Huawei Cloud EulerOS

Service Overview

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1 What Is Huawei Cloud EulerOS?

Huawei Cloud EulerOS (HCE) is an openEuler-based cloud operating system.

HCE offers cloud native, high-performing, secure, and easy-to-migrate capabilities. This accelerates service migration to the cloud and promotes application innovation. You can use it to replace operating systems such as CentOS and EulerOS.

Huawei Cloud EulerOS Images

Version	Image	Description
Huawei Cloud EulerOS 2.0	Huawei Cloud EulerOS 2.0 Standard Edition, 64-bit	x86-compatible standard image
Huawei Cloud EulerOS 2.0	Huawei Cloud EulerOS 2.0 Standard Edition, 64-bit, Arm-compatible	Arm-compatible standard image
Huawei Cloud EulerOS 1.1	Huawei Cloud EulerOS 1.1 CentOS-compatible Edition, 64-bit	x86-compatible CentOS 7.9 image **NOTE** This version is released only in the Singapore region.

2 Product Advantages

- Vertical integration of cloud services: ECS works with QingTian to provide synergy between the guest and host OSs so that applications perform better. Using ECS improves the competitiveness of Elastic Cloud Server (ECS), Cloud Container Engine (CCE), Elastic Load Balance (ELB), and database services.

- Mixed cloud-native deployment: HCE allows containerized applications to be deployed together to provide a cloud-native infrastructure with less resources, faster startup, and higher resource utilization.

- Efficient deployment: HCE helps VM start up faster. It improves the efficiency of batch deployment.

- Secure and reliable: HCE supports SM series cryptographic algorithms (such as SM2) and MLPS 2.0/CC EAL4+ security certification.

- openEuler-based architecture: openEuler is the most active open-source OS community in China. Huawei has been one of the top five contributors to Linux for five consecutive years and the No. 1 contributor to Linux kernel 5.10. HCE supports mainstream southbound and northbound software and hardware. It is a great alternative to CentOS.

- Out-of-the-box OSs: KooCLI can be installed to **call cloud service APIs through the CLI**. sdkmgr can be installed to remotely manage the HarmonyOS SDK for device-cloud developer collaboration.

3 Application Scenarios

- As the first choice for ECSs to achieve compelling service performance

  HCE is an excellent choice for enterprises, finance institutions, and manufacturers planning to deploy or migrate their applications and services to the cloud.

  - Application-specific optimization: When the database, big data, HPC, virtualization, and container applications are deployed in HCE, MySQL and Nginx services deliver better performance than when they are deployed using any other OSs.

  - Faster startup: Only required basic components are loaded to suit specific ECS configurations, so ECS can bootup faster.

- As the preferred choice for CCE containers to reduce costs and improve efficiency

  When some services are deployed on the cloud and others on premises, lots of resources are left idle and overall resource utilization is low.

  - Optimized CPU utilization: HCE uses a hybrid deployment engine and resource isolation technologies to ensure that the CPU usage of CCE containers reaches 40% to 60% while keeping the QoS lower than 1%. In this way, applications will not suffer from frame freezing and you can enjoy smoother experience.

  - Optimized auto scaling: HCE functions as an image that contains the minimum component set for CCE containers.

- As an alternative to CentOS

  The discontinuation of CentOS has created significant challenges for the O&M of existing sites and the construction of new sites. HCE is a good solution because it is:

  - Secure and reliable: HCE supports SM series cryptographic algorithms (such as SM2) and MLPS 2.0/CC EAL4+ security certification.

  - Independent and controllable: HCE is developed by Huawei Cloud based on the openEuler ecosystem, but with enhanced cloud capabilities.

- For cloud-device synergy

  HCE supports both cloud-based and device-side application development, making it an ideal choice for cloud-device synergy.

  Application functions are developed in a way that the cloud and device sides work together (for example, APIs developed for device-cloud interaction), and

resources can be flexibly expanded on demand while services are running. This helps applications to gain the strengths of both device and cloud.

4 Functions

HCE provides the following functions:

- Support for Linux kernel 5.10: The OS uses Linux kernel 5.10 to deliver enterprise-class reliability and incorporates the latest Linux community-developed functions.

- Enhanced capabilities: Enhanced cloud native scheduling, hierarchical memory expansion, OS migration, and compatibility evaluation.

- Excellent security: The OS complies with SM series cryptographic algorithms (such as SM2) and attains MLPS 2.0/CC EAL4+ certification.

- Various compilers: The OS uses gcc 10.3, binutils 2.37, and glibc 2.34 to enhance stability and compatibility with other software.

- Interaction with other platforms: The OS takes the advantages of other platforms, such as Intel, AMD, and Arm, in terms of function adaptation, performance improvement, and stability hardening, to keep running smoothly and reliably on those platforms.

5 Public Images That Can Be Migrated

The following table lists the mapping between HCE and public images that can be migrated.

