

# Introduction to Red Hat Device Edge

# Expanding our capabilities for Edge computing

Adding kubernetes to small form factor, field deployed edge devices



## What's the news?

We are productizing MicroShift, bundled with Red Hat Enterprise Linux for Edge



## What will be available?

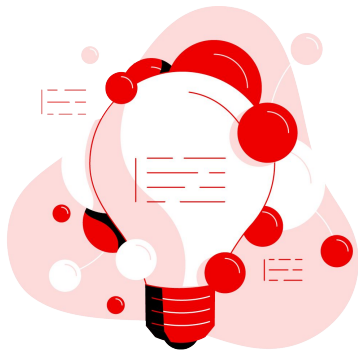
A new product **Red Hat Device Edge**, that simplifies edge / DCS pricing and contains support for MicroShift, a low footprint k8s distribution derived from OpenShift



## Why are we doing this?

To address the market demand for a consistent platform even on the smallest devices

## Edge computing with Red Hat



### Edge is the next frontier

Critical component of our company strategy and Hybrid Cloud story



### Expanding across industries

Developing capabilities & platforms that apply to many industries

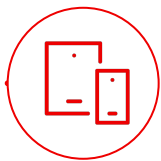


### Use case focused

The edge is not one thing or place, requirements can vary

# Devices in the farthest edge locations

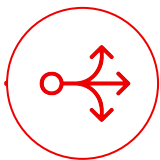
## Not your traditional data center challenges



### Limited HW and SW resources

**Small, devices located anywhere, on any thing**

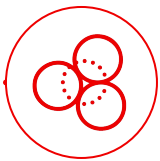
IoT Gateways, industrial controllers, Point of Sale terminals, etc...



### Life-cycle management

**In locations/devices with limited IT resources**

Hard to reach locations with intermittent connectivity back to a central site



### Scale

**Manage potentially tens of thousands of devices**

How to scale existing teams and processes to ensure operational consistency & security

# Introducing Red Hat Device Edge



**Red Hat**  
Device Edge

**Combines Kubernetes + Red Hat Enterprise Linux**

Address the needs of small devices at the farthest edge



**Right-sized** to meet the needs of small, resource constrained devices



**Optimized** with light-weight Kubernetes based on MicroShift, derived from OpenShift



**Intelligent** operating system ready for edge deployments

# Red Hat Device Edge

## Benefits



### Deploy what you need

- ▶ Meet the needs of different use cases
- ▶ Choice of workload types



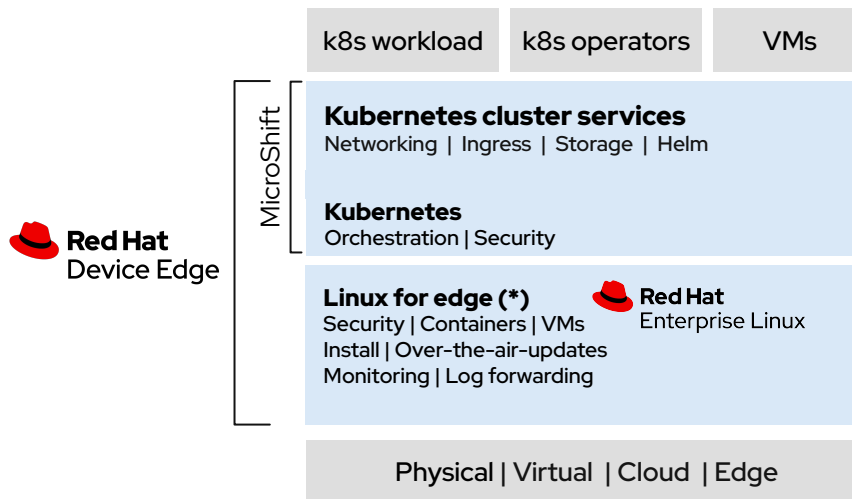
### One platform for your workload journey

- ▶ Start with Red Hat Enterprise Linux
- ▶ Add Kubernetes when needed
- ▶ Start with the entire product
- ▶ Run k8s workload on a small form factor edge device

