Direct Connect

# Best Practices

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| **Issue** | 01 |
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# Contents



# 1 Accessing a VPC over a Single Connection Through Static Routes

## Overview

Connect your on-premises network to the cloud over a single connection and use static routing to route traffic between your on-premises network and the VPC.

## Prerequisites

- Your on-premises network must use a single-mode fiber with a 1GE, 10GE, 40GE, or 100GE optical module to connect to the access device in the cloud.
- Auto-negotiation for the port has been disabled. Port speed and full duplex mode have been manually configured.
- 802.1Q VLAN encapsulation is supported on your on-premises network.

## Typical Topology

Your on-premises network is connected to a VPC in the CN-Hong Kong region over a single connection.

For details on how to create a VPC, see the **Creating a VPC**.

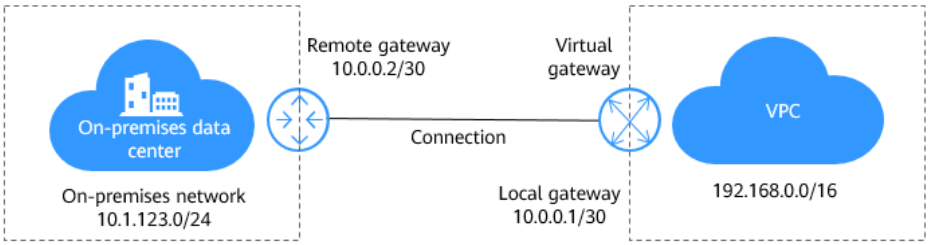
**Table 1-1** lists the CIDR blocks used in this example.

**Table 1-1** CIDR blocks

| Item | CIDR Block |
| --- | --- |
| Your on-premises network | 10.1.123.0/24 |
| Local and remote gateways (addresses for interconnection) | 10.0.0.0/30 |
| VPC | 192.168.0.0/16 |

**Figure 1-1** Accessing a VPC over a connection through static routes




## Procedure

**Step 1** Create a connection.

1. Log in to the management console.
2. On the console homepage, click  in the upper left corner and select the desired region and project.
3. Hover on  to display **Service List** and choose **Networking** > **Direct Connect**.
4. In the navigation pane on the left, choose **Direct Connect** > **Connections**.
5. Click **Create Connection**.
6. On the **Create Connection** page, enter the equipment room details and select the Direct Connect location and port based on **Table 1-2**.

**Figure 1-2** Creating a self-service connection

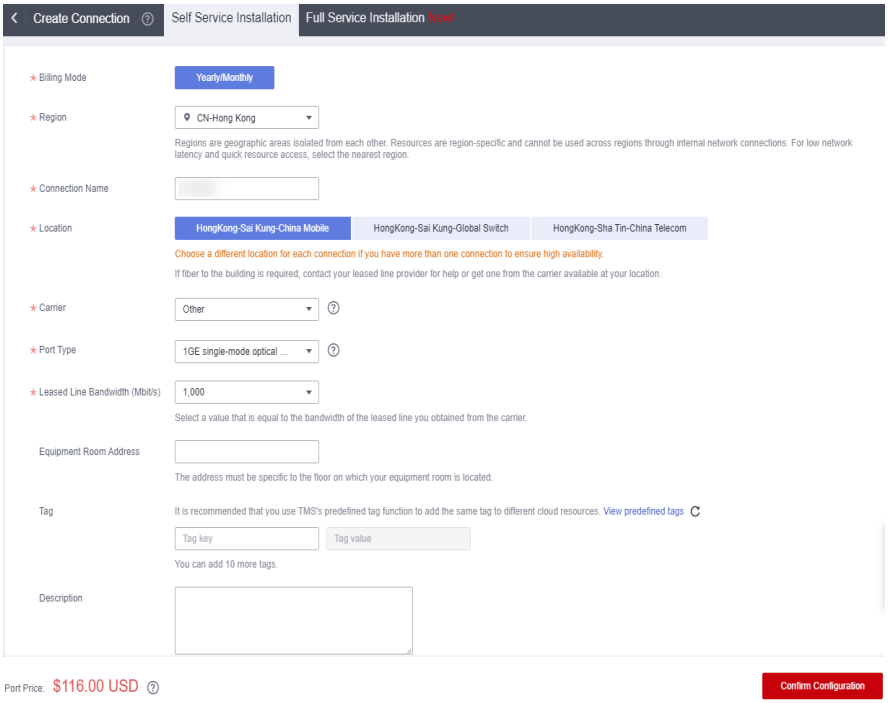


**Table 1-2** Parameters required for creating a connection

| Parameter | Description |
| --- | --- |
| Billing Mode | Specifies how you are charged for the connection. Currently, only **Yearly/Monthly** is supported. |
| Region | Specifies the region where the connection resides. You can also change the region in the upper left corner of the console. |
| Connection Name | Specifies the name of your connection. |
| Location | Specifies the Direct Connect location where your leased line can be connected to. |
| Carrier | Specifies the carrier that provides the leased line. |
| Port Type | Specifies the type of the port that the leased line is connected to. There are four types of ports: 1GE, 10GE, 40GE, and 100GE. |
| Leased Line Bandwidth | Specifies the bandwidth of the leased line in the unit of Mbit/s. |
| Your Equipment Room Address | Specifies the address of your equipment room. The address must be specific to the floor your equipment room is on, for example, XX Equipment Room, XX Building, No. XX, Huajing Road, Pudong District, Shanghai. |
| Tag | Identifies the connection. A tag consists of a key and a value. You can add 10 tags to a connection.<br>Tag keys and values must meet the requirements listed in **Table 1-3**.<br>**NOTE**<br>If a predefined tag has been created on Tag Management Service (TMS), you can directly select the corresponding tag key and value.<br>For details about predefined tags, see **Predefined Tag Overview**.<br>If you have configured tag policies for Direct Connect, you need to add tags to your connections based on the tag policies. If you add a tag that does not comply with the tag policies, connections may fail to be created. Contact the administrator to learn more about tag policies. |
| Description | Provides supplementary information about the connection. |
| Contact Person/ Phone Number/Email | Specifies who is responsible for your connection.<br>If you do not provide any contact information, we will contact the person in your account information. |
| Required Duration | Specifies how long the connection will be used for. |

| Parameter | Description |
| --- | --- |
| Auto-renew | Specifies whether to automatically renew the subscription to ensure service continuity.<br>For example, if you select this option and the required duration is three months, the system automatically renews the subscription for another three months. |
| Enterprise Project | Provides a cloud resource management mode where cloud resources and members are centrally managed by project. |

**Table 1-3** Tag key and value requirements

| Parameter | Requirements |
| --- | --- |
| Key | – Cannot be left blank.<br>– Must be unique for each resource.<br>– Can contain a maximum of 36 characters.<br>– Can contain only letters, digits, hyphens, underscores, and Unicode characters from \u4e00 to \u9fff. |
| Value | – Can be left blank.<br>– Can contain a maximum of 43 characters.<br>– Can contain only letters, digits, period, hyphens, underscores, and Unicode characters from \u4e00 to \u9fff. |

7. Click **Next**.
8. Confirm the connection information and click **Pay Now**.
9. Confirm the order, select a payment method, and click **Confirm**.

**Step 2** Create a virtual gateway.

1. In the navigation pane on the left, choose **Direct Connect** > **Virtual Gateways**.
2. Click **Create Virtual Gateway**.
3. Configure the parameters based on **Table 1-4**.

**Figure 1-3** Creating a virtual gateway


**Table 1-4** Parameters required for creating a virtual gateway

| Parameter | Description |
| --- | --- |
| Name | Specifies the virtual gateway name.<br>The name can contain 1 to 64 characters. |
| Enterprise Project | Provides a cloud resource management mode where cloud resources and members are centrally managed by project. |
| Attachment | Specifies whether the virtual gateway is associated with a VPC or attached to an enterprise router. |
| VPC | Specifies the VPC to be associated with the virtual gateway.<br>This parameter is mandatory when you set **Attachment** to **VPC**. |
| Enterprise Router | Specifies the enterprise router that the virtual gateway is attached to.<br>This parameter is displayed when you set **Attachment** to **Enterprise Router**. |

N/A

| Parameter | Description |
| --- | --- |
| Local Subnet | Specifies the CIDR blocks of the subnets in the VPC to be accessed using Direct Connect.<br>This parameter is mandatory when you set **Attachment** to **VPC**.<br>You can add one or more CIDR blocks. If there are multiple CIDR blocks, separate every entry with a comma (,). |
| BGP ASN | Specifies the BGP ASN of the virtual gateway.<br>**NOTE**<br>Generally, Huawei Cloud's BGP ASN is 64512. There are two special cases:<br>– In the CN North-Beijing1 region, the default BGP ASN of Huawei Cloud is 65533.<br>– In the AP-Bangkok region, the BGP ASN of some Direct Connect locations is 65535 by default. For details, contact the Direct Connect manager. |
| Description | Provides supplementary information about the virtual gateway. |
| Configuration Fee | Shows the prices of the enterprise router attachment and of the traffic used by the enterprise router.<br>This parameter is displayed when you set **Attachment** to **Enterprise Router**. |

4. Click **OK**.

**Step 3** Create a virtual interface.

1. In the navigation pane on the left, choose **Direct Connect** > **Virtual Interfaces**.
2. Click **Create Virtual Interface**.
3. Configure the parameters based on **Table 1-5**.

**Figure 1-4** Creating a virtual interface

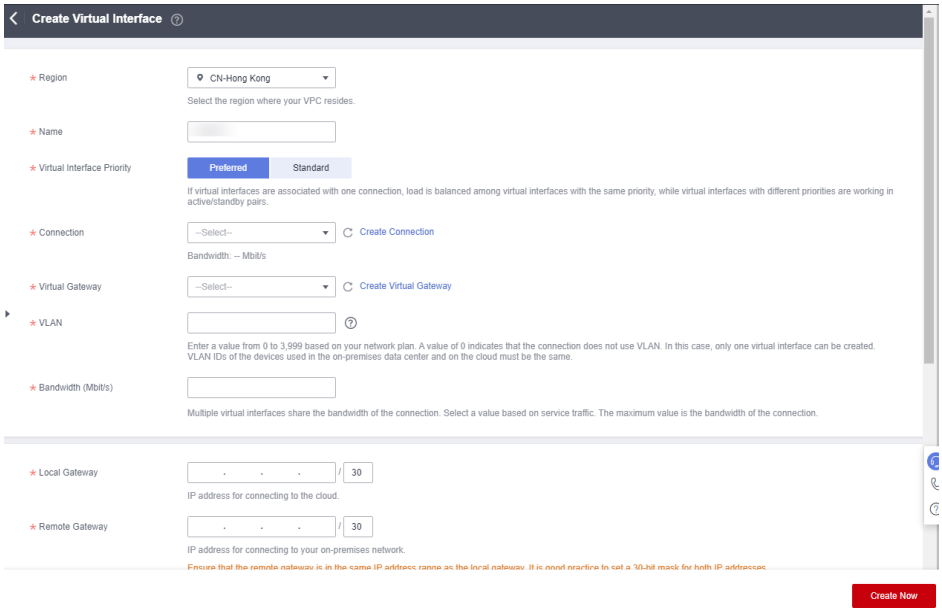



**Table 1-5** Parameters required for creating a virtual interface

| Parameter | Description |
| --- | --- |
| Region | Specifies the region where the connection resides. You can also change the region in the upper left corner of the console. |
| Name | Specifies the virtual interface name.<br>The name can contain 1 to 64 characters. |
| Virtual Interface Priority | Specifies whether the virtual interface will be used prior to other virtual interfaces. There are two options: **Preferred** and **Standard**.<br>If multiple virtual interfaces are associated with one Direct Connect device, load is balanced among virtual interfaces with the same priority, while virtual interfaces with different priorities are working in active/standby pairs. |
| Connection | Specifies the connection you can use to connect your on-premises network to Huawei Cloud. |
| Virtual Gateway | Specifies the virtual gateway that the virtual interface connects to. |
| VLAN | Specifies the ID of the VLAN for the virtual interface.<br>– Standard connections: You need to configure the VLAN.<br>– Hosted connections: The VLAN will be allocated by the carrier or partner. You do not need to configure the VLAN. |

