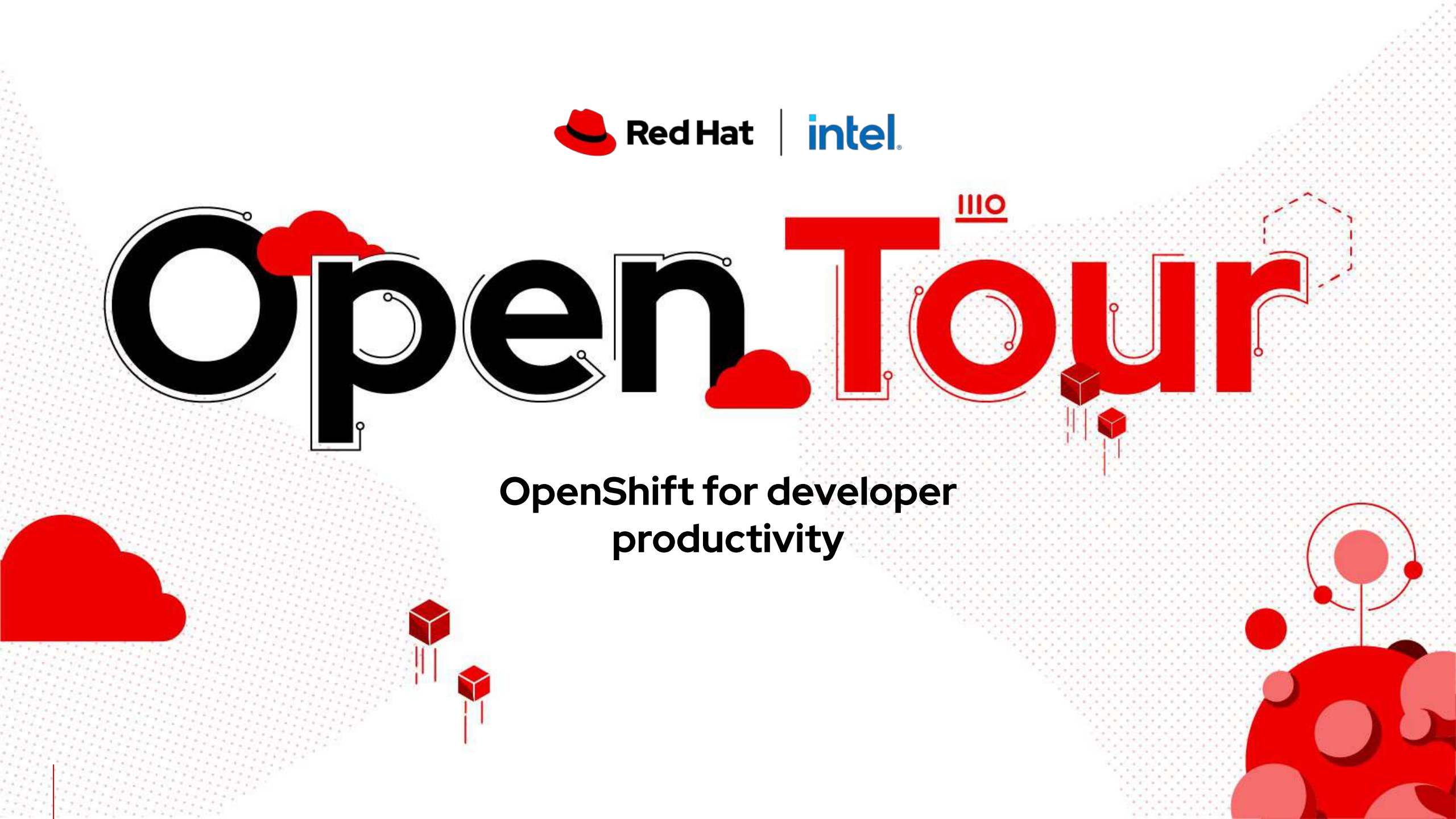

Red Hat
intel
OpenTour
OpenShift for developer productivity

"To be the catalyst in communities of customers, contributors, and partners creating better technology the open source way."



Red Hat's Mission Statement

OpenShift for developer productivity

Robert Baumgartner

Senior Solution Architect, Red Hat Austria



rbaumgar

Open Tour

Further Information on Red Hat's Mission Statement:
https://www.managementexchange.com/blog/how-red-hat-used-open-source-way-develop-company-mission

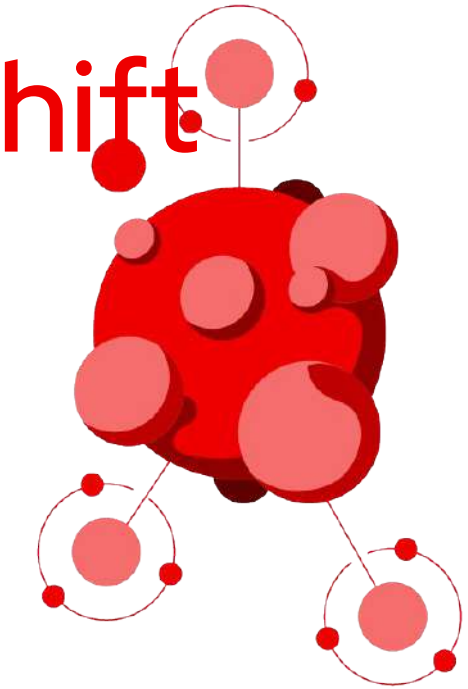
Red Hat | intel

What we'll discuss today



- What: Container, Kubernetes, Openshift
- Why: Red Hat OpenShift for Developer
- How: Start writing Kubernetes/OpenShift
- Demo Time

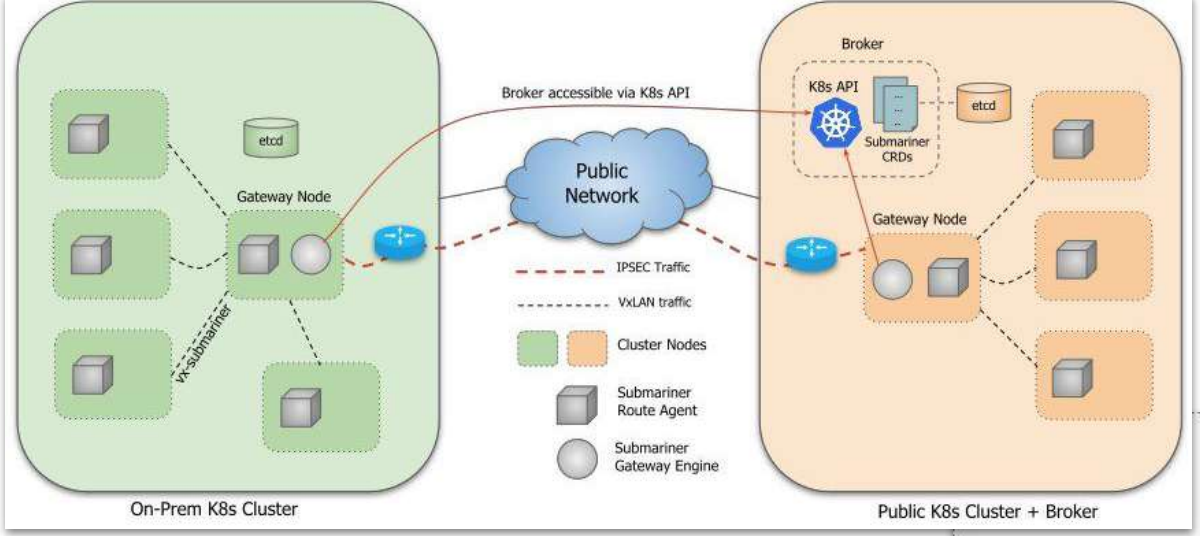
What: Container, Kubernetes, Openshift



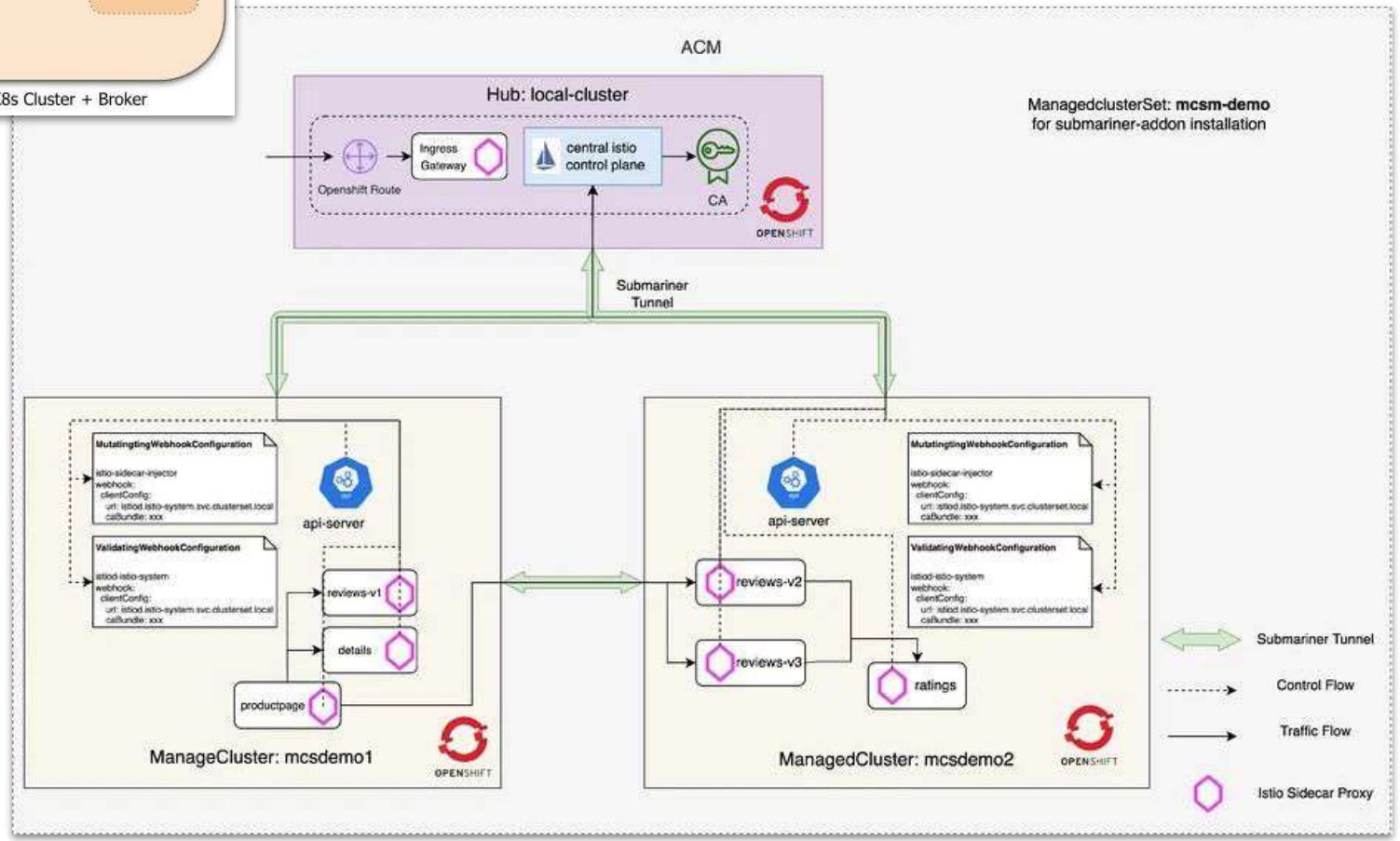
State of the Art

Multi-Hybrid-Cloud Application

Operations





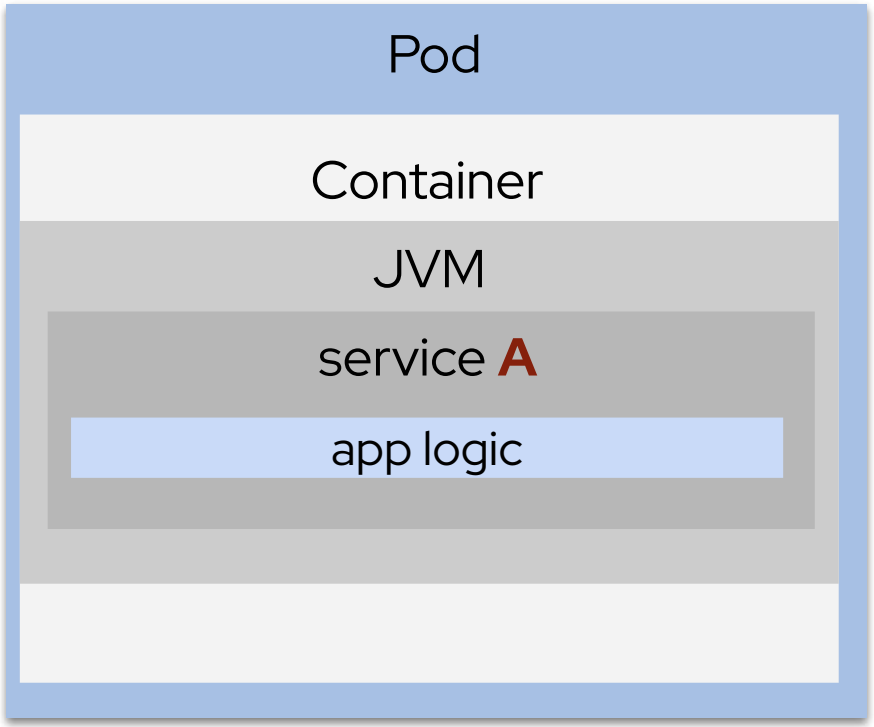


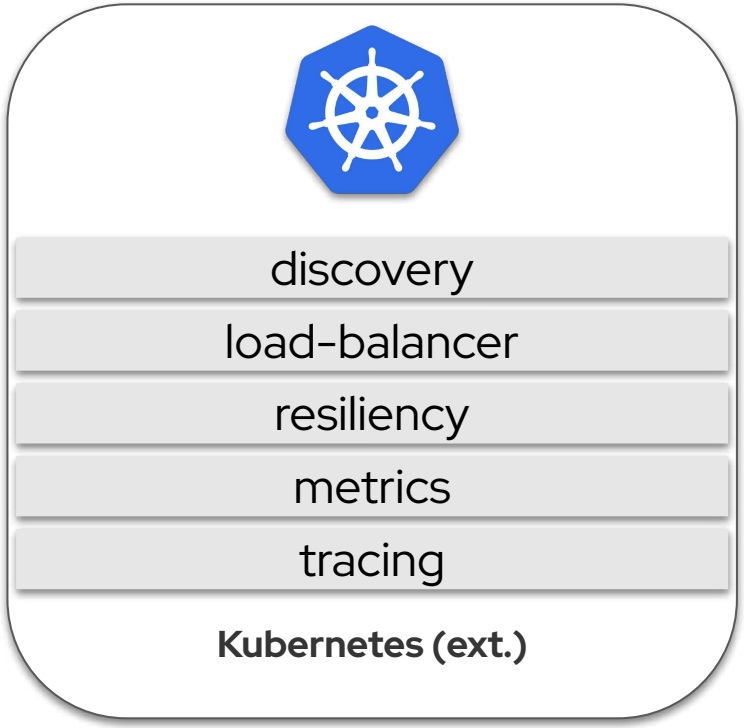
Documentation (Upstream [OSS project]): https://submariner.io
Blog Article: https://cloud.redhat.com/blog/set-up-an-istio-multicluster-service-mesh-with-submariner-in-red-hat-advanced-cluster-management-for-kubernetes

