specification (Revision 1, 40%), (Revision 2, 60%))

update(Traffic Split Specification (Revision 1, 0%), (Revision 2, 100%))
Lifecycle Management

Manual Operations
Microservice
The Basics

- Traffic Split Specification
- Workload Specification

- K8s Ingress
- K8s Service
- K8s Deployment v1
- K8s HPA
The Basics

- K8s Ingress
- K8s Service
- K8s Deployment v2
- K8s HPA
Advanced

Istio
Virtual Service

K8s Service v1
K8s Deployment v1
K8s HPA v1

K8s Service v2
K8s Deployment v2
K8s HPA v2
Manual Release
Initial Revision

Create Deployment v1
Create HPA v1
Create Service v1
Create Istio Virtual Service

create(Workload Specification for Revision 1) create(Traffic Split Specification (Revision 1, 100%))
Manual Release
Subsequent Revision

Create Deployment v1
Create HPA v1
Create Service v1
Create Istio Virtual Service
Create Deployment v2
Create HPA v2
Create Service v2
Update Istio Virtual Service
Lifecycle Management

Automated Operations
Automated Release
Initial Revision

Create Kn Service
Create Deployment v1
Create HPA v1
Create Service v1
Create Istio Virtual Service
Automated Release

Subsequent Revision

- Create Kn Service
- Create Deployment v1
- Create HPA v1
- Create Service v1
- Create Istio Virtual Service
- Update Kn Service
- Create Deployment v2
- Create HPA v2
- Create Service v2
- Create Istio Virtual Service
- Update Istio Virtual Service
Lifecycle Management

Knative Serving Internals
Service Name  
Configura ion  
Name  
Route  
Name  
Revision  
Name-Postfix1  
Revision  
Name-Postfixn  
Revision  
Name-Postfix2  
directs traffic to  
created in response  
created in response  
created in response  
Deployment, KPA, Service  
Workload i.e. Pod  
Spec  
Traffic i.e. Istio Virtual Service  
Spec  
Istio Virtual Service  
Revision  
Name-Postfix1  
Revision  
Name-Postfixn  
Revision  
Name-Postfix2  
directs traffic to
Resource Management

Knative Serving
Acquire Resource → Receive Request → Process Request → Release Resource
Release
Resource
Process
Request
Receive
Request
Acquire
Resource
Process
Request
Release
Resource
Conclusion
Thank You
谢谢