Red Hat Device Edge

Deploy workloads in resource-constrained devices at the far edge

Bringing workloads to the far edge

Red Hat® Device Edge comes equipped with the capabilities needed to deploy and manage edge devices and their workloads at scale. Using Red Hat build of MicroShift, it brings together lightweight Kubernetes, Red Hat Enterprise Linux®, and Red Hat Ansible® Automation Platform to meet the needs of workloads running in resource-constrained, field-deployed devices.

Features and benefits

Through this single platform, users choose the capabilities that meet their needs. They can deploy the operating system (OS) and add Kubernetes orchestration later, using Red Hat build of MicroShift, or deploy the OS and Red Hat build of MicroShift at the same time. In either case, Red Hat Device Edge offers a consistent management experience via Ansible Automation Platform.

With Red Hat Device Edge, users benefit from:

▸ A platform that supports workload deployments in small, resource-constrained devices in challenging environments (like industrial controllers, point of sales terminals, drones, etc.).

▸ A smaller platform footprint so device resources are preserved for the deployed workload rather than used to run the device itself.

▸ A consistent operational experience from small edge devices all the way to large IT systems in the datacenter and cloud.

▸ The flexibility to deploy and manage bare-metal, virtual, containerized, or Kubernetes workloads.

Table 1. Platform and edge-specific capabilities

Platform	Capability
Red Hat Enterprise Linux	
Customizable OS image generation	Provides IT teams with the ability to create purpose-built OS images through image builder optimized for various edge architectures and customizable for compact edge deployments
Efficient over-the-air updates	Transfer significantly less data, as only the difference between software versions is transmitted for remote sites with limited or intermittent connectivity that provides each install to happen during scheduled downtime or when device owners choose to apply them

Platform	Capability
Delta OS updates via rpm-ostree	Intelligent device updates are optimized to reduce bandwidth utilization by only transferring updated bits (deltas) of the OS image
Intelligent rollbacks	Provides application-specific health checks to detect issues and automatically revert an OS update, preventing downtime, which is important when devices are in locations with limited accessibility or specialized, on-site IT teams (oil rigs, satellites, etc.)
Red Hat build of MicroShift	
Cluster services	• **Containers:** Red Hat Device Edge provides all of the standard Kubernetes application programming interfaces (APIs) and services for container orchestration, using cri-o as the container runtime. • **Networking:** As Container Network Interface (CNI) driver, Red Hat Device Edge uses Open Virtual Network-Kubernetes (OVN-Kubernetes), which is also used by OpenShift. • **Ingress:** Red Hat Device Edge carries over both the ingress controller and Red Hat OpenShift Route API to simplify exposing a service at a host name. • **Storage:** Red Hat Device Edge comes bundled with the logical volume manager (LVM) storage and Container Storage Interface (CSI) driver to provide advanced storage capacities like thin provisioning or volumes snapshots with local storage from the edge devices.
Cloud Native Computing Foundation (CNCF) Certified Kubernetes distribution	Red Hat build of MicroShift is a CNCF certified distribution of Kubernetes, providing a consistent Kubernetes API to ensure operational consistency across hybrid cloud deployments (public, on-premise, hybrid, edge, or any combination thereof).
Application portability	Red Hat build of MicroShift extends Kubernetes to the farthest reaches of the edge, allowing applications to where they are most needed—from core to cloud to edge.

Platform	Capability
Red Hat Ansible Automation Platform	
Ansible Content Collections available in Ansible automation hub (console. redhat.com) and private automation hub	2 Ansible validated content collections are available in Ansible automation hub to support rpm-ostree images and Red Hat build of MicroShift life cycle use cases at scale: • edge.microshift to build rpm-ostree-based images to run, configure, and upgrade Red Hat build of MicroShift and deploy Kubernetes workloads on Red Hat build of MicroShift • infra.osbuild collection to provide the automation content needed to build an osbuild server, an Apache HTTP Server to host images, and a role to build installer images and rpm-ostree updates All of these components allow user to build rpm-ostree-based images

Red Hat Device Edge technical specifications

2 buying options

Red Hat Device Edge includes:

▸ **Red Hat Enterprise Linux** as the edge-optimized OS.

▸ **Red Hat build of MicroShift**—a lightweight, Kubernetes-based container orchestration derived from Red Hat OpenShift and focused on minimizing users' footprint.

▸ **Ansible Automation Platform** to manage Day 1 device deployments and Day 2 ongoing platform and workload operations.

▸ **SKUs:**

  ▸ MW02577 (Premium)

  ▸ MW02581 (Standard)

Red Hat Device Edge Essentials includes:

▸ **Red Hat Enterprise Linux** as the edge-optimized OS.

▸ **Red Hat build of MicroShift**—a lightweight, Kubernetes-based container orchestration derived from Red Hat OpenShift and focused on minimizing users' footprint.

▸ **SKUs:**

  ▸ MW02240 (Premium)

  ▸ MW02241 (Standard)

Resource requirements

▸ Deployments using Red Hat Enterprise Linux have minimum system requirements of 1 core, 1.5GB RAM (3GB for HTTP/FTP, 10GB disk).

▸ Deployments with Red Hat Enterprise Linux and Red Hat build of MicroShift have minimum requirements of 2 cores, 2GB RAM, 16GB disk.

For more information, visit red.ht/deviceedge.

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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