Cloud Connect

Billing

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HUAWEI CLOUD COMPUTING TECHNOLOGIES CO., LTD.

Contents

1 Central Network Billing

1.1 Billing Modes

1.1.1 Overview

Central networks are billed for each global connection bandwidth used by cross-site connections and for each connection between enterprise routers. Both items support pay-per-use billing. Pay-per-use is a postpaid billing mode. You pay as you go and just pay for what you use. The usage is calculated by the second but billed every hour. This allows you to adjust resource usage easily. You neither need to prepare for resources in advance, nor end up with excessive or insufficient preset resources.

Table 1-1 Central network billing mode

Billing Mode	Pay-per-use
Payment	Postpaid
Billing Method	Billed by the second and settled by the hour.
Billing Items	There are two billing items for a central network: ● Each connection between enterprise routers on the central network ● Each global connection bandwidth used by cross-site connections on the central network
Changing the Specifications	Global connection bandwidths can be changed.
Application Scenario	Recommended when the resource demands are likely to fluctuate and you want more flexibility.

1.1.2 Pay-per-Use Billing

Pay-per-use billing means you pay nothing up front and are not tied into any contract or commitment. This topic describes the billing rules for pay-per-use resources used by a central network.

Application Scenarios

Pay-per-use billing is good for short-term, bursty, or unpredictable workloads that cannot tolerate any interruptions, such as applications for e-commerce flash sales, temporary testing, and scientific computing.

Billed Items

Central networks are free of charge. The global connection bandwidths used by central networks and the connections between enterprise routers on the central networks support pay-per-use billing.

Table 1-2 Billed items

Billed Item	Description
Each global connection bandwidth used by cross-site connections on the central network	A global connection bandwidth is used by instances to allow communication over the backbone network. The bandwidth is billed by fixed bandwidth.
Each connection between enterprise routers on a central network	When you add enterprise routers to a central network, the connections between enterprise routers are not free. The price of connections on a central network is determined by the number of enterprise routers.

Billed Usage Period

Global connection bandwidth usage is calculated by the second and billed every hour. The billing starts when a global connection bandwidth is purchased and ends when the bandwidth is deleted.

For example, if you purchased a pay-per-use global connection bandwidth at 8:45:00 and deleted it at 8:55:00, you are billed for the 600 seconds from 8:45:00 to 8:55:00.

Billing Example

Assume that you purchased a 150-Mbit/s global connection bandwidth for a cross-site connection between enterprise routers at 9:30:00 on April 18, 2023.

- You increased the bandwidth to 200 Mbit/s at 11:00:00 on April 18, 2023.
- You deleted the bandwidth at 11:00:00 on April 19, 2023.

Enterprise routers are free of charge, but the connections between enterprise routers are billed by the hour.

In this example, the unit price of the global connection bandwidth is $0.1 USD/Mbit/s per hour, and that of the connection is $0.06 USD/hour.

Figure 1-1 shows how the total price is calculated.

Figure 1-1 Example central network price
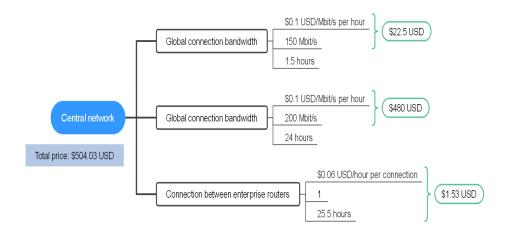
Table 1-3 Center network price details

Resource	Required Duration	Price	Total Price
Global connection bandwidth	From 9:30:00 on April 18, 2023 to 11:00:00 on April 19, 2023 ● From 9:30:00 on April 18, 2023 to 11:00:00 on April 18, 2023: 1.5 hours ● From 11:00:00 on April 18, 2023 to 11:00:00 on April 19, 2023: 24 hours	● $0.1 USD x 150 Mbit/s x 1.5 hours = $22.5 USD ● $0.1 USD x 200 Mbit/s x 24 hours = $480 USD	$22.5 USD + $480 USD = $502.5 USD
Connection between enterprise routers	From 9:30:00 on April 18, 2023 to 11:00:00 on April 19, 2023: 25.5 hours	$0.06 x 1 x 25.5 hours = $1.53 USD	$1.53 USD

NOTICE

The prices in the figure are for reference only. The actual prices are displayed on the console.

Price Change After Specification Change

If you change the specifications of a pay-per-use global connection bandwidth, the original order will become invalid and a new order will be placed. You will be billed based on the new specifications.

