Direct Connect

Getting Started

Issue   01

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Contents

1 Using Direct Connect to Connecting an On-premises Data Center to the Cloud

1.1 Solution Overview

When your on-premises network needs to communicate with a VPC, you can create a Direct Connect connection on the console to establish network connectivity between your premises and the cloud.

📖 **NOTE**

The telecom carrier needs to perform a site survey and lay the leased line, which takes about two or three months. Make sure that you arrange enough time for the project.

Process

Step	Description
Preparations	Before creating resources such as Direct Connect connections, VPCs, and ECSs, sigh up for a HUAWEI ID, enable cloud services, complete real-name authentication, top up your account, confirm the Direct Connect locations, confirm the port availability, complete the site survey, and confirm the prices.
Step 1: Create a Connection	Create a connection to reserve a dedicated port and work with the carrier to connect the leased line to the cloud. In this process, there are operations of the customer, carrier, and Huawei Cloud, and operation instructions for and the status of each phase will be displayed on the console.
Step 2: Create a Virtual Gateway	You can create a virtual gateway and associate it with the VPC that you need to access.

Step	Description
Step 3: Create a Virtual Interface	After the connection and the gateway are ready, you need to create a virtual interface so that your network can access the VPC.
Step 4: Configure Routes	After your on-premises network is connected to Huawei Cloud, you need to configure routes on your on-premises network device.

The leased line construction process varies depending on the networking topology. The following figure shows the logic of two common networking topologies. Consult your carrier for the actual networking topology.

- **Figure 1-1** shows the networking topology for establishing connectivity when your on-premises equipment room is in a different campus from that at the Direct Connect location.

Figure 1-1 Networking topology

1. Cabling inside the Huawei Cloud equipment room (by the carrier)
2. Leased line deployment (by the carrier)
3. Cabling inside the on-premises equipment room (by the carrier)
4. Pigtail placement (by the customer)

- **Figure 1-2** shows the networking topology for establishing connectivity when your on-premises equipment room is in the same campus as that of the Direct Connect location.

Figure 1-2 Networking topology

1. Pigtail placement in the Huawei Cloud equipment room (by Huawei Cloud)
2. Cabling inside the equipment room (by the carrier)
3. Pigtail placement in the on-premises data center (by the customer)

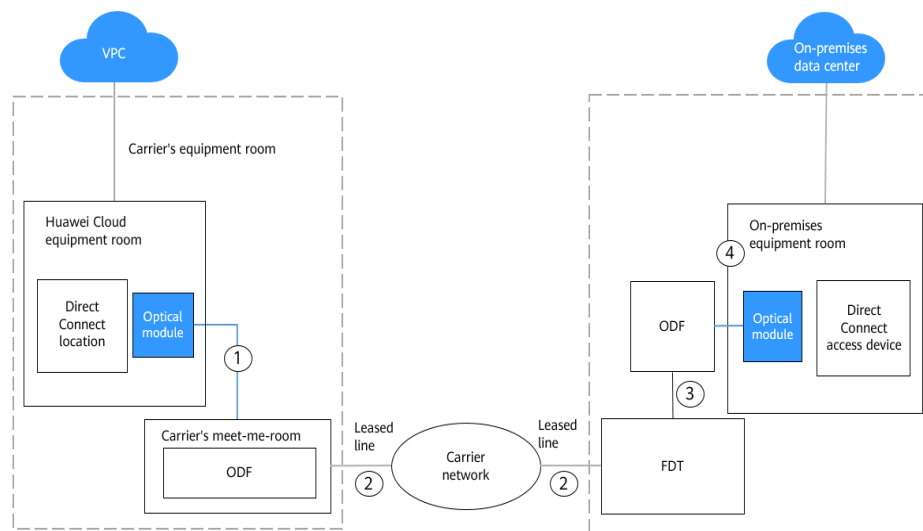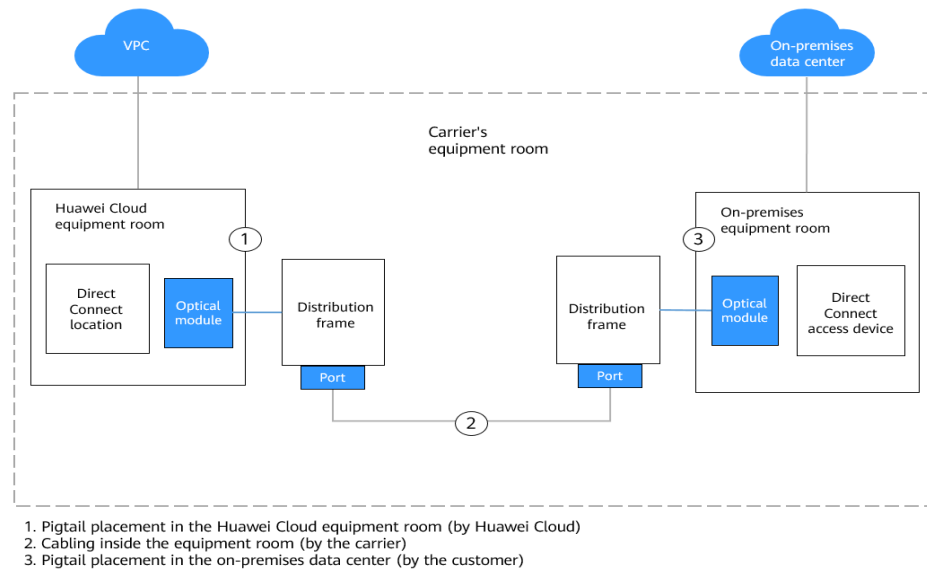# 1.2 Preparations

