Red Hat
OpenShift

Bridging Worlds: Harmonizing Virtualization and Containerization

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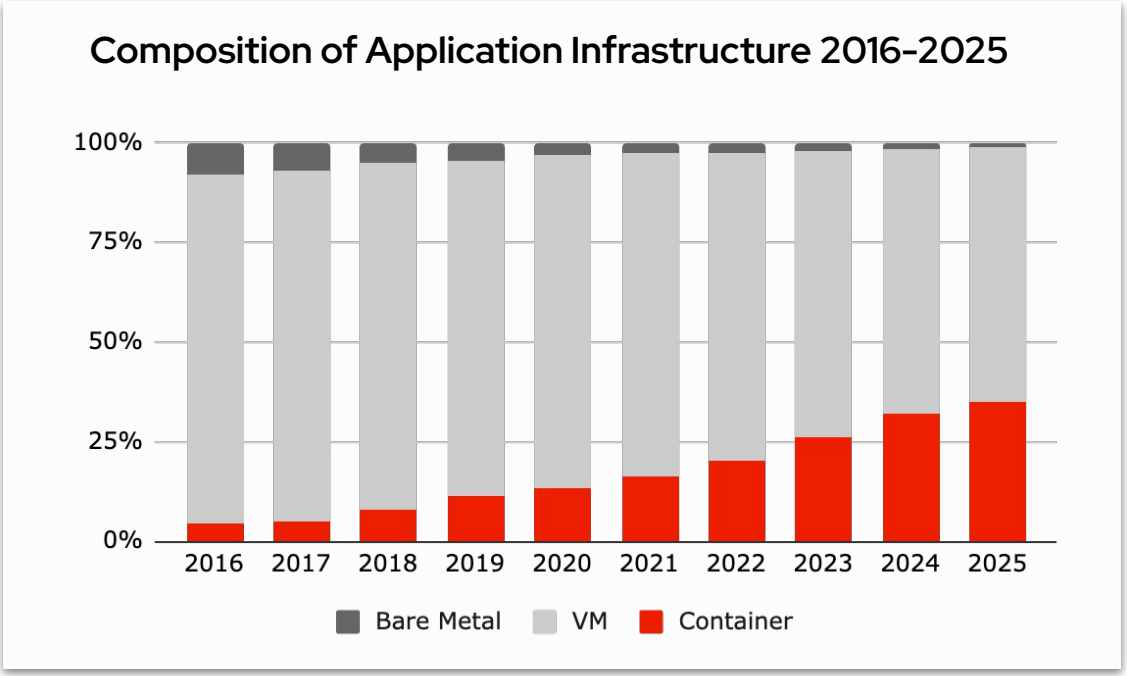
Industry Context for Virtualization Migration

Companies need to preserve their existing VM workloads while preparing for the future



Organizations invested in VMware when most workloads were running on VMs. While VMs are still, and will continue to be, an important part of application infrastructure, the industry is moving towards containerization.

Market developments have created a compelling event for companies to get ahead of this trend and ***adopt a flexible, future-focused solution that solves their near-term virtualization requirements.***

IDC Container Infrastructure Software Market Assessment: Container Deployment Forecast (IDC #US4867072)