If you change the specifications within a given hour, multiple records will be generated. Different records record the billing for different specifications.
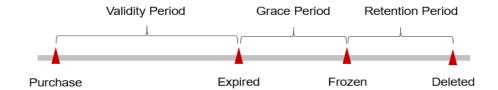
For example, if you purchase a 150-Mbit/s global connection bandwidth at 9:00:00 and increase the bandwidth to 200 Mbit/s at 9:30:00, two records will be generated between 9:00:00 and 10:00:00.

- From 9:00:00 to 9:30:00: 150 Mbit/s
- From 9:30:00 to 10:00:00: 200 Mbit/s

Impact of Arrears

Figure 1-2 shows the statuses a pay-per-use resource can have throughout its lifecycle. After a resource is purchased, it enters the valid period and runs normally during this period. If your account goes into arrears, the resource enters a grace period and then a retention period.

Figure 1-2 Lifecycle of a pay-per-use resource

Arrears Reminder

The system will bill you for pay-per-use resources after each billing cycle ends. If your account goes into arrears, we will notify you by email, SMS, or in-app message.

Impact of Arrears

- If your account is insufficient to pay your amount due, the account will go into arrears and the resource will enter the grace period.

  Pay-per-use resources are not stopped immediately. You are still responsible for expenditures generated during the grace period. You can view the charges on the **Billing Center** > **Overview** page and pay any past due balance as needed.

- If you do not bring your account balance current before the grace period expires, the resource status turns to **Frozen** and it enters a retention period.

- If you do not bring your account balance current before the retention period ends, your resources will be released, and the data cannot be restored.

📖 **NOTE**

- For details about the grace period and retention period, see **What Is a Grace Period of Huawei Cloud? How Long Is It?** and **What Is a Retention Period of Huawei Cloud? How Long Is It?**
- For details about topping up your account, see **Making Repayments (Postpaid Direct Customers)**.

1.2 Billing Items

A central network is billed by each global connection bandwidth and each connection between enterprise routers, as detailed in **Table 1-4**.

Table 1-4 Central network billing items

Billing Item	Description	Billing Mode	Billing Formula
Each global connection bandwidth used by cross-site connections on the central network	- The multi-city bandwidth is free. Geographic-region bandwidth and cross-geographic-region bandwidth are billed for the duration that you use the bandwidth. - Billing option: by bandwidth	Pay-per-use	Billed by bandwidth Bandwidth package unit price x Required duration The actual price is displayed on the console.
Connection between enterprise routers on the central network	Enterprise routers on the central network are free, but the attachments to enterprise routers are billed.	Pay-per-use	Connection unit price x Required duration See **Enterprise Router Pricing Details**.

1.3 Billing Examples

Central Network Billing Example

Assume that you purchased a 150-Mbit/s global connection bandwidth for a cross-site connection between enterprise routers at 9:30:00 on April 18, 2023.

- You increased the bandwidth to 200 Mbit/s at 11:00:00 on April 18, 2023.
- You deleted the bandwidth at 11:00:00 on April 19, 2023.

Enterprise routers are free of charge, but the connections between enterprise routers are billed by the hour.

shows how the total price is calculated.

Table 1-5 Center network price details

Resource	Required Duration	Price	Total Price
Global connection bandwidth	2023/04/18 9:30:00~2023/04/19 11:00:00 ● From 9:30:00 on April 18, 2023 to 11:00:00 on April 18, 2023 (1.5 hours) ● From 11:00:00 on April 18, 2023 to 11:00:00 on April 19, 2023 (24 hours)	● $0.1 USD x 150 Mbit/s x 1.5 hours = $22.5 USD ● $0.1 USD x 200 Mbit/s x 24 hours = $480 USD	$22.5 USD + $480 USD = $502.5 USD
Enterprise router	From 9:30:00 on April 18, 2023 to 11:00:00 on April 19, 2023 (25.5 hours)	$0.06 USD x 1 x 25.5 hours = $1.53 USD	$1.53 USD

> **NOTICE**
>
> The prices in the figure are for reference only. The actual prices are displayed on the console.

1.4 Bills

You can view the resource usage and bills for different billing cycles under **Billing** > **Dashboard** of Billing Center.

Billing Generation

Pay-per-use: The usage of pay-per-use resources is reported to the billing system at a fixed interval. Pay-per-use resources can be settled by hour, day, or month based on usage type. For details, see **Bill Run for Pay-per-Use Resources**. The usages of global connection bandwidths and connections between enterprise routers are billed by the hour.

