

# **Cloud Dedicated Zone solution Product Documentation**



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# Device Information used by Tencent Distributed Cloud

Last updated : 2024-07-03 20:41:41

Cloud Dedicated Clusters (CDCs) are deployed within the customer data center by using switches and servers. These devices must comply with the customer data center rack specifications.

### Switch:

Switch carrying business traffic, primarily used as Access Switch and Aggregation Switch. The height is 2U, the size is 88.1 mm (height) x 440 mm (width) x 660 mm (depth), and the weight is not more than 27 kg (60 lb).

Out-of-band Management Switch. The height is 1U, the size is 44 mm (Height) x 440 mm (Width) x 300 mm (Depth), and the weight is not more than 5 kg (11 lb).

### Server:

2U Server (without GPU), used for computing, storage, and gateway. The height is 2U, the size is 87.5 mm (height) x 445.4 mm (width) x 748 mm (depth), and the typical weight is not more than 33 kg (73 lb).

2U Server (with GPU), e.g., GPU Server supporting NVIDIA T4. The height is 2U, the size is 87.5 mm (height) x 445.4 mm (width) x 748 mm (depth), and the typical weight is not more than 33 kg (73 lb).

4U Server (with GPU), e.g., GPU Server supporting NVIDIA A10, V100, L20, H20. The height is 4U, the size is 175.5 mm (height) x 435 mm (width) x 830 mm (depth), and the typical weight is not more than 73 kg (160 lb).

6U Server (with GPU), e.g., GPU Server supporting NVIDIA A800, H800, A100, H100. The height is 6U, the size is 263.9 mm (height) x 447 mm (width) x 850 mm (depth), and the typical weight is not more than 90 kg (200 lb).

8U Server (with GPU), e.g., GPU Server supporting Ascend 910B. The height is 8U, the size is 356 mm (height) x 447 mm (width) x 898 mm (depth), and the typical weight is not more than 180 kg (400 lb).

# Delivery Time Cycle of Tencent Distributed Cloud Solutions

Last updated : 2024-07-04 09:46:37

Although the distributed cloud uses public cloud technologies and products, it needs to be delivered to the customer data center. It cannot be applied for and accessed on-demand like the public cloud. Therefore, during the pre-sales phase, customers pay attention to the project's delivery cycle.

Tencent Cloud offers two local solutions, namely Cloud Dedicated Cluster (CDC) and Cloud Dedicated Zone (CDZ). From customer order placement to final delivery to the customer data center, the overall delivery cycle and delivery process are as follows:

CDZ, catering to large cloud demand scenarios for local regional customers. The delivery time is approximately 2 to 3 months. Tencent IDC implementation standards and construction processes (such as rack disaster capacity and cable routing standards) must be strictly adhered to, and the Tencent Cloud regional direct connect is required to activate. **The delivery process includes process investigation > equipment arrival > sensor deployment > network equipment installation > server deployment > direct connect activation > software deployment > acceptance.**

CDC, catering to small and medium cloud demand scenarios and edge cloud demand scenarios for local customers. The delivery time is approximately 2 to 4 weeks. The implementation standards can be simplified according to the customer IDC. **The delivery process includes process investigation > equipment arrival > construction personnel registration > equipment installation > VPN activation > software deployment > acceptance.**

# Tencent Distributed Cloud Continuous Online Upgrade Service Plan

Last updated : 2024-07-03 20:42:54

Tencent distributed cloud uses public cloud technology and products. Compared to traditional private cloud products, it has significant advantages in upgrades.

Although traditional private cloud products provide high availability architecture and support online upgrades, customers' Ops and management capabilities often prevent them from synchronizing with cloud product versions. After private cloud products iteration, the risk of cross-generation upgrades increases. As a result, upgrades are rare after a private cloud is built, leading to security vulnerabilities in private cloud products. These vulnerabilities can exist long-term in customer environments, causing the longer customers use the private cloud, the higher security risks will be.

Tencent distributed cloud adopts public cloud technologies and products. During product design and implementation, online upgrade capability and compatibility with older versions are considered. The software updates and deployment of Cloud Dedicated Cluster (CDC)/Cloud Dedicated Zone (CDZ) are identical to those in public cloud solutions. Through direct connect or VPNs activated regionally, upgrade packages can be automatically pushed locally and upgraded automatically. Like the public cloud, based on full linkage, full components, and blue-green upgrade policies, the upgrade process is carried out online without causing any interruptions to customer workloads. Since Tencent distributed cloud upgrades in sync with the public cloud version, transfer upgrades are rare. The upgrade risk is acceptable, and comprehensive plans are in place to mitigate upgrade risks. In case of issues, they can be quickly resolved or rolled back. Therefore, the components used in Tencent distributed cloud products, even if they have security vulnerabilities, will be quickly patched with product version iterations, which ensures high security.

