KubeVirt Community Update

Fabian Deutsch, Red Hat
KVM Forum, Lyon, 2019

Session link
Bonjour.
Kubernetes API to run virtual machines.

Run containers and VMs on Kubernetes.
Developers are solving problems
The landscape is evolving
Containers and Kubernetes help the application developer
The landscape is diverse

There is no single workload form-factor addressing all use-cases
Enable:
One platform
For application developers
To run any workload
In reality:
The world is not only about developers.
Converge to:

One platform
For administrators
To maintain
Platform = Workloads
+ monitoring
+ alerting
+ logging
+ auditing
+ auth
+ life-cycle management
+ support and SLAs
+ knowledge and experience
+ documentation
+ …
Inherently becomes:
One platform
For an organization
To be flexible & efficient
Demo
Script ~ Recording
Virtualization Features
SR-IOV
Passthrough of network devices. Contributed by StackPath

vGPU and GPU passthrough
Mostly shared with logic for containers. Contributed by NVIDIA
CDI for VM image import and conversion

Truth is: Today storage consumption differs a little from container storage

v2v from VMware and others

Mind the gap: Needs to be shaped up
Live and Block Migration
For shared and non-shared storage

SELinux and other security improvements
Additional features (incomplete)

- Cloud-init
- Multiple networks
- virtio-driver delivery
- Stateless VMs
- VM replica sets
- Disk overlays
- Console support
- Workload and Node Affinity

WIP:
- Pause and unpause

But not:
- Snapshots
- Hot-plug
Delivery and Operations
CI: Kubernetes and OpenShift

450+ functional tests
Operator for life-cycle management
Incl. Non-disruptive updates
Owns KubeVirt installation, upgrades, and removal
KubeVirt Community

- 1,600+ GitHub Stars
- 68 Code Contributors (Red Hat)
  17 Code Contributors (non-Red Hat)
- 1,500+ Pull Requests
- 320+ GitHub Forks
- 22+ releases (close to stable release)
- Weekly Community Meeting and #virtualization on slack

(Some) Existing users and contributors*

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<td>Akamai</td>
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<td>StackPath</td>
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* In the last 6 months +++ (…) In other repos
KubeVirt

KubeVirt is a virtual machine management add-on for Kubernetes. The aim is to provide a common ground for virtualization solutions on top of Kubernetes.

Virtualization extension for Kubernetes

At its core, KubeVirt extends Kubernetes by adding additional virtualization resource types (especially the VirtualMachine type) through Kubernetes’s Custom Resource Definitions API. By using this mechanism, the Kubernetes API can be used to manage these.
Hyperconverged Cluster Operator (HCO)

Opinionated: Everything (network, storage, …) to run classic VMs with KubeVirt on a bare-metal Kubernetes cluster.

https://github.com/kubevirt/hyperconverged-cluster-operator/
CNV

Container-native virtualization (CNV)
in Technology Preview
and an add-on to OpenShift
Kubermatic 2.1
Native Support For KubeVirt [...] Deploy Kubernetes clusters to KubeVirt
KubeVirt running on their Managed Kubernetes solution on AWS
Future
Mature, and meet reality.
Thank you.

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https://kubernetes.slack.com/messages/virtualization