

**Elastic IP**

# **Service Overview**

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# 1 What Is Elastic IP?

The Elastic IP (EIP) service enables your cloud resources to communicate with the Internet using static public IP addresses and scalable bandwidths. If a resource has an EIP bound, it can directly access the Internet. If a resource only has a private IP address, it cannot directly access the Internet.

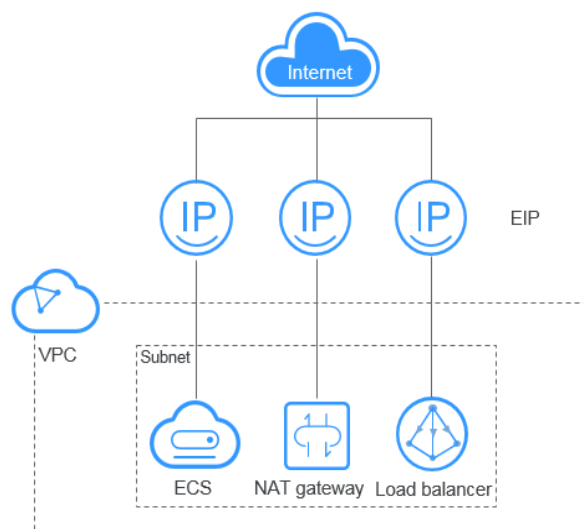
EIPs can be bound to or unbound from ECSs, BMSs, virtual IP addresses, NAT gateways, or load balancers.

Each EIP can be bound to only one cloud resource and they must be in the same region.

Note the following when binding an EIP to an instance (such as ECS):

- Each EIP can be bound to only one ECS. If an EIP has been bound to an ECS, it cannot be bound to other cloud resources. You need to unbind the EIP from the ECS before binding it to another cloud resource in the same region.
- The EIP and the ECS must be in the same region.

**Figure 1-1** Connecting to the Internet using an EIP



## EIP Types

EIPs can use dynamic BGP, premium BGP, or static BGP. The following table compares their differences..

**Table 1-1** Differences among static BGP, dynamic BGP, and premium BGP

Item	Static BGP	Dynamic BGP	Premium BGP
Definition	Static routes are manually configured and must be manually reconfigured anytime when the network topology or link status changes.	Dynamic BGP provides automatic failover and chooses the optimal path based on the real-time network conditions as well as preset policies.	Premium BGP chooses the optimal path and ensures low-latency and high-quality networks. BGP is used to interconnect with lines of multiple mainstream carriers. Public network connections that feature low latency and high quality are directly established between Chinese mainland and Hong Kong (China).
Assurance	When changes occur on a network that uses static BGP, the manual configuration takes some time and high availability cannot be guaranteed.  If you select static BGP, your application system must have disaster recovery setups in place.	When a fault occurs on a carrier's link, dynamic BGP will quickly select another optimal path to take over services, ensuring service availability.  Currently, carriers in China that support dynamic BGP routing include China Telecom, China Mobile, China Unicom, China Education and Research Network (CERNET), National Radio and Television Administration, and Dr. Peng Group.	Premium BGP has the same assurance capability as that of dynamic BGP.  In addition, premium BGP ensures higher network quality and lower latency.  Currently, mainstream carriers in Hong Kong (China) are supported.

Item	Static BGP	Dynamic BGP	Premium BGP
Advantages	This is a more cost-effective option that allows resources to access the Internet over a single carrier network. The routes can be manually configured.	The BGP public network egress supports switchover across domains within seconds, providing your users with high-speed and secure networks.	<ul style="list-style-type: none"><li>• Premium BGP chooses the optimal path for access from the abroad.</li><li>• It allows users in the Chinese mainland to access cross-border applications faster.</li></ul>
Service availability	99%	99.95%	99.95%
Billing	Their price from least to most expensive: static BGP, dynamic BGP, and premium BGP. For details, see <a href="#">EIP Pricing Details</a> .		

 NOTE

For more information about service availability, see [Huawei Cloud Service Level Agreement](#).

## Accessing EIP

You can access the EIP service through the management console or using HTTPS-based APIs.

- Management console  
Log in to the [management console](#), select **Elastic IP** from the console homepage, and then perform operations on EIP resources.
- APIs  
If you need to integrate the EIP service provided by the cloud system into a third-party system for secondary development, you can use an API to access the EIP service. For details, see the [Elastic IP API Reference](#).

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# 2 Advantages

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An EIP has the following advantages:

- **Flexibility**  
EIPs can be flexibly bound to or unbound from ECSs, BMSs, NAT gateways, load balancers, or virtual IP addresses. The bandwidth can be scaled according to service changes.
- **Cost-effective**  
EIPs are available on a pay-per-use (billed by bandwidth or traffic) or yearly/monthly (billed by bandwidth) basis. You can use shared bandwidth to enjoy lower bandwidth costs. Generally, if you have frequent data transfer needs, a yearly/monthly subscription is a more cost-effective option.
- **Ease of use**  
EIP binding, unbinding, and bandwidth adjustments take effect immediately.



# 3 Application Scenarios

## Binding an EIP to an ECS

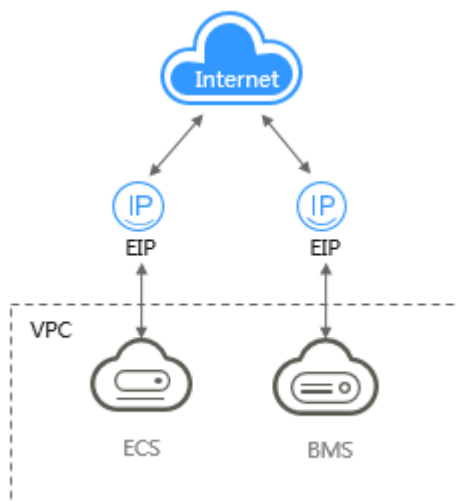
### Scenario

You can bind an EIP to an ECS to enable the ECS to access the Internet.

### Related Services

ECS, BMS, or VPC

**Figure 3-1** Binding an EIP to a server



## Binding an EIP to a NAT Gateway

### Scenario

After an EIP is bound to a NAT gateway and SNAT and DNAT rules are added, multiple servers (such as ECSs and BMSs) can use the same EIP to access the Internet and provide services accessible from the Internet.

