Red Hat Summit

Connect

OpenShift Virtualization

Live Long and Modernize: 10 Virtualization Myths

Magnus Bengtsson
Associate Principal Solution Architect, Red Hat





Live Long and Modernize: 10 Virtualization Myths



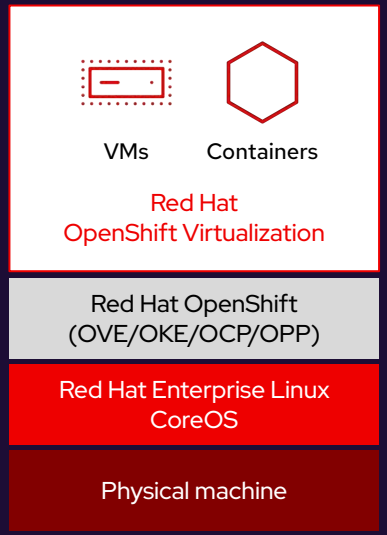
1. We have to rewrite our applications before we can move.

If you just need to migrate your VM's OpenShift virtualization will dress up as your Hypervisor Platform



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**
  DO156, DO256, EX316

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

Red Hat OpenShift & Virtualization

HOW WE DO IT



Provides distribution, failover, high availability of container workloads. Manages the attachment of networking and storage.



Extends Kubernetes to provide model for running Virtual Machines, taking advantage of all of the features of Kubernetes.

200+ contributors, 60 releases



Serves as the hypervisor to run multiple, virtual machines (VMs), live migration, storage attachment.

Leveraged by Red Hat, Google Cloud, AWS

Bring traditional virtual machines into OpenShift

Traditional VM behavior in a modern platform

- Administrator concepts and actions
- Network connectivity
- Live migration

Use existing VM roles and responsibilities

- Migrate traditional VMs easily with a set of comprehensive tools
- Maintain application components that are business critical
- Modernize application workloads and skill sets over time



No





2. OpenShift only makes sense if we already have a container strategy.

Red Hat OpenShift Container Platform

The platform for all your workloads

Trusted

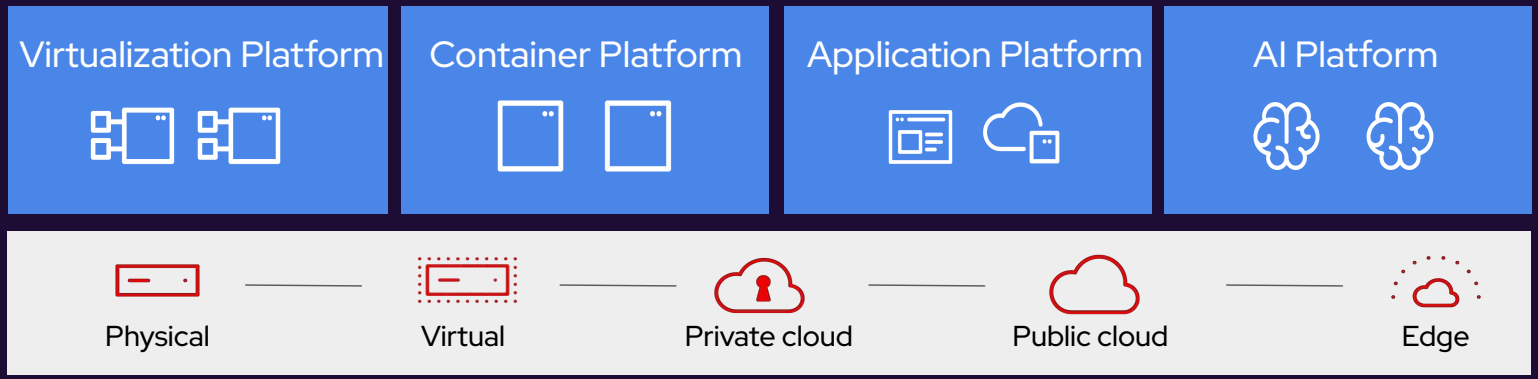
to reduce risk

Comprehensive

to improve productivity

Consistent

to increase flexibility



Red Hat OpenShift Editions

	Red Hat OpenShift Virtualization Engine	Red Hat OpenShift Kubernetes Engine	Red Hat OpenShift Container Platform	Red Hat OpenShift Platform Plus
Virtual machine workloads Migrate, manage, and deploy virtual machines	✓	✓	✓	✓
Enterprise Kubernetes for container applications Build, deploy, and run containerized applications		✓	✓	✓
Comprehensive application platform Full set of operations and developer services and tools			✓	✓
Management and security at scale Complete platform for accelerating app development and app modernization				✓

OpenShift Virtualization Engine



Unlimited VMs

Run as many VMs as you need.



Per Node Licensing

Run more VMs on less hardware, optimizing your infrastructure efficiency.



Optional Advanced Cluster Management for Virtualization

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.