Before creating resources such as Direct Connect connections, VPCs, and ECSs, sigh up for a HUAWEI ID, enable cloud services, complete real-name authentication, top up your account, confirm the Direct Connect locations, and complete the site survey.

Signing Up for a HUAWEI ID and Completing Real-Name Authentication

To access the Direct Connect console, you need an account. If you do not have an account, register one with Huawei Cloud.

For details, see and **Completing Real-Name Authentication**.

If you have enabled Huawei Cloud services and completed real-name authentication, skip this step.

Selecting a Direct Connect Location

When selecting a location, you need to consider the distance to your on-premises data center, which carrier you want to choose, and which type of port will be used.

● Distance to your on-premises data center

Select a location nearest to your on-premises data center to reduce network latency. The telecom carriers and bandwidth capabilities vary at different locations.

● Carrier

Select a carrier that can lease a line to you based on your requirements.

● Port type

Decide what type of port you want to use, an optical port or electrical port.

– Optical port: The carrier directly provides a fiber optic transmission path for the end user. The port speed is effectively infinite, only limited by the

auto-negotiation rate of the optical modules at both ends, for example, 1GE, 10GE, 40GE, and 100GE.

– Electrical port: Generally, RJ45 ports are used. The carrier uses an optical transceiver to convert electrical signals to optical signals required on the transmission network. The industry standard is to use this type of port when the bandwidth is less than 100 Mbit/s.

📖 NOTE

- Currently, 1GE and 10GE single-mode optical ports can transmit data up to 10 km. If you need an optical port to transmit data for more than 10 km, or you need a 40GE or 100GE port, you need to purchase the optical modules by yourself.
- Ensure that the leased line provider can provide the optical fibers to connect to Direct Connect devices.
- No O/E conversion device is allowed on Huawei Cloud. Ensure that the leased line provider uses the correct line type to connect to Direct Connect devices.

To obtain detailed address of a Direct Connect location, contact the Direct Connect manager or **submit a service ticket**.

Contacting the Carrier for Site Survey

After you select a location, contact the carrier for a site survey.

1. Consult the carrier about how to access the cloud.

   You can contact the Direct Connect manager or **submit a service ticket** to obtain the detailed address of the equipment room.

2. Submit an application to Huawei Cloud for conducting a site survey in the equipment room.

   The application must include the name, ID card number, and contact information of the personnel who will go to the equipment room for the site survey.

   📖 NOTE

   Pay attention to the following when you apply for a site survey:

   If the site survey can be completed at the meet-me room of the carrier, you do not need to submit an application.

3. After the application is approved, Huawei Cloud will assist the carrier in entering the equipment room for completing the site survey within two working days.

4. Ask the carrier to carry out the site survey and confirm the expenses, including those for:

   – The port (paid to Huawei Cloud) and one-time setup (free for now)

   – The leased line (paid to the carrier)

   – In-building cabling

1.3 Step 1: Create a Connection

Figure 1-3 shows how Direct Connect connects your on-premises data center to a VPC.

