

# Kubernetes clusters made simple with automated deployment

Red Hat OpenShift on HPE bare metal servers

“HPE Advisory & Professional Service helps organizations overcome the complexities of deploying and managing Kubernetes clusters through an enterprise grade approach to building, configuring, and running Red Hat® OpenShift® clusters both on-premise and on public clouds, assisting the customer to modernize their applications to run them in a container platform.”

**Alex Tesch,**  
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Professional services

**HPE Advisory and Professional Services help customers who are strategically interested in container technology to overcome the initial complexity and benefit from a scalable, fully enabled architecture by leveraging the most efficient hardware.**

**Increase performance, reduce costs, and improve security by running apps directly on bare metal servers**

HPE’s bare metal provisioning solution provides the same flexibility as a virtual environment and allows for complex, distributed apps and the physical machines they run on to be more quickly and easily created and managed.

Previously, deployments of Kubernetes clusters on bare metal servers were complex and required in-depth planning around users, providers, and infrastructure installers. With HPE and Red Hat technologies, it’s now much easier to automate Red Hat OpenShift installation on top of HPE bare metal servers, which can also be consumed in a pay-as-you-go model through the HPE GreenLake edge-to-cloud platform.

Using HPE OneView to provision the hardware and Red Hat Ansible® Automation Platform or Red Hat Advanced Cluster Management (ACM) to install the OpenShift software layer, organizations can avoid the cost and management requirements of a hypervisor layer and gain greater flexibility, performance, and control.

By deploying Red Hat OpenShift 4 cluster on HPE bare metal servers, the hypervisor layer is removed, which brings the following benefits:

- ▶ Reduced license, management, and resource costs associated with the hypervisor.
- ▶ Increased performance by giving direct access to hardware like GPUs.
- ▶ Improved security by reducing the attack surfaces.
- ▶ Significantly reduced Red Hat OpenShift costs through use of the 2-socket 0-64 core subscription.
- ▶ Avoidance of network latency and the 10-20% CPU/memory hypervisor tax.
- ▶ Increased throughput by avoiding a shared virtual switch on the hypervisor.

Customers looking to manage VMs as Kubernetes objects can do so via OpenShift Virtualization (KubeVirt), enabling them to start the journey toward full containerization by also including virtual machines. This approach allows for:

- ▶ Apps to be transformed at your own pace and budget.
- ▶ Reduced complexity, as VMs and containers run in the same platform / environment.
- ▶ The use of Kubernetes paradigms (deployments, scheduling, and services etc.) from the start.
- ▶ VMs to be scaled faster with Kubernetes.

Deploying Red Hat OpenShift 4 on HPE Servers with Red Hat Advanced Cluster Management (ACM) allows for faster installation and operation of clusters. In this instance, Red Hat ACM, combined with HPE OneView and ArgoCD, manages the full OpenShift lifecycle and reduces the time to implement a new OpenShift cluster.

Scaling up OpenShift 4 on HPE Synergy via Red Hat Automation Platform showcases infrastructure-as-a-code in action through the easier operation of existing OpenShift Installer Provisioned Infrastructure( IPI) clusters, reduction of downtime by up to 100%, and removal of human errors as all servers have the same baseline.