| Parameter | Description |
| --- | --- |
| Bandwidth | Specifies the bandwidth that can be used by the virtual interface, in Mbit/s. The bandwidth cannot exceed that of the connection. |
| Enable Rate Limiting | Limits the highest bandwidth that can be used by the virtual interface. After this option is enabled, the rate limit gradients are as follows:<br>– If the bandwidth is less than or equal to 100 Mbit/s, the rate limit gradient is 10 Mbit/s.<br>– If the bandwidth is greater than 100 Mbit/s but is less than or equal to 1,000 Mbit/s, the rate limit gradient is 100 Mbit/s.<br>– If the bandwidth is greater than 1,000 Mbit/s but is less than or equal to 100 Gbit/s, the rate limit gradient is 1 Gbit/s.<br>– If the bandwidth is greater than 100 Gbit/s, the rate limit gradient is 10 Gbit/s.<br>For example, if the bandwidth is 52 Mbit/s, the actual rate limit is 60 Mbit/s. If the bandwidth is 115 Mbit/s, the actual rate limit is 200 Mbit/s. |
| Enterprise Project | Provides a cloud resource management mode where cloud resources and members are centrally managed by project. |
| Local Gateway | Specifies the gateway on the Huawei Cloud network. |
| Remote Gateway | Specifies the gateway on your on-premises network.<br>The remote gateway must be in the same IP address range as the local gateway. Generally, a subnet with a 30-bit mask is recommended. |
| Remote Subnet | Specifies the subnets and masks of your on-premises network. If there are multiple subnets, use commas (,) to separate them. |
| Routing Mode | Specifies whether static routing or dynamic routing is used to route traffic between your on-premises network and the cloud network.<br>If there are or will be two or more connections, select BGP routing to achieve higher availability. |
| BGP ASN | Specifies the ASN of the BGP peer.<br>This parameter is required when BGP routing is selected. |

| Parameter | Description |
| --- | --- |
| BGP MD5 Authentication Key | Specifies the password used to authenticate the BGP peer using MD5.<br>This parameter is mandatory when BGP routing is selected, and the parameter values on both gateways must be the same.<br>The key contains 8 to 255 characters and must contain at least two types of the following characters:<br>– Uppercase letters<br>– Lowercase letters<br>– Digits<br>– Special characters ~!, .:;-_"(){}[]/@#$ %^&*+\|= |
| Description | Provides supplementary information about the virtual interface. |

4. Click **Create Now**.

   NOTE

   The default security group rule denies all the inbound traffic. Ensure that security group rules in both directions are correctly configured for resources in the regions to ensure normal communications.

**Step 4** Wait for route propagation on the cloud.

Direct Connect automatically propagates the routes after a connection is established between your on-premises network and the cloud network.

**Step 5** Configure a static route on your device.

(Here is a static route on a Huawei device.)

```
ip route-static 192.168.0.0 255.255.0.0 10.0.0.1
```

**----End**

# 2 Accessing a VPC over a Single Connection Through BGP Routes

## Overview

Connect your on-premises network to the cloud network and use BGP routes to route traffic between your on-premises network and the VPC.

## Prerequisites

- Your on-premises network must use a single-mode fiber with a 1GE, 10GE, 40GE, or 100GE optical module to connect to the access device in the cloud.
- Auto-negotiation for the port must be disabled. Port speed and full-duplex mode must be manually configured.
- 802.1Q VLAN encapsulation is supported on your on-premises network.
- Your device supports BGP and does not use ASN 64512, which is used by Huawei Cloud.

## Typical Topology

Your on-premises network is connected to a VPC in the CN-Hong Kong region over a single connection.

For details on how to create a VPC, see the **Creating a VPC**.

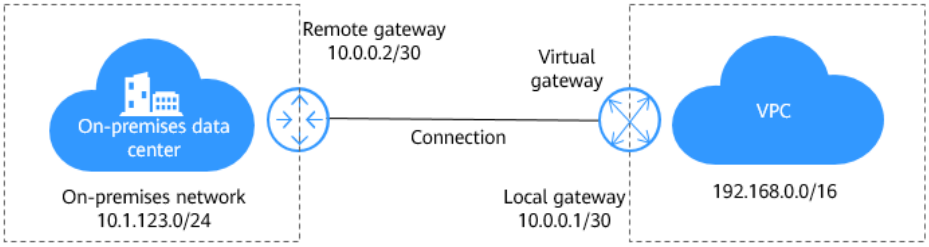
The following table lists the CIDR blocks used in this example:

**Table 2-1** CIDR blocks

| Item | CIDR Block |
| --- | --- |
| Your on-premises network | 10.1.123.0/24 |
| Local and remote gateways (addresses for interconnection) | 10.0.0.0/30 |
| VPC | 192.168.0.0/16 |

**Figure 2-1** Accessing a VPC over a connection though BGP routes




## Procedure

**Step 1** Create a connection.

1. Log in to the management console.
2. On the console homepage, click  in the upper left corner and select the desired region and project.
3. Hover on  to display **Service List** and choose **Networking** > **Direct Connect**.
4. In the navigation pane on the left, choose **Direct Connect** > **Connections**.
5. Click **Create Connection**.
6. On the **Create Connection** page, enter the equipment room details and select the Direct Connect location and port based on **Table 2-2**.

**Figure 2-2** Creating a self-service connection

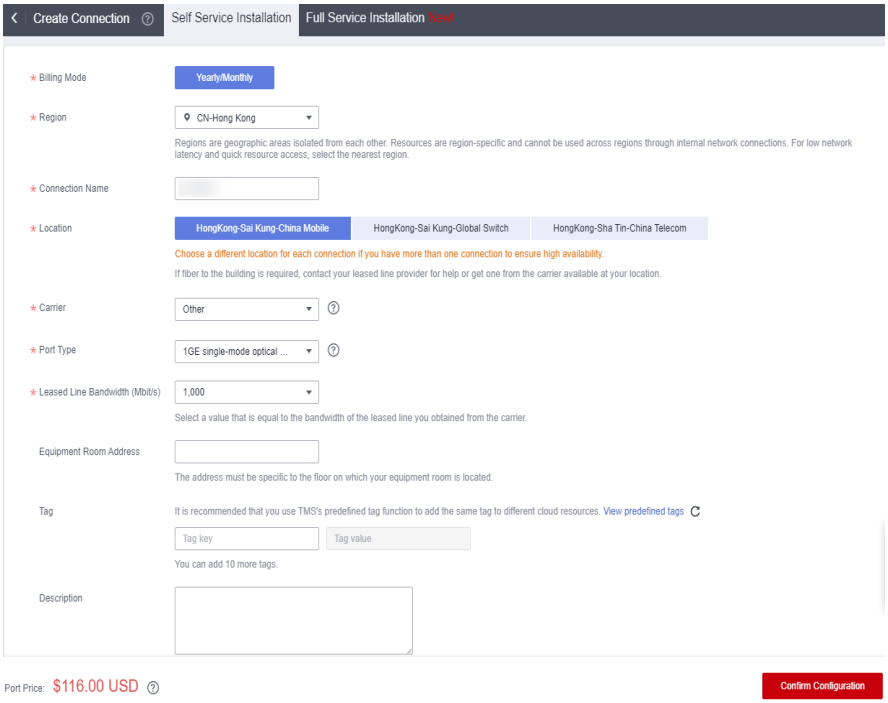


**Table 2-2** Parameters required for creating a connection

| Parameter | Description |
| --- | --- |
| Billing Mode | Specifies how you are charged for the connection. Currently, only **Yearly/Monthly** is supported. |
| Region | Specifies the region where the connection resides. You can also change the region in the upper left corner of the console. |
| Connection Name | Specifies the name of your connection. |
| Location | Specifies the Direct Connect location where your leased line can be connected to. |
| Carrier | Specifies the carrier that provides the leased line. |
| Port Type | Specifies the type of the port that the leased line is connected to. There are four types of ports: 1GE, 10GE, 40GE, and 100GE. |
| Leased Line Bandwidth | Specifies the bandwidth of the leased line in the unit of Mbit/s. |
| Your Equipment Room Address | Specifies the address of your equipment room. The address must be specific to the floor your equipment room is on, for example, XX Equipment Room, XX Building, No. XX, Huajing Road, Pudong District, Shanghai. |
| Tag | Identifies the connection. A tag consists of a key and a value. You can add 10 tags to a connection.<br>Tag keys and values must meet the requirements listed in **Table 2-3**.<br>**NOTE**<br>If a predefined tag has been created on Tag Management Service (TMS), you can directly select the corresponding tag key and value.<br>For details about predefined tags, see **Predefined Tag Overview**.<br>If you have configured tag policies for Direct Connect, you need to add tags to your connections based on the tag policies. If you add a tag that does not comply with the tag policies, connections may fail to be created. Contact the administrator to learn more about tag policies. |
| Description | Provides supplementary information about the connection. |

| Parameter | Description |
| --- | --- |
| Contact Person/Phone Number/Email | Specifies who is responsible for your connection.<br>If you do not provide any contact information, we will contact the person in your account information. |
| Required Duration | Specifies how long the connection will be used for. |
| Auto-renew | Specifies whether to automatically renew the subscription to ensure service continuity.<br>For example, if you select this option and the required duration is three months, the system automatically renews the subscription for another three months. |
| Enterprise Project | Provides a cloud resource management mode where cloud resources and members are centrally managed by project. |

**Table 2-3** Tag key and value requirements

| Parameter | Requirements |
| --- | --- |
| Key | – Cannot be left blank.<br>– Must be unique for each resource.<br>– Can contain a maximum of 36 characters.<br>– Can contain only letters, digits, hyphens, underscores, and Unicode characters from \u4e00 to \u9fff. |
| Value | – Can be left blank.<br>– Can contain a maximum of 43 characters.<br>– Can contain only letters, digits, period, hyphens, underscores, and Unicode characters from \u4e00 to \u9fff. |

7. Click **Next**.
8. Confirm the connection information and click **Pay Now**.
9. Confirm the order, select a payment method, and click **Confirm**.

**Step 2** Create a virtual gateway.

1. In the navigation pane on the left, choose **Direct Connect** > **Virtual Gateways**.
2. Click **Create Virtual Gateway**.
3. Configure the parameters based on **Table 2-4**.