Figure 1-3 Connecting your on-premises data center to a VPC
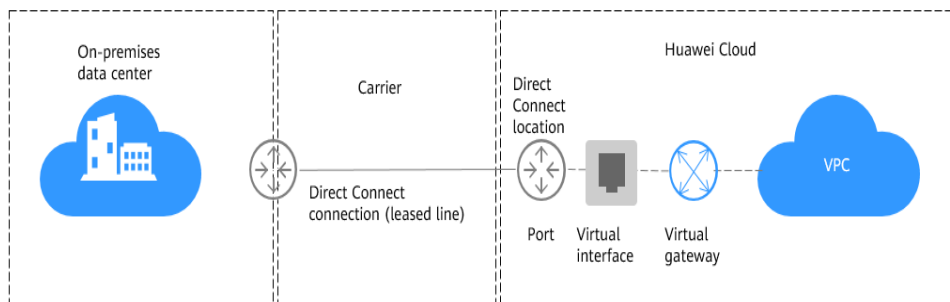
- **Scenario**

    You need to create a connection to connect your on-premises data center to the Direct Connect location you have selected to build a hybrid cloud.

    After you create a connection on the console, Huawei Cloud will provide you with a port for exclusive use. To establish the connection, you need to connect the leased line to the Direct Connect location you have selected. **Figure 1-4** shows the process of connecting your on-premises data center to Huawei Cloud using Direct Connect.

Figure 1-4 Self-service installation process
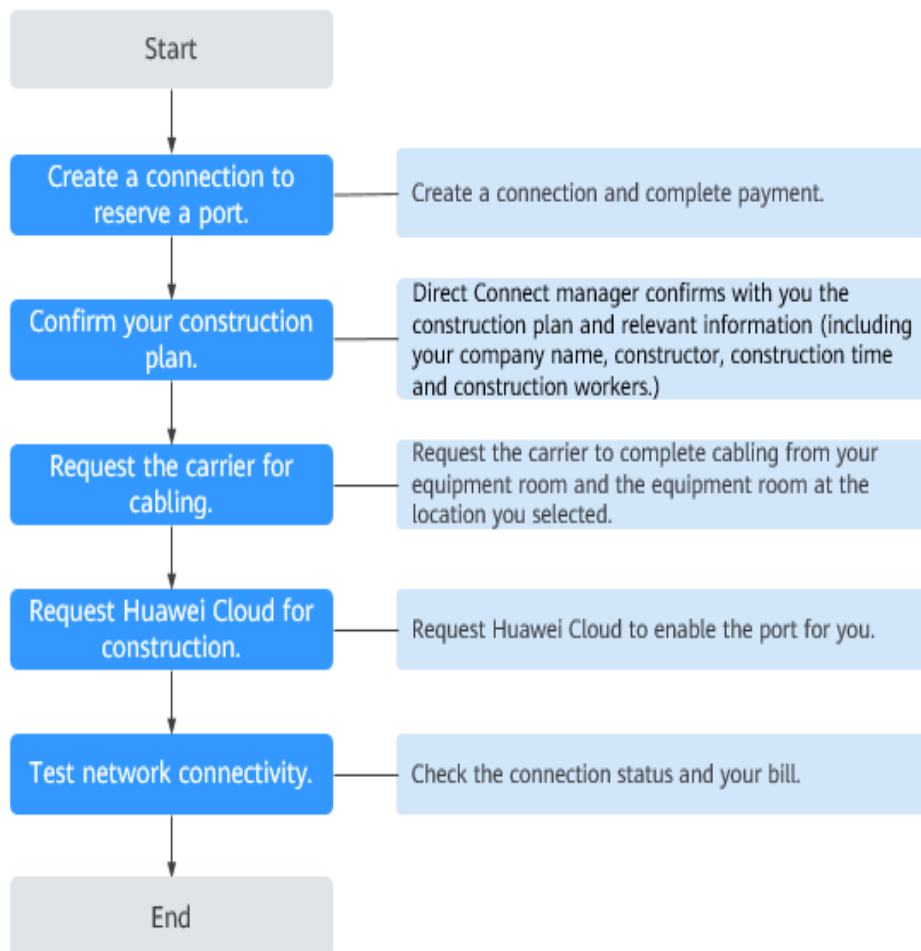
- **Procedure**

    a. Create a connection.

        i. Log in to the management console.

        ii. On the console homepage, click [icon] in the upper left corner and select the desired region and project.

        iii. Click [icon] to display **Service List** and choose **Networking** > **Direct Connect**.

        iv. In the navigation pane on the left, choose **Direct Connect** > **Connections**.

        v. Click **Create Connection**.

        vi. On the **Create Connection** page, enter the equipment room details and select the Direct Connect location and port based on **Table 1-1**.

