Cost Center

Hands-On Tutorials

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Financial Management with Huawei Cloud

- 1.1 Introduction
- 1.2 Cost Planning
- 1.3 Bill Management and Cost Control
- 1.4 Cost Allocation and Visualization
- 1.5 Cost Savings and Optimization

1.1 Introduction

In recent years, cloud migration has become a necessity for digital transformation. More and more enterprises are migrating their services to the cloud, which they use to provision services in a more efficient, agile, and flexible manner than is possible when using a traditional IT infrastructure. But enterprises are still facing huge challenges in terms of financial management with variable cloud expenditures, including but not limited to:

- Allocating cloud expenditures to identify cost sources and track cost changes
- Accurately forecasting costs and planning budgeting
- Tracking and controlling expenditures more effectively to keep projects within their budgets
- Identifying things that are over budget and optimizing cloud costs

To address these challenges, Huawei Cloud offers a set of solutions to help enterprises manage and optimize costs accurately and effectively. These financial management solutions help cultivate a cost-effective corporate culture, a culture of accountability, and they let you leverage the cloud more efficiently. By doing this, you can better deliver services on cloud and innovate business with expected investments but without letting your expenditures spiral out of control.

Financial Management with Huawei Cloud



- Organization planning
- · Cost forecast and estimating
- Refined cost tracking

Bill Management and Cost Control

- Bills and multi-dimensional reconciliation
- Resource package usage alerts
- Cost anomaly detection

Cost Allocation and Visualization

- Visualized cost analysis
- Multi-dimensional cost allocation
- · Shared cost splitting



- · Flexible billing modes
- Cost-saving recommendations

1.2 Cost Planning

Whether you are starting your cloud journey or want to speed up your cloud migration, it is critical to plan and track your cloud costs.

Organization Planning

A good cost accountability system is the basis of cloud financial management. It ensures that departments, business teams, and owners are accountable for their respective cloud costs.

Huawei Cloud provides you with a wide range of tools to help you more easily plan and track your organization's costs.

- If you have a large-sized enterprise or corporate group, you can create a
 hierarchical organization with multiple accounts for unified accounting
 management. For details, see Enterprise Management and Organizations.
 With Enterprise Center enabled, you can isolate resources and costs on an
 account-by-account basis, helping you quickly expand business.
- If you have a small- or medium-sized enterprise or you are using a standalone account, you can enable EPS to manage personnel, expenditures, resources, and permissions in the cloud based on the organizational structure and service management model of your enterprise. For details, see Enterprise Project Management Service (EPS). If you have other multi-dimensional and fine-grained planning requirements, you can use costs tags as a supplement to organization planning. For details, see Cost Tags. For example, you can use a specific tag to identify the team and owner of a specific resource.

You can use any of these tools to complete organization planning as early as possible and keep your formulated plan consistently executed throughout the operations of your enterprise.

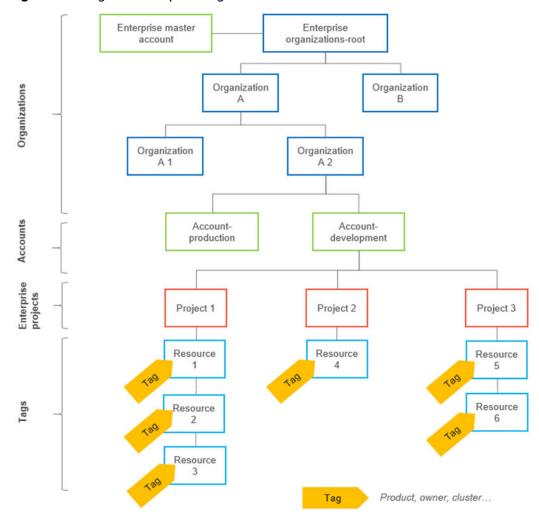


Figure 1-1 Organization planning

Cost Forecasting and Estimating

Cloud expenditures are variable and are difficult to predict. There is no one-fits-all prediction method.

But you can predict costs based on two factors, historical expenditures and service drivers (such as on-cloud service deployment or regional expansion), to get a relatively accurate prediction.

 You can access Cost Center and enable cost analysis to predict future costs based on your historical expenditures. You can leverage machine learning and rule-based models to predict costs and usage in each billing mode based on their respective billing characteristics. For details, see Forecasting.

