Data Express Service

Product Introduction

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1 What Is DES?

Data Express Service (DES) is a TB-scale data transmission service. It provides physical storage devices (such as Teleport, external USB hard disks, SATA disks, and SAS disks) to make it easier for you to transmit terabytes of data to Huawei Cloud. DES offers up to 1,000 Mbit/s transmission speed, almost 10 times faster than would be possible over Internet, at only one fifth of the Internet cost. DES does not occupy the public network bandwidth or the bandwidth of main businesses.

DES allows you to transmit data by Teleport or by disk. Select the transmission mode based on the data volume to be transmitted.

- Data volume < 30 TB: Use disks.
- 30 TB < data volume < 500 TB: Use Teleport.
- Data volume > 500 TB: Use the Direct Connect service.

For Teleport-based DES, you will receive a Teleport sent by a Huawei data center. For disk-based DES, you need to prepare disks by yourself. See **Table 1-1** for more information.

Table 1-1 Comparison of two DES transmission modes

Transmission Mode	Application Scenario	Migration Medium	How to Obtain the Migration Medium
By Teleport	• Migration of 30 to 500 TB of data. If the data volume is larger than 500 TB, you are advised to use the Direct Connect service. • Users having no large-capacity storage media • Urgent transmission that requires fast speed and short time	Teleport. The capacity of a single Teleport is 60 TB.	DC mails Teleports to customers.
By Disk	Migration of less than 30 TB of data	External USB flash drives, SATA disks, and SAS disks For details about the specifications, interfaces, and file systems supported by each type of disks, see **Disk compatibility**.	You need to prepare disks.

DES saves your effort and money in writing code or buying any hardware for data transmission. You only need to create service orders on DES Console and use Teleports or disks as the storage media to transmit data to Huawei Cloud securely, quickly, and efficiently.

2 Functions

DES has the following functions:

- Security guarantee

  DES has a comprehensive security mechanism to protect your data from being maliciously accessed and tampered with.

  - Security assurance of the migration medium: Teleport-based DES provides Teleport which is dust- and water-proof and resistant to vibration and crush. It also has safety lock.
  - Security assurance during data transmission: After the migration medium storing your data is received by the Huawei DC, the administrator mounts the Teleport or the disk to the server. Then an SMS message is sent to notify you of inputting the access keys (AK/SK). After the key authentication is successful, data upload is triggered. In this manner, Huawei personnel have no access to your keys or data, ensuring data security during transmission.

- Transmission rate

  One of the important features of DES is to provide a high-speed transmission rate to solve the problem of long data transmission time. The upload speed of local data is severely limited by your network bandwidth. DES stores your data in the migration medium and transports the data to a Huawei DC to solve the problem of limited network bandwidth. In addition, DES provides the option of Teleport which has high I/O performance. However, the DES transmission rate is still affected by the device performance, data volume, data type, and file storage mode.

  - For Teleport-based DES, the data upload rate is affected by the type and size of the data file. The transmission rate of common files can reach 500 MB/s, and the transmission rate of massive small files and ultra-large files can reach 200 MB/s. Therefore, you can preferentially select the Teleport-based DES to achieve fast and efficient data transmission.
  - For disk-based DES, the data upload rate depends on the I/O performance of your disks. The transmission rate of a common USB flash drive is 30 MB/s, and the transmission rate of a SATA disk is 100 MB/s.

- Teleport can import data that complies with the NFS/CIFS/FTP protocol to OBS, migrating massive data to the cloud.
- Service status tracking

DES provides complete process regulations of service orders. You can track the data transmission process based on the service order status information on the management console. The statuses of a Teleport-based DES order are different from those of a disk-based DES order. For details, see **Figure 2-1** and **Figure 2-2**.