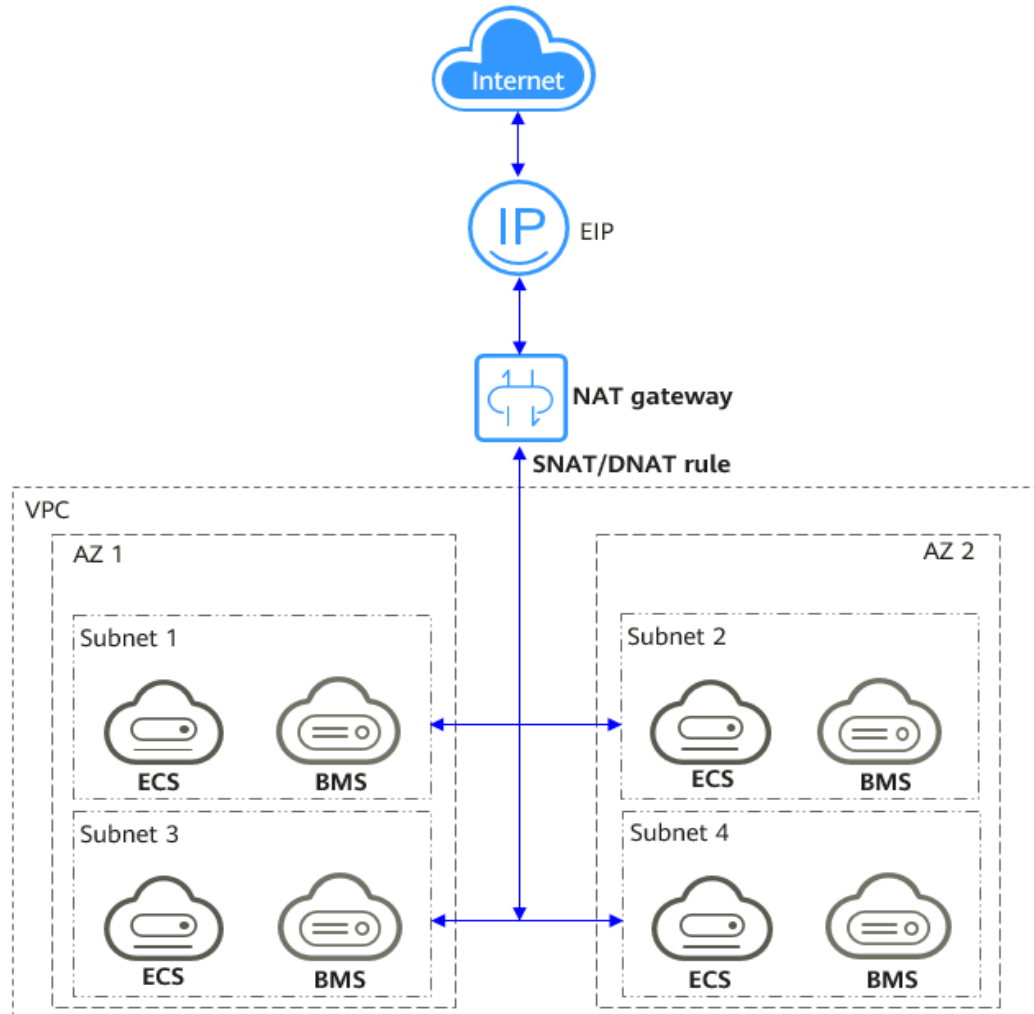
An SNAT rule allows servers in a specific VPC subnet to use the same EIP to access the Internet.

A DNAT rule enables servers in a VPC to provide services accessible from the Internet.

**Related Services**

NAT Gateway, cloud server (ECS and BMSs), and VPC

**Figure 3-2** EIP used by a NAT gateway



**Binding an EIP to a Load Balancer**

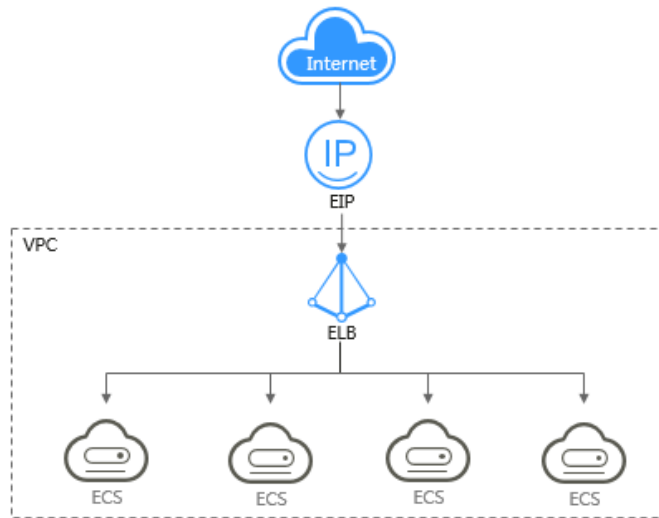
**Scenario**

After you attach an EIP to a load balancer, the load balancer can distribute requests from the Internet to backend servers.

**Related Services**

ELB, ECS, and VPC

Figure 3-3 EIP used by a load balancer



# 4 Functions

**Table 4-1** lists the common functions of EIP.

**Table 4-1** Common EIP functions

Category	Function	Description
EIP and Bandwidth	EIP	The EIP service enables your cloud resources to communicate with the Internet using static public IP addresses and scalable bandwidths. You can assign EIPs, bind them to or unbind them from cloud resources, release EIPs, modify EIP bandwidth, and upgrade static BGP to dynamic BGP. For details, see <a href="#">EIP Overview</a> .
	Shared Bandwidth	All ECSs, BMSs, and load balancers can share the same bandwidth if they reside in the same region and have EIPs bound. You can assign, modify, delete a shared bandwidth, add EIPs to a shared bandwidth, and remove EIPs from a shared bandwidth. For details, see <a href="#">Shared Bandwidth Overview</a> .
	Shared Data Package	A shared data package provides a quota for data usage. Shared data packages take effect immediately after your purchase. If you have subscribed to pay-per-use EIPs billed by traffic in a region and buy a shared data package in the same region, the EIPs will use the shared data package. After the package quota is used up or the package expires, the EIPs will continue to be billed on a pay-per-use basis. For details, see <a href="#">Shared Data Package Overview</a> .

Category	Function	Description
Monitoring	Viewing Metrics	<p>If you have subscribed to the VPC service, you can view bandwidth and EIP usage through Cloud Eye without adding plug-ins. On Cloud Eye, you can also create alarm rules, and customize monitored resources and notification policies.</p> <p>For details, see <a href="#">Supported Metrics</a>.</p>

# 5 Notes and Constraints

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## EIP

Note the following when using EIPs:

- Each EIP can only be bound to one cloud resource and it has to be in the same region as the resource.
- The EIP remains unchanged:
  - No matter you start or stop the ECS.
  - When you modify its billing mode or bandwidth size.
- If a yearly/monthly EIP is not renewed after it expires, or if the arrears of a pay-per-use EIP are not paid in time, the EIP may be released and cannot be recovered.
- The number of EIPs that you can assign depends on the region. For details, see [How Do I Apply for a Higher Quota?](#)
  - Your request for a larger quota will only be approved if your account has valid orders and you are continuously using cloud resources. If you have released resources immediately after subscribing to them multiple times, your quota cannot be increased.
- An EIP that has already been bound to a cloud resource cannot be bound to another resource without first being unbound from the current resource.
- If an EIP is billed on a pay-per-use basis, the maximum bandwidth is subject to the information displayed on the console. If you need more bandwidth, submit a service ticket or contact your account manager.
- If the used EIP bandwidth exceeds the purchased size or is attacked (usually by a DDoS attack), the EIP will be blocked but can still be bound or unbound.
- You can only release unbound EIPs.
- The system preferentially assigns EIPs to you from the ones you released, if any. However, if any of these EIPs is already assigned to another user, it cannot be re-assigned to you.