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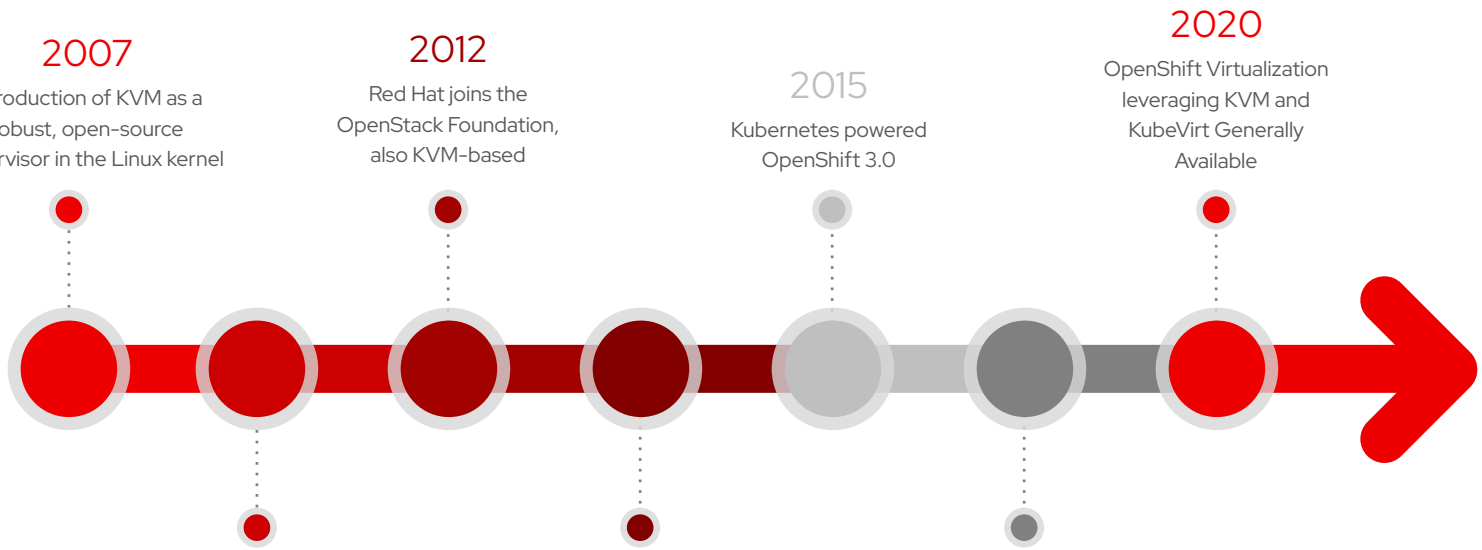
Red Hat has a long history with Virtualization



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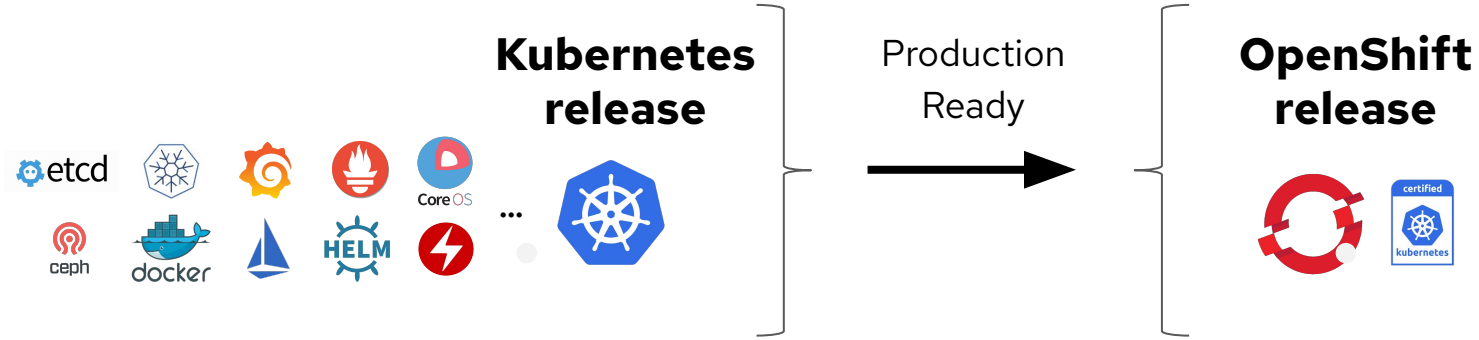
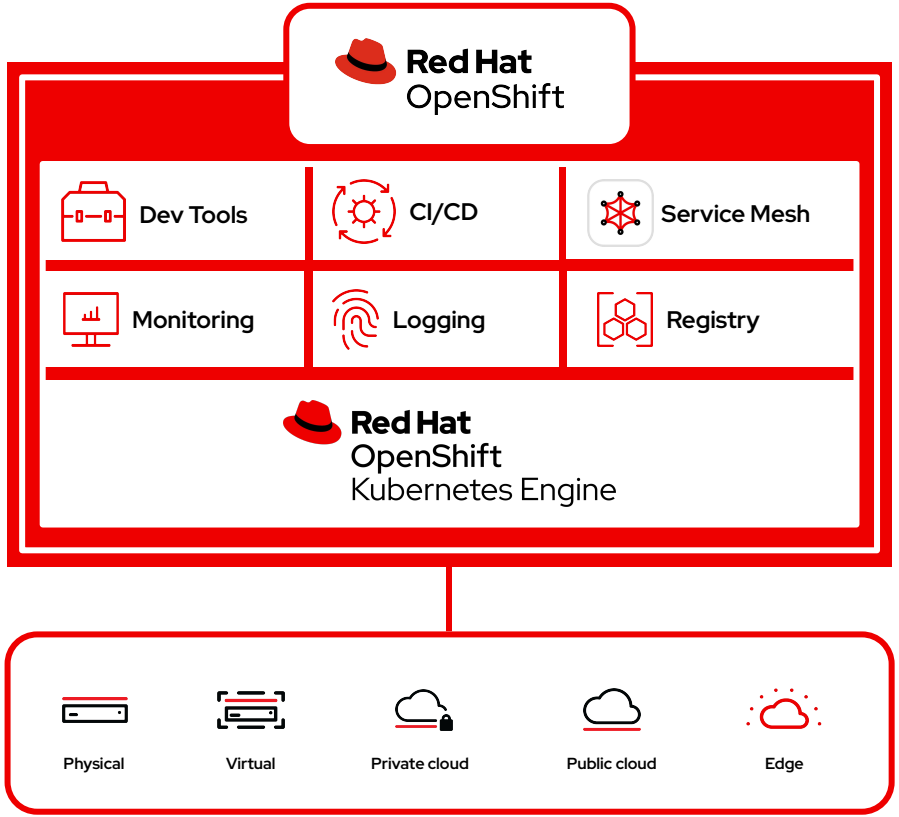
Red Hat OpenShift is trusted enterprise Kubernetes



