Cost Center

Hands-On Tutorials

Issue 01

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Security Declaration

Vulnerability

Huawei's regulations on product vulnerability management are subject to the *Vul. Response Process.* For details about this process, visit the following web page:
https://www.huawei.com/en/psirt/vul-response-process
For vulnerability information, enterprise customers can visit the following web page:
https://securitybulletin.huawei.com/enterprise/en/security-advisory

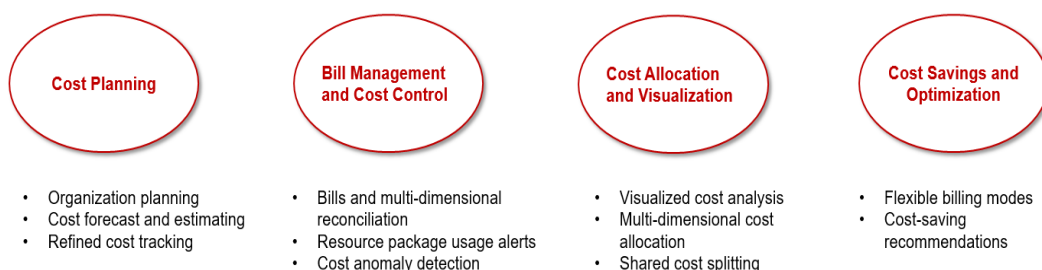# Contents

1 Financial Management with Huawei Cloud

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

Cost Planning	Bill Management and Cost Control	Cost Allocation and Visualization	Cost Savings and Optimization
• Organization planning • Cost forecast and estimating • Refined cost tracking	• Bills and multi-dimensional reconciliation • Resource package usage alerts • Cost anomaly detection	• 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
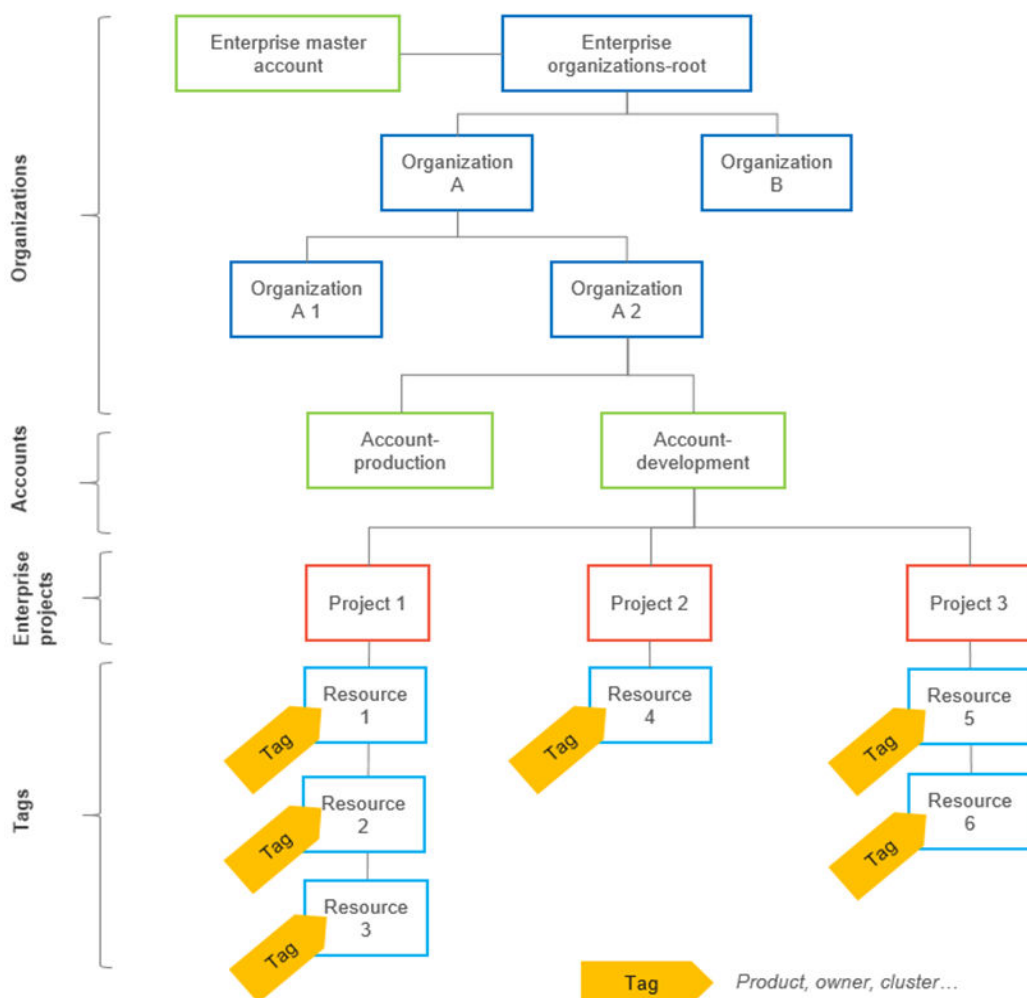
Cost Forecasting and Estimating

