Red Hat
OpenStack Services
on OpenShift

Red Hat OpenStack Services on OpenShift subscription

Red Hat OpenStack Services on OpenShift offerings

This overview outlines your Red Hat® OpenStack® Services on OpenShift® subscription options to help you choose the best solution for your organization. Your Red Hat account representative can help you understand your options and make the right decision to meet your technical and business requirements.

Red Hat OpenStack Services on OpenShift subscriptions are available in two offerings:

1. Red Hat OpenStack Services on OpenShift (Premium)
2. Red Hat OpenStack Services on OpenShift (Standard)

Red Hat OpenStack Services on OpenShift—Hosting OpenShift cluster usage limitations

- Two highly available cluster variants are supported for Red Hat OpenStack Services on OpenShift deployments:
  - Three-node OpenShift bare metal cluster (master/worker combo)
  - Multi-node OpenShift bare metal cluster (dedicated master + dedicated worker + infra node)
- Infra nodes and master nodes follow the OpenShift support policy, and the Red Hat OpenStack Services on the OpenShift control plane cover the required OpenShift Worker node in a 1:1 ratio, meaning 1 Red Hat OpenStack Services on OpenShift control plane with 1 OpenShift worker node and 1 subscription entitlement
- Under the Red Hat OpenStack Services on OpenShift control plane subscription, Red Hat only allows a user to deploy Red Hat products. For example:
  - Red Hat Advanced Cluster Management for Kubernetes, Red Hat Advanced Cluster Security for Kubernetes, Red Hat Quay, SSO, Red Hat OpenShift Data Foundation, LVMS, GitOps, and other Red Hat infrastructure based operators can run on the subscribed OpenShift Cluster given the required subscription applied.
  - OpenShift Virtualization and Red Hat Enterprise Linux® based virtual machines (VMs) used for IPA/LDAP, DNS and other infrastructure related services can run on the subscribed OpenShift cluster given the required subscription applied.
- Red Hat allows customers to expand the functionality of the OpenShift cluster to include third-party or in-house containerized and VM workloads if additional OpenShift subscriptions are purchased in order to add the worker nodes for said workloads.

Determining the need for a Red Hat OpenStack Services on OpenShift subscription

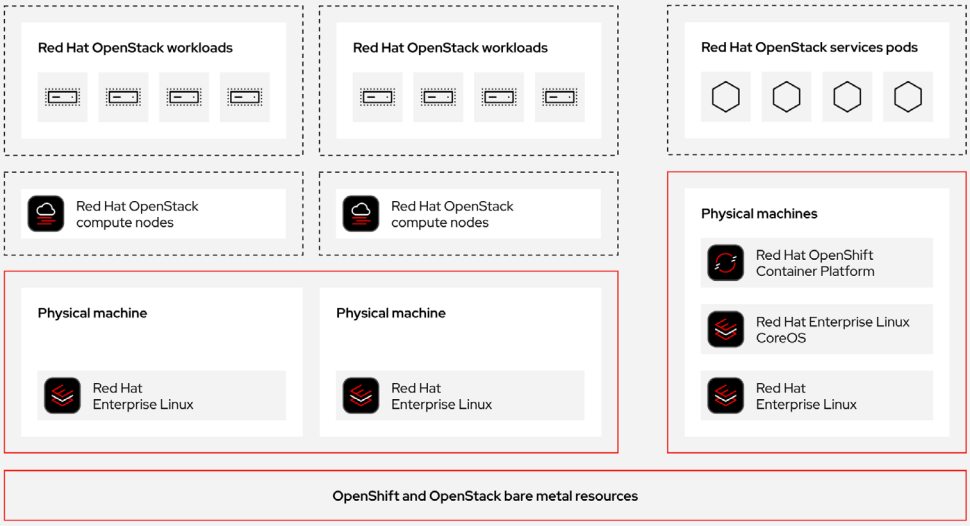
A Red Hat OpenStack Services on OpenShift subscription is required for any server used to install or execute Red Hat OpenStack Services on OpenShift—or for any server that is managed by Red Hat OpenStack Services on OpenShift—per appendix 1 of Red Hat's enterprise agreement.