- Hundreds of defect and performance fixes
- 200+ validated integrations[1]
- Certified container ecosystem
- 9-year enterprise life-cycle management
- Red Hat is a leading Kubernetes contributor since day 1

1 - Certified OpenShift Operators

OpenShift Delivers a **Comprehensive** Application Platform



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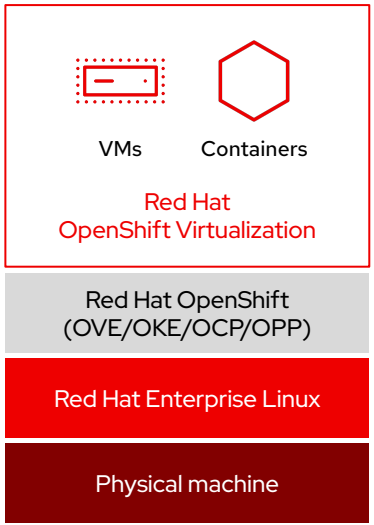
Red Hat OpenShift Virtualization

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
- **Included feature**
  of all OpenShift subscriptions (OVE/OKE/OCP/OPP)
- **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
- **Virt admin focused training**
  DO316, EX316

*excluding OVE which is virtual machines only and includes no RHEL guest entitlements

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Complete the platform with your existing technology partners

Storage

Products for OpenShift Virt using CSI (container storage interface)

- HITACHI Inspire the Next
- portworx by Pure Storage
- DELL Technologies
- Red Hat OpenShift Data Foundation
- Hewlett Packard Enterprise
- NetApp
- IBM

Backup / DR

Products for OpenShift

- storware BACKUP AND RECOVERY
- veeam
- portworx by Pure Storage
- TRILIOVAULT
- IBM
- VERITAS
- rubrik
- NetApp
- COHESITY

Networking

Products for OpenShift Virt using CNI (container networking interface)

- ISOVALENT
- TIGERA
- CISCO
- f5

Cloud Services

Current public cloud providers offering OpenShift virtualization

- aws

Compute

Products for OpenShift

- IBM
- Hewlett Packard Enterprise
- DELL Technologies
- Lenovo
- CISCO
- Red Hat

* This is not an exhaustive list of ISV partners, with new partners being added all the time.