**Figure 2-3** Creating a virtual gateway


**Table 2-4** Parameters required for creating a virtual gateway

| Parameter | Description |
| --- | --- |
| Name | Specifies the virtual gateway name.<br>The name can contain 1 to 64 characters. |
| Enterprise Project | Provides a cloud resource management mode where cloud resources and members are centrally managed by project. |
| Attachment | Specifies whether the virtual gateway is associated with a VPC or attached to an enterprise router. |
| VPC | Specifies the VPC to be associated with the virtual gateway.<br>This parameter is mandatory when you set **Attachment** to **VPC**. |
| Enterprise Router | Specifies the enterprise router that the virtual gateway is attached to.<br>This parameter is displayed when you set **Attachment** to **Enterprise Router**. |

N/A

| Parameter | Description |
| --- | --- |
| Local Subnet | Specifies the CIDR blocks of the subnets in the VPC to be accessed using Direct Connect.<br>This parameter is mandatory when you set **Attachment** to **VPC**.<br>You can add one or more CIDR blocks. If there are multiple CIDR blocks, separate every entry with a comma (,). |
| BGP ASN | Specifies the BGP ASN of the virtual gateway.<br>**NOTE**<br>Generally, Huawei Cloud's BGP ASN is 64512. There are two special cases:<br>– In the CN North-Beijing1 region, the default BGP ASN of Huawei Cloud is 65533.<br>– In the AP-Bangkok region, the BGP ASN of some Direct Connect locations is 65535 by default. For details, contact the Direct Connect manager. |
| Description | Provides supplementary information about the virtual gateway. |
| Configuration Fee | Shows the prices of the enterprise router attachment and of the traffic used by the enterprise router.<br>This parameter is displayed when you set **Attachment** to **Enterprise Router**. |

4. Click **OK**.

**Step 3** Create a virtual interface.

1. In the navigation pane on the left, choose **Direct Connect** > **Virtual Interfaces**.
2. Click **Create Virtual Interface**.
3. Configure the parameters based on **Table 2-5**.

**Figure 2-4** Creating a virtual interface

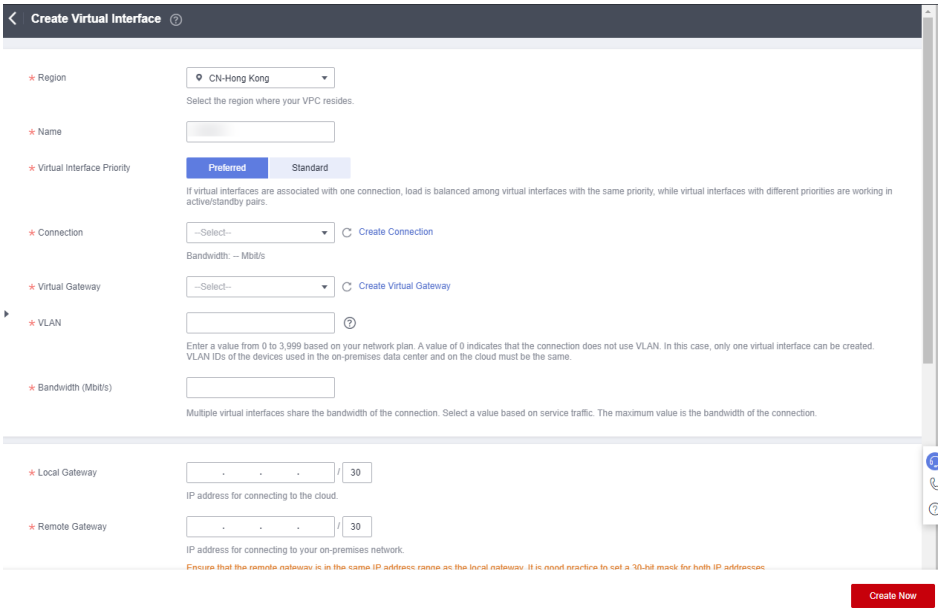



**Table 2-5** Parameters required for creating a virtual interface

| Parameter | Description |
| --- | --- |
| Region | Specifies the region where the connection resides. You can also change the region in the upper left corner of the console. |
| Name | Specifies the virtual interface name.<br>The name can contain 1 to 64 characters. |
| Virtual Interface Priority | Specifies whether the virtual interface will be used prior to other virtual interfaces. There are two options: **Preferred** and **Standard**.<br>If multiple virtual interfaces are associated with one Direct Connect device, load is balanced among virtual interfaces with the same priority, while virtual interfaces with different priorities are working in active/standby pairs. |
| Connection | Specifies the connection you can use to connect your on-premises network to Huawei Cloud. |
| Virtual Gateway | Specifies the virtual gateway that the virtual interface connects to. |

| Parameter | Description |
| --- | --- |
| VLAN | Specifies the ID of the VLAN for the virtual interface.<br>– Standard connections: You need to configure the VLAN.<br>– Hosted connections: The VLAN will be allocated by the carrier or partner. You do not need to configure the VLAN. |
| Bandwidth | Specifies the bandwidth that can be used by the virtual interface, in Mbit/s. The bandwidth cannot exceed that of the connection. |
| Enable Rate Limiting | Limits the highest bandwidth that can be used by the virtual interface. After this option is enabled, the rate limit gradients are as follows:<br>– If the bandwidth is less than or equal to 100 Mbit/s, the rate limit gradient is 10 Mbit/s.<br>– If the bandwidth is greater than 100 Mbit/s but is less than or equal to 1,000 Mbit/s, the rate limit gradient is 100 Mbit/s.<br>– If the bandwidth is greater than 1,000 Mbit/s but is less than or equal to 100 Gbit/s, the rate limit gradient is 1 Gbit/s.<br>– If the bandwidth is greater than 100 Gbit/s, the rate limit gradient is 10 Gbit/s.<br>For example, if the bandwidth is 52 Mbit/s, the actual rate limit is 60 Mbit/s. If the bandwidth is 115 Mbit/s, the actual rate limit is 200 Mbit/s. |
| Enterprise Project | Provides a cloud resource management mode where cloud resources and members are centrally managed by project. |
| Local Gateway | Specifies the gateway on the Huawei Cloud network. |
| Remote Gateway | Specifies the gateway on your on-premises network.<br>The remote gateway must be in the same IP address range as the local gateway. Generally, a subnet with a 30-bit mask is recommended. |
| Remote Subnet | Specifies the subnets and masks of your on-premises network. If there are multiple subnets, use commas (,) to separate them. |

| Parameter | Description |
| --- | --- |
| Routing Mode | Specifies whether static routing or dynamic routing is used to route traffic between your on-premises network and the cloud network.<br>If there are or will be two or more connections, select BGP routing to achieve higher availability. |
| BGP ASN | Specifies the ASN of the BGP peer.<br>This parameter is required when BGP routing is selected. |
| BGP MD5 Authentication Key | Specifies the password used to authenticate the BGP peer using MD5.<br>This parameter is mandatory when BGP routing is selected, and the parameter values on both gateways must be the same.<br>The key contains 8 to 255 characters and must contain at least two types of the following characters:<br>– Uppercase letters<br>– Lowercase letters<br>– Digits<br>– Special characters ~!, .:;-_"(){}[]/@#$ %^&*+\|= |
| Description | Provides supplementary information about the virtual interface. |

4. Click **Create Now**.

   **NOTE**

   The default security group rule denies all the inbound traffic. Ensure that security group rules in both directions are correctly configured for resources in the regions to ensure normal communications.

**Step 4** Wait for route propagation on the cloud.

Direct Connect automatically propagates the routes after a connection is established between your on-premises network and the cloud network.

**Step 5** Configure a static route on your device.

(Here is a static route on a Huawei device.)

```
bgp 64510
peer 10.0.0.1 as-number 64512
peer 10.0.0.1 password simple 1234567
network 10.1.123.0 255.255.255.0
```

**----End**

# 3 Accessing a VPC over Two Connections Through BGP Routes

## Overview

### Scenarios

Connect your on-premises network to the cloud over two connections that are terminated at two locations in the same region and use BGP routes to route traffic between your on-premises network and the VPC. You can set priorities for the virtual interfaces to determine the active and standby connections.

### Typical Topology

Your on-premises network is connected to a VPC in the CN Hong Kong region over two connections, with one terminated at Hong Kong-Sha Tin-Telecom and the other one terminated at Hong Kong-Sai Kung-Mobile.

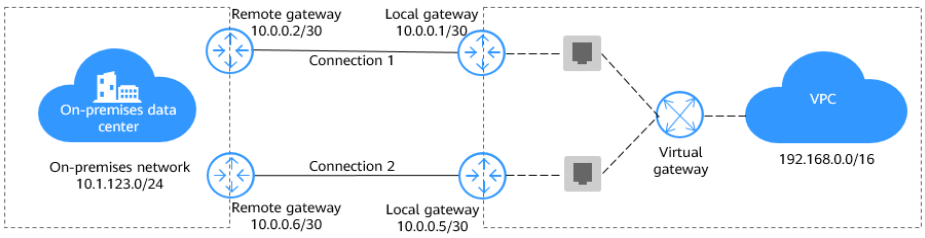
For details on how to create a VPC, see the **Creating a VPC**.

The following table lists the CIDR blocks used in this example.

**Table 3-1** CIDR blocks

| Item | CIDR Block |
| --- | --- |
| Your on-premises network | 10.1.123.0/24 |
| Local and remote gateways (addresses for interconnection) | 10.0.0.0/30 and 10.0.0.4/30 |
| VPC | 192.168.0.0/16 |

**Figure 3-1** Accessing a VPC over two connections that use BGP routing



**Advantages**

- Multi-cloud architecture: You can access Huawei Cloud from any location that is closer to your on-premises data center or the third-party cloud and use Direct Connect to connect different clouds for backup.
- Secure and reliable: Computing is performed on the clouds with minimum data transmitted over the dedicated network connection, and your core data is still stored in your on-premises data center.

**Constraints**

- Your on-premises network must use a single-mode fiber with a 1GE, 10GE, 40GE, or 100GE optical module to connect to the access devices in the cloud.
- Auto-negotiation for the ports must be disabled. Port speed and full-duplex mode must be manually configured.
- 802.1Q VLAN encapsulation is supported on your on-premises network.
- Your device supports BGP and does not use ASN 64512, which is used by Huawei Cloud.

## Resource Planning

The following table describes the resource planning in the best practice.

