

15 reasons to adopt Red Hat OpenShift Virtualization



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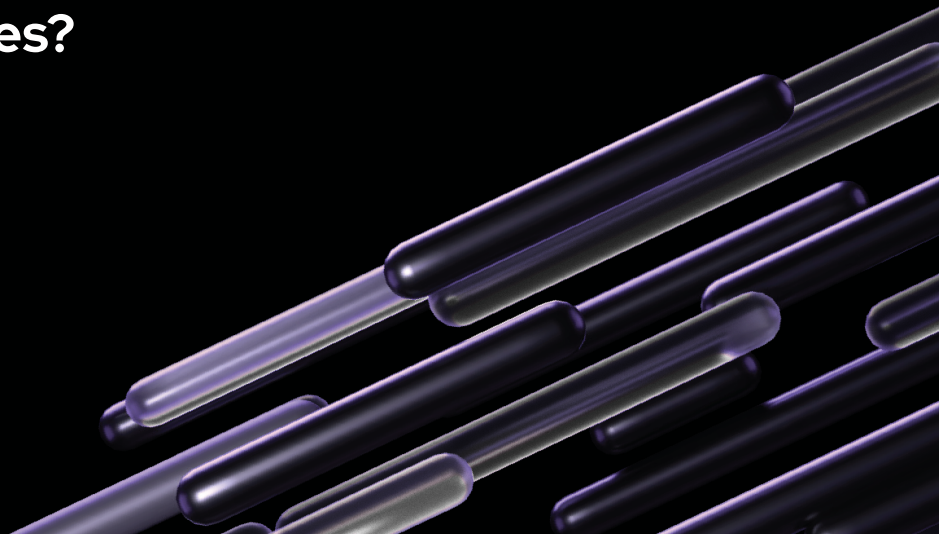
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Virtualization infrastructure continues to evolve

For more than 2 decades, organizations have relied on virtualization technologies to deliver innovative applications and services that improve operations, optimize costs, and promote new business opportunities. The introduction of virtual machines (VMs) into datacenters helped IT teams efficiently use resources, improve flexibility, and optimize infrastructure performance. As public cloud resources became more accessible, virtualization platforms evolved to make use of the scalability, agility, and potential cost benefits offered by new cloud computing models. Today, rising costs, licensing uncertainty, and renewal pressure are forcing IT leaders to reconsider decisions once considered stable and long-term.

As part of this virtualization reassessment, many organizations are seeking the right combination of consistency, efficiency, and support for their future operations and cloud-based applications. These organizations want to quickly migrate to a unified, cost-effective platform that prepares them for IT modernization, while continuing to manage the existing VMs that handle the bulk of their workloads. At a typical midsize-to-large enterprise in a mature market, approximately 75% to 85% of on-premise x86 server workloads still run on VMs, according to Gartner®.¹

Application platforms that combine support for both traditional VMs and lightweight technologies like containers are of particular interest for organizations that want to get ahead. Teams can readily migrate their current VMs to the new platform and run them alongside container-based applications to take advantage of new approaches to building and deploying applications. At the same time, container orchestration platforms often include tools and automation that help IT teams simplify application lifecycle management across massive hybrid cloud environments. IT teams can deploy and administer their existing workloads—virtualized or containerized—using common processes and tools while taking advantage of innovation in monitoring, development and deployment pipelines, GitOps, service meshes, and serverless technologies. As a result, organizations can continue to run the virtualized workloads their business relies on while modernizing their applications and approaches at their own pace.

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of on-premise x86 workloads run on a VM.”



¹ Gartner. “[Market Guide for Server Virtualization Platforms](#).” Tony Harvey, Elaine Zhang, et al., 23 Oct. 2025. (For Gartner subscribers only.)