Figure 1-5 Creating a connection

Table 1-1 Parameters for creating a connection

Parameter	Example Value	Description
Billing Mode	-	Specifies how you will be billed 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.

Parameter	Example Value	Description
Connection Name	dc-123	Specifies the name of your connection.
Location	Suzhou-Kunshan-GDS	Specifies the Direct Connect location where your leased line can be connected to.
Carrier	China Telecom	Specifies the carrier that provides the leased line.
Port Type	1GE	Specifies the type of the port that the leased line is connected to: 1GE, 10GE
Leased Line Bandwidth	100 Mbit/s	Specifies the bandwidth of the connection in the unit of Mbit/s. This is the bandwidth of the leased line you bought from the carrier.
Your Equipment Room Address	-	Specifies the address of your equipment room. The address must be specific to the floor your equipment room is on.
Tag	example_key1 example_value1	Adds tags to help you identify your connection. You can change them after the connection is created.
Description	-	Provides supplementary information about the connection.
Required Duration	5 months	Specifies how long the connection will be used for.

Parameter	Example Value	Description
Auto-renew	5 months	Specifies whether to automatically renew the subscription to ensure service continuity. 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	default	Specifies the enterprise project by which connections are centrally managed. Select an existing enterprise project.

      vii. Click **Next**.

     viii. Confirm the connection and click **Pay Now**.

      ix. Confirm the order, select a payment method, and click **Confirm**.

  b. Connect your on-premises data center to the cloud.

      i. After you have paid for the order, the system automatically allocates a connection ID for you, and the connection information is displayed on the management console. The connection status is **Creating**, when you will be contacted to confirm the construction plan and relevant information (including your company name, constructor, expected construction time, and construction workers).

      ii. After having confirmed the construction plan, you can arrange the carrier to deploy the dedicated line and connect it to your equipment room based on your construction plan.

     iii. In normal cases, Huawei resident engineers will connect the dedicated line to the Huawei Cloud gateway port within two working days.

     iv. After the construction is complete, the connection status becomes **Normal**, indicating that the connection is ready.

  📖 **NOTE**

Create a virtual gateway and associate the virtual gateway with the VPC.

Create a virtual interface to associate the connection with the created virtual gateway, and connect your on-premises data center to the VPC through the connection.

1.4 Step 2: Create a Virtual Gateway

Scenarios

You can create a virtual gateway and associate it with the VPC that you need to access.

Procedure

1. Log in to the management console.

2. On the console homepage, click ![icon] in the upper left corner and select the desired region and project.

3. Click ![icon] to display **Service List** and choose **Networking** > **Direct Connect**.

4. In the navigation pane on the left, choose **Direct Connect** > **Virtual Gateways**.

5. Click **Create Virtual Gateway**.

6. Configure the parameters based on **Table 1-2**.

Figure 1-6 Creating a virtual gateway

Create Virtual Gateway

* Name	[ ]
* Enterprise Project	--Select-- ▼ ↻ ⑦ Create Enterprise Project
* VPC	[ ] ▼ ↻ Create VPC
* Local Subnet ⑦	Enter one or more subnets using CIDR notation and separate each entry by a comma, for example, 192.168.52.0/24,192.168.54.0/24.
BGP ASN	64512
Tag	It is recommended that you use TMS's predefined tag function to add the same tag to different cloud resources. View predefined tags ↻ Tag key / Tag value You can add 20 more tags.
Description	0/128

Cancel   OK

Table 1-2 Parameters required for creating a virtual gateway

Parameter	Example Value	Description
Name	vgw-123	Specifies the virtual gateway name. The name can contain 1 to 64 characters.
Enterprise Project	default	Specifies the enterprise project by which virtual gateways are centrally managed. Select an existing enterprise project.
VPC	VPC-001	Specifies the VPC to be associated with the virtual gateway.