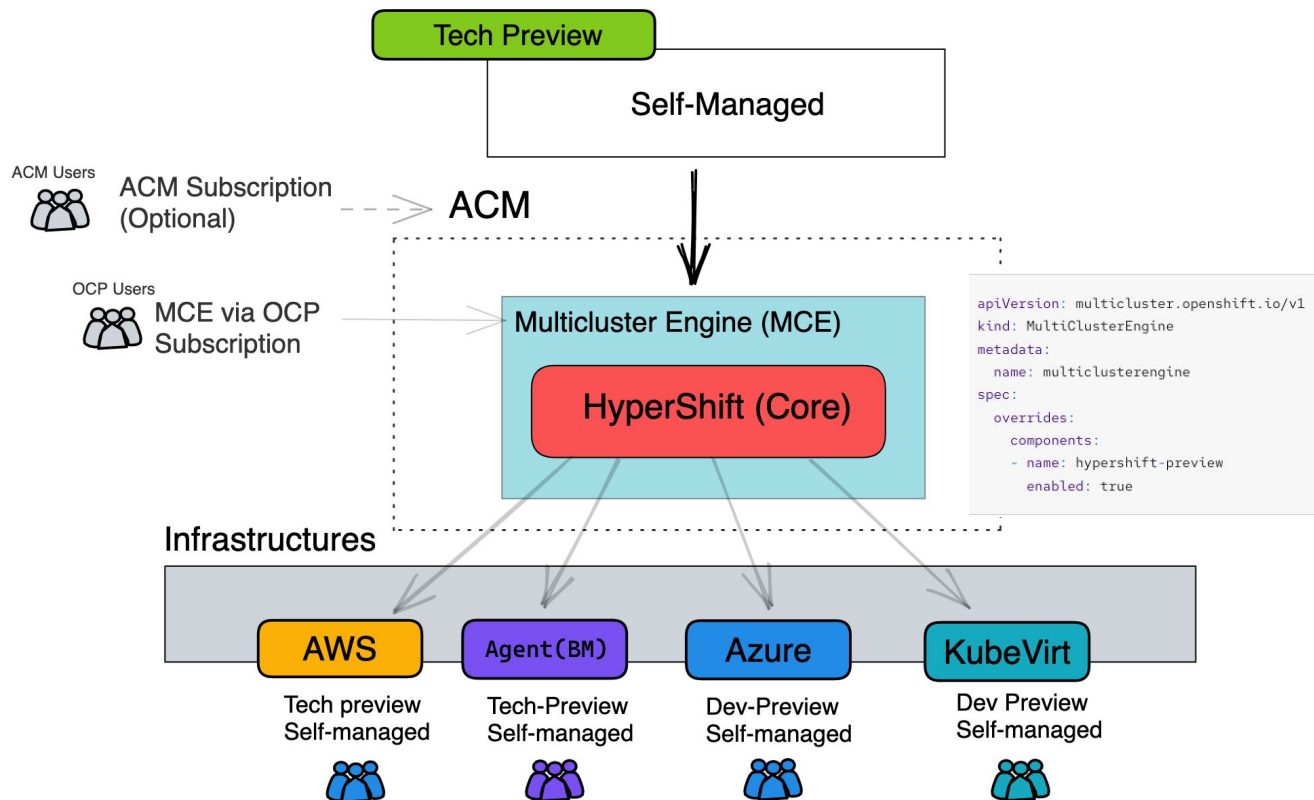


### Operational Consistency

- ▶ Use same tools and processes
- ▶ Scale your IT teams
- ▶ Consistency from the far edge via decentralized DC into the cloud