Table 5-1 x86 public images allowed to be migrated

OS Series	Source OS	Target OS
HCE	64-bit: 1.1	Huawei Cloud EulerOS 2.0 Standard Edition, 64-bit
EulerOS	64-bit: EulerOS 2.10, 2.9, 2.5, 2.3, and 2.2	Huawei Cloud EulerOS 2.0 Standard Edition, 64-bit
CentOS	64-bit: CentOS 7.9, 7.8, 7.7, 7.6, 7.5, 7.4, 7.3, 7.2, 7.1, and 7.0 64-bit: CentOS 8.5, 8.4, 8.3, 8.2, 8.1, and 8.0	Huawei Cloud EulerOS 2.0 Standard Edition, 64-bit
	64-bit: CentOS 7.9	Huawei Cloud EulerOS 1.1 CentOS-compatible Edition

Table 5-2 Arm public images allowed to be migrated

OS Series	Source OS	Target OS
EulerOS	64-bit: EulerOS 2.10, 2.9, 2.8, and 2.3	Huawei Cloud EulerOS 2.0 Standard Edition, 64-bit, Arm-compatible

6 Supported Instance Types

ECSs of the following types can run on Huawei Cloud EulerOS:

📖 **NOTE**

> ECS specifications vary by region. The actual specifications are displayed on the management console. If they are not displayed on the console, the instance specifications are not supported in that region.

- Huawei Cloud EulerOS 2.0 images can be by FlexusX instances, FlexusL instances, and ECSs.

  The following table lists the flavors supported by ECSs.

Table 6-1 ECS types that can run on ECS 2.0

ECS Type	Family
General computing ECSs	s7, s6, and x1
General computing-plus ECSs	c7, c6s, c6, and x1e
Memory-optimized ECSs	m7 and m6
Large-memory	e6
Disk-intensive	d6 and d7

- Huawei Cloud EulerOS 1.1

Table 6-2 ECS types that can run on ECS 1.1

ECS Type	Family
General computing ECSs	s6
General computing-plus ECSs	c6s and c6
Memory-optimized ECSs	m6
Disk-intensive	d6

7 Support Plans

Huawei provides both full support and extended support for the lifecycle of HCE.

> 📖 **NOTE**
>
> When a version is referred, all minor versions are included. For example, HCE V2 includes HCE 2.0 and later HCE 2.x versions.

- 2-year full support: Free software maintenance and technical support are supported. The support services include compatibility support (including CPUs, disks, NICs, and features), troubleshooting, and CVE fixing.
- 4-year extended support: Free software maintenance and technical support are supported, but only for troubleshooting and CVE fixing.
- (Optional) 2-year extended support: Only troubleshooting and CVE fixing for some software packages are provided. You will be billed for the additional support.

Open-Source Software Notice

HCE provides an open source software notice along with the product.

Open source software licenses are granted by their holders. Open source licenses prevail all other license information with regard to the respective open source software contained in the product, including but not limited to the *End User Software Licensing Agreement*. This notice is provided on behalf of Huawei Technologies Co., Ltd. and any of its local subsidiaries which may have provided this product to you in your local country.

Download the **notice on Huawei Cloud EulerOS 2.0 open source software**.

8 Billing

HCE images are currently free. Later, Huawei will provide **support plans** for HCE, including software maintenance and technical support services for different phases. These support services will generate billable expenses.

Although the OS is free, when you use an HCE image to create an ECS, you still need to pay for the required resources, such as vCPUs, memory, storage, public IP address, and bandwidth.

For details, see **Billing**.

9 Security

9.1 Secure Boot

Secure Boot

Secure Boot ensures the integrity of each component during system boot-up and prevents components that have no valid signatures from being loaded. It protects the system and user data from security threats as well as bootkit and rootkit attacks. HCE 2.0 supports Secure Boot.

- Verifying that Secure Boot has been enabled

  After the OS is booted, run the following command to check whether Secure Boot is enabled:

  mokutil --sb-state
  SecureBoot enabled #Secure Boot has been enabled.

- Enabling kernel .ko signature verification

  Secure Boot is implemented by signature verification. By default, the kernel of HCE 2.0 is not compiled with forcibly enabled signature verification. You need to enable signature verification using parameter **module.sig_enforce** of the kernel.

  To enable .ko signature verification, add **module.sig_enforce=1** to the **/boot/efi/EFI/hce/grub.cfg** file.

```
        echo    'Loading Linux 5.10.0-60.18.0.50.r509_2.hce2.x86_64 ...'
        linux   /vmlinuz-5.10.0-60.18.0.50.r509_2.hce2.x86_64 root=/dev/mapper/hce-root ro crashk
ernel=512M resume=/dev/mapper/hce-swap rd.lvm.lv=hce/root rd.lvm.lv=hce/swap crash_kexec_post_not
ifiers panic=3 nmi_watchdog=1 quiet rd.shell=0 module.sig_enforce=1
        echo    'Loading initial ramdisk ...'
        initrdefi /initramfs-5.10.0-60.18.0.50.r509_2.hce2.x86_64.img
```

Kernel parameter	Value	Description
module.sig_enforce	0	Disables the kernel's signature verification on the .ko module. The setting takes effect after the system is rebooted.

Kernel parameter	Value	Description
	1	Enables the kernel's signature verification on the .ko module. The setting takes effect after the system is rebooted.

- Viewing the public key certificate for signature in HCE 2.0

  For details about the HCE 2.0 KEK certificate and UEFI signature certificate, see **hce-sign-certificate-1.0-1.hce2.x86_64.rpm** in **https://repo.huaweicloud.com/hce/2.0/updates/x86_64/Packages/**.

10 Image Updates

The update records of both x86- and Arm-compatible architectures public images are included.

For details about the update records of x86-compatible public images, see **Image Update Records (x86)**.

For details about the update records of Arm-compatible public images, see **Image Update History (Arm)**.