

## VPC Endpoint

# Service Overview

**Issue** 01  
**Date** 2024-11-14



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# 1 What Is VPC Endpoint?

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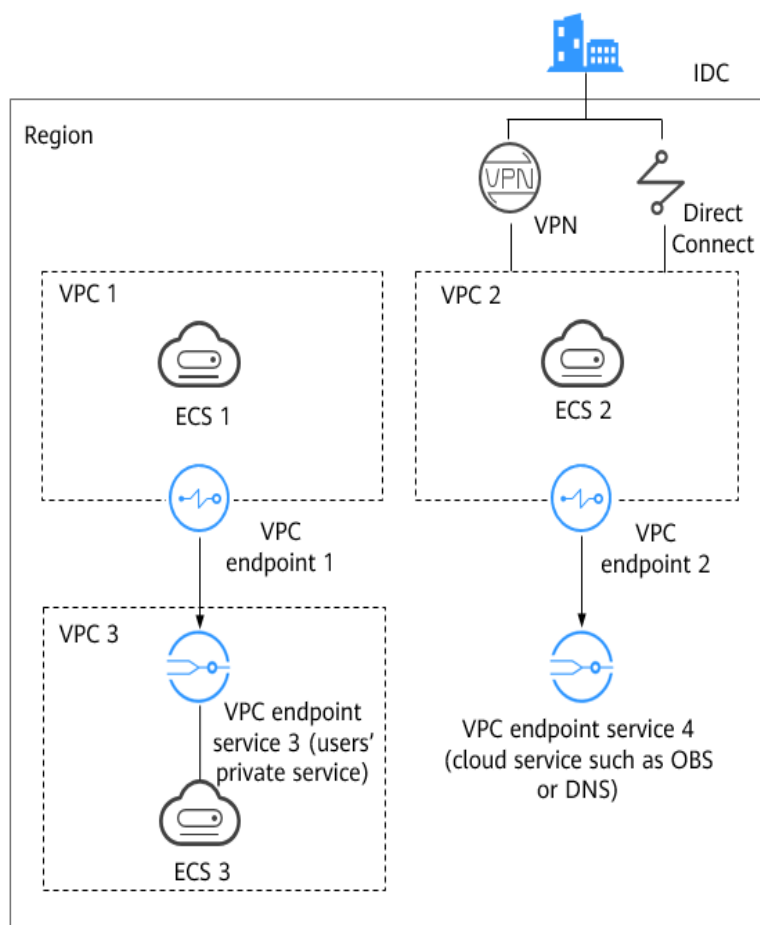
VPC Endpoint is a cloud service that provides secure and private channels to connect your VPCs to VPC endpoint services, including cloud services or your private services. It allows you to plan networks flexibly without having to use EIPs.

## Architecture

There are two types of resources: VPC endpoint services and VPC endpoints.

- VPC endpoint services are cloud services or private services that you manually configure in VPC Endpoint. You can access these endpoint services using VPC endpoints.  
For more information, see [VPC Endpoint Services](#).
- VPC endpoints are secure and private channels for connecting VPCs to VPC endpoint services.  
For more information, see [VPC Endpoints](#).

**Figure 1-1** How VPC Endpoint works



**Figure 1-1** shows the process of establishing channels for network communications between:

- VPC 1 (ECS 1) and VPC 3 (ECS 3)
- VPC 2 (ECS 2) and cloud services such as OBS and DNS
- IDC and VPC 2 over VPN or Direct Connect to finally access a cloud service such as OBS or DNS

For more information, see [Application Scenarios](#).

## Accessing VPC Endpoint

You can access VPC Endpoint using any of the following:

- Management console
  - If you have signed up an account with Huawei Cloud, log in to the management console and choose **Networking > VPC Endpoint**.
  - If you do not have an account, create one with Huawei Cloud first by referring to [Preparations](#).

Upon a quick configuration on the management console, you can start using VPC Endpoint.

- APIs  
Use this method if you need to integrate VPC Endpoint into a third-party system for secondary development. For details, see [VPC Endpoint API Reference](#).

# 2 Product Advantages

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- **Excellent Performance:** Each gateway supports up to 1 million concurrent connections, meeting requirements in different service scenarios.
- **Ready to Use:** VPC endpoints take effect a few seconds after they are created.
- **Easy to Use:** You can use VPC endpoints to access resources over private networks, without having to use EIPs.
- **High Security:** VPC endpoints enable you to access VPC endpoint services without exposing server information, minimizing security risks.