## Bandwidth

- The smallest shared bandwidth that can be purchased is 5 Mbit/s. You can only add pay-per-use EIPs to a shared bandwidth.

- Each account can have a maximum of 5 shared bandwidths. If you need more shared bandwidths, submit a service ticket to request a quota increase.
- A shared bandwidth or dedicated bandwidth can only be used by resources owned by the same account.

 **NOTE**

- Inbound bandwidth is the bandwidth consumed when data is transferred from the Internet to Huawei Cloud. Outbound bandwidth is the bandwidth consumed when data is transferred from Huawei Cloud to the Internet.
- On July 31, 2020, 00:00:00 GMT+08:00, the rules limiting public bandwidths were changed in Chinese mainland regions, including CN North-Beijing4, CN East-Shanghai1, CN South-Guangzhou, CN Southwest-Guiyang1, and CN North-Ulanqab1.

On December 10, 2021, 00:00:00 GMT+08:00, the rules limiting public bandwidths were changed in CN-Hong Kong, AP-Bangkok, AP-Singapore, AF-Johannesburg, LA-Mexico City2, LA-Sao Paulo1, and LA-Santiago.

After the change:

- If your purchased or modified bandwidth is no more than 10 Mbit/s, the inbound bandwidth will be 10 Mbit/s, and the outbound bandwidth will be the same as the purchased or modified bandwidth.
- If your purchased or modified bandwidth is more than 10 Mbit/s, both the inbound and outbound bandwidth will be the same as the purchased or modified bandwidth.

## Shared Data Packages

- Shared data packages require a one-off payment and take effect immediately after purchase. You cannot specify the effective date.
- Shared data packages cannot be unsubscribed from nor be modified once purchased and cannot be renewed upon expiration.
- Shared data packages are billed by month or year. Once expired, remaining package quota cannot be used anymore.
- Shared data packages can only be used by pay-per-use dedicated bandwidth billed by traffic. Two types of shared data packages are available: static BGP (for static BGP bandwidth) and dynamic BGP (for dynamic BGP bandwidth).
- A shared data package cannot be used for bandwidth of a specific EIP.
- A shared data package cannot be used for a shared bandwidth.
- A shared data package cannot be used by EIPs of the premium BGP type.

 **NOTE**

For details about how to submit a service ticket, see [Submitting a Service Ticket](#).

# 6 Billing

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The EIP service provides multiple billing modes.

- [EIP Billing Modes](#)
- [Which Billing Option Is Right for Me?](#)
- [How Will I Be Billed If I Change My Bandwidth Size?](#)
- [How Do I Change the EIP Billing Mode?](#)

## EIP Billing Modes

EIPs can be billed on a yearly/monthly or pay-per-use basis. The billing options and billing items depend on the billing mode.

- [Figure 6-1](#)
- [Table 6-1](#)



Figure 6-1 EIP billing

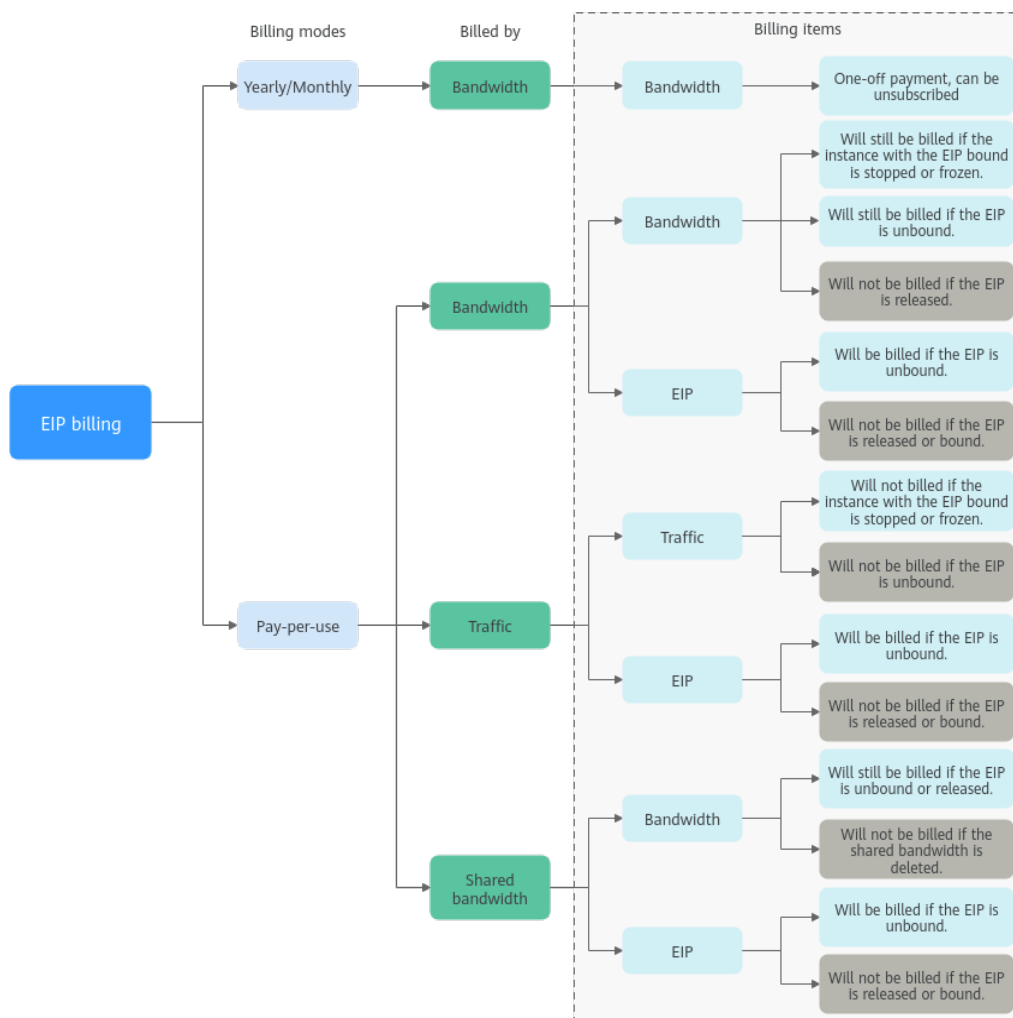


Table 6-1 EIP billing description

Billing Mode	Billed By	Billing Item	Billing Item Description	Impact of EIP Operations on Billing Items
Yearly/Monthly	Bandwidth	Bandwidth	If you buy a yearly/monthly EIP, you only need to pay for the bandwidth included in the subscription. You are billed based on your specified bandwidth size and usage duration. There is no limit on how much traffic you can use.	You can unsubscribe from a yearly/monthly subscription. Your actual usage fee and some preferential fees will be deducted from the refund amount.

