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Huawei Data Center Certification Training

HCIA-Data Center Lab Guide for Data Center Engineers

ISSUE:2.0



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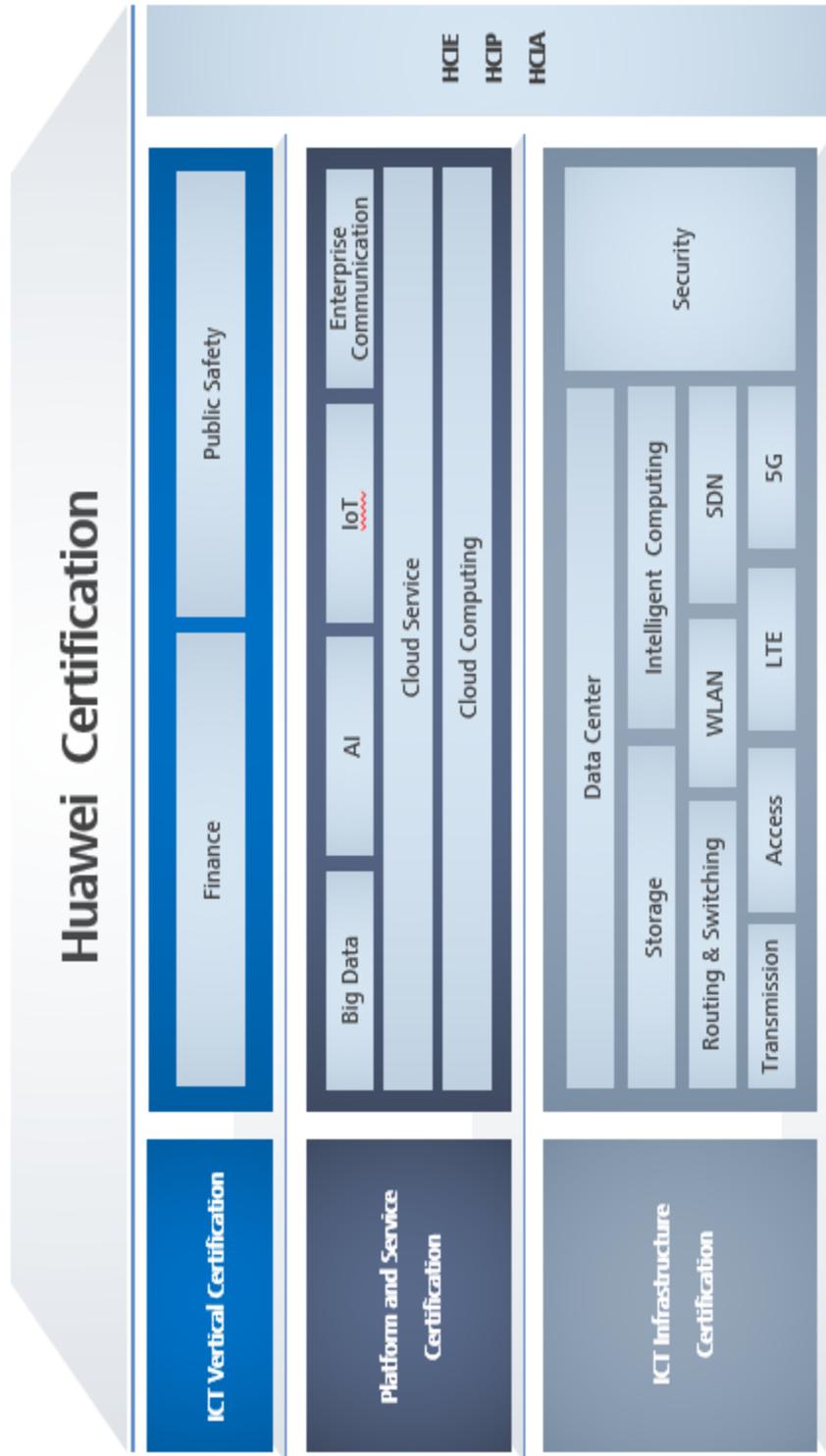
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About This Document

Overview

This document is applicable to the candidates who are preparing for the HCIA-Data Center exam and the readers who want to understand the Cloud data center basics, the data center SDN technologies and data center cloud relating technologies.

