



Container native development

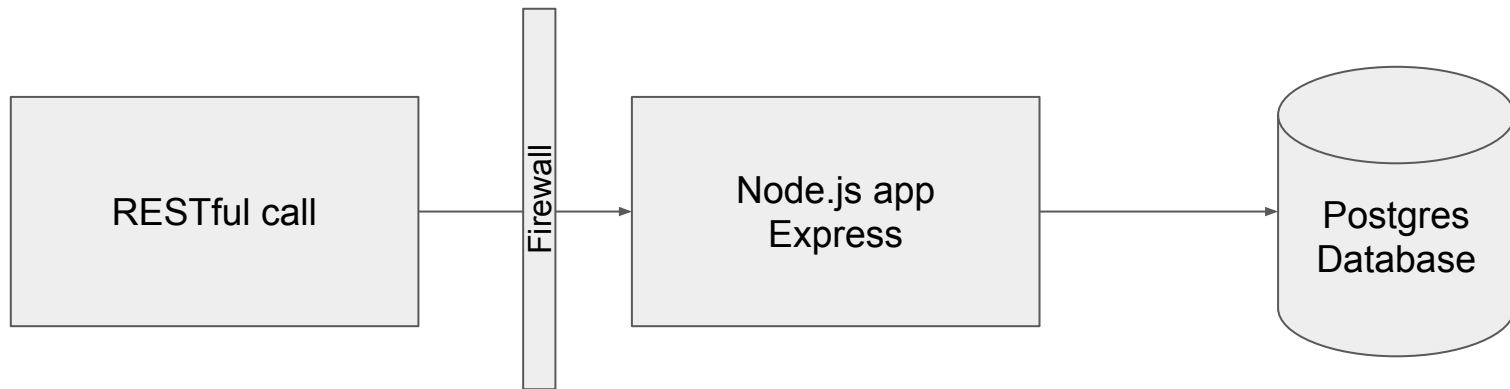
with RHOAR, Node.js, and OpenShift service mesh