Billing Mode	Billed By	Billing Item	Billing Item Description	Impact of EIP Operations on Billing Items
Pay-per-use	Bandwidth	<ul style="list-style-type: none"> <li>• Bandwidth</li> <li>• EIP retention</li> </ul>	<p>If a pay-per-use EIP is billed by bandwidth:</p> <ul style="list-style-type: none"> <li>• <b>Bandwidth:</b> You are billed based on your specified bandwidth size and usage duration. There is no limit on how much traffic you can use. After the EIP is purchased, you can change your specified bandwidth size. The bandwidth you use will not exceed the bandwidth you specified.</li> <li>• <b>EIP retention:</b> If an EIP is not released, it will continue to be billed even if it is not bound to an instance.</li> </ul>	<p>After an EIP is purchased:</p> <ul style="list-style-type: none"> <li>• If the EIP is not bound to any instance, both the EIP and its bandwidth will be billed.</li> <li>• If the EIP is bound to an instance, only the bandwidth will be billed. The bandwidth will be billed regardless of if the instance bound to the EIP is running or not.</li> <li>• After the EIP is unbound from an instance, the bandwidth will continue to be billed. Unless it is released, the EIP will still be billed.</li> <li>• If the EIP is released, both the EIP and its bandwidth will not be billed.</li> </ul>

Billing Mode	Billed By	Billing Item	Billing Item Description	Impact of EIP Operations on Billing Items
	Traffic	<ul style="list-style-type: none"> <li>• Traffic</li> <li>• EIP retention</li> </ul>	<p>If a pay-per-use EIP is billed by traffic:</p> <ul style="list-style-type: none"> <li>• Traffic: You are billed based on your EIP type and the total amount of traffic going out of the cloud. The bandwidth size you set is only used to limit the maximum data transfer rate. To prevent high fees caused by burst traffic, specify a proper bandwidth size when you buy an EIP.</li> </ul> <p>If an EIP billed by traffic uses a dedicated bandwidth, only the bandwidth used in the outbound direction will be billed.</p> <ul style="list-style-type: none"> <li>• EIP retention: If an EIP is not released, it will continue to be billed even if it is not bound to an instance.</li> </ul>	<p>After an EIP is purchased:</p> <ul style="list-style-type: none"> <li>• If the EIP is not bound to an instance, you will be billed for the EIP itself, but not for traffic.</li> <li>• If the EIP is bound to an instance, only the used traffic will be billed. If the instance bound to the EIP stops running and there is no traffic generated, there will be no traffic or EIP fees.</li> <li>• After the EIP is unbound from an instance, the traffic will not be billed but the EIP will still be billed.</li> <li>• If the EIP is released, the EIP will not be billed.</li> </ul>

Billing Mode	Billed By	Billing Item	Billing Item Description	Impact of EIP Operations on Billing Items
	Shared bandwidth	<ul style="list-style-type: none"> <li>• Shared bandwidth</li> <li>• EIP retention</li> </ul>	<p>If a pay-per-use EIP is added to a shared bandwidth:</p> <ul style="list-style-type: none"> <li>• Share bandwidth: Only the shared bandwidth will be billed. There will be no additional bandwidth or traffic costs for EIPs added to the shared bandwidth.</li> <li>• EIP retention: If an EIP is not released, it will continue to be billed even if it is not bound to an instance.</li> </ul>	<p>After an EIP is purchased:</p> <ul style="list-style-type: none"> <li>• Shared bandwidth <ul style="list-style-type: none"> <li>– No operations on the EIP will affect the billing of a shared bandwidth. For example, if you have released the EIP but have not deleted the shared bandwidth, the shared bandwidth will still be billed.</li> <li>– After a shared bandwidth is deleted, it will no longer be billed.</li> </ul> </li> <li>• EIP retention <ul style="list-style-type: none"> <li>– If the EIP is not bound to an instance, the EIP will still be billed.</li> <li>– If the EIP is unbound from an instance, the EIP will be billed to keep it allocated to your account unless it is released.</li> <li>– If the EIP is released or bound to an instance, the EIP will not be billed.</li> </ul> </li> </ul>

 NOTE

The price of a pay-per-use EIP includes the reservation price and the bandwidth price. If you unbind an EIP but do not release it, you will continue to be billed and the price includes the reservation price and the bandwidth price. However, once you bind an EIP to an instance, the reservation price is no longer part of the EIP price.

To save money, you can add multiple EIPs in the same region to a shared bandwidth. A shared bandwidth can be billed on a yearly/monthly or pay-per-use basis. For details, see [Table 6-2](#). Currently, only pay-per-use EIPs can be added to a shared bandwidth.

- You can add an EIP to a shared bandwidth when buying the EIP.
- You can also add an existing EIP to a shared bandwidth. After the EIP is added to a shared bandwidth, there will be no additional bandwidth or traffic cost. You will only be billed for the shared bandwidth.

**Table 6-2** Shared bandwidth billing details

Billing Mode	Billed By	Billing Item	Billing Item Description
Yearly/ Monthly	Bandwidth	Bandwidth	If you buy a yearly/monthly shared bandwidth, you are billed based on your specified bandwidth size and usage duration. There is no limit on how much traffic you can use.
Pay-per-use	Bandwidth	Bandwidth	You are billed based on your specified bandwidth size and usage duration. There is no limit on how much traffic you can use.  After a shared bandwidth is purchased, you can change your specified bandwidth size. The bandwidth you use will not exceed the bandwidth you specified.

 NOTE

- The price of bandwidth, traffic, and EIP varies by region.
- [EIP pricing details](#)
- The EIP bandwidth is the outbound bandwidth consumed when data is transferred from Huawei Cloud to the Internet. For example, when ECSs provide services accessible from the Internet and external users download resources from the ECSs, that consumes outbound bandwidth. Only the outbound bandwidth will be billed.
  - If your purchased or modified bandwidth is no more than 10 Mbit/s, the inbound bandwidth will be 10 Mbit/s, and the outbound bandwidth will be the same as the purchased or modified bandwidth.
  - If your purchased or modified bandwidth is more than 10 Mbit/s, both the inbound and outbound bandwidth will be the same as the purchased or modified bandwidth.

## Which Billing Option Is Right for Me?

EIPs can be billed by bandwidth or traffic. [Table 6-3](#) shows the application scenarios of different billing options.

Cloud Eye monitors your network metrics, such as bandwidth and traffic. Based on the bandwidth usage, you can determine which billing option (by bandwidth or by traffic) is more cost-effective. Here are some suggestions for your reference:

- If you need less than 5 Mbit/s of bandwidth for a short time and the traffic is light, set your EIP to be billed by traffic.
- If you need less than 5 Mbit/s of bandwidth but the traffic is heavy set your EIP to be billed by bandwidth, and choose yearly/monthly or pay-per-use billing, depending on how long you will need the bandwidth for.
- If you need more than 5 Mbit/s of bandwidth and the bandwidth usage is greater than 20%, set your EIP to be billed by bandwidth.

