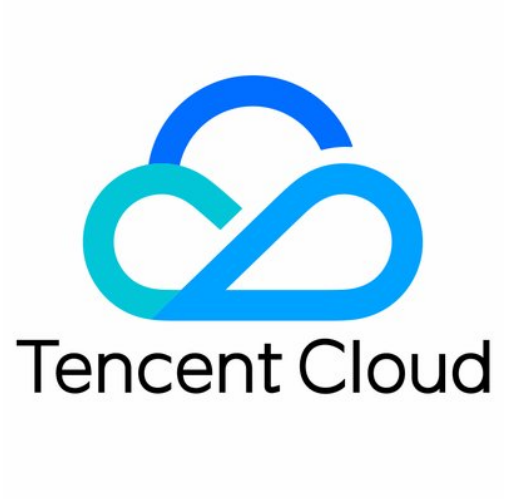
CVM Dedicated Host

Product Introduction

Product Documentation



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Overview

As a complement to Cloud Virtual Machine (CVM), Tencent Cloud CVM Dedicated Host (CDH) provides you with exclusive physical server resources that meet the requirements for resource exclusivity, physical isolation, security and compliance. CDH is equipped with Tencent Cloud's virtualized system. Once purchased, CDH can help you flexibly create and manage multiple CVM instances with custom specs and plan the use of physical resources.

Related Concepts

The following concepts are usually involved in CDH:

- **Host type**: The type of host. Hardware configuration varies for different types of hosts.
- **Local disk type**: The type of disk on the host. Disk type varies for different types of hosts. Currently, there are two types of local disks: local HDD and local SSD.
- **CVM instance**: The dedicated CVM instance assigned on the host; referred to as dedicated instance in some documents.
- **Cloud Block Storage**: Distributed persistent block storage device provided by Tencent Cloud that can be used as a system disk of an instance or an expansion data disk.
- **Image**: A preset instance template that contains the instance's pre-configured environment (operating system and other installed software).
- **Virtual Private Cloud**: Custom virtual network space that is logically isolated from other resources.
- **IP address**: The internal and external service addresses of the CVM instance, i.e. private IP address and public IP address.

- **SSH key**: A way to log in to a Linux-based CVM instance more secure than regular passwords.
- **Security group**: Security controls of the access to instances by specifying inbound and outbound IP, protocol and port rules.
- **Region and availability zone**: The start-up location of the resources.

Relevant Services

- CDH is used by assigning CVM instances on it. For more information about using CVM instances, see CVM User Guide.
- You can use Cloud Load Balancer (CLB) to automatically distribute request traffic from clients across multiple CVM instances. For more information, see CLB Product Documentation.
- You can deploy a relational database in the cloud or use a Tencent Cloud database. For more information, see TencentDB for MySQL.
- You can write code to call the Tencent Cloud API to access Tencent Cloud products and services. For more information, see Tencent Cloud API Documentation.

Using CDH

CDH has web-based UIs (i.e. console). If you have already signed up for a Tencent Cloud account, you can log in to the CDH Console to perform various operations on the CVM instances.

CDH also provides various APIs for host management. For more information about CDH API operations, see the API Documentation

You can use the SDK (with PHP, Python, Java, .NET and Node.js supported) for programming or use the Tencent Cloud Command Line Interface (CLI) to call the CVM API. For details, see:

- Using CLI >>

Regions and Availability Zones

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Region

Overview

A region is the physical location of an IDC. In Tencent Cloud, regions are fully isolated from each other, ensuring cross-region stability and fault tolerance. We recommend that you choose the region closest to your end users to minimize access latency and improve access speed.

You can view the following table or use the DescribeRegions API to get a complete list region list.

Characteristics

- The networks of different regions are fully isolated. Tencent Cloud services in different regions **cannot communicate via a private network by default**.
- Tencent Cloud services across regions can communicate with each other through public IPs over the Internet, while those in different VPCs can communicate with each other through CCN, which is faster and more stable.
- Cloud Load Balancer (CLB) currently supports intra-region traffic forwarding by default. If you enable the cross-region binding feature, cross-region binding of CLB and CVM instances is supported.