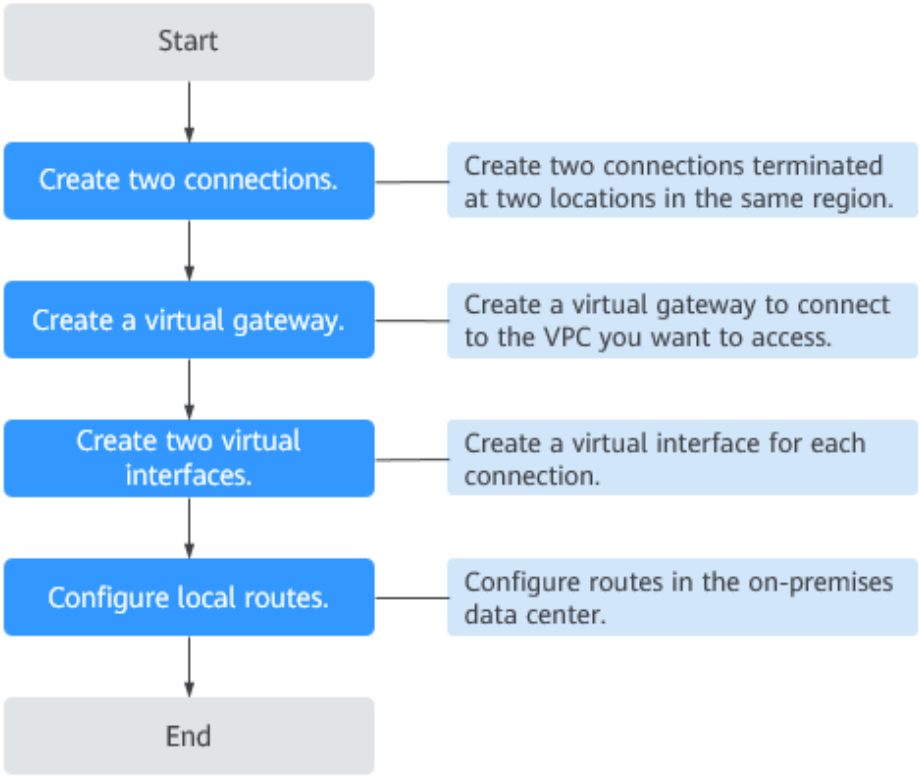
**Table 3-2** Resource planning for accessing a VPC over two connections

| Region | Resource | Description | Quantity | Price |
| --- | --- | --- | --- | --- |
| CN-Hong Kong | VPC | VPC subnet: 192.168.0.0/16 | 1 | Free |
| | Connection | Connection **dc-connect1** is terminated at Hong Kong-Sha Tin-Telecom and associated with virtual gateway **vgw-test** and virtual interface **vif-test1**.<br>• Local subnet of virtual gateway **vgw-test**: 192.168.0.0/16<br>• Local gateway of virtual interface **vif-test1**: 10.0.0.1/30<br>• Remote gateway of virtual interface **vif-test1**: 10.0.0.2/30<br>• Remote subnet of virtual interface **vif-test1**: 10.1.123.0/24 | 2 | For details, see **Direct Connect Pricing Details**. |

| Region | Resource | Description | Quantity | Price |
| --- | --- | --- | --- | --- |
| | | Connection **dc-connect2** is terminated at Hong Kong-Sai Kung-Mobile and associated with virtual gateway **vgw-test** and virtual interface **vif-test2**.<br>• Local subnet of virtual gateway **vgw-test**: 192.168.0.0/16<br>• Local gateway of virtual interface **vif-test2**: 10.0.0.5/30<br>• Remote gateway of virtual interface **vif-test2**: 10.0.0.6/30<br>• Remote subnet of virtual interface **vif-test2**: 10.1.123.0/24 | | |

## Operation Process

In this scenario, your on-premises network connects to the cloud over two connections that are terminated at two locations in the same region, and BGP routes are used to route traffic between your on-premises network and the VPC.



## Procedure

**Step 1** Create two connections: **dc-connect1** and **dc-connect2**.

1. Log in to the management console.
2. On the console homepage, click  in the upper left corner and select the desired region and project.
3. Hover on  to display **Service List** and choose **Networking** > **Direct Connect**.
4. In the navigation pane on the left, choose **Direct Connect** > **Connections**.
5. Click **Create Connection**.
6. On the **Create Connection** page, enter the equipment room details and select the Direct Connect location and port based on **Table 3-3**.

**Figure 3-2** Creating a self-service connection

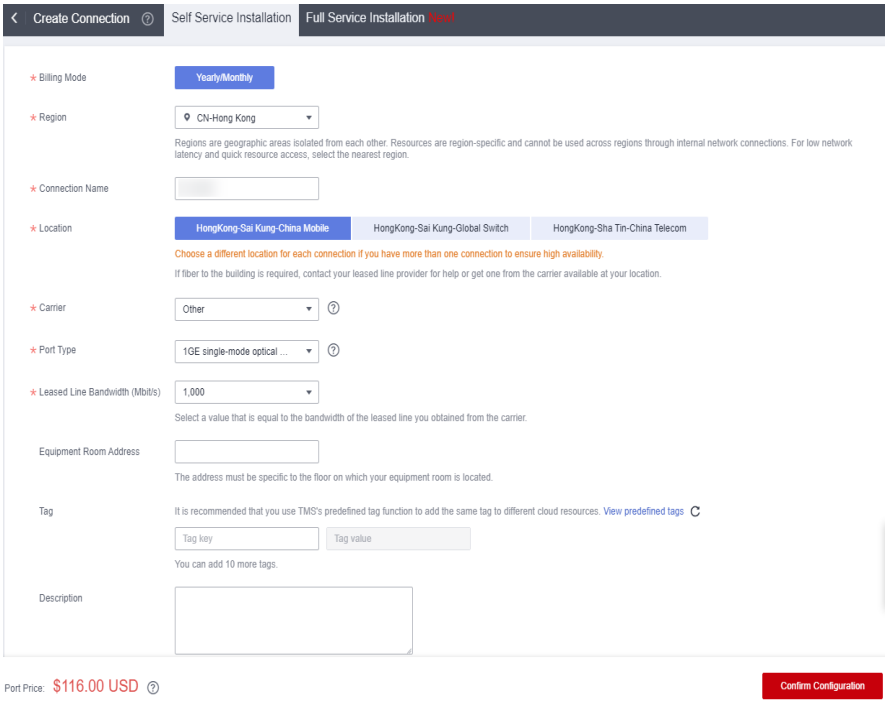



**Table 3-3** Parameters required for creating a connection

| Parameter | Description |
| --- | --- |
| Billing Mode | Specifies how you are charged for the connection. Currently, only **Yearly/Monthly** is supported. |
| Region | Specifies the region where the connection resides. You can also change the region in the upper left corner of the console. |
| Connection Name | Specifies the name of your connection. |

| Parameter | Description |
| --- | --- |
| Location | Specifies the Direct Connect location where your leased line can be connected to. |
| Carrier | Specifies the carrier that provides the leased line. |
| Port Type | Specifies the type of the port that the leased line is connected to. There are four types of ports: 1GE, 10GE, 40GE, and 100GE. |
| Leased Line Bandwidth | Specifies the bandwidth of the leased line in the unit of Mbit/s. |
| Your Equipment Room Address | Specifies the address of your equipment room. The address must be specific to the floor your equipment room is on, for example, XX Equipment Room, XX Building, No. XX, Huajing Road, Pudong District, Shanghai. |
| Tag | Identifies the connection. A tag consists of a key and a value. You can add 10 tags to a connection.<br>Tag keys and values must meet the requirements listed in **Table 3-4**.<br>**NOTE**<br>If a predefined tag has been created on Tag Management Service (TMS), you can directly select the corresponding tag key and value.<br>For details about predefined tags, see **Predefined Tag Overview**.<br>If you have configured tag policies for Direct Connect, you need to add tags to your connections based on the tag policies. If you add a tag that does not comply with the tag policies, connections may fail to be created. Contact the administrator to learn more about tag policies. |
| Description | Provides supplementary information about the connection. |
| Contact Person/ Phone Number/Email | Specifies who is responsible for your connection.<br>If you do not provide any contact information, we will contact the person in your account information. |
| Required Duration | Specifies how long the connection will be used for. |
| Auto-renew | Specifies whether to automatically renew the subscription to ensure service continuity.<br>For example, if you select this option and the required duration is three months, the system automatically renews the subscription for another three months. |
| Enterprise Project | Provides a cloud resource management mode where cloud resources and members are centrally managed by project. |

**Table 3-4** Tag key and value requirements

| Parameter | Requirements |
| --- | --- |
| Key | – Cannot be left blank.<br>– Must be unique for each resource.<br>– Can contain a maximum of 36 characters.<br>– Can contain only letters, digits, hyphens, underscores, and Unicode characters from \u4e00 to \u9fff. |
| Value | – Can be left blank.<br>– Can contain a maximum of 43 characters.<br>– Can contain only letters, digits, period, hyphens, underscores, and Unicode characters from \u4e00 to \u9fff. |

7. Click **Next**.
8. Confirm the connection information and click **Pay Now**.
9. Confirm the order, select a payment method, and click **Confirm**.
10. Repeat steps **Step 1.4** to **Step 1.9** to create connection **dc-connect2** and select **Hong Kong-Sai Kung-China Mobile** as its location.

**Step 2** Create a virtual gateway named **vgw-test**.

1. In the navigation pane on the left, choose **Direct Connect** > **Virtual Gateways**.
2. Click **Create Virtual Gateway**.
3. Configure the parameters based on **Table 3-5**.

**Figure 3-3** Creating a virtual gateway

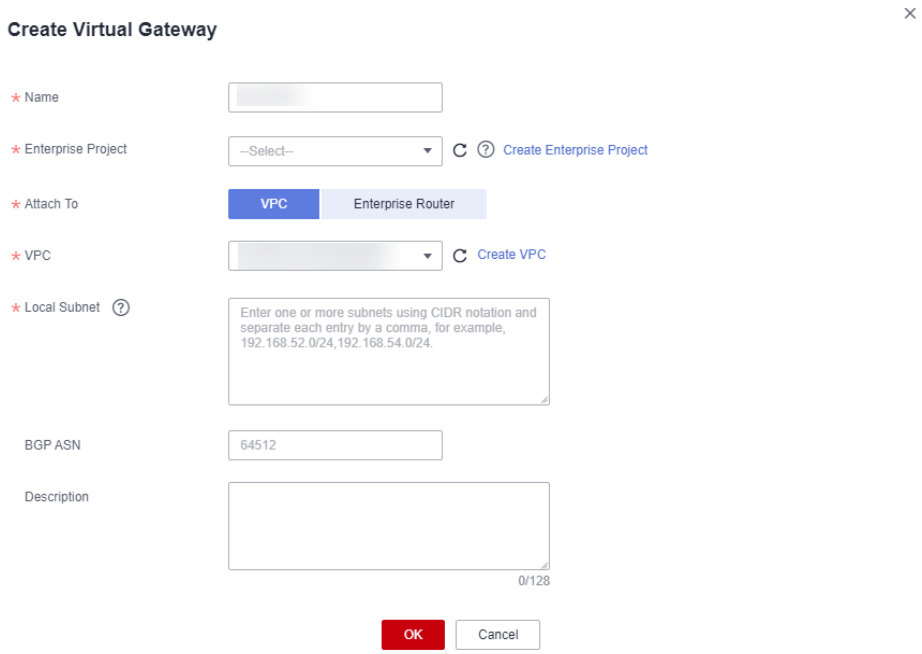


**Table 3-5** Parameters required for creating a virtual gateway

| Parameter | Description |
| --- | --- |
| Name | Specifies the virtual gateway name.<br>The name can contain 1 to 64 characters. |
| Enterprise Project | Provides a cloud resource management mode where cloud resources and members are centrally managed by project. |
| Attachment | Specifies whether the virtual gateway is associated with a VPC or attached to an enterprise router. |
| VPC | Specifies the VPC to be associated with the virtual gateway.<br>This parameter is mandatory when you set **Attachment** to **VPC**. |
| Enterprise Router | Specifies the enterprise router that the virtual gateway is attached to.<br>This parameter is displayed when you set **Attachment** to **Enterprise Router**. |
| Local Subnet | Specifies the CIDR blocks of the subnets in the VPC to be accessed using Direct Connect.<br>This parameter is mandatory when you set **Attachment** to **VPC**.<br>You can add one or more CIDR blocks. If there are multiple CIDR blocks, separate every entry with a comma (,). |
| BGP ASN | Specifies the BGP ASN of the virtual gateway.<br>**NOTE**<br>Generally, Huawei Cloud's BGP ASN is 64512. There are two special cases:<br>– In the CN North-Beijing1 region, the default BGP ASN of Huawei Cloud is 65533.<br>– In the AP-Bangkok region, the BGP ASN of some Direct Connect locations is 65535 by default. For details, contact the Direct Connect manager. |
| Description | Provides supplementary information about the virtual gateway. |
| Configuration Fee | Shows the prices of the enterprise router attachment and of the traffic used by the enterprise router.<br>This parameter is displayed when you set **Attachment** to **Enterprise Router**. |

N/A

4. Click **OK**.

**Step 3** Create two virtual interfaces: **vif-test1** and **vif-test2**.

Associate virtual interface **vif-test1** with virtual gateway **vgw-test** and connection **dc-connect1** and virtual interface **vif-test2** with virtual gateway **vgw-test** and connection **dc-connect2**.