Philip Hayes

Architect, Red Hat Emerging Technologies Practice

Thurs 9th May, 2019

Let's take a look at a simple Node.js application architecture

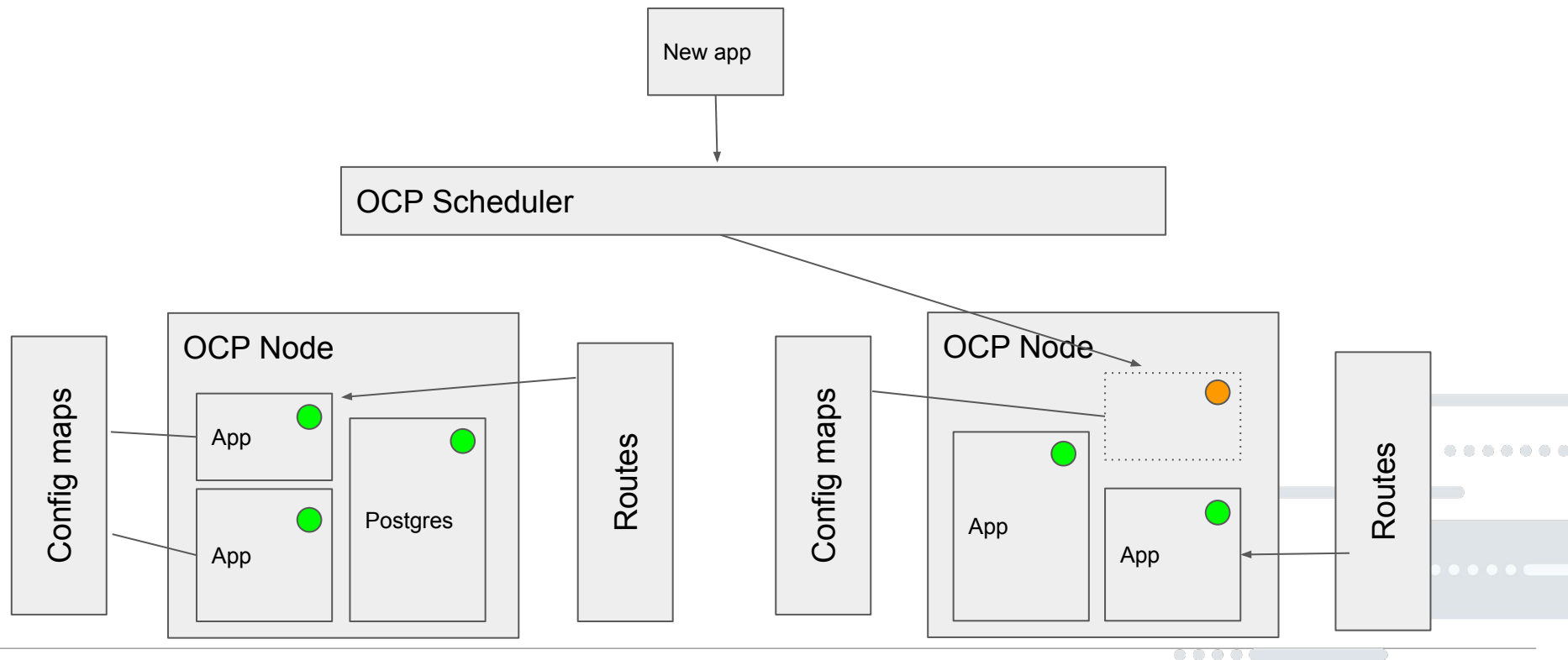


Can we take this Node.js app and
deploy it on OpenShift?

Will it work ok?

Is there any problem doing this?

Your application on OpenShift



Do I need to learn about creating
Dockerfiles?

How do I communicate things like
resource requirements to the
platform?

Is there any way to tell if my
application is running ok?

How do I accept inbound traffic?

Can I continue to work with my existing IDE or do I need to use new tools?

I really need to focus on the application logic, I don't need any extra overhead.

What happens if the application detects a system fault, how does the application relay this to the orchestration layer?

Customers are looking for guidance
from Red Hat Consulting.
How can we help developers to adopt
container native development
practices?

How can your application be a better OpenShift citizen?

- Readiness / liveness probes
- Service discovery
- Deployment configuration
- Graceful shutdown
- Use of config maps
- Tracing

Container Native Development

We define container native development as conforming to the following key tenets:

- Single concern principle
- Self containment principle
- High observability
- Lifecycle conformance
- Runtime confinement
- Process disposability
- Image immutability

Check out the "PRINCIPLES OF CONTAINER-BASED APPLICATION DESIGN" white paper by Bilgin Ibryam (link at end)

Container native Node.js demonstration

- Red Hat Service Mesh setup using the Istio Operator
- Kiali installation
- RHOAR - Node.js configuration
- Node.js boilerplate code for tracing
- Node.js - OCP communication
- Node.js - Swagger definition
- Deploying our app to openshift from our favorite IDE
- Viewing results using the Istio control plane