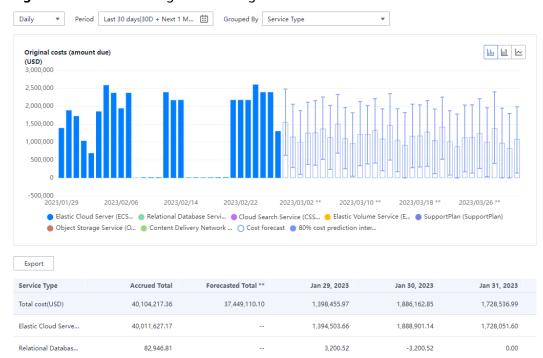


Figure 1-2 Cost and usage forecasting

 You can also use Huawei Cloud Price Calculator to estimate costs for your desired services or any combination of services based on their usage required for service rollout or regional expansion.

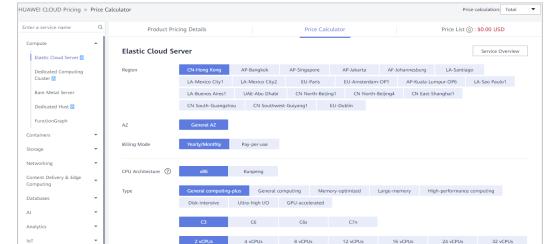


Figure 1-3 Price calculator

Refined Cost Tracking

Business Applications

After you make organizational and cost plans, you need to track your plans.

8GB

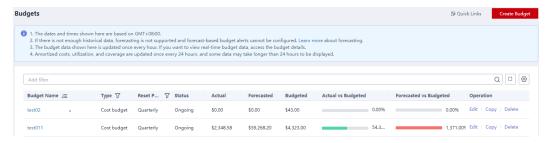
cted specifications: c3.large.2 | 2 vCPUs | 4GB

Estimated Price \$79.28 USD

Buy Now Add to List

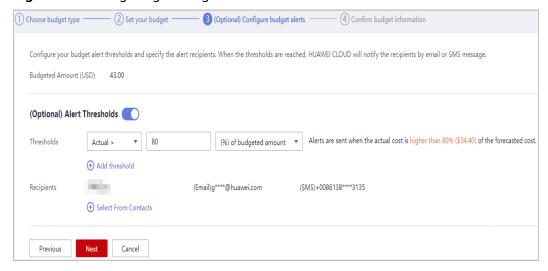
 Huawei Cloud provides budget management. You can track your costs by product, team, or project in a refined manner. For details, see Creating Budgets and Configuring Alerts.

Figure 1-4 Creating a budget



In addition to viewing the budget progress in Cost Center, you can also configure budget alerts. If the actual or predicted usage reaches the specified threshold, you will receive an alert via SMS or email so that you can take measures in a timely manner.

Figure 1-5 Configuring a budget alert



 You can create a daily, weekly, or monthly budget report to inform relevant personnel so that the costs are always visible to the relevant business departments, finance departments, and CTO of your enterprise. For details, see Using Reports to Track Your Budget.

Figure 1-6 Creating a budget report



1.3 Bill Management and Cost Control

Huawei Cloud provides a wide range of tools to help you keep your expenditures in line.

Bills and Reconciliation

Huawei Cloud offers a diverse set of charts to help you quickly understand bills and make multi-dimensional reconciliation.

 You can get started with multiple types of bills and reports to get a clear picture of your total expenditures, payments, and bill details. For details, see Bills.

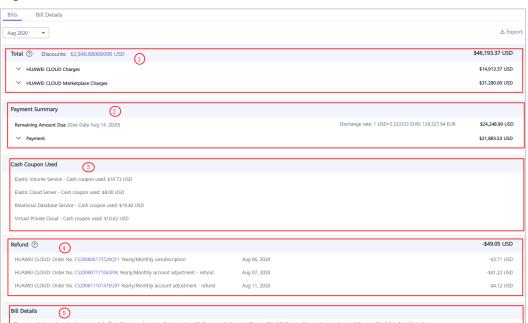


Figure 1-7 Bill information

 You can export your Huawei Cloud bills for reconciliation with the bills generated by your company to check for resource purchase and usage. For details, see Reconciliation Guidance.

Resource Package Usage Alerts

• To keep costs down, Huawei Cloud helps you evaluate whether there is any unexpected package usage.