1. In the navigation pane on the left, choose **Direct Connect** > **Virtual Interfaces**.
2. Click **Create Virtual Interface**.
3. Configure the parameters based on **Table 3-6**.

**Figure 3-4** Creating a virtual interface

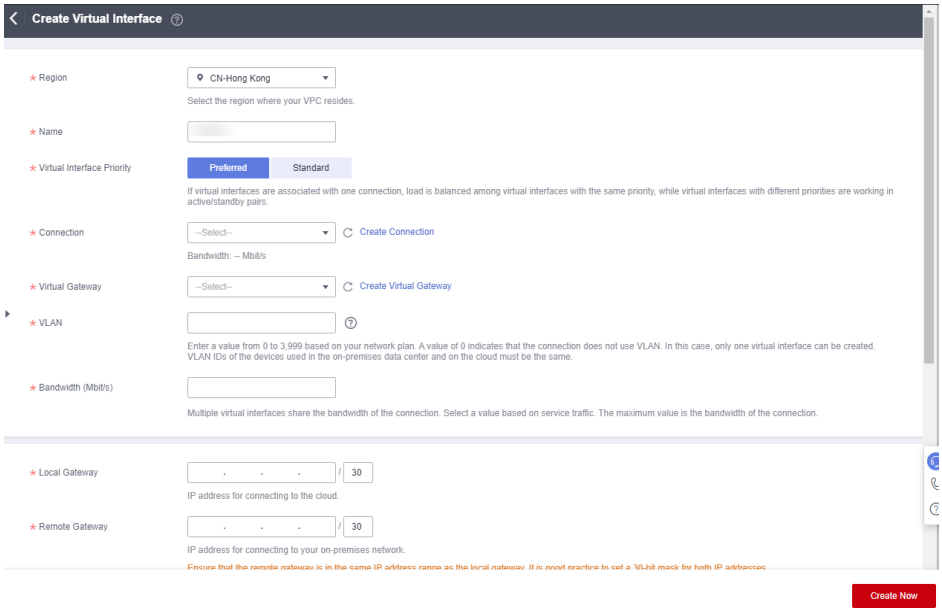



**Table 3-6** Parameters required for creating a virtual interface

| Parameter | Description |
| --- | --- |
| Region | Specifies the region where the connection resides. You can also change the region in the upper left corner of the console. |
| Name | Specifies the virtual interface name.<br>The name can contain 1 to 64 characters. |
| Virtual Interface Priority | Specifies whether the virtual interface will be used prior to other virtual interfaces. There are two options: **Preferred** and **Standard**.<br>If multiple virtual interfaces are associated with one Direct Connect device, load is balanced among virtual interfaces with the same priority, while virtual interfaces with different priorities are working in active/standby pairs.<br>For details, see **Active/Standby Connections**. |
| Connection | Specifies the connection you can use to connect your on-premises network to Huawei Cloud. |

| Parameter | Description |
| --- | --- |
| Virtual Gateway | Specifies the virtual gateway that the virtual interface connects to. |
| VLAN | Specifies the ID of the VLAN for the virtual interface.<br>– Standard connections: You need to configure the VLAN.<br>– Hosted connections: The VLAN will be allocated by the carrier or partner. You do not need to configure the VLAN. |
| Bandwidth | Specifies the bandwidth that can be used by the virtual interface, in Mbit/s. The bandwidth cannot exceed that of the connection. |
| Enable Rate Limiting | Limits the highest bandwidth that can be used by the virtual interface. After this option is enabled, the rate limit gradients are as follows:<br>– If the bandwidth is less than or equal to 100 Mbit/s, the rate limit gradient is 10 Mbit/s.<br>– If the bandwidth is greater than 100 Mbit/s but is less than or equal to 1,000 Mbit/s, the rate limit gradient is 100 Mbit/s.<br>– If the bandwidth is greater than 1,000 Mbit/s but is less than or equal to 100 Gbit/s, the rate limit gradient is 1 Gbit/s.<br>– If the bandwidth is greater than 100 Gbit/s, the rate limit gradient is 10 Gbit/s.<br>For example, if the bandwidth is 52 Mbit/s, the actual rate limit is 60 Mbit/s. If the bandwidth is 115 Mbit/s, the actual rate limit is 200 Mbit/s. |
| Enterprise Project | Provides a cloud resource management mode where cloud resources and members are centrally managed by project. |
| Local Gateway | Specifies the gateway on the Huawei Cloud network. |
| Remote Gateway | Specifies the gateway on your on-premises network.<br>The remote gateway must be in the same IP address range as the local gateway. Generally, a subnet with a 30-bit mask is recommended. |
| Remote Subnet | Specifies the subnets and masks of your on-premises network. If there are multiple subnets, use commas (,) to separate them. |

| Parameter | Description |
| --- | --- |
| Routing Mode | Specifies whether static routing or dynamic routing is used to route traffic between your on-premises network and the cloud network.<br>If there are or will be two or more connections, select BGP routing to achieve higher availability. |
| BGP ASN | Specifies the ASN of the BGP peer.<br>This parameter is required when BGP routing is selected. |
| BGP MD5 Authentication Key | Specifies the password used to authenticate the BGP peer using MD5.<br>This parameter is mandatory when BGP routing is selected, and the parameter values on both gateways must be the same.<br>The key contains 8 to 255 characters and must contain at least two types of the following characters:<br>– Uppercase letters<br>– Lowercase letters<br>– Digits<br>– Special characters ~!, .:;-_"(){}[]/@#$ %^&*+\|= |
| Description | Provides supplementary information about the virtual interface. |

4. Click **Create Now**.
5. Repeat steps **Step 3.1** to **Step 3.4** to create virtual interface **vif-test2**.

   NOTE

   - When you create virtual interface **vif-test2**, select connection **dc-connect2**, and set **Local Gateway** to **10.0.0.5/30** and **Remote Gateway** to **10.0.0.6/30**.
   - Set different BGP ASNs and BGP MD5 authentication keys for the two virtual interfaces.
   - The default security group rule denies all the inbound traffic. Ensure that security group rules in both directions are correctly configured to ensure normal communications.

**Step 4** Wait for route propagation on the cloud.

Direct Connect automatically propagates the routes after a connection is established between your on-premises network and the cloud network.

**Step 5** Configure a static route on your device.

(Here is a static route on a Huawei device.)

```
bgp 64510
peer 10.0.0.1 as-number 64512
peer 10.0.0.1 password simple Qaz12345678
peer 10.0.0.5 as-number 64512
```

```
peer 10.0.0.5 password simple Qaz12345678
network 10.1.123.0 255.255.255.0
```

**----End**

## Active/Standby Connections

By default, BGP automatically selects the active and standby connections. To specify the active connection, perform the following operations:

- **Setting the active connection for connecting to the cloud**

  To set the connection terminated at Hong Kong-Sha Tin-Telecom as the active one, you can set **Local_Pref**.

  The following is an example configuration:

  ```
  bgp 64510
  peer 10.0.0.1 as-number 64512
  peer 10.0.0.1 password simple Qaz12345678
  peer 10.0.0.5 as-number 64512
  peer 10.0.0.5 password simple Qaz12345678
  peer 10.0.0.5 route-policy slave_direct_in import
  peer 10.0.0.5 route-policy slave_direct_out export
  network 10.1.123.0 255.255.255.0
  route-policy  slave_direct_in  permit node 10
  apply local-preference 90
  ```

- **Setting the active connection for connecting to the on-premises data center**

  Assume that the connection terminated at Hong Kong-Sha Tin-Telecom is expected to be the active connection. There are two ways to configure this:

  – Method 1: Setting the priority of each virtual interface

    Set the priority of the virtual interface associated with the connection terminated at Hong Kong-Sha Tin-Telecom to **Preferred**, and that of the virtual interface associated with the connection terminated at Hong Kong-Sai Kung-Mobile to **Standard**. To switch the active connection, you only need to change the priority of each virtual interface on the **Basic Information** page.

    For details, see **Creating a Virtual Interface**.

  – Method 2: Setting **AS_Path**

    The following is an example configuration:

    ```
    bgp 64510
    peer 10.0.0.1 as-number 64512
    peer 10.0.0.1 password simple Qaz12345678
    peer 10.0.0.5 as-number 64512
    peer 10.0.0.5 password simple Qaz12345678
    peer 10.0.0.5 route-policy slave_direct_in import
    peer 10.0.0.5 route-policy slave_direct_out export
    network 10.1.123.0 255.255.255.0
    route-policy  slave_direct_out  permit node 10
    apply as-path 64510 additive
    ```

**NOTE**

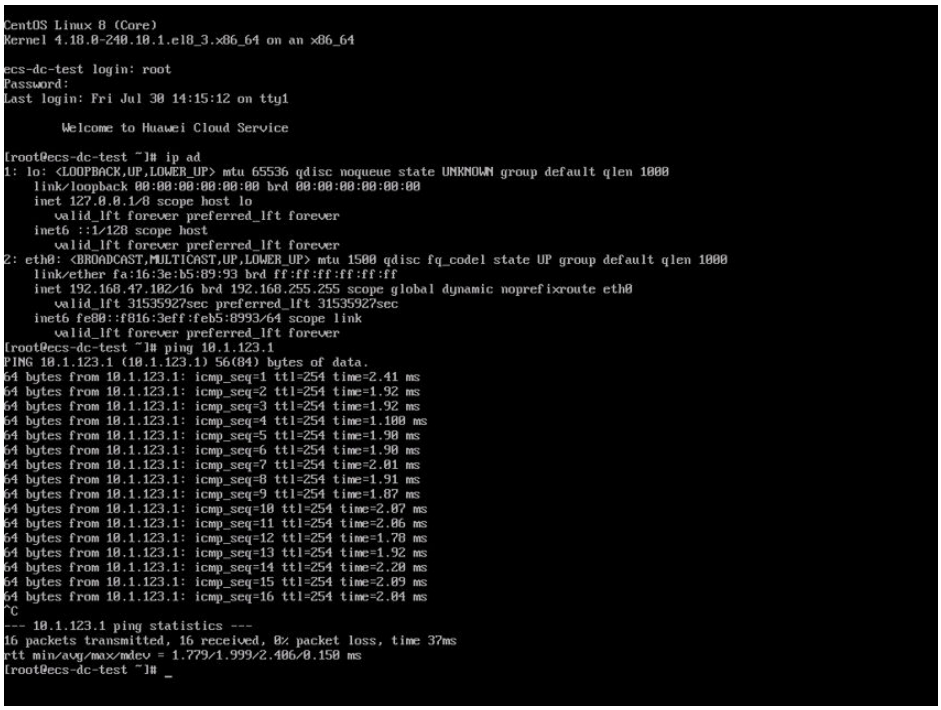
For the routes on the cloud, select the nearest Direct Connect gateway based on the location of the AZ.

