

Red Hat OpenShift Virtualization

Introduction

Red Hat® OpenShift® Virtualization, an included feature of Red Hat OpenShift, provides a modern platform for organizations to run and deploy new and existing [virtual machine \(VM\)](#) workloads. This platform allows users to migrate and manage traditional VMs, alongside containers, in a trusted, comprehensive, and consistent hybrid cloud application platform— from core to cloud to edge.

With OpenShift Virtualization, teams that rely heavily on traditional VM-based workloads can migrate their existing VMs with tooling already included with Red Hat OpenShift while accelerating cloud-native development. By managing virtualized and containerized workloads on a unified platform, teams can standardize infrastructure deployment, tools, processes, and maintenance regardless of the type of application or where they run.

Question: What is OpenShift Virtualization?

Answer: OpenShift Virtualization is a feature of Red Hat OpenShift that offers a unified, scalable platform for migrating traditional VMs. It ensures consistent management across hybrid cloud environments and supports modernization efforts, allowing organizations to efficiently manage and deploy VMs, containers, and serverless workloads with a comprehensive set of development and operations tools.

OpenShift Virtualization is based on the upstream KubeVirt project, which is an open source project in the Cloud Native Computing Foundation (CNCF).

Question: Is OpenShift Virtualization a product?

Answer: No, OpenShift Virtualization is a feature, not a product. It is based on the upstream open source [KubeVirt project](#) and is available to download as a Red Hat OpenShift operator. More information on how to get and install the OpenShift Virtualization operator can be found in the [OpenShift Virtualization documentation](#).

Question: What does OpenShift Virtualization do?

Answer: Red Hat OpenShift Virtualization helps organizations accelerate the migration of their traditional VMs to a standardized platform with development and operations tools. OpenShift Virtualization uses [Red Hat Enterprise Linux®](#) KVM hypervisor technology deployed using containers, allowing Kubernetes to deploy and manage VMs. This capability accelerates application modernization by:

- ▶ Supporting development of new, microservices-based applications in containers that interact with traditional virtualized applications.
- ▶ Combining virtualized workloads with container workloads on the same platform, making it easier to gradually refactor monolithic, virtualized applications into containers.

Question: How does OpenShift Virtualization work?

Answer: When the OpenShift Virtualization operator is enabled for a Red Hat OpenShift cluster, virtualization administrators can migrate, create, and add VMs to their projects using standard workflows, automation, and take advantage of tools like GitOps. These VMs run in parallel on the same Red Hat OpenShift nodes as standard application containers.

Question: How is OpenShift Virtualization made available?

Answer: OpenShift Virtualization is a feature of Red Hat OpenShift. It is not an add-on or a separate product. The OpenShift Virtualization operator must be installed to access the feature. All current and future subscribers receive OpenShift Virtualization as part of their Red Hat OpenShift self-managed and Red Hat OpenShift Service on AWS subscriptions. Find documentation on installing the operator [here](#).

Question: What hypervisor is used by OpenShift Virtualization?

Answer: VMs running in OpenShift Virtualization continue to use the same trusted Red Hat Enterprise Linux KVM hypervisor.

Question: Is OpenShift Virtualization open source?

Answer: Yes, OpenShift Virtualization is based on KVM and the upstream [KubeVirt project](#), the source code of which is available under the Apache Software License 2.0.

Question: What are the key customer benefits of OpenShift Virtualization?

Answer: New development is shifting to containers and serverless workloads, but organizations have a huge investment in applications that run as VMs—many of which provide vital services to new and existing containerized applications. OpenShift Virtualization allows customers to rapidly migrate their VMs to Red Hat OpenShift and standardize their infrastructure deployment and maintenance on a single platform. When teams are ready, they can begin the modernization process at their own speed, using key virtualization migration tools like the included [migration toolkit for virtualization](#) to streamline this process.

Teams can also use key development pipelines for applications in VMs or containers, regardless of where they run. This innovation allows VM admins, developers, and operations to develop, manage, and deploy virtual machines, containers, and serverless workloads in one platform using the same tools and frameworks, accelerating their ability to deliver differentiated applications and services.

Question: What are the key use cases for OpenShift Virtualization?

Answer: OpenShift Virtualization helps technology teams migrate their traditional VMs, modernize application development, and optimize their IT infrastructure.

- ▶ **Migrate existing virtual machines:** OpenShift Virtualization offers a simple way for organizations to migrate their VMs to a single, modern, and unified platform. With the [migration toolkit for virtualization](#), users can quickly and easily migrate their VM workloads to OpenShift. For a comprehensive migration plan, users can take the [Red Hat Virtualization Migration Assessment](#) to define a tailored strategy, facilitating a low-risk transition of traditional VMs to OpenShift Virtualization. Customers can preserve their traditional VM investments by migrating to OpenShift Virtualization while still taking advantage of its cloud-native hybrid cloud application development and delivery capabilities.
- ▶ **Modernizing application development:** Developers can incorporate existing applications and components into their workflows while simultaneously building new, complex applications. OpenShift Virtualization lets teams with conventional VM technology modernize so they can develop containerized applications faster. It also provides a way to refactor complex virtualized applications gradually while continuing to run virtualized components. As developers modernize

existing applications, OpenShift Virtualization helps them run VMs in Kubernetes pods alongside normal pods made up of application containers, all on OpenShift Container Platform. It supports connectivity between application containers and VMs while also letting VMs share networking and storage infrastructure with application containers.

- ▶ **Optimize IT infrastructure:** As development teams embrace new workload footprints, operations teams need efficient ways to manage them alongside existing investments. OpenShift Virtualization helps optimize IT by providing a unified way to deploy, run, and manage containerized and virtualized workloads on the same platform.

Question: Is OpenShift Virtualization generally available?

Answer: Yes, OpenShift Virtualization is generally available. More information on how to install the OpenShift Virtualization operator can be found [here](#). Stay up to date on the latest release [here](#) in [the OpenShift Virtualization documentation](#).



About Red Hat

Red Hat is the world's leading provider of enterprise open source software solutions, using a community-powered approach to deliver reliable and high-performing Linux, hybrid cloud, container, and Kubernetes technologies. Red Hat helps customers develop cloud-native applications, integrate existing and new IT applications, and automate and manage complex environments. [A trusted adviser to the Fortune 500](#), Red Hat provides [award-winning](#) support, training, and consulting services that bring the benefits of open innovation to any industry. Red Hat is a connective hub in a global network of enterprises, partners, and communities, helping organizations grow, transform, and prepare for the digital future.

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