# 3 Application Scenarios

VPC Endpoint establishes a secure and private channel between a VPC endpoint (cloud resources in a VPC) and a VPC endpoint service in the same region.

You can use VPC Endpoint in different scenarios.

## High-Speed Access to Cloud Services

After you connect an IDC to a VPC using VPN or Direct Connect, you can use a VPC endpoint to connect the VPC to a cloud service or one of your private services, so that the IDC can access the cloud service or private service.

Figure 3-1 Access to cloud services

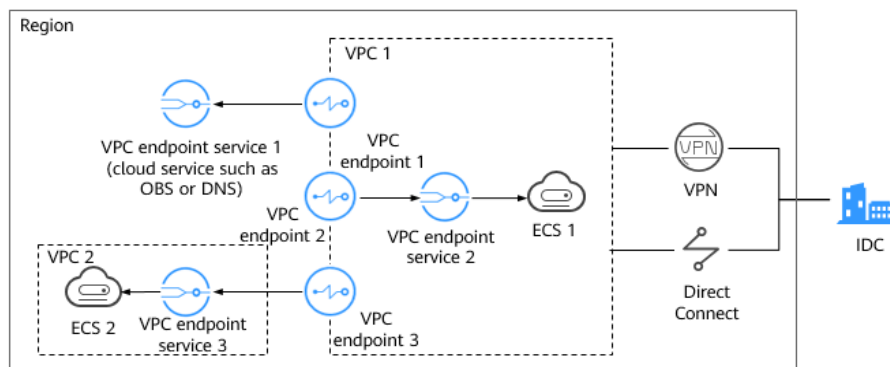


Figure 3-1 shows the process of connecting an IDC to VPC 1 over VPN or Direct Connect, for accessing:

- OBS or DNS using VPC endpoint 1
- ECS 1 in VPC 1 using VPC endpoint 2
- ECS 2 in VPC 2 using VPC endpoint 3

For cloud migration, VPC Endpoint has the following advantages:

- Simple and efficient  
The IDC is directly connected to the VPC endpoint service over a private network, reducing access latency and improving efficiency.



- Low cost  
With VPC Endpoint, your IDC can access cloud resources over a private network, reducing your costs on public resources.

For details, see [Configuring a VPC Endpoint for Accessing the Private IP Address of OBS over Private Networks](#).

## Cross-VPC Connection

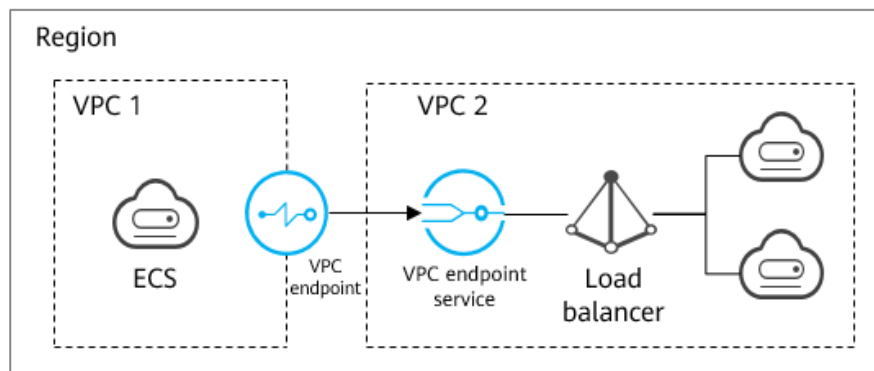
VPC Endpoint enables your resources in two different VPCs within a region to communicate with each other.

### NOTE

VPC endpoints and VPC peering connections are different in security, communications methods, route configurations, and more.

For more information, see [What Are the Differences Between VPC Endpoints and VPC Peering Connections?](#)

**Figure 3-2** Cross-VPC connection



**Figure 3-2** shows how an ECS in VPC 1 uses a VPC endpoint to access a load balancer in VPC 2 over a private network.

VPC Endpoint has the following advantages:

- High performance  
Each gateway supports up to one million concurrent connections.
- Simplified operations  
VPC Endpoint resources can be created within seconds and take effect quickly.

For details, see the following sections:

# 4 Notes and Constraints

## Resource Quotas

[Table 4-1](#) describes quotas and constraints on VPC Endpoint resources.

