



# Enter Serverless Functions Journey with Quarkus

# Daniel Oh



@danieloh30

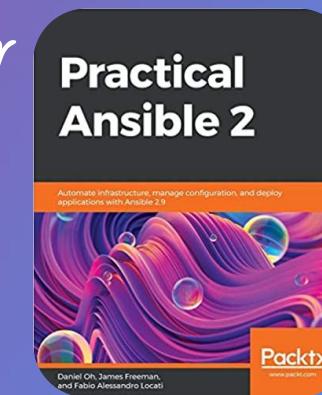
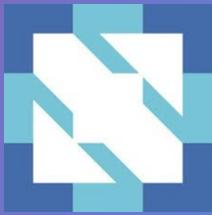


[bit.ly/danielohtv](https://bit.ly/danielohtv)



danieloh30

- Developer Advocate at Red Hat
  - Cloud Native Runtimes
  - Serverless, Service Mesh, and GitOps Practices
- CNCF Ambassador
- Advisory Board Member of Global Skill Development Council
- Opensource.com Correspondents
- Public Speaker & Published Author



# [bit.ly/quarkus-serverless-labs](https://bit.ly/quarkus-serverless-labs)



## Sign-Up

- [Developer Sandbox](#)
- [Amazon Web Services](#)

# JAVA DESIGNED FOR A DIFFERENT TIME



*Traditional*



*Throughput at the expense of footprint  
Long running at expense of startup speed  
Rich, dynamic behavior for mutable systems*



*Cloud Native*



*Throughput solved by scaling  
Ephemeral, immutable systems  
Footprint and performance matter*



# QUARKUS

SUPersonic, SUBatomic JAVA

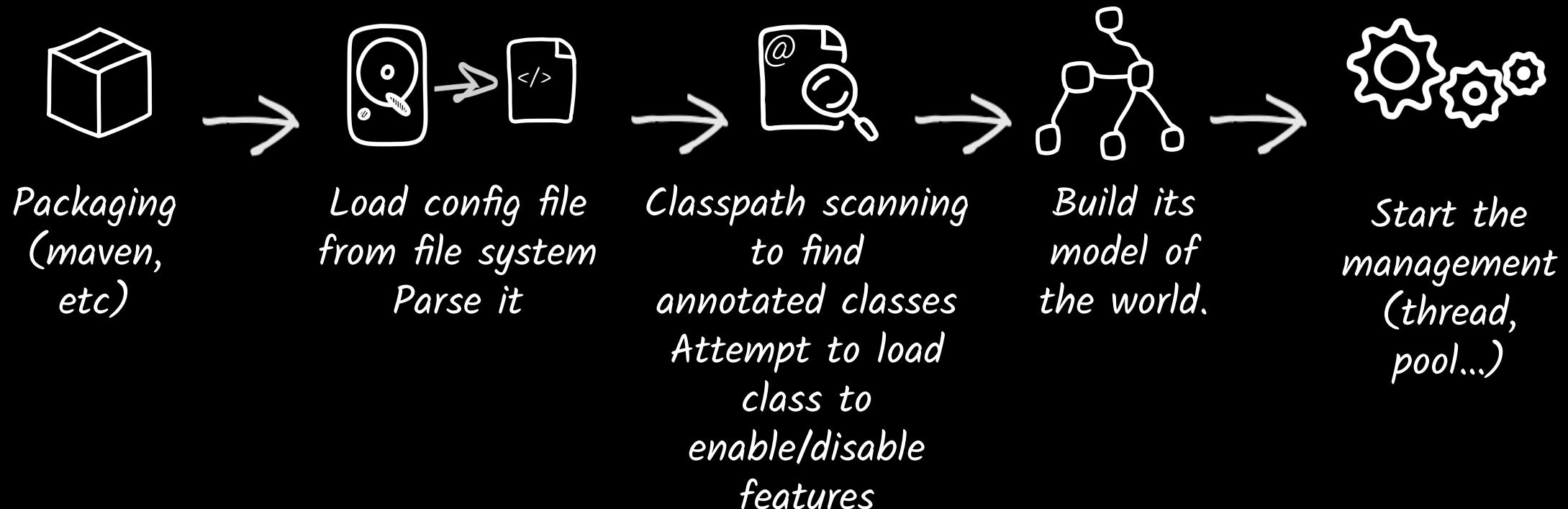
# SUPersonic, SUBatomic

- 🤘 Move as much as possible to build phase
- 🤘 Minimize runtime dependencies
- 🤘 Maximize dead code elimination
- 🤘 Introduce clear metadata contracts
- 🤘 Enhance developer joy