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
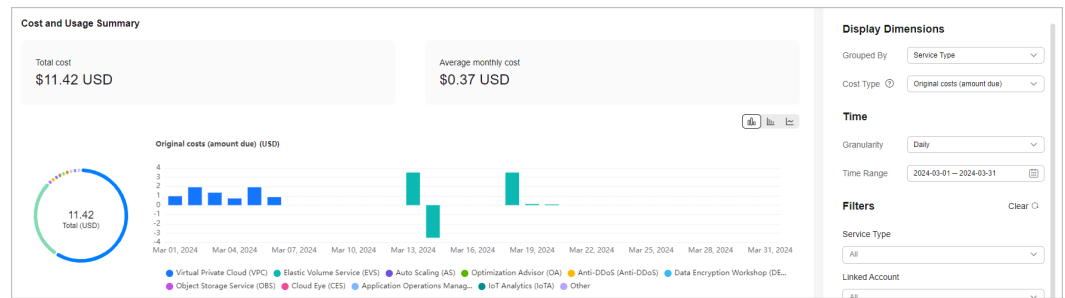
- You can also use Huawei Cloud **Price Calculator** to estimate costs for your desired services or any combination of services based on their usage required for service rollout or regional expansion.
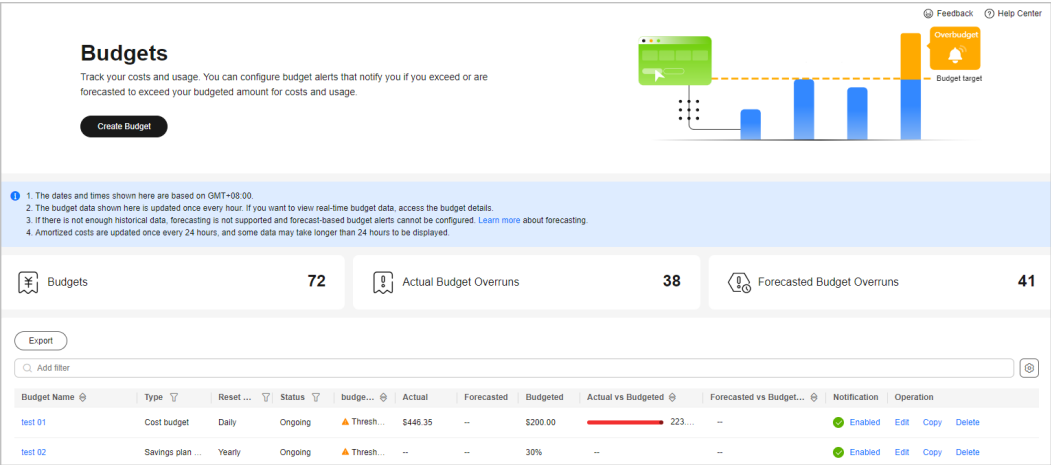
Figure 1-3 Price calculator
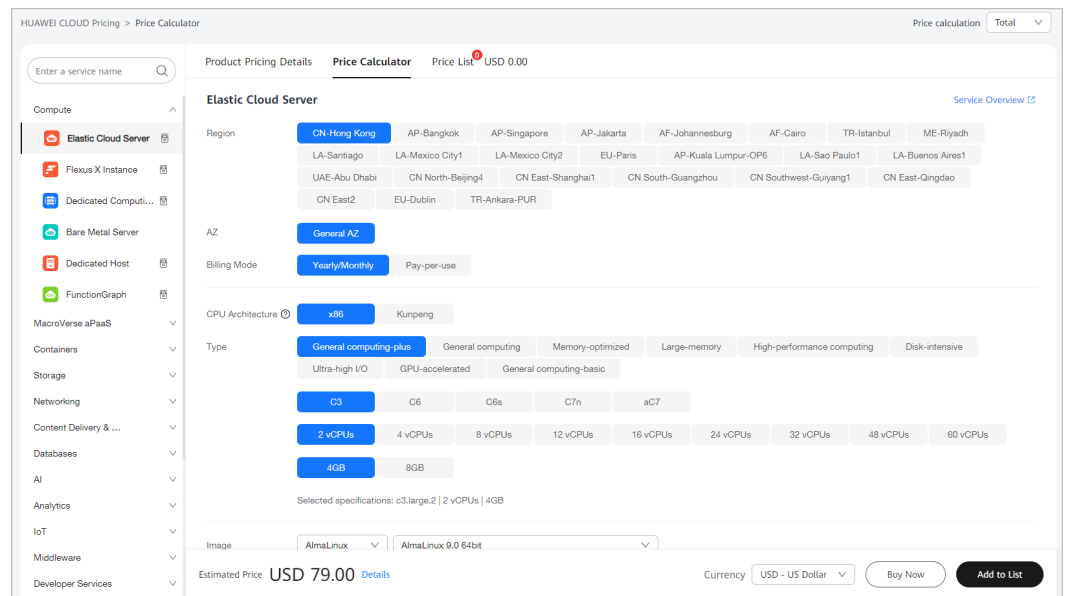
Refined Cost Tracking