Red Hat OpenShift Virtualization Overview

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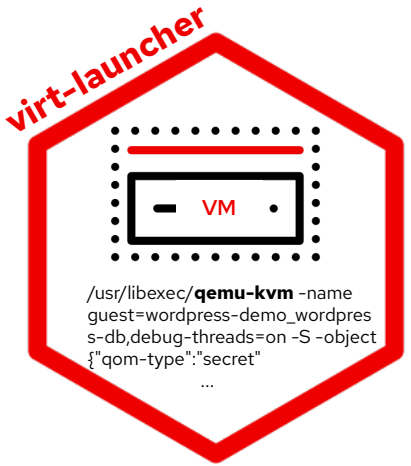
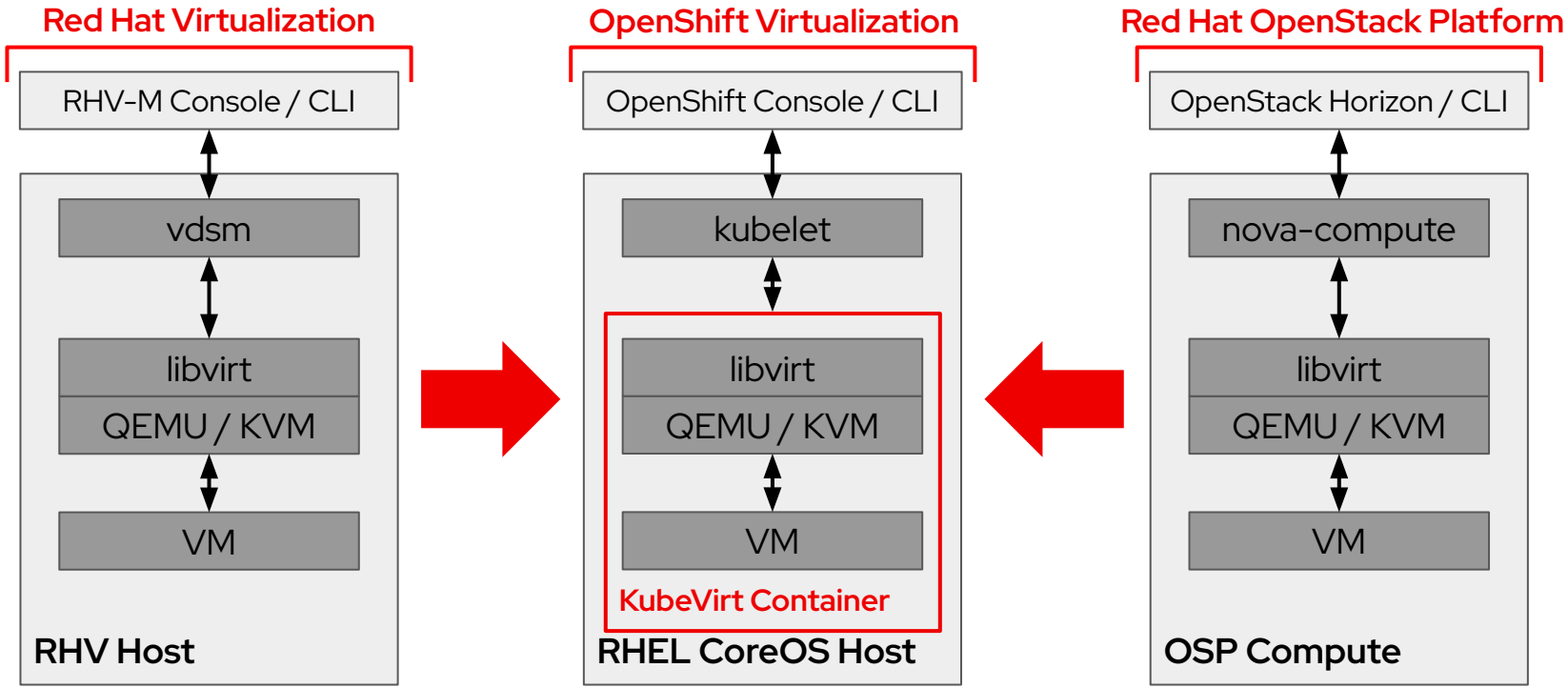
But Virtual Machine can be run INSIDE a container