Technologies

We are going to use the following technologies for this demonstration



RHOAR



OpenShift Service Mesh



Kiali

Demonstration

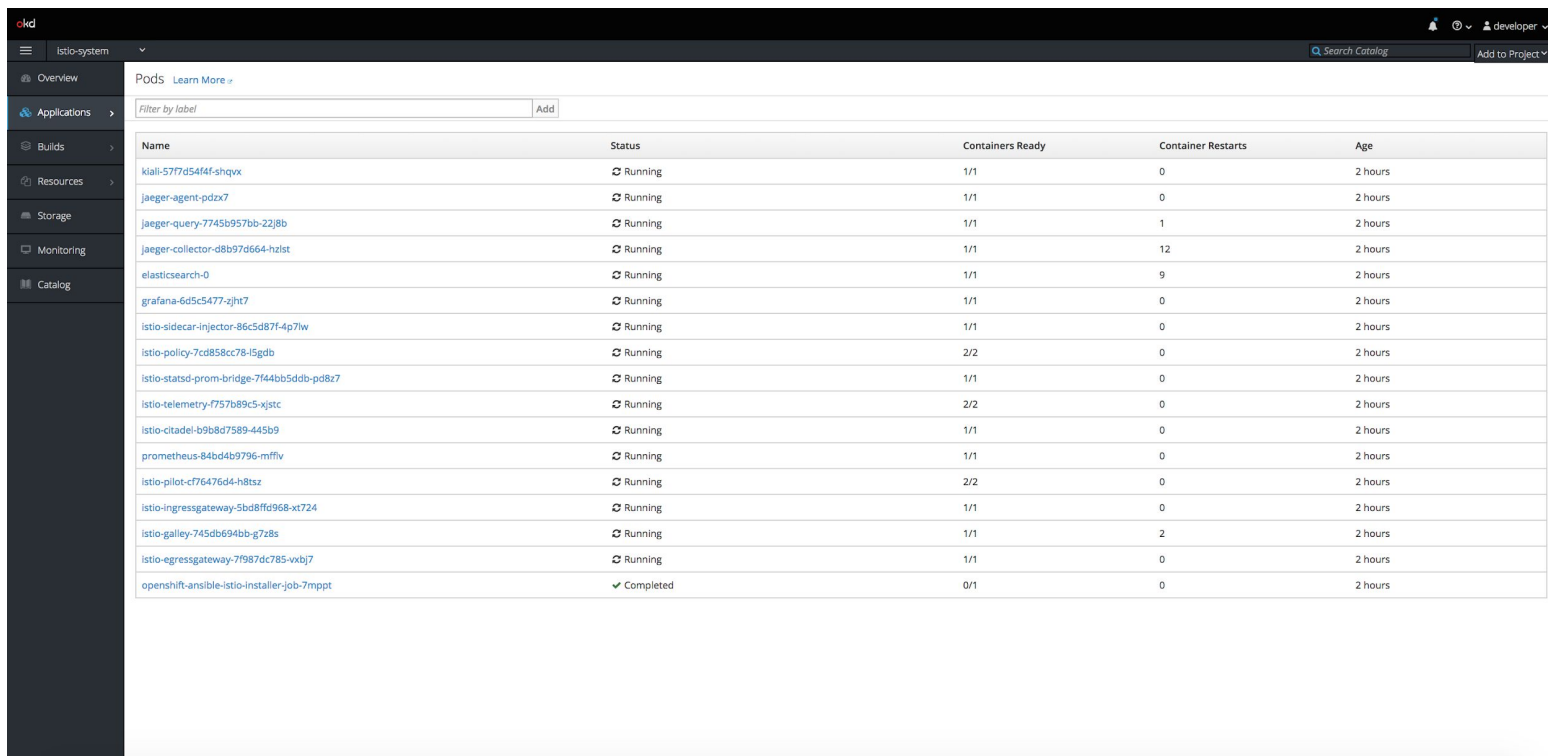
Red Hat Service Mesh installation

- Install the OpenShift Service Mesh:
<https://docs.openshift.com/container-platform/3.10/servicemesh-install/servicemesh-install.html#installing-service-mesh>
- Or... use istiooc
<https://github.com/Maistra/origin/releases>
- Installing Istio Operator
- Deploying Istio Control Plane
- Install Kiali

Red Hat Service Mesh installation

- Deploying the Istio Control plane
- <https://github.com/Maistra/openshift-ansible/tree/maistra-0.1.0-ocp-3.1.0-istio-1.0.0/istio>
- Installing Kiali
- <https://github.com/kiali/kiali>