No





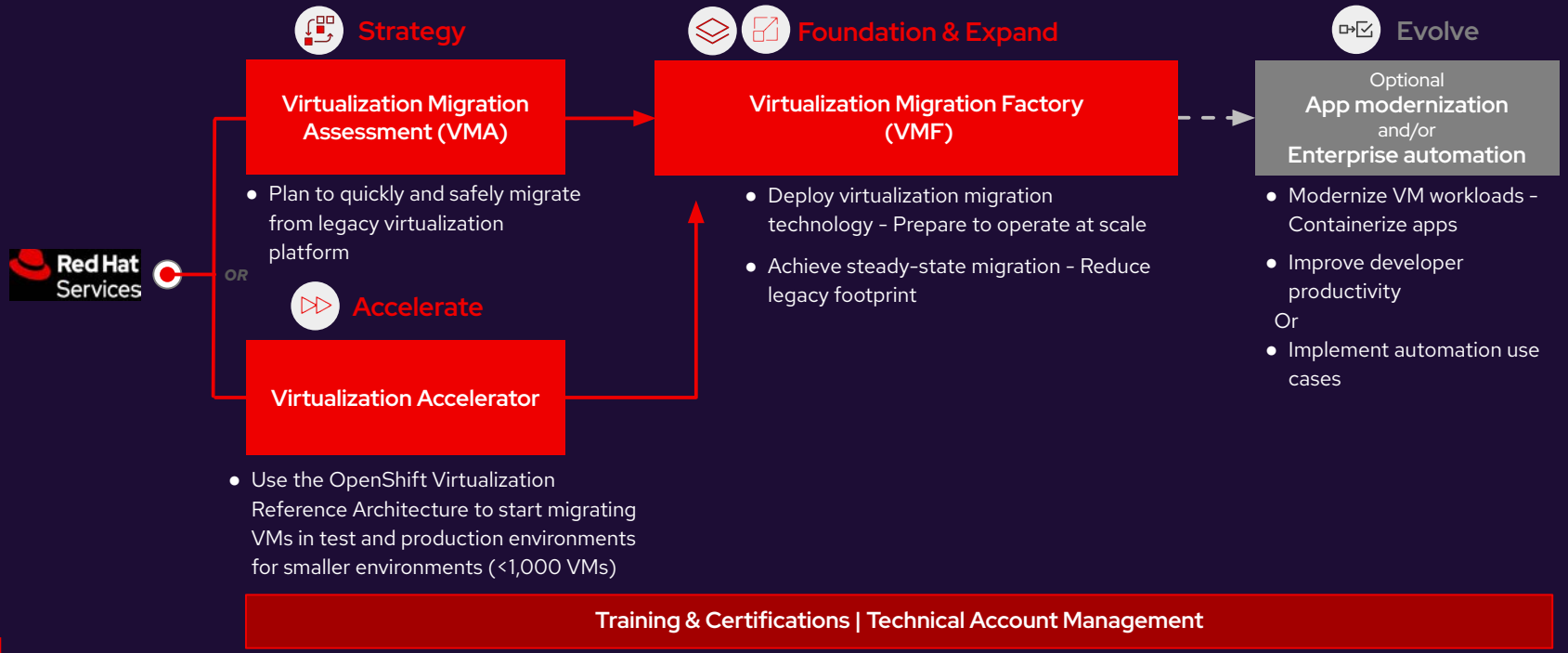
3. Migration means moving everything in one enormous outage.

We have the tools but also the processes to help you



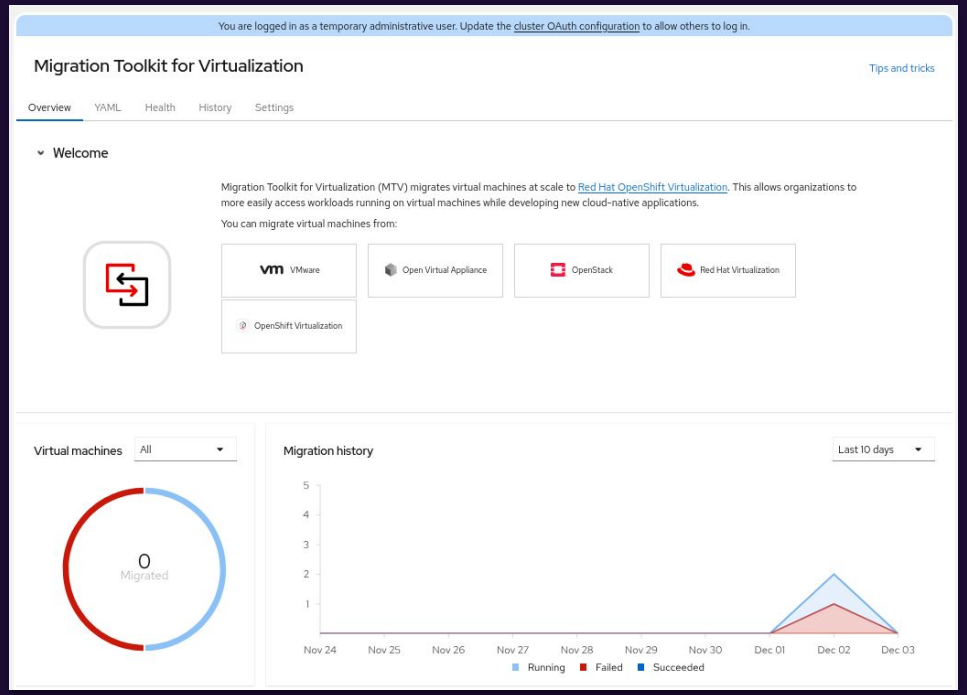
A bird's eye view into your Virtualization journey

A customizable approach based on your business needs and current environment



Migration toolkit for virtualization

Move your critical workloads with confidence



Guided migration planning

Navigate migration process using step-by-step workflows.