Availability Zone

Overview

An availability zone (AZ) is a physical IDC of Tencent Cloud with independent power supply and network in the same region. It can ensure business stability, as failures (except for major disasters or power failures) in one AZ are isolated without affecting other AZs in the same region. By starting an instance in an independent availability zone, users can protect their applications from being affected by a single point of failure.
You can view the following table or use the DescribeZones API to get a complete availability zone list.

Characteristics

Tencent Cloud services in the same VPC are interconnected via the private network, which means they can communicate using private IPs, even if they are in different AZs of the same region.

Note :
Private network interconnection refers to the interconnection of resources under the same account. Resources under different accounts are completely isolated on the private network.

China

Region	AZ
South China (Guangzhou) ap-guangzhou	Guangzhou Zone 1 (sold out) ap-guangzhou-1
	Guangzhou Zone 2 ap-guangzhou-2
	Guangzhou Zone 3 ap-guangzhou-3
	Guangzhou Zone 4 ap-guangzhou-4
	Guangzhou Zone 6 ap-guangzhou-6
	Guangzhou Zone 7 ap-guangzhou-7
East China (Shanghai) ap-shanghai	Shanghai Zone 1 ap-shanghai-1
	Shanghai Zone 2 ap-shanghai-2
	Shanghai Zone 3 ap-shanghai-3
	Shanghai Zone 4 ap-shanghai-4
	Shanghai Zone 5 ap-shanghai-5
East China (Nanjing) ap-nanjing	Nanjing Zone 1 ap-nanjing-1

	Nanjing Zone 2 ap-nanjing-2
	Nanjing Zone 3 ap-nanjing-3
North China (Beijing) ap-beijing	Beijing Zone 1 ap-beijing-1
	Beijing Zone 2 ap-beijing-2
	Beijing Zone 3 ap-beijing-3
	Beijing Zone 4 ap-beijing-4
	Beijing Zone 5 ap-beijing-5
	Beijing Zone 6 ap-beijing-6
	Beijing Zone 7 ap-beijing-7
Southwest China (Chengdu) ap-chengdu	Chengdu Zone 1 ap-chengdu-1
	Chengdu Zone 2 ap-chengdu-2
Southwest China (Chongqing) ap-chongqing	Chongqing Zone 1 ap-chongqing-1
Hong Kong, Macao and Taiwan, China (Hong Kong) ap-hongkong	Hong Kong Zone 1 (Nodes in Hong Kong, China can cover Hong Kong/Macao/Taiwan regions) ap-hongkong-1
	Hong Kong Zone 2 (Nodes in Hong Kong, China can cover Hong Kong/Macao/Taiwan regions) ap-hongkong-2
	Hong Kong Zone 3 (Nodes in Hong Kong, China can cover Hong Kong/Macao/Taiwan regions) ap-hongkong-3

Other Countries and Regions

Region	AZ
Southeast Asia (Singapore) ap-singapore	Singapore Zone 1 (Nodes in Singapore can cover Southeast Asia) ap-singapore-1
	Singapore Zone 2 (Nodes in Singapore can cover Southeast Asia) ap-singapore-2
	Singapore Zone 3 (Nodes in Singapore can cover Southeast Asia) ap-singapore-3
Southeast Asia (Jakarta) ap-jakarta	Jakarta Zone 1 (Nodes in Jakarta can cover Southeast Asia) ap-jakarta-1
Northeast Asia (Seoul) ap-seoul	Seoul Zone 1 (Nodes in Seoul can cover Northeast Asia) ap-seoul-1
Northeast Asia (Tokyo) ap-tokyo	Tokyo Zone 1 (Nodes in Tokyo can cover Northeast Asia) ap-tokyo-1
	Tokyo Zone 2 (Nodes in Tokyo can cover Northeast Asia) ap-tokyo-2
South Asia (Mumbai) ap-mumbai	Mumbai Zone 1 (Nodes in Mumbai can cover South Asia) ap-mumbai-1
	Mumbai Zone 2 (Nodes in Mumbai can cover South Asia) ap-mumbai-2
Southeast Asia (Bangkok) ap-bangkok	Bangkok Zone 1 (Nodes in Bangkok can cover Southeast Asia) ap-bangkok-1
North America (Toronto) na-toronto	Toronto Zone 1 (Nodes in Toronto can cover North America) na-toronto-1
Western US (Silicon Valley) na-siliconvalley	Silicon Valley Zone 1 (Nodes in Silicon Valley can cover Western US) na-siliconvalley-1
	Silicon Valley Zone 2 (Nodes in Silicon Valley can cover Western US) na-siliconvalley-2
Eastern US (Virginia) na-ashburn	Virginia Zone 1 (Nodes in Virginia can cover Eastern US) na-ashburn-1

