

## WHO IS LEONARDO UST?

- 25+ years serving customers across APAC / a UST Company since February 2024
- In ANZ 130+ team incl. Leonardo > Global 30,000+ team across 30 countries
- Process Transformation : Strategy, engineering, operations, and cloud solutions.
- **Rebuilding process for the digital age**

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Today's  
Red Hat  
Meetup**



# Melbourne OpenShift Meetup

14 November 2024 – 6:00pm, Lvl 23, 120 Collins St

<https://www.meetup.com/en-AU/melbourne-openshift-meetup/>

# Agenda:

Welcome

## **Phillip Kruger**

- ▶ Chappie - AI in Quarkus. In this demo we will show the experiments we are busy with, using AI to enhance the developer experience in Quarkus

## **Dave Ripani**

- ▶ Confidential Containers

## **Open Mic**

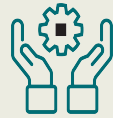
## **Benjamin Farr**

- ▶ Highlights What's new in OpenShift with a focus on Serverless Logic

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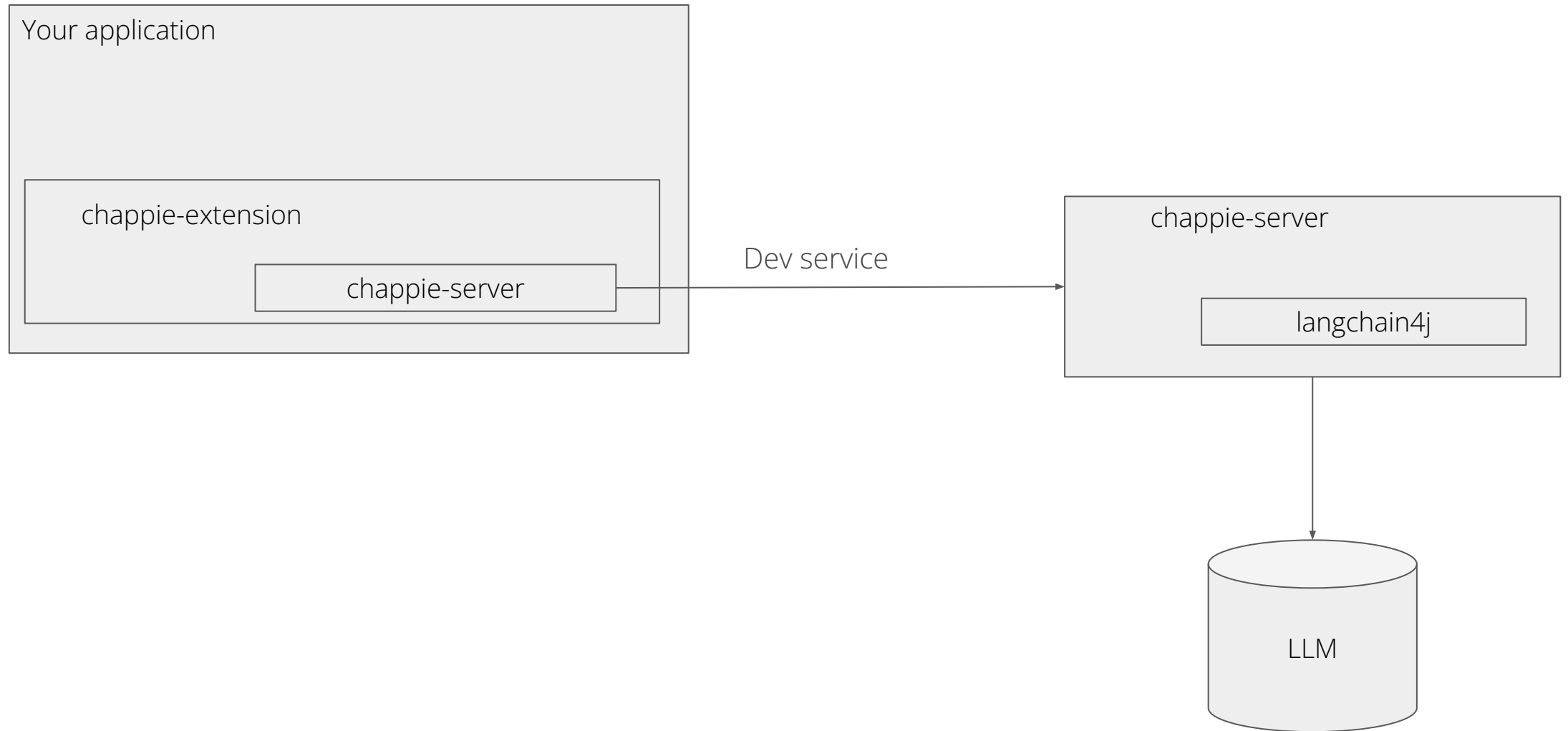
**Proudly  
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# Chappie



# High Level



# Pipeline

- Pluggable (dynamic) Queries
- RAG on our documentation
- Chat bot
- ... ?