Description

This experiment guide introduces the following four experiments, covering basic configurations, and configurations and implementation of Layer 2 networking, security, Layer 3 networking, and the network management software eSight.

- Experiment 1: Layer 2 data center network configuration.
 - This experiment involves basis operations and configurations on CloudEngine switches, helping you know the VLAN and link aggregation pinciples its basic functions.
- Experiment 2: Layer 3 data center network configuration.
 - This experiment lets you know basic configuration about SDN underlay network, including OSPF and BGP EVPN.
- Experiment 3: Agie controller-DCN, SDN configuration.
 - This experiment mainly introduces SDN network virtualization, helping you know SDN working principles and service models.
- Experiment 4: Huawei Cloud configuration and service automation.
 - This experiment involves how to configure Huawei Cloud rescourses and apply for cloud services.

Background Knowledge Required

- The intended audience should know basic RS knowledge, Huawei switching devices, and basic server and storage knowledge.



Common Icons



Core Swith



Access Switch



Server



SDN controller

Experiment Environment Overview

Networking Introduction

This experiment environment is prepared for data center engineers who are preparing for the HCIA-Data Center exam.

Each suite of experiment environment includes 1 AC-DCN, 1 Huawei Cloud platform, 1 core switch, and 2 access switchces. Each suite of experiment environment is applicable to 3 to 9 candidates.

Device Introduction

he following table lists devices recommended for HCIA-Data Center experiments and the mappings between the device name, model, and software version.

Device name	Model	Software Version
Switch	CE6855-48S6Q-HI	V200R005C00SPC800
SDN controller	Agile Controller-DCN	V300R003C00SPC310
Cloud	Huawei Cloud Stack	6.3.1.1



Experiment Environment Preparation

Checking Whether All Devices Are Available

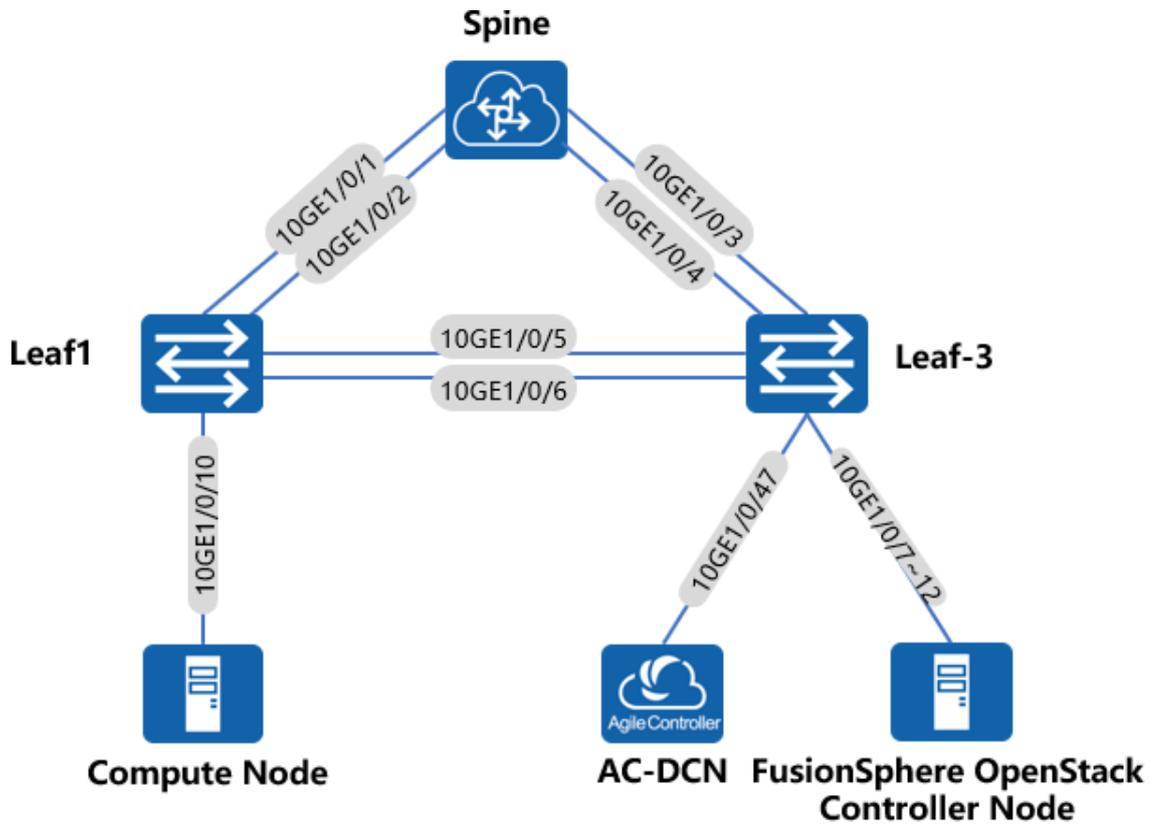
Before starting the experiment, check whether all required devices are ready. The following table lists the required devices.