	Virginia Zone 2 (Nodes in Virginia can cover Eastern US) na-ashburn-2
Europe (Frankfurt) eu-frankfurt	Frankfurt Zone 1 (Nodes in Frankfurt can cover Europe) eu-frankfurt-1
	Frankfurt Zone 2 (Nodes in Frankfurt can cover Europe) eu-frankfurt-2
Europe (Moscow) eu-moscow	Moscow Zone 1 (Nodes in Moscow can cover Europe) eu-moscow-1

How to Select Regions and Availability Zones

When selecting a region and availability zone, take the following into consideration:

- Your location, the location of your users, and the region of the CVM instances.
  We recommend that you choose the region closest to your end users when purchasing CVM instances to minimize access latency and improve access speed.
- Other Tencent Cloud services you use.
  When you select other Tencent Cloud services, we recommend you try to locate them all in the same region and availability zone to allow them to communicate with each other through the private network, reducing access latency and increasing access speed.
- High availability and disaster recovery.
  Even if you have just one VPC, we still recommend that you deploy your businesses in different availability zones to prevent a single point of failure and enable cross-AZ disaster recovery.
- There may be network latency among different availability zones. We recommend that you assess your business requirements and find the optimal balance between high availability and low latency.
- If you need access to CVM instances in other countries or regions, we recommend you select a CVM in those other countries or regions. If you use a CVM instance in China to access servers in other countries and regions, you may encounter much higher network latency.

Resource Availability

The following table describes which Tencent Cloud resources are global, which are regional, and which are specific to availability zones.

Resource	Resource	Type	Description

	ID Format -8-Digit String of Numbers and Letters		
User Account	No limit	Globally unique	Users can use the same account to access Tencent Cloud resources around the world.
SSH Keys	skey-xxxxxxxx	Global	Users can use an SSH key to bind a CVM in any region under the account.
CVM Instances	ins-xxxxxxxx	CVM instances are specific to an availability zone	A CVM instance created in an availability zone is not available to other availability zones.
Custom Images	img-xxxxxxxx	Regional	Custom images created for the instance are available to all availability zones of the same region. Use **Copy Image** to copy a custom image if you need to use it in other regions.
EIPs	eip-xxxxxxxx	Regional	EIPs can only be associated with instances in the same region.
Security Groups	sg-xxxxxxxx	Regional	Security Group can only be associated with instances in the same region. Tencent Cloud automatically creates three default security groups for users.
Cloud Block Storage	disk-xxxxxxxx	CVM instances are specific to an availability zone	Users can only create a Cloud Block Storage disk in a specific AZ and mount it to instances in the same AZ.
Snapshots	snap-xxxxxxxx	Regional	A snapshot created from a cloud disk can be used for other purposes (such as creating cloud disks) in this region.
Cloud Load	clb-xxxxxxxx	Regional	Cloud Load Balancer can be bound with CVMs in different availability zones of a single region for

Balancer			traffic forwarding.
VPC	vpc-xxxxxxxx	Regional	A VPC in one region can have resources created in different availability zones of the region.
Subnets	subnet-xxxxxxxx	CVM instances are specific to an availability zone	Users cannot create subnets across availability zones.
Route Tables	rtb-xxxxxxxx	Regional	When creating a route table, users need to specify a VPC. Therefore, route tables are regional as well.