# HOW DOES A FRAMEWORK START?

Build Time

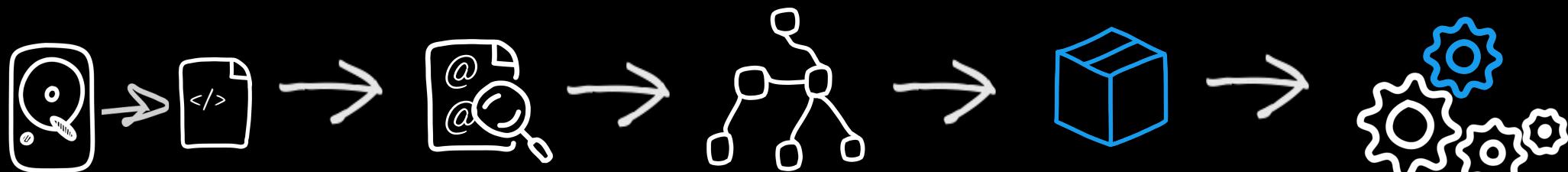
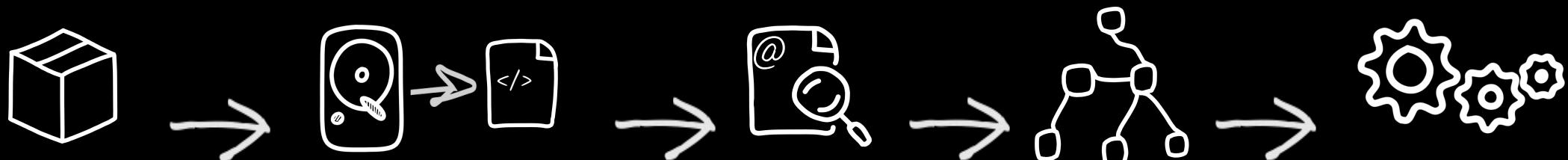
Runtime