Parameter	Example Value	Description
Local Subnet	192.168.0.0/16	Specifies the CIDR blocks of the subnets in the VPC to be accessed using Direct Connect. You can add one or more CIDR blocks. If there are multiple CIDR blocks, separate every entry with a comma (,).
BGP ASN	64512	Specifies the BGP ASN of the virtual gateway.
Tag	example_key1 example_value1	Adds tags to help you identify your virtual gateway. You can change them after the virtual gateway is created.
Description	-	Provides supplementary information about the virtual gateway.

7. Click **OK**.

   Ensure that the virtual gateway is in the **Normal** state.

1.5 Step 3: Create a Virtual Interface

Scenarios

After the connection and the gateway are ready, you need to create a virtual interface so that your network can access the VPC.

Procedure

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. Click ≡ to display **Service List** and choose **Networking** > **Direct Connect**.

4. In the navigation pane on the left, choose **Direct Connect** > **Virtual Interfaces**.

5. Click **Create Virtual Interface**.

   Configure the parameters based on **Table 1-3**.

Figure 1-7 Creating a virtual interface for your own account
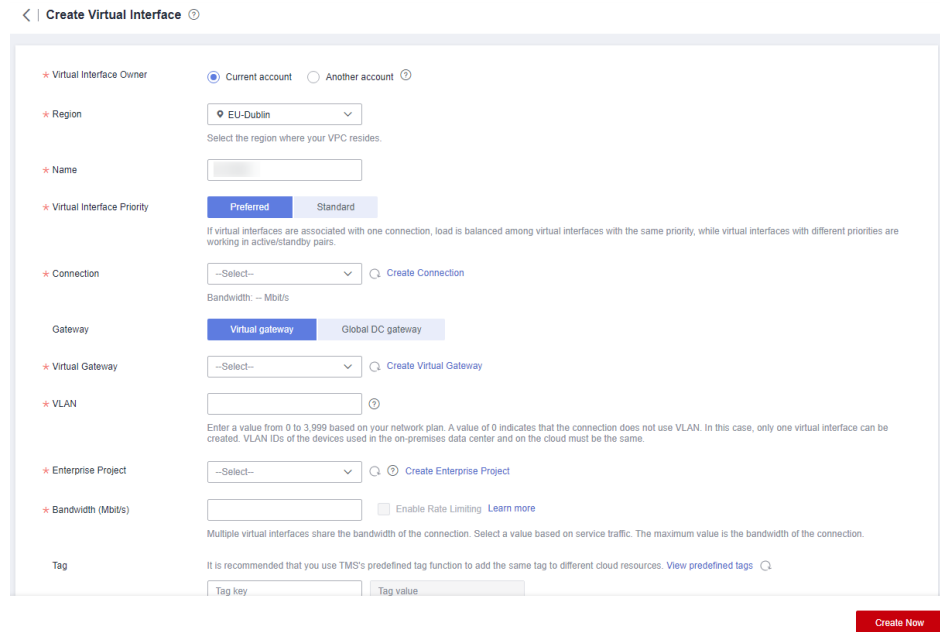
Table 1-3 Parameters for creating a virtual interface for your own account

Parameter	Example Value	Description
Virtual Interface Owner	**Current account**	This virtual interface is created for you and will be associated with your connection.
Region	EU-Dublin	Specifies the region where the connection resides. You can also change the region in the upper left corner of the console.
Name	vif-123	Specifies the virtual interface name. The name can contain 1 to 64 characters.

Parameter	Example Value	Description
Virtual Interface Priority	-	Specifies whether the virtual interface will be used prior to other virtual interfaces. There are two options: **Preferred** and **Standard**. If multiple virtual interfaces are associated with one Direct Connect device, the load is balanced among virtual interfaces with the same priority, while virtual interfaces with different priorities are working in active/standby pairs.
Connection	dc-123	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.
Gateway	vgw-123	Specifies the gateway that the virtual interface connects to. You can select a virtual gateway or global DC gateway.
VLAN	30	Specifies the ID of the VLAN for the virtual interface. You need to configure the VLAN if you create a standard connection. The VLAN for a hosted connection will be allocated by the carrier or partner. You do not need to configure the VLAN.
Bandwidth	50	Specifies the bandwidth that can be used by the virtual interface, in Mbit/s. The bandwidth cannot exceed that of the connection.