## Connectivity Verification

Ping an on-premises server from an ECS to verify that the ECS can communicate with the on-premises server normally.

Disable any connection port and run the ping command again. If the ECS can still communicate with the on-premises server normally, the on-premises data center can access the cloud privately.

To view the specific path of a route, run the **tracert** command. The command varies according to the device type. For details, contact the device vendor.




## Helpful Links

- For details about how to troubleshoot connection faults, see **Network and Connectivity** and **Routing**.
- For common problems about establishing network connectivity using Direct Connect, see **Leased Line Construction**.
- For common problems about Direct Connect interconnection, see **Interconnection with Cloud**.

# 4 Connecting to Multiple VPCs that Do Not Need to Communicate with Each Other

## Scenarios

Connect your on-premises network to two or more VPCs over one connection and use static routes to route traffic between your on-premises network and the VPCs. These VPCs do not need to communicate with each other. In this example, there are two VPCs.

NOTE

Standard connections are used to provide dedicated ports for exclusive use.

## Prerequisites

- Your on-premises network must use a single-mode fiber with a 1GE, 10GE, 40GE, or 100GE optical module to connect to the access device in the cloud.
- Auto-negotiation for the port must be disabled. Port speed and full-duplex mode must be manually configured.
- 802.1Q VLAN encapsulation is supported on your on-premises network.

## Typical Topology

Your on-premises network is connected to two VPCs in the CN-Hong Kong region over a single connection.

For details on how to create a VPC, see the **Creating a VPC**.

The following table lists the CIDR blocks used in this example.

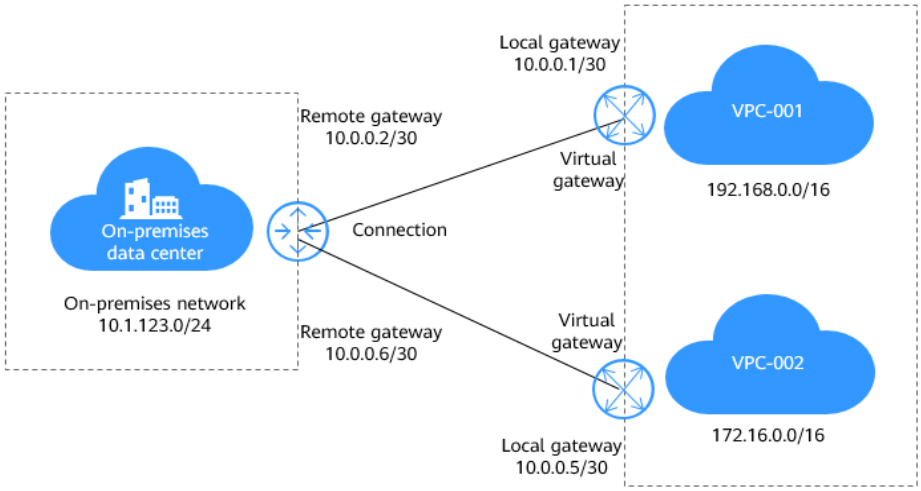
**Table 4-1** CIDR blocks

| Item | CIDR Block |
| --- | --- |
| Your on-premises network | 10.1.123.0/24 |
| Local and remote gateways (addresses for interconnection) | 10.0.0.0/30 and 10.0.0.4/30 |

| Item | CIDR Block |
| --- | --- |
| VPCs | VPC-001: 192.168.0.0/16<br>VPC-002: 172.16.0.0/16 |

**Figure 4-1** Accessing multiple VPCs over one connection




## Procedure

**Step 1** Create a connection.

For details, see **Accessing a VPC over a Single Connection Through Static Routes**.

**Step 2** Create two virtual gateways.

Associate one virtual gateway with **VPC-001** and the other one with **VPC-002**.

**Figure 4-2** Creating a virtual gateway

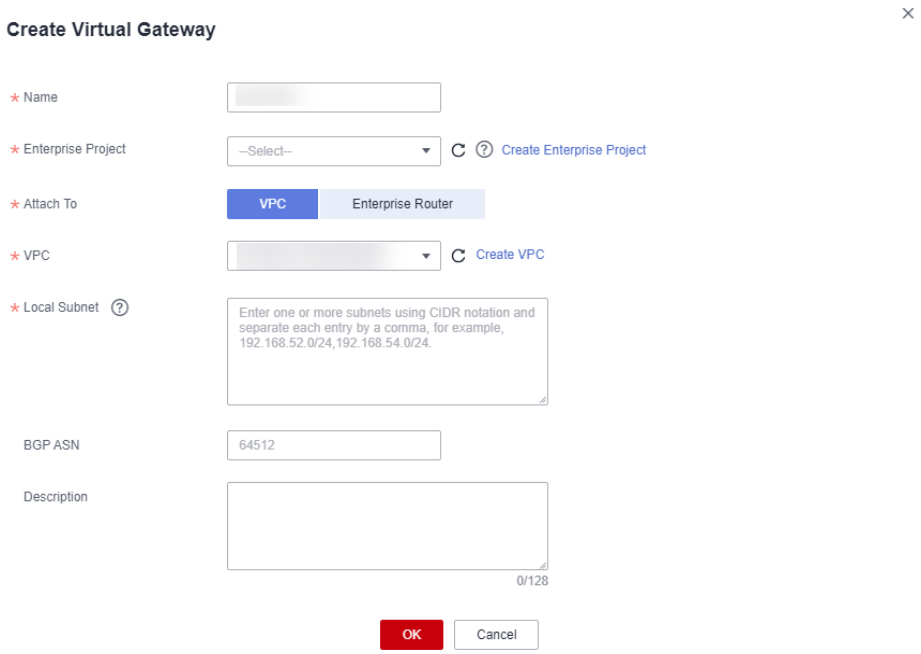



**Table 4-2** Parameters required for creating virtual gateway 1

| Parameter | Description |
| --- | --- |
| Name | Specifies the virtual gateway name.<br>The name can contain 1 to 64 characters. |
| Enterprise Project | Provides a cloud resource management mode where cloud resources and members are centrally managed by project. |
| Attachment | Specifies whether the virtual gateway is associated with a VPC or attached to an enterprise router. |
| VPC | Specifies the VPC to be associated with the virtual gateway.<br>This parameter is mandatory when you set **Attachment** to **VPC**. |
| Enterprise Router | Specifies the enterprise router that the virtual gateway is attached to.<br>This parameter is displayed when you set **Attachment** to **Enterprise Router**. |
| Local Subnet | Specifies the CIDR blocks of the VPC to be accessed.<br>This parameter is mandatory when you set **Attachment** to **VPC**.<br>You can add one or more CIDR blocks. If there are multiple CIDR blocks, separate every entry with a comma (,). |

N/A

| Parameter | Description |
| --- | --- |
| BGP ASN | Specifies the BGP ASN of the virtual gateway.<br>**NOTE**<br>Generally, Huawei Cloud's BGP ASN is 64512. There are two special cases:<br>• In the CN North-Beijing1 region, the default BGP ASN of Huawei Cloud is 65533.<br>• In the AP-Bangkok region, the BGP ASN of some Direct Connect locations is 65535 by default. For details, contact the Direct Connect manager. |
| Description | Provides supplementary information about the virtual gateway. |
| Configuration Fee | Shows the prices of the enterprise router attachment and of the traffic used by the enterprise router.<br>This parameter is displayed when you set **Attachment** to **Enterprise Router**. |

**Figure 4-3** Creating a virtual gateway

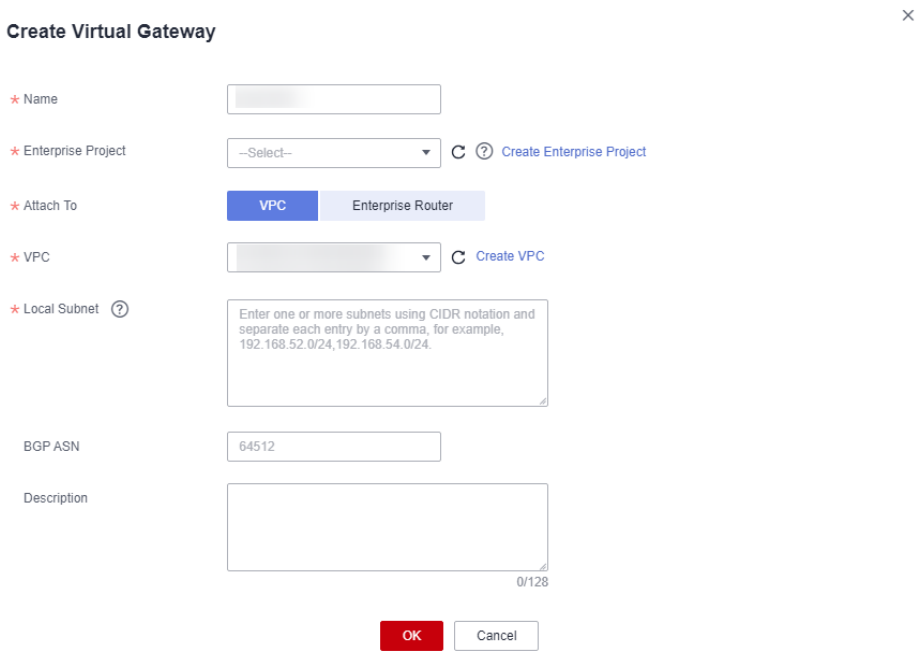



**Table 4-3** Parameters required for creating virtual gateway 2

| Parameter | Description |
| --- | --- |
| Name | Specifies the virtual gateway name.<br>The name can contain 1 to 64 characters. |

| Parameter | Description |
| --- | --- |
| Enterprise Project | Provides a cloud resource management mode where cloud resources and members are centrally managed by project. |
| Attachment | Specifies whether the virtual gateway is associated with a VPC or attached to an enterprise router. |
| VPC | Specifies the VPC to be associated with the virtual gateway.<br>This parameter is mandatory when you set **Attachment** to **VPC**. |
| Enterprise Router | Specifies the enterprise router that the virtual gateway is attached to.<br>This parameter is displayed when you set **Attachment** to **Enterprise Router**. |
| Local Subnet | Specifies the CIDR blocks of the VPC to be accessed.<br>This parameter is mandatory when you set **Attachment** to **VPC**.<br>You can add one or more CIDR blocks. If there are multiple CIDR blocks, separate every entry with a comma (,). |
| BGP ASN | Specifies the BGP ASN of the virtual gateway.<br>**NOTE**<br>Generally, Huawei Cloud's BGP ASN is 64512. There are two special cases:<br>• In the CN North-Beijing1 region, the default BGP ASN of Huawei Cloud is 65533.<br>• In the AP-Bangkok region, the BGP ASN of some Direct Connect locations is 65535 by default. For details, contact the Direct Connect manager. |
| Description | Provides supplementary information about the virtual gateway. |
| Configuration Fee | Shows the prices of the enterprise router attachment and of the traffic used by the enterprise router.<br>This parameter is displayed when you set **Attachment** to **Enterprise Router**. |

N/A

**Step 3** Create two virtual interfaces.

Connect each virtual interface with a virtual gateway so that your on-premises network can access **VPC-001** through 10.0.0.0/30 and **VPC-002** through 10.0.0.4/30.