# What's New in OpenShift

14 November 2024



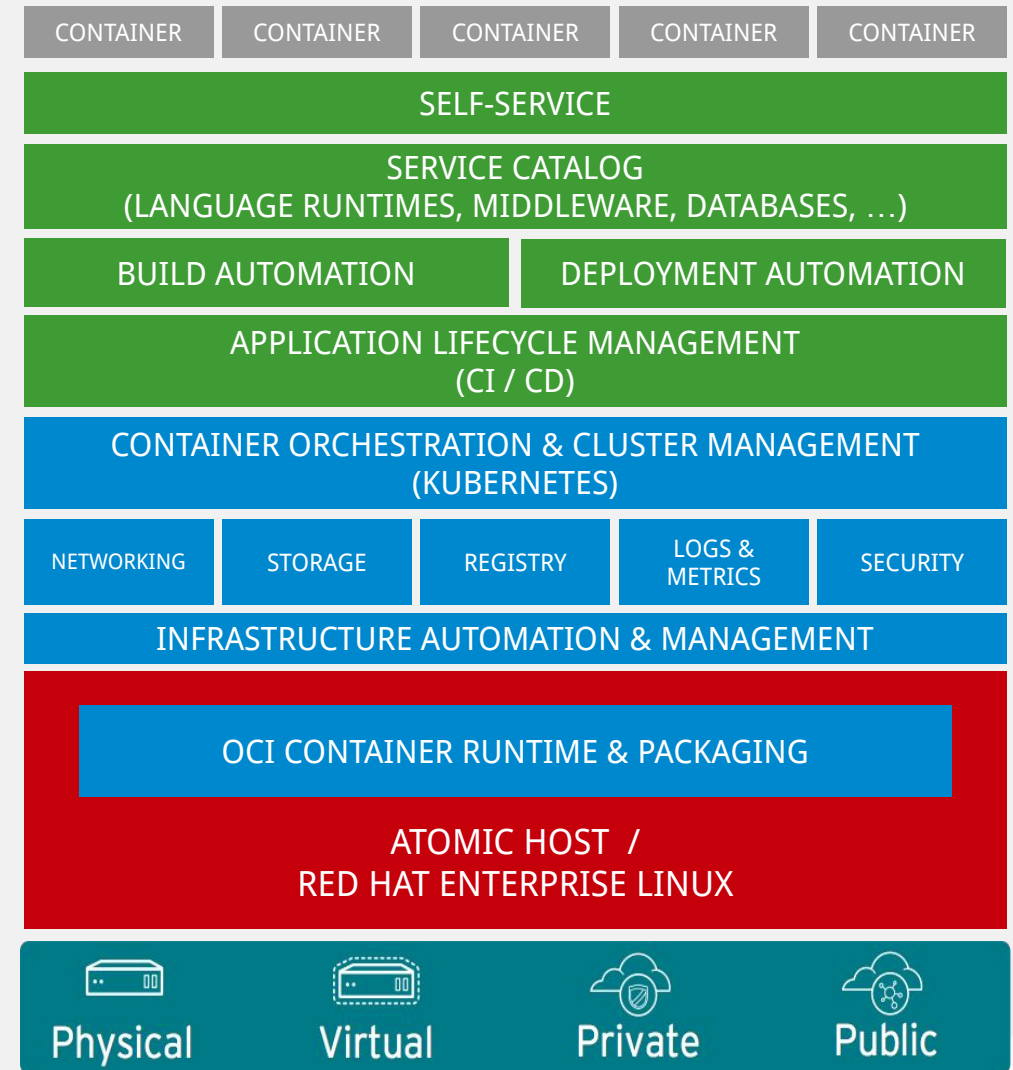
# What's Else is New in OpenShift Container Platform 3.11

Melbourne OpenShift Meetup  
Nov 2018



# Highlights of OCP 3.11

- OpenShift Container Engine
- AMQ Streams GA
- Host & Engine Highlights
- AWS AutoScale Groups
- Router (HAPROXY) Enhancements
- HA Namespace-wide EGRESS IP
- Fully Automatic Namespace-wide EGRESS IP
- Configurable VXLAN Port
- Pod Priority and Preemption
- Prometheus Cluster Monitoring GA
- OpenShift RoadMap
- What's Deprecating



OPENSIFT 3.11, ENTERPRISE KUBERNETES 1.11+

# OpenShift 4.17 Spotlight Features



# Red Hat OpenShift 4.17 highlights

## Core



- ▶ 4-nodes and 5-nodes control-plane architecture for bare-metal spanned clusters
- ▶ Node disruption policies to minimize disruption (GA)
- ▶ Native Network Isolation for Namespaces (Tech Preview)
- ▶ eBPF Manager (Tech Preview)
- ▶ User namespaces in pods (Tech Preview)

## Hosted Control Planes (HCP)



- ▶ Disconnected Installation enhancements
- ▶ Comprehensive Backup and Restore Solution for OpenShift Virtualization HCP Clusters
- ▶ NVIDIA GPU support for OpenShift Virtualization HCP Clusters (Tech Preview)
- ▶ Multi-architecture HCP

## Virtualization



- ▶ Safe memory overcommit (GA)
- ▶ Memory hotplug for non-disruptive scale-up of VM performance
- ▶ Automatic VM workload balancing with descheduler
- ▶ VM storage live migration between storage classes (Tech Preview)