Parameter	Example Value	Description
Enterprise Project	default	Specifies the enterprise project by which virtual interfaces are centrally managed. Select an existing enterprise project.
Tag	example_key1 example_value1	Adds tags to help you identify your virtual interface. You can change them after the virtual interface is created.
Local Gateway	10.0.0.1/30	Specifies the IP address used by the cloud to connect to your on-premises network. After you configure **Local Gateway** on the console, the configuration will be automatically delivered to the gateway used by the cloud.
Remote Gateway	10.0.0.2/30	Specifies the IP address used by the on-premises data center to connect to the cloud. After you configure **Remote Gateway** on the console, you need to configure the IP address on the interface of the on-premises device. **CAUTION** The IP addresses of the local gateway and remote gateway must be in the same IP address range. Generally, an IP address range with a 30-bit mask is used. The IP addresses you plan cannot conflict with IP addresses used on your on-premises network. Plan an IP address range that will be used at both ends of the connection for network communication between your on-premises data center and the cloud.
Remote Subnet	192.168.51.0/24, 10.1.123.0/24	Specifies the subnets and masks of your on-premises network. If there are multiple subnets, use commas (,) to separate them.

Parameter	Example Value	Description
Routing Mode	BGP	Specifies whether static routing or dynamic routing is used to route traffic between your on-premises network and the cloud network. If there are or will be two or more connections, select BGP routing for higher availability.
BGP ASN	12345	Specifies the autonomous system number (ASN) of the BGP peer. This parameter is required when BGP routing is selected.
BGP MD5 Authentication Key	12345678	Specifies the password used to authenticate the BGP peer using MD5. This parameter is mandatory when BGP routing is selected, and the parameter values on both gateways must be the same. The key contains 8 to 255 characters and must contain at least two types of the following characters: ● Uppercase letters ● Lowercase letters ● Digits ● Special characters ~!, .:;-_"(){}[]/@#$ %^&*+|=
Description	-	Provides supplementary information about the virtual interface.

If you want to create a virtual interface for other accounts, configure the parameters based on **Table 1-4**.

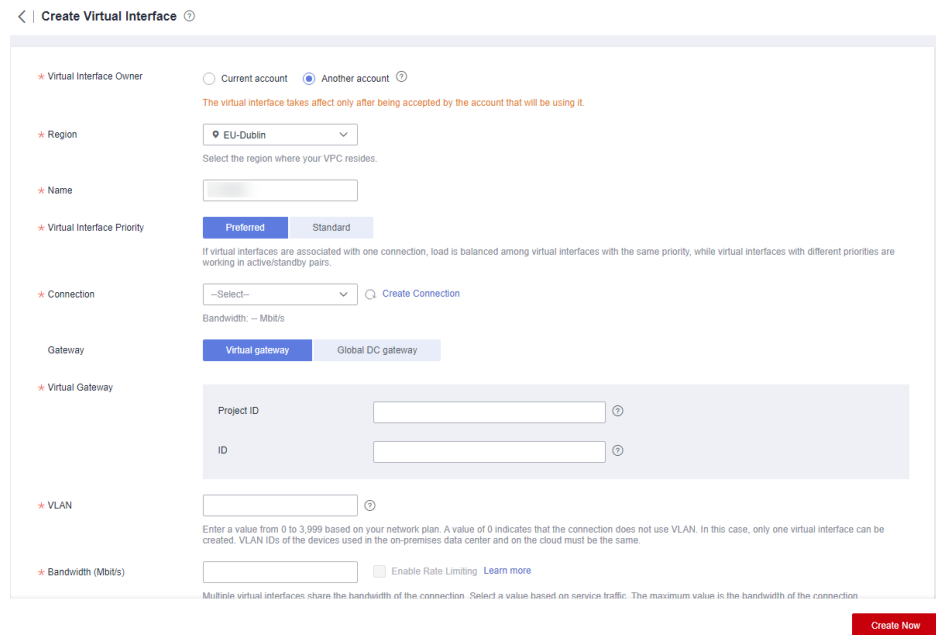**Figure 1-8** Creating a virtual interface for another account

Table 1-4 Parameters for creating a virtual interface for another account

Parameter	Example Value	Description
Virtual Interface Owner	Another account	Specifies the account that owns the virtual interface. You create a virtual interface for another account so that this account can use your connection to access the VPC. **NOTE** Virtual interfaces that you create for other users take effect only after other users accept them.
Region	CN North-Beijing4	Specifies the region where the connection resides. You can also change the region in the upper left corner of the console.
Name	vif-123	Specifies the virtual interface name. The name can contain 1 to 64 characters.