If you have purchased a resource package, you can learn about the remaining usage of the resource package in a timely manner. You can enable usage alerts so that you can be notified before the resource package is used up. This way, you can avoid unexpected expenditures by limiting pay-per-use usage or by purchasing new resource packages in a timely manner. For details, see **Resource Packages**.

Resource Packages **Usage Alert** 1. When the remaining usage of a resource package reaches the preset threshold, you will receive notification by SMS and email. (If you have more than one resource package of the same type used together, the total remaining usage is calculated.) 2. After you buy new resource packages or renew existing ones, the total package usage will be re-calculated and remaining usage alerts are adjusted accordingly. 3. The usage of each resource package applicable to only one certain region will be calculated separately. 4. Alerts are not supported for those resource packages that are reset on a per hour, day, or week basis. Package Item Enable/Disable Remaining Usage Threshold CDN Outside Mainland China(GB)-old 20% • * CDN Mainland China package(GB) 20% 20% CPU Instance 3 hours v1 hk • OBS storage space(GB) AP-Hong Kong 20% • OBSPUT|COPY|POST|LIST requests- order cycle reset-release1 20% • OBS GET and other requests-order cycle reset 20% Cancel

Figure 1-8 Resource package usage alerts

Cost Anomaly Detection

You can use cost anomaly detection provided by Cost Center to identify any unexpected cost spikes in a timely manner. For details, see **Cost Anomaly Detection**.

- Cost Anomaly Detection uses machine learning to analyze your historical expenditures, establish a baseline, and identify root causes for cost surprises.
- You can configure alerts to keep you up to date on any cost anomalies, so you can quickly take action based on identified potential causes, service conditions, and cost analyses.

Figure 1-9 Cost anomaly detection



1.4 Cost Allocation and Visualization

After you plan organizational resources and ensure that costs are traceable, you can allocate and visualize cost data so that responsible organizations can know their respective costs in a timely manner.

Cost Allocation Principles

Cost allocation follows the principles below to match business needs:

- Costs are allocated to specific users. They are allocated to the entity that actually incurred costs not to the one that purchased the services.
- Costs are allocated based on the actual consumption. For example, if you
 purchased a yearly subscription at \$365 USD in January, the cost can be
 recorded for January. But if you want to allocate the cost based on its actual
 consumption, then the cost can be amortized over the entire subscription
 term, with \$1 USD recorded for each day within the year. Such cost allocation
 is referred to as cost amortization, which reflects a kind of cost accountability.
 For details, see Cost Amortization Rules.
- Shared costs should also be allocated within your organizations. An enterprise
 always has many shared costs incurred by common services, shared resources,
 platform services, and untagged resources. When shared costs are allocated,
 the increased visibility encourages the various business units to use shared
 resources more appropriately to reduce waste.

Visualized Cost Analysis

Huawei Cloud has a robust set of tools to visualize your cost data.

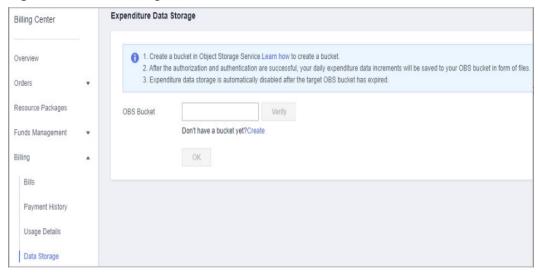
• On the Overview and Bills pages in the Billing Center, you can quickly learn the expenditures within the specified billing cycle. On the Cost Analysis page in Cost Center, you can analyze the cost and usage over a certain period by the day or month. You can get a quick view of how your costs are distributed. You can also select grouping dimensions and filters to further dig into and gain insight into costs. For details, see Viewing Cost Analyses. For example, you can group cost data by service type to learn which product is generating the most costs, and then filter the cost data by linked account, enterprise project, cost tag, or cost category to identify which entities have used the products generating the top costs.