- KVM virtual machine is a process
- Containers are meant to encapsulate processes
- Both have the same underlying resource needs
  - CPU, Memory, Storage, Network, etc
- Orchestration (K8s) layer is transparent for VM
- KVM has 10+ years of production use



Same Proven Stack

Trusted, mature KVM wrapped in modern management and automation



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Advantages of running VMs in OpenShift

Networking

- integrated SDN & VM secondary networks
- network policies for segregation and security
- integrated DNS/IPAM
- flexible Load Balancer

Automation

- integrated automation & 100% API
- integrated health checks
- storage provisioning
- multi-cluster & hybrid cloud

Platform support

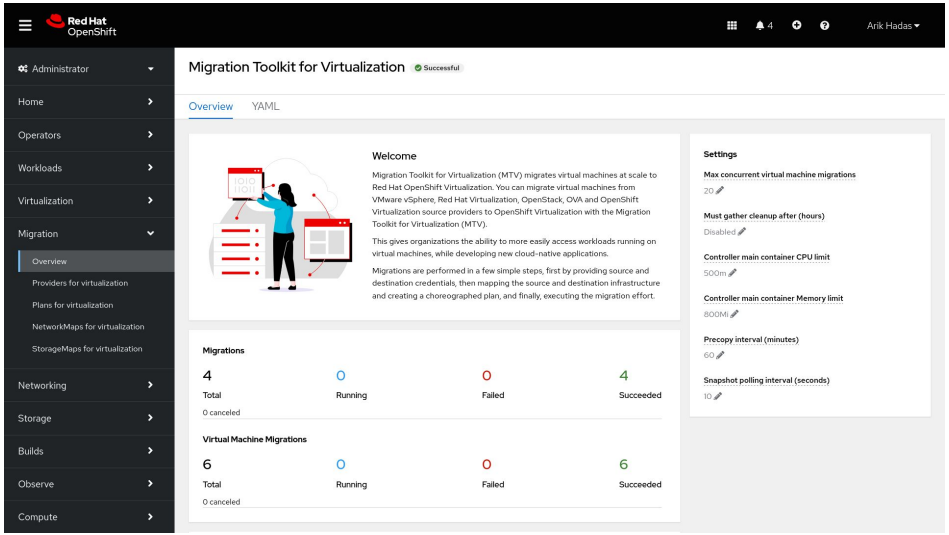
- live migration & HA
- live changes of disks and NICs
- CPU & memory overcommit
- access control & tenant separation

Application & Management support

- metrics and observability
- Service Mesh
- cost management
- tenant separation & AD/LDAP/oauth

Migrating VM-based applications with minimal disruption

Migration toolkit for virtualization (MTV) included with OpenShift



Easy migration of virtual machines

- Migrate virtual machines to OpenShift Virtualization in a few simple steps
- Provide source and destination credentials, map infrastructure, and create migration plans

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Multicluster Management for VMs & containers

Reduce fragmented visibility and manual context switching across VM and container estates

Business continuity from Day 0 to Day 2

Increase business resiliency to enhance SRE experience, minimize operational risk, enable backup and disaster recovery

Manage applications and virtual machines with ApplicationSets

Deploy VM applications from code source to ease deployment and streamline management at scale