Parameter	Example Value	Description
Virtual Interface Priority	-	Specifies whether the virtual interface will be used prior to other virtual interfaces. There are two options: **Preferred** and **Standard**. If multiple virtual interfaces are associated with one Direct Connect device, the load is balanced among virtual interfaces with the same priority, while virtual interfaces with different priorities are working in active/standby pairs.
Connection	dc-123	Specifies the connection you can use to connect your on-premises network to Huawei Cloud.
Gateway	-	Specifies the gateway that the virtual interface connects to. You can select a virtual gateway or global DC gateway. A virtual gateway is used as an example.
Project ID	-	Specifies the ID of the project that the virtual gateway belongs to. On the management console, hover the cursor on the account name in the upper right corner and select **My Credentials**. On the **My Credentials** page, view the project ID.
ID	-	Specifies the ID of the virtual gateway. In the virtual gateway list, hover the cursor on the virtual gateway name and view the name and ID of the virtual gateway.

Parameter	Example Value	Description
VLAN	30	Specifies the ID of the VLAN for the virtual interface. You need to configure the VLAN if you create a standard connection. The VLAN for a hosted connection will be allocated by the carrier or partner. You do not need to configure the VLAN.
Bandwidth	50	Specifies the bandwidth that can be used by the virtual interface, in Mbit/s. The bandwidth cannot exceed that of the connection.
Tag	example_key1 example_value1	Adds tags to help you identify your virtual interface. You can change them after the virtual interface is created.
Local Gateway	10.0.0.1/30	Specifies the IP address used by the cloud to connect to your on-premises network. After you configure **Local Gateway** on the console, the configuration will be automatically delivered to the gateway used by the cloud.

Parameter	Example Value	Description
Remote Gateway	10.0.0.2/30	Specifies the IP address used by the on-premises data center to connect to the cloud. After you configure **Remote Gateway** on the console, you need to configure the IP address on the interface of the on-premises device. **CAUTION** The IP addresses of the local gateway and remote gateway must be in the same IP address range. Generally, an IP address range with a 30-bit mask is used. The IP addresses you plan cannot conflict with IP addresses used on your on-premises network. Plan an IP address range that will be used at both ends of the connection for network communication between your on-premises data center and the cloud.
Remote Subnet	192.168.51.0/24,10.1.123.0/24	Specifies the subnets and masks of your on-premises network. If there are multiple subnets, use commas (,) to separate them.
Routing Mode	BGP	Specifies whether static routing or dynamic routing is used to route traffic between your on-premises network and the cloud network. If there are or will be two or more connections, select BGP routing for higher availability.
BGP ASN	12345	Specifies the ASN of the BGP peer. This parameter is required when BGP routing is selected.

Parameter	Example Value	Description
BGP MD5 Authentication Key	12345678	Specifies the password used to authenticate the BGP peer using MD5. This parameter is mandatory when BGP routing is selected, and the parameter values on both gateways must be the same. The key contains 8 to 255 characters and must contain at least two types of the following characters: • Uppercase letters • Lowercase letters • Digits • Special characters ~!, .:;-_"(){}[]/@#$ %^&*+|=
Description	-	Provides supplementary information about the virtual interface.

□ NOTE

When you configure the local and remote gateways, note the following:

- The local gateway is used by Huawei Cloud for connecting to your equipment room. After you configure **Local Gateway** on the console, the configuration will be automatically delivered to the gateway used by Huawei Cloud.
- The remote gateway is used by your equipment room for connecting to Huawei Cloud. After you configure **Remote Gateway** on the console, you also need to configure the gateway deployed in your equipment room.
- The local and remote gateways must use the same CIDR block and cannot conflict with service IP addresses on the network.

6. Click **Create Now**.

   Ensure that the virtual interface is in the **Normal** state.

7. Ping the IP address of a server in the VPC from your on-premises data center to test network connectivity.

1.6 Step 4: Configure Routes

After your on-premises network is connected to Huawei Cloud, you need to configure routes on your on-premises network device.

For details about how to configure static routes, see **Connecting an On-Premises Data Center to a VPC over a Connection and Using Static Routing to Route Traffic**.

For details about how to configure BGP routes, see **Connecting an On-Premises Data Center to a VPC over a Connection and Using BGP Routing to Route Traffic**.