With a Red Hat OpenStack Services on OpenShift subscription, you can install and run the included software on a single server with up to two populated sockets. If the server has more than two sockets, you can stack additional subscriptions on it until the number of allowed sockets is equal to or greater than the number of sockets in the server.

Red Hat OpenStack Services on OpenShift subscription needs

Use case	Subscription need
Red Hat OpenStack Services on OpenShift controlplane node	One subscription
Data plane without Red Hat Enterprise Linux guests	One subscription
Data plane with Red Hat Enterprise Linux guests	One subscription
Controller on pre-existing OpenShift Container Platform	Two subscriptions
Bare metal as a service	One subscription

Red Hat OpenStack Services on OpenShift
High level diagram



OpenStack Operator

The OpenStack Operator serves as the installer and lifecycle manager for the Red Hat OpenStack Services on OpenShift deployment and is part of the Red Hat operator catalog. It is responsible for the deployment of all OpenStack services, which are managed by their own Red Hat-supported operator-controller. The deployment and day two operations (patching, scaling up/down, and upgrades) are configured with CR yaml files (Kubernetes CustomResource).

Red Hat OpenStack Services on OpenShift control plane

The control plane is an OpenShift cluster that runs as pods on the designated OpenShift worker node. For example, Nova runs as several pods in a highly available setup on top of the OpenShift worker nodes in the cluster and is governed by the respective nova-operator-controller (as mentioned in the section above).

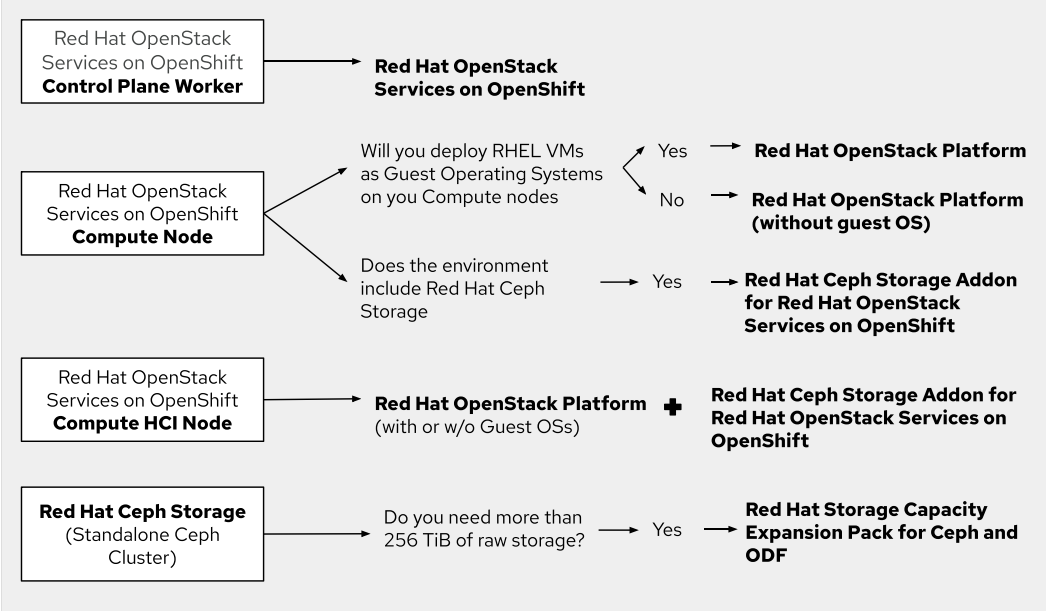
The Red Hat OpenStack Services on OpenShift control plane needs a persistent storage layer exposed to it via a Kubernetes storage class since the OpenStack Services on OpenShift control plane serves primarily persistent storage. As a result, the OpenShift cluster hosting the OpenStack Services on OpenShift control plane needs to have local/san/network attached storage exposed to it in order to function.