## OpenShift Platform Plus

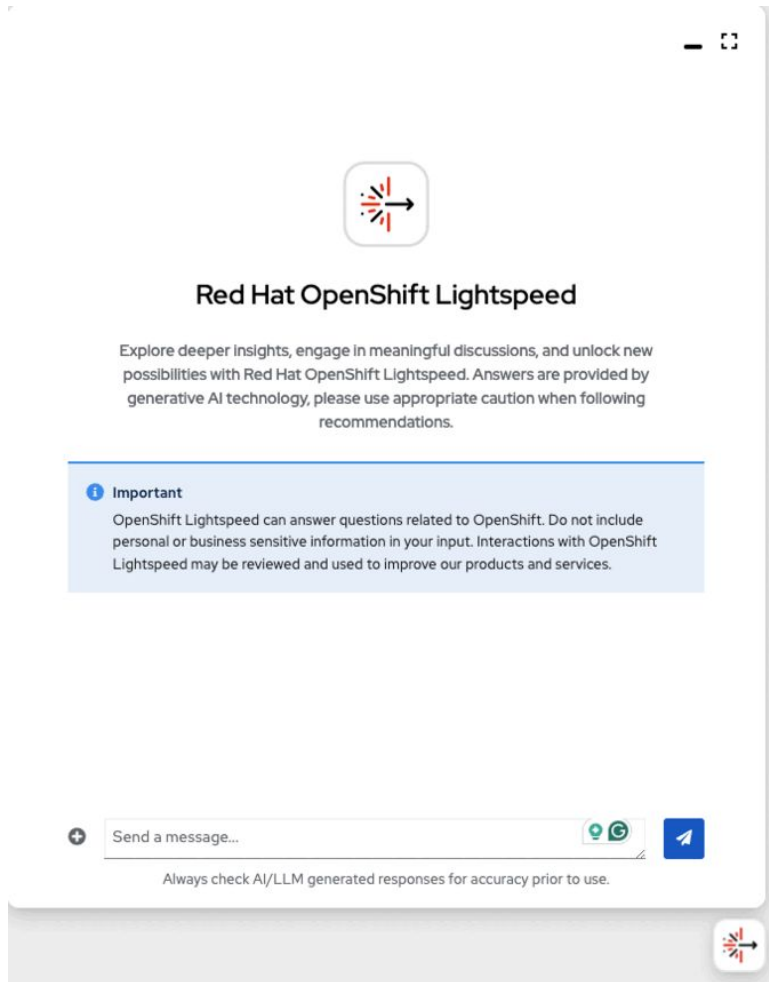


- ▶ Policy as code via ArgoCD and VEX support in Scanner with Advanced Cluster Security 4.6
- ▶ ROSA cluster lifecycle with RHACM 2.12 (Dev Preview)
- ▶ Keyless Authentication and auto pruning policies with Red Hat Quay 3.13
- ▶ Self-managed OpenShift Data Foundation on ROSA HCP

# OpenShift Lightspeed

(Technology Preview)

Generative AI based chat assistant



## Help where you need it

Integrated directly into the Red Hat OpenShift web console

## Explain, investigate and learn more

Provides assistance with explaining and investigating cluster resources

## Generative AI

Powerful, pluggable LLMs combined with the latest OpenShift documentation

- RHEL AI
- Red Hat OpenShift AI
- OpenAI
- Azure AI
- Watson X

# OpenShift Lightspeed

## GenAI virtual assistant



You

what is wrong with this pod?



### OpenShift Lightspeed

Based on the provided YAML for the Pod 'nodejs-ex-5bdd44697f-w7w5g', there are a few issues with this pod:

1. The phase of the pod is "Pending", which means it has not started running yet.
2. The "Ready" condition is set to "False", indicating that the containers within the pod are not ready.
3. The "ContainersReady" condition is also set to "False", indicating that the containers within the pod are not ready.
4. The reason for both conditions being false is "ContainersNotReady". This suggests that there might be an issue with one or more containers in the pod.
5. The container named "nodejs-ex" has a state of waiting with a reason of "ErrImagePull". This indicates that there was an error pulling the image for this container.

6. The message associated with this error states: "reading manifest latest in image-registry.openshift-image-registry.svc: 5000/p1/nodejs-e: name unknown". This suggests that there might be an issue with accessing or finding the specified image in the registry.

To resolve these issues, you can check if the specified image exists in your registry and ensure that it can be accessed by your cluster. Additionally, you may need to update any references to incorrect images in your deployment configuration or fix any network connectivity issues between your cluster and registry.

Referenced docs [Investigating pod issues](#)



User Question:

What is wrong with this pod ?

Answer provided based on context and AI Model

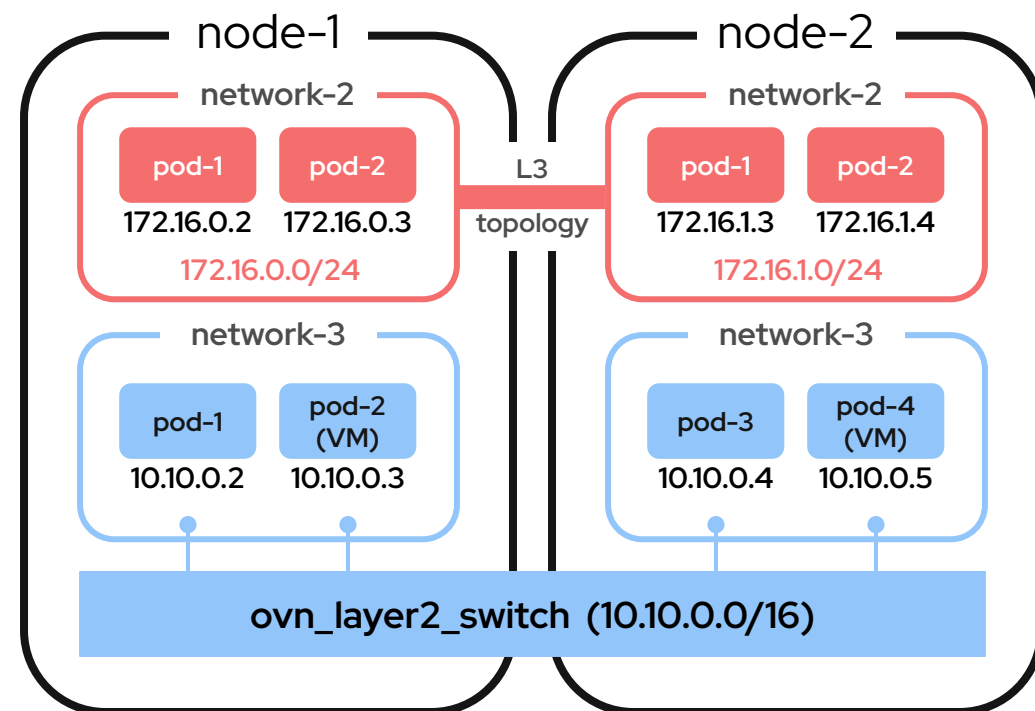


# Native Network Isolation for Namespaces – Technology Preview

(Targeting first 4.17.z release)

The default single L3 pod network is not flexible enough to cover a wide variety of use cases.