Migrate today, **modernize on your schedule**

To be successful, IT organizations need a cloud-ready application foundation that meets their current virtualization needs while preparing them for future modernization and change. [Red Hat® OpenShift®](#) provides a modern, enterprise-ready infrastructure platform for running VMs and container-based applications. Powered by containers, Kubernetes, and DevSecOps capabilities, Red Hat OpenShift is a foundation for rapidly building, deploying, running, and managing both traditional and modern applications at scale and with security across hybrid, multicloud, and edge environments.

Included as a feature of Red Hat OpenShift and based on the established Kernel-based Virtual Machine (KVM) hypervisor and KubeVirt open source projects, [Red Hat OpenShift Virtualization](#) helps your organization migrate its Linux® and Microsoft Windows VMs to a unified application platform. By moving VMs from other platforms and running them on Red Hat OpenShift, your team can get the most from existing virtualization investments while taking advantage of cloud-native architectures, streamlined operations and management, and new development approaches. Migrating VMs to Red Hat OpenShift delivers the first tier of modernization, platform modernization. From there, your IT team can incrementally take on operational and application modernization if desired.

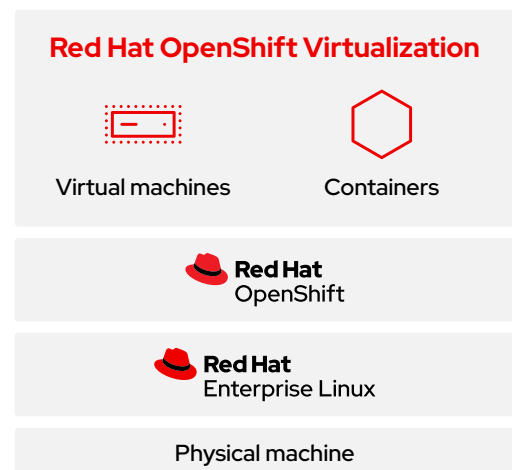


Figure 1. OpenShift Virtualization infrastructure

Red Hat also offers consulting services to help your organization migrate more quickly and effectively. Our experts help [get the process started](#)² by assessing your organization's business goals and current state and planning a path forward through a series of interactive workshops. In fact, Red Hat Consulting sped the adoption of and migration to Red Hat OpenShift by 46% versus DIY implementations.³

For a dedicated virtualization solution, **Red Hat OpenShift Virtualization Engine** provides the virtualization functionality of Red Hat OpenShift to deploy, manage, and scale VMs only. It also provides comprehensive access to broader Red Hat OpenShift capabilities, including containerized applications and modernization, if and when needed.

2 Red Hat datasheet. "[Virtualization Migration Assessment](#)," 16 Feb 2026.

3 Forrester Consulting study, commissioned by Red Hat. "[The Total Economic Impact™ Of Red Hat Consulting For OpenShift](#)," September 2024. Results are for a composite organization based on interviewed customers.

Gain benefits across your organization

Discover 15 reasons to migrate traditional VMs to Red Hat OpenShift.

1 Move to a trusted, modern virtualization platform

Migrating workloads from traditional to modern virtualization platforms can be complicated. To ensure a smooth and efficient migration process, you need to carefully consider VM compatibility, possible configuration changes, and potential performance optimizations. Additionally, differences in virtualization platform deployment and management processes and tools need to be accounted for in your migration plans, especially when moving between cloud providers. Preemptively validating VM compatibility, using warm migration capabilities, and transitioning multiple VMs at once can help you move workloads between virtualization platforms rapidly and with less effort.

The [migration toolkit for virtualization](#) helps simplify and speed the process of moving existing VMs to OpenShift Virtualization on a low-risk path while minimizing downtime. In addition, when combined with [Red Hat Ansible® Automation Platform](#), you can [automate the migration](#) of groups of VMs and related infrastructure, like networking and storage, at scale and speed.



2 Simplify IT operations with a unified platform

Managing separate platforms for VMs and containers can lead to increased complexity, resource fragmentation, and operational overhead. Unified platforms that streamline infrastructure deployment, management, and monitoring across both VMs and containers can help you optimize resource use, eliminate duplicate efforts, and quickly adapt to diverse workloads.