You are not charged immediately after a record is generated. For example, if a pay-per-use global connection bandwidth billed on an hourly basis is deleted at 08:30, you will still have expenditures for the 08:00 to 09:00 hour. However, but you will not likely be billed for the 08:00 to 09:00 hour until about 10:00. In the Billing Center, choose **Billing** > **Expenditure Items** in the left navigation pane, **Expenditure Time** in the bill indicates the time when the resource is used.

Viewing Bills of a Specific Resource

Step 1 Go to the page.

Step 2 In the navigation pane on the left, choose **Intra-Cloud** > **Global Connection Bandwidths**. The global connection bandwidth list is displayed.

Step 3 Copy the target resource ID.

Step 4 Choose .

Step 5 In the navigation pane, choose **Billing** > **Expenditure Details**. Select **Resource ID** as the filter criteria, enter the resource ID obtained in **Step 3**, and click the icon.

Figure 1-3 Searching for a bill

By default, the bill details are displayed by usage and billing cycle. You can choose other display options as required. For details, see **Bills**.

----End

Checking the Consistency of the Actual Usage and Billed Usage

Assume that you purchased a 150-Mbit/s global connection bandwidth (billed by fixed bandwidth) at 08:23:10 on April 18, 2023 and deleted the bandwidth at 09:23:10 on April 18, 2023.

● Global connection bandwidth transaction records

The usage of pay-per-use global connection bandwidths is calculated by the second and billed on an hourly basis. You can check the expenditure items against the actual usage. For details, see **Table 1-6**.

Table 1-6 Global connection bandwidth transaction records

Service	Cloud Connect
Resource Type	Global connection bandwidth
Billing Mode	Pay-per-use
Expenditure Time	For the period of time from 08:23:10 to 09:23:10 on April 18, 2023, two transaction records would be generated for the resource usage in the following periods: ● From 08:23:10 to 09:00:00 ● From 09:00:00 to 09:23:10

List Price	List price on the official website = Unit price x Usage
	In this example, the bandwidth was used for 2,210 seconds in the first period, and the unit price was $0.1 USD/Mbit/s per hour. The list price is calculated as follows: (2,210 ÷ 3,600) x $0.1 USD x 150 = $9.2083 USD Similarly, you can calculate the list price for the other usage period.
Discounted Amount	Discounts offered for cloud services, for example, commercial discounts, partner authorized discounts, and promotional discounts. It is the discounted amount based on the list price.
Truncated Amount	Huawei Cloud billing is calculated to the 8th decimal place. However, the amount due is truncated to the 2nd decimal place. The third and later decimal places are referred to as the truncated amounts.
	Take the first period as an example. The truncated amount is $0.0083 USD.
Amount Due	Amount due = List price – Discounted amount – Truncated amount
	Take the first usage period as an example. If the discounted amount is 0, the amount due is $9.20 USD ($9.2083 USD – $0 USD – $0.0083 USD).

- Global connection bandwidth bill details

  Expenditure details can be displayed in multiple ways. By default, the bill details of a resource are displayed by usage and by billing cycle. **Table 1-7** illustrates the bill details, which can be used to check against the actual usage.

Table 1-7 Global connection bandwidth bill details

Service	Cloud Connect
Resource Type	Global connection bandwidth
Billing Mode	Pay-per-use
Resource Name/ID	Name and ID of the global connection bandwidth
	Example: bandwidth-GPB, eda64ab4-fbb0-4d2c-8a43-6f8a24df31fe
Specifications	Gold bandwidth from CN Southwest-Guiyang1 to CN East-Shanghai1
Usage Type	How long the global connection bandwidth is used

Unit Price	When pay-per-use billing is used, the unit price is only provided if the amount is equal to the usage multiplied by the unit price.
	Global connection bandwidths support only pay-per-use billing.
Unit	Unit price: $*xx.xx* USD/Mbit/s per hour
Usage	Global connection bandwidth usage is billed by the hour. In this example, the global connection bandwidth was used for 1 hour.
Usage Unit	Hour
List Price	List price on the official website = Unit price x Usage
	The bandwidth was used for 1 hour, and the unit price is $0.1 USD/Mbit/s per hour. Official website price = $0.1 USD x 150 = $15 USD
	Similarly, you can calculate the list price for the other usage period.
Discounted Amount	Discounts offered for cloud services, for example, commercial discounts, partner authorized discounts, and promotional discounts. It is the discounted amount based on the list price.
Amount Due	Amount that should be paid for used cloud services after discounts are applied.