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

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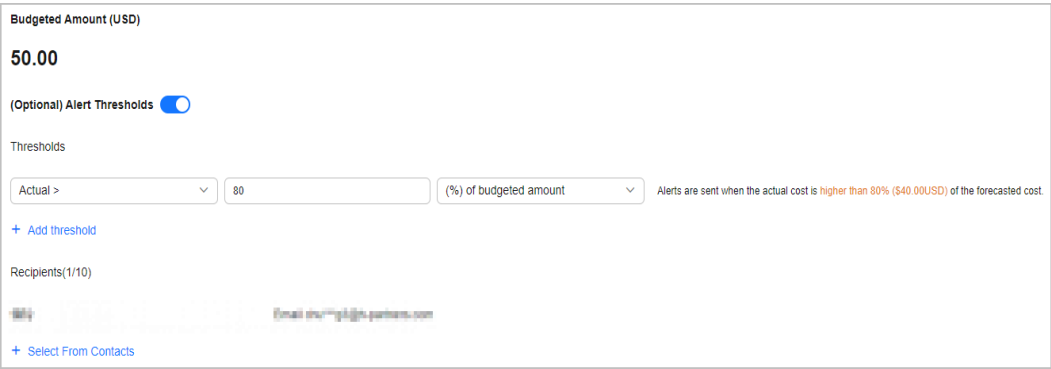
- You can create a daily, weekly, or monthly budget report to inform relevant personnel so that the costs are always visible to the relevant business departments, finance departments, and CTO of your enterprise. For details, see **Using Reports to Track Your Budget**.

Figure 1-6 Creating a budget report
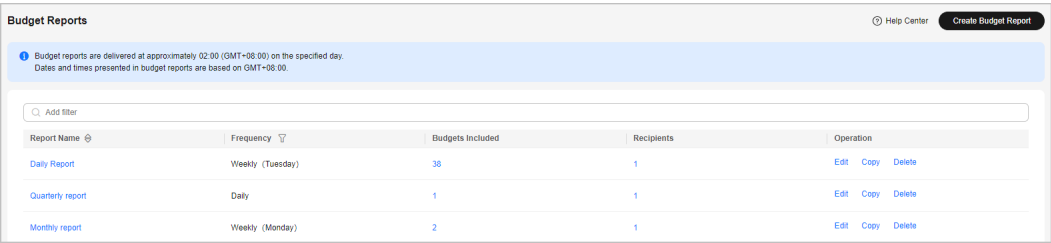
1.3 Bill Management and Cost Control

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

Bills and Reconciliation

Huaoud 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 Bills

- 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**.

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**.

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.