Red Hat OpenStack Services on OpenShift external data plane compute node

The Red Hat OpenStack Services on OpenShift compute nodes are completely external from the OpenShift cluster used to deploy, run, and manage the OpenStack Services on OpenShift environment. The compute nodes are managed by a group of operators located on the OpenStack Services on OpenShift cluster. The OpenStack compute nodes are not managed by a kubelet service, but rather by an Ansible® configuration and executed by the data plane operators in the OpenStack Services on OpenShift control plane.

Subscription decision tree

Once you understand the four roles a server can have in Red Hat OpenStack Services on OpenShift-based cloud environment, this decision tree can help determine which subscription to purchase for each server.



Red Hat Ceph Storage

Beginning with Red Hat OpenStack Services on OpenShift, there is a new Ceph® base-product add-on: Red Hat Ceph Storage add-on for Red Hat OpenStack Services on OpenShift.

This base product's unit of measure (UoM) will be OpenStack compute sockets. With the introduction of OpenStack Services on OpenShift, a Red Hat Ceph Storage add-on subscription is required for each OpenStack compute-node subscription (2 sockets) connected to the Ceph cluster.

Each Ceph cluster has 256TiB of raw capacity, provided by the Ceph base product. If multiple OpenStack Services on OpenShift clusters are connected to the same single Ceph cluster, all OpenStack compute nodes and the combined storage capacity requirements from all OpenStack Services on OpenShift clusters must be counted.

The subscription offers standard and premium support. The support level must match the one purchased for OpenStack Services on OpenShift.

Capacity Expansion Packs can be acquired for capacity requirements larger than 256TiB of raw capacity.

The new Ceph Add-on Capacity Expansion Packs have the identical structure and price as the existing OpenShift Data Foundation Capacity Expansion Packs. The existing OpenShift Data Foundation Capacity Expansion Pack will be reused and renamed to Red Hat Storage Capacity Expansion Pack for Ceph and OpenShift Data Foundation.

They will still be available in 256TiB, 512TiB, 1, 2, 3, 4, 5, and 10PiB. The Red Hat Storage Capacity Expansion Pack for Ceph and OpenShift Data Foundation cannot be used with the old Ceph subscriptions.

Red Hat OpenStack Services on OpenShift

The new Red Hat Ceph Storage Add-on for OpenStack Services on OpenShift will also grant the necessary subscriptions for connecting the OpenShift cluster to an external Ceph cluster through OpenShift Data Foundation.

This pricing applies starting with OpenStack Services on OpenShift, where Red Hat OpenStack Platform 17.1 platform still uses the former capacity-based Ceph pricing. Existing customers who already purchased the former Ceph Storage can keep renewing it.

Hyperconverged infrastructure

Red Hat OpenStack Services on OpenShift supports hyperconverged infrastructure (HCI), in which the Ceph storage services are collocated on the same nodes as OpenStack computes.

The way the new Ceph Storage subscription works does not change with HCI. Customers need to purchase one Ceph Storage add-on per compute node regardless of whether the node is hyperconverged.

Smart management option

Both Red Hat OpenStack Services on OpenShift and Red Hat OpenStack Services on OpenShift (without guest OS) have optional subscriptions that include smart management.

- Red Hat OpenStack Services on OpenShift with smart management
- Red Hat OpenStack Services on OpenShift (without guest OS) with smart management
- Both smart management subscriptions allow you to use Red Hat Satellite Server as the lifecycle management tool for the Red Hat software included with the subscription.

Learn more about Red Hat Smart Management.

Lifecycle options

Many factors should be considered when deciding how often to upgrade your organization's Red Hat OpenStack Services on OpenShift. Speak with your Red Hat account representative to determine which option is right for your organization.

Learn more about the lifecycle of Red Hat OpenStack Services on OpenShift.

redhat.com
#1567143_1224