Relevant Operations

Migrating an instance to another availability zone

Once launched, an instance cannot be migrated. However, you can create a custom image of your CVM instance and use the image to launch or update an instance in a different availability zone.

1. Create a custom image from the current instance. For more information, see Creating Custom Images.
2. If the instance is on a VPC and you want to retain its current private IP address after the migration, first delete the subnet in the current availability zone and then create a subnet in the new availability zone with the same IP address range. Note that a subnet can be deleted only when it contains no available instances. Therefore, all the instances in the current subnet should be migrated to the new subnet.
3. Create a new instance in the new availability zone by using the custom image you have just created. You can choose the same type and configuration as the original instance, or choose new settings. For more information, see Creating Instances via CVM Purchase Page.
4. If an elastic IP is associated with the original instance, dissociate it from the old instance and associate it with the new instance. For more information, see Elastic IP (EIP).
5. (Optional) If the original instance is pay-as-you-go, you can choose to terminate it. For more information, see Terminating Instances.

Copying images to other regions

Operations such as launching and viewing instances are region-specific. If the image of the instance that you need to launch does not exist in the region, copy the image to the desired region. For more information, see Copying Images.

Strengths

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A dedicated host is a dedicated physical server equipped with a virtualized environment, and has the following strengths:

Dedicated Resources

After purchasing a dedicated host, you have exclusive access to the host resources, which are physically isolated from the resources of other users. You can plan the host resources as needed, without having to compete for resources with other tenants.

Flexible Creation of CVMs

On a specified dedicated host, you can plan the host resources as needed and create Cloud Virtual Machines (CVM) instances with custom specifications and flexible configurations. This ensures service performance and fully leverages physical server resources. A dedicated CVM instance configuration adjustment feature is provided, allowing you to adjust network configuration while the CVM instance is running and to adjust CVM configuration while the CVM instance is shut down.

Security and Compliance

Resources are physically isolated between hosts. CPUs, memory, disks, and network resources are all dedicated to a single tenant.
Resource isolation at the physical machine level provides sensitive service data protection and disk erasure features to meet the strict compliance requirements in the financial industry.

Management and Monitoring

Tencent Cloud supports multi-dimensional monitoring and management for hosts and dedicated CVMs, as well as the free Cloud Monitor service and multiple real-time alert features.

Asset-Light

You can purchase resources as needed and make minute-level delivery. Tencent Cloud's standardized OPS and management services ensure the stable operation of your resources. You do not need to worry about underlying details, saving manpower and OPS costs while focusing on your core businesses.

CVM Feature Provision

A CVM created on a dedicated CVM instance or host provides features such as images, security groups, configuration adjustment, and Secure Shell (SSH) keys, which are used similarly to those of a common CVM.

Models

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CDH is a physical server equipped with a virtualized environment. Each model corresponds to the configuration of a different physical server, including the physical CPU model, number of CPU cores, memory size, local disk type, disk size and other hardware resources. You can choose the appropriate CDH model based on your business characteristics and size.

Currently, the following CDH models are supported:

CDH configuration	Standard HS20	Standard HS10	High IO HI20	High IO HI10	MEM optimized HM20	Compute HC20
Physical CPU model	Intel Xeon E5-2680 Broadwell (v4)	Intel Xeon CPU	Intel Xeon E5-2680 Broadwell (v4)	Intel Xeon CPU	Intel Xeon E5-2680 Broadwell (v4)	Intel Xeon(®) E5-2667v4
Number of logic CPU cores	56	48	56	48	56	32
Memory size (GB)	224	96	224	220	480	96
Local disk type	Local HDD	Local HDD	Local SSD	Local SSD	Local HDD	Local SSD
Local Disk Size (GB)	2452	2452	7052	7104	2452	1000

Standard

The standard type is the balance of computing, memory and network resources that can meet application resource requirements in most scenarios.