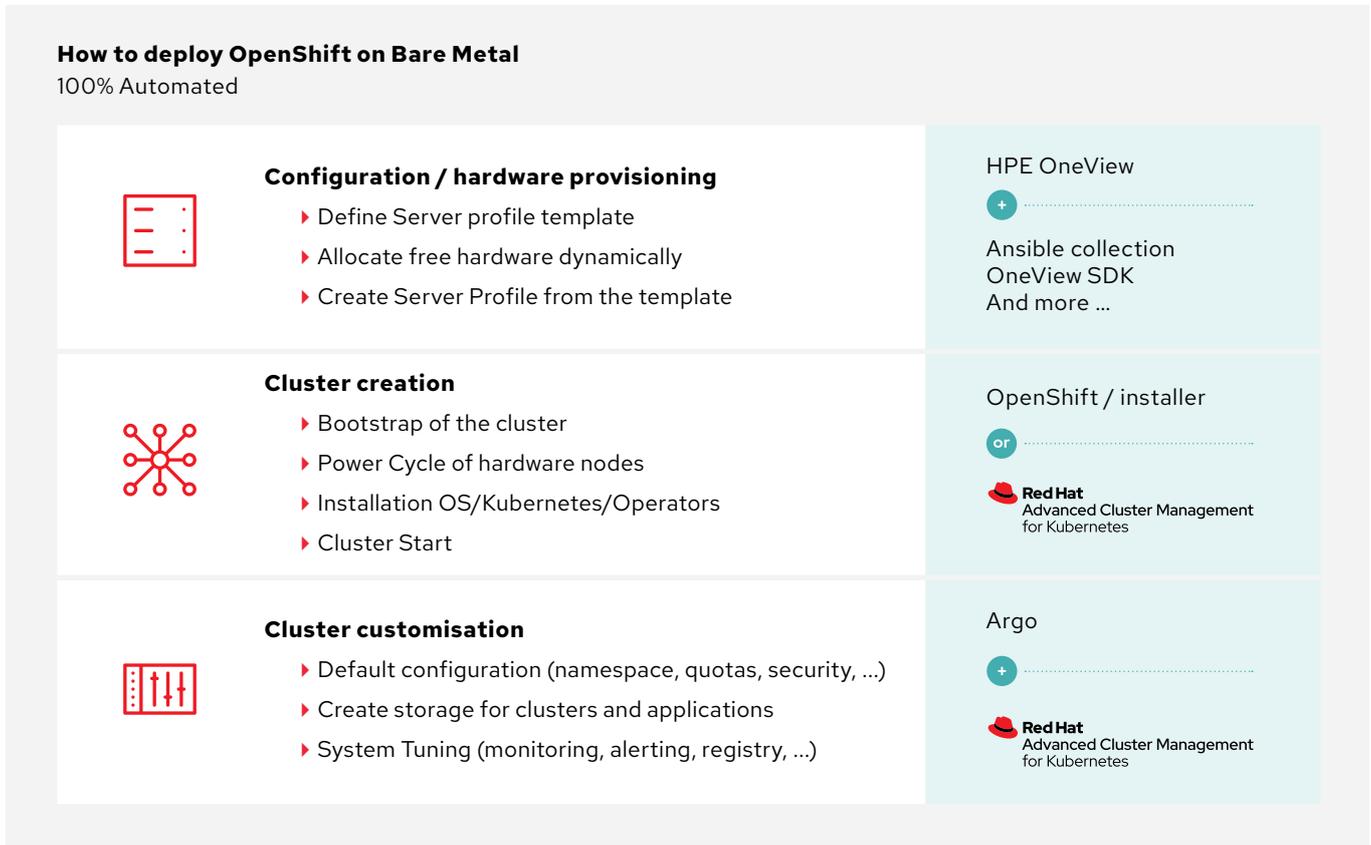
**A global architecture for automated deployment**

Automating the deployment of Red Hat OpenShift on HPE bare metal servers is made easier through the use of a global architecture, comprised of three main stages:

- ▶ Configuration/hardware provisioning.
- ▶ Cluster creation.
- ▶ Cluster customisation.

This approach allows customers to deploy Red Hat OpenShift in one hour on HPE bare metal servers (HPE Synergy or ProLiant DL) and automate the post-configuration.

Customers can also count on HPE Advisory and Professional Services offerings to ease the deployment and maintenance of Red Hat OpenShift on HPE Servers.



## Meet our subject matter experts to advance your Kubernetes clusters on bare metal servers

Red Hat and HPE work together to provide enterprise-ready, open source solutions that reduce cost and complexity while enhancing stability and performance across multiple cloud and physical environments.

[What we're doing together →](#)

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Red Hat helps customers standardize across environments, develop cloud-native applications, and integrate, automate, secure, and manage complex environments with [award-winning](#) support, training, and consulting services.

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