# THE QUARKUS WAY

Build Time

Runtime



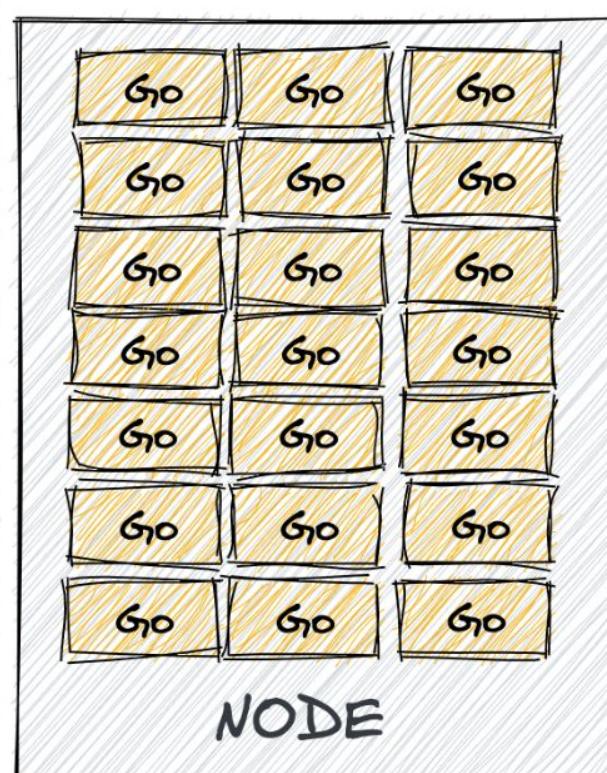
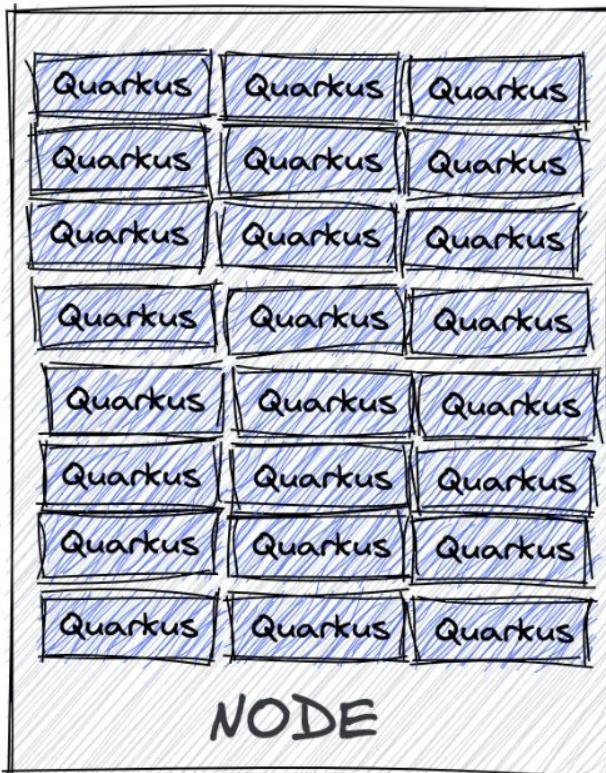
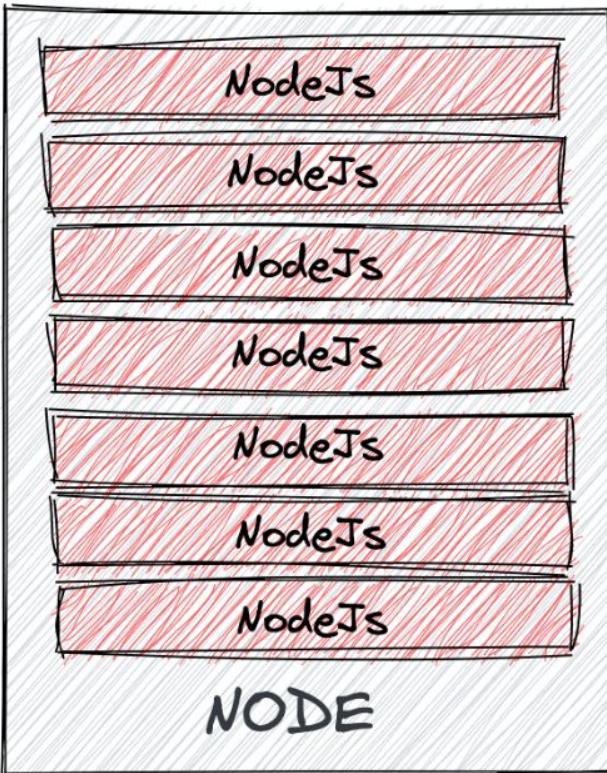
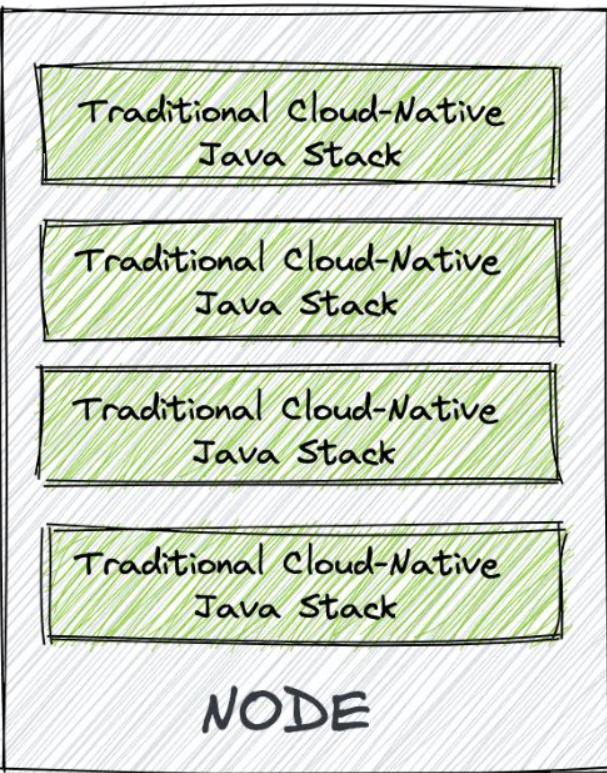
Build Time