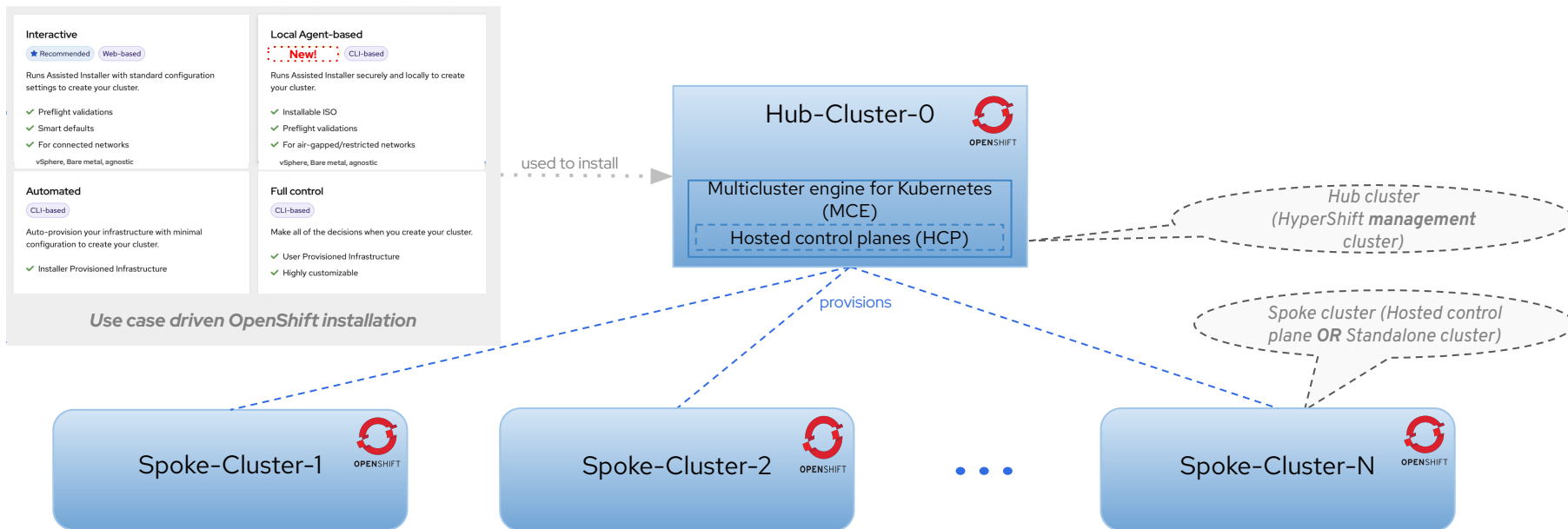


# Hosted Control Planes (Tech Preview)





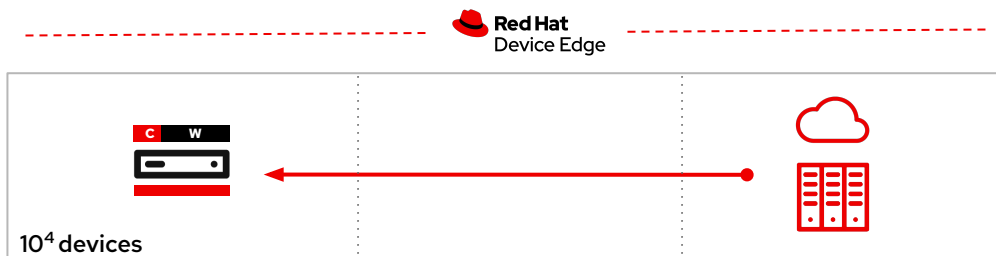
# The Big Picture



- ▶ Create an OpenShift cluster using **Interactive / Automated / Full-control / local-agent (new)**
- ▶ **Turn into a hub cluster** with Multicuster engine for Kubernetes (MCE)
- ▶ **Create a spoke cluster** – OpenShift spoke clusters are either **standalone or hosted clusters (HyperShift)**
- ▶ Optionally, manage the fleet of clusters and **enforce policies at scale** with Red Hat Advanced Cluster Management