Red Hat | intel

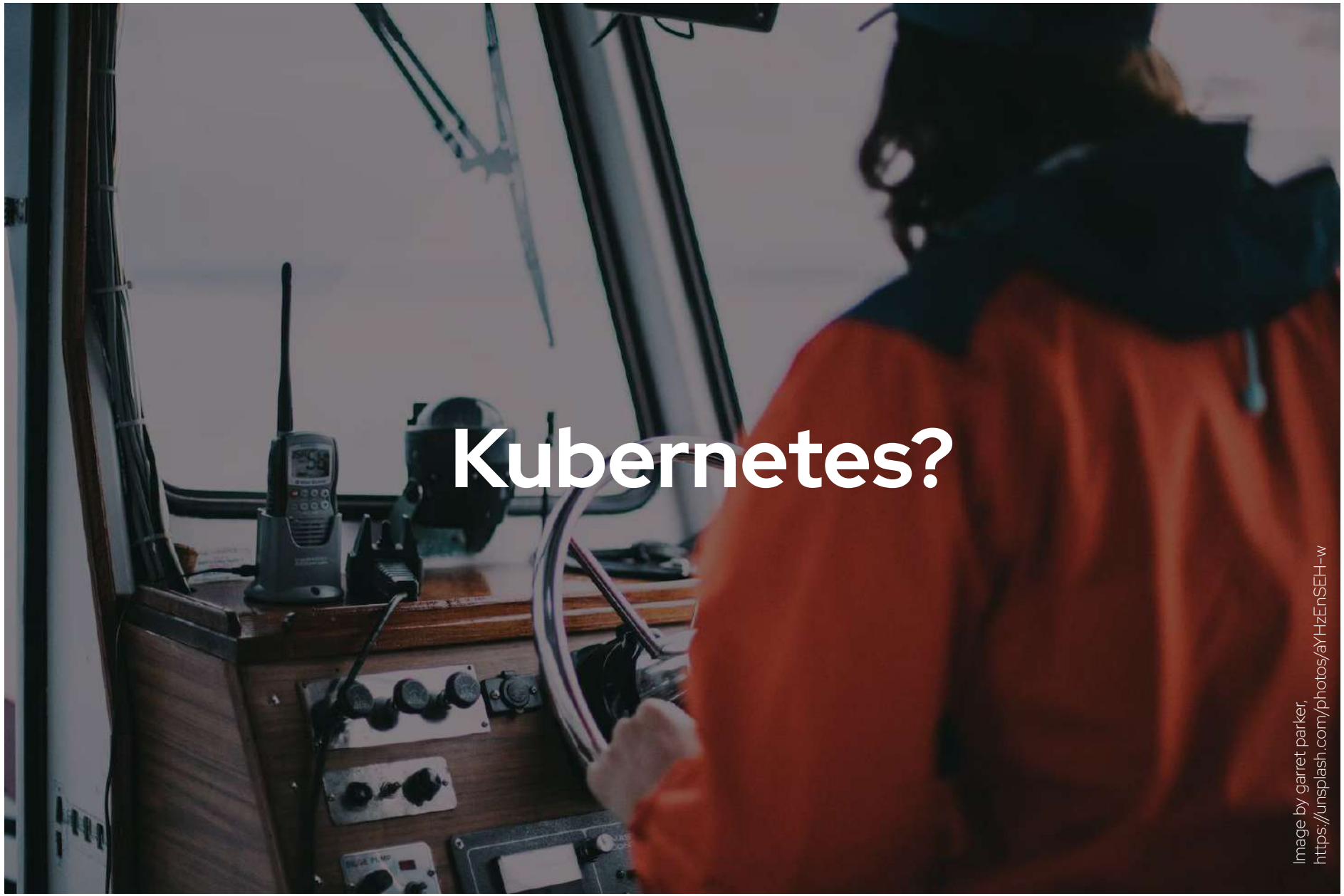
State of the Application Runtime

Kubernetes (extended)

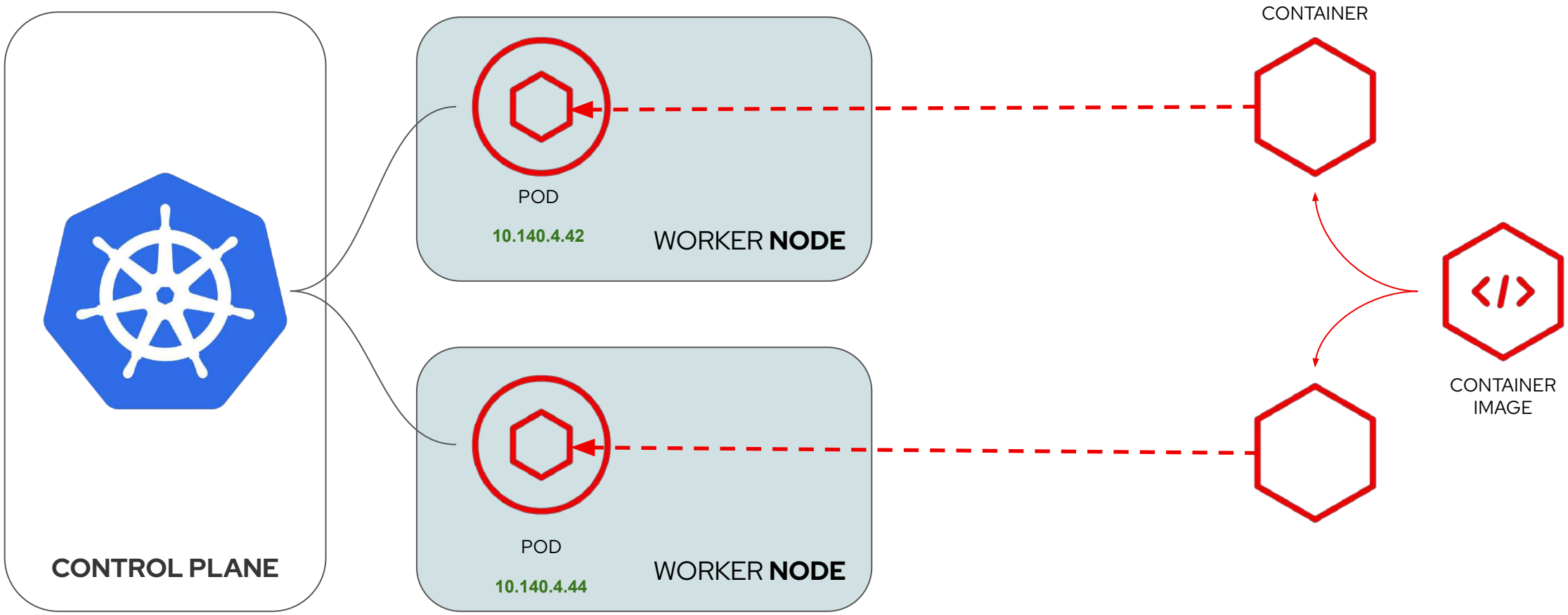




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Kubernetes?
Image by garret parker,
https://unsplash.com/photos/aYHzEnSEH-w

Orchestrate?

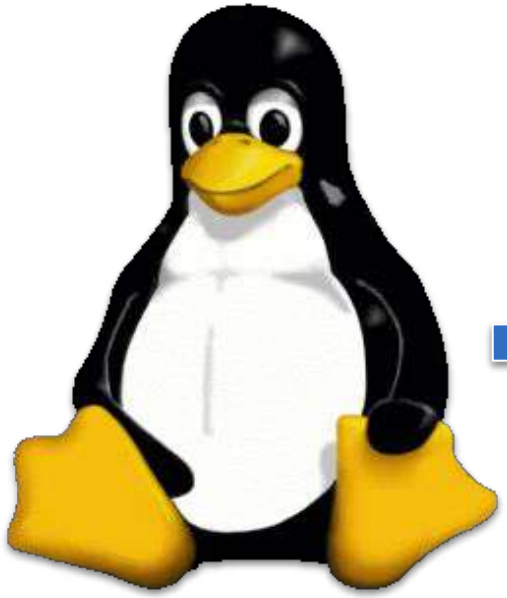


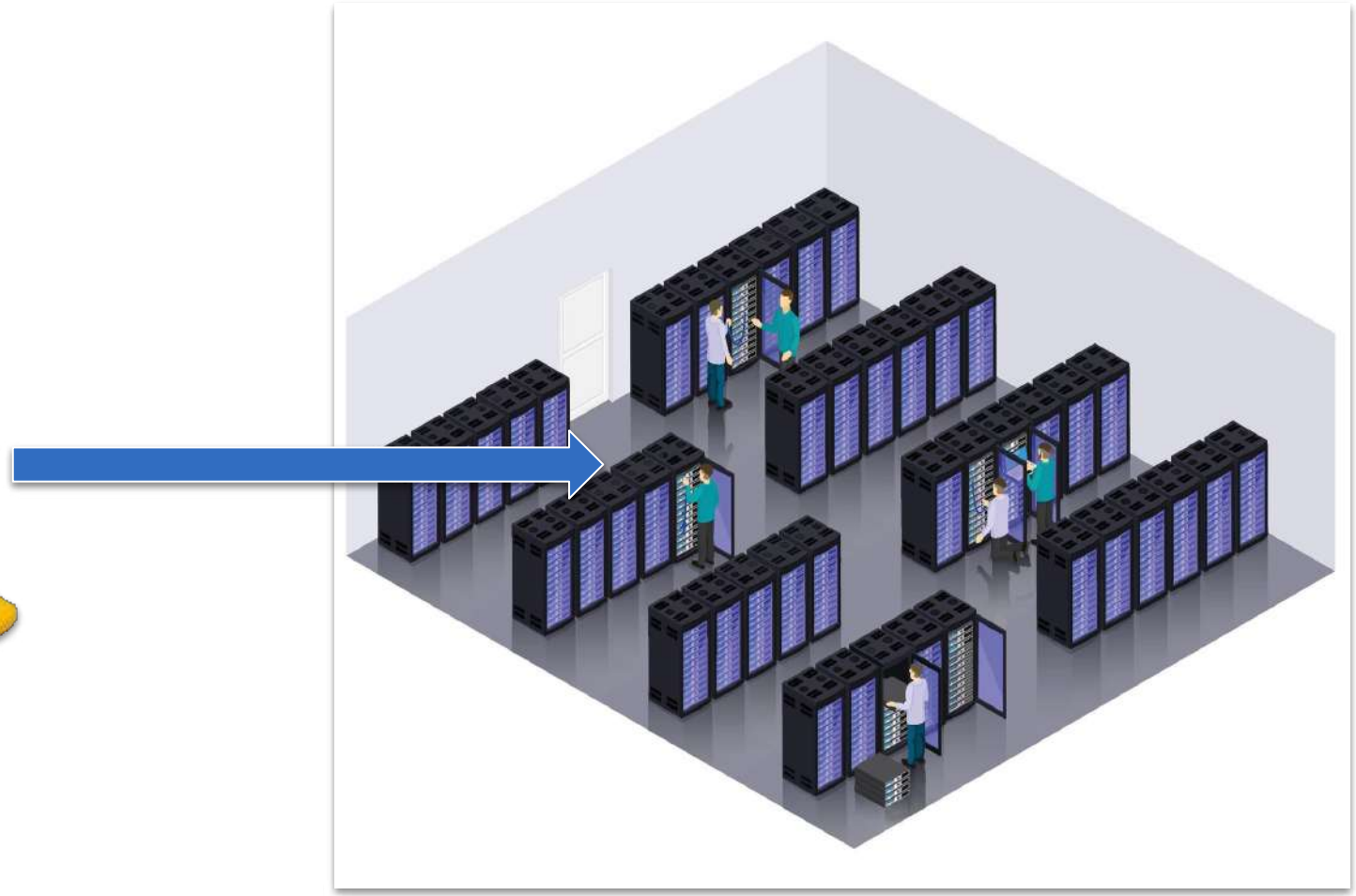
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Red Hat | intel

Vanilla Kubernetes - for Developers?