1.5 Arrears

If there is not a sufficient account balance to pay for your bill and there is no other payment method configured, your account will go into arrears. If you want to continue using your cloud services, you will need to update your payment method or to top up your account in a timely manner.

Arrears Reason

Your account falls into arrears at any time your configured payment method is unable to pay for the used resources on the pay-per-use basis.
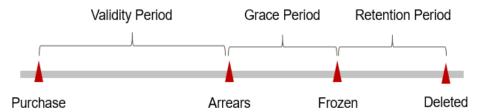
Impact of Arrears

If your configured payment method is unable to pay a bill for pay-per-use resources, the resources enter a grace period. After you top up your account, Huawei Cloud will bill you for expenditures generated by the resources during the grace period. You can view the expenditures on the **Overview** page of the Billing Center.

If your account is still in arrears after the grace period ends, the resources enter the retention period and their status turns to **Frozen**. You cannot perform any operations on these resources.

After the retention period ends, global connection bandwidths used by cross-site connections and connections between enterprise routers will be released and cannot be restored.

Figure 1-4 Lifecycle of a pay-per-use resource

📖 **NOTE**

For details about the grace period and retention period, see **What Is a Grace Period of Huawei Cloud? How Long Is It?** and **What Is a Retention Period of Huawei Cloud? How Long Is It?**

Avoiding and Handling Arrears

Make sure that your account has sufficient balance to pay your amount due. For details, see **Making Repayments (Postpaid Direct Customers)**.

If a cloud service resource is no longer used, you can delete it and its associated resources to avoid generating further expenditures.

To help make sure your account never falls into arrears, you can configure the **Balance Alert** on the **Overview** page of the Billing Center. Anytime an expenditure quota drops to below the threshold you specify, Huawei Cloud automatically notifies you by SMS or email.

1.6 Billing Termination

If global connection bandwidths or connections between enterprise routers are no longer required, delete them in a timely manner to stop billing.

Searching for Resources from Bills and Stopping Billing

To ensure that all related resources are deleted, you can search the billing records by resource ID, and then delete the resources you identify in this way.

Search for the billed global connection bandwidth by ID.

Step 1 Choose **Billing > Expenditure Details**.

Step 2 Choose **Expenditure Details** and copy the resource ID.

Step 3 Log in to the management console and select the region where the bandwidth package is located.

Step 4 Choose **Networking** > **Cloud Connect**.

Step 5 In the navigation pane on the left, choose **Intra-Cloud** > **Global Connection Bandwidths**. The global connection bandwidth list is displayed.

Step 6 Select **ID** from the filter criteria and enter the copied resource ID. Click the 🔍 icon to search for the resource.

Step 7 Choose **More** > **Unsubscribe** in the **Operation** column to delete the global connection bandwidth. Ensure that the global connection bandwidth does not exist in the list.

📖 **NOTE**

- Before deleting a global connection bandwidth, unbind it from the cross-site connection.
- You are billed one hour after the resource usage is calculated, so a bill may still be generated after the pay-per-use resource is deleted. For example, if you delete a global connection bandwidth (which is billed on an hourly basis) at 08:30, the expenditures for that hour from 08:00 to 09:00 are usually not billed until about 10:00.

----End

1.7 Cost Management

As you migrate more of your services to the cloud, managing cloud costs becomes more important. For example, you may be more concerned with cost management when using Cloud Connect. This topic describes how you can manage costs in terms of cost composition, allocation, analysis, and optimization. Optimizing costs can help you maximize return on investment.

Cost Composition

A central network costs consist of two parts:

- Resource costs: cost of resources and resource packages, depending on the billing items of central networks. For details, see **Billing Items**.
- O&M costs: labor costs incurred during the use of central networks.

Figure 1-5 Central network costs

Huawei Cloud **Cost Center** helps you manage resource costs with ease. However, you need to identify, manage, and optimize O&M costs by yourself.

Cost Allocation

A good cost accountability system is a prerequisite for cost management. It ensures that departments, business teams, and owners are accountable for their respective cloud costs. An enterprise can allocate cloud costs to different teams or projects so as to have a clear picture of their respective costs.