Monthly ▼ Period Last 12 Months Grouped By Service Type Original costs (amount due) ervice Type All ¥ All ▼ All ▼ All ▼ All ▼ Usage Type 🔞 All ▼ Cost Tag All 🔻 Dec 2021 Feb 2022 Apr 2022 All ▼ e Elastic Cloud Server (ECS... | Content Delivery Network ... | Elastic Volume Service (E... | Relational Database Servi... | SupportPlan (Support All 🔻 💿 Virtual Private Cloud (VP... 🍵 Optical Character Recogni... 🍵 Object Storage Service (O... 🌘 hws.resource.type.cdn 🐞 Bare Metal Server (BMS) 🐞 Othe Advanced Setting Cost Type ② Original costs (amount d... ▼ 28.248.09 270.512.24 328.215.37 707.624.15 323.285.38 Content Delivery N... 0.00 8.767.19 27.547.00 0.00 0.00 Elastic Volume Ser.. 3.628.14 17.019.50 10.017.74 32.027,43 36.879.88 Hide service types with \$0 total cost

Figure 1-10 Cost analysis

 If you want to integrate detailed cost data with data from your own cloud management platform to generated tailored cost and usage analysis, you can subscribe to bill details or call related APIs. For details, see Data Storage and API Reference. For example, you can combine the cost and usage details with the operations data of your enterprise to generate the KPIs for each business unit.

Figure 1-11 Subscribing to bill details



Multi-Dimensional Cost Allocation

Huawei Cloud helps you construct a cost allocation strategy that aligns with your organizational plan. Once cloud services incur costs within your organizational plan, you can use different grouping tools to gain visibility into your costs.

 You can use the grouping tools (linked account, enterprise project, or cost tag) listed in Table 1-1 to gain visibility into cost details and further analyze the cost distribution.

Table 1-1 Grouping tools for different cost types and allocation methods

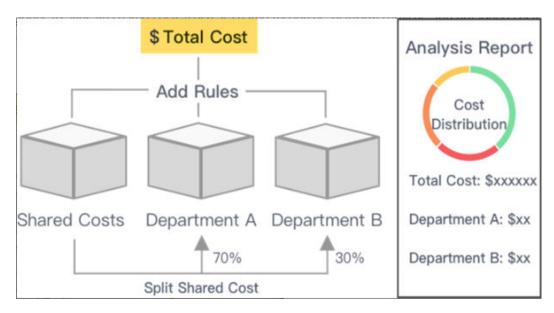
Cost Type	Alloca tion Metho d	Grouping Tool	Allocation Details
Origin al costs	Linked Accoun t	Log in to Billing Center, choose Billing > Bills.	Log in to Billing Center and access the Billing > Bills > Bill Details page.
		Log in to Cost Center and access the Cost Analysis page.	Log in to Cost Center and access the Cost Analysis page to export the monthly original cost details.

Cost Type	Alloca tion Metho d	Grouping Tool	Allocation Details
	Enterpr ise Project	Log in to Cost Center and access the Cost Analysis page.	Log in to Billing Center and access the Billing > Bills > Bill Details page. Log in to Cost Center and access the Cost Analysis page to export the monthly original cost details.
	Cost Tag	Log in to Cost Center and access the Cost Analysis page.	Log in to Billing Center and access the Billing > Bills > Bill Details page. The details contain unstructured data of the original tags. Log in to Cost Center and access the Cost Analysis page to export the monthly original cost details with structured data of the cost tags included.
Amort ized costs	Linked Accoun t	Log in to Cost Center and access the Cost Analysis page.	Log in to Cost Center and access the Cost Analysis page to export the monthly amortized cost details.
	Enterpr ise Project	Log in to Cost Center and access the Cost Analysis page.	Log in to Cost Center and access the Cost Analysis page to export the monthly amortized cost details.
	Cost Tag	Log in to Cost Center and access the Cost Analysis page.	Log in to Cost Center and access the Cost Analysis page to export the monthly amortized cost details.

 You can also use cost categories to define rules with multiple conditions (service type, bill type, linked account, enterprise project, and cost tag) and allocate costs to meaningful categories based on your business needs. For details, see Viewing Costs By Cost Category. You can view these cost allocation results on the Cost Analysis page.

Shared Cost Splitting

You can define cost categories to allocate shared costs (such as shared resources, platform services, and untagged costs) within your organization. These cost categories make it easier to reduce waste by fairly allocating costs for different teams or business departments, so they can be held accountable for their own expenditures. For details, see **Example Cost Splitting Rules**.



You can use the following to allocate costs:

- Proportionally: Your costs are allocated in proportion to weights assigned to each target.
- Evenly: Your costs are allocated evenly across different targets.
- Custom: Your costs are allocated based on a percentage you define for each target value.