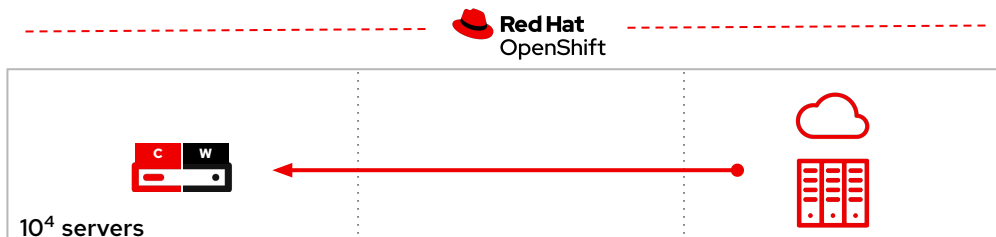
## Device edge platform

RHEL minimal profile and tooling for Edge devices + MicroShift



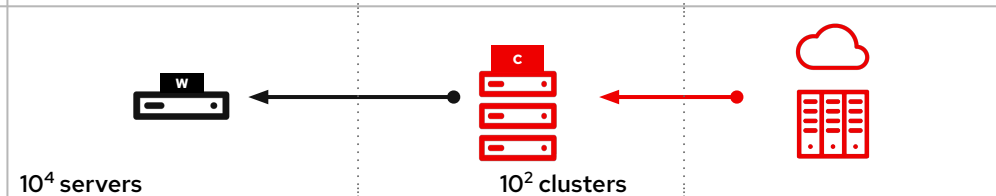
## Single-node edge servers

Low bandwidth or disconnected sites



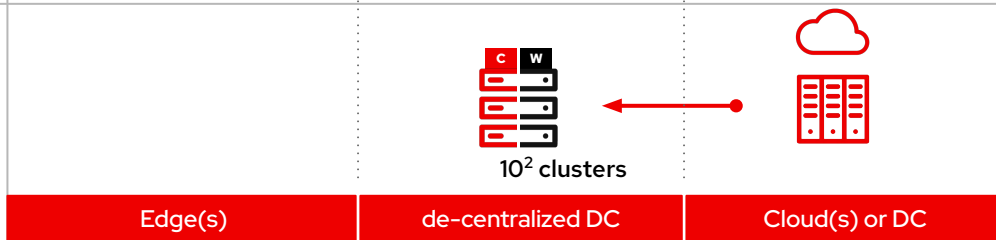
## (Remote) worker nodes

Space-constrained environments



## 3 node Clusters

Low footprint clusters with high availability



CONFIDENTIAL Internal only

Minimum System Requirements (per node):

w/o k8s:  
1 Core  
2 GB RAM

with k8s:  
2 Core  
2GB RAM

**Red Hat Management**

4 Cores  
16GB RAM

Worker:  
1 Core  
8 GB RAM

Control:  
2 Core  
16GB RAM

6 Cores  
24GB RAM

# Multi-Cluster Focused

## Selectable Cluster Inventory

Tech Preview

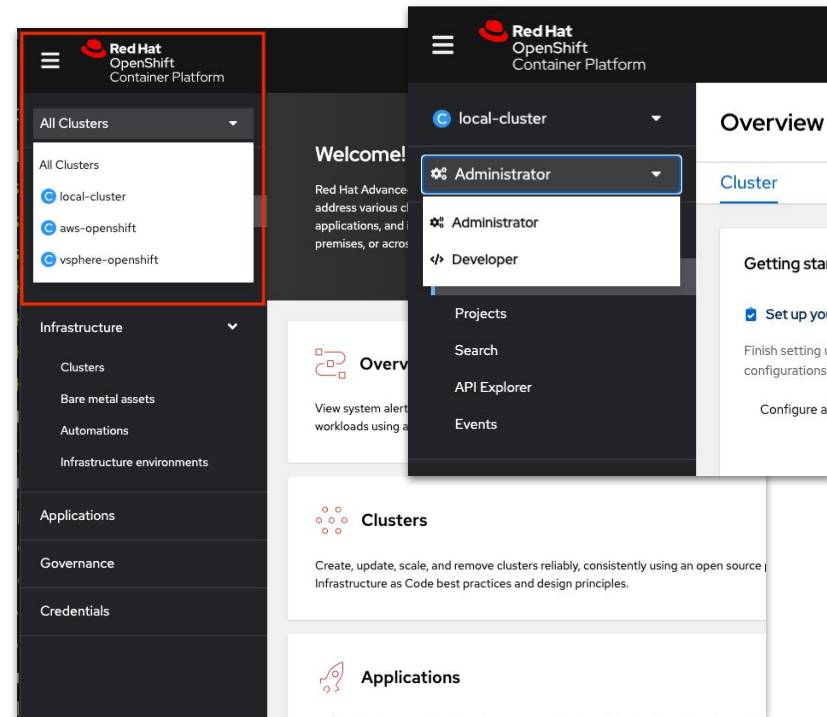
### What is this console integration?