OpenShift Virtualization simplifies operations with a single platform for VMs, containers, bare-metal, and serverless workloads. Standardize infrastructure deployment and maintain various workloads using a common, consistent set of established enterprise tools. Through a dedicated virtualization admin view and AI-powered virtual assistance, virtualization administrators can access familiar workflows and ask questions in natural language to ease the transition to OpenShift Virtualization. Together, these capabilities help users adopt OpenShift Virtualization in less time with minimal retraining. You can also streamline Day 2 operations, from provisioning to deprovisioning, with Ansible Automation Platform.

Customers can also take advantage of using OpenShift Virtualization on OpenShift cloud services across Red Hat OpenShift Service on AWS, Microsoft Azure Red Hat OpenShift, Red Hat OpenShift Dedicated on Google Cloud, and Red Hat OpenShift on IBM Cloud. Through these managed offerings, the underlying platform is fully supported by a dedicated team of site reliability engineers, facilitating operations starting from Day Zero.

Plus, you can continue to use your existing infrastructure with Red Hat OpenShift via [certified partner integrations](#).

[Watch the video](#)⁴ to learn more.

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Adopting Red Hat OpenShift Virtualization on top of our OpenShift was simple and cost-effective and enables us to bridge the VM and container worlds and remain adaptable in our fast-moving market.³

Patric Siegrist
Chief Architect,
Reist Telecom AG

4 Red Hat video. "[Ease the virtualization admin transition to Red Hat OpenShift Virtualization](#)." YouTube 13 Feb. 2026.

3 Modernize applications over time, on your schedule

While migrating monolithic or n-tier applications on VMs to containerized, microservices-based workloads can enhance scalability, improve productivity, and increase agility, it can also require significant investments in time and resources. A unified platform that supports a range of application types, including VMs, containers, and bare-metal and serverless workloads, with optional modern application development processes and tools, can help strategically transform your applications on schedule, according to your unique needs.

From Day 1, you can access operational modernization benefits with OpenShift Virtualization and apply modern workflows like continuous integration and continuous delivery (CI/CD), GitOps, and service mesh to your existing VMs, without changing your applications. This approach allows you to pursue application modernization through containerization only when it makes sense.

4 Operate consistently across hybrid and multicloud environments

Balance costs and effort with a turnkey application platform

Jointly engineered, operated, and supported by Red Hat and AWS, OpenShift Service on AWS is a turnkey application platform that helps you boost operational efficiency and refocus on innovation. [Learn more](#) about this managed cloud service.

One of the key advantages of adopting hybrid and multicloud environments is flexibility. During application deployment, these environments let you choose between various datacenter and cloud resources to balance scalability, performance, and cost according to your business objectives. Application platforms that run and migrate VM workloads consistently across hybrid and multicloud environments can help you simplify application deployment, optimize resource use, and maintain operational consistency.

OpenShift Virtualization supports self-managed physical servers in datacenters, edge environments, and public cloud environments, including [Amazon Web Services \(AWS\)](#), Microsoft Azure, Google Cloud, IBM Cloud, and Oracle Cloud. This choice offers the optimal infrastructure for your organization's VMs. It's also available as part of [Red Hat OpenShift Service on AWS](#)—a fully managed cloud service to offload ongoing platform management and help you get started in less time.

