



Connect

Red Hat OpenShift Virtualization

Opatija 10/2024



Joachim von Thadden

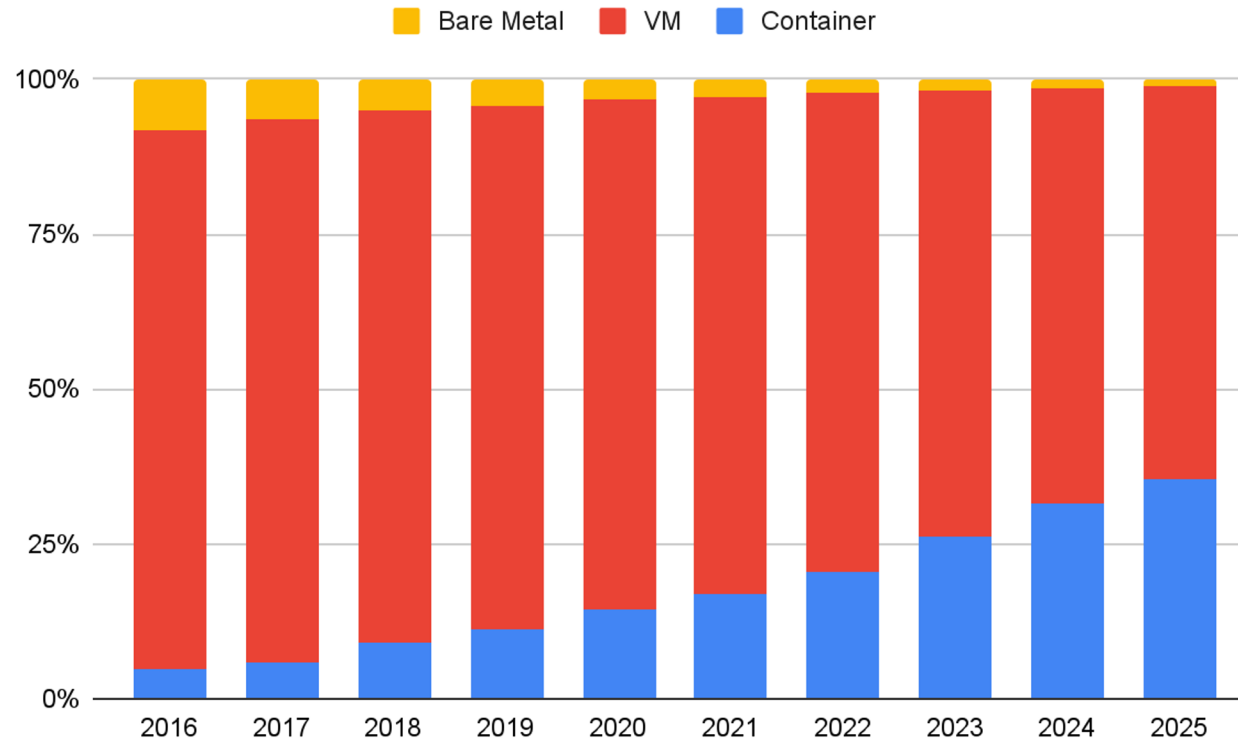
EMEA Principal Specialist Solution Architect
Red Hat

Jens Gerlach

EMEA SSP OpenShift Virtualization
Red Hat

Virtualization is here to stay

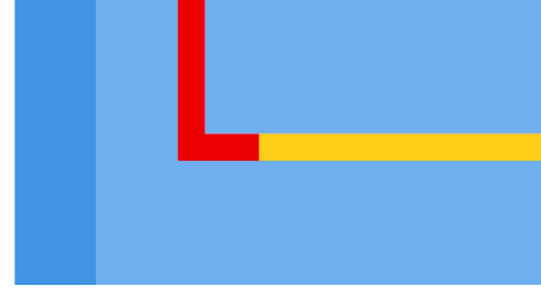
But not as we know it today



Source: IDC Container Infrastructure Software Market Assessment: Container Deployment Forecast, 2022–2025 (IDC #US48670722, January 2022)

OpenShift virtualization

Modernize workloads and support mixed applications



Start bringing VMs to OpenShift now

Support Linux and Windows apps and services in OpenShift as virtual machines with native Kubernetes tools and the security of the Red Hat platform