Experience allows users to select clusters across their company as they enter the hub cluster's OCP console! Bringing together 3 tools into one UX:

- ▶ OpenShift Console (OCP) - main user experience for all individual clusters
- ▶ Multicluster Engine (MCE) - offers basic cluster inventory/create/update/destroy
- ▶ Advanced Cluster Management (ACM) - full multi-cluster management

### Moving from single cluster to a fleet of OpenShift:

1. Start deploying apps on a single OpenShift cluster
2. Use the Multicluster Engine to create more clusters and enable RBAC controlled multi-cluster views
3. Upgrade with Advanced Cluster Management to simplify multi-cluster configuration, application deployment, observability, networking, and more.



All OCP customers get MCE included in their subscription

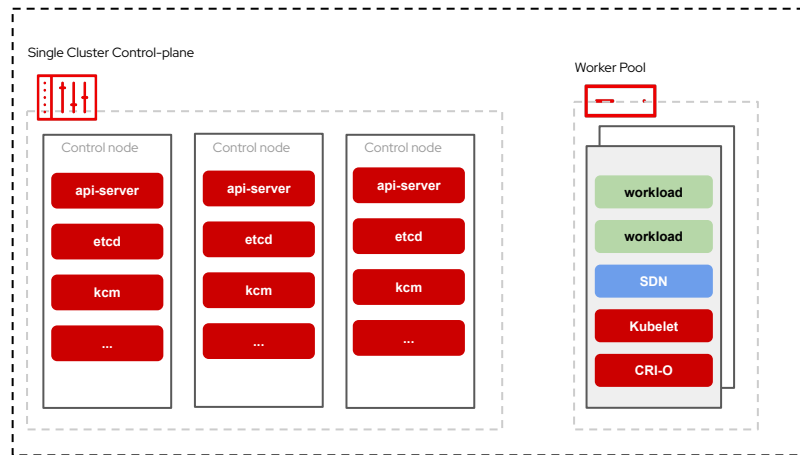
# Hypershift Brings Externally Managed Control-Planes

CONFIDENTIAL Internal only

## Standalone OpenShift

Control-Plane (CP) + Workers

Standalone OpenShift **Cluster** (dedicated CP nodes)



Low CAPEX and OPEX costs  
(bundling of CPs + CP as pods)

Central Management of CPs  
(easy operation & maintenance)

Multi-arch support  
(e.g. CP x86, workers ARM)



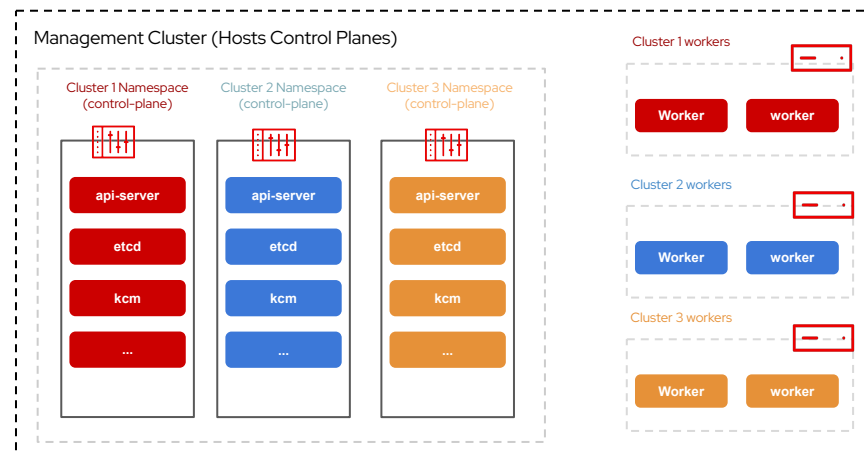
## Hypershift

Control-Plane (CP)

+

Workers

Hypershift **Clusters** (decoupled CP and workers)



Network & Trust  
segmentation

Mixed Iaas For CP and  
Workers

Fast cluster bootstrapping  
(CP as Pods)



# Thank you

Red Hat is the world's leading provider of enterprise open source software solutions. Award-winning support, training, and consulting services make Red Hat a trusted adviser to the Fortune 500.

 [linkedin.com/company/red-hat](https://linkedin.com/company/red-hat)

 [youtube.com/user/RedHatVideos](https://youtube.com/user/RedHatVideos)

 [facebook.com/redhatinc](https://facebook.com/redhatinc)

 [twitter.com/RedHat](https://twitter.com/RedHat)