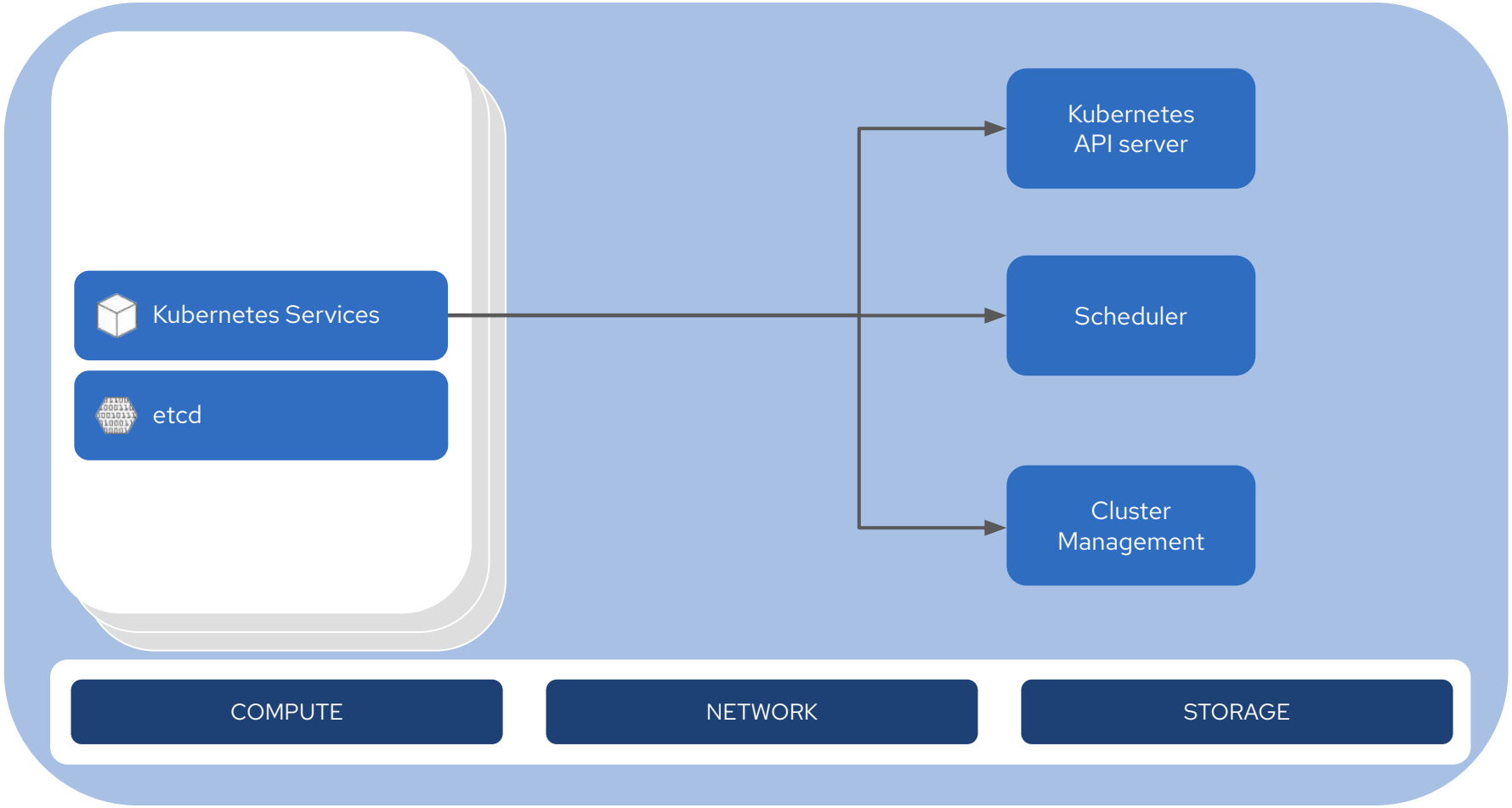
Vanilla Linux on many servers?





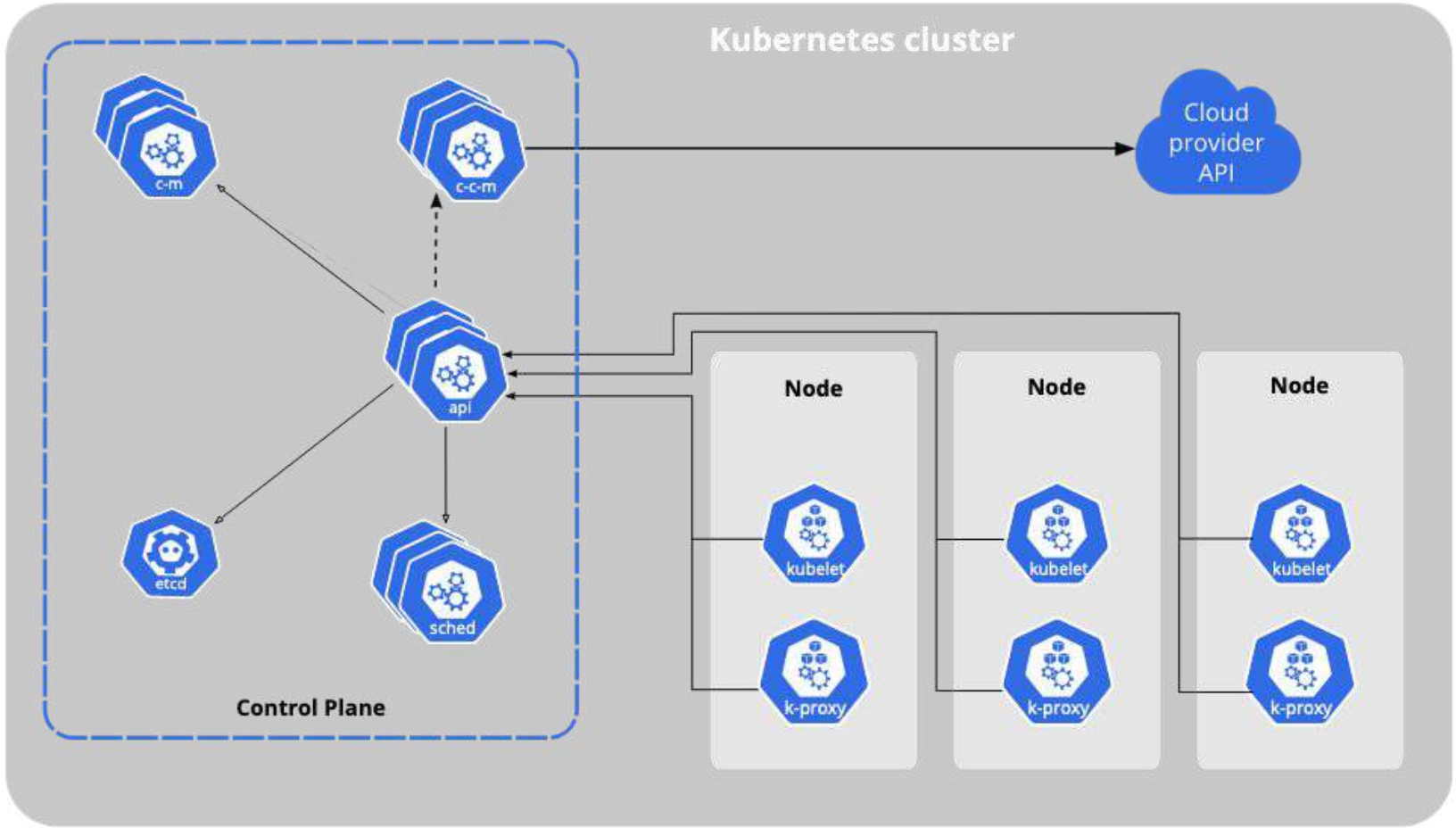
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Kubernetes Core Components



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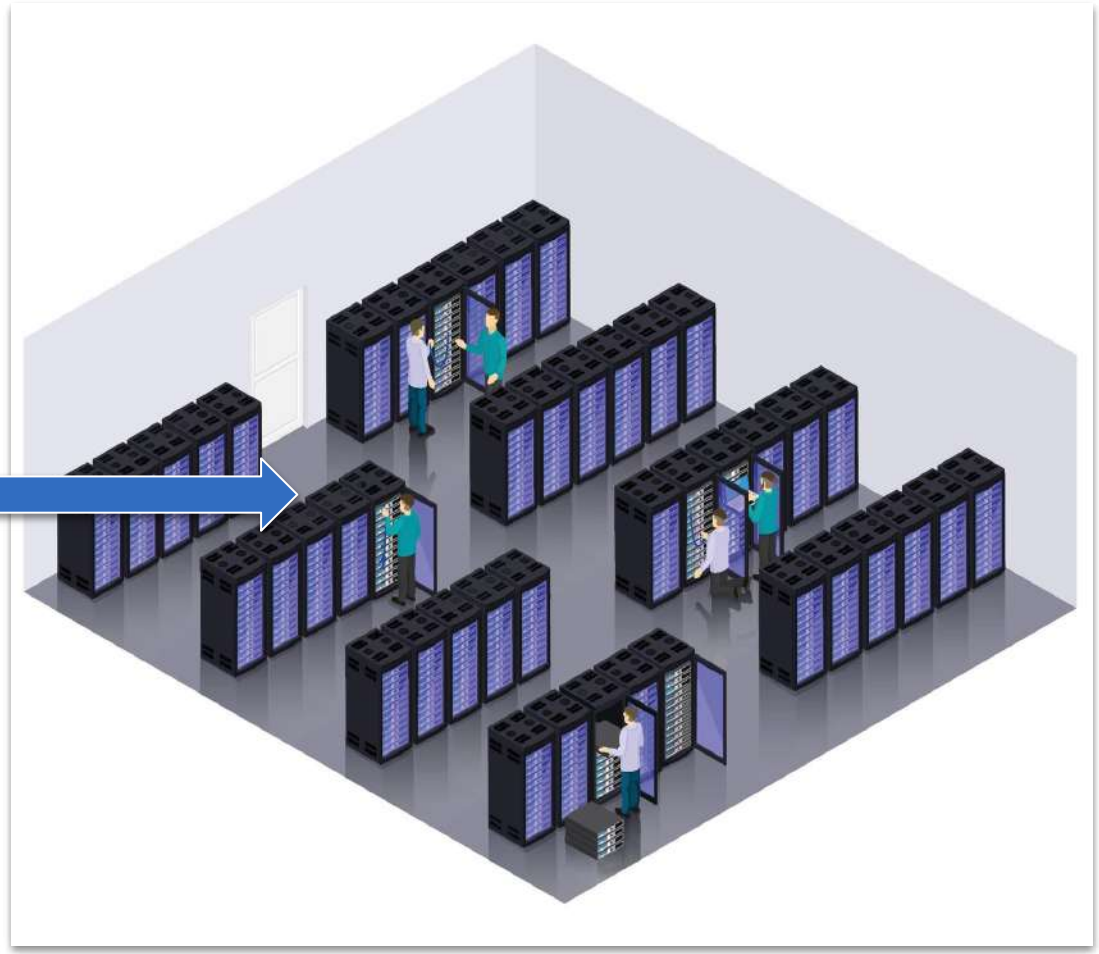
Kubernetes Core Components



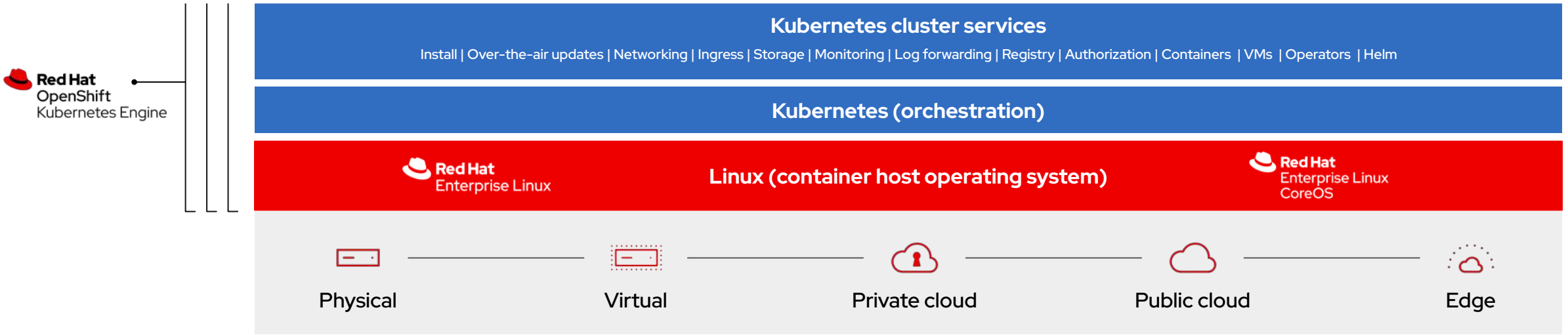


Source: https://kubernetes.io/docs/concepts/overview/components/

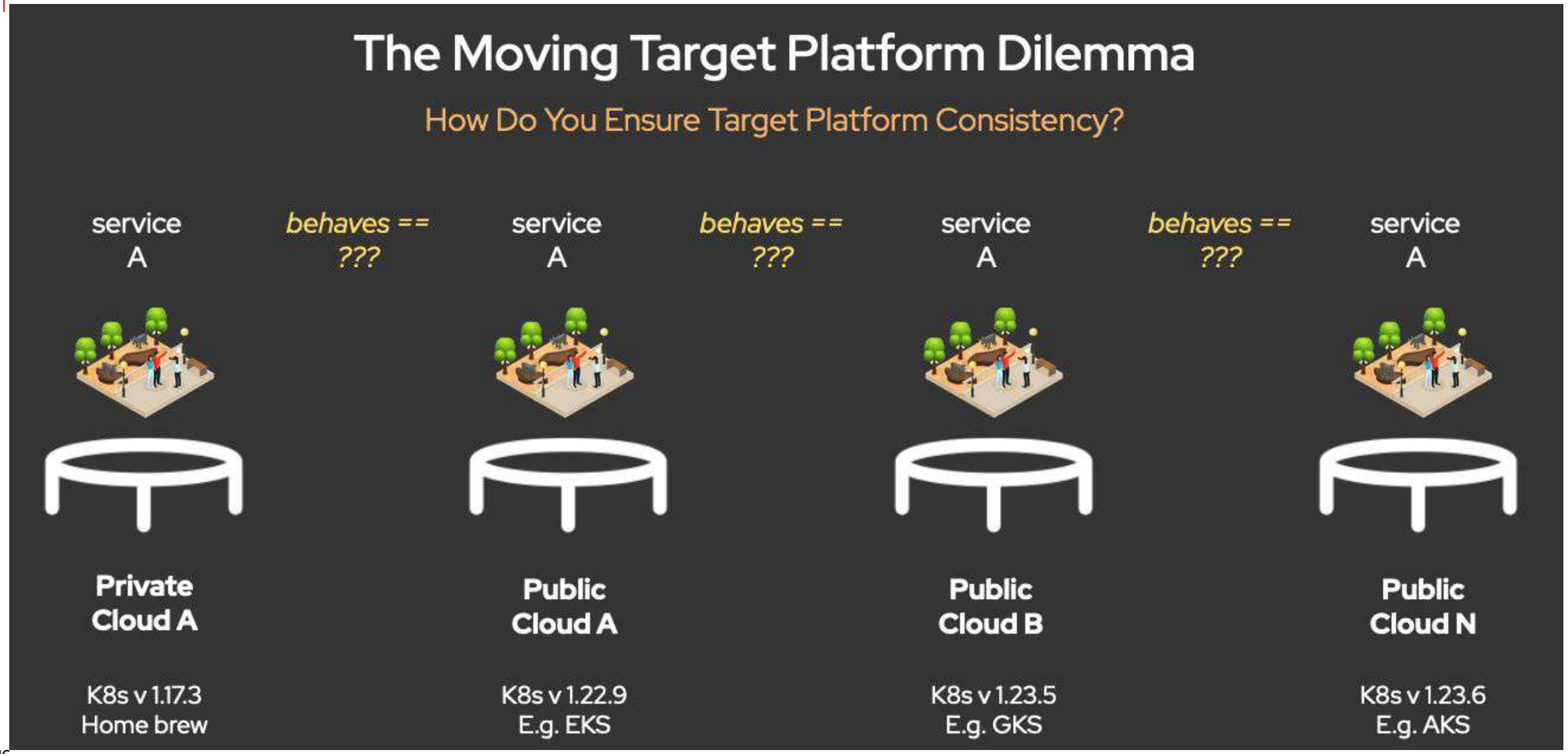
Vanilla k8s auf die Server?