Currently available Sources: RHV, VMware, OpenStack, vSphere-compatible OVA, OpenShift

Accelerated, flexible migrations

Maximize throughput through capabilities such as storage offload, concurrent migrations, and Ansible Automation Platform integration for large scale migrations.

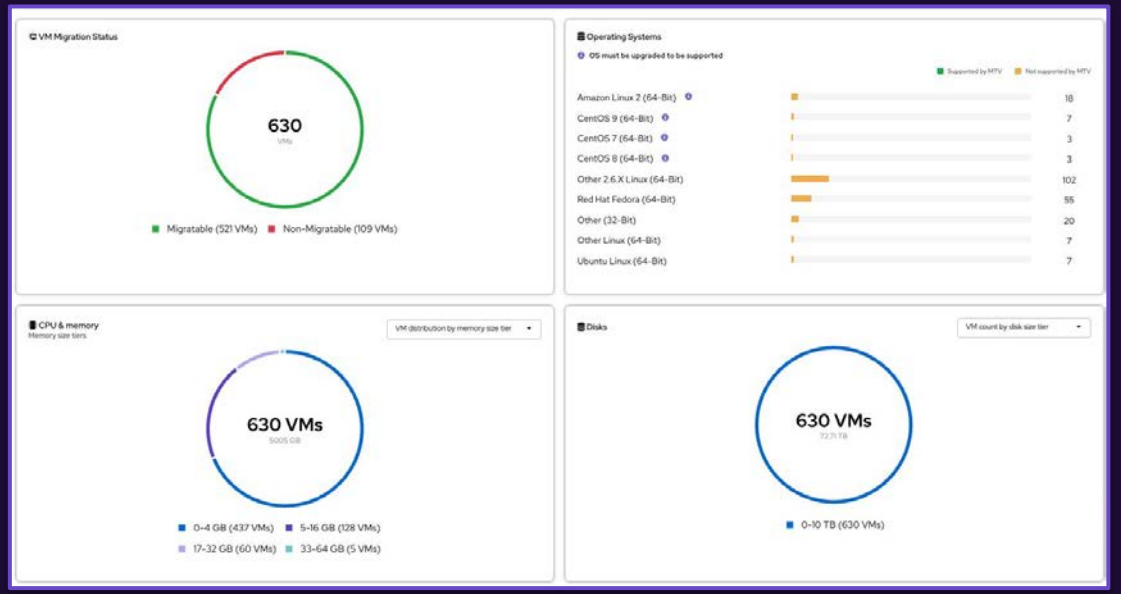
Low risk paths with minimal disruption

Create, validate, and execute detailed migration plans with checks to reduce risk and choose a migration method based on downtime tolerance.

Get instant access to a migration-readiness report

Kickstart a predictable migration path with the OpenShift migration advisor

- Visibility into migration-ready VMs to **accelerate planning before migration starts**
- Comprehensive CPU, memory, and disk data for **clear insights into cluster scale**
- Tailored OpenShift configurations and estimated timelines for a **data-driven migration strategy**
- Pre-migration requirements and risks for a **smooth, predictable journey**