You can view the results on the details page, as shown in the following figure.

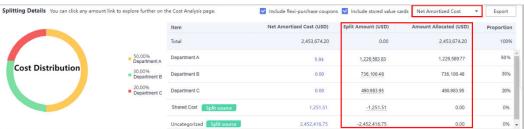


Figure 1-12 Example splitting results

1.5 Cost Savings and Optimization

Cloud costs are subject to different billing rates and usages. To optimize your cloud costs, these two factors are taken into account accordingly.

Selecting Appropriate Billing Mode

Huawei Cloud provides you with flexible billing modes, such as pay-per-use, yearly/monthly, resource package, and reserved instance (RI). You can choose whichever best suited to your enterprise needs. The following describes the application scenario for each billing mode, so you can more easily select the one most likely to help you effectively reduce your expenditures:

 Pay-per-use: If you may only need the cloud resources temporarily or for unplanned, urgent purposes, pay-per-use is a good choice.

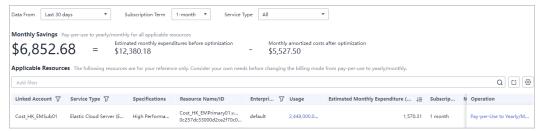
- Yearly/monthly: If your demand is stable for as long as a long-term subscription lasts, you can cut costs with a yearly/monthly subscription.
- Resource package: Similar to a yearly/monthly subscription, you can buy a resource package in advance to cover your usage of certain types of resources that you want to use long term.
- RI: An RI is not an actual instance, but a discount that can be applied to the use of pay-per-use instances. When the specifications of your pay-per-use instances match those of an RI, the RI billing benefit automatically applies to your instances.

Optimizing the Billing Mode in Use

Huawei Cloud provides optimization recommendations on billing modes to help you reduce costs by changing to a more appropriate billing mode while maintaining resource performance.

Changing pay-per-use to yearly/monthly: Cost Center helps you analyze the usage of your pay-per-use resources (such as ECS, EVS, RDS) and identify places where you can save money by changing the billing mode from pay-per-use to yearly/monthly. For details, see Changing Pay-per-Use to Yearly/Monthly. You are advised to focus on optimization recommendations with high savings (large value for Estimated Monthly Savings) and low risks (small value for Break-Even Time).

Figure 1-13 Evaluating the optimization option of changing pay-per-use to yearly/monthly



Analyzing RI utilization and coverage: Cost Center allows you to view the
actual utilization or coverage of RIs in a given period so that you can learn
the costs optimized by using RIs, and determine whether the RIs are fully used
or whether you have purchased enough RIs. For details, see Analyzing RI
Utilization and Coverage.

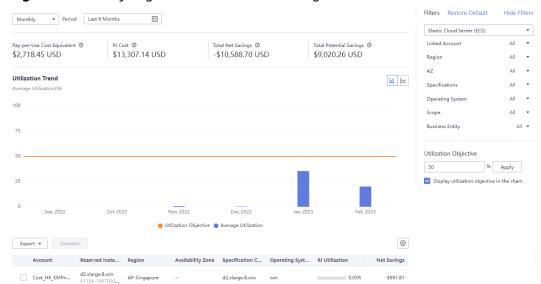


Figure 1-14 Analyzing RI utilization and coverage

Identifying Idle Resources

You can access **Optimization Advisor** to conduct cost inspection to identify idle resources (examples: ECS, EIP, EVS, and ELB). By doing so, you can obtain cost optimization recommendations.

2 Getting to Know Cost Center

Overview

Cost Center is provided as a free financial management service. It helps you learn about the distribution and drivers of cloud expenditures in a timely manner to reduce unexpected expenditure spikes and find cost-saving opportunities.

Application Scenarios

Cost Center provides you with cost data required for different scenarios. It aims to provide a data-backed reference for stakeholder decision-making through scientific management and various cost control methods.