For details, see [Viewing Metrics](#).

**Table 6-3** Application scenarios of EIP billing options

Billing Mode	Billed By	Scenario
Yearly/ Monthly	Bandwidth	Heavy or stable traffic
Pay-per-use	Bandwidth	Heavy or stable traffic
	Traffic	Light or sharply fluctuating traffic
	Shared bandwidth	Staggered traffic

## How Will I Be Billed If I Change My Bandwidth Size?

If an EIP is not added to a shared bandwidth, the EIP uses the dedicated bandwidth regardless of it is billed by bandwidth or traffic. After an EIP is added to a shared bandwidth, only the shared bandwidth is billed.

- [Modifying Dedicated Bandwidth Size](#)
- [Modifying Shared Bandwidth Size](#)

When you change the bandwidth size, the bandwidth price and effective time depend on the billing mode, which applies to both dedicated and shared bandwidths. For details, see [Table 6-4](#).

### NOTE

Decreasing bandwidths may cause packet loss.

If the maximum bandwidth cannot meet your service requirements, you can [submit a service ticket](#) to request a higher quota.

**Table 6-4** Impact on billing after bandwidth size change

Billing Mode	Billed By	Change	Impact
Yearly/ Monthly	Bandwidth	Increase bandwidth	The change will take effect immediately. The increased bandwidth will be billed accordingly.
Yearly/ Monthly	Bandwidth	Decrease bandwidth upon renewal	The change will not take effect immediately. You need to select a new bandwidth size and a renewal duration. The change will take effect in the first billing cycle after a successful renewal. <ul style="list-style-type: none"><li>• The order can be unsubscribed before the bandwidth takes effect.</li><li>• The bandwidth cannot be modified in the current billing cycle.</li></ul>
Yearly/ Monthly	Bandwidth	Decrease bandwidth immediately	The change will take effect immediately.
Pay-per-use	Bandwidth	Increase or decrease the bandwidth	The change will take effect immediately.
Pay-per-use	Traffic	Increase or decrease the bandwidth	The change will take effect immediately. The bandwidth size you set is only used to limit the maximum data transfer rate.

## How Do I Change the EIP Billing Mode?

The EIP service has multiple billing modes you can choose from. You can change your EIP billing mode during the EIP usage period if necessary.

- [Table 6-5](#)
- [Changing Bandwidth Billing](#)

### NOTE

Changing the billing mode does not change EIPs or interrupt their use.

Figure 6-2 EIP billing mode change

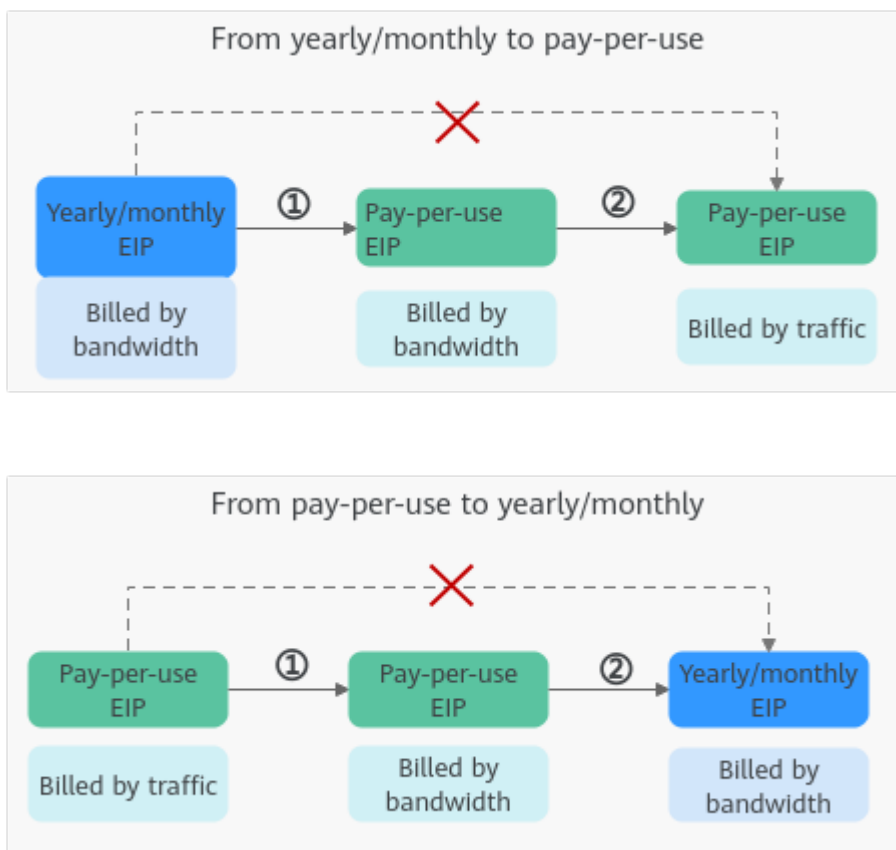


Table 6-5 EIP billing mode change description

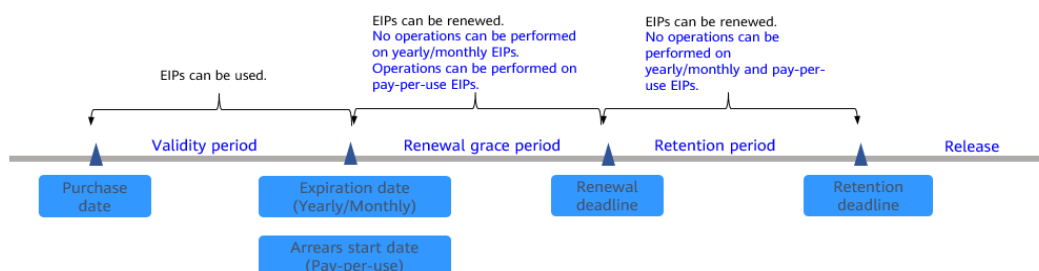
Change	Description
From yearly/monthly to pay-per-use	<ul style="list-style-type: none"> <li>An EIP billed on a yearly/monthly basis can be directly changed to be billed by bandwidth on a pay-per-use basis immediately or upon expiration.</li> <li>An EIP billed on a yearly/monthly basis cannot be directly changed to be billed by traffic on a pay-per-use basis. To change this:               <ol style="list-style-type: none"> <li>Change the EIP to be billed by bandwidth on a pay-per-use basis.</li> <li>Change the EIP to be billed by traffic on a pay-per-use basis.</li> </ol> </li> </ul> <p>The new billing mode takes effect only after the yearly/monthly subscription expires, if you want to change the EIP to be billed by bandwidth on a pay-per-use basis upon expiration. The new billing mode takes effect immediately, if you want to change the EIP to be billed by bandwidth on a pay-per-use basis immediately.</p>