Deliver mixed applications on one platform

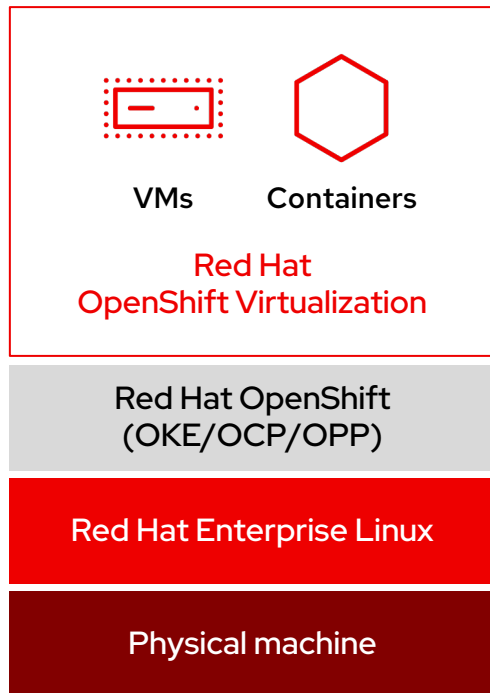
Add VM-based services such as databases to new and existing applications consisting of VMs, containers, and serverless

Modernize VMs to containers over time, or not

Refactor VMs to containerized services, or maintain as VMs. Your choice.

Red Hat OpenShift Virtualization

The modern option for general purpose virtualization



- ▶ **Unified platform**
for virtual machines and containers
- ▶ **Consistent management**
tools, interfaces, and APIs incl. ACM and AAP integrations
- ▶ **Performance and stability**
of Linux, KVM, and qemu
- ▶ **Healthy open source community**
the KubeVirt project is a top 10 CNCF active project, with 200+ contributing companies
- ▶ **Diverse ecosystem**
of Red Hat & partner operators

- ▶ **Includes Red Hat Enterprise Linux**

guest entitlements

- ▶ **Supports Microsoft Windows**
guests through Microsoft SVVP

- ▶ **Inbound guest migration**
using Ansible Automation Platform + Migration Toolkit for Virtualization, Training and Consulting

Bring traditional VMs into OpenShift

Traditional VM behavior in a modern platform

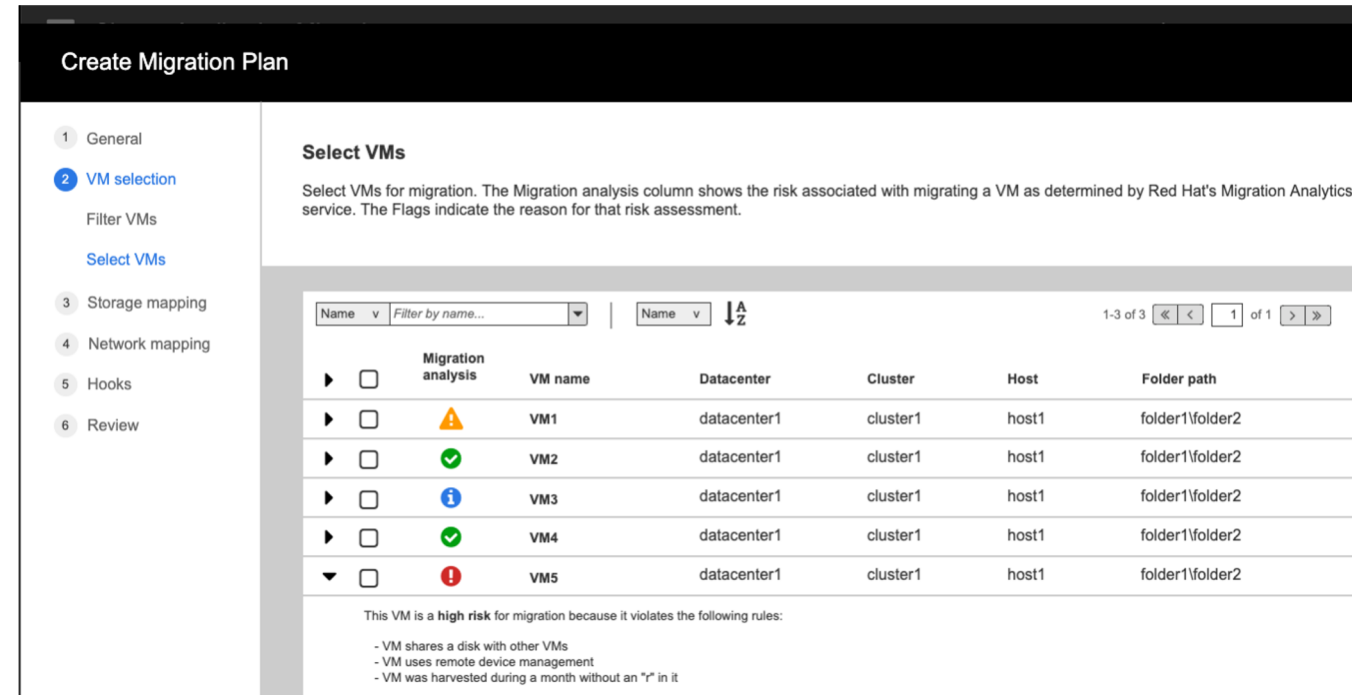
- ▶ Administrator concepts and actions
- ▶ Network connectivity
- ▶ Live migration