- **Using Tools to Group Costs**: Cost Center allocates and groups the incurred expenditures based on your business needs, for example, based on the actual user or consumption, and shared costs by proportion within the organization.
- Making Cost Analysis to Explore Costs and Usage: Cost Center analyzes cloud expenditures in different dimensions. Cost Center visualizes your original costs or amortized costs from various dimensions and filters for precise cost analysis. It helps you learn the distribution and drivers of your costs and usage from a variety of perspectives or within different defined scopes.
- Enabling Forecasting and Creating Budgets to Track Cost and Usage: You
 can use budget management tools to precisely track your costs and usage of
 specific products, teams, and projects in a refined manner based on your
 expenditure forecasts or planned budgets.
- Enabling Cost Anomaly Detection to Identify Anomalies: Cloud costs are variable and cloud resources are scalable. After an enterprise migrate their services to the cloud, one of the challenges they face is how to monitor unexpected expenditure spikes. Cost Center provides Cost Anomaly Detection to help you detect cost anomalies in a timely manner and analyze and track these anomalies.
- Changing Billing Modes to Optimize Costs: Cost Center analyzes the usage of pay-per-use resources and resource packages and provides optimization options to reduce your Huawei Cloud costs.

Differences Between Cost Center and Billing Center

Billing Center is a transaction settlement tool for managing your orders, bills, and invoices.

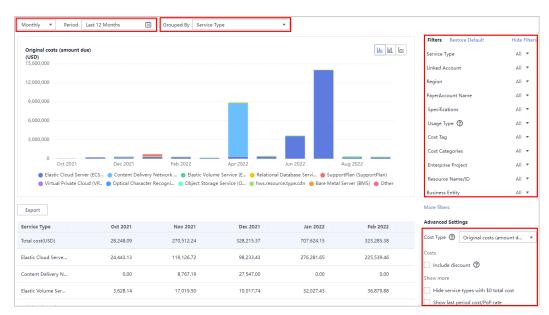
Cost Center offers a set of tools and solutions to help you with internal settlement and provide cost analysis and financial management.

If you want to settle transactions with Huawei Cloud and understand your expenditures better, including the bill overview and details, you can log in to Billing Center to export different types of billing details. If you want to deal with internal settlement, manage costs, learn various dimensions of cost data, you can get started with Cost Center to improve fund utilization.

3 Getting Started with Cost Center

Viewing Cost Analyses

- Step 1 Log in to Cost Center.
- Step 2 Choose Cost Analysis.
- **Step 3** Set search criteria to view desired cost data.



- **Period**: You can view your cost data by day or month within a given time range.
- **Grouped By**: You can use different dimensions, for example, to identify the most frequently used service types, view the cost distribution in a specific region, and learn the linked accounts with highest costs.
- **Filters**: You can select any combination of filters to control which datasets are displayed.
- **Cost Type**: For original costs or net original costs, the data is displayed nearly in real time. For amortized costs or net amortized costs, it may take 24 to 48 hours to display the most recent data.

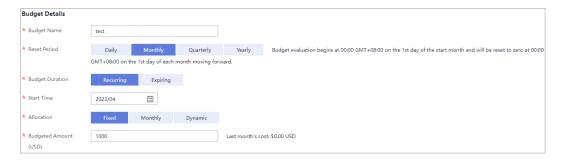
Export: You can click Export to download the Cost Analysis - Overview file.

----End

Creating a Budget

You can create a budget to follow your original costs and specify an alert threshold.

- **Step 1** Log in to Cost Center.
- Step 2 Choose Budgets.
- Step 3 Click Create a Budget.
- **Step 4** Select **Cost Budget** (used as an example in this procedure) or **Usage Budget**, and click **Next**.
- **Step 5** Configure the budget details and define the budget scope, and click **Next**.



- **Step 6** Configure alert thresholds and recipients, and click **Next**.
- **Step 7** Confirm your budget settings and click **Save**.

----End

Setting Preferences

Some functions in Cost Center are disabled by default. You need to enable them before they are available for use. Enabling such functions is free of charge. After you enable a function, it will be available to you on the following day.

Changing Pay-per-Use to Yearly/Monthly

This function is enabled by default. It can be disabled at any time, but only by an enterprise master account.



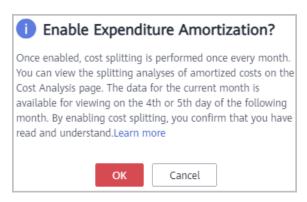
Splitting Shared Costs

For cloud services that are used by multiple domains or IP addresses, you can enable cost splitting to split the costs by tag or enterprise project configured for the domain names or IP addresses.

Step 1 Log in to Cost Center.

Step 2 Choose Preferences.

Step 3 Turn on the toggle for **Amortized cost**.