Red Hat OpenShift

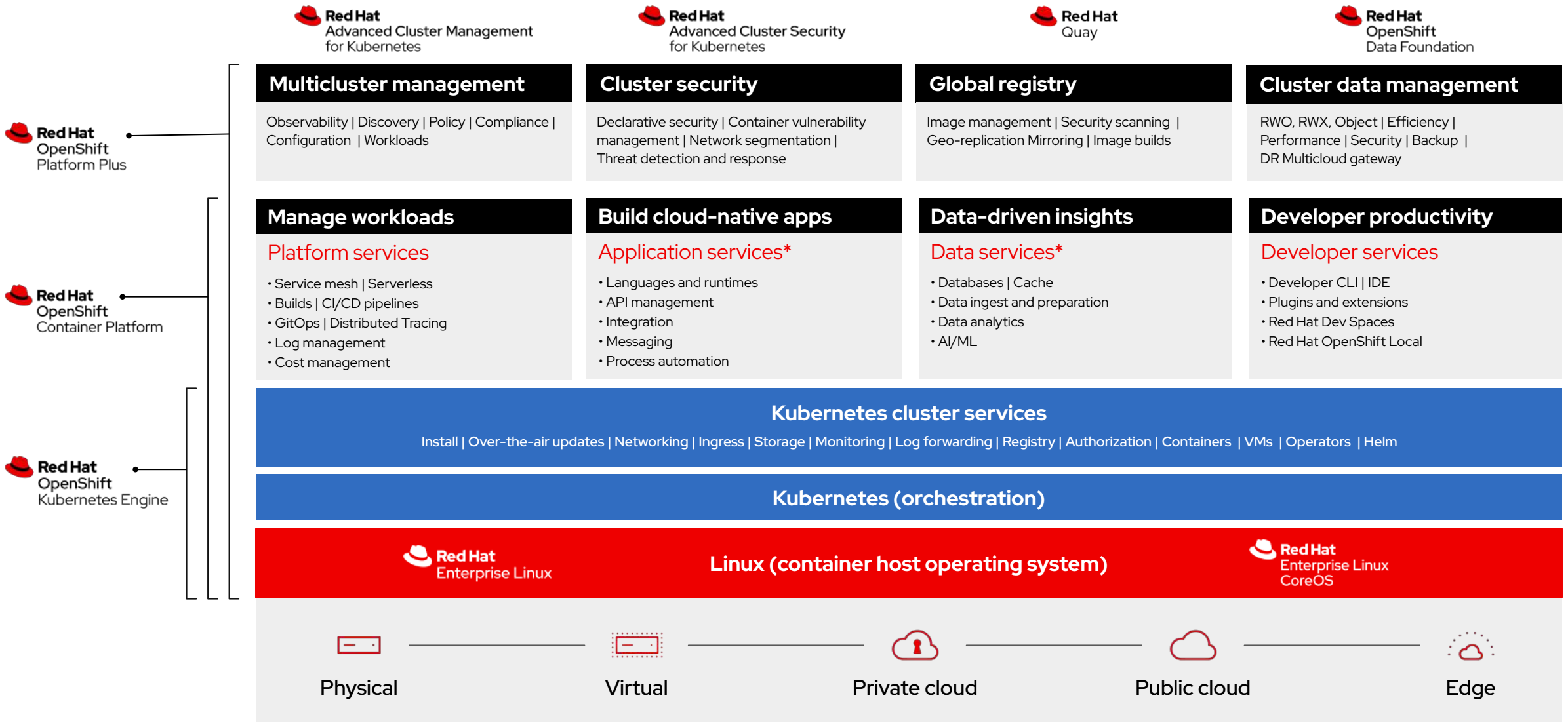


No Dilema with OpenShift



Source: https://www.opensourcerers.org/2022/07/18/the-moving-target-platform-dilemma/

Red Hat OpenShift

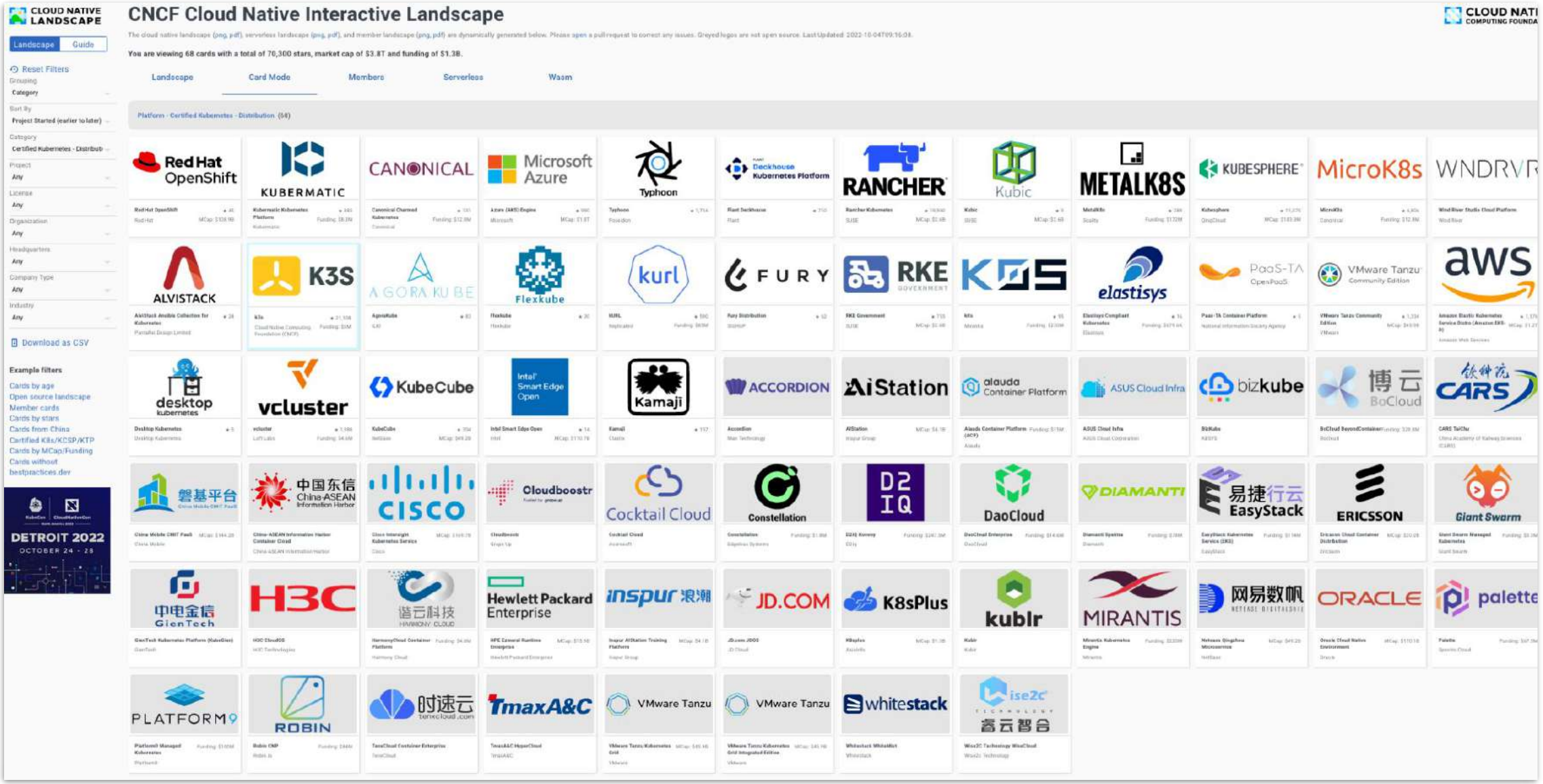


* Red Hat OpenShift® includes supported runtimes for popular languages/frameworks/databases. Additional capabilities listed are from the Red Hat Application Services and Red Hat Data Services portfolios.

** Disaster recovery, volume and multicloud encryption, key management service, and support for multiple clusters and off-cluster workloads requires OpenShift Data Foundation Advanced

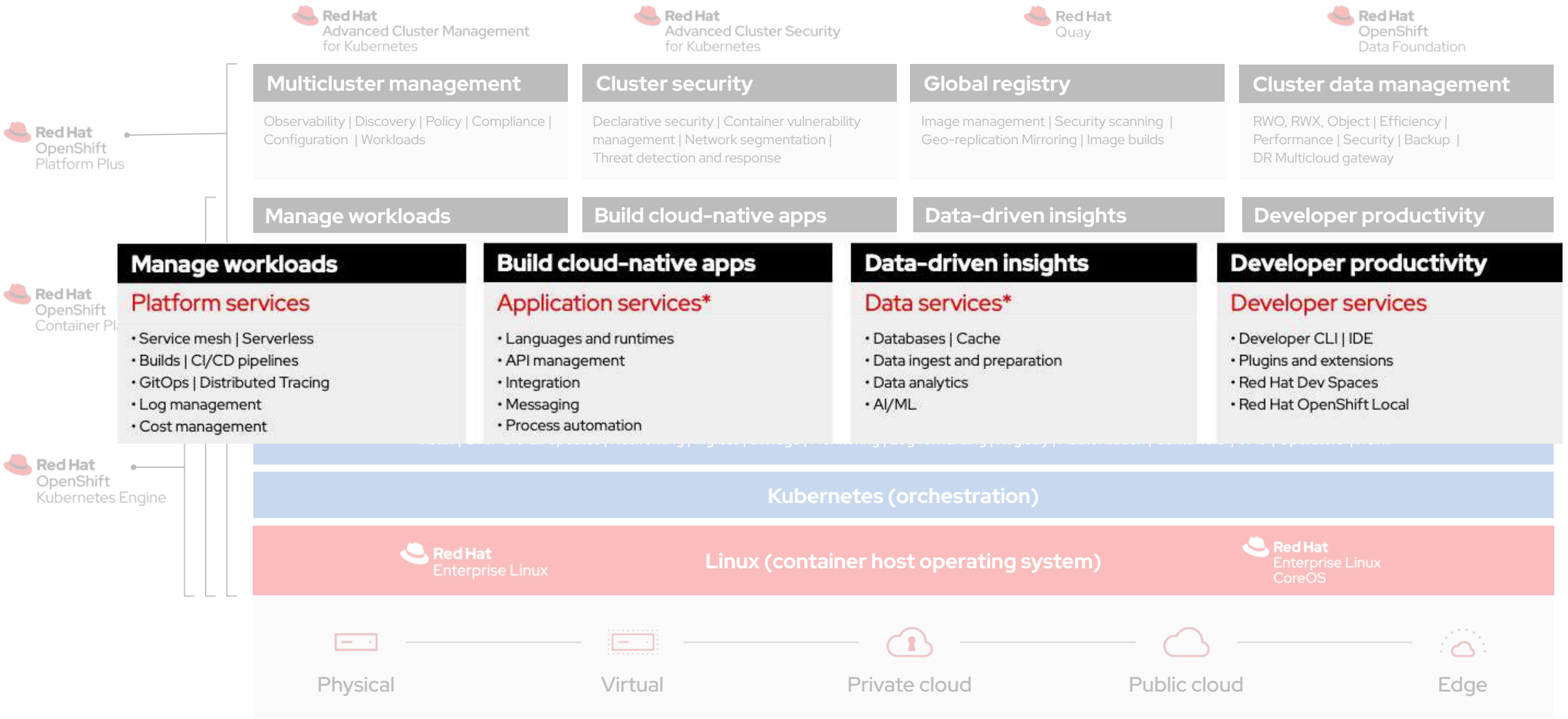
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OpenShift == certified kubernetes!

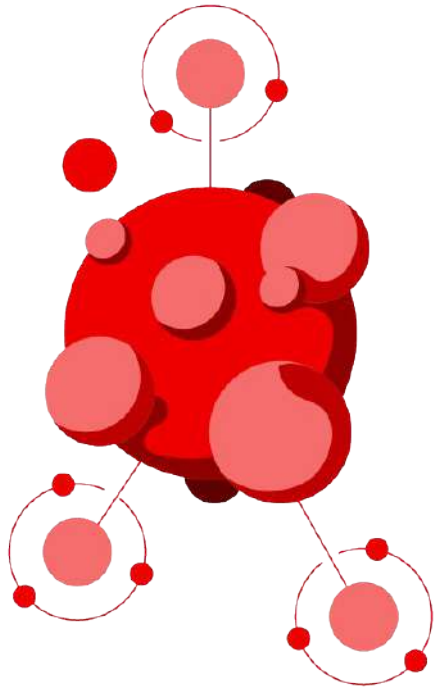


Source: https://landscape.cncf.io/card-mode?category=certified-kubernetes-distribution&grouping=category&sort=first-commit