# Tencent Distributed Cloud On-site Safety Management Solution

Last updated : 2024-07-03 20:43:22

Tencent distributed cloud is deployed in the customer data center. The Ops management of the cloud environment is run by Tencent Cloud, while customers are responsible for the overall environment and network Ops of the data center. Therefore, special environmental security designs are required to meet Tencent Cloud's security management requirements and the customer's business security needs.

## Cloud Dedicated Cluster (CDC) Security Management Solutions

**Cabinet security:** CDC supports intelligent cabinets that can implement smart door locks and remote switching for daily closure, preventing unauthorized personnel from accessing the equipment. When it is deployed in customer cabinets, a dynamic environment monitoring system is also deployed. This dynamic environment system features a door opening detection feature and 24/7 camera monitoring of the physical environment around the CDC, promptly detecting and alarming unauthorized physical access.

**Device security:** Each physical device is equipped with Tencent's self-developed security agents, which can detect illegal physical ports and network connections, as well as perform intelligent analysis of device operations. Unauthorized physical intrusions can be detected and alarms issued promptly.

**Network security:** A dedicated VPN channel has been established between CDC and the cloud region, controlling data transmission through the VPN channel to avoid information security risks caused by unauthorized retained traffic. At the same time, the servers and switches in the CDC only support communication through authorized ports and IPs. Tencent's internal security protection system will conduct security checks on cloud-to-cloud access to prevent intrusions.

## Cloud Dedicated Zone (CDZ) Security Management Solution

**Cabinet security:** CDZ will isolate and use cabinet enclosures at the customer data center, and arrange engineers on-site to prevent unauthorized access.

**Device security:** Each physical device is equipped with Tencent's self-developed security agents, which can detect illegal physical ports and network connections, as well as perform intelligent analysis of device operations. Unauthorized physical intrusions can be detected and alarms issued promptly.

**Network security:** CDZ and the cloud region are directly connected via a direct connection at Layer-2 to prevent network intrusion.

# Tencent Distributed Cloud Remote Management Solutions

Last updated : 2024-07-03 20:43:49

Although Tencent distributed cloud is deployed in the customer data center, both its products and technology are based on public cloud technology, and its Ops work are handled by the public cloud Ops team. Therefore, the scale advantages of public cloud Ops are also reflected in Tencent distributed cloud.

To achieve this effect, Cloud Dedicated Cluster (CDC)/Cloud Dedicated Zone (CDZ) has been specially designed for customer's local deployment and management, enabling large-scale deployment to customer data centers and edge data centers.

**Layer-3 Network Connection:** The customer network connection is based on Layer-3 networking. Control can be achieved as long as the control network is connected to the nearest Tencent Cloud POP point. This approach reduces the difficulty and cost of connection, shortens the construction cycle of connection implementation, and is conducive to the rapid deployment in edge scenarios such as office campuses, hospitals, and factories.

**SD-WAN Connection:** CDC/CDZ supports the use of SD-WAN hardware and connection solutions for building control networks. Customers do not need to provide the network, which makes it more adaptable to edge scenarios.

**Intelligent Cabinets:** For edge scenarios, if customers do not have a professional data center, CDC/CDZ can be delivered based on integrated intelligent cabinets, dynamic ring networks, UPS, and refrigeration equipment. This solution has very low time and investment costs, but it can significantly enhance the basic environmental protection capability in edge scenarios, thus ensuring that CDC/CDZ can provide sufficient service availability.

**Remote Centralized Control:** All CDC/CDZ are remotely connected to the nearest public cloud region and centrally managed by the public cloud Ops team. The public cloud's monitoring system and Ops system can serve the CDC/CDZ environment, achieving efficient operation and maintenance. Compared to traditional private clouds, which require building support environments and deploying Ops engineers for each cloud environment, the CDC/CDZ model has significant advantages in Ops costs.

**Flexible Backup Solutions:** According to customers' availability requirements and environment, backup solutions can be flexibly adjusted. In the event of a failure, business operations switch to backup machines via automation tools and continue to run. This ensures that even if the Mean Time to Recovery (MTTR) due to hardware failure is relatively high, it can still provide an Service Level Agreement (SLA) that meets customer business requirements.



