



HPE EDGE ORCHESTRATOR

Management of edge workloads as a service



HPE Edge Orchestrator—Makes edge automation simple

- Offers edge computing solutions for vertical applications serving multiple enterprises from the same platform
- Provides easy self-service features for end customers
- Supports local break-out for private Wi-Fi/4G/5G networks
- Easy onboarding of enterprise applications—both virtual machine and container-based apps
- Offered as a service to reduce time to market

ENABLE THE MONETIZATION OF THE NETWORK INFRASTRUCTURE THROUGH EDGE COMPUTING

For a decade, the whole IT industry has worked on moving applications into the cloud—either public or private clouds. Now, there is an increasing demand to keep certain of those workloads at the edge, including on customer premises.

To obtain the full benefit of running applications at distributed edge sites, the following challenges must be solved:

- Manage large numbers of sites, edge devices, and enterprise-specific applications
- Achieve deployment and configuration of applications
- Manage the network and security configurations of edge devices
- Enable support for 4G/5G/Wi-Fi networks at the edge sites with break-out capabilities so that traffic is kept at the site
- Integrate the applications with connectivity and value-added networking services

HPE Edge Orchestrator solves these challenges and makes it possible for a communications service provider (CSP) to offer solutions for vertical enterprise segments, across many different distributed edge locations, through simple self-service features.

HPE EDGE ORCHESTRATOR FEATURE SUMMARY

Multitenancy	<ul style="list-style-type: none"> • Manage multiple customers • Customers only see their own resources and applications
Application catalog	<ul style="list-style-type: none"> • Each customer has their own private application catalog experience • Service provider has an application catalog with applications that can be offered to individual customers • Several versions of an application stored in a catalog (one is default)
Application lifecycle	<ul style="list-style-type: none"> • Install a new instance • Start/stop a running instance • Upgrade an instance • Uninstall an instance
Applications support	<ul style="list-style-type: none"> • Applications can be on-boarded to the application catalog by the customer • Virtual machine-based applications: <ul style="list-style-type: none"> – KVM using CentOS 7.6 – 1–5 VMs, 1–4 NICs, multiple disks – GPU support – Configuration scripts • Container-based applications: <ul style="list-style-type: none"> – K8s or K3s 1.18 – Helm 3 – 1–10 container images – 1–4 ingress, and 1–100 variables that will be managed from HPE Edge Orchestrator
Monitoring	<ul style="list-style-type: none"> • Prometheus monitoring of K8s applications (if supported by app)
Edge devices	<ul style="list-style-type: none"> • HPE Edgeline EL4000 and EL8000 Converged Edge Servers • x86 servers running KVM/K8s/K3s as per app features • Edge devices are dedicated to a single customer
Portal	<ul style="list-style-type: none"> • Self-service portal customer/service provider view • Browsers supported: Google™ Chrome
North Bound Interface (NBI)	<ul style="list-style-type: none"> • REST API • Supporting same features and access control as portal
Delivery	<ul style="list-style-type: none"> • Public cloud • On-premises or customer-selected cloud
Multi-access Edge Computing (MEC) platform	<ul style="list-style-type: none"> • Supports the following ETSI MEC features: <ul style="list-style-type: none"> – Bump-in-wire (BIW) for LTE (S1 interface) – Break-out mode for applications – Traffic offload function (TOF) rules support



HPE Edge Orchestrator portal:

- Provides easy-to-use portal designed to do most management actions with a single click
- Empowers your end users with full control of their workloads including controlling MEC breakout
- Using the NBI API, you can integrate the same features into your own portal and CRM systems

HPE EDGE ORCHESTRATOR OVERVIEW

HPE Edge Orchestrator enables the deployment and configuration of applications deployed at geographically distributed edge devices connected with network as a service (NaaS) provided by the CSP. It is delivered in a consumption-based mode either as a service hosted in a public cloud, or as an on-premises solution in a private data center. In both cases, HPE manages the solution and removes the need for investing in software and the resources to support the platform. It also shortens the time it takes to deploy and start offering services to your end users.

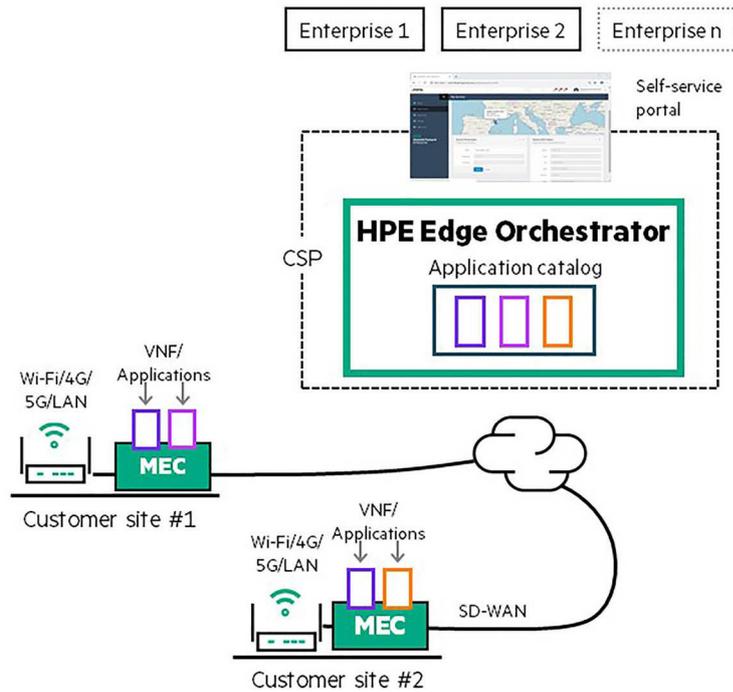


FIGURE 1. HPE Edge Orchestrator provides application deployment and configuration

HPE Edge Orchestrator provides a self-service portal that can be accessed by enterprises. Alternatively, a northbound REST API is available that can be used to build and integrate with the CSP’s own portal.