- ▶ User Defined Network (UDN) support in OVN-Kubernetes
- ▶ A default network for OVN-Kubernetes components + VRF support for additional **isolated-by-default** UDNs
- ▶ One or more namespaces in each UDN (tenant)
- ▶ A pod can be connected to different networks, each meant for a specific purpose
- ▶ Support for:
  - (Admin) Network Policy
  - primary (default) and secondary UDNs
  - overlapping pod IPs across UDNs
  - clusterIP services and external services
- ▶ Existing secondary networks (Multus) are not impacted

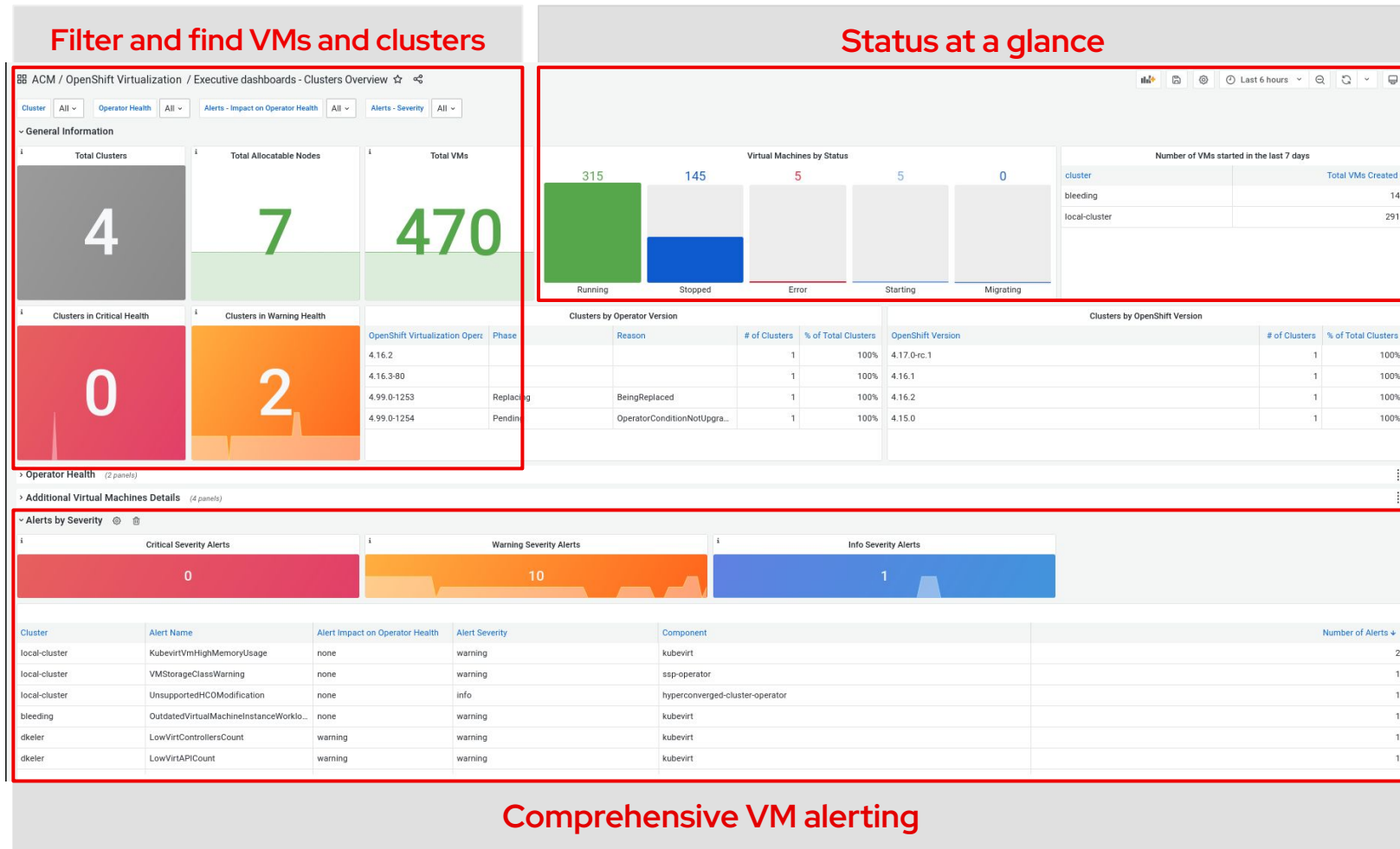


Example  
Use Cases



- ▶ **Create a flat Layer-2 network as the primary network to migrate your VMs (pods) across nodes.**
- ▶ **Attach your VM/pod network to a provider network (specify VLAN ID to segment/mark/isolate traffic).**

# Multicluster Virtual Machine Observability with RHACM

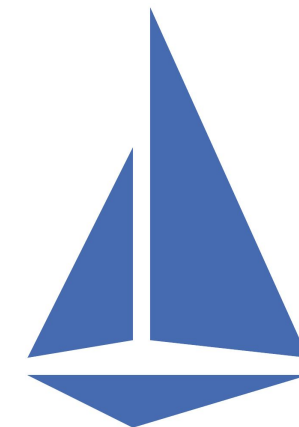


- Comprehensive set of dashboards addressing important use cases
- Flexible Single VM/Single-Cluster view versus Multi VM/MultiCluster view
- Based on a rich set of metrics to retrieve valuable status of individual VM's and inventories

# Platform Services

# OpenShift Service Mesh & Istio History

- Maistra (OpenShift Service Mesh “downstream” project) was created before Istio 1.0 and OpenShift 4.0, before involvement with the CNCF
- Many things have changed since:
  - Istio is part of the Cloud Native Computing Foundation (CNCF)
  - Enterprise features, such as multi-tenancy are evolving upstream
  - Istio is maturing - new releases are more robust
  - Promising “sidecar-less” experiments, such as Istio “ambient mesh”
  - OpenShift customers value support on Istio features
- **Maintaining maistra.io meant OpenShift Service Mesh was well behind Istio.io releases**