Figure 1-10 Cost analysis
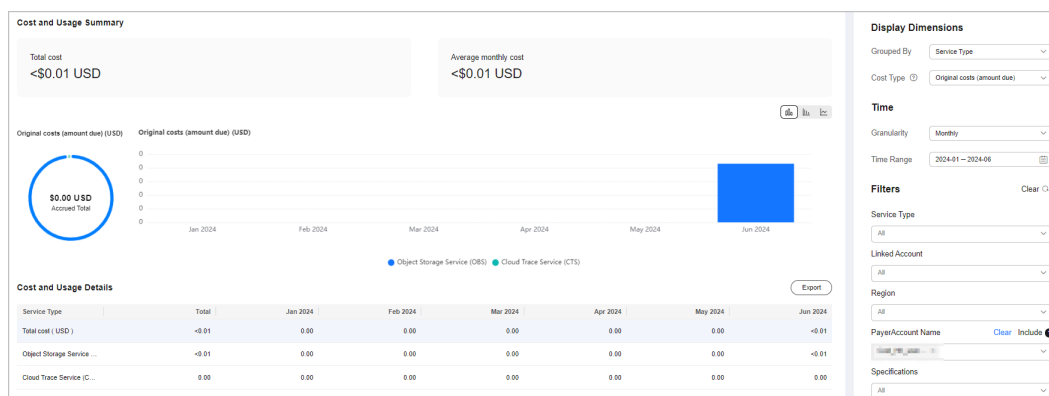
- If you want to integrate detailed cost data with data from your own cloud management platform to generate tailored cost and usage analysis, you can subscribe to bill details or call related APIs. For details, see **Data Storage** and **API Reference**. For example, you can combine the cost and usage details with the operations data of your enterprise to generate the KPIs for each business unit.

Figure 1-11 Subscribing to bill details
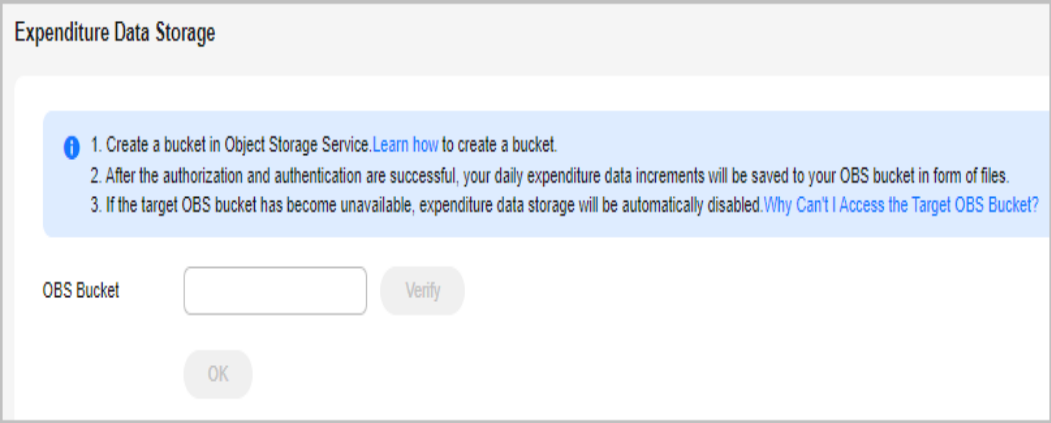
Multi-Dimensional Cost Allocation

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	Allocation Method	Grouping Tool	Allocation Details
Original costs	Linked Account	Log in to Billing Center and choose **Billing** > **Bills**. Log in to Cost Center and access the **Cost Analysis** page.	Log in to Billing Center and choose **Billing** > **Bill Details**. Log in to Cost Center and access the **Cost Details Export** page to export the monthly original cost details.
	Enterprise Project	Log in to Cost Center and access the **Cost Analysis** page.	Log in to Billing Center and choose **Billing** > **Bill Details**. Log in to Cost Center and access the **Cost Details Export** page to export the monthly original cost details.