Figure 2-1 Statuses of a Teleport-based DES order

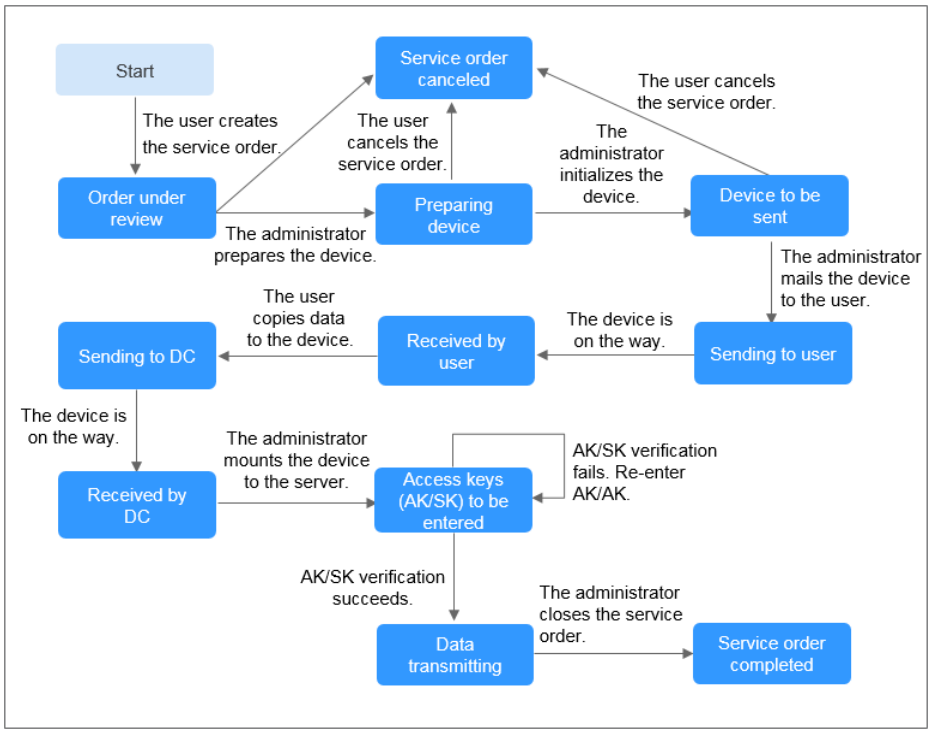
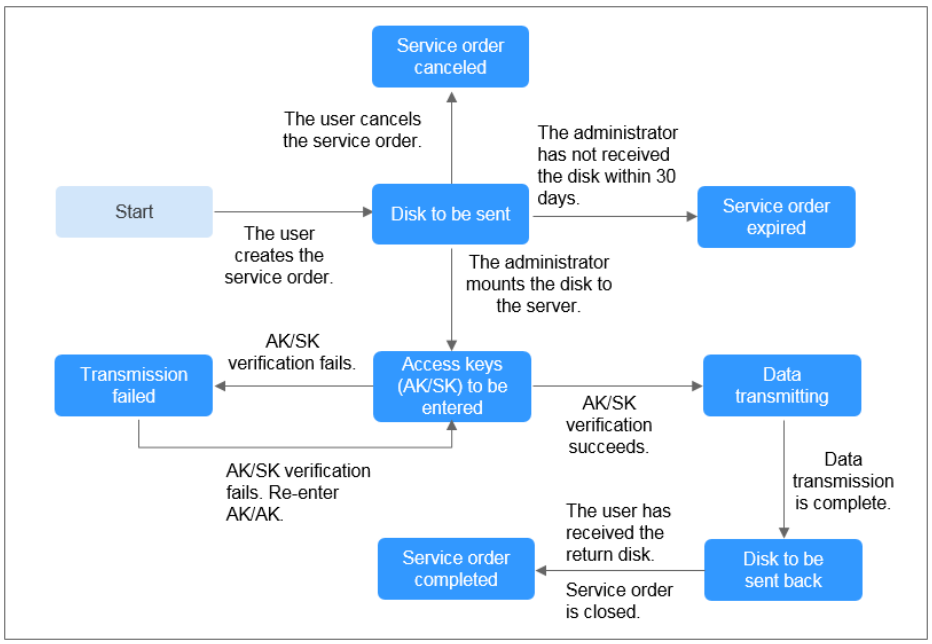


Figure 2-2 Statuses of a disk-based DES order



- Mis-operation prevention

A signature file is the unique identifier for matching a DES order with a migration medium. DES system identifies a signature file and automatically matches the migration medium with a service order to prevent mis-operations.

After a service order is successfully placed, the system generates a unique signature file. You need to save the signature file to the root directory of the Teleport or disk, and mail the device to a Huawei DC. After the administrator receives and mounts the Teleport or disk to the server, the system automatically identifies the service order that matches the signature file information on the device. After the signature file matches the service order, the system triggers data upload based on the access keys (AK/SK) entered by you. Mis-operations are therefore prevented, because there is no manual intervention during the data upload.

- Report generation

  You can obtain a report about your DES order details. After data uploading is complete, a report is generated for you to confirm that all data is transmitted.

3 Application Scenarios

You can estimate the transmission time by using the following formula. If data transmission cannot be completed by the Internet within the time you expect, try DES. The following formula shows how to calculate the data transmission time over the Internet:

Transmission time (days) = [Total capacity (KB)]/[Bandwidth (Mbit/s) x 125 x Network utilization rate x 60 (seconds) x 60 (minutes) x 24 (hours)]

Based on the formula, **Table 3-1** shows the estimated days to transmit 1 TB data with different bandwidths. **Table 3-2** compares DES with the data transmission using the Internet in terms of bandwidth range and data amount.