Runtime

# QUARKUS NATIVE COMPILATION



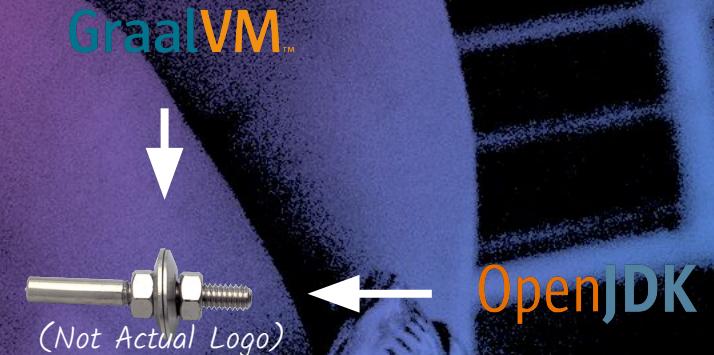
# QUARKUS CONTAINER FIRST



Container Platform

# MANDREL FOR NATIVE

- 👉 Mandrel is a downstream distribution of GraalVM and part of the GraalVM community
  - <https://github.com/graalvm/mandrel>
- 👉 Combines best of GraalVM + OpenJDK 11 to offer native builds
- 👉 Makes GraalVM easier to consume from a Open Source licensing and maintenance perspective by consuming patches and CVE's from OpenJDK
- 👉 Aims to be a near drop in replacement for GraalVM
- 👉 Only focused on native compilation (e.g. we will not support polyglot apps - Java only)
- 👉 No change for user experience with Quarkus



# Quarkus Funqy

🤘 A portable Java API to write functions  
Deployable to various FaaS environments or a standalone service

```
import io.quarkus.funq.Funq;

public class GreetingFunction {
    @Funq
    public String greet(String name) {
        return "Hello " + name;
    }
}
```

# Quarkus Funqy



Async Reactive Types

*Supports the Smallrye Mutiny Uni reactive type as a return type*

```
import io.quarkus.funq.Funq;
import io.smallrye.mutiny.Uni;

public class GreetingFunction {

    @Funq
    public Uni<Greeting> reactiveGreeting(String name) {
        ...
    }
}
```

# QUARKUS FUNQY

- 🤘 Supports dependency injection through CDI or Spring DI

```
@ApplicationScoped
public class GreetingFunction {

    @Inject
    GreetingService service;

    @Funk
    public Greeting greet(Friend friend) {
        Greeting greeting = new Greeting();
        greeting.setMessage(service.greet(friend.getName()));
        return greeting;
    }
}
```

# Quarkus Funqy

## Cloud

### Quarkus Funqy

This guide explains basics of the Funqy framework, a simple portable cross-provider cloud function API.

### Quarkus Funqy HTTP

This guide explains Funqy's HTTP binding.

### Quarkus Funqy Amazon Lambdas

This guide explains Funqy's Amazon Lambda binding.

### Quarkus Funqy Amazon Lambdas HTTP

This guide explains Funqy's Amazon Lambda HTTP binding.

### Quarkus Funqy Knative Events

This guide explains Funqy's Knative Events binding.

### Quarkus Funqy Azure Functions HTTP

This guide explains Funqy's Azure Functions HTTP binding.

### Quarkus Funqy Google Cloud Platform

This guide explains Funqy's Google Cloud Platform Functions binding.

### Quarkus Funqy Google Cloud Platform HTTP

This guide explains Funqy's Google Cloud Platform Functions HTTP binding.