Post-installation status



okd

istio-system

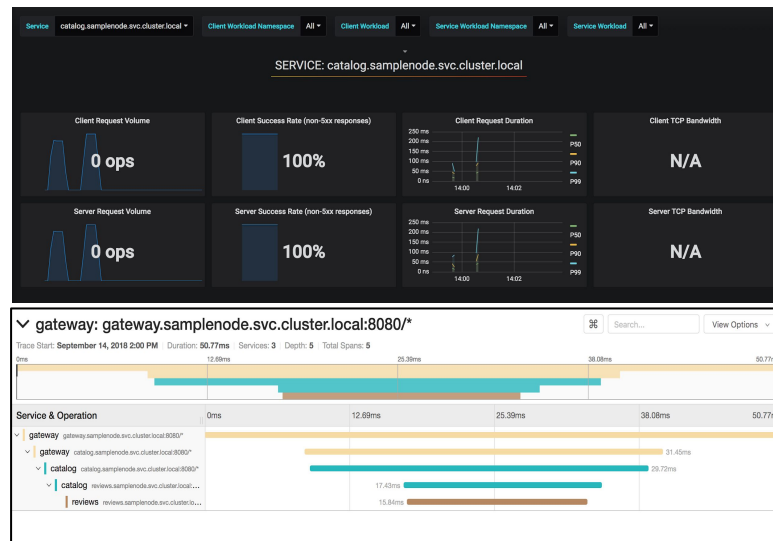
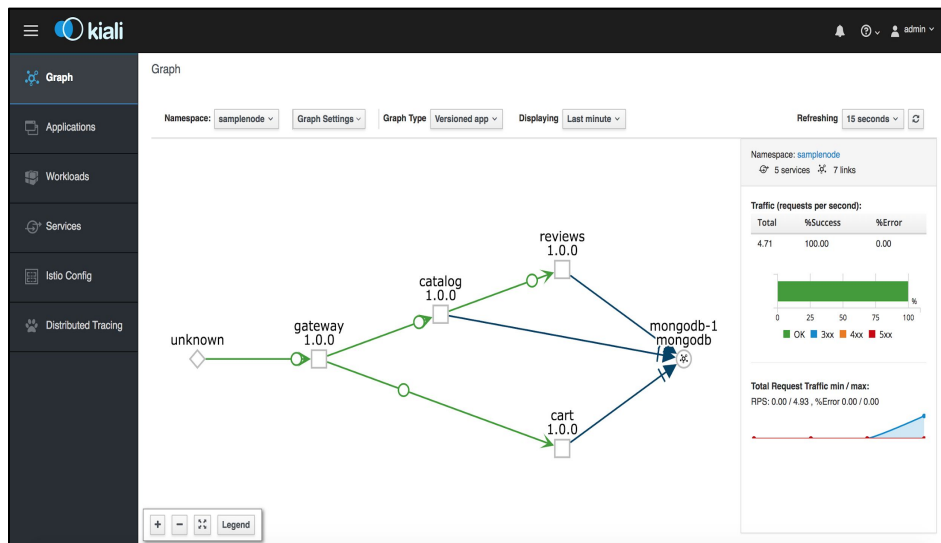
Search Catalog Add to Project

Pods [Learn More](#)

Filter by label Add

Name	Status	Containers Ready	Container Restarts	Age
kiali-57f7d544f-shqvx	Running	1/1	0	2 hours
jaeger-agent-pdx7	Running	1/1	0	2 hours
jaeger-query-7745b957bb-22j8b	Running	1/1	1	2 hours
jaeger-collector-d8b97d664-hzlst	Running	1/1	12	2 hours
elasticsearch-0	Running	1/1	9	2 hours
grafana-6d5c5477-zjht7	Running	1/1	0	2 hours
istio-sidecar-injector-86c5d87f-4p7lw	Running	1/1	0	2 hours
istio-policy-7cd858cc78-l5gdb	Running	2/2	0	2 hours
istio-statsd-prom-bridge-7f44bb5ddb-pd8z7	Running	1/1	0	2 hours
istio-telemetry-f757b89c5-xjstc	Running	2/2	0	2 hours
istio-citadel-b9b8d7589-445b9	Running	1/1	0	2 hours
prometheus-84bd4b9796-mfflv	Running	1/1	0	2 hours
istio-pilot-cf76476d4-h8tsz	Running	2/2	0	2 hours
istio-ingressgateway-5bd8ff968-xt724	Running	1/1	0	2 hours
istio-galley-745db694bb-g7z8s	Running	1/1	2	2 hours
istio-egressgateway-7f987dc785-vxbj7	Running	1/1	0	2 hours
openshift-ansible-istio-installer-job-7mppt	Completed	0/1	0	2 hours

Viewing results Kiali, Grafana, Jaeger



RHOAR Node.js configuration

- Nodeshift
<https://www.npmjs.com/package/nodeshift>
- Istio Sidecar annotation
- Health endpoints
- Limits
- Port types
- Config Maps
- Labels

Resources

<https://developers.redhat.com/products/rhoar/overview/>

<https://learn.openshift.com/servicemesh/>

<https://www.redhat.com/cms/managed-files/cl-cloud-native-container-design-whitepaper-f8808kc-201710-v3-en.pdf>

phayes@redhat.com

RED HAT
SUMMIT

THANK YOU



[linkedin.com/company/Red-Hat](https://www.linkedin.com/company/Red-Hat)



[youtube.com/user/RedHatVideos](https://www.youtube.com/user/RedHatVideos)



[facebook.com/RedHatinc](https://www.facebook.com/RedHatinc)



twitter.com/RedHat



THANK YOU



[linkedin.com/company/Red-Hat](https://www.linkedin.com/company/Red-Hat)



[youtube.com/user/RedHatVideos](https://www.youtube.com/user/RedHatVideos)



[facebook.com/RedHatinc](https://www.facebook.com/RedHatinc)



twitter.com/RedHat

SECTION BREAK

SECTION BREAK