**Figure 4-4** Creating a virtual interface

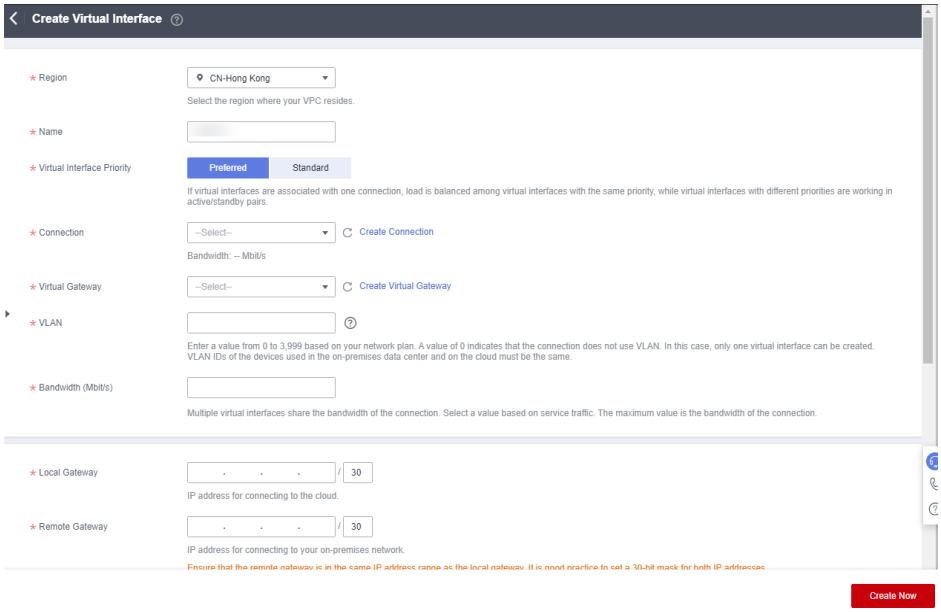



**Table 4-4** Parameters required for creating virtual interface 1

| Parameter | Description |
| --- | --- |
| Region | Specifies the region where the connection resides. You can also change the region in the upper left corner of the console. |
| Name | Specifies the virtual interface name.<br>The name can contain 1 to 64 characters. |
| Virtual Interface Priority | Specifies whether the virtual interface will be used prior to other virtual interfaces. There are two options: **Preferred** and **Standard**.<br>If multiple virtual interfaces are associated with one Direct Connect device, load is balanced among virtual interfaces with the same priority, while virtual interfaces with different priorities are working in active/standby pairs. |
| Connection | Specifies the connection you can use to connect your on-premises network to Huawei Cloud. |
| Virtual Gateway | Specifies the virtual gateway that the virtual interface connects to. |
| VLAN | Specifies the ID of the VLAN for the virtual interface.<br>• Standard connections: You need to configure the VLAN.<br>• Hosted connections: The VLAN will be allocated by the carrier or partner. You do not need to configure the VLAN. |

| Parameter | Description |
| --- | --- |
| Bandwidth | Specifies the bandwidth that can be used by the virtual interface, in Mbit/s. The bandwidth cannot exceed that of the connection. |
| Enable Rate Limiting | Limits the highest bandwidth that can be used by the virtual interface. After this option is enabled, the rate limit gradients are as follows:<br>• If the bandwidth is less than or equal to 100 Mbit/s, the rate limit gradient is 10 Mbit/s.<br>• If the bandwidth is greater than 100 Mbit/s but is less than or equal to 1,000 Mbit/s, the rate limit gradient is 100 Mbit/s.<br>• If the bandwidth is greater than 1,000 Mbit/s but is less than or equal to 100 Gbit/s, the rate limit gradient is 1 Gbit/s.<br>• If the bandwidth is greater than 100 Gbit/s, the rate limit gradient is 10 Gbit/s.<br>For example, if the bandwidth is 52 Mbit/s, the actual rate limit is 60 Mbit/s. If the bandwidth is 115 Mbit/s, the actual rate limit is 200 Mbit/s. |
| Enterprise Project | Provides a cloud resource management mode where cloud resources and members are centrally managed by project. |
| Local Gateway | Specifies the gateway on the Huawei Cloud network. |
| Remote Gateway | Specifies the gateway on your on-premises network.<br>The remote gateway must be in the same IP address range as the local gateway. Generally, a subnet with a 30-bit mask is recommended. |
| Remote Subnet | Specifies the subnets and masks of your on-premises network. If there are multiple subnets, use commas (,) to separate them. |
| Routing Mode | Specifies whether static routing or dynamic routing is used to route traffic between your on-premises network and the cloud network.<br>If there are or will be two or more connections, select BGP routing to achieve higher availability. |
| BGP ASN | Specifies the ASN of the BGP peer.<br>This parameter is required when BGP routing is selected. |

| Parameter | Description |
| --- | --- |
| BGP MD5 Authentication Key | Specifies the password used to authenticate the BGP peer using MD5.<br>This parameter is mandatory when BGP routing is selected, and the parameter values on both gateways must be the same.<br>The key contains 8 to 255 characters and must contain at least two types of the following characters:<br>• Uppercase letters<br>• Lowercase letters<br>• Digits<br>• Special characters ~!, .:;-_"(){}[]/@#$ %^&*+\|= |
| Description | Provides supplementary information about the virtual interface. |

**Figure 4-5** Creating a virtual interface

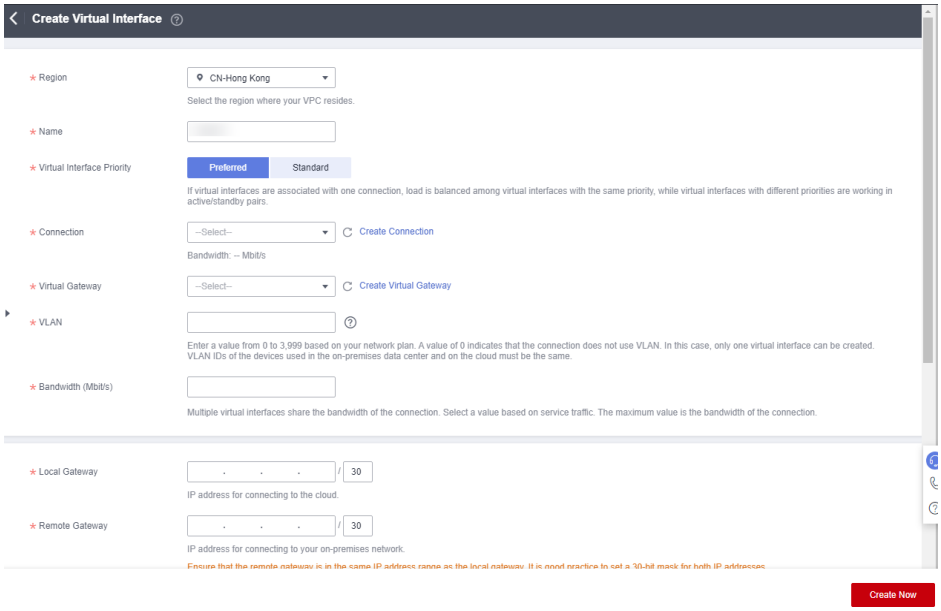



**Table 4-5** Parameters required for creating virtual interface 2

| Parameter | Description |
| --- | --- |
| Region | Specifies the region where the connection resides. You can also change the region in the upper left corner of the console. |
| Name | Specifies the virtual interface name.<br>The name can contain 1 to 64 characters. |

| Parameter | Description |
| --- | --- |
| Virtual Interface Priority | Specifies whether the virtual interface will be used prior to other virtual interfaces. There are two options: **Preferred** and **Standard**.<br>If multiple virtual interfaces are associated with one Direct Connect device, load is balanced among virtual interfaces with the same priority, while virtual interfaces with different priorities are working in active/standby pairs. |
| Connection | Specifies the connection you can use to connect your on-premises network to Huawei Cloud. |
| Virtual Gateway | Specifies the virtual gateway that the virtual interface connects to. |
| VLAN | Specifies the ID of the VLAN for the virtual interface.<br>● Standard connections: You need to configure the VLAN.<br>● Hosted connections: The VLAN will be allocated by the carrier or partner. You do not need to configure the VLAN. |
| Bandwidth | Specifies the bandwidth that can be used by the virtual interface in the unit of Mbit/s. The bandwidth cannot exceed that of the connection. |
| Enable Rate Limiting | Limits the highest bandwidth that can be used by the virtual interface. After this option is enabled, the rate limit gradients are as follows:<br>● If the bandwidth is less than or equal to 100 Mbit/s, the rate limit gradient is 10 Mbit/s.<br>● If the bandwidth is greater than 100 Mbit/s but is less than or equal to 1,000 Mbit/s, the rate limit gradient is 100 Mbit/s.<br>● If the bandwidth is greater than 1,000 Mbit/s but is less than or equal to 100 Gbit/s, the rate limit gradient is 1 Gbit/s.<br>● If the bandwidth is greater than 100 Gbit/s, the rate limit gradient is 10 Gbit/s.<br>For example, if the bandwidth is 52 Mbit/s, the actual rate limit is 60 Mbit/s. If the bandwidth is 115 Mbit/s, the actual rate limit is 200 Mbit/s. |
| Enterprise Project | Provides a cloud resource management mode where cloud resources and members are centrally managed by project. |
| Local Gateway | Specifies the gateway on the Huawei Cloud network. |
| Remote Gateway | Specifies the gateway on your on-premises network.<br>The remote gateway must be in the same IP address range as the local gateway. Generally, a subnet with a 30-bit mask is recommended. |

| Parameter | Description |
| --- | --- |
| Remote Subnet | Specifies the subnets and masks of your on-premises network. If there are multiple subnets, use commas (,) to separate them. |
| Routing Mode | Specifies whether static routing or dynamic routing is used to route traffic between your on-premises network and the cloud network.<br>If there are or will be two or more connections, select BGP routing to achieve higher availability. |
| BGP ASN | Specifies the ASN of the BGP peer.<br>This parameter is required when BGP routing is selected. |
| BGP MD5 Authentication Key | Specifies the password used to authenticate the BGP peer using MD5.<br>This parameter is mandatory when BGP routing is selected, and the parameter values on both gateways must be the same.<br>The key contains 8 to 255 characters and must contain at least two types of the following characters:<br>● Uppercase letters<br>● Lowercase letters<br>● Digits<br>● Special characters ~!, .:;-_"(){}[]/@#$ %^&*+\|= |
| Description | Provides supplementary information about the virtual interface. |

**NOTE**

The default security group rule denies all the inbound traffic. Ensure that security group rules in both directions are correctly configured to ensure normal communications.

**Step 4** Wait for route propagation on the cloud.

Direct Connect automatically propagates the routes after a connection is established between your on-premises network and the cloud network.