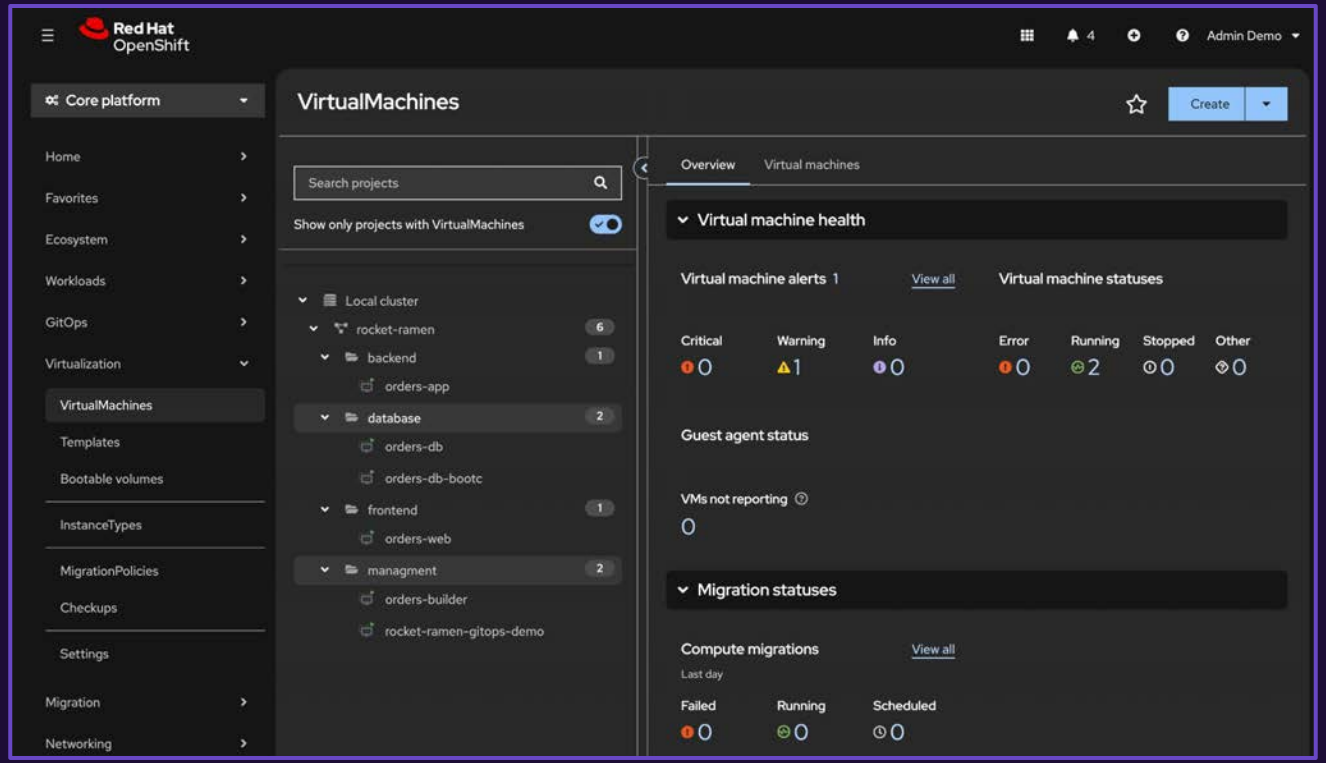
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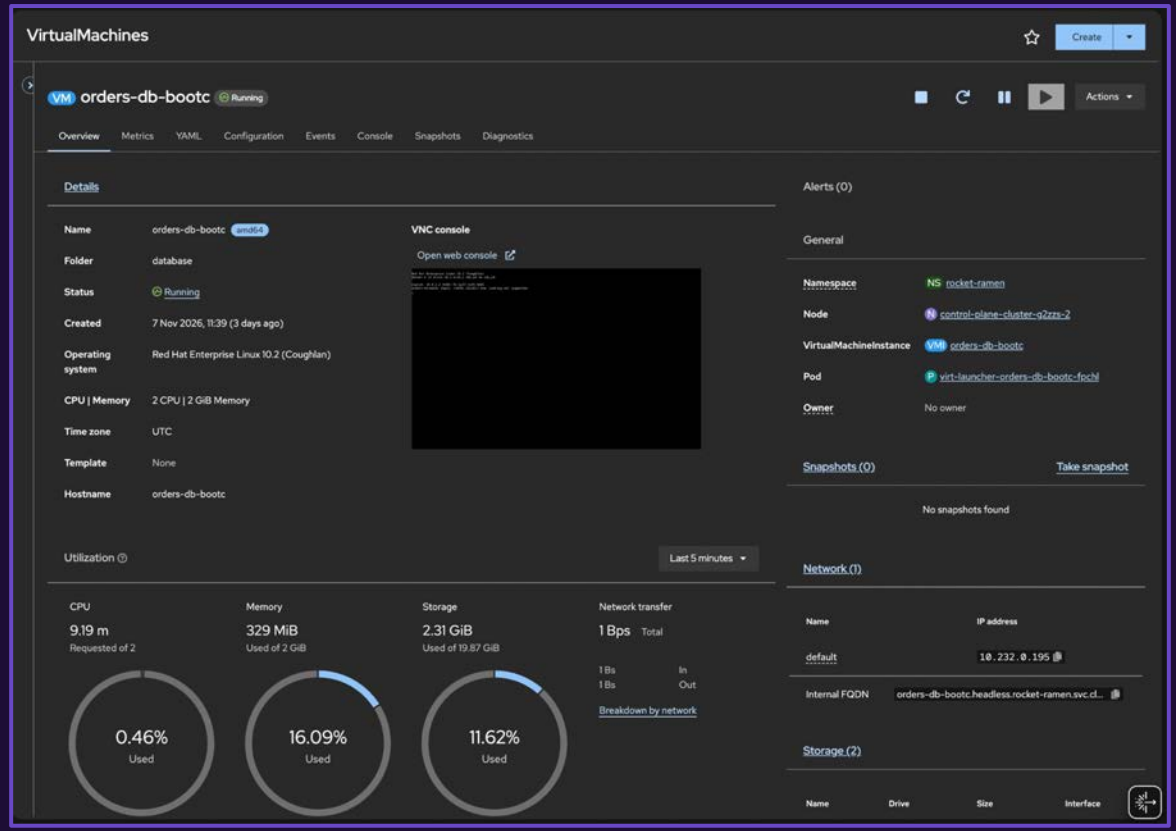