Change	Description
From pay-per-use to yearly/monthly	<ul style="list-style-type: none"> <li>An EIP that is billed by bandwidth on a pay-per-use basis can be directly changed to be billed on a yearly/monthly basis.</li> <li>An EIP that is billed by traffic on a pay-per-use basis cannot be directly changed to be billed on a yearly/monthly basis. To change this:                             <ol style="list-style-type: none"> <li>Change the EIP to be billed by bandwidth on a pay-per-use basis.</li> <li>Change the EIP to be billed on a yearly/monthly basis.</li> </ol> </li> </ul> <p>The new billing mode takes effect immediately.</p>
<ul style="list-style-type: none"> <li>From billing by traffic (pay-per-use) to billing by bandwidth (pay-per-use)</li> <li>From billing by bandwidth (pay-per-use) to billing by traffic (pay-per-use)</li> </ul>	<ul style="list-style-type: none"> <li>An EIP billed by traffic on a pay-per-use basis can be directly changed to be billed by bandwidth on a pay-per-use basis.</li> <li>An EIP billed by bandwidth on a pay-per-use basis can be directly changed to be billed by traffic on a pay-per-use basis.</li> </ul> <p>The new billing mode takes effect immediately.</p>

## How Do I Renew an EIP? What Will Happen If My Account Is in Arrears?

Figure 6-3 EIP/Bandwidth lifecycle



If your account is in arrears, pay the arrears within the specified time to prevent your resources from being frozen or released. For details, see [Repaying Outstanding Amount](#).

If your account is in arrears, you will be impacted for using your resources.

- If your yearly/monthly resource has expired and is not renewed, the resource enters the grace period. If you do not renew the monthly/yearly resource within the grace period, the resource enters a retention period. If you do not renew the monthly/yearly resource within the retention period, the resource will be deleted.

You cannot perform any operations on yearly/monthly resources that are in the grace or retention period. For example, you cannot change your bandwidth if it is in the grace period or retention period.

To ensure that your services are not affected, [renew your EIP](#) before it expires.

- If your pay-per-use resource is in arrears, the resource enters the grace period. If you do not pay off the arrears of the pay-per-use resource within the grace period, the resource enters a retention period. If you do not pay off the arrears of the pay-per-use resource within the retention period, the resource will be deleted.

You can still perform operations on pay-per-use resources in the grace period. However, you cannot perform any operations on them if they enter the retention period.

## Unsubscription

If you have a yearly/monthly EIP that is unbound from an instance and is not expired, but you will no longer use it, you can unsubscribe from it.

- Yearly/monthly EIPs can be unsubscribed. Your actual usage fee and some preferential fees will be deducted from the refund amount.
- Pay-per-use EIPs cannot be unsubscribed. If you do not need the pay-per-use EIPs anymore, release them. [Releasing an EIP](#).

# 7 Security

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## 7.1 Shared Responsibilities

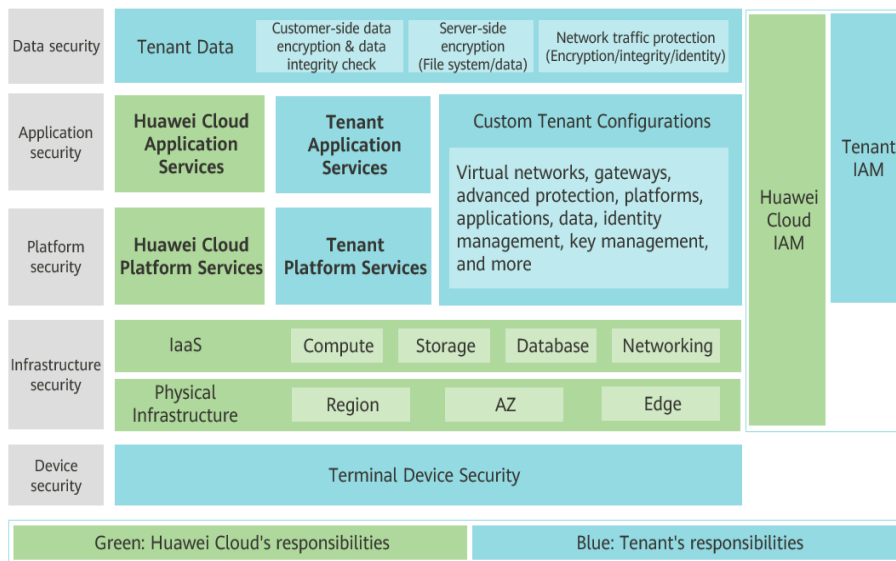
Huawei guarantees that its commitment to cyber security will never be outweighed by the consideration of commercial interests. To cope with emerging cloud security challenges and pervasive cloud security threats and attacks, Huawei Cloud builds a comprehensive cloud service security assurance system for different regions and industries based on Huawei's unique software and hardware advantages, laws, regulations, industry standards, and security ecosystem.

[Figure 7-1](#) illustrates the responsibilities shared by Huawei Cloud and users.

- **Huawei Cloud:** Ensure the security of cloud services and provide secure clouds. Huawei Cloud's security responsibilities include ensuring the security of our IaaS, PaaS, and SaaS services, as well as the physical environments of the Huawei Cloud data centers where our IaaS, PaaS, and SaaS services operate. Huawei Cloud is responsible for not only the security functions and performance of our infrastructure, cloud services, and technologies, but also for the overall cloud O&M security and, in the broader sense, the security and compliance of our infrastructure and services.
- **Tenant:** Use the cloud securely. Tenants of Huawei Cloud are responsible for the secure and effective management of the tenant-customized configurations of cloud services including IaaS, PaaS, and SaaS. This includes but is not limited to virtual networks, the OS of virtual machine hosts and guests, virtual firewalls, API Gateway, advanced security services, all types of cloud services, tenant data, identity accounts, and key management.

[Huawei Cloud Security White Paper](#) elaborates on the ideas and measures for building Huawei Cloud security, including cloud security strategies, the shared responsibility model, compliance and privacy, security organizations and personnel, infrastructure security, tenant service and security, engineering security, O&M security, and ecosystem security.

**Figure 7-1** Huawei Cloud shared security responsibility model



## 7.2 Identity Authentication and Access Control

### IAM Identity Authentication

Identity and Access Management (IAM) provides permissions management for secure access to your Huawei Cloud services and resources.

You can use IAM to control access to your EIP resources. IAM permissions define which actions on your cloud resources are allowed or denied.

You can use your account to create IAM users, add them to a user group, and assign permissions to the user group to control their access to EIP resources. All users in this group automatically inherit the granted permissions.

- [IAM Functions](#)
- [Permissions](#)

## 7.3 Auditing and Logging

Cloud Trace Service (CTS) records operations on the cloud resources in your account. You can use the logs generated by CTS to perform security analysis, track resource changes, audit compliance, and locate faults.

After CTS is enabled, traces can be generated for EIP operations.

- If you want to enable and configure CTS, refer to [Enabling CTS](#).
- If you want to know supported operations on EIPs, refer to [Supported VPC Operations](#).
- If you want to view traces, refer to [Viewing Traces](#).