# QUARKUS FOR KNATIVE



*Enable the generation of Knative resources in your Properties:*

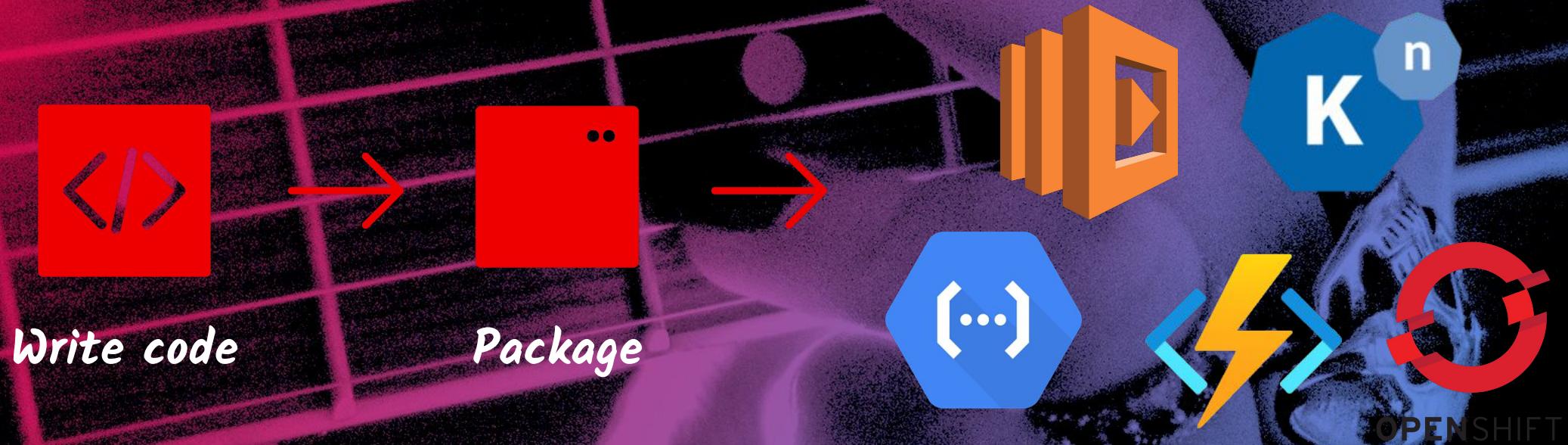
- `quarkus.kubernetes.deployment-target=knative`



*Generated knative.json and knative.yml automatically*

```
{
  "apiVersion" : "serving.quarkus.knative.dev/v1alpha1",
  "kind" : "Service",
  "metadata" : {
    "annotations": {
      "app.quarkus.io/vcs-url" : "<some url>",
      "app.quarkus.io/commit-id" : "<some git SHA>"
    },
    "labels" : {
      "app.kubernetes.io/name" : "test-quarkus-app",
      "app.kubernetes.io/version" : "1.0-SNAPSHOT"
    },
    "name" : "knative."
  },
  "spec" : {
    "runLatest" : {
      "configuration" : {
        "revisionTemplate" : {
          "spec" : {
            "container" : {
              "image" : "dev.local/yourDockerUsername/test-quarkus-app:1.0-SNAPSHOT",
              "imagePullPolicy" : "Always"
            }
          }
        }
      }
    }
  }
}
```

# SIMPLE PATH FROM QUARKUS TO Multi SERVERLESS PLATFORMS





HANDS-ON!

