Introducing OKD Virtualization

Simone Tiraboschi  Sandro Bonazzola
Principal Software Engineer  Manager, Software Engineering
OKD
Virtualization
What’s OKD?

OKD is a distribution of Kubernetes

OKD embeds Kubernetes and extends it with security and other integrated concepts

OKD adds developer and operations-centric tools

OKD is a sibling Kubernetes distribution to Red Hat OpenShift

Governance:

https://flickr.com/photos/6471971@N08/6918935136/ “OKD & Kubernetes”
What’s OKD?

APPLICATIONS AND SERVICES
from Red Hat and community operators

PLATFORM AND CLUSTER MANAGEMENT
Kubernetes, security, monitoring, registry. etc

LINUX HOST with Fedora CoreOS

FOR HYBRID / MULTI-CLOUD DEPLOYMENTS
What’s KubeVirt?

Kubernetes Virtualization API and runtime in order to define and manage virtual machines:

- Virtual machines
  - Running in containers
  - Using the KVM hypervisor
- Scheduled, deployed, and managed by Kubernetes
- Integrated with container orchestrator resources and services
  - Traditional Pod-like SDN connectivity and/or connectivity to external VLAN and other networks via multus
  - Persistent storage paradigm (PVC, PV, StorageClass)

https://flickr.com/photos/linein/2946303389/
“A Container & VM”
Why KubeVirt? Using VMs and containers together

- Follows Kubernetes paradigms:
  - Container Networking Interface (CNI)
  - Container Storage Interface (CSI)
  - Custom Resource Definitions (CRD, CR)
- Schedule, connect, and consume VM resources as container-native
- Virtual Machines connected to pod networks are accessible using standard Kubernetes methods:
  - Service
  - Route
  - Ingress
- VM-to-pod, and vice-versa, communication happens over SDN or ingress depending on network connectivity
KubeVirt: how does it work?
What’s HCO?

Hyperconverged Cluster Operator

An opinionated set of components to support classic virtualization use-cases, such as:
- Persistent image upload
- Node network configuration
- Common VM Templates

Single entry point for multiple operators
(virt, storage, network...)
Single installable unit
Single upgrade path
Single user entry point for configure the whole virtualization subsystem

https://flickr.com/photos/altopower/2136807538/
"An opinionated cat"
How can I get it?

It's available "out-of-the-box" in:

- OperatorHub.io
- OKD Community Operators Catalog

(almost) Single click install!
How does it look like?
### OKD Virtualization UI

#### Virtualization

<table>
<thead>
<tr>
<th>Name</th>
<th>Namespace</th>
<th>Status</th>
<th>Conditions</th>
<th>Created</th>
<th>Node</th>
<th>IP Address</th>
</tr>
</thead>
<tbody>
<tr>
<td>contos-2-complex-guan</td>
<td>default</td>
<td>Running</td>
<td></td>
<td>10 gen 2022, 18:59</td>
<td></td>
<td></td>
</tr>
<tr>
<td>cirros</td>
<td>default</td>
<td>Provisioning</td>
<td>Stopped</td>
<td>10 gen 2022, 18:49</td>
<td></td>
<td></td>
</tr>
<tr>
<td>f34tork</td>
<td>default</td>
<td>Stopped</td>
<td></td>
<td>10 gen 2022, 19:14</td>
<td></td>
<td></td>
</tr>
<tr>
<td>fedora-flexible-squirrel</td>
<td>default</td>
<td>Stopped</td>
<td></td>
<td>10 gen 2022, 18:54</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Konveyor Forklift integration
Importing VMs from VMware vSphere, oVirt, and OpenStack to KubeVirt

Welcome to Forklift

Migrating workloads to KubeVirt is a multi-step process.

1. Add source and target providers for the migration.
2. Map source datastores or storage domains and networks to target storage classes and networks.
3. Create a migration plan and select VMs from the source provider for migration.
4. Run the migration plan.

Get started
How to **get** and **use** OKD Virtualization

DEMO TIME
OKD Working Group

Website
okd.io

Twitter
twitter.com/okd_io

Slack
#openshift-dev on kubernetes.slack.com

Google Group
groups.google.com/forum/#!forum/okd-wg

Bi-weekly Video Conference Meetings
apps.fedoraproject.org/calendar/okd

Repositories
github.com/openshift/community
github.com/openshift/okd
OKD Virtualization SIG

Reddit
www.reddit.com/r/OKD_Virtualization

Twitter
twitter.com/OKD_Virt_SIG

Website
okd-virtualization.github.io

GitHub
github.com/okd-virtualization
Thank you