**Table 4-1** VPC Endpoint resource quotas and constraints

Resource	Default Quota and Constraints	How to Increase Quota
VPC endpoint services per account in one region	20	<a href="#">Submit a service ticket.</a>
VPC endpoints per account in one region	50	<a href="#">Submit a service ticket.</a>
Traffic types	IPv4 traffic	N/A
Types of backend resources that can be configured as VPC endpoint services	Load balancer, ECS, and BMS	
Protocols supported by VPC endpoint services	TCP	

## Other Constraints

- When you buy a VPC endpoint, ensure that the associated VPC endpoint service is deployed in the same region as the VPC endpoint.
- One VPC endpoint can connect to only one VPC endpoint service.
- A VPC endpoint supports a maximum of 3,000 concurrent connections.
- One VPC endpoint service can be connected by multiple VPC endpoints.
- One VPC endpoint service can have only one backend resource.

# 5 VPC Endpoint and Other Services

**Table 5-1** shows the relationship between VPC Endpoint and other cloud services.

**Table 5-1** Relationships with other services

Interactive Function	Service	Reference
Creating VPC endpoint services for resources in your VPC	VPC	<ul style="list-style-type: none"><li>• <a href="#">Configuring a VPC Endpoint for Communications Across VPCs of the Same Account</a></li><li>• <a href="#">Configuring a VPC Endpoint for Communications Across VPCs of Different Accounts</a></li></ul>
Connecting your on-premises data center to your VPC using a VPN connection and connecting your on-premises data center to a cloud service in another VPC through VPC Endpoint	VPN	N/A
Connecting your on-premises data center to your VPC using a Direct Connect connection and connecting your on-premises data center to a cloud service in another VPC through VPC Endpoint	Direct Connect	N/A

Interactive Function	Service	Reference
Creating IAM users and controlling their access to VPC Endpoint resources	IAM	<a href="#">Permissions</a>
Configured as a gateway VPC endpoint service by default. You can buy a VPC endpoint to access the VPC endpoint service.	OBS	<a href="#">Buying a VPC Endpoint</a>
Configured as an interface VPC endpoint service by default. You can buy VPC endpoints to access these endpoint services.	DNS	<a href="#">Buying a VPC Endpoint</a>
Configured as an interface VPC endpoint service by default. You can buy VPC endpoints to access these endpoint services.	API Gateway	<a href="#">Buying a VPC Endpoint</a>
Configuring a private service as a VPC endpoint service. You can buy a VPC endpoint to access the VPC endpoint service.	ELB	<a href="#">Creating a VPC Endpoint Service</a>
Configuring a private service as a VPC endpoint service. You can buy a VPC endpoint to access the VPC endpoint service.	ECS	<a href="#">Creating a VPC Endpoint Service</a>
Configuring a private service as a VPC endpoint service. You can buy a VPC endpoint to access the VPC endpoint service.	BMS	<a href="#">Creating a VPC Endpoint Service</a>

# 6 Billing

## Billing Items

VPC Endpoint provides two types of resources: VPC endpoint services and VPC endpoints. VPC endpoint services are free, and VPC endpoints are billed based on how long you use them.

The billing mode for VPC endpoints is pay-per-use.

**Table 6-1** VPC endpoint billing

Billing Mode	Billing Item	Billing Formula
Pay-per-use	VPC endpoint for accessing DNS or OBS VPC endpoint services	Free
	VPC endpoint for accessing any other VPC endpoint services except DNS and OBS	Pricing per VPC endpoint per hour x Required duration \$0.014 USD/hour

After you purchase a VPC endpoint, you will be charged based on how many hours the VPC endpoint is retained in your account, regardless of whether the VPC endpoint connects to a VPC endpoint service or whether it interacts with the VPC endpoint service.

If the VPC endpoint service is deleted or its owner refuses your VPC endpoint, the VPC endpoint cannot be used but will still be billed. Delete the VPC endpoint in a timely manner to avoid unnecessary charges.

For details, see [Product Pricing Details](#).

## Billing Modes

### Pay-per-use

VPC endpoints are billed based on how long (accurate to seconds) the VPC endpoint remains provisioned in your account.

**Billing formula:** Pricing per VPC endpoint per hour x Required duration

For example, if you buy a VPC endpoint and retain it in your account for 5 hours, you will be charged for the 5 hours you keep it.

 **NOTE**

Billing starts after you purchase a VPC endpoint even if you never use it.

## Renewal

For details, see [Renewal Management](#).