4. Our virtualization team has to start from zero.

Single Pane of glass

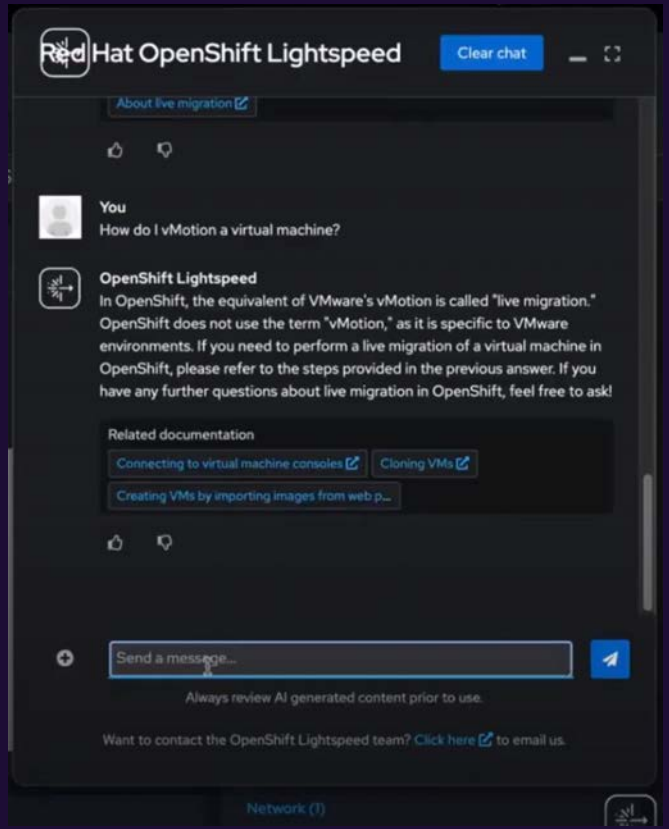


VM Ops in the console



OpenShift Lightspeed

Generative AI based conversational assistant for OpenShift



- Generative AI-based conversational assistant in OpenShift Console, accessible throughout the Management Console
- Assists traditional vAdmins transition to OpenShift Virtualization
- Get product help and helps guide daily tasks and troubleshooting
- Context Aware, and trained on VMware -> OpenShift product terms
- Bring your own LLM provider
- For both VMs and containers

Intelligent OpenShift powered by OpenShift Lightspeed

Intelligent Assistant (Chat) GA

Conversational AI Capabilities

Cluster Introspection via MCP

- MCP server enables the LLM to read and write cluster resources in real time

Human-in-the-Loop (HiTL) Approval

- Every non-read operation requires explicit user confirmation before execution

Live Knowledge

- Red Hat documentation access including ROSA via Red Hat Offline Knowledge Portal (RHOKP)

LLM Provider Choice +3

- + Google Vertex AI (native + Anthropic Claude), AWS Bedrock

Troubleshooting Mode

- Describe problem, investigate and return root cause and remediation

expands to

Secure Agentic Execution TP

Autonomous Execution & Safety

Agentic runs

- Enables agentic updates and autonomous troubleshooting; Lightspeed agent proactively proposes fixes pending human approval

Ephemeral security-focused execution environment

- Isolated pods with scoped RBAC and TTL retention

Safety

- Guardrails via MCP gateway for content and tool safety, HiTL approval for executions

Governance

- Open Telemetry tracing, semantic spans, and structured audit logging

Additional LLM Providers

- Direct Anthropic, Responses API defaults, and hot-reload

Train and certify on Red Hat OpenShift Virtualization



Managing Virtual Machines with Red Hat OpenShift Virtualization with Exam (D0317)

Select self-paced training and an exam in your bundle at checkout to receive the discounted offer.



Managing Virtual Machines with Red Hat OpenShift Virtualization (D0316)

Teaches the essential skills required to create and manage virtual machines (VM) on OpenShift using the Red Hat OpenShift Virtualization operator. This course does not require previous knowledge of containers and Kubernetes.





Red Hat Certified Specialist in OpenShift Virtualization (EX316)

The Red Hat Certified Specialist in OpenShift Virtualization exam (EX316) tests the knowledge, skills, and ability to plan, deploy and manage virtual machines using the Red Hat OpenShift Virtualization operator in a Red Hat OpenShift Container Platform environment.