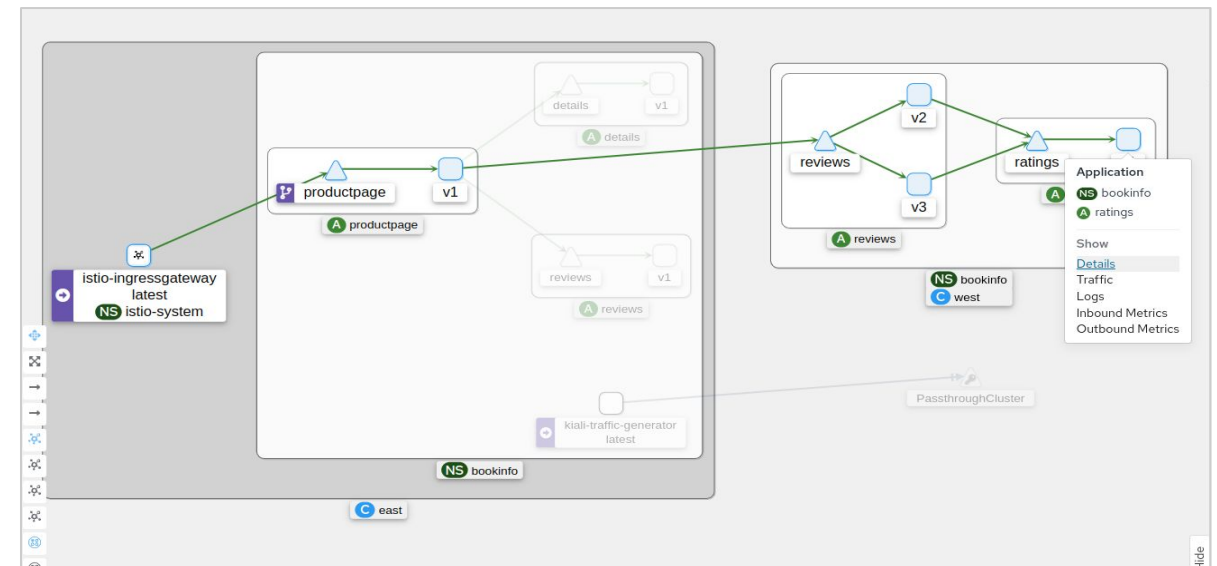
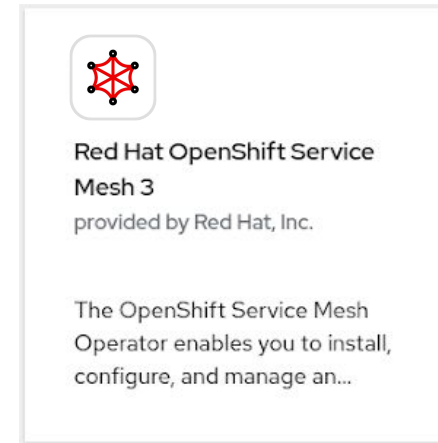
# OpenShift Service Mesh

► **Now available:** OpenShift **Service Mesh 3.0**

## Technology Preview:

- Based on the **latest Istio and Kiali** releases:
  - Istio 1.23 and Kiali 1.89
- Managed by a new operator based on community Istio – the “[Sail Operator](#)”
- New standalone [service mesh documentation](#)
- New included features:
  - **Istio’s multi-cluster topologies**
  - Canary control plane upgrades
  - Istioctl command line utility

Look for it in Operator Hub on OCP 4.14+!



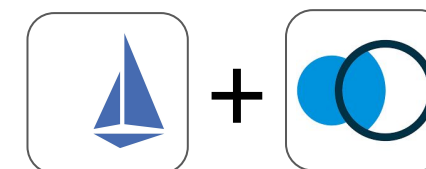
# Service Mesh 3 - A modular architecture

- Unlike the Maistra operator, “sail operator” has a single responsibility:
  - **The Service Mesh 3 operator will ONLY manage Istio**
  - Integrations will be managed by separate operators with separate lifecycles:
    - Kiali as a standalone operator
    - Tracing via OpenShift Distributed Tracing
    - Metrics from OpenShift user-workload monitoring
    - Certificate management via OpenShift cert-manager
    - Progressive Delivery via OpenShift GitOps (Argo Rollouts)
    - And more...