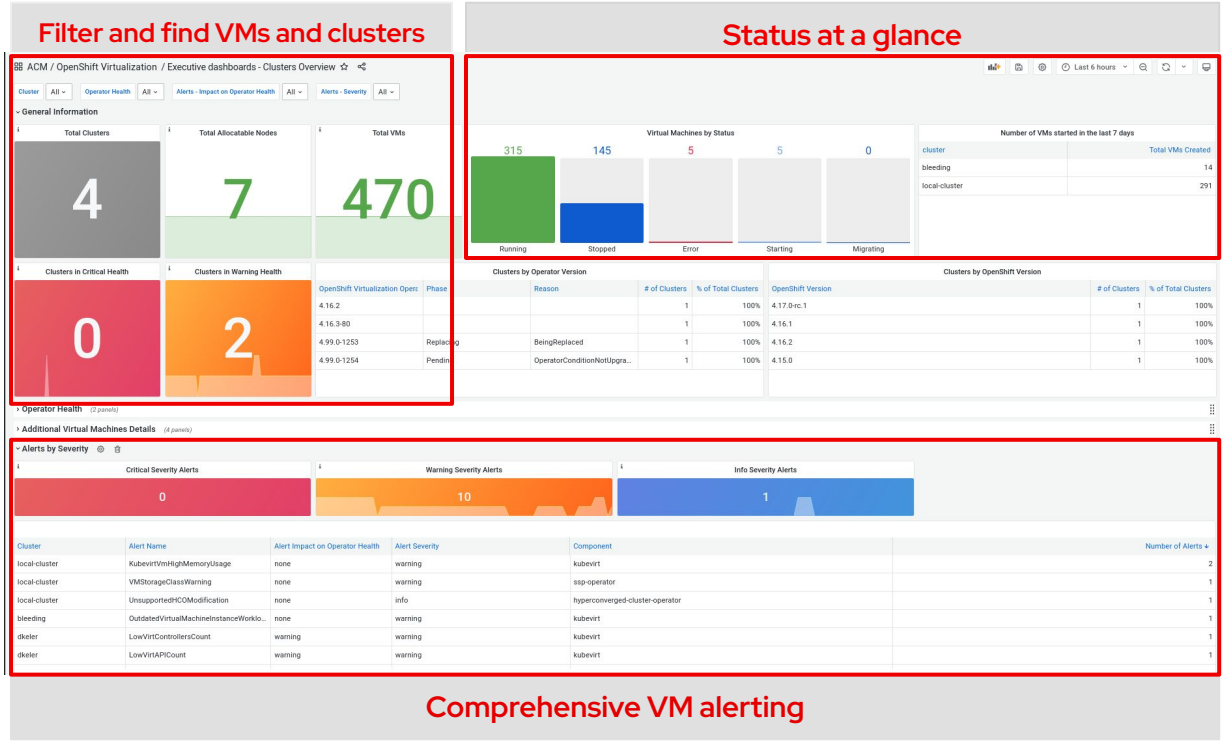
Dynamic search & observability

See all virtual machines and containers in your fleet. Understand health and capacity holistically using ready-to-use dashboards

Manage VMs directly from ACM

Stop, start, restart, pause and unpause VMs directly from ACM

VM Observability with ACM



- Comprehensive set of dashboards addressing important use cases
- Provides valuable insights during VM migration and for day 2 operations
- Flexible single VM/single-cluster view versus multi VM/ multi-cluster view
- Based on a rich set of metrics to retrieve valuable status of individual VM's and inventories

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An offering that fits your needs

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OpenShift Virtualization Engine

Opening the door to virtualization and modernization

Unlimited VMs

Run as many VMs as you need, maximizing the value of your hardware. Purchase RHEL subscriptions, virtualized OpenShift for container-based applications, or upgrade to other bare metal OpenShift editions if needed.

128 core bare metal scale

Get bare metal scale with 128 cores per subscription - run more VMs on less hardware, optimizing your infrastructure efficiency.

Optional Advanced Cluster Management for Virtualization

Scale as big as you can; add Advanced Cluster Management for Virtualization to make management of thousands of nodes as easy as managing a single rack.

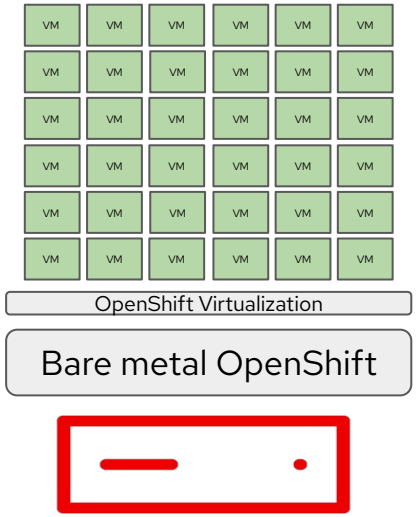
Workload monitoring and platform logging

Keep tabs on and track your environment with a preconfigured, preinstalled, and self-updating stack then stay in command with the included OpenShift GitOps operator to leverage Kubernetes-powered orchestration for VMs.