## Expiration and Overdue Payment

For details, see [Service Suspension and Resource Release](#) and [Payment and Repayment](#).

# 7 Permissions

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If you need to assign different permissions to employees in your enterprise to access your VPC Endpoint resources, you can use Identity and Access Management (IAM) to manage fine-grained permissions. IAM provides identity authentication, permissions management, and access control, helping you to securely access your Huawei Cloud resources.

With IAM, you can use your HUAWEI ID to create IAM users and assign permissions to control their access to specific Huawei Cloud resources. For example, if you want website maintenance personnel in your enterprise to use VPC Endpoint resources but do not want them to delete other cloud resources or perform any other high-risk operations, you can create IAM users and grant only permissions to use VPC Endpoint resources.

If your HUAWEI ID does not require individual IAM users for permissions management, you can skip this section.

IAM is a free service. You only pay for the resources in your account.

For more information about IAM, see .

## VPC Endpoint 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.

VPC Endpoint is a project-level service deployed for specific regions. You need to select a project for which the permissions will be granted. If you select **All projects**, the permissions will be granted for all the projects. When accessing VPC Endpoint, the users need to switch to the authorized region.

[Table 7-1](#) lists all system-defined roles for VPC Endpoint.

**Table 7-1** System-defined roles for VPC Endpoint

Role	Description	Type	Dependency
VPCEndpoint Administrator	Full permissions for VPC Endpoint	System-defined role	This role depends on <b>DNS Administrator</b> , <b>Server Administrator</b> , and <b>VPC Administrator</b> roles in the same project.

**Table 7-2** lists the common operations supported by system-defined permissions for VPC Endpoint.

**Table 7-2** Common operations supported by system-defined permissions

Operation	VPCEndpoint Administrator
Creating a VPC endpoint	√
Deleting a VPC endpoint	√
Querying a VPC endpoint	√
Modifying a VPC endpoint	√
Creating a VPC endpoint service	√
Deleting a VPC endpoint service	√
Querying a VPC endpoint service	√
Modifying a VPC endpoint service	√

## Helpful Links

- [IAM Service Overview](#)
- [Creating a User and Granting VPC Endpoint Permissions](#)



# 8 Product Concepts

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## 8.1 VPC Endpoint Services

A VPC endpoint service is a cloud service or a private service that can be accessed through a VPC endpoint.

There are two types of VPC endpoint services: gateway and interface.

- Gateway VPC endpoint services are created only for cloud services.
- Interface VPC endpoint services can be created for both cloud services and your private services. Cloud services are configured as VPC endpoint services by the O&M personnel by default. However, you need to create VPC endpoint services for your private services.

### Gateway VPC Endpoint Services

Gateway VPC endpoint services are configured from cloud services by the system. You do not have the permissions to configure such VPC endpoint services but can select them when creating a VPC endpoint.

 **NOTE**

Supported cloud services vary in different regions. For details, see the services that can be configured on the management console.

**Table 8-1** Supported gateway VPC endpoint services

VPC Endpoint Service	Category	Type	Example	Description
OBS	Cloud service	Gateway	None	Select the endpoint service ending with <b>obs</b> if you want to access OBS using its private address.  For details, see <a href="#">Configuring a VPC Endpoint for Accessing the Private IP Address of OBS over Private Networks</a> .

## Interface VPC Endpoint Services

Interface VPC endpoint services are mainly configured from:

- Cloud services. You do not have the permissions to configure such VPC endpoint services but can select them when creating a VPC endpoint.
- Your private services

 **NOTE**

Supported cloud services vary in different regions. For details, see the services that can be configured on the management console.

**Table 8-2** Supported interface VPC endpoint services

VPC Endpoint Service	Category	Type	Example	Description
DNS	Cloud service	Interface	None	Select the endpoint service ending with <b>dns</b> if you want to access DNS over private networks.
API Gateway	Cloud service	Interface	None	Select the endpoint service ending with <b>api</b> if you want to access API Gateway using a VPC endpoint.

VPC Endpoint Service	Category	Type	Example	Description
ELB	Users' private service	Interface	None	Select a load balancer as the backend resource if your services receive high traffic and demand high reliability and disaster recovery (DR) performance.
ECS	Users' private service	Interface	None	VPC endpoint services work as servers.
BMS	Users' private service	Interface	None	VPC endpoint services work as servers.