**Step 5** Configure a static route on your device.

(Here is a static route on a Huawei device.)

```
ip route-static 192.168.0.0 255.255.0.0 10.0.0.1
ip route-static 172.16.0.0 255.255.0.0 10.0.0.5
```

**----End**

# 5 Connecting to Multiple VPCs that Need to Communicate with Each Other

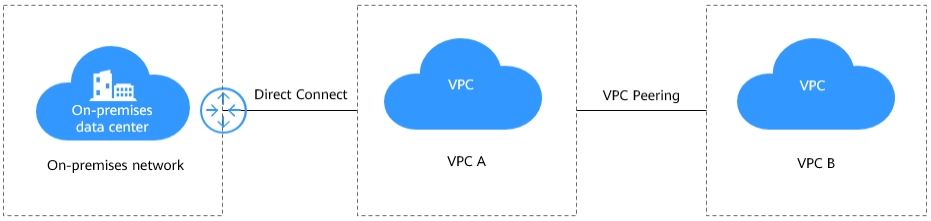
## Scenarios

Connect your on-premises network to the cloud and use VPC Peering to connect the VPCs in the same region so that your on-premises network can access all these VPCs.

**CAUTION**

The subnets of the VPCs must be unique.

## Typical Topology




## Procedure

**Step 1** Configure Direct Connect to connect your on-premises data center to **VPC A**.

1. **Create a connection.**
2. **Create a virtual gateway.**

   When creating the virtual gateway, select VPC A and add the CIDR block of VPC B to the local subnet.
3. **Create a virtual interface.**

**Step 2** Create a VPC peering connection between VPC A and VPC B.

1. Log in to the management console.

2. On the console homepage, click in the upper left corner and select the desired region and project.
3. Hover on to display **Service List** and choose **Networking** > **Virtual Private Cloud**.
4. In the navigation pane on the left, click **VPC Peering Connections**.
5. Click **Create VPC Peering Connection**.
6. Configure the parameters based on **Table 5-1**.

**Figure 5-1** Creating a VPC peering connection

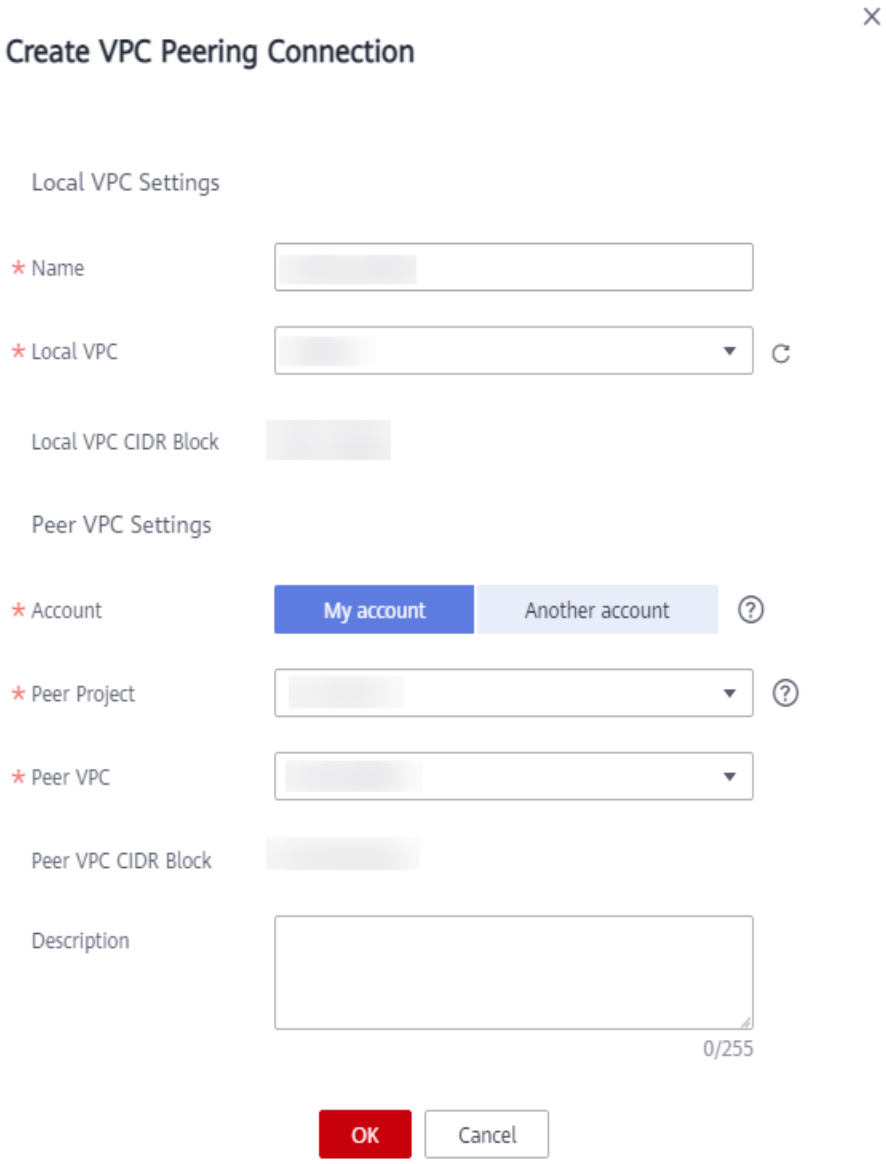


**Table 5-1** Parameters required for creating a VPC peering connection

| Parameter | Description |
| --- | --- |
| Name | Specifies the name of the VPC peering connection.<br>The name contains a maximum of 64 characters, which consist of letters, digits, hyphens (-), and underscores (_). |
| Local VPC | Specifies the local VPC. Select **VPC B** from the drop-down list. |
| Local VPC CIDR Block | Specifies the CIDR block of the local VPC. |
| Account | Specifies whether the VPC to peer with is from your account or another user's account.<br>– **My account**: The VPC peering connection will connect two VPCs in your account.<br>– **Another account**: The VPC peering connection will connect your VPC to another VPC in another account. |
| Peer Project | Specifies the project name. The name of the current project is used by default.<br>You can log in to the management console, hover the cursor over account name in the upper right corner, and choose **My Credentials**. On the **My Credentials** page, view the project name and project ID. |
| Peer VPC | Specifies the peer VPC. Select **VPC A** from the drop-down list. |
| Peer VPC CIDR Block | Specifies the CIDR block of the peer VPC.<br>The local and peer VPCs cannot have matching or overlapping CIDR blocks. Otherwise, the routes added for the VPC peering connection may not take effect. |
| Description | Provides supplementary information about the VPC peering connection. |

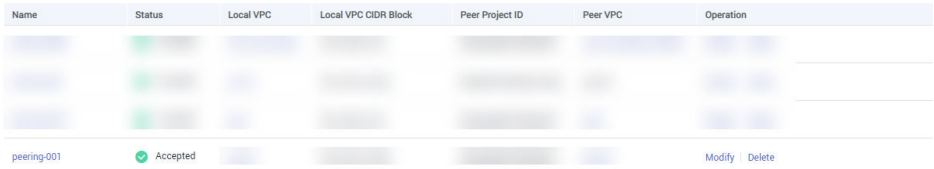
7. Click **OK**.

**Step 3** Add routes for the VPC peering connection.

1. Under **Networking**, click **Virtual Private Cloud**.
2. In the navigation pane on the left, click **VPC Peering Connections**.
3. Locate the VPC peering connection in the connection list.

**Figure 5-2** VPC peering connection list

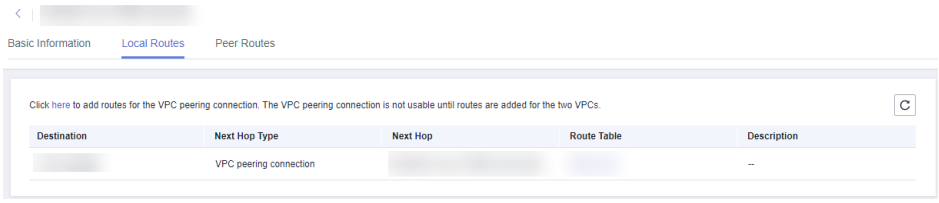



4. Click the name of the VPC peering connection to switch to the page showing details about the connection.
5. Click the **Local Routes** tab.
6. On the **Local Routes** tab page of the VPC peering connection, click **here** as prompted.

   The **Summary** tab of the default route table for the local VPC is displayed.

   **Table 5-2** lists the parameters.

**Figure 5-3** Hyperlink to route table-Local VPC




7. Click **Add Route**.

**Table 5-2** Parameters required for creating a VPC peering connection

| Parameter | Description |
| --- | --- |
| Destination Type | Specifies the public IP address. |
| Destination | Specifies the CIDR block of the peer VPC, a subnet, or the private IP address of an ECS in the peer VPC.<br>For details, see **VPC Peering Connection Examples**. |
| Next Hop Type | Specifies the next hop type. Select **VPC peering connection**. |
| Next Hop | Specifies the next hop address. Select the created VPC peering connection. |
| Description | (Optional) Provides supplementary information about the route.<br>Enter up to 255 characters. Angle brackets (< or >) are not allowed. |

8. Click **OK**.

   You can view the route in the route list.

9. Click the **Peer Routes** tab.
10. On the **Peer Routes** tab page of the VPC peering connection, click **here** as prompted.

    The **Summary** tab of the default route table for the peer VPC is displayed.

    **Table 5-2** lists the parameters.

    **Figure 5-4** Hyperlink to route table-Peer VPC

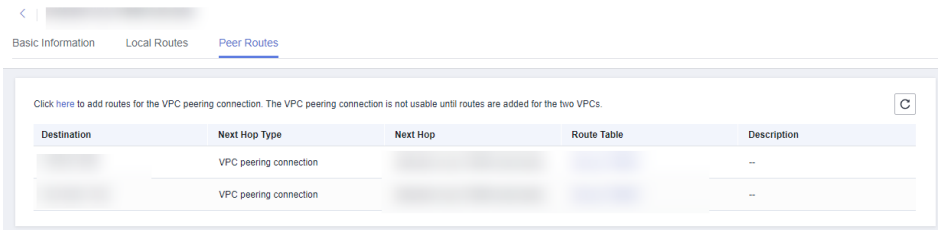
    
    

    **Table 5-3** Parameters required for creating a VPC peering connection

| Parameter | Description |
| --- | --- |
| Destination Type | Specifies the public IP address. |
| Destination | Specifies the CIDR block of the local VPC, a subnet CIDR block, or the private IP address of an ECS in the local VPC.<br>For details, see **VPC Peering Connection Examples**. |
| Next Hop Type | Specifies the next hop type. Select **VPC peering connection**. |
| Next Hop | Specifies the next hop address. Select the created VPC peering connection. |
| Description | (Optional) Provides supplementary information about the route.<br>Enter up to 255 characters. Angle brackets (< or >) are not allowed. |

11. Click **OK**.

    You can view the route in the route list.

**----End**

# 6 Enabling On-Premises Network to Access the Internet

You can use Direct Connect to connect your on-premises data center to Huawei Cloud and then buy a public NAT gateway to allow on-premises servers to access the Internet or provide publicly accessible services. Use SNAT rules to allow on-premises servers to send outbound traffic to the Internet, while preventing the Internet from establishing connections to the servers. Use DNAT rules to allow a service in the on-premises network to be publicly accessible. This is widely used in scenarios such as gaming, e-commerce, and finance.

For details, see **Using SNAT and DNAT Rules to Enable Inter-Cloud High-Speed Internet Access**.