5 Provide self-service options for deploying VMs

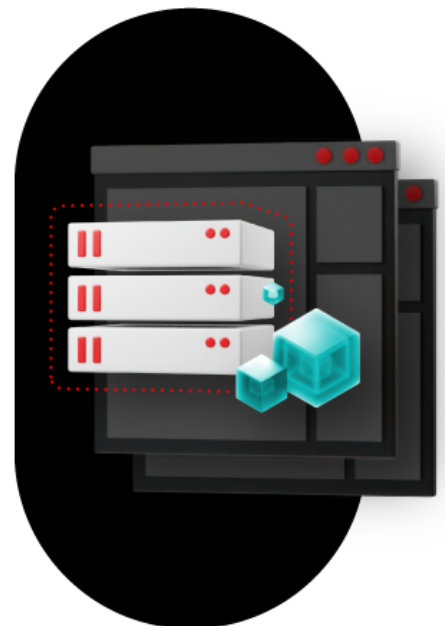
Manually deploying VMs is an inefficient, error-prone process that can result in inconsistent configurations, long deployment times, and an increased risk of security vulnerabilities. Self-service capabilities let users rapidly and reliably deploy preapproved, security-compliant VM configurations when they need them and without opening an IT service ticket.

Following standard Red Hat OpenShift roles, users can create VMs in their projects—and then grant access to other project members—to help their entire team quickly get the resources they need. [VM instance types](#) simplify self-service provisioning via predefined operating system images, workload types, and hardware requirements. You can also use [templates](#) to deploy VMs that require advanced configuration, including virtual appliances.

6 Integrate VMs into your development and deployment pipelines

Using VMs in development and deployment pipelines can increase the scalability, consistency, and speed of your application delivery processes. Integrating VMs in development pipelines lets you deploy standardized, isolated, and reproducible environments for coding, testing, and debugging to increase consistency across development teams. Using VMs in [continuous integration/continuous deployment \(CI/CD\)](#) pipelines provides clean, isolated environments for each stage—from build and test to release and deployment—for controlled, reliable application delivery.

With OpenShift Virtualization, you can create, manage, and run commands in VMs within development and CI/CD pipelines based on [Red Hat OpenShift Pipelines](#) to streamline infrastructure and application delivery.



7 Take advantage of virtualization hypervisor technologies

Hypervisor performance, stability, and security are critical for efficient, dependable virtualization infrastructures. Adopting extensively tested and validated hypervisors that are supported by trusted vendors can help you better manage virtualized workloads at scale and increase reliability across diverse environments.

As the underlying hypervisor for OpenShift Virtualization and Red Hat Enterprise Linux, [KVM](#) is a security-focused, high-performance, open source hypervisor. First released in 2007, KVM provides a stable, efficient virtualization foundation for organizations worldwide. Today, Linux virtualization powers critical IT infrastructure for a large number of global financial services firms, airlines, manufacturers, public sector organizations, and telecommunications companies and is a popular choice for public cloud deployments.

8 Boost VM performance

Speedy recovery times are critical when IT services become unavailable due to hardware failures, power outages, or other issues that result in downtime. When this occurs, the applications running in the VMs that were using those services are also unavailable. An application platform that can recover and reboot VMs efficiently is essential for keeping your business up and running at all times.

OpenShift Virtualization exhibits near linear boot times for large numbers of VMs, so your critical applications can always be available. Red Hat offers example architectures including how to support platform resilience in an environment running 1,000 VMs, with node health checks, remediation mechanisms, and redundancy design for critical components.⁵

Read the [OpenShift Virtualization example architectures](#) article to learn more about performance and tuning for production environments.

9 Accommodate multiple guest operating systems

In virtualized environments, support for guest operating systems increases the diversity of workloads, applications, and services you can run on shared physical infrastructure. Compatibility with a wide range of operating systems, advanced security features that isolate guests and hosts, and support from experts with extensive experience simplifies virtualization across varied IT environments.

Red Hat tests, certifies, and supports [guest operating systems](#) for use with OpenShift Virtualization—including certification for Microsoft Windows guest support provided through Microsoft’s Server Virtualization Validation Program (SVVP)—to help create an IT environment that meets your business needs. You can also continue to use common in-guest tools like PowerShell, Ansible, and Puppet with VMs running on OpenShift Virtualization.