Huawei Cloud **Cost Center** provides various tools for you to group costs in different ways. You can experiment with these tools and find a way that works best for you.
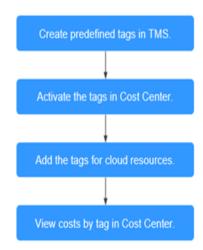
- **By linked account**

  The enterprise master account can manage costs by grouping the costs of its member accounts by linked account. For details, see **Viewing Costs by Linked Account**.

- **By enterprise project**

  Before allocating costs, enable Enterprise Project Management Service (EPS) and plan your enterprise projects based on your organizational structure or service needs. When purchasing cloud resources, select an enterprise project so that the costs of the resources will be allocated to the selected enterprise project. For details, see **Viewing Costs by Enterprise Project**.

- **By cost tag**

  You can use tags to sort your Huawei Cloud resources in a variety of different ways, for example, by purpose, owner, or environment. The following is the process of managing costs by predefined tags (recommended).

  ```
  Create predefined tags in TMS.
            │
            ▼
  Activate the tags in Cost Center.
            │
            ▼
  Add the tags for cloud resources.
            │
            ▼
  View costs by tag in Cost Center.
  ```

  For details, see **Viewing Costs by Cost Tag**.

- **By cost category**

  You can use cost categories provided by **Cost Center** to split shared costs. Shared costs are the costs of resources (compute, network, storage, or resource packages) shared across multiple departments or the costs that cannot be directly split by cost tag or enterprise project. These costs are not directly attributable to a singular owner, and they cannot be categorized into a singular cost type. In this case, you can define cost splitting rules to fairly allocate these costs among teams or business units. For details, see **Viewing Cost by Cost Category**.

Cost Analysis

To precisely control and optimize your costs, you need a clear understanding of what parts of your enterprise incurred different costs. **Cost Center** visualizes your original costs and amortized costs using various dimensions and display filters for cost analysis so that you can analyze the trends and drivers of your service usage and costs from a variety of perspectives or within different defined scopes.

You can also use cost anomaly detection provided by **Cost Center** to detect unexpected expenses in a timely manner. In this way, costs can be monitored, analyzed, and traced.

For details, see **Performing Cost Analysis to Explore Costs and Usage** and **Enabling Cost Anomaly Detection to Identify Anomalies**.

Cost Optimization

- **Cost control**

  You can create different types of budgets on the **Budgets** page of Cost Center to track your costs against the budgeted amount you specified. If the budget thresholds you defined are reached, Cost Center will send alerts to the recipients you configured. You can also create budget reports and specify recipients to receive budget alerts if any at a frequency you configured.

  Suppose you want to create a monthly budget of $2,000 USD for using Cloud Connect and expect to receive an alert if the forecasted amount exceeds 80% of the budgeted amount. You can refer to the following budget information.

  Figure 1-6 Basic budget information
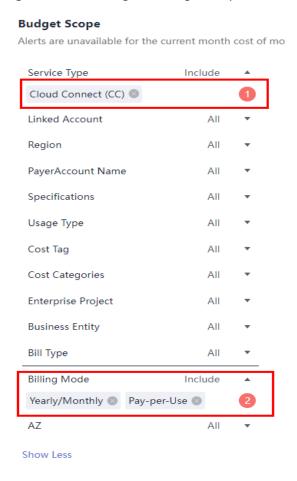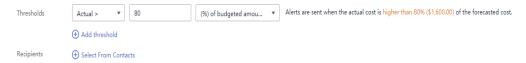
Figure 1-7 Defining the budget scope

Figure 1-8 Setting a budget alert

For details, see **Enabling Forecasting and Creating Budgets to Track Cost and Usage**.

- **Resource rightsizing**

  Cloud Eye helps you monitor resource usage, identify idle resources, and find opportunities to save costs. You can also identify resources with high costs based on **Cost Analysis**, and then take optimization measures accordingly.

  – Monitor resource usage and evaluate whether the current configuration is more than you need. For example, you can monitor the bandwidth usage.

  – Detect idle resources to avoid waste. For example, there may be global private bandwidths that are not bound to any instance.

- **O&M automation**

  Huawei Cloud also provides various O&M products to help you improve O&M efficiency and reduce labor costs. The following are examples of such products:

- **Auto Scaling**: You can automatically and continuously maintain pay-per-use bandwidths. Use this service when there is a clear distinction between peak and off-peak workloads.
- **Resource Formation Service**: Resource stacks with multiple cloud resources and dependencies can be deployed and maintained with just a few clicks. Use this service to deliver the entire system or clone an environment.