Device	Management IP	account
Jumper	/	Given by instructor
Agile Controller	10.10.0.10	admin/Huawei@123
Leaf1	172.18.100.5	Given by instructor
Leaf3	172.18.100.2	Given by instructor
Spine	172.18.100.3	Given by instructor
ServiceCenter	https://auth.hz.com/	bss_admin/Huawei12#\$
OperationCenter	https://oc.hzdc.com:31943/	admin/Huawei12#\$

Each group must check whether the devices in table are ready.



Experiment topology





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1 Lab Guide for DC Layer 2 Network

1.1 Introduction

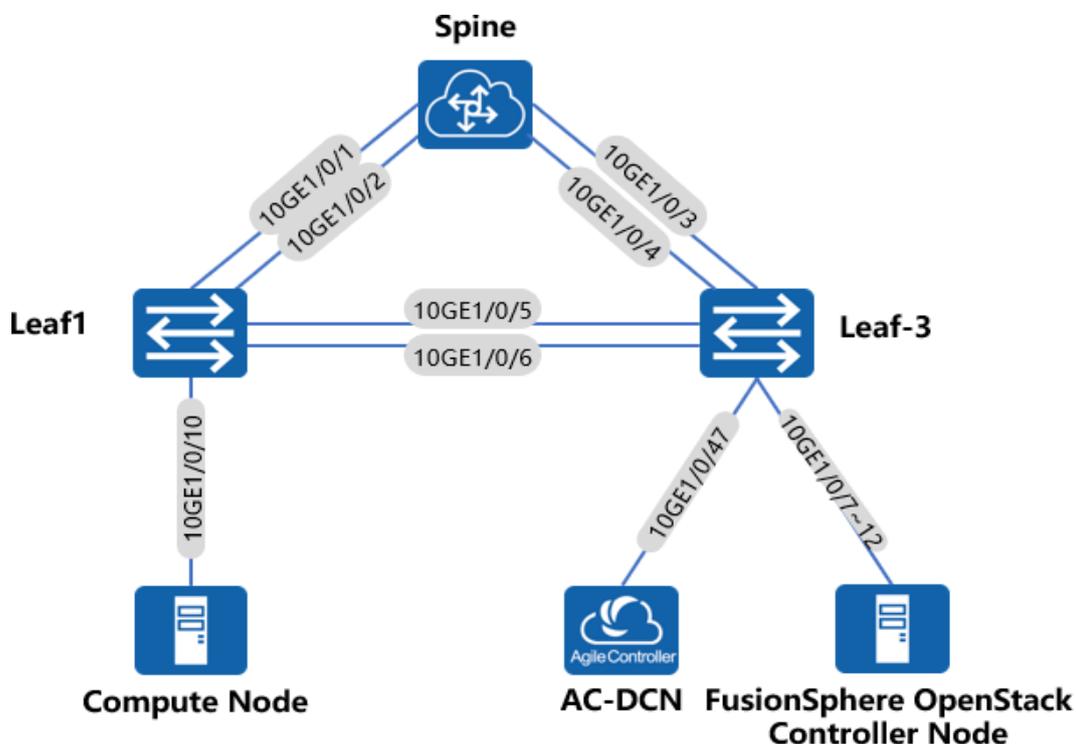
1.1.1 About this lab

This chapter is about layer 2 DCN configuration for connection between cloud compute nodes and controller nodes.