Standard HS20

Standard HS20 is the latest generation of standard CDH model. It uses Intel® Xeon® Broadwell processor which improves the performance of integer and floating point operations by 40% and

DDR4 memory which improves the performance of random access by 30%. This model provides balanced computing, memory and network resources, making it a good choice for many applications.

Model Features

- 2.4 GHz Intel Xeon E5-2680 Broadwell (v4) processor, DDR4 memory
- CPU performance is 20% higher than Series 1 (Standard HS10)
- A balance of computing, memory and network resources

Standard HS10

Standard HS10 meets your needs of flexible choice of configuration at moderate prices and with flexible configuration options.

Model Features

- It offers flexible configuration options that range from low to high numbers of cores
- Intel Xeon CPU, DDR3 memory
- A balance of computing, memory and network resources

High IO

High IO I2 instance is optimized to provide tens of thousands of low latency random I/O operations per second (IOPS) to applications, making it the best choice for high-IOPS scenarios.

High IO HI20

High IO HI20 uses Intel Broadwell processor which improves the performance of integer and floating point operations by 40% and DDR4 memory which improves the performance of random access by 30%;

Model Features

- 2.4 GHz Intel Xeon E5-2680 Broadwell (v4) processor, DDR4 memory
- CPU performance is 20% higher than Series 1 (High IO I1)
- For SSD instance storage, a local SSD is used as system disk

> **High random IOPS**: In a typical scenario, the random read IOPS can be up to 75,000 (blocksize = 4 KB, iodepth = 32) and random write IOPS can be up to 10,000 (blocksize = 4 KB, iodepth = 32);

- *High throughput**: In a typical scenario, random read throughput can be up to 250 MB/s (blocksize = 4 KB, iodepth = 32);
- *Low latency**: In a typical scenario, the access latency can be down to sub-milliseconds (blocksize = 4 KB, iodepth =1).

Application Scenarios

High-performance database, NoSQL database (such as MongoDB), clustered database
I/O-intensive applications that require low latency, such as online transaction processing (OLTP) systems and ElasticSearch searches

High IO HI10

High IO HI10 is equipped with a high-performance local SSD that meets the needs for high disk reads and writes and low latency.

Model Features

- High random IOPS: In a typical scenario, the random read IOPS can be up to 40,000 (blocksize = 4 KB, iodepth = 32)
- High throughput: In a typical scenario, random read throughput can be up to 250 MB/s (blocksize = 4 KB, iodepth = 32);
- Low latency: The access latency can be down to sub-milliseconds

Application Scenarios

High-performance database, NoSQL database (such as MongoDB), clustered database
I/O-intensive applications that require low latency, such as online transaction processing (OLTP) systems and ElasticSearch searches

MEM Optimized

The MEM optimized model features large memory, suitable for applications requiring a large number of memory operations, lookups and calculations such as high-performance databases and distributed memory caches.

MEM Optimized HM20

MEM Optimized HM20 is designed to deliver fast performance for workloads that process large data sets in memory. It features large memory, making it the best choice for high-memory computing applications.

Model Features

- 2.4 GHz Intel Xeon® E5-2680v4 processor, DDR4 memory
- Processor to memory ratio is 1:8

Application Scenarios

- Applications requiring a large number of memory operations, lookups and calculations such as high-performance databases and distributed memory caches.
- Users with self-built Hadoop clusters or Redis databases for generic computation and other tasks

Compute

The Compute model features a 3.2 GHz base clock rate and has the highest single-core computing performance. It is suitable for compute-intensive applications such as batch processing, high-performance computing and large-scale gaming servers.

Compute HC20

Compute HC20 features the highest processor and cost performance, making it ideal for compute-intensive applications requiring high computing performance and high concurrent reads and writes.

Model Features

- 3.2 GHz Intel Xeon® E5-2667v4 processor (with a max turbo frequency of 3.6 GHz), DDR4 memory

Application Scenarios

Compute C2 is ideal for the following scenarios:

- Batch workloads
- High-traffic web servers, massively multiplayer online (MMO) gaming servers
- High-performance computing (HPC) and other compute-intensive applications.

For best performance, we recommend that you use the current generation of instance type when creating a new instance.