Leverage existing VM roles and responsibilities

- ▶ Maintain business critical application components
- ▶ Modernize skill sets over time

Migration Tooling

- ▶ **Migration Toolkit for Virtualization** (MTV)
- ▶ Warm migration of VMs at scale



Creating a migration plan with MTV

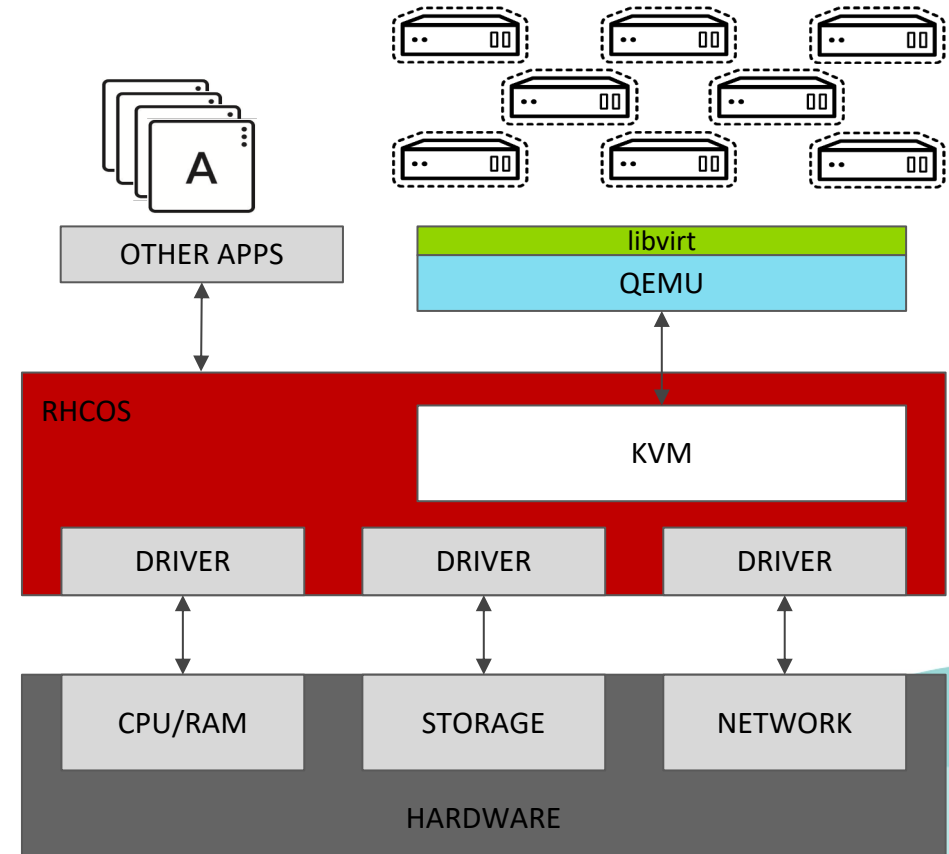


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Red Hat OpenShift Virtualization Overview