1.1.2 Objectives

- Understand how to configure VLAN and Eth-Trunk.
- Understand the working principles of layer 2 DCN.

1.1.3 Topology and Description



**Table 1-1 DCN Topology**

1.1.4 Network Planning

Data Center is a special scenario that contains computing, storage and networking devices. There should be VLANs planned for different services.

Figure 1-1 VLAN Planning

Switch	VLAN	Service
Leaf1, Leaf-3	4004	External_api
	4005	External_om
	4006	External_base
	4007	Internal_base (PXE)
	4008	Storage_data0
	4009	Storage_data1
	4010	SDN
	4033	Public_service
	4034	DMZ_service
	4035	DMZ_tenant
	4036	Heartbeat

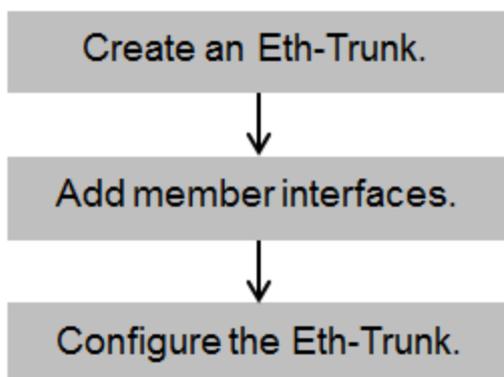
1.2 Configuration

1.2.1 Roadmap

1. Configure Link Aggregation to enhance reliability.
2. Configure VLAN on Leaf1 and Leaf3, then configure Link to allow specific VLANs.



1.2.2 Eth-Trunk Configuration



Step 1 Create an Eth-Trunk on Leaf1

Create Eth-Trunk1 and Eth-Trunk2 on Leaf1 in lacp-static mode.

Link aggregation can work in manual load balancing mode, static LACP mode, or dynamic LACP mode.

In LACP mode, you must manually create an Eth-Trunk and add interfaces to the Eth-Trunk. LACP determines active interfaces by negotiating parameters in LACPDUs.

Eth-Trunks in dynamic LACP mode are used only when a Huawei device connects to a server. For other scenarios, configuring Eth-Trunks in static LACP mode is recommended to prevent potential loops.

Name Leaf1. Leaf3 and Spine are the same.

```
<Huawei>sys
[Huawei]sysname Leaf1
[Leaf1]
```

Create Eth-Trunk1

```
[Leaf1]interface Eth-Trunk 1
[Leaf1-Eth-Trunk1]trunkport 10 1/0/1 1/0/2
[Leaf1-Eth-Trunk1]mode lacp-static
[Leaf1-Eth-Trunk1]quit
```

Eth-Trunk2

```
[Leaf1]interface Eth-Trunk 2
[Leaf1-Eth-Trunk2]trunkport 10 1/0/5 1/0/6
[Leaf1-Eth-Trunk2]mode lacp-static
[Leaf1-Eth-Trunk2]quit
```

Step 2 Create Eth-Trunk on Spine and Leaf3



```
[Spine]interface Eth-Trunk 1
[Spine]-Eth-Trunk1]trunkport 10 1/0/1 1/0/2
[Spine]-Eth-Trunk1]mode lacp-static
[Spine-Eth-Trunk1]quit
[Spine]interface Eth-Trunk 2
[Spine]-Eth-Trunk1]trunkport 10 1/0/3 1/0/4
[Spine]-Eth-Trunk1]mode lacp-static
[Spine-Eth-Trunk1]quit
```

Leaf3

```
[Leaf3]interface Eth-Trunk 1
[Leaf3-Eth-Trunk1]trunkport 10 1/0/3 1/0/4
[Leaf3-Eth-Trunk1]mode lacp-static
[Leaf3-Eth-Trunk1]quit
[Leaf3]interface Eth-Trunk 2
[Leaf3-Eth-Trunk2]trunkport 10 1/0/5 1/0/6
[Leaf3-Eth-Trunk2]mode lacp-static
[Leaf3-Eth-Trunk2]quit
```