Deployment Models

Subscription type

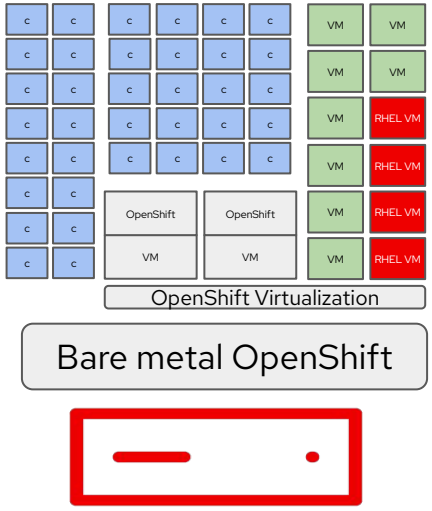
OpenShift Virtualization Engine



What's included

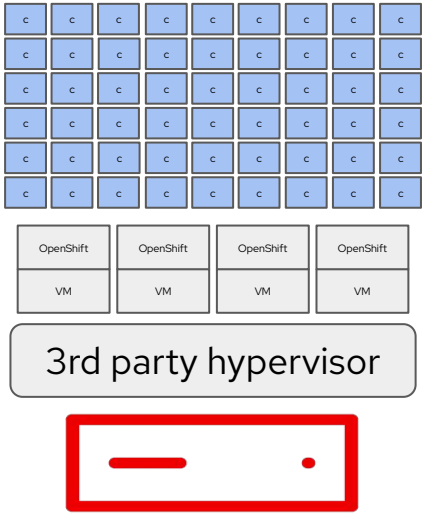
Up to 128 cores per socket pair to run VMs only; RHEL and virtual OpenShift subscriptions require additional purchase

Any OpenShift bare metal (excluding OVE)



Up to 128 cores per socket pair to run containers and VMs, RHEL and virtual OpenShift included

OpenShift core-based subscription



2 cores or 4 vCPUs
Any supported hypervisor

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What now?

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Get Hands-On with OpenShift Virtualization

OpenShift Virtualization Roadshow

A premier hands-on experience for VM admins

- Start the day with an overview of OpenShift Virtualization and then dive into a 4-hour lab with modules that cover: **environment review, VM creation and use, customization, management, live migration, networking, storage, migration tool kit, external load balancer, and backup and restore**
- Events are taking place globally

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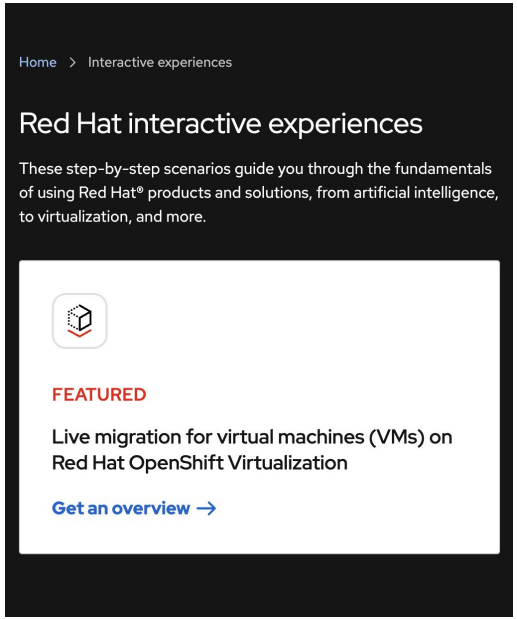
Interactive Experiences

OpenShift Virtualization and more



Demos for several use cases with Red Hat products

- Virtualization
- Container Management
- AI / ML
- Automation
- ... and many more!

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Thank you

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