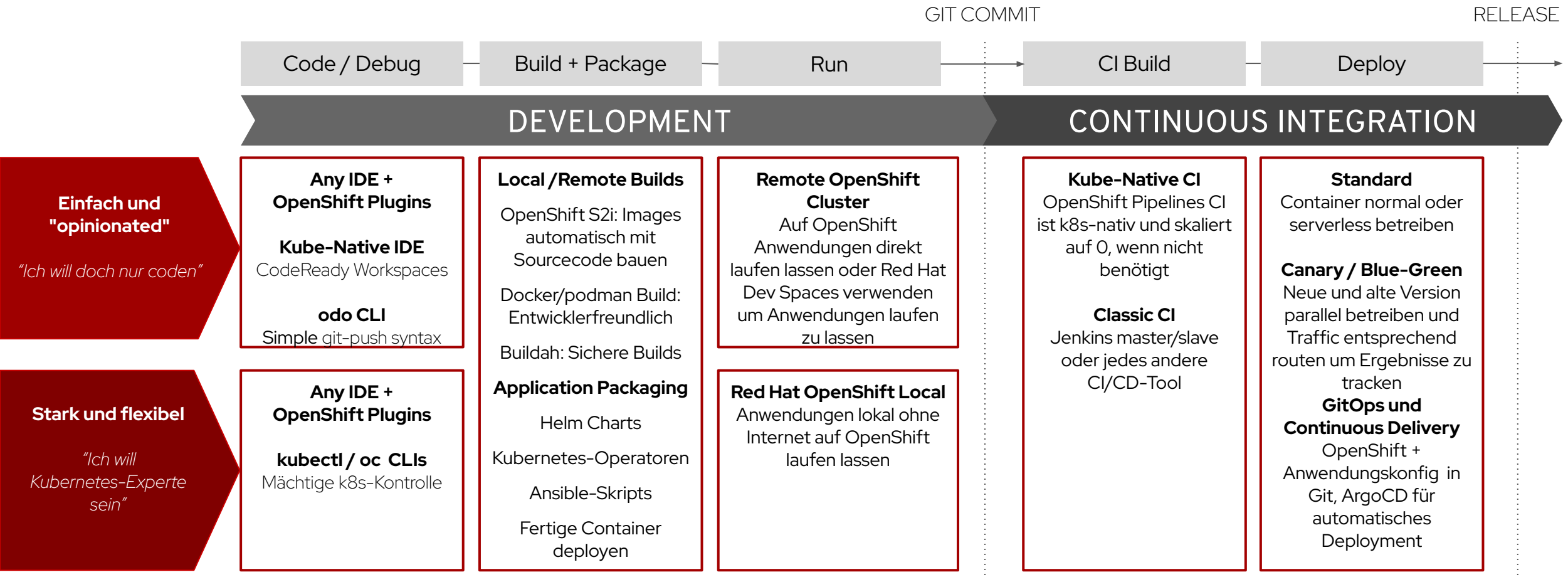
Red Hat OpenShift



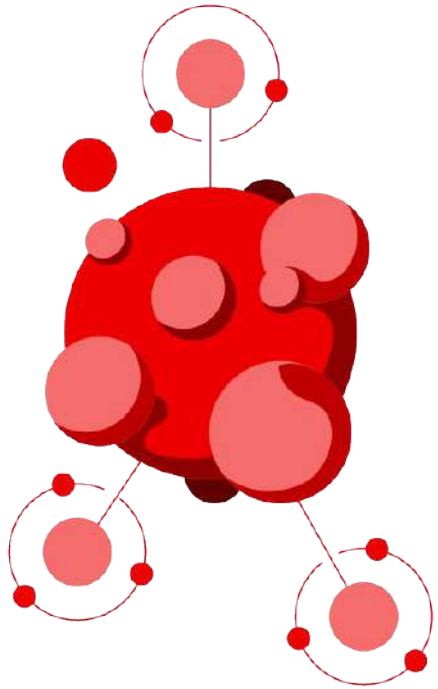
Why:
Red Hat OpenShift for Developer



developer != developer

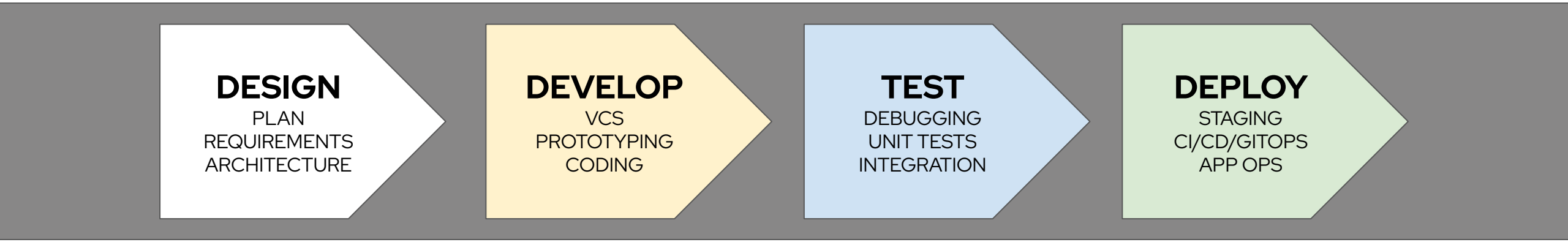


How:
Start writing Kubernetes, OpenShift



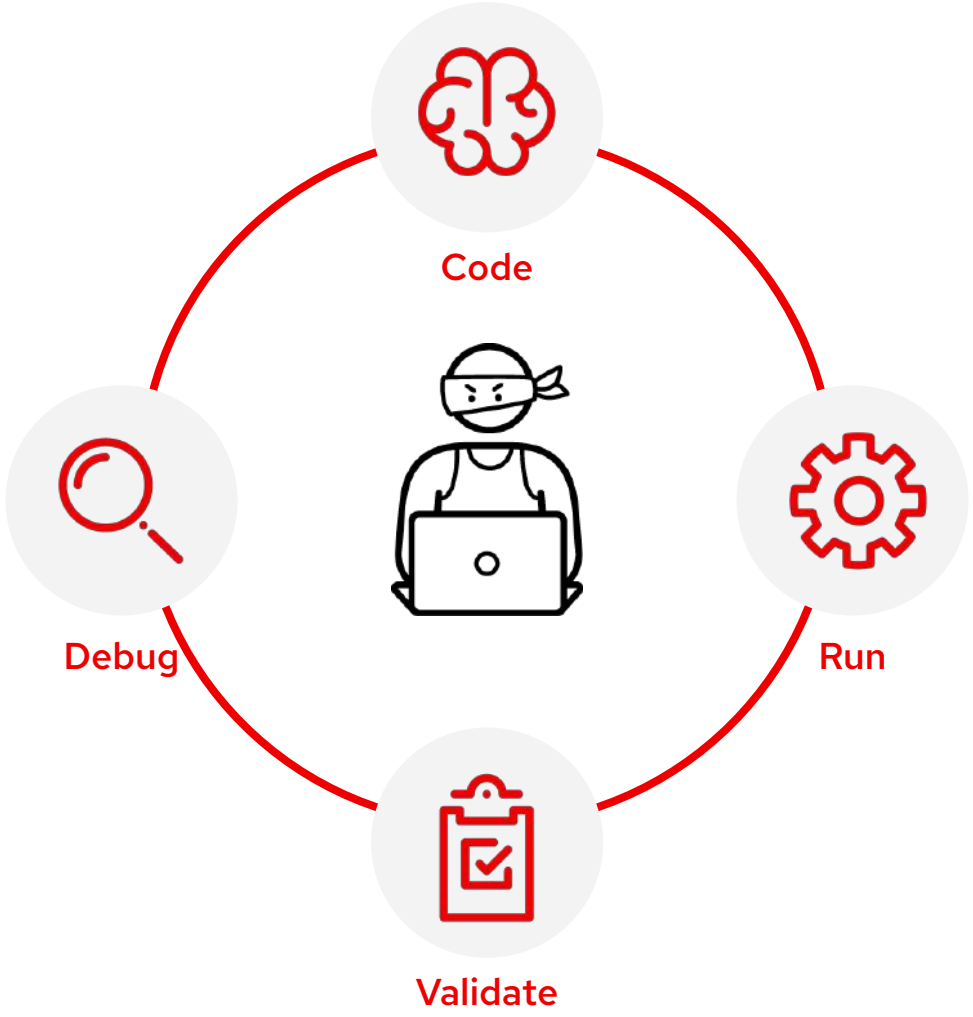
Software **Development** Lifecycle

Disciplines, **not** formal, e.g. ISO/IEEE...



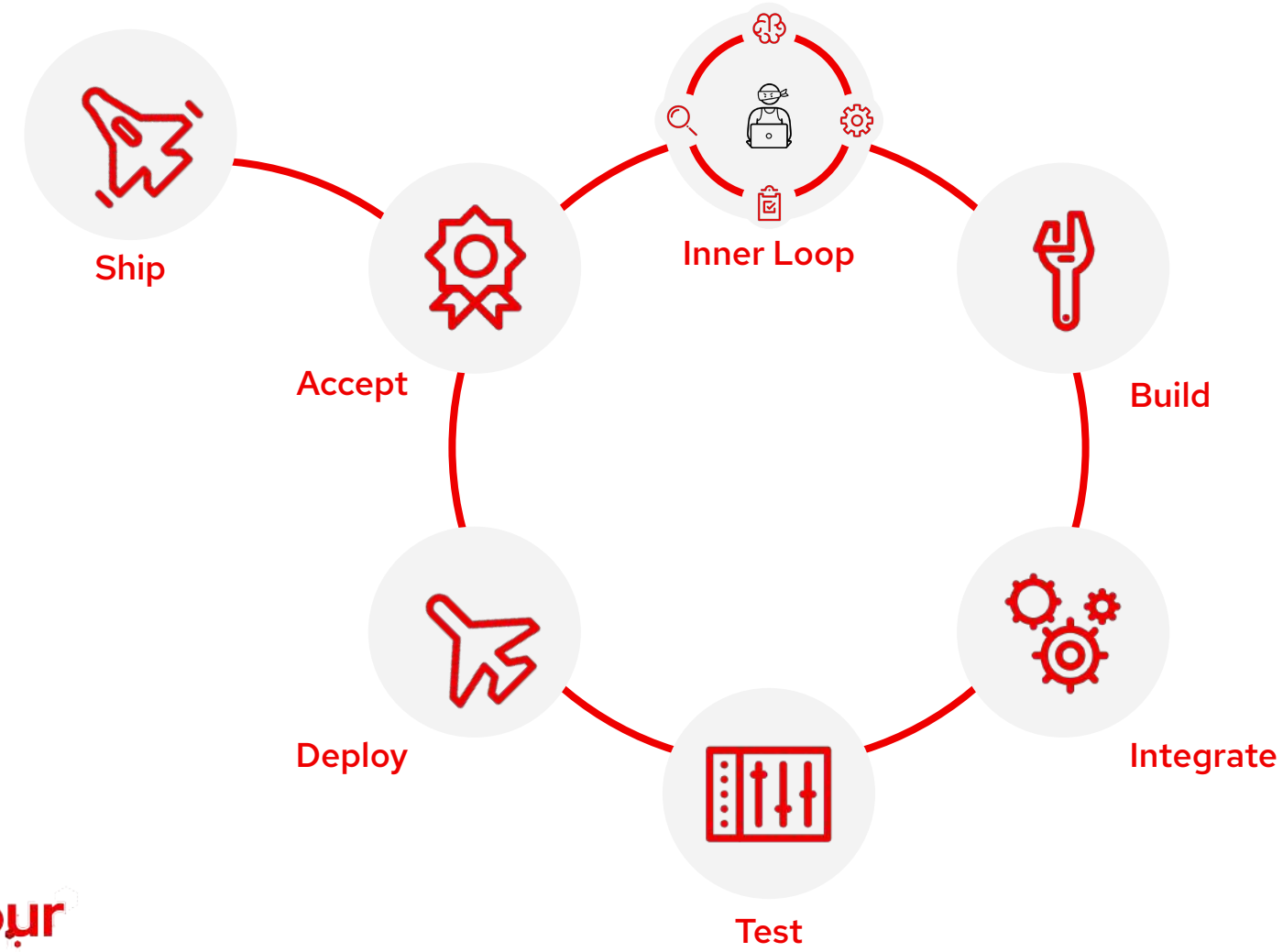
OpenTour
Red Hat | intel.

Developer INNER "Loop"



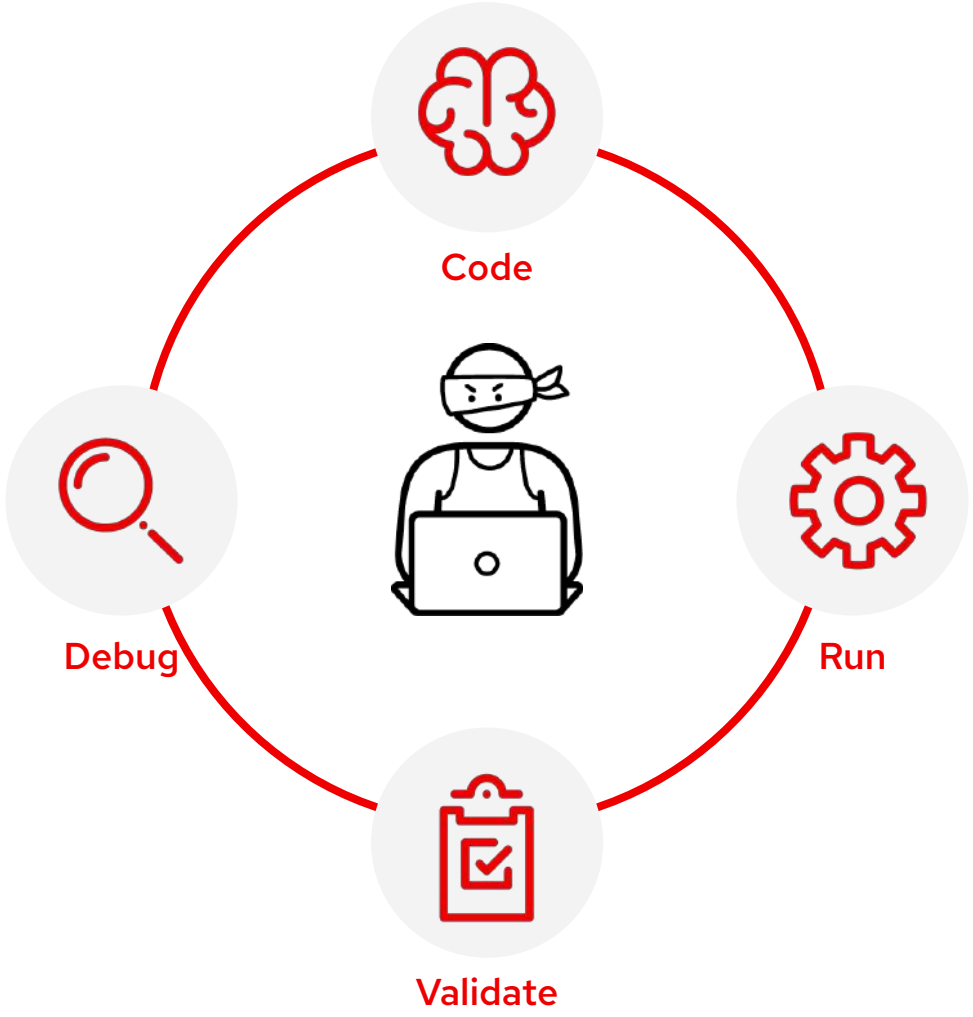
OpenTour
Red Hat | intel.

Developer OUTER Loop



OpenTour
Red Hat | intel.

Developer INNER "Loop"



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Red Hat | intel.

Quarkus - Teil von OpenShift!