No

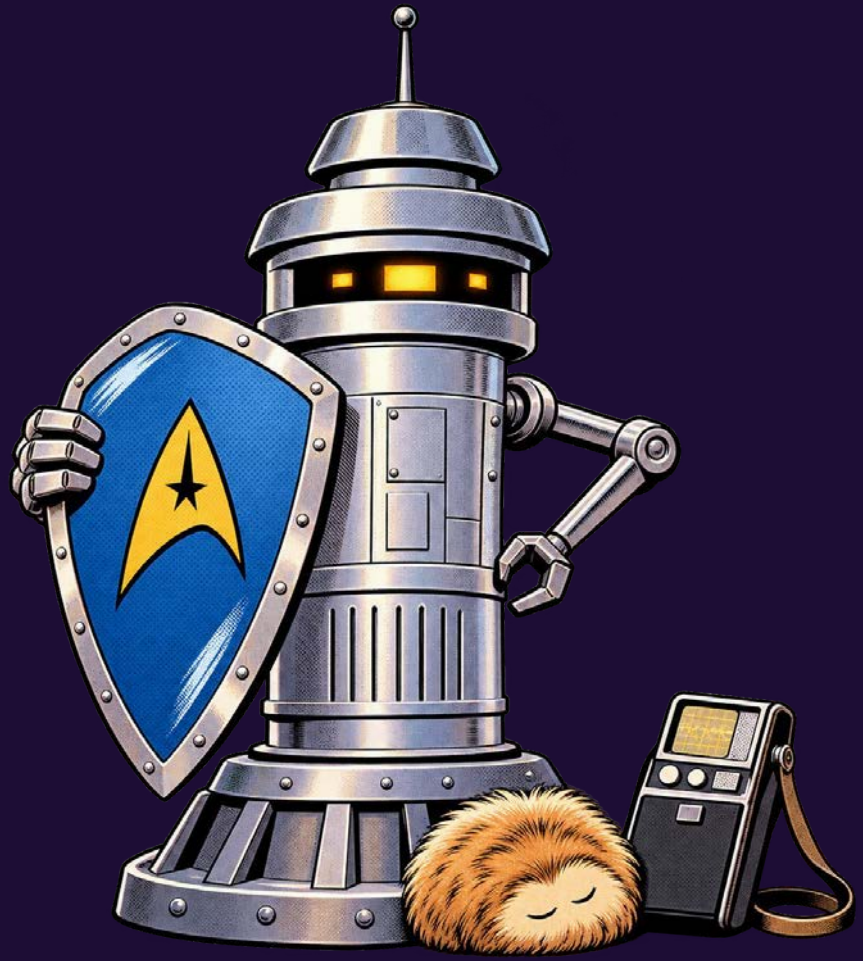




5. It's Red Hat, so it only runs Linux VMs (sic!).

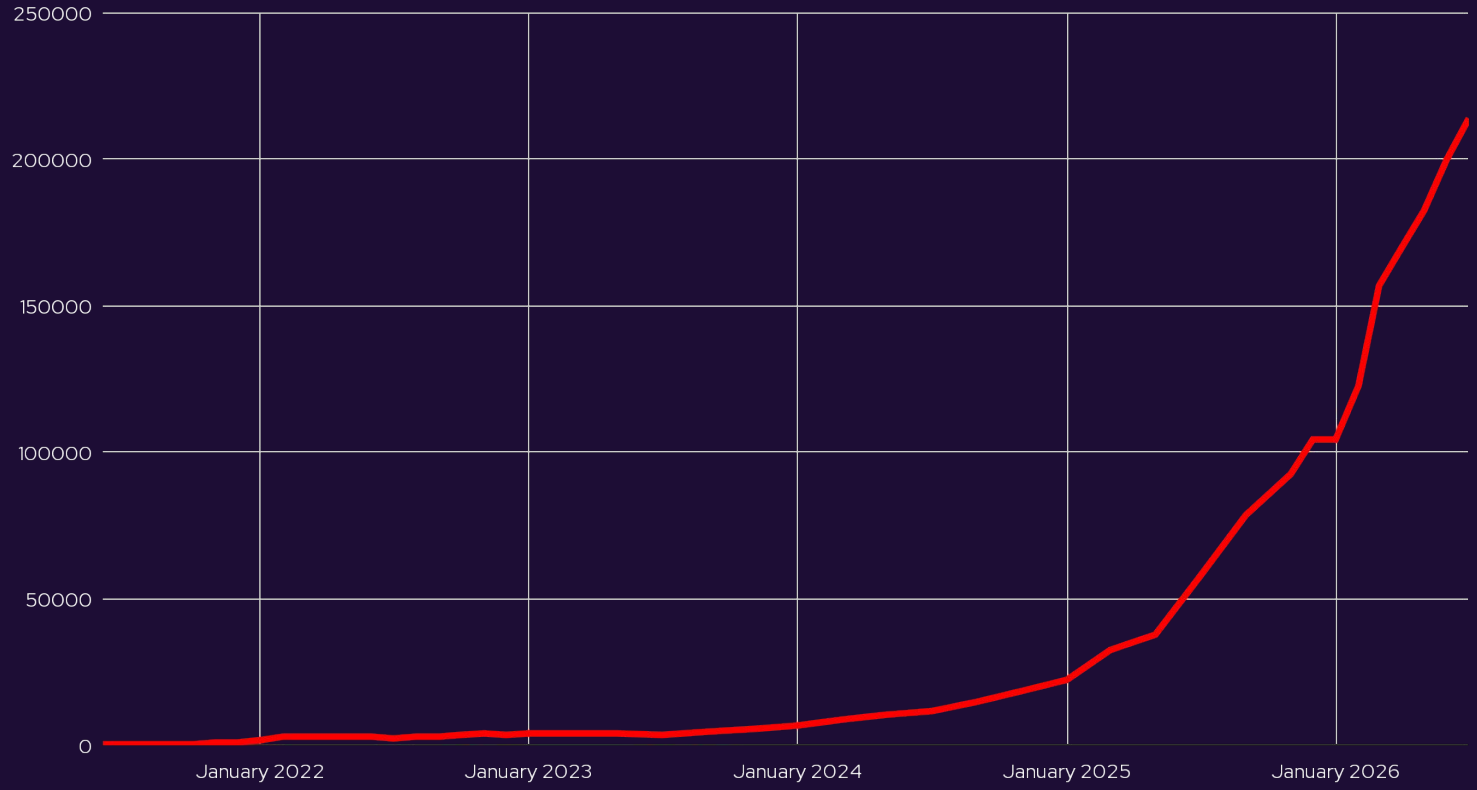
No





6. VMs on Kubernetes are an experiment.

VM:s Running in OpenShift



Red Hat is recognized as a Leader in the 2026 Gartner® Magic Quadrant™ for Server Virtualization Platforms



"By 2029, 55% of enterprises will migrate 100% of workloads to VMware alternative delivery solutions."

Gartner, "Magic Quadrant for Server Virtualization Platforms," Tony Harvey, Daniel Bowers, Paul Delory, Tony Iams, Owen Marino, 14 September 2026.
Gartner, "First Take: Proxmox Removes Objections With Enterprise 24/7 Support," Tony Harvey, Fintan Quinn, Vishesh Divya, 4 September 2026.