# How to Deploy Other Virtualization Management Software in Tencent Distributed Cloud

Last updated : 2024-07-03 20:44:13

Cloud Dedicated Cluster (CDC)/Cloud Dedicated Zone (CDZ) is a cloud environment deployed based on public cloud technology. If you want to deploy other virtualization management software in the CDC/CDZ environment, you need to avoid performance loss caused by virtualization nesting. Therefore, for such requirements, customers are recommended to use Cloud Bare Metal (CBM) to deploy other virtualization software.

CBM is a bare metal cloud service that combines the elasticity of virtual machines and the performance of physical machines. It can be seamlessly integrated with all Tencent Cloud products such as networks, storage, and databases to maintain dedicated, high-performance, and isolated physical machine clusters in the cloud.

Through CBM, customers can deploy virtualization software like ESXi/vSphere, Hyper-V, Xen, KVM, AHV, VirtualBox, and PVE as needed.

# Hardware Requirements for Deployment of Tencent Distributed Cloud or Edge Cloud Solutions

Last updated : 2024-07-04 17:25:14

Tencent distributed cloud includes two different types of products, that is, fully privatized products and extension products of the public cloud.

## Fully Privatized Products

Fully privatized products include TCE and TCS, which can be deployed on third-party hardware.

TCE: TCE is a full-stack cloud platform copied 1:1 from Tencent public cloud and independently deployed for clients.

It supports deployment on third-party hardware, but the hardware must be listed on Tencent Cloud's certified list.

TCS: TCS is a CloudNative platform that can provide containers, microservices, container-based PaaS and middleware services (such as DB, MQ, and Big Data). TCS has no hardware limitations and can be deployed on most common servers.

## Extension Products of the Public Cloud

Extension products of the public cloud, including CDC/CDZ, are delivered to customers as an integrated software-hardware solution and do not support deployment on third-party hardware. They can only be deployed on Tencent Cloud's own hardware.

Tencent edge cloud solutions can only be deployed on Tencent Cloud's own hardware or certified third-party hardware.

# Performance of Tencent Distributed Cloud or Edge Cloud Solutions Under Disconnection Mode

Last updated : 2024-07-04 17:26:02

## Tencent Distributed Cloud Solutions Support Disconnection Mode

Tencent distributed cloud has two different types of distributed cloud products: fully privatized products and extension products of the public cloud.

Fully privatized products TCE and TCS have a complete and independent control module and management panel locally. They can run independently in the customer's environment without any network connection to the public cloud, and disconnection has minimal impact on these products.

For extension products of the public cloud, CDC/CDZ, they can temporarily lose connection with the public cloud (with an official SLA of 4 hours, though there is experience of running up to 5 days).

In disconnection mode, all resources, such as VMs, block storage, file storage, databases, VPCs, and LBs, can be used normally. However, after disconnection, these resources cannot be managed to create, delete, and modify configurations.

Due to the different architectural designs of various products, the high availability of certain services may be affected after disconnection, such as the automatic migration of VMs. However, the high availability of products like block storage, file storage, DBs, and VPCs is not affected.

## Tencent Edge Cloud Solutions Support Disconnection Mode

Tencent Cloud Edge Zones (TEZs) are built upon the technological foundation of CDCs, so the two solutions have the same capabilities for supporting disconnection mode.

Compared with distributed cloud, TEZ primarily serves in network-stable environments. Disconnection mode is more about addressing temporary anomalies like regional public network failures rather than providing regular services for customers.

# Minimum Scale Deployment Solution for Tencent Distributed Cloud

Last updated : 2024-07-04 17:27:08

Tencent distributed cloud solution can provide a complete IaaS (including compute, storage, and network) with a minimum scale of 8 devices, including 3 for networking (primary and secondary), 3 for storage (3 replicas), and 2 for computing (primary and secondary). This environment already includes a high level of availability.

Tencent distributed cloud solution offers a minimal scale solution of just 3 servers. In this scenario, 2 devices are deployed as gateways to facilitate network virtualization, while 1 device serves as the host for VMs to provide compute virtualization capabilities. This solution can provide services in Cloud Dedicated Clusters (CDCs) and Tencent Cloud Edge Zones (TEZs).

In the 3-device solution, only compute virtualization and network virtualization are provided. Storage virtualization is not included, but local disks are available for use.

The solution with 3 devices provides the same CMP capabilities as the solution with 8 fully configured IaaS devices and provides services through the Tencent Cloud console. The primary distinction between the two solutions lies in the support of storage virtualization service.