Cloud-Native Java-Runtime von Grund auf

QUARKUS

- Zero config, live reload
- Based on standards, but not limited, extensable
- Streamlined code for the 80% common usages, flexible for the 20%
- Unified configuration
- Imperativ and reaktiv coding
- No hassle native executable generation

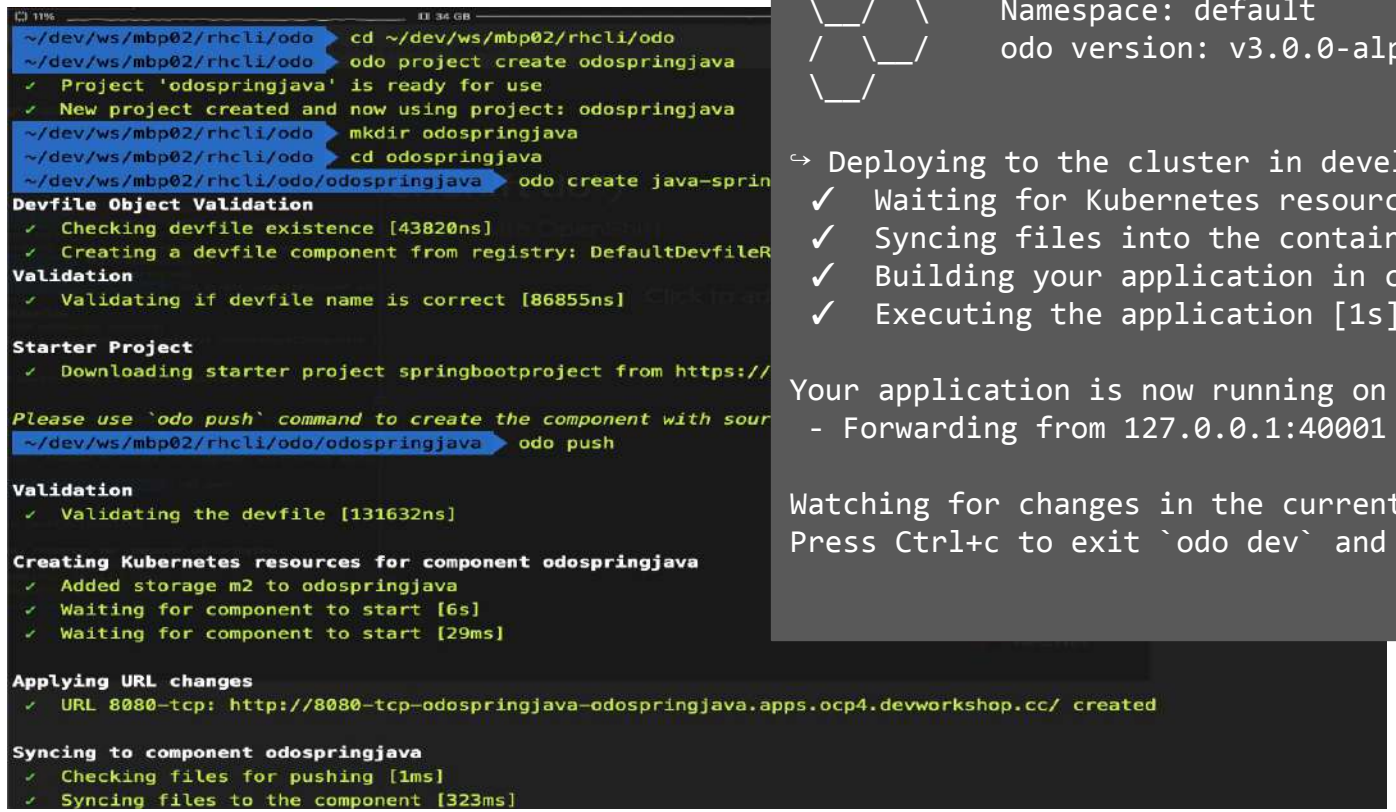




https://quarkus.io/

odo - "OpenShift do!"

Run application on Kubernetes without know how




```
$ odo dev
  __
 /  \__     Developing using the my-nodejs-app Devfile
 \__/  \    Namespace: default
 /  \__/    odo version: v3.0.0-alpha2
 \__/

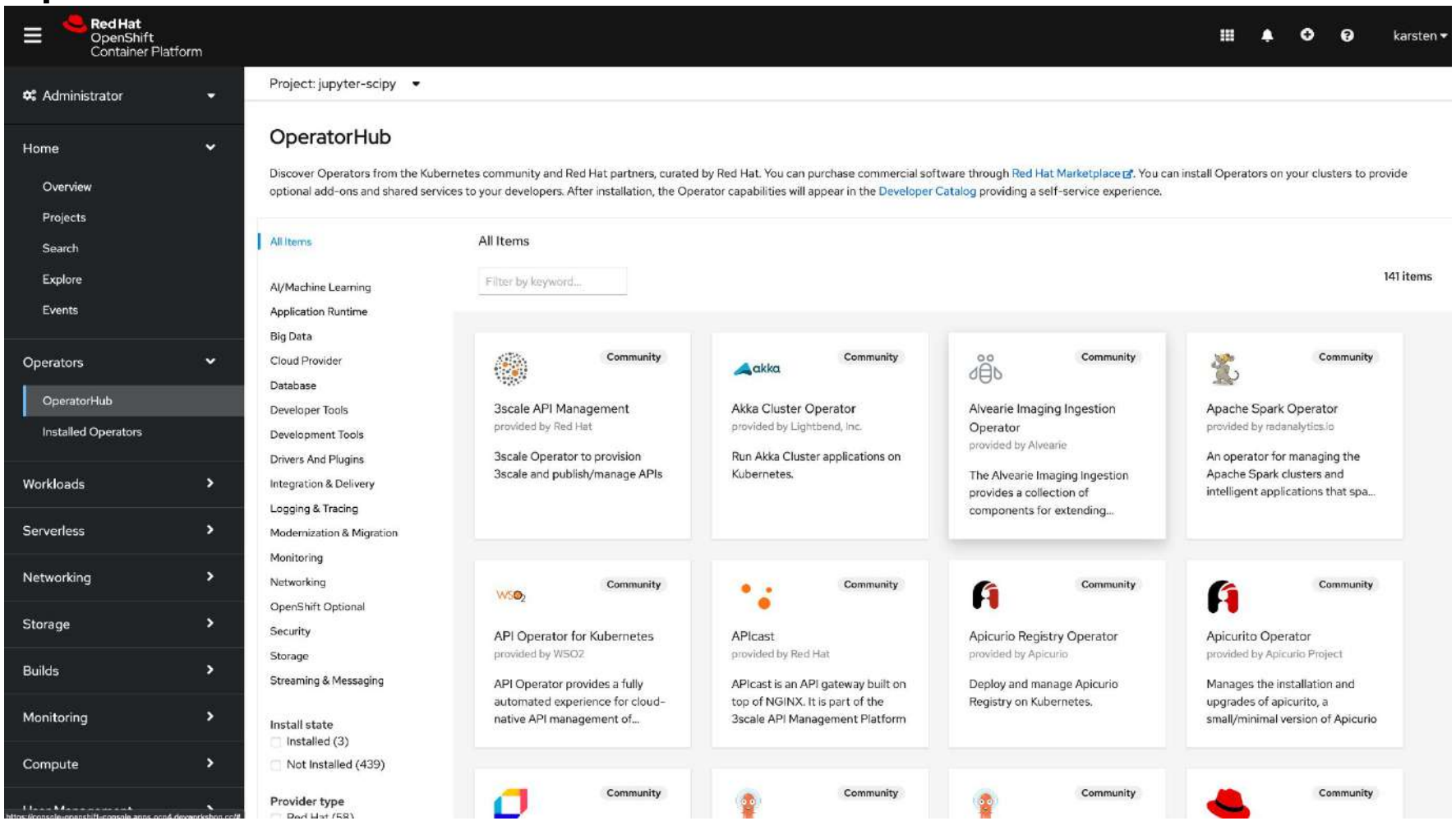
↪ Deploying to the cluster in developer mode
 ✓  Waiting for Kubernetes resources [3s]
 ✓  Syncing files into the container [330ms]
 ✓  Building your application in container on cluster [4s]
 ✓  Executing the application [1s]

Your application is now running on the cluster
 - Forwarding from 127.0.0.1:40001 -> 3000

Watching for changes in the current directory /Users/user/express
Press Ctrl+c to exit `odo dev` and delete resources from the cluster
```

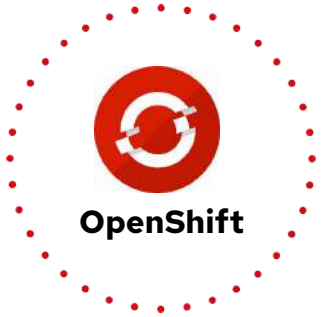

OpenTour
Red Hat | intel.

Operator Framework



Java-Developer? Hier schauen https://javaoperatorsdk.io/

IDE Tooling - Products



OpenShift Connector

Supports OpenShift Local 2.5.1
Supports odo 2.5.1
Components using Default Devfile Registry
Improved Get Started Workflow





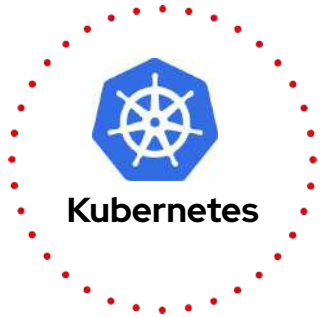
Tekton Pipelines Extension

Support latest Tekton Pipelines 0.35.0
Support latest Tekton Triggers 0.20.0
Support latest tkn cli 0.24.0



Knative/Functions Extension

Support Serverless Function Workflow
Support Node, Quarkus, Go, Python language
Support s2i builder images
Support on-build cluster (in progress)

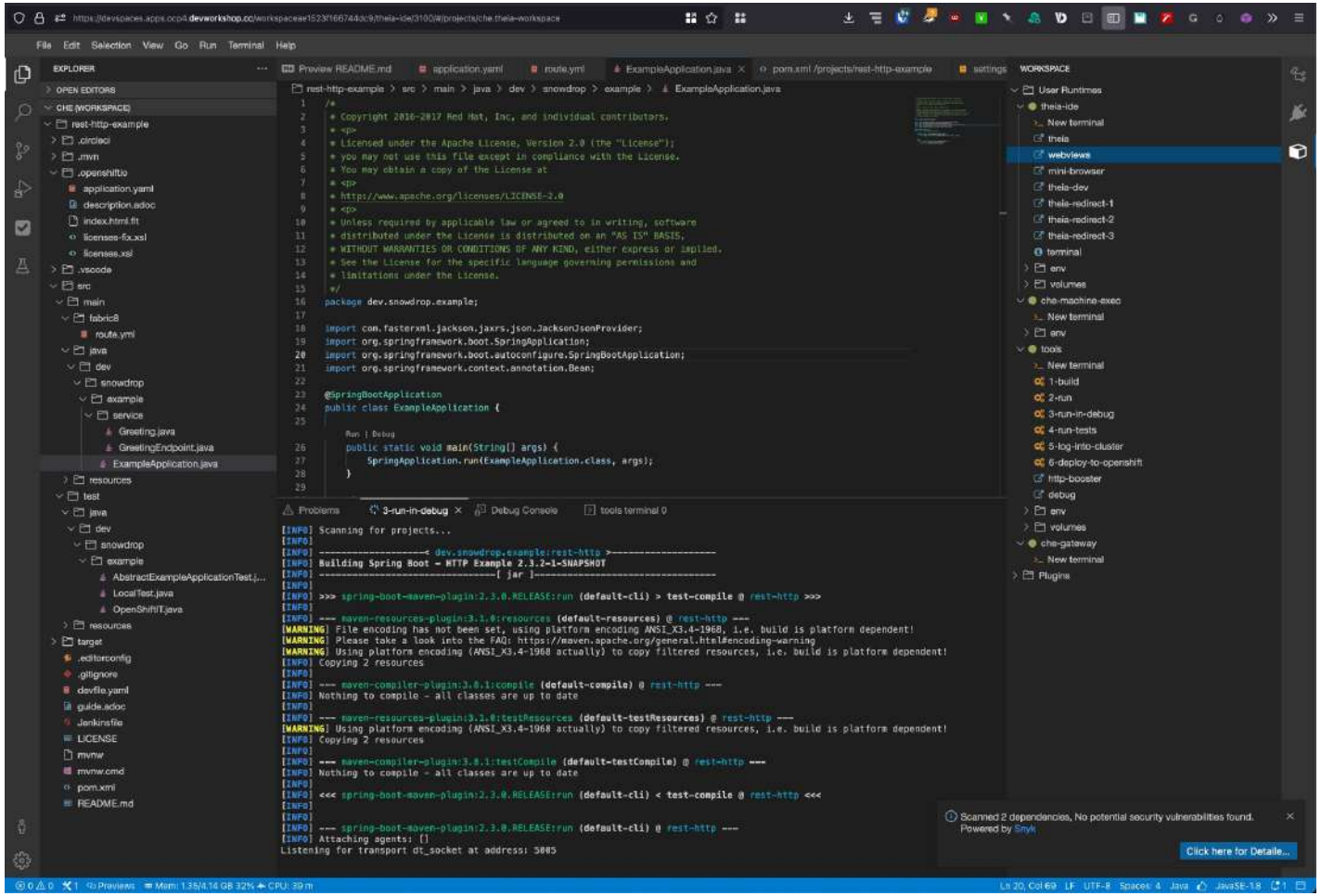


IntelliJ K8s Extension

Continue Kubernetes support on IntelliJ
Cluster resource error management
Diff viewer for local and remote K8s resource

Red Hat OpenShift Dev Spaces (Formerly known as CodeReady Workspaces)

- Workspaces container based
- web-IDE (Theia) based on VSCode
- Debugging, Language-Support container based
- Extensions like Snyk zur Code-Controll