# [bit.ly/quarkus-serverless-labs](https://bit.ly/quarkus-serverless-labs)



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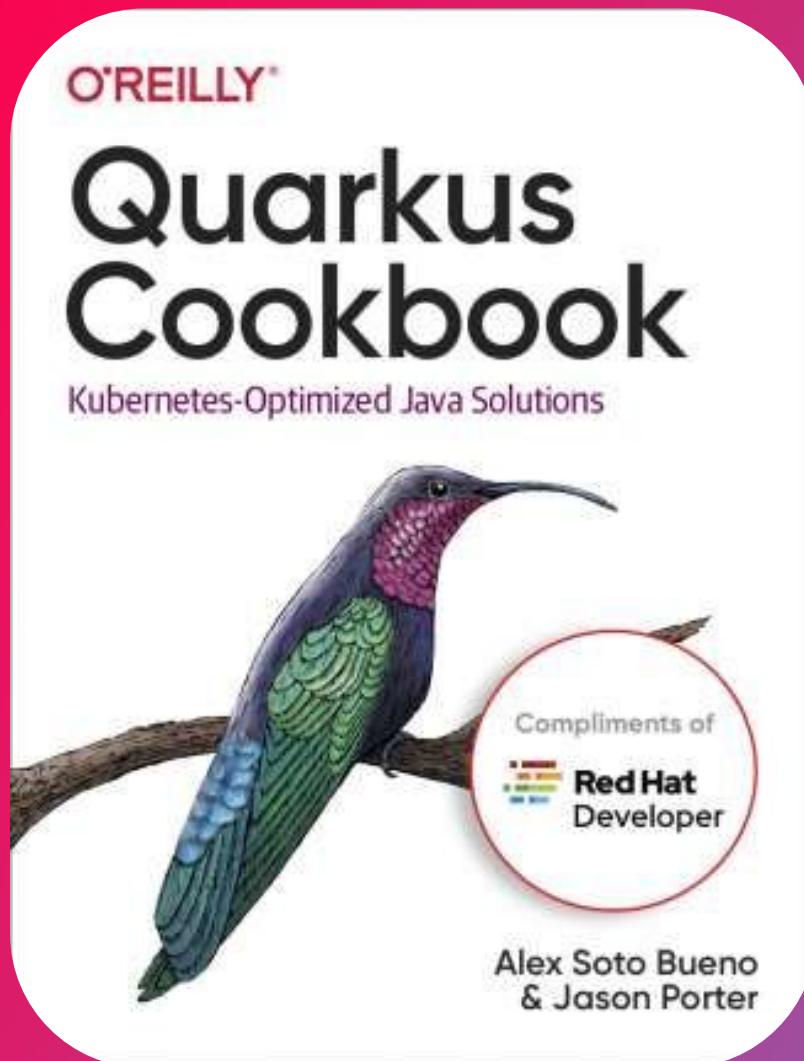
WRAP-UP!

# [red.ht/quarkus-func](https://red.ht/quarkus-func)

- *Faster Serverless Functions With GraalVM*
- *Make Portable Functions Across Serverless Platforms*
- *Bind CloudEvents With Quarkus*



# [dn.dev/quarkusbook](https://dn.dev/quarkusbook)



# bit.ly/danielohtv



The screenshot shows a YouTube channel interface with three main playlists:

- KUBERNETES LEARN BY EXAMPLE**:
  - Persistent Volumes (10:31)
  - ConfigMaps (6:45)
  - Managing Secrets (7:12)
  - DaemonSet (7:00)
  - StatefulSets (8:54)
  - Deployment and ReplicaSet (11:44)
- QUARKUS**:
  - Microsweeper Quarkus on Red Hat OpenShift Service on AWS (19:21)
  - Build your first Java Serverless Function using Quarkus Quick start (9:55)
  - Microsweeper Quarkus on Azure Red Hat OpenShift (18:57)
  - Getting Started with Reactive Programming with Kotlin on... (12:47)
  - Cloud Native Buildpacks with Quarkus (5:09)
  - Extend Service Discovery with Quarkus and Stork (11:16)
- SERVERLESS & FUNCTION**:
  - Build your first Java Serverless Function using Quarkus Quick start (9:55)
  - Drag and Drop your Quarkus App on the Developer Sandbox (6:18)
  - Your new Cloud-Native application is ready! (#Lambda DEMO) (12:47)
  - Quarkus builds your AWS Lambdas (15:41)
  - Deploying Multiple CloudNative Apps with... (12:47)
  - Deploying Multiple Cloud Native Apps with OpenShift... (34:56)
  - Hybrid Serverless Development using Quarkus (34:56)

A large red button with a white YouTube play icon and the word "Subscribe" is overlaid on the top right corner of the channel interface.