1.2.3 Eth-Trunk Configuration Verification

1.2.3.1 Check Eth-Trunk status

command display Eth-Trunk shows status about VLANs and relating interfaces.

```
[Spine]display eth-trunk
Eth-Trunk1's state information is:
Local:
LAG ID: 1                               Working Mode: Static
Preempt Delay: Disabled                 Hash Arithmetic: profile default
System Priority: 32768                   System ID: a0f4-79f8-a0a1
Least Active-linknumber: 1              Max Active-linknumber: 64
Operating Status: up                    Number Of Up Ports In Trunk: 2
Timeout Period: Slow

-----
---
ActorPortName      Status   PortType PortPri PortNo PortKey PortState
Weight
10GE1/0/1          Selected 10GE     32768   1     321    10111100 1
10GE1/0/2          Selected 10GE     32768   3     321    10111100 1

Partner:
-----
---
ActorPortName      SysPri   SystemID      PortPri PortNo PortKey
PortState
10GE1/0/1          32768    a0f4-79f8-a0e1 32768   1     321
10111100
10GE1/0/2          32768    a0f4-79f8-a0e1 32768   2     321
10111100

Eth-Trunk2's state information is:
Local:
```



```
LAG ID: 2                               Working Mode: Static
Preempt Delay: Disabled                 Hash Arithmetic: profile default
System Priority: 32768                   System ID: a0f4-79f8-a0a1
Least Active-linknumber: 1              Max Active-linknumber: 64
Operating Status: up                     Number Of Up Ports In Trunk: 1
Timeout Period: Slow
```

```
-----
---
ActorPortName      Status   PortType PortPri PortNo PortKey PortState
Weight
10GE1/0/3          Selected 10GE     32768   1     577    10111100 1
10GE1/0/4          Selected 10GE     32768   3     577    10111100 1
```

```
Partner:
-----
```

```
---
ActorPortName      SysPri   SystemID      PortPri PortNo PortKey
PortState
10GE1/0/3          32768    2c97-b1cd-a5e1 32768   1     321    10111100
10GE1/0/4          32768    2c97-b1cd-a5e1 32768   2     321
10111100
```

In the same way, check it on Leaf1 and Leaf3. Selected status means links are normal.

1.2.3.2 Reference Configuration

Spine

```
#
```

```
interface Eth-Trunk1
```

```
undo portswitch
```

```
mode lacp-static
```

```
#
```

```
interface Eth-Trunk2
```

```
mode lacp-static
```

```
#
```

```
interface 10GE1/0/1
```

```
eth-trunk 1
```

```
device transceiver 10GBASE-COPPER
```

```
#
```

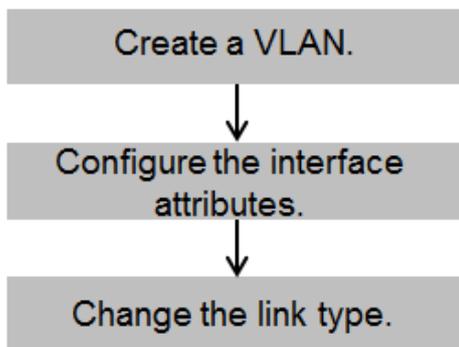
```
interface 10GE1/0/2
```

```
eth-trunk 1
```



```
device transceiver 10GBASE-COPPER
#
interface 10GE1/0/3
eth-trunk 2
device transceiver 10GBASE-COPPER
#
interface 10GE1/0/4
eth-trunk 2
device transceiver 10GBASE-COPPER
#
```

1.2.4 VLAN Configuration



Step 1 Create VLANs

Leaf1 is same as Leaf3.

```
<Leaf3>system-view immediately
[Leaf3]vlan batch 4004 to 4010 4033 to 4036 4060
```

vlan batch can create multiple VLANs in a single command.