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15+ years of enterprise virtualization experience



Enterprise virtualization capabilities

- **Live migration**
- Infrastructure fencing
- Application fencing
- Hot pluggable disks / VM disk resize, SR-IOV and Bridge
- Non-disruptive upgrades
- Deduplicating memory with freePageReporting and KSM support
- **Performance, Scale, Stability of KVM**
- CPU overcommit
- VM disk resize
- GPU passthrough, vGPU
- UI for VM admins
- VM export
- **Microsoft Windows,** UEFI and Secure boot, Persistent vTPM
- Microsoft Windows Server Failover Cluster (WSFC)



Networking

- DPDK, **SRI-IOV,** IPv6
- Flat L2 Overlay network without the need to configure host networking
- OVN Kubernetes localnet as an alternative to the Bridge CNI
- Secondary network ipBlock policies and **micro segmentation**



Hybrid Cloud and managed services

- X86 Intel and AMD based systems
- Single Node OpenShift
- 3- node compact cluster
- **ROSA, AWS Public Cloud**
- IBM Cloud



Storage, backups, and DR

- **Storage profiles for all major storage providers - ODF, Netapp, Pure/Portworx, Dell, Hitachi, HPE, IBM**
- Virtual machine export
- **Backup / restore** with OADP
- **Portworx support for Metro-DR and Async-DR**
- GitOps-based VMs disaster recovery in **ODF Metro-DR**
- Kasten K10 by Veeam
- Trilio TVK
- Storware vProtect



OpenShift Virtualization is still moving forward

Ease of Migration

Better ClickOps (Simplified Administration)

Storage, Backup, and DR Enhancements



Networking Enhancements

Platform and Core Virtualization

Security and Performance



OpenShift 5

Just Released!

Memory-Aware Load Balancing with Descheduler redistributes virtual machine workloads to prevent node memory contention

Autopilot Configuration Tuning tunes default settings for core cluster components and operators

VolumeGroup Snapshots (GA) improves backup and recovery workflows

Storage-Agnostic Incremental Backup (QEMU CBT) reduces backup times and storage overhead



No





7. We'll have to replace our entire infrastructure around it.

Technology



Independent software vendors (ISVs)

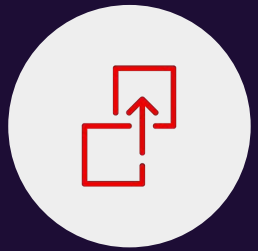


Hardware



Cloud providers

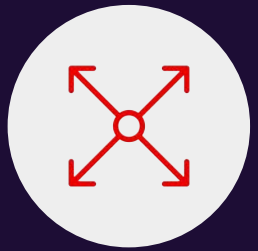
People process



Advisory/SI



Managed service providers



Channel

Storage

- portworx by Pure Storage
- NetApp
- Dell Technologies
- Hewlett Packard Enterprise
- IBM
- lightbits
- Hitachi Inspire the Next
- Lenovo INFINIDAT
- Red Hat OpenShift Data Foundation
- VAST

Observability

- splunk> a cisco company
- dynatrace
- turbonomic
- Packet Ranger
- checkmk

Backup & Disaster Recovery

- COHESITY
- veeam Kasten
- rubrik
- Dell Technologies
- TRILIOVAULT
- portworx by Pure Storage
- VERITAS
- NetApp
- IBM
- storware BACKUP AND RECOVERY
- Commvault
- arctera
- cloudcasa by Catalogic

Networking & Security

- cisco
- ISOVALENT
- TIGERA
- f5
- CHECK POINT
- paloalto NETWORKS
- flexera
- infoblox
- CROWDSTRIKE

Compute Hardware

- Dell Technologies
- Lenovo
- Hewlett Packard Enterprise
- cisco
- IBM

Virtual Desktops

- citrix
- omnissa *In progress
- leostream

Cloud Providers

- aws
- Microsoft Azure
- ORACLE Cloud Infrastructure
- IBM
- Google Cloud

Databases

- ORACLE
- Microsoft SQL Server
- CockroachDB
- crunchy data

This is not an exhaustive list of ISV partners.

...with your existing technology partners

No





8. Modernization only counts when a VM becomes a container.

Operational Modernization

Application Modernization



Cloud Native Bliss

Three modernization outcomes

Migration delivers the first. The next two are yours to choose — at your pace.

01

Platform
modernization

ACHIEVED – the moment you migrate

Migration alone lands you on a modern, hybrid-ready foundation.

02

Operational
modernization

AVAILABLE – from day one

Apply modern practices to VMs with no application changes.

03

Application
modernization

LEVEL UP – when the organization is ready

Containerize, refactor, build for AI – on your timeline.

Red Hat OpenShift — one unified platform for virtual machines, containers, and intelligent workloads