## How to Use VPC Endpoint Services

- [Creating a VPC Endpoint Service](#)
- [Deleting a VPC Endpoint Service](#)
- [Managing Connections of a VPC Endpoint Service](#)
- [Managing Whitelist Records of a VPC Endpoint Service](#)
- [Viewing the Port Mappings of a VPC Endpoint Service](#)

## 8.2 VPC Endpoints

VPC endpoints are secure and private channels for connecting VPCs to VPC endpoint services.

You can buy a VPC endpoint to connect a resource in your VPC to a VPC endpoint service in another VPC of the same region.

A VPC endpoint comes with a VPC endpoint service. VPC endpoints vary depending on the type of the VPC endpoint services that they can access.

- VPC endpoints for accessing interface VPC endpoint services are elastic network interfaces that have private IP addresses.
- VPC endpoints for accessing gateway VPC endpoint services are gateways, with routes configured to distribute traffic to the associated VPC endpoint services.

## How to Use VPC Endpoint

- [Buying a VPC Endpoint](#)

- [Deleting a VPC Endpoint](#)
- [Configuring Access Control for a VPC Endpoint](#)

## 8.3 User Permissions

The cloud system provides two types of user permissions by default, user management and resource management.

- User management refers to management of users, user groups, and user group permissions.
- Resource management refers to access control over cloud service resources.

VPC Endpoint provides two types of resources: VPC endpoint services and VPC endpoints, both of which are region-level resources. The required permissions must be added for users in the project.

For details about user permissions, see [System Permissions](#).

## 8.4 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.

### Selecting a Region

If your target users are in Europe, select the **EU-Dublin** region.

### 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.

## 8.5 Project and Enterprise Project

### Project

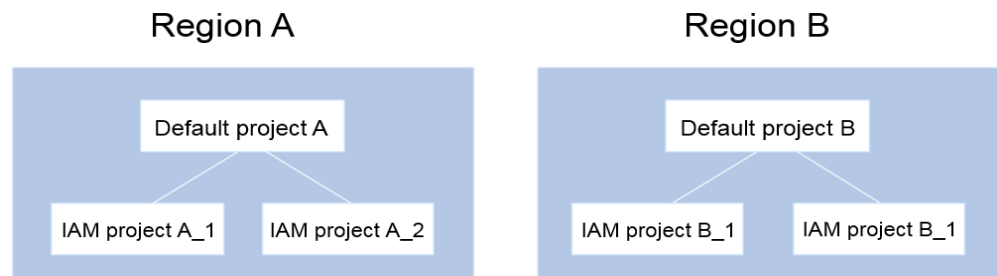
Projects in IAM are used to group and isolate resources (computing resources, storage resources, and network resources). Resources in your account must be mounted under projects. A project can be a department or a project team. Multiple projects can be created for one account.

### Enterprise Project

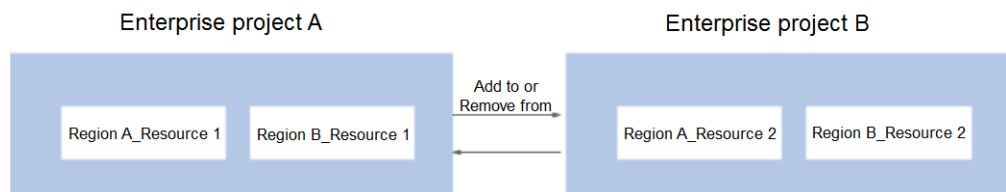
Enterprise projects are used to categorize and manage resources. Resources in different regions can belong to one enterprise project. An enterprise can classify resources by department or project group and put relevant resources into one enterprise project for management. Resources can be migrated between enterprise projects.

### Differences Between Projects and Enterprise Projects

- IAM project  
Projects are used to categorize and physically isolate resources in a region. Resources in an IAM project cannot be transferred. They can only be deleted and then rebuilt.



- Enterprise project  
Enterprise projects are upgraded based on IAM projects and used to categorize and manage resources of different projects of an enterprise. An enterprise project can contain resources of more than one region, and resources can be added to or removed from enterprise projects. If you have enabled enterprise management, you cannot create an IAM project and can only manage existing projects. In the future, IAM projects will be replaced by enterprise projects, which are more flexible.



Both projects and enterprise projects can be managed by one or more user groups. Users who manage enterprise projects belong to user groups. After a policy is

granted to a user group, users in the group can obtain the rights defined in the policy in the project or enterprise project.

For details about how to create a project, create an enterprise project, and assign permissions, see [Enterprise Management User Guide](#).