

Why write operators in Go when you can do it in Java?

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Agenda

- Quick operators overview
- Operators in Go or Java?
- Demo

Operators?

- Automate operations on the cluster
- Control loop at the core
 - Watch events on specific resources
 - Get notified
 - Take action
 - Repeat

Operators mean Go, right?

- Go is the de facto language to program Kubernetes
- Rather easy to learn
- Efficient at runtime
- operator-sdk / client-go / apimachinery

So why Java?

- Java means Enterprise (at least, often enough)
- No shortage of skilled Java developers
- Use one language for the application and its operation (DevOps, right?)

So why aren't we already using Java for operators?

- JVM is optimized for long-running processes on big servers
 - RAM not usually an issue
 - Slow start-up not usually an issue
- Containers are pretty much the exact contrary
 - Short-lived: cattle, not pet
 - RAM usually constrained
 - Slow start-up a handicap to scale up

So why Java? (bis)

- JVM container-friendliness has steadily improved
- GraalVM happened
 - Frameworks have been created to make it easier (Quarkus, in particular)
- Native compilation offers Go-like runtime characteristics to Java

The story so far...

- Going the hard way: plain Java with REST client and “manual” serialization / deserialization
- Use the official Java client
- Use the Fabric8 Kubernetes client

- But: similar to using only client-go to write Go operators!

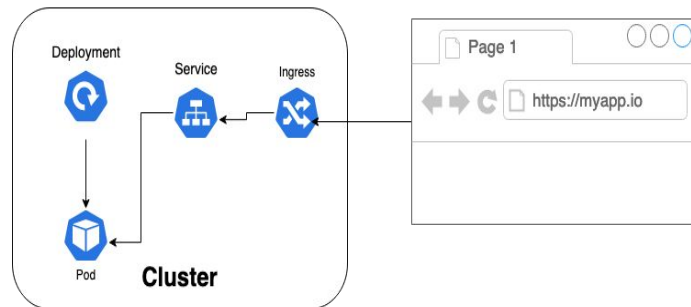
Enter JOSDK

- Java Operator SDK
- Aims at providing similar or better functionality as what is provided by operator-sdk and apimachinery for Go
- Abstracts away the complexity of the reconciliation process
- Lets you focus on “business” functionality instead of low-level plumbing
- Spring Boot starter
- Quarkus extension with easier native compilation

Demo

Use Case

- Publish an application outside a Kubernetes cluster from an image reference
- Need:
 - Deployment
 - Service
 - Ingress
- Want: simply specify the application image
- Solution:
 - Create an ExposedApp CRD
 - Add a controller watching ExposedApp resources



Questions?

Thank you!



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