10 Decrease risk with advanced security features and best practices

Security vulnerabilities in virtualized environments with shared hardware infrastructure increase the risk of unauthorized access, data breaches, and potential service disruptions. Effective VM workload security relies on solid isolation technology, uniform security policies, and adherence to the principles of least privilege.

OpenShift Virtualization follows the restricted Kubernetes pod security standards profile and runs VM workloads without root privileges, helping comply with industry-standard security protocols and protect your organization. Red Hat OpenShift also includes core security features—like access controls, network security, and an enterprise registry with a built-in scanner—to protect your platform from the start.



11 Simplify live migration of VMs

Live migration—moving a running VM to another host without interrupting the workload—is crucial for maintaining continuous operations as infrastructure demands change. A virtualization platform that lets you configure, initiate, monitor, and cancel live migrations across your environment can help balance workloads and avoid downtime during maintenance activities.

OpenShift Virtualization supports complete [live migration](#) workflows with a unified management console, configurable policies, VM metrics, and traffic encryption to help your IT teams keep essential applications running reliably.



12 Back up and restore VMs

When unexpected events or system disruptions occur, backup and restore capabilities can help your team recover VMs in less time, ensuring continued operations. Creating frequent backups—representations of the state and data of a VM at a specific point in time—provides the information needed to restore existing VMs.

OpenShift Virtualization lets you [back up VMs](#) automatically on demand or on fixed schedules, manage saved images, and restore workloads quickly to minimize the impact of disruptions on your business. Red Hat's certified partner ecosystem also includes third-party products for data storage, backup, and restoration. Using the Operator Framework, your platform can interact with many of these products directly from Red Hat OpenShift. For example, your team can install and configure Ansible Automation Platform via an operator, and then use the platform to automate VM lifecycle management, including backup and restore operations.

13 Scale infrastructure as workloads change

Dynamic workloads, diverse technologies, and rapid pace of development and deployment associated with modern applications place high demands on IT infrastructure. To ensure optimal performance and resource use, virtualization platforms must dynamically and efficiently scale up and down as workloads change.

[Machine management](#) features in OpenShift Virtualization, including autoscaling based on workload policies and machine health checks, can help your team administer infrastructure with greater flexibility and efficiency to meet modern application demands.

14 Support a collaborative, open source model



Open source development models promote collaboration, innovation, and community-driven development to rapidly deliver new, advanced virtualization technologies. With access to stable community innovation, open standards for broad compatibility, and open application programming interfaces (APIs) for flexible integration, open source technologies can help your organization build efficient virtualized environments across datacenter and cloud infrastructures.

Red Hat OpenShift Virtualization uses the proven KVM hypervisor, a widely adopted and trusted virtualization technology used by leading global companies. KVM provides the underlying virtualization capabilities, while Red Hat OpenShift Virtualization uses KubeVirt, a Cloud Native Computing Foundation (CNCF) project, to extend Red Hat OpenShift and support container-native virtualization. [KubeVirt](#) provides a unified development platform where developers can build, modify, and deploy applications residing in both containers and VMs in a common, shared environment.

15 Work with our virtualization experts

Successfully planning, deploying, and maintaining a virtualized environment requires specialized skills and knowledge. Expert support and guidance, backed by extensive virtualization experience and in-depth platform knowledge, can help configure your environment, proactively resolve potential issues, and maximize performance, security, and reliability.

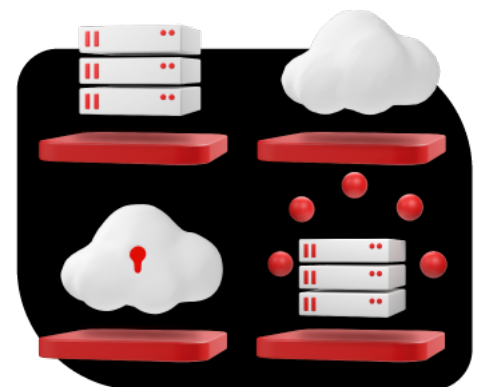
With multiple tiers of support designed to meet your organization's needs, Red Hat can help keep your IT operations up and running. And if an issue arises, Red Hat experts can help your team quickly restore services, as you innovate, scale, and deploy critical applications and workloads.