Cost Type	Allocation Method	Grouping Tool	Allocation Details
	Cost Tag	Log in to Cost Center and access the **Cost Analysis** page.	Log in to Billing Center and choose **Billing** > **Bill Details**. The details contain unstructured data of the original tags. Log in to Cost Center and access the **Cost Details Export** page to export the monthly original cost details with structured data of the cost tags included.
Amortized costs	Linked Account	Log in to Cost Center and access the **Cost Analysis** page.	Log in to Cost Center and access the **Cost Details Export** page to export the monthly amortized cost details.
	Enterprise Project	Log in to Cost Center and access the **Cost Analysis** page.	Log in to Cost Center and access the **Cost Details Export** 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 Details Export** 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**.
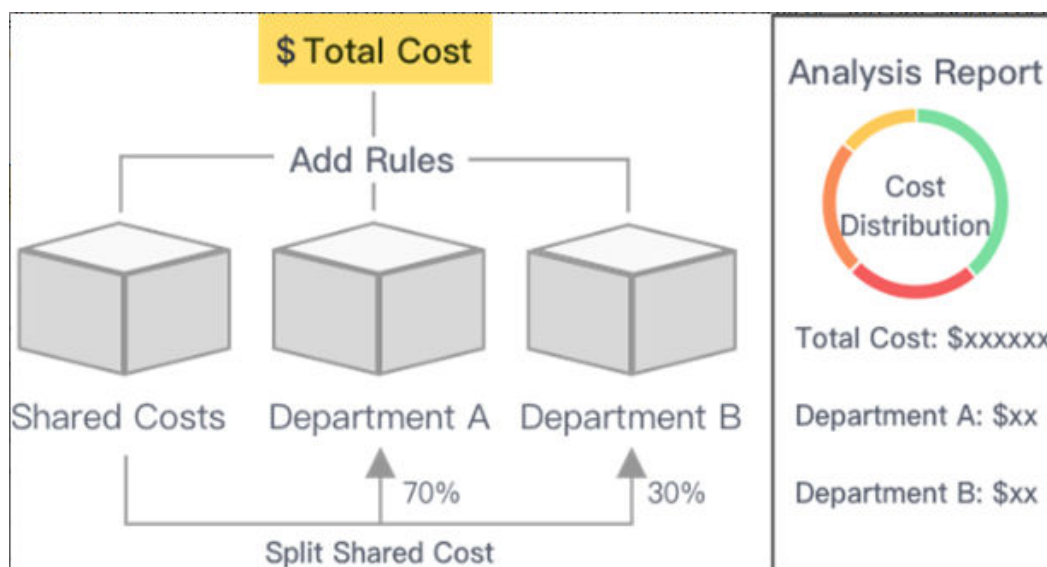
You can use the following to allocate costs:

- 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 packages, reserved instances (RIs), and Savings Plans. You can choose whichever best suited to your 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.

- Savings Plans: Savings Plans is a flexible billing option that provides significant savings on your pay-per-use Huawei Cloud usage.

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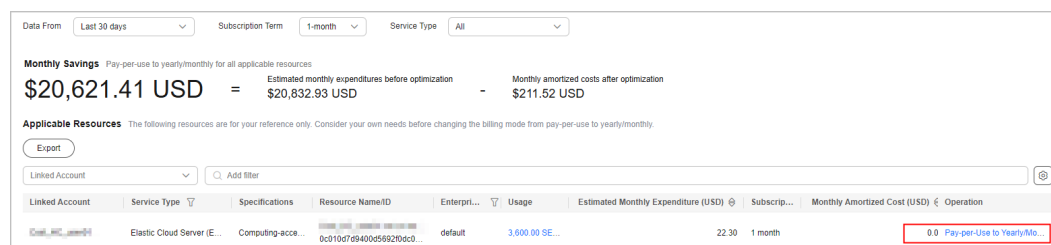
- Analyzing RI utilization and coverage: Cost Center allows you to view the actual utilization or coverage of RIs in a given period so that you can learn the costs optimized by using RIs, and determine whether the RIs are fully used or whether you have purchased enough RIs. For details, see **Analyzing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