Step 2 Configure server accessing interface

Leaf1 connects compute node. VLAN 4007 is server PXE network, so the traffic must be untag.

```
<Leaf1>system-view immediately
[Leaf1]interface 10GE 1/0/10
[Leaf1-10GE1/0/10]port link-type trunk
[Leaf1-10GE1/0/10]port trunk allow-pass vlan 4004 to 4009 4033 to 4036
[Leaf1-10GE1/0/10]port trunk pvid vlan 4007
[Leaf1-10GE1/0/10]quit
```



#Leaf3.

Interface 10GE 1/0/7-1/0/12 connect to FusionSphere OpenStack controller node.

Interface 10GE 1/0/47 connects to AC-DCN server.

```
<Leaf3>system-view immediately
[Leaf3]interface range 10GE 1/0/7 to 10GE 1/0/12
[Leaf3-port-group]port link-type trunk
[Leaf3-port-group]port trunk pvid vlan 4007
[Leaf3-port-group]port trunk allow-pass vlan 4004 to 4009 4033 to 4036
[Leaf3-port-group]quit
[Leaf3]interface 10GE 1/0/47
[Leaf3-10GE1/0/47]port default vlan 4010
[Leaf3-10GE1/0/47]quit
```

Step 3 Configure interconnect interfaces.

Interconnect interfaces Eth-Trunk allow Fusionphere OpenStack traffic between compute node and controller node.

```
[Leaf-1]interface Eth-Trunk 2
[Leaf-1-Eth-Trunk2]port link-type trunk
[Leaf-1-Eth-Trunk2]port trunk allow-pass vlan 4004 to 4009 4033 to 4036
[Leaf-1-Eth-Trunk2]quit
```

#Leaf3

```
[Leaf-3-Eth-Trunk1]interface Eth-Trunk 2
[Leaf-3-Eth-Trunk2]port link-type trunk
[Leaf-3-Eth-Trunk2]port trunk allow-pass vlan 4004 to 4009 4033 to 4036
[Leaf-3-Eth-Trunk2]quit
```

1.2.5 VLAN Configuration Vefication

Check VLAN status.

```
[Leaf1]display vlan
The total number of vlans is : 11
-----
---
U: Up;          D: Down;          TG: Tagged;          UT: Untagged;
MP: Vlan-mapping;      ST: Vlan-stacking;
#: ProtocolTransparent-vlan;  *: Management-vlan;
MAC-LRN: MAC-address learning;  STAT: Statistic;
BC: Broadcast; MC: Multicast;  UC: Unknown-unicast;
FWD: Forward;  DSD: Discard;
-----
---
VID          Ports
-----
---
```



```

1          UT:Eth-Trunk2 (U)    40GE1/0/1 (D)    40GE1/0/2 (D)    40GE1/0/3 (D)
          40GE1/0/4 (D)    40GE1/0/5 (D)    40GE1/0/6 (D)    10GE1/0/1 (D)
          10GE1/0/2 (D)    10GE1/0/3 (U)    10GE1/0/4 (U)    10GE1/0/5 (D)
          10GE1/0/6 (D)    10GE1/0/7 (D)    10GE1/0/8 (D)    10GE1/0/9 (D)
          10GE1/0/11 (U)    10GE1/0/12 (U)    10GE1/0/13 (U)    10GE1/0/14 (D)
          10GE1/0/16 (D)    10GE1/0/19 (D)    10GE1/0/20 (D)    10GE1/0/21 (D)
          10GE1/0/22 (D)    10GE1/0/23 (D)    10GE1/0/24 (D)
          TG:10GE1/0/10 (U)
4004      TG:Eth-Trunk2 (U)    10GE1/0/10 (U)
4005      TG:Eth-Trunk2 (U)    10GE1/0/10 (U)
4006      TG:Eth-Trunk2 (U)    10GE1/0/10 (U)
4007      UT:10GE1/0/10 (U)
          TG:Eth-Trunk2 (U)
4008      TG:Eth-Trunk2 (U)    10GE1/0/10 (U)
4009      TG:Eth-Trunk2 (U)    10GE1/0/10 (U)
4033      TG:Eth-Trunk2 (U)    10GE1/0/10 (U)
4034      TG:Eth-Trunk2 (U)    10GE1/0/10 (U)
4035      TG:Eth-Trunk2 (U)    10GE1/0/10 (U)
4036      TG:Eth-Trunk2 (U)    10GE1/0/10 (U)