You can also take advantage of Red Hat services, [consulting engagements](#)⁶, and [training and certification curricula](#)⁷ to gain container and Kubernetes [skills and experience](#). To prepare teams for success, Red Hat Consulting works with your organization to generate a roadmap for VM migration that includes strategies for management, monitoring, risk mitigation, and disaster recovery, all using a security-focused approach and best practices.

Deploy a consistent foundation for innovation

By giving you a single scalable and flexible platform for VMs and containers, OpenShift Virtualization reduces operational overhead and opens a straightforward path to modernization. This integration offers a unified approach to managing VMs and containers in an efficient, security-focused manner.

You can also apply modern application development principles to your VMs and run all of your applications and workloads consistently across on-site datacenter, edge, and cloud environments. Increase developer productivity, simplify operations, and streamline infrastructure and application delivery to better support your business. With OpenShift Virtualization, you can meet today's needs while building a foundation for tomorrow's, without another disruptive migration.



⁶ Red Hat overview. "[Simplify your VM migration to Red Hat OpenShift Virtualization](#)." 16 July 2024.

⁷ Red Hat datasheet. "[Red Hat OpenShift skills path](#)." 11 May 2026.

See customer success in action: sahibinden.com

To maintain its market-leading position against competition from start-ups and global retailers, Turkish classified listing and e-commerce platform sahibinden.com decided to modernize its IT infrastructure and work approaches.

The company began a 3-phase project to migrate its existing VMs into container workflows with Red Hat OpenShift, running in a private cloud environment across its two datacenters. As part of its shift to containers, sahibinden.com adopted an active-active datacenter configuration, where both datacenters share workloads within the private cloud environment. New and refactored container-based applications are deployed across multiple Red Hat OpenShift® nodes.

With this new architecture and DevOps workflows, sahibinden.com has decreased system reliability incidents by 97%, improved developer productivity and time to market, and enhanced its reputation for technology innovation.



Decreased system reliability incidents by 97%



Improved DevOps experience with unified management



Optimized container adoption with expert support and guidance



Red Hat OpenShift is the clear leader in enterprise Kubernetes. And while the virtualization market leaders can run Kubernetes on their virtualized infrastructure, **only Red Hat OpenShift can run our whole virtualization environment within its Kubernetes container platform.**⁷

—
Tayfun Deniz
Director of Infrastructure Management, sahibinden.com

Read the case study⁸

Ready to migrate your VMs?

Unify and streamline IT operations with a single, enterprise-ready application platform for both VMs and containers.



OpenShift Virtualization reduces operational complexity by providing a unified, modern, cloud-native infrastructure for all of your virtualized and containerized applications and workloads. Plan your path to modernization with a platform that brings modern application development principles to existing VMs and prepares your organization for a cloud-native future.

Learn more about [Red Hat OpenShift Virtualization](#)

Explore OpenShift Virtualization for yourself

Explore the interactive demos of Red Hat OpenShift Virtualization for step-by-step guidance on the fundamentals of using the virtualization solution.

Experience the [guided walkthroughs](#)



Need help getting started?

For many organizations, virtualization migration is uncharted territory. Most have built their virtual estates over years or decades and have rarely had cause to move them at scale. They, and may lack the in-house knowledge, capacity, or specialist resources to plan and execute a project of this size. Red Hat's consulting services team is well-versed in helping customers navigate and deliver on these migrations.



Assess and plan your VM migration

Red Hat Virtualization Migration Assessment is an experience-driven framework that helps organizations understand, plan, and create a strategic path forward for VM infrastructure migrations. This engagement from Red Hat Consulting provides a clear roadmap and timeline for migrating your VMs off your traditional virtualization platform.

Learn more about [Virtualization Migration Assessment](#)