Figure 1-14 Analyzing RI utilization and coverage
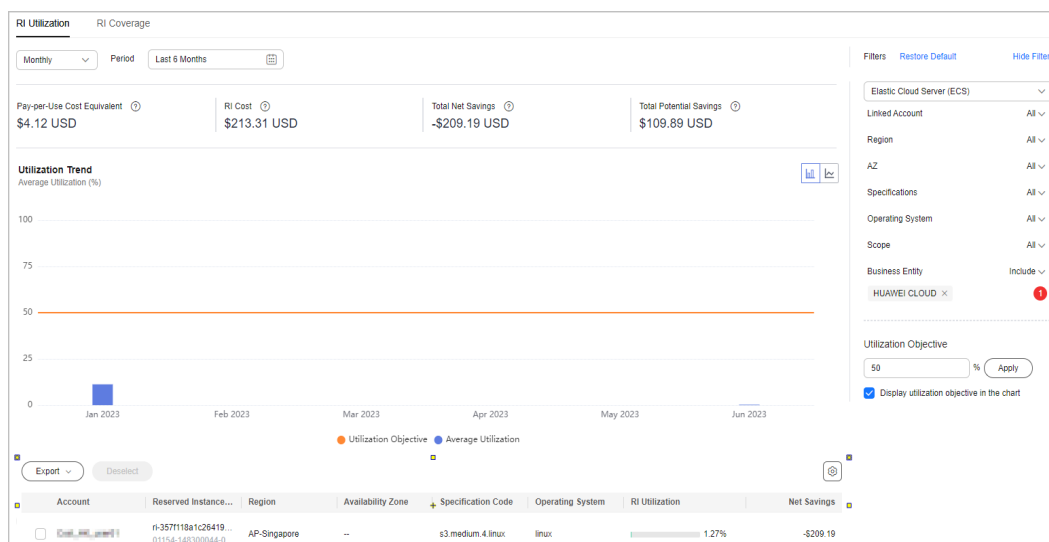
- **Purchasing savings plans**: Cost Center provides you with custom savings plan recommendations based on your historical pay-per-use expenditures to help you save money.

Figure 1-15 Savings plan purchase recommendations
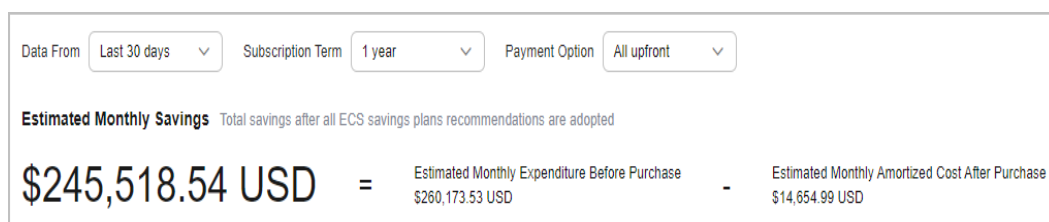
- Analyzing savings plans utilization and coverage: Cost Center allows you to learn the costs optimized by using savings plans, and to determine whether the savings plans are fully used or whether you have purchased enough savings plans. For details, see **Viewing the Usage of Savings Plans**.

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 and Reducing Idle Resources to Optimize Costs**: Cost Center analyzes the usage of pay-per-use resources, RIs, and savings plans, and provides optimization recommendations for idle resources. This helps lower the billing rate and reduce your costs on Huawei Cloud.

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 Access the **Cost Analysis** page.

Step 2 Select a recommended report or a custom report.

Step 3 Set search criteria to view desired cost data.
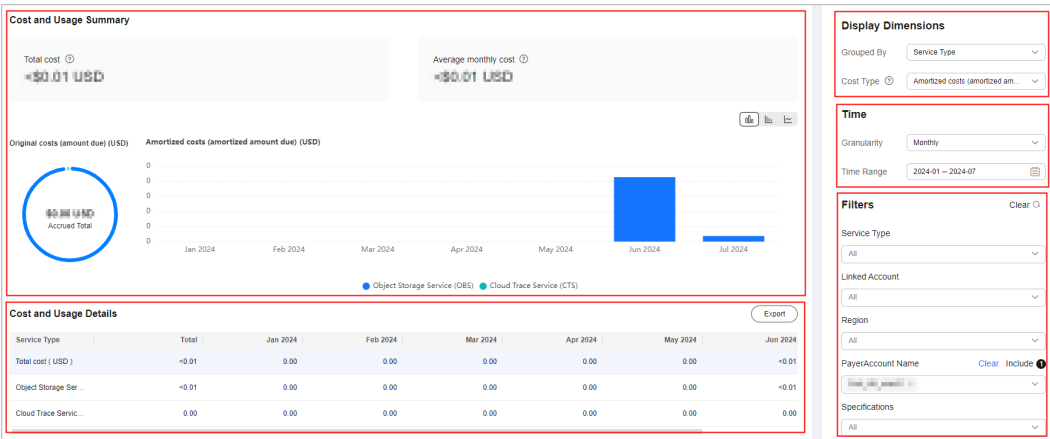
- You can view your cost data at a specific time granularity within a given time range.

- 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 the highest costs.