## OpenShift Service Mesh 2



## OpenShift Service Mesh 3

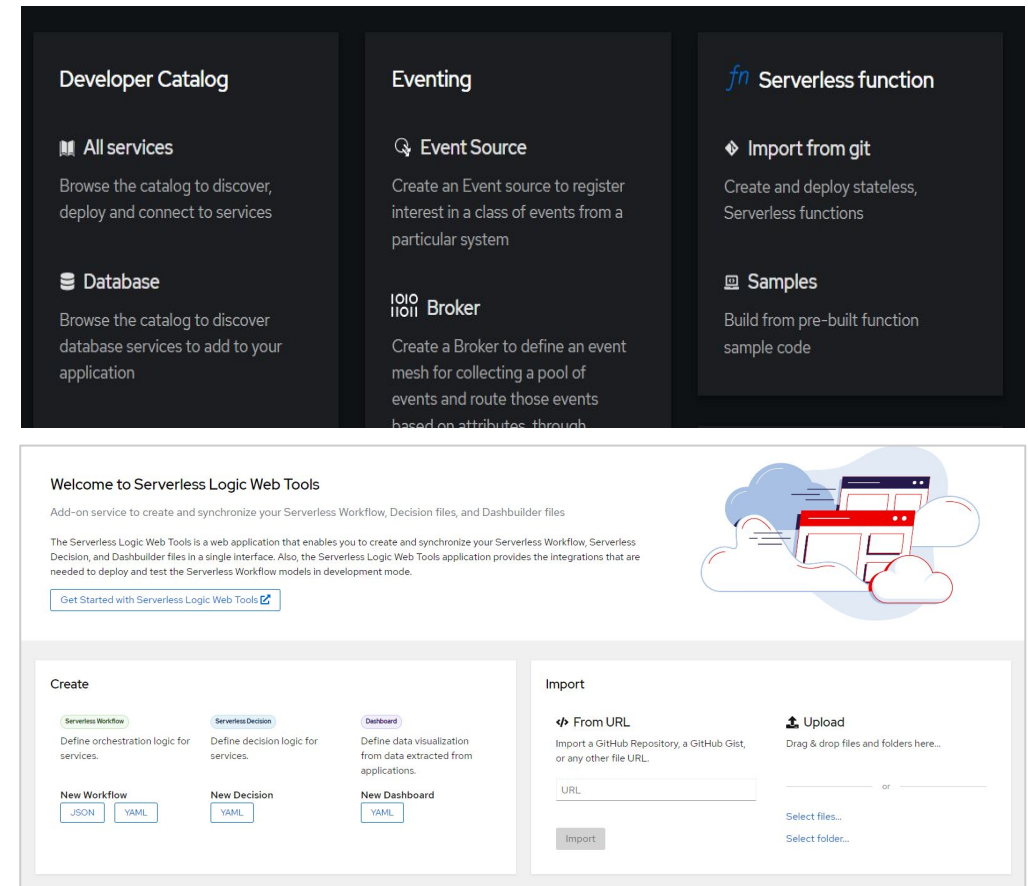


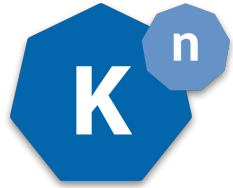
+ Integrations...



# OpenShift Serverless

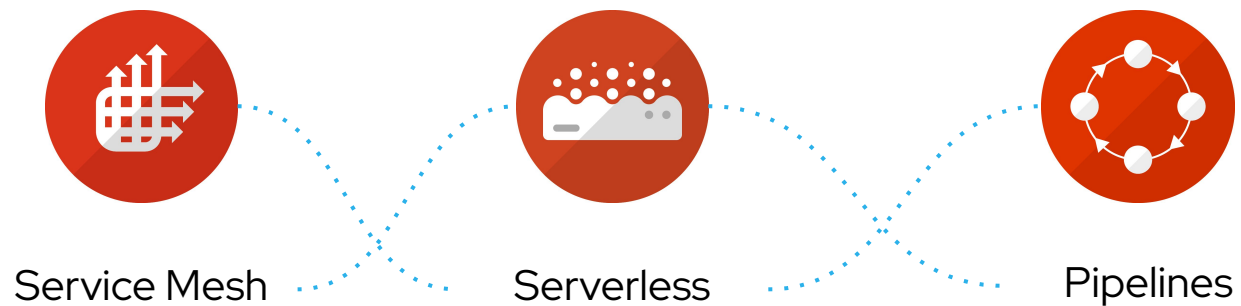
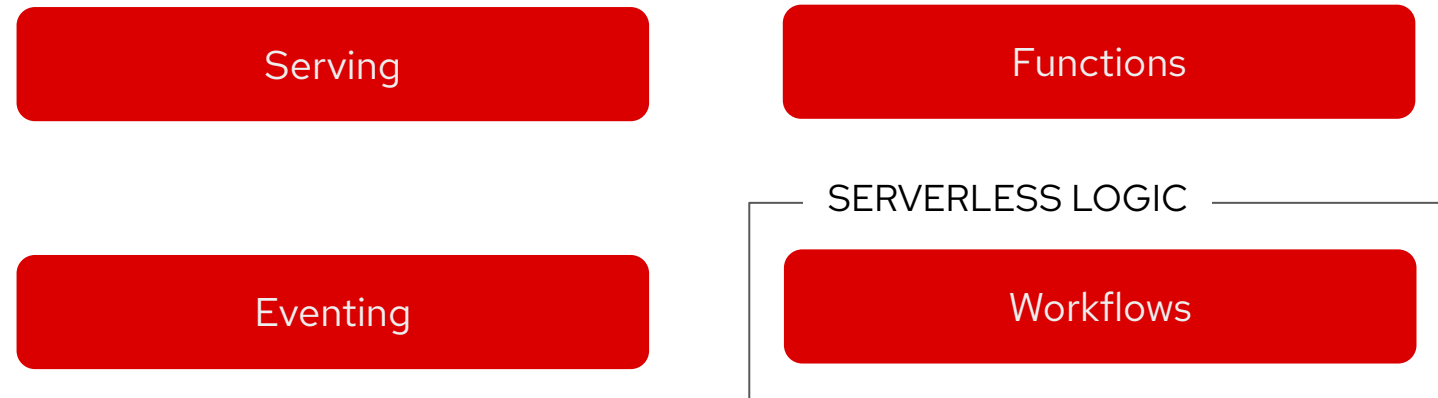
- ▶ Serverless 1.34 release based on Knative 1.14
- ▶ Serverless functions
  - ▶ Golang functions (Tech Preview)
  - ▶ Easy Event Subscription through CLI
- ▶ Autoscaling of Knative Kafka Triggers using KEDA/CMA
- ▶ Internal and External services hops encrypted (Tech Preview)
- ▶ Support for Startup probe for faster startup times
- ▶ Serverless Logic
  - ▶ Access OpenAPI specs definitions across multiple namespaces
  - ▶ Management Console ( Tech Preview)