```

VID	Type	Status	Property	MAC-LRN	STAT	BC	MC	UC	Description
1	common	enable	default	enable	disable	FWD	FWD	FWD	VLAN 0001
4004	common	enable	default	enable	disable	FWD	FWD	FWD	VLAN 4004
4005	common	enable	default	enable	disable	FWD	FWD	FWD	VLAN 4005
4006	common	enable	default	enable	disable	FWD	FWD	FWD	VLAN 4006
4007	common	enable	default	enable	disable	FWD	FWD	FWD	VLAN 4007
4008	common	enable	default	enable	disable	FWD	FWD	FWD	VLAN 4008
4009	common	enable	default	enable	disable	FWD	FWD	FWD	VLAN 4009
4033	common	enable	default	enable	disable	FWD	FWD	FWD	VLAN 4033
4034	common	enable	default	enable	disable	FWD	FWD	FWD	VLAN 4034
4035	common	enable	default	enable	disable	FWD	FWD	FWD	VLAN 4035
4036	common	enable	default	enable	disable	FWD	FWD	FWD	VLAN 4036

VLANs are allowed on specific interfaces. VLAN 4007 is untag on 10GE 1/0/10.

1.3 Thinking Questions

1. What is the benefit of link aggregation?
2. Should the Eth-Trunk ID keep the same on 2 swithes?
3. If the LACP modes are mismatch in two sides, what would the stauts be?



2 Lab Guide for DC Layer 3 Network

2.1 Introduction

2.1.1 About this lab

This chapter is about layer 3 DCN configuration. You will learn to configure SDN underlay network.

2.1.2 Objectives

- Understand how to configure underlay network.
- Understand basic configuration of OSPF.
- Understand basic configuration of BGP.

2.1.3 Topology and Description

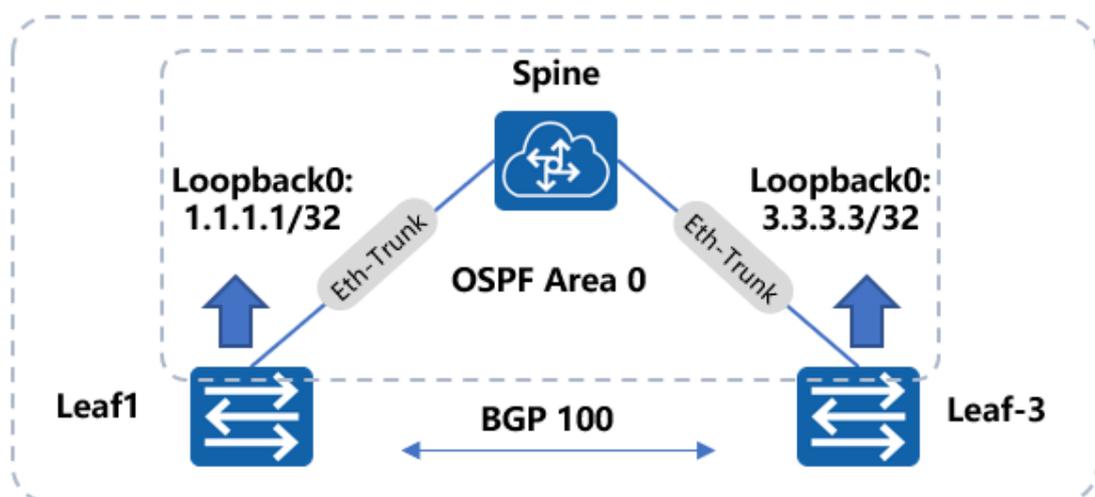


Table 2-1 数据中心三层网络实验拓扑图



2.1.4 Network Planning

Interface Loopback 0 on Leaf1 and Leaf3 functions as VXLAN tunnel endpoint. OSPF makes VXLAN tunnel reachable. BGP EVPN peer relationship is required between Leaf1 and Leaf3 as SDN underlay.