## 7.4 Resilience

The EIP service is available in more than 20 countries and regions around the world and has disaster recovery capabilities.

In addition, the EIP service connects to carriers' networks with multiple paths in BGP mode. The EIP service can detect the status of paths and carriers' networks.

If a carrier's network is faulty, the EIP service can quickly switch to the path of another carrier to ensure service continuity and high service availability.

## 7.5 Risk Monitoring

Cloud Eye can monitor resources, resource groups, and websites, and timely report alarms to help you keep track of your resource usages and service status on the cloud.

With Cloud Eye, you can view the traffic, bandwidth, and bandwidth usage of EIPs by time, and analyze potential risks based on alarms. When creating alarm rules, you can configure monitoring thresholds and alarm notifications. This will ensure you learn about EIP resource exceptions in a timely manner, so you can handle faults quickly and prevent services from being interrupted.

If you want to know supported EIP metrics, see [Supported Metrics](#).

## 7.6 Certificates







### Compliance Certificates

Huawei Cloud services and platforms have obtained various security and compliance certifications from authoritative organizations, such as International Organization for Standardization (ISO). You can [download](#) them from the console.

Figure 7-2 Downloading compliance certificates

### Download Compliance Certificates

Q Please enter a keyword to search

 <p><b>BS 10012:2017</b></p> <p>BS 10012 provides a best practice framework for a personal information management system that is aligned to the principles of the EU GDPR. It outlines the core requirements organizations need to consider when collecting, storing, processing, retaining or disposing of personal records related to individuals.</p> <p style="text-align: center; margin-top: 10px;"><a href="#">Download</a></p>	 <p><b>ENS</b></p> <p>Mandatory law for companies in the public sector and their technology suppliers</p> <p style="text-align: center; margin-top: 10px;"><a href="#">Download</a></p>	 <p><b>Singapore Multi Tier Cloud Security (MTCS) Level 3</b></p> <p>The MTCS standard was developed under the Singapore Information Technology Standards Committee (ITSC). This standard requires cloud service providers to adopt well-rounded risk management and security practices in cloud computing. The HUAWEI CLOUD Singapore region has obtained the level 3 (highest) certification of MTCS.</p> <p style="text-align: center; margin-top: 10px;"><a href="#">Download</a></p>
 <p><b>Trusted Partner Network (TPN)</b></p> <p>The Trusted Partner Network (TPN) is a global, industry-wide media and entertainment content security initiative and community network, wholly owned by the Motion Picture Association. TPN is committed to raising content security awareness and standards and building a more secure future for content partners. TPN can help identify vulnerabilities, increase security capabilities, and efficiently communicate security status to customers.</p> <p style="text-align: center; margin-top: 10px;"><a href="#">Download</a></p>	 <p><b>ISO 27001:2022</b></p> <p>ISO 27001 is a widely accepted international standard that specifies requirements for management of information security systems. Centered on risk management, this standard ensures continuous operation of such systems by regularly assessing risks and applying appropriate controls.</p> <p style="text-align: center; margin-top: 10px;"><a href="#">Download</a></p>	 <p><b>ISO 27017:2015</b></p> <p>ISO 27017 is an international certification for cloud computing information security. It indicates that HUAWEI CLOUD's information security management has become an international best practice.</p> <p style="text-align: center; margin-top: 10px;"><a href="#">Download</a></p>

## Resource Center





Huawei Cloud also provides the following resources to help users meet compliance requirements. For details, see [Resource Center](#).

Figure 7-3 Resource center

## Resource Center

**White Papers**

<a href="#">Privacy Compliance White Papers</a>	<a href="#">Industry Regulation Compliance White Papers</a>	<a href="#">Guidelines and Best Practices</a>
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 <p><b>Compliance with Argentina PDPL</b></p> <p>Base on the compliance requirements of Argentina PDPL and Resolution 47/2018, the whitepaper shares Huawei Cloud's privacy protection experience and practices and the measures that help customer meet the compliance requirements of Argentina PDPL and Resolution</p>	 <p><b>Compliance with Brazil LGPD</b></p> <p>Huawei Cloud shares the experience and practice in privacy protection in compliance with Brazil's LGPD and describes how to help customers meet Brazil's LGPD compliance requirements.</p>	 <p><b>Compliance with Chile PDPL</b></p> <p>Huawei Cloud shares the experience and practices regarding privacy protection when complying with PDPL from the Republic of Chile, as well as describe how to help customers meet PDPL compliance requirements in the Republic of Chile.</p>	 <p><b>Compliance with PDPO of the HK</b></p> <p>Huawei Cloud shares the experience and practices regarding privacy protection when complying with PDPO from Hong Kong SAR, China, as well as describe how to help customers meet PDPO compliance requirements in Hong Kong SAR, China.</p>
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# 8 Permissions

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If you need to assign different permissions to employees in your enterprise to access your EIP resources, IAM is a good choice for fine-grained permissions management. IAM provides identity authentication, permissions management, and access control, helping you securely manage access to your Huawei Cloud resources.

With IAM, you can use your HUAWEI ID to create IAM users, and assign permissions to the users to control their access to specific resources. For example, some software developers in your enterprise need to use EIP resources but should not be allowed to delete them or perform any high-risk operations. In this scenario, you can create IAM users for the software developers and grant them only the permissions required for using EIP resources.

If your HUAWEI ID does not need individual IAM users for permissions management, you may skip over this section.

IAM can be used free of charge. You pay only for the resources in your account. For more information, see [IAM Service Overview](#).

## EIP Permissions

New IAM users do not have any permissions assigned by default. You need to first add them to one or more groups and attach policies or roles to these groups. The users then inherit permissions from the groups and can perform specified operations on cloud services based on the permissions they have been assigned.

Currently, EIP permissions are included in VPC permissions.

VPC is a project-level service deployed for specific regions. When you set **Scope** to **Region-specific projects** and select the specified projects (for example, **ap-southeast-1**) in the specified regions (for example, **CN-Hong Kong**), the users only have permissions for VPCs in the selected projects. If you set **Scope** to **All resources**, users have permissions for VPCs in all region-specific projects. When accessing VPCs, the users need to switch to the authorized region.

You can grant permissions by using roles and policies.

- **Roles:** A coarse-grained authorization strategy provided by IAM to assign permissions based on users' job responsibilities. Only a limited number of service-level roles are available for authorization. When you grant permissions

using roles, you also need to attach dependent roles. Roles are not ideal for fine-grained authorization and least privilege access.

- **Policies:** A fine-grained authorization strategy that defines permissions required to perform operations on specific cloud resources under certain conditions. This type of authorization is more flexible and is ideal for least privilege access. For example, you can grant VPC users only the permissions for managing a certain type of resources. A majority of fine-grained policies contain permissions for specific APIs, and permissions are defined using API actions. For the API actions supported by VPC, see [Permissions Policies and Supported Actions](#).