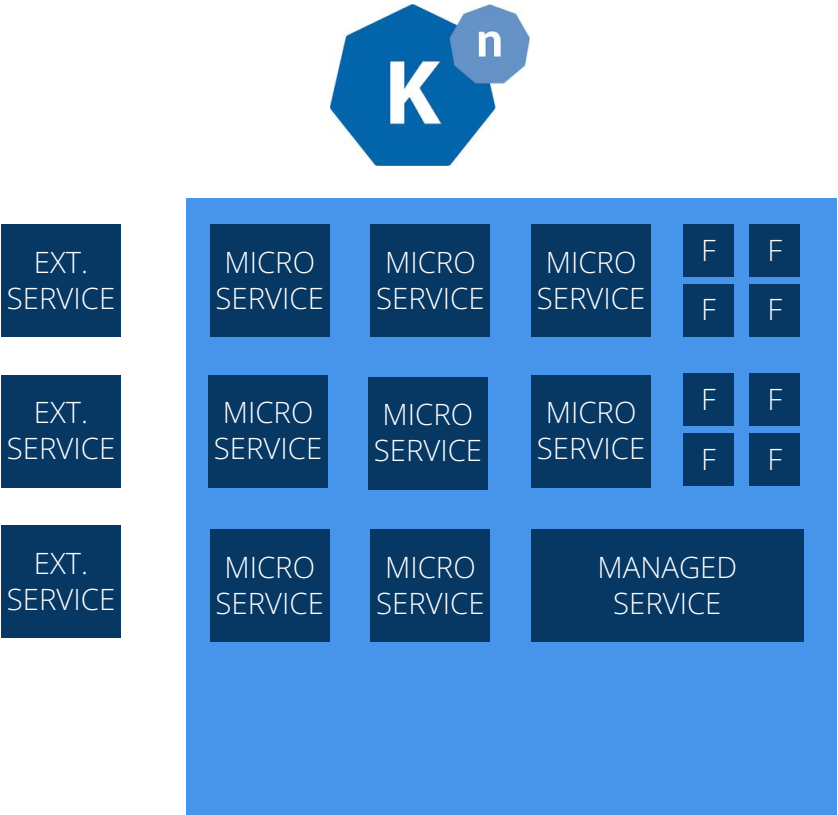
# Serverless Platform

the default deployment strategy for all workloads

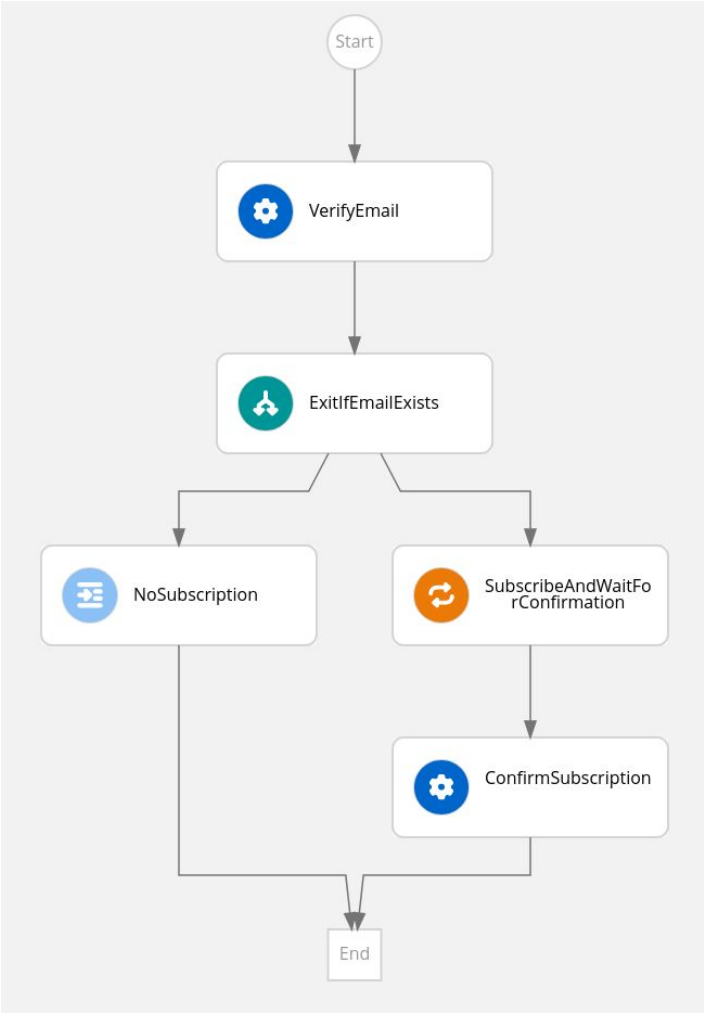


# What

Building an application by orchestrating services and events



+



# The Needs

What kinds of problems are we solving?

Open source and vendor neutral  
Kube-native **service orchestration**

Stateless and  
Stateful

Compensations

Callbacks

Error handling

Data processing

- ▶ **Cloud services** need **Kube-native** service orchestration and capabilities mentioned above that can be **easily managed** by operation teams
- ▶ **Developers** need **reliable workflows** managing failures, retries, parallelization, service integrations, and observability so they can focus on defining **higher-value service logic** in the cloud.
- ▶ **Developers** need to **solve common patterns of event-driven automation**
- ▶ **Projects** need to **minimize the cost of service orchestration** in the backend.