Table 3-1 Estimated days to transmit 1 TB data

Network Bandwidth	2 Mbit/s	10 Mbit/s	40 Mbit/s	100 Mbit/s
Days (Network Utilization of 80%)	62.5	12.5	3.5	1.5

Table 3-2 Recommended transmission modes

Network Bandwidth	Data Volume	Transmission Mode
2 Mbit/s	≥ 100 GB	DES
	< 100 GB	Internet
10 Mbit/s	≥ 600 GB	DES
	< 600 GB	Internet
40 Mbit/s	≥ 2 TB	DES
	< 2 TB	Internet

Network Bandwidth	Data Volume	Transmission Mode
100 Mbit/s	≥ 5 TB	DES
	< 5 TB	Internet

Apart from solving low-bandwidth and high-cost problems, DES is also suitable to the following scenarios:

- Migration of raw Big Data: Users can transmit raw data of genetics engineering, oil exploration, meteorological research, and Internet of Things (IoT) to Object Storage Service (OBS).
- Reception of interchangeable data: Instead of transmitting data services over physical storage media, users can upload data to OBS and exchange data on the cloud.
- Website content migration: Users can transmit static resources, such as static website content, images, scripts, and videos to OBS.
- Offline data backup: Users can transmit full or incremental backups to OBS to implement reliable and redundant off-site storage. This can be used along with the hybrid cloud backup solution.
- Disaster recovery: When a large amount of data needs to be prepared for disaster recovery, users can select the cost-effective offline service, DES, for initial synchronization.

4 Advantages

DES, which is safer, faster, and more efficient, has great advantages over conventional personal storage and network data transmission.

- Efficient transmission of massive data to the cloud

  In DES, after the migration medium storing your data is received by the Huawei DC, the administrator mounts the device to the server. Then the successful verification with access keys (AK/SK) input by you triggers the data upload over high speed network. DES greatly improves the data transmission rate, shortens the time for massive data transmission to the cloud, and reduces the cost.

- Robust data security
  - Teleport-based DES provides military class enclosure, which ensures secure transmission.
  - Signature files are generated for service orders in Teleport- and disk-based DES. A signature file is the unique identifier for matching a DES order with a device, which prevents mis-operations caused by manual matching.
  - Before the data is uploaded to OBS, you need to enter the access keys (AK/SK) to trigger data upload. When the data is uploaded to OBS, SSL encryption is supported. In addition, OBS uses access keys (AK/SK) to authenticate your access and controls the access to buckets and objects in various ways, such as ACL and bucket policies. These measures ensure the security of data upload and access.
  - Data transmitted by DES is stored on OBS. It is stored in shards and then randomly distributed on different disks. For this reason, even if some disks are stolen in the DC, your data cannot be completely restored with those lost disks. The security of your data storage is ensured.

- Multiple transmission options

  DES provides two data transmission options, which can be selected based on the data amount and data type. One is Teleport-based DES, where Teleport with high I/O performance provided by a Huawei DC is selected as the transmission medium. The other is disk-based DES, where you store data to be transmitted on your own compatible transmission medium and mail it to a Huawei DC.

- Lower maintenance costs

After you store massive data in OBS buckets via DES, no maintenance personnel are required to maintain storage devices, because device maintenance and data management are processed by Huawei DCs.

- Simple configuration

  Teleport is a plug-and-play device with power cables, 10GE optical fibers, and 10GE network cables. Simply by configuring IP addresses, you can start data replication within one minute.

5 Billing

Billing Items

Table 5-1 Billing items

Billing Item	Description	Billing Factor and Formula
Data express	Billing based on the number of physical storage devices (Teleports or disks)	Billing factor: number of physical storage devices Formula: Fees = Number of physical storage devices x Unit price of a physical storage device
Use duration	Billing based on use duration from start time to end time • The use duration of Teleport-based DES is the duration of onsite usage, that is, from the time when the status of the order becomes **User signed** to the time when the status becomes **Sending to Huawei**. • The use duration for disk-based DES is the time when the disk data is imported, that is, from the time when the status of the order becomes **Access key (AK/SK) to be entered** to the time when the status becomes **Disk to be sent back**.	Billing factor: duration (days) Formula: Fees = (Use duration – Free duration) x Duration unit price **NOTE** **Free duration** for Teleport-based DES is 10 days, and three days for disk-based DES. **Duration unit price** is the unit price for one day exceeding three days for disk-based DES or one day exceeding 10 days for Teleport-based DES.

Billing Item	Description	Billing Factor and Formula
Traffic	Traffic for importing data from Teleports or disks to HUAWEI CLOUD OBS	Free
Requests	Requests generated by calling the OBS API when data is uploaded to OBS	For details, see **OBS Requests**.