ACCELERATE: Operational Modernization



GitOps & CI/CD
Modern deployment practices for all workloads



Infrastructure as Code
Consistent, repeatable deployment



Virtualization Admin View
Familiar ClickOps experience



Ansible Automation Platform
VM migration efficiency + day 2 operations at scale



Consolidate existing container platforms on to one



OpenShift Lightspeed
Helps ease virt. admin onboarding



No





9. We're simply exchanging one vendor dependency for another.



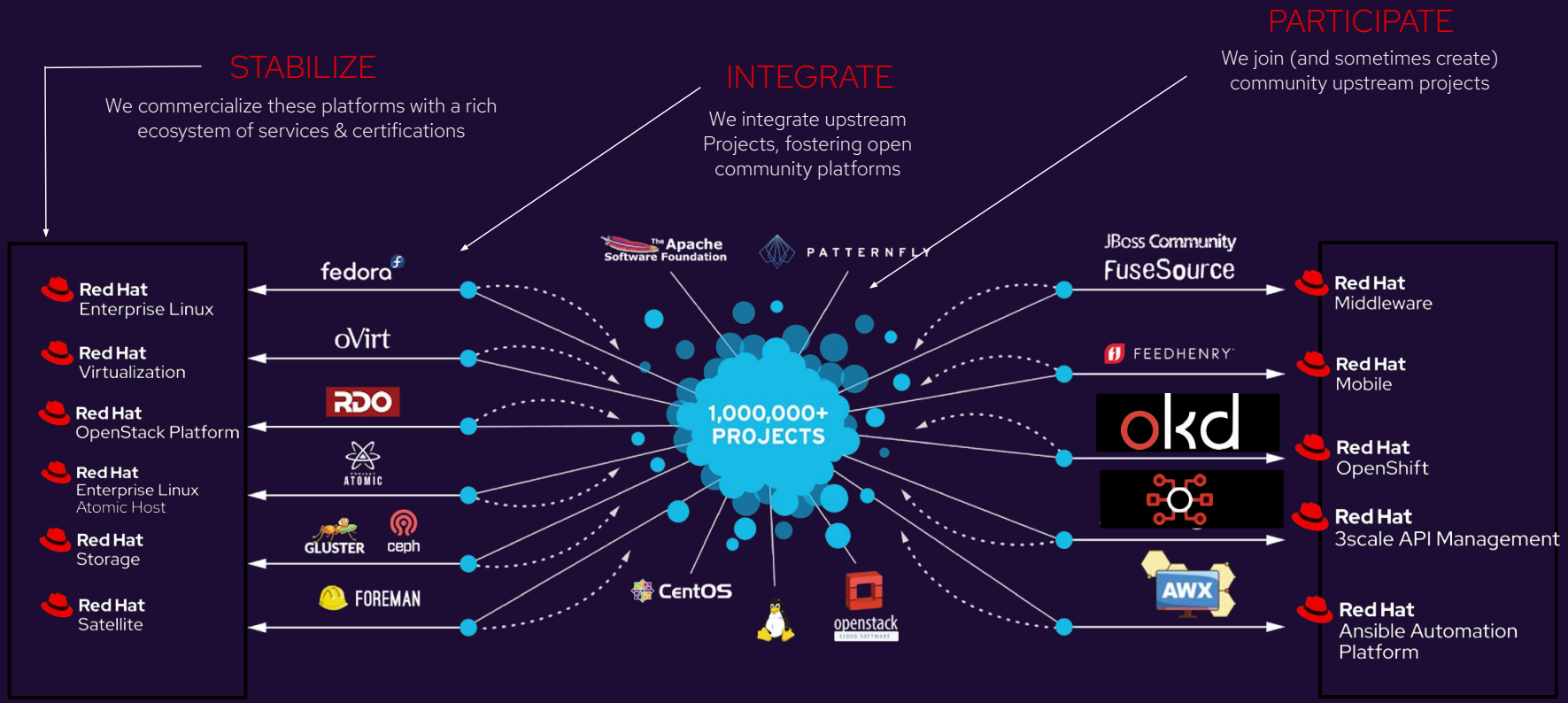
Kubernetes Virtualization API and runtime in order to define and manage virtual machines

KubeVirt was accepted to CNCF on September 6, 2019, moved to the Incubating maturity level on April 19, 2022, and then moved to the **Graduated** maturity level on November 4, 2026.





Enterprise software with open source development model



Software Communities & Standards Communities

No





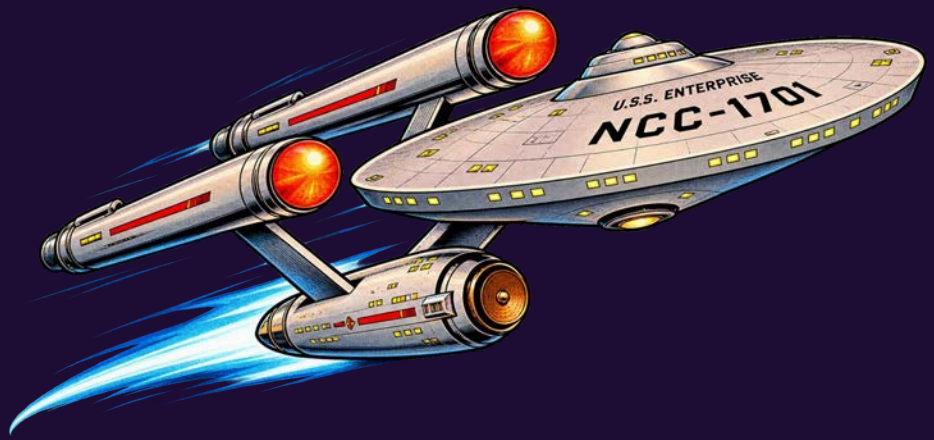
10. The business case begins and ends with a cheaper licence.

Why migrate to a hypervisor platform that recreates what was state of the art 25 years ago?



No





- **Unlock modernization** and AI capabilities
- **Avoid vendor lock-in** with open source and open standards
- OpenShift is a **unified platform** for containers and VM's
- **Migration** tools are included
- Operational **modernization** from day 1

Red Hat Summit

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