- **Cost Type**: For original costs and net original costs, the data is displayed nearly in real time. For amortized costs and net amortized costs, it may take 24 to 48 hours to display the most recent data.

- **Filters**: You can select any combination of filters to control which datasets are displayed.

- **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 Access the **Budgets** page.

Step 2 Click **Create a Budget**.

Step 3 Select **Custom Budget** and click **Create 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**.

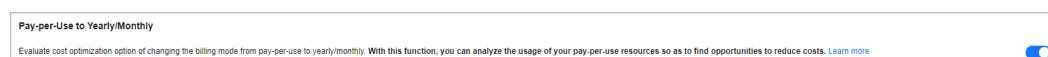**Step 7** Confirm your budget settings and click **Save**.

----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.

Pay-per-Use to Yearly/Monthly

Evaluate cost optimization option of changing the billing mode from pay-per-use to yearly/monthly. With this function, you can analyze the usage of your pay-per-use resources so as to find opportunities to reduce costs. Learn more

Cost Splitting

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 Access the **Preferences** page.

Step 2 Turn on the toggle for **Amortized cost**.

Enable Cost Splitting?

Once enabled, you can view cost data by split item. Cost Center processes data by split item once a month. You can view the splitting results after 12:00:00 on the 4th day of the following month. Confirm that you have read and understand splitting rules and methods.

Cancel   OK
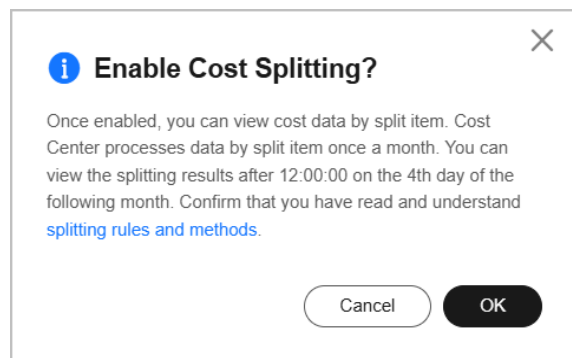
⚠ **CAUTION**

- Once enabled, cost splitting cannot be disabled.
- After you enable cost splitting, you can go to the **Cost Analysis** page to view the splitting results of amortized costs after 12:00:00 on the 4th 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 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 Access the **Cost Tags** page.

Step 3 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.
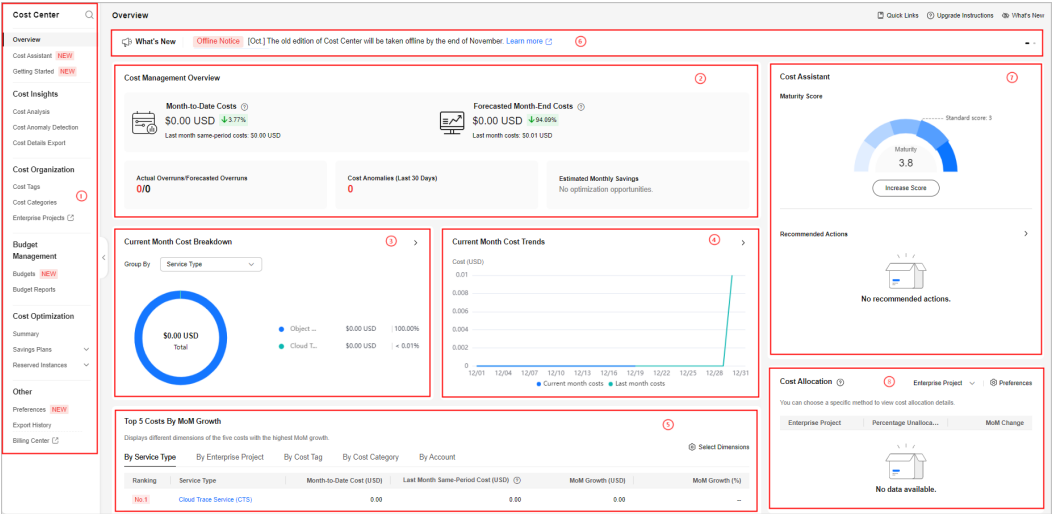
No.	Description
1	The new navigation provides clear direction on where to find cost insights, cost organization, budget management, and cost optimization.