**Table 8-1** lists all the system-defined roles and policies supported by VPC.

**Table 8-1** System-defined permissions for VPC

Policy Name	Description	Policy Type	Dependencies
VPC FullAccess	Full permissions for VPC.	System-defined policy	To use the VPC flow log function, users must also have the <b>LTS ReadOnlyAccess</b> permission.
VPC ReadOnlyAccess	Read-only permissions on VPC.	System-defined policy	None
VPC Administrator	Most permissions on VPC, excluding creating, modifying, deleting, and viewing security groups and security group rules.  To be granted this permission, users must also have the <b>Tenant Guest</b> permission.	System-defined role	<b>Tenant Guest</b> policy, which must be attached in the same project as <b>VPC Administrator</b> .

**Table 8-2** lists the common operations supported by each system policy of VPC. Please choose proper system policies according to this table.

**Table 8-2** Common operations supported by system-defined permissions

Operation	VPC ReadOnlyAccess	VPC Administrator	VPC FullAccess
Assigning an EIP	x	x	√
Viewing an EIP	√	x	√



Operation	VPC ReadOnlyAccess	VPC Administrator	VPC FullAccess
Releasing an EIP	x	x	√
Binding or unbinding an EIP	x	x	√
Adding an EIP to or removing an EIP from a shared bandwidth	x	x	√
Assigning a bandwidth	x	x	√
Viewing a bandwidth	√	x	√
Modifying a bandwidth	x	x	√
Deleting a bandwidth	x	x	√

## Helpful Links

- [What Is IAM?](#)
- [Creating a User and Granting EIP Permissions](#)
- [Permissions Policies and Supported Actions](#)

# 9 EIP and Other Services

Figure 9-1 shows the relationship between EIP and other services.

Figure 9-1 EIP and related services

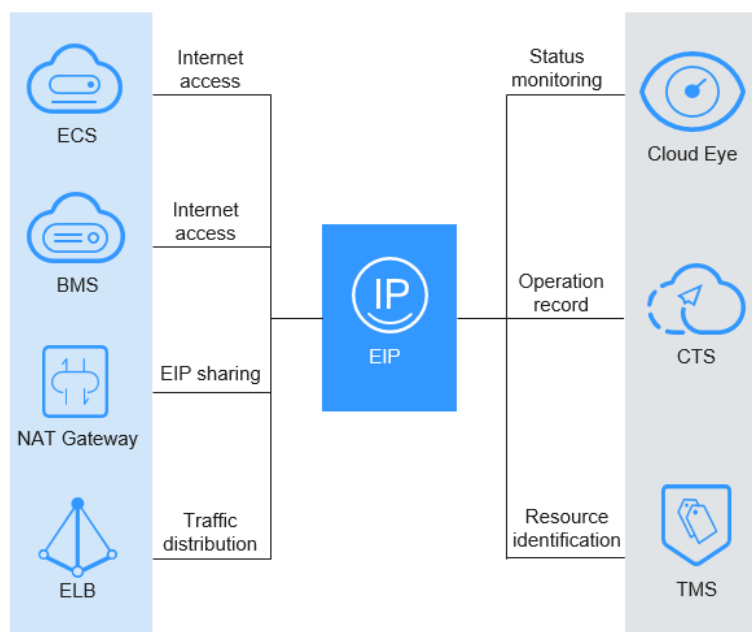


Table 9-1 Related services

Interactive Function	Service	Reference
Bind an EIP to a server to allow the server to access the Internet.	<a href="#">Elastic Cloud Server (ECS)</a> <a href="#">Bare Metal Server (BMS)</a>	<a href="#">Binding an EIP</a> <a href="#">Binding an EIP to a BMS</a>

Interactive Function	Service	Reference
Bind a virtual IP address to an EIP so that you can access the ECSs deployed in active/standby mode through the virtual IP address.	<a href="#">Virtual Private Cloud (VPC)</a>	<a href="#">Binding a Virtual IP Address to an EIP or ECS</a>
Configure ECSs to share one or more EIPs through a NAT gateway to access the Internet.	<a href="#">NAT Gateway</a>	<a href="#">Using SNAT to Access the Internet</a>
Distribute incoming traffic to multiple ECSs in a VPC.	<a href="#">Elastic Load Balance (ELB)</a>	<a href="#">Elastic Load Balance</a>
Check the bandwidth and traffic usage.	<a href="#">Cloud Eye</a>	<a href="#">Viewing Metrics</a>
Record EIP-related operations for querying, auditing, and tracing back.	<a href="#">Cloud Trace Service (CTS)</a>	<a href="#">Viewing Audit Logs</a>
Add tags to EIPs so that you can quickly identify EIPs and manage them.	<a href="#">Tag Management Service (TMS)</a>	<a href="#">Managing EIP Tags</a>

# 10 Region and AZ

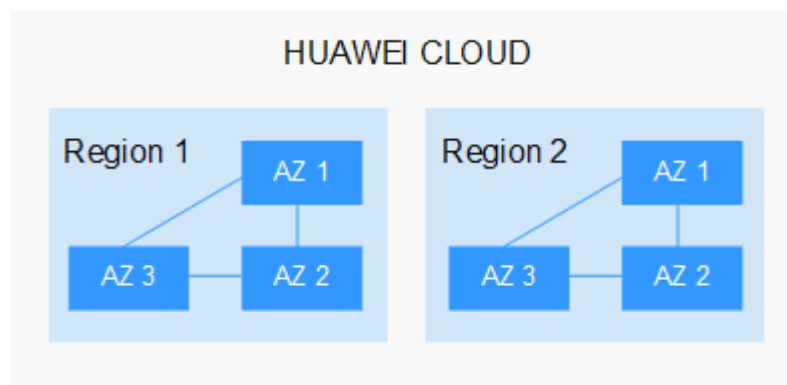
## Concept

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 based on 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 into universal regions and dedicated regions. A universal region provides universal cloud services for common tenants. A dedicated region provides specific services for specific tenants.
- An AZ contains one or more 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.

**Figure 10-1** shows the relationship between regions and AZs.

**Figure 10-1** Regions and AZs



Huawei Cloud provides services in many regions around the world. You can select a region and an AZ based on requirements. For more information, see [Huawei Cloud Global Regions](#).

## Selecting a Region

When selecting a region, consider the following factors:

- Location

It is recommended that you select the closest region for lower network latency and quick access.

- If your target users are in Asia Pacific (excluding the Chinese mainland), select the **CN-Hong Kong**, **AP-Bangkok**, or **AP-Singapore** region.
- If your target users are in Africa, select the **AF-Johannesburg** region.
- If your target users are in Latin America, select the **LA-Santiago** region.

 **NOTE**

The **LA-Santiago** region is located in Chile.

- Resource price

Resource prices may vary in different regions. For details, see [Product Pricing Details](#).

## Selecting an AZ

When deploying resources, consider your applications' requirements on disaster recovery (DR) and network latency.

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

## Regions and Endpoints

Before you use an API to call resources, specify its region and endpoint. For more details, see [Regions and Endpoints](#).