A CAUTION

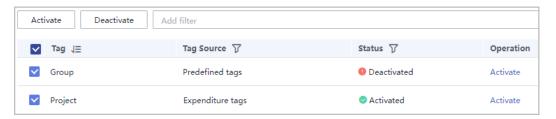
- Once enabled, cost splitting cannot be disabled.
- After you enable cost splitting, you can go to the **Cost Analysis** page to view the split amortized costs after the 4th or 5th day of the following month.

----End

Activating Cost Tags

If you want to use tags to group costs, you need to activate the tags first. Then, you can allocate cost data by cost tag on the **Cost Analysis** and **Budget Management** pages. You need to plan and activate the cost tags as early as possible, because if the tags can only be used to organize resource costs generated after the activation.

- **Step 1** See **Creating Predefined Tags**, and create predefined tags on Tag Management Service (TMS).
- **Step 2** Log in to Cost Center.
- Step 3 Click Cost Tags.
- **Step 4** Select the tag you want and click **Activate**.



----End

4 Familiarizing Yourself with Basic Functions in Minutes

You can get started with various cost management tools to meet your financial management requirements. The following covers some basic functions of Cost Center to help you familiarize yourself with cloud financial management.

Overview

The following figure shows an example **Overview** page of Cost Center.



No.	Description
1	Navigates your way through all the functions provided by Cost Center.
2	Displays the total month-to-date original costs, forecasted month-end costs, and the MoM growth.

No.	Description
3	Displays the top 5 costs ranked by MoM growth (USD). The data can be displayed by service type, enterprise project, cost tag, cost category, or linked account.
4	Displays the latest information about function release in Cost Center.
5	Displays possible resource rightsizing and billing mode optimization recommendations, which are calculated based on the usage of payper-use resources and savings plans. The displayed information gives reference for you to save money on Huawei Cloud usage.
6	Displays the number of cost anomalies in the last 30 days. You can click Enable Alerting to specify the recipients who will receive alerts if needed.
7	Displays the top 3 percentages of Actual vs Budgeted .

Functions

The following table describes the tools offered by Cost Center.

Category	Tool	Description	Function
Cost planning	Cost and usage forecasting	Forecasts your future costs and usage based on your historical costs and usage on Huawei Cloud.	Forecasting
	Budgets	Allows you to configure budgets and stay informed of how your costs and usage progress.	Creating a Budget
	Budget reports	Tracks your budgeting on a regular basis if you create budget reports on the Reports > Budget Reports page.	Budget Reports
Cost manage ment and control	Budget alerts	Sends you an alert by email or SMS when your actual cost or usage reaches the configured alert threshold.	Creating a Budget
	Cost anomaly detection	Monitors the costs of your pay-per- use resources to detect cost anomalies and reduce unnecessary expenditures.	Cost Anomaly Detection
Enterpris es' costs and reports	Cost analysis	Presents your cost data visually, in graphs and tables. You can view your cloud costs and usage of different billing cycles and dive deeper by service type, region, linked account, billing mode, and cost tag.	Viewing Cost Analyses

Category	Tool	Description	Function
	Analysis reports	Allows you to save the cost analyses as reports so that you can share with the various member accounts under your master account. On the Reports > Analysis Reports page, you can use some commonly used analysis reports preconfigured in Cost Center.	Analysis Reports
	Cost details	Allows you to export the details of monthly amortized costs.	Exporting Cost Details
	Cost tags	Identifies your cloud resources. You can use the cost tags to manage your resources and activate them to track your costs. Cost tags can be used for cost analysis and budget management.	Overview and Activating Cost Tags
	Cost Categories	Groups your costs based on the rules you configure, such as linked account, service type, bill type, cost tag, and enterprise project, or even the custom rules configured for other cost categories.	Overview
Cost optimizat ion	Pay-per- use to yearly/ monthly	Analyzes the usage of your pay-per- use ECS, EVS, RDS, ELB, and SFS Turbo resources. Cost Center provides optimization options based on these analyses, identifying places where you can save money by changing the billing mode from pay-per-use to yearly/monthly.	Yearly/ Monthly Subscriptions
	Savings plans	Provides you with custom savings plan recommendations based on your historical pay-per-use expenditures to help you save money.	Purchasing Savings Plans
	Reserved instances	Allows you to view your RI utilization, RI coverage, net savings, and potential savings.	Reserved Instances