No.	Description
2	The layout of **Cost Management Overview** has been optimized to give you a convenient view of your costs, including month-to-date costs, forecasted month-end costs, actual budget overruns/forecasted budget overruns, cost anomalies from the last 30 days, and estimated monthly savings.
3	You can now view your current month costs in multiple dimensions, for example, by service type, enterprise project, cost tag, cost category, linked account, and region.
4	You can view costs for the current month and the last month as well as forecasted costs.
5	This area displays the top 5 costs by MoM growth ($). The data can be displayed by service type, enterprise project, cost tag, cost category, or linked account.
6	This area displays the latest information about function releases and optimizations in Cost Center.
7	Cost Assistant offers maturity scores and insight recommendations to help you manage costs better.
8	Your cost allocation is analyzed by enterprise project, cost tag, and cost category, and rates the cost management maturity based on the optimal allocation method.

Functions

The following table describes the functions offered by Cost Center.

Module	Function	Function	Reference
-	Overview	Gives you quick access to common functions in Cost Center.	**Overview**
	Cost Assistant	Offers maturity scores and insight recommendations to help you manage costs better.	**Cost Assistant**
	Getting Started	Presents best practices for cloud financial management in common scenarios.	**Getting Started**
Cost Insights	Cost Analysis	Analyzes costs with preconfigured or custom reports, shows cost breakdowns and trends, and forecasts your costs.	**Cost Analysis**
	Cost Anomaly Detection	Identifies any unexpected cost spikes and sends you alerts.	**Cost Anomaly Detection**

Module		Function	Reference
	Cost Details Export	Allows you to export original costs, amortized costs, and usage details to OBS (in OBT).	**Exporting Cost Details**
Cost Organization	Cost Tags	Identifies and manages your resources by tag. Tags can be activated to become cost tags. The cost tags can then be used to group costs for cost analysis and budget management.	**Cost Tags** **Activating Cost Tags**
	Cost Categories	Allows you to create custom rules to map costs to Huawei Cloud cost allocation methods (linked accounts, enterprise projects, cost tags, and cost categories), helping you manage costs from your own service perspective.	**Cost Categories**
Budget Management	Budgets	Enables you to quickly create budgets for service types or business units, zero spend budgets, or create custom budgets with parameters specific to your use case. You can configure alerts to warn you if your budget has been exceeded or is forecasted to be exceeded.	**Budgets**
	Budget Reports	Allows you to create daily, weekly, and monthly budget reports so you can track the performance of your budgets.	**Budget Reports**
Cost Optimization	Summary		Identifies the opportunities for resource optimization, billing mode changing, and cost savings.	**Cost Optimization**
	Savings Plans	Summary	Helps you review savings plans–saved costs and optimization opportunities and view your inventory of all savings plans.	**What Are Savings Plans?**

Module			Function	Reference
		Utilization & Coverage Analysis	Analyzes how savings plans are applied to your usage to help you determine whether they are fully utilized. You can also check how much of your pay-per-use usage is covered by savings plans to determine whether they are enough.	**Viewing the Usage of Savings Plans**
		Purchase Recommendations	Generates recommendations for purchasing savings plans based on your historical pay-per-use usage.	**Following Cost Optimization Recommendations**
	Reserved Instances	Utilization & Coverage Analysis	Analyzes how reserved instances are applied to your usage to help you determine whether they are fully utilized. You can also check how much of your pay-per-use usage is covered by reserved instances to determine whether they are enough.	**Analyzing Reserved Instances**
		Utilization & Coverage Analysis Reports	You can create a utilization & coverage analysis report to periodically track your RI usage.	**Creating RI Utilization & Coverage Analysis Reports**
Preferences	Cost Splitting		Allows you to split some of CDN, WSA, and Live traffic costs by domain name.	**Enabling Cost Splitting**
	Pay-per-Use to Yearly/Monthly		Identifies cost optimization opportunities by analyzing your historical pay-per-use expenditures.	**Changing Pay-per-Use to Yearly/Monthly**
	Hourly Cost Analysis		Presents original costs by the hour from the last 14 days.	**Viewing Cost Analyses**
	Monthly Multi-Year Cost Analysis		Presents monthly analysis of cost data going back as far as the last 38 months.	**Viewing Cost Analyses**
Other	IAM		Implements fine-grained permissions management to isolate permissions of different employees.	**Permissions**

Module	Function	Reference
Bill	Presents the overview or details of your Huawei Cloud expenditures. It records your expenditure history and can be used for reconciliation.	**Bills**