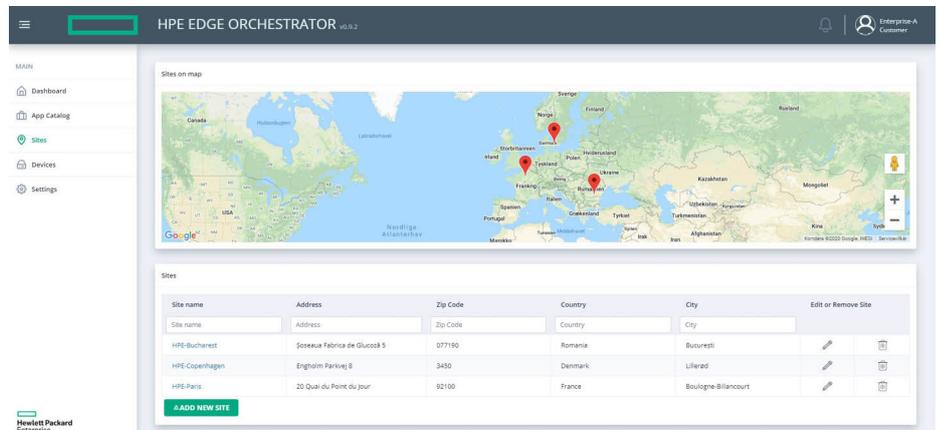


FIGURE 2. HPE Edge Orchestrator self-service portal



HPE Edge Orchestrator simplifies and supports large-scale application deployments:

- The application catalog stores all default values for an application deployment.
- The application catalog refers to descriptive labels that describe the network settings then when deploying an application, the label can be matched to the actual network of the device.
- Default versions enable customers to upgrade applications in a single click to the next available version.

KEY FEATURES

Multitenancy

Multiple customers

The CSP can create multiple customers within HPE Edge Orchestrator. A customer can represent any type of organization such as an enterprise, a division, a public entity. You will have your view of resources, sites, and applications. Typically, different customers will have different applications in their application catalog. As an example, the applications used by a utility company would not be the same as the ones used by a retailer.

Applications

Application catalog

HPE Edge Orchestrator supports the deployment and configuration of customer applications. The applications are defined in the application catalog and several versions of the same application can be stored at the same time.

The application catalog contains all the required information about each application including how to instantiate the application. By using descriptive labels, scripts, variables, breakout settings, and reference parameters, it is possible to specify how an application should be deployed on an edge device in a generic way. At the deployment time, HPE Edge Orchestrator helps resolve these parameters with the actual networks and settings of the device so the deployment can be done correctly without providing additional information. It is referred to as one-click operation.

Onboarding made simple

Applications based on virtual machine

When onboarding an application that is provided as one or several virtual machines, the onboarding is straightforward. For each virtual machine that is part of the application, the user provides details such as file name and path, login credentials, sizing of the virtual machine, GPU settings, configuration scripts, and information about the NICs. This explains how the virtual machine should be connected from a network perspective.

Container-based applications

HPE Edge Orchestrator uses Helm Charts to deploy containerized applications (K8s). It enables you to use a common way of deploying container applications. HPE Edge Orchestrator allows overwriting parameter values and adding ingresses. This is useful for a number of purposes—to name one, often there will not be the same access to image repositories as on a central site, so by overwriting the value that describes where to locate images, the local K8s master is told where to find the image.

NaaS

HPE Edge Orchestrator enables the enterprise to combine its applications with network services offered by the CSP, thus creating an end-to-end flow across the edge. Today, HPE Edge Orchestrator supports MEC, with other NaaS functions added to the catalog over time.

Monitoring

Sites and resources

HPE Edge Orchestrator gives you a simple and quick overview of sites hosting edge devices and the actual edge computing deployed on each site.

It also provides information about the actual deployed edge applications, all the way down to the deployed capacity on each site and edge device.

Application monitoring

Container-based applications can be monitored directly by the solution. If they support Prometheus, HPE Edge Orchestrator will set up and enable the monitoring. The outcome can be viewed from the customer portal.



DEPLOYMENT OPTIONS

Public cloud

If the as-a-service deployment of HPE Edge Orchestrator is chosen, HPE will spin up an instance of HPE Edge Orchestrator for you and provide the necessary access credentials.

HPE manages the solution and handles backup (restore), monitoring, upgrades, and other operational tasks.

On-premises or customer-selected cloud

This option is used if you prefer to deploy HPE Edge Orchestrator in an infrastructure that you provide and manage.

With this option, you are responsible for providing the following:

TABLE 1. Service Provider responsibilities for customer selected cloud

Service provider responsibility	Details
Infrastructure	K8s clusters Sizing depends on expected usage
Infrastructure operations	This includes monitoring infrastructure and performing necessary maintenance tasks such as firmware upgrade
Backup and restore	Perform regular backups and be available if a restore is required
Security and networking	A typical deployment will require connectivity configuration of networking and security including, but not limited to, firewalls, load-balancers, DNS, DHCP and so on
Remote access	Provide remote access to infrastructure to allow HPE to operate HPE Edge Orchestrator

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