Resources

- Detailed Blog on Whats in V3.0
- Revamped Documentation
- How to Install - Red Hat OpenShift Dev Spaces is available with OpenShift 4.10 onwards
- How to Upgrade

devfile

```
schemaVersion: 2.2.0
metadata:
  name: java-springboot
  version: 1.1.0
  attributes:
    alpha.dockerimage-port: 8081
  displayName: Java Spring Boot
  description: Java Spring Boot using Maven
  tags: ["Java", "Spring"]
  projectType: "springboot"
  language: "java"
  provider: Red Hat
parent:
  id: java-springboot
  registryUrl: "https://registry.devfile.io"
components:
  - name: outerloop-build
```

```
- name: outerloop-build
  image:
    imageName: java-springboot-image:latest
    dockerfile:
      uri: docker/Dockerfile
      buildContext: .
      rootRequired: false
- name: outerloop-deploy
  attributes:
    deployment/replicas: 1
    deployment/cpuLimit: "100m"
  kubernetes:
    uri: outerloop-deploy.yaml
```

```
commands:
  - id: build-image
    apply:
      component: outerloop-build
  - id: deployk8s
    apply:
      component: outerloop-deploy
  - id: deploy
    composite:
      commands:
        - build-image
        - deployk8s
      group:
        kind: deploy
        isDefault: true
```

https://devfile.io/

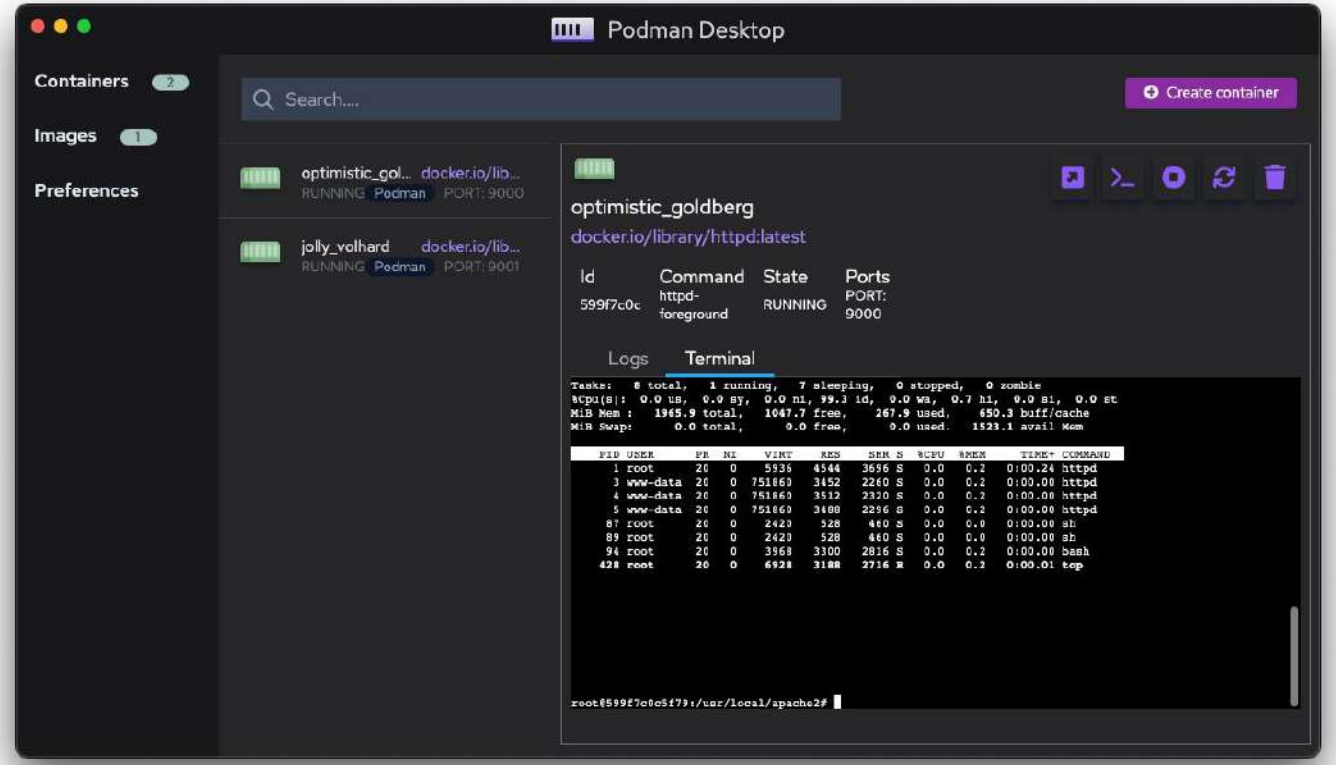
Red Hat | intel.

Podman Desktop

Early Stage

Containers and Kubernetes for application developers

- Run anywhere: Windows, Mac and Linux
- Install and keep-up-to date Podman Engine
- Build, test, run and inspect containers
- Configure and work with container registries
- Readiness for enterprise: Proxy, VPN configuration
- Deploy containers to Kubernetes
- Run and work with OpenShift/Kubernetes Local
- Extensible container engine provider and plugins



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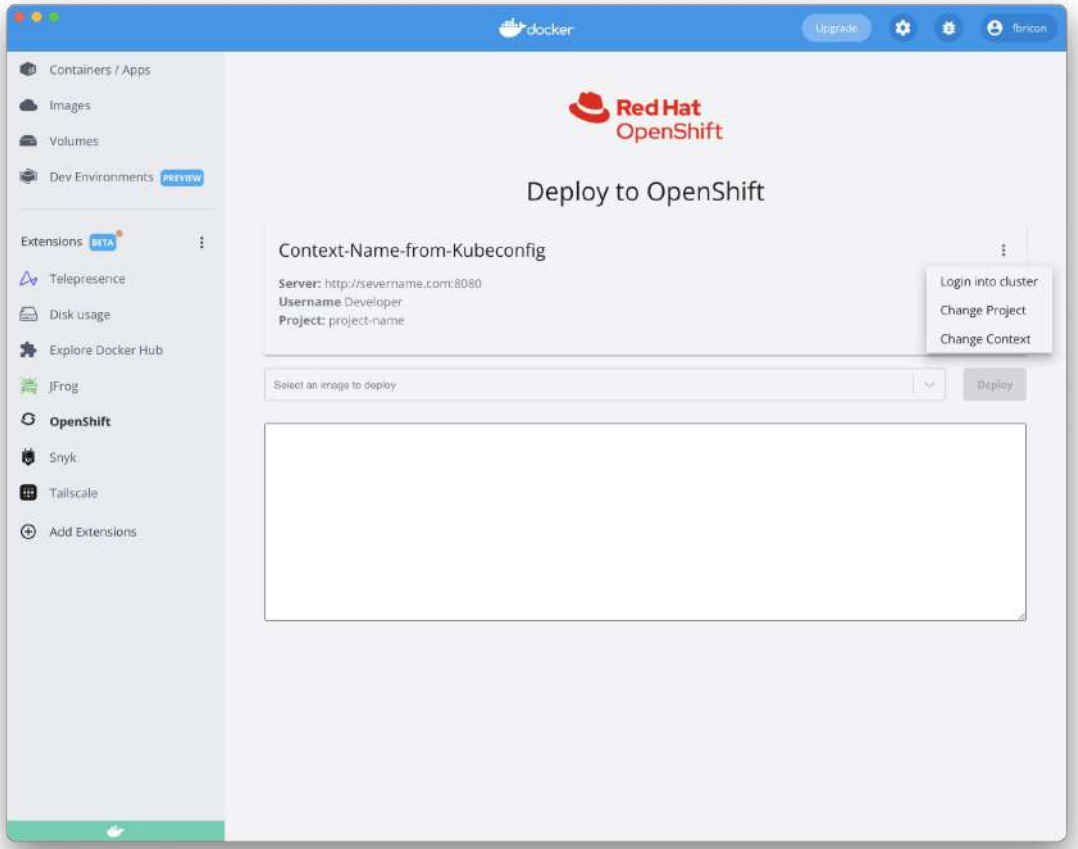
Early Stage

OpenShift Extension for Docker Desktop

Easily Build and Deploy Containers to OpenShift

10k Pulls

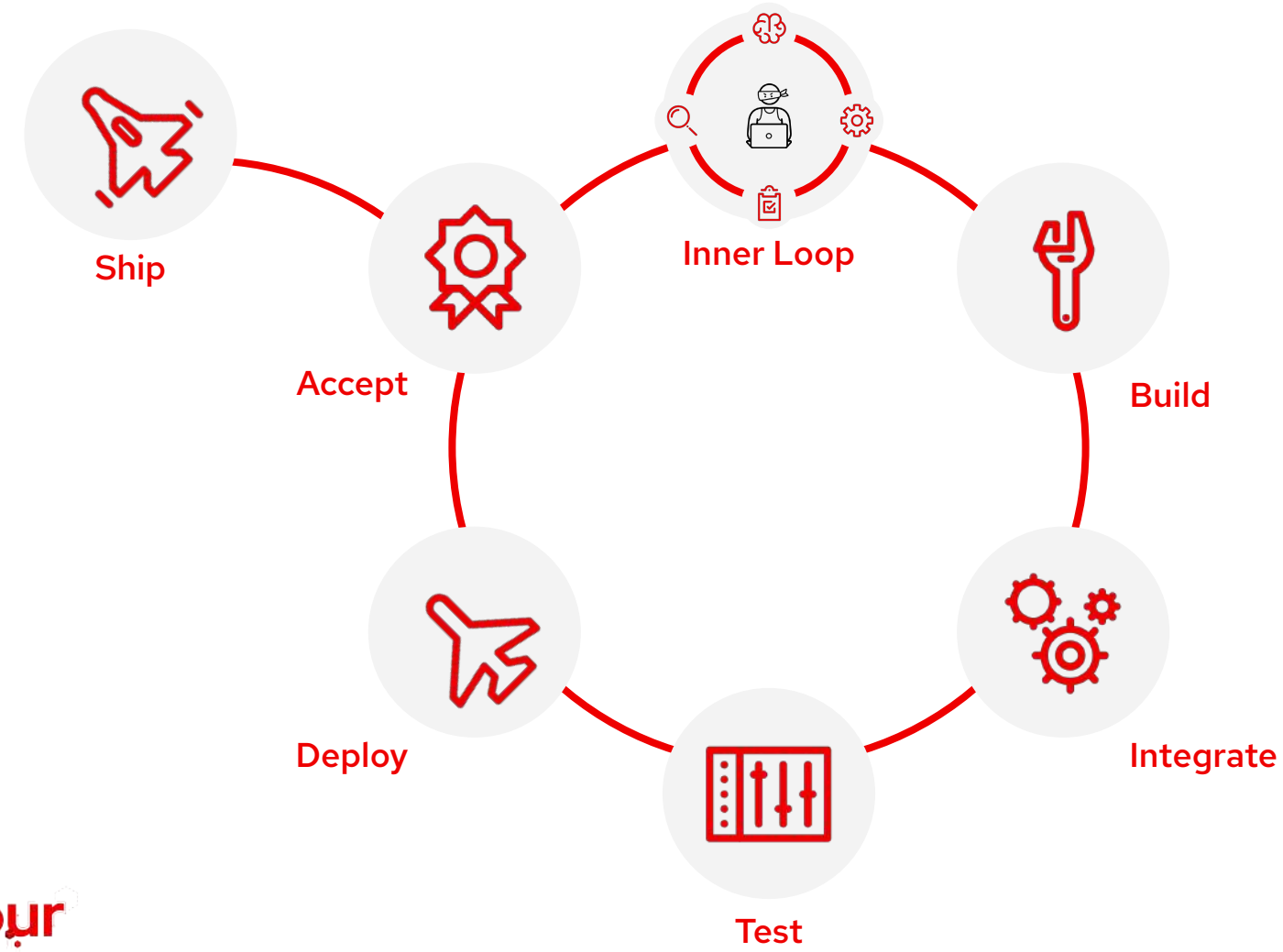
- Detect Kubernetes environments
- Login into cluster
- Namespace selection
- Selection of local containers
- Push image to Registry
- Deploy to cluster
- Easy access to Kubernetes with DevSandbox



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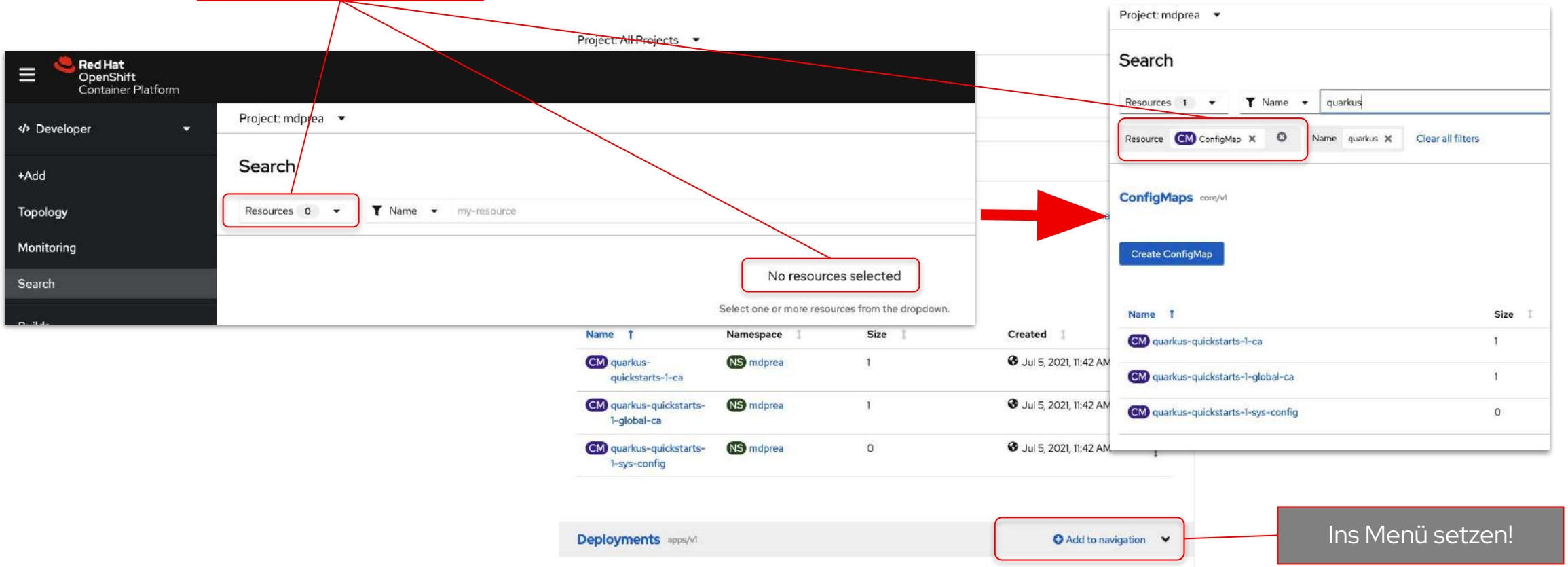
Developer OUTER Loop



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Developer Console

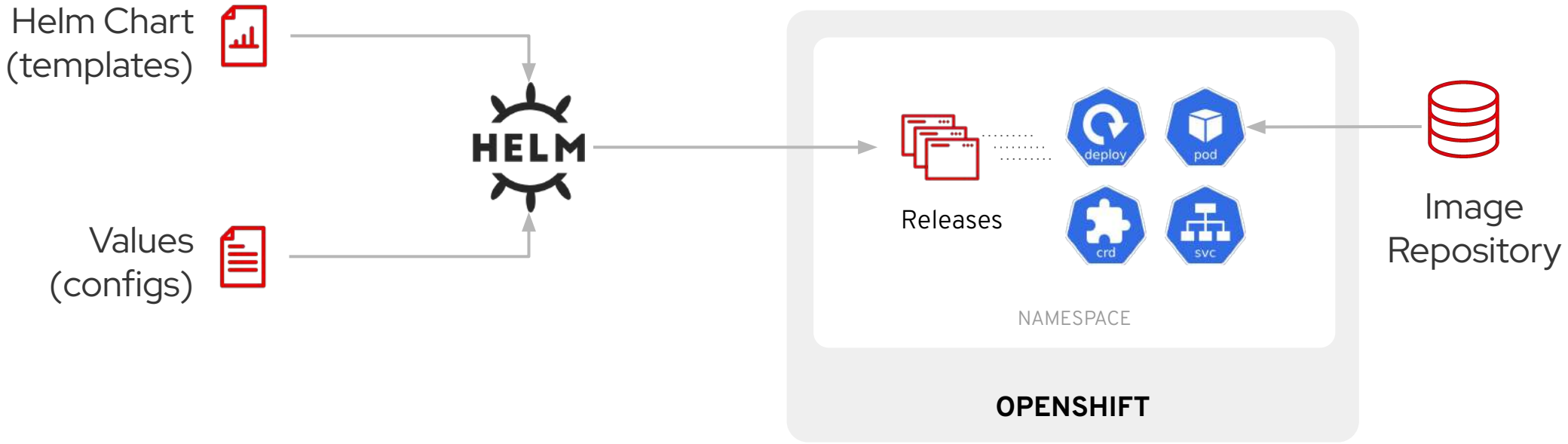
Resourcen festlegen!