NOTE

Fees for Teleport and disk delivery are borne by you.

After data has been uploaded to OBS, subsequent data storage and access are billed based on the OBS billing rules. For details, see **OBS Billing**.

Billing Modes

Data Express Service (DES) provides two transmission modes: disk-based and Teleport-based. DES is billed by order and the data importing traffic is free of charge.

For details, see **Product Pricing Details**. You can use the **price calculator** of DES to quickly obtain an estimate price of a DES order.

Top-up

To ensure smooth data transmission, use DES when your account balance is enough. If your account is in arrears, you can still apply for a DES service order, but data will not be uploaded to HUAWEI CLOUD. Therefore, you are advised to check the account status regularly. If the account balance is insufficient, top up the account before you use the service.

6 Region and AZ

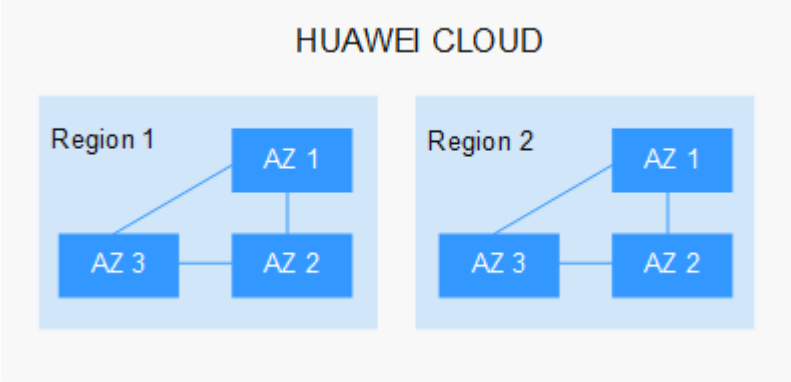
Concept

A region and availability zone (AZ) identify the location of a data center. You can create resources in a specific region and AZ.

- Regions are divided from the dimensions of geographical location and network latency. Public services, such as Elastic Cloud Server (ECS), Elastic Volume Service (EVS), Object Storage Service (OBS), Virtual Private Cloud (VPC), Elastic IP (EIP), and Image Management Service (IMS), are shared within the same region. Regions are classified as universal regions and dedicated regions. A universal region provides universal cloud services for common tenants. A dedicated region provides services of the same type only or for specific tenants.
- An AZ contains one or multiple physical data centers. Each AZ has independent cooling, fire extinguishing, moisture-proof, and electricity facilities. Within an AZ, computing, network, storage, and other resources are logically divided into multiple clusters. AZs within a region are interconnected using high-speed optical fibers to allow you to build cross-AZ high-availability systems.

Figure 6-1 shows the relationship between the regions and AZs.

Figure 6-1 Regions and AZs



HUAWEI CLOUD provides services in many regions around the world. Select a region and AZ based on requirements. For more information, see **HUAWEI CLOUD Global Products and Services**.

How to Select a Region?

When selecting a region, consider the following factors:

- Location

  You are advised to select a region close to you or your target users. This reduces network latency and improves access rate. However, Chinese mainland regions provide basically the same infrastructure, BGP network quality, as well as operations and configurations on resources. Therefore, if you or your target users are in the Chinese mainland, you do not need to consider the network latency differences when selecting a region.

  The countries and regions outside the Chinese mainland, such as Bangkok and Hong Kong SAR, China, provide services for users outside the Chinese mainland. If you or your target users are in the Chinese mainland, these regions are not recommended due to high access latency.

  - If you or your target users are in Asia Pacific excepting the Chinese mainland, select the **CN-Hong Kong** or **AP-Bangkok** region.
  - If you or your target users are in Africa, select the **AF-Johannesburg** region.

- Resource price

  Resource prices may vary in different regions. For details, see **Product Pricing Details**.

When selecting a region for DES, you need to consider the impact of geographical location factors on the transportation of data transmission media. You are advised to select a region close to you or your target users. This reduces the transportation time.

How to Select an AZ?

When determining whether to deploy resources in the same AZ, consider your applications' requirements on disaster recovery (DR) and network latency.

- For high DR capability, deploy resources in different AZs in the same region.
- For low network latency, deploy resources in the same AZ.

Regions and Endpoints

Before using an API to call resources, specify its region and endpoint. For more details, see **Regions and Endpoints**.

7 Related Services

DES allows you to easily migrate massive amount of data to the cloud.

DES supports two data transmission modes: by Teleport and by disk. Data is uploaded to OBS buckets for storage. Therefore, DES must be used together with OBS. Before using DES, **create a bucket** in OBS.

Figure 7-1 shows the relationship between DES and OBS.

Figure 7-1 Relationship to OBS