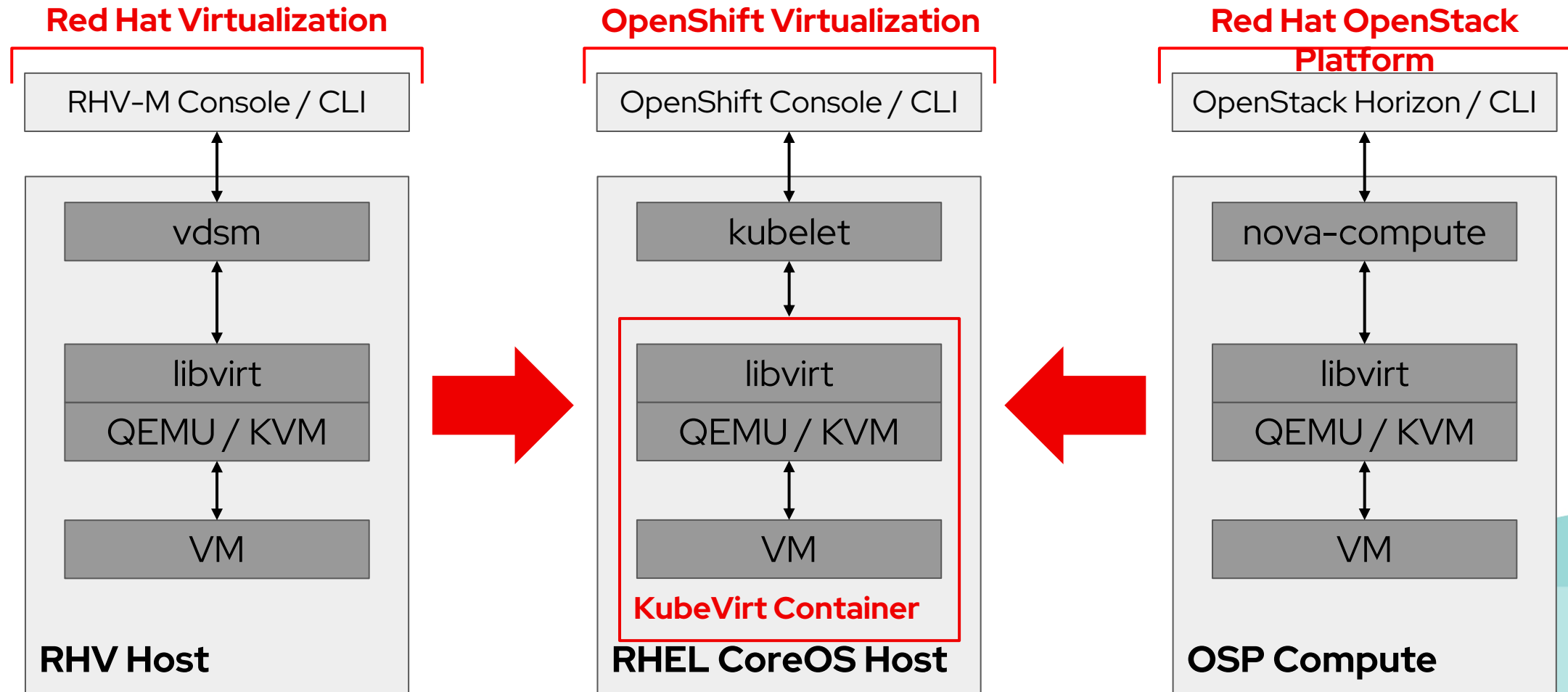
VM containers use KVM

- OpenShift Virtualization uses KVM, the Linux kernel hypervisor
- KVM is a core component of the Red Hat Enterprise Linux kernel
 - KVM has 10+ years of production use: Red Hat Virtualization, Red Hat OpenStack Platform, and RHEL all leverage KVM, QEMU, and libvirt
- QEMU uses KVM to execute virtual machines
- libvirt provides a management abstraction layer



Containerizing KVM

Trusted, mature KVM wrapped in modern management and automation



Typical Features asked for

This is not a feature shoot-out!!!

- Live migration
- Live changes of disks and nics
- Memory Overcommit (since CNV 4.16)
- Live RAM and CPU extension (since CNV 4.16)
- HA for cluster, hosts and workloads
- Networks in POD, SDN and external Networks (aka VLANs)
- Fine grained Access Control
- Fine grained Network Policies and Micro Segmentation
- Tenant Separation
- Integration with AD/LDAP/oauth/...
- Quotas for Storage, Network, Compute
- Cost Management
- Complete metrics and observability stack
- Metro-DR with ACM and ODF (and some 3rd party)
- Regional-DR with ACM and ODF
- and much more...

Advantages of running VMs in OpenShift

- ▶ integrated SDN, real SDN and traditional VLAN Networking
- ▶ integrated flexible LoadBalancer
- ▶ integrated DNS/IPAM
- ▶ integrated Health Checks and workload aware HA
- ▶ integrated Automation
- ▶ 100% API-first
- ▶ integrated RHEL subscriptions



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Demo

OpenShift Virtualization

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