Ins Menü setzen!

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Helm on OpenShift



Key Features

- Integration with the developer console to enable self-service consumption of Helm Charts from the developer catalog
- Simpler way to extend available Helm Charts available in the Developer Catalog with a form based approach which is getting more discoverable too.
  - Configure custom Helm Chart Repositories at cluster level
  - Configure custom Helm Chart Repository at namespace level, which requires less permissions

Service Binding Operator

Key Features & Updates

- Blog posts and demos leveraging Service Binding Operator along with ACK Controller from AWS.
- Support of the latest version of Service Binding Specification
- Improvements in OpenShift Developer Console and **odo**, on leveraging Service Binding

```java
import com.nebhale.bindings.Binding;
import com.nebhale.bindings.Bindings;

import java.sql.Connection;
import java.sql.DriverManager;
import java.sql.SQLException;

public class Application {

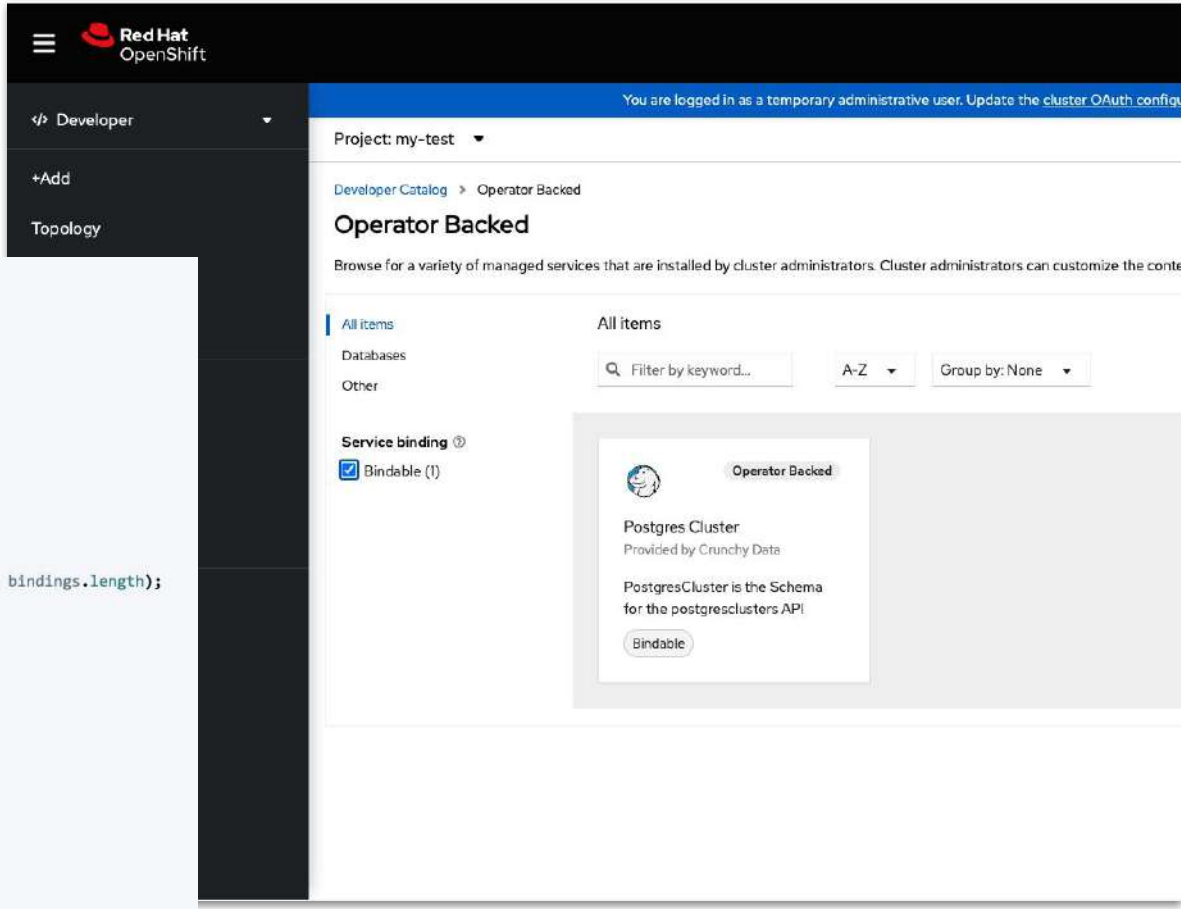
    public static void main(String[] args) {
        Binding[] bindings = Bindings.fromServiceBindingRoot();
        bindings = Bindings.filter(bindings, "postgresql");
        if (bindings.length != 1) {
            System.err.printf("Incorrect number of PostgreSQL drivers: %d\n", bindings.length);
            System.exit(1);
        }

        String url = bindings[0].get("url");
        if (url == null) {
            System.err.println("No URL in binding");
            System.exit(1);
        }

        Connection conn;
        try {
            conn = DriverManager.getConnection(url);
        } catch (SQLException e) {
            System.err.printf("Unable to connect to database: %s", e);
            System.exit(1);
        }

        // ...
    }

}
```

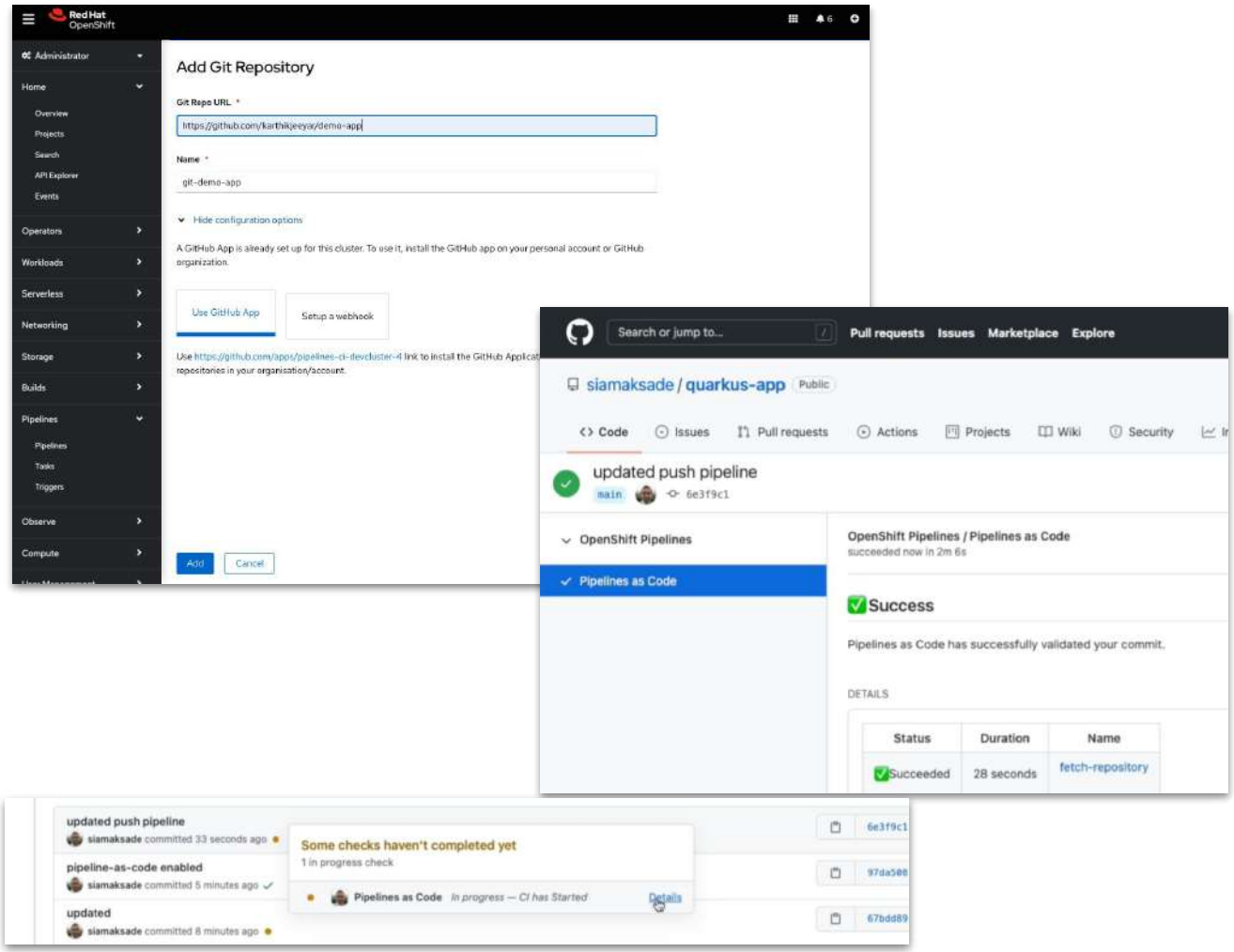


https://servicebinding.io

OpenShift for developer productivity

OpenShift Pipelines

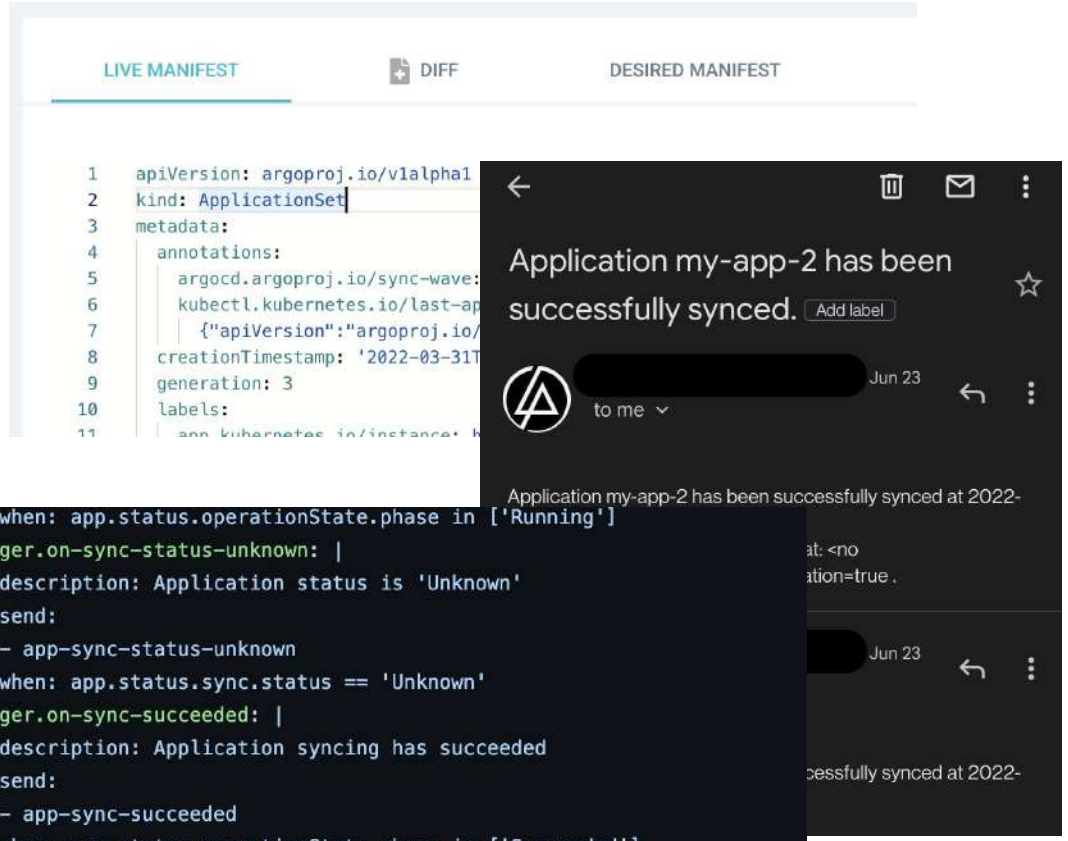
- OpenShift Pipelines 1.8
- External database support in Tekton Hub
- Pipelines on Arm architecture (Tech Preview)
- Pipelines as code enhancements
  - Trigger multiple pipelines for Git event
  - GitLab and BitBucket support
  - CLI commands for configuring webhooks
  - Manual and third-party triggers
- Dev Console enhancements
  - Configure Git repositories with pipelines as code
  - Create GitHub App for pipelines as code



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OpenShift GitOps

- OpenShift GitOps 1.6
- Argo CD 2.4
- ApplicationSets (General Availability)
- Notifications (Tech Preview)
- Secret management guide
- Custom plugins in Argo CD
- Single sign on updates to Dex syntax
- Support for running on IBM Power and IBM Z
- Encrypted comms with Redis
- Dev console deployment history



Demo Time



Red Hat

Red Hat Developer

Join Red Hat Developer.

Build here. Go anywhere.

youtube.com/RedHatDevelopers

linkedin.com/showcase/red-hat-developer

facebook.com/RedHatDeveloperProgram

twitter.com/rhdevelopers



Learn containers, Kubernetes, and OpenShift in your browser.

Start exploring in the OpenShift Sandbox.

Try Red Hat's products and technologies without setup or configuration.

developers.redhat.com/developer-sandbox

Red Hat

Red Hat Developer

Thank You!


"To be the catalyst in communities of customers, contributors, and partners **creating better technology the open source way**."
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