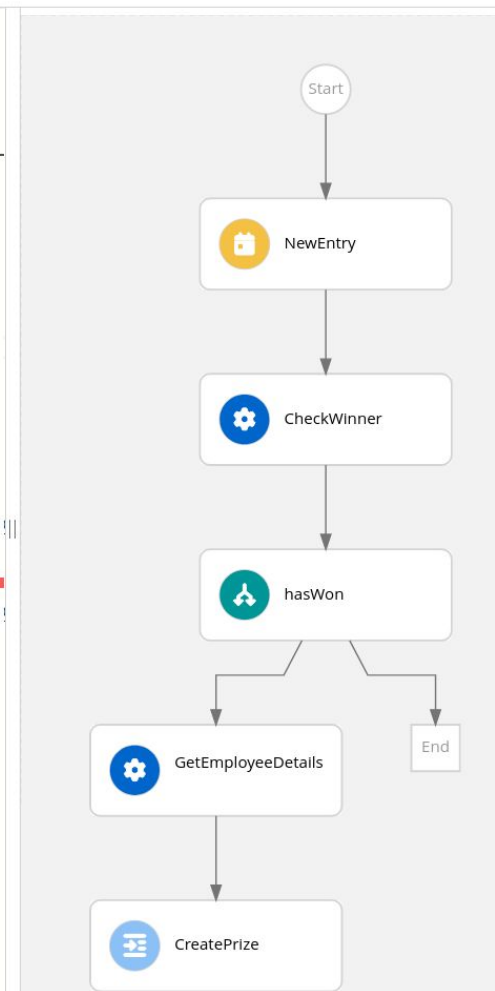
# A Simple Example

## Play to win workflow

```

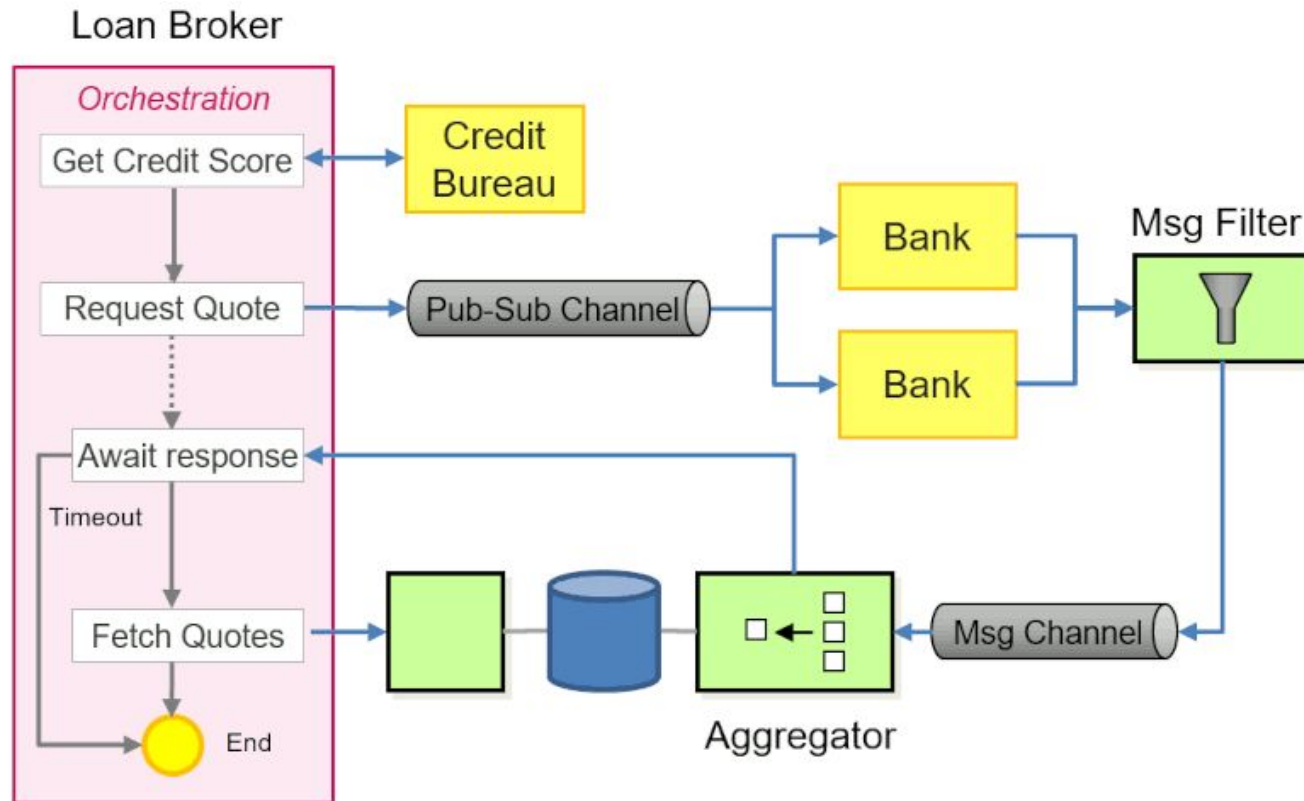
1  {
2    "id": "PlayToWin_ServerlessWorkflow",
3    "version": "1.0",
4    "name": "Play to win",
5    "description": "",
6    "specVersion": "0.8",
7    "start": "NewEntry",
8    "events": [
9      {
10       "name": "NewEntryEvent",
11       "source": "participants",
12       "type": "participants"
13     },
14     {
15       "name": "PrizeWonEvent",
16       "source": "prizes",
17       "type": "prizes"
18     }
19   ],
20   "functions": [
21     {
22       "name": "isWinnerFunction",
23       "operation": "https://raw.githubusercontent.com/krisv/kogito-serverless-workflow-d
24     },
25     {
26       "name": "getEmployeeDetailsFunction",
27       "operation": "https://raw.githubusercontent.com/krisv/kogito-serverless-workflow-d
28     }
29   ],
30   "states": [
31     {
32       "name": "NewEntry",
33       "type": "event",
34       "onEvents": [
35         {
36           "eventRefs": ["NewEntryEvent"],
37           "actions": []
38         }
39       ],
40       "transition": "CheckWinner"
41     },
42     {
43       "name": "CheckWinner",
44       "type": "operation",

```



# Home Loan Demo

CONFIDENTIAL Designator



Optional section marker or title

## The Serverless Loan Broker Example

Gregor Hoph's Blog Post:  
[https://www.gregorhoph.com/2019/04/10/serverless-loan-broker/](#)  
[https://www.gregorhoph.com/2019/04/10/serverless-loan-broker/](#)  
[https://www.gregorhoph.com/2019/04/10/serverless-loan-broker/](#)  
[https://www.gregorhoph.com/2019/04/10/serverless-loan-broker/](#)

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Red Hat

<https://github.com/ricardozanini/kogito-serverless-loanbroker>



# How to get started

<https://start.kubesmarts.org>

[Get the kn-workflow CLI](#)

[SonataFlow Guides](#)


[Getting Started](#)


<https://github.com/kiegroup/kogito-examples>

By default, the OpenShift Serverless Logic Operator uses the image distributed in the official Red Hat Registry to build workflows. If your scenario requires strict policies for image use, such as security or hardening constraints, you can replace the default image.

To change this image, you edit the **SonataFlowPlatform** custom resource (CR) in the namespace where you deployed your workflows.

# Thank you

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