Figure 2-1 L3 interface

Switch	Interface	IP address
Leaf1	Eth-Trunk1	10.1.12.1/30
	Loopback0	1.1.1.1/32
	Meth0/0/0	172.18.100.7/24
Spine	Eth-Trunk1	10.1.12.2/30
	Eth-Trunk2	10.1.23.1/30
Leaf3	Eth-Trunk1	10.1.23.2/30
	Loopback0	3.3.3.3/32
	Meth0/0/0	172.18.100.2/24

2.2 Configuration

2.2.1 Roadmap

1. Configure IP addresses of all swithes.
2. Advertise subnets in OSPF area 0.
3. Establish BGP EVPN relationship and configure VTEP.

2.2.2 Configure IP Addresses

Base on the planning table, configure IP addresses on Leaf1.

```
[Leaf1]interface Eth-Trunk 1
[Leaf1-Eth-Trunk1]undo portswitch
[Leaf1-Eth-Trunk1]ip address 10.1.12.1 30
```



```
[Leaf1-Eth-Trunk1]quit
[Leaf1]interface LoopBack 0
[Leaf1-LoopBack0]ip address 1.1.1.1 32
[Leaf1-LoopBack0]quit
[Leaf1]interface MEth 0/0/0
[Leaf1-MEth0/0/0]ip address 172.18.100.7 24
[Leaf1-MEth0/0/0]quit
```

#Spine and Leaf3 are the similar.

2.2.3 IP Address configuration Verification

Step 1 Display ip interfaces on Leaf1

```
[Leaf1]display ip interface brief
*down: administratively down
!down: FIB overload down
^down: standby
(l): loopback
(s): spoofing
(d): Dampening Suppressed
The number of interface that is UP in Physical is 4
The number of interface that is DOWN in Physical is 0
The number of interface that is UP in Protocol is 4
The number of interface that is DOWN in Protocol is 0
Interface                IP Address/Mask    Physical Protocol VPN
Eth-Trunk1                10.1.12.1/30      up      up      --
LoopBack0                 1.1.1.1/32        up      up(s)   --
MEth0/0/0                 172.18.100.7/24  up      up      --
NULL0                     unassigned        up      up(s)   --
```

Step 2 Ping test on Spine

```
[Spine]ping 10.1.12.1
PING 10.1.12.1: 56 data bytes, press CTRL_C to break
  Reply from 10.1.12.1: bytes=56 Sequence=1 ttl=254 time=1 ms
  Reply from 10.1.12.1: bytes=56 Sequence=2 ttl=254 time=1 ms
  Reply from 10.1.12.1: bytes=56 Sequence=3 ttl=254 time=1 ms
  Reply from 10.1.12.1: bytes=56 Sequence=4 ttl=254 time=1 ms
  Reply from 10.1.12.1: bytes=56 Sequence=5 ttl=254 time=1 ms

--- 10.1.12.1 ping statistics ---
  5 packet(s) transmitted
  5 packet(s) received
  0.00% packet loss
  round-trip min/avg/max = 1/1/1 ms
[Spine]ping 10.1.23.2
PING 10.1.23.2: 56 data bytes, press CTRL_C to break
  Reply from 10.1.23.2: bytes=56 Sequence=1 ttl=254 time=2 ms
  Reply from 10.1.23.2: bytes=56 Sequence=2 ttl=254 time=1 ms
  Reply from 10.1.23.2: bytes=56 Sequence=3 ttl=254 time=1 ms
  Reply from 10.1.23.2: bytes=56 Sequence=4 ttl=254 time=2 ms
  Reply from 10.1.23.2: bytes=56 Sequence=5 ttl=254 time=1 ms
```



```
--- 10.1.23.2 ping statistics ---
 5 packet(s) transmitted
 5 packet(s) received
 0.00% packet loss
 round-trip min/avg/max = 1/1/2 ms
```

Reachable.

2.2.4 OSPF Configuration

#Leaf1

```
[Leaf1]ospf
[Leaf1-ospf-1]area 0
[Leaf1-ospf-1-area-0.0.0.0]network 10.1.12.0 0.0.0.3
[Leaf1-ospf-1-area-0.0.0.0]network 1.1.1.1 0.0.0.0
```

#Spine

```
[Spine]ospf
[Spine-ospf-1]area 0
[Spine-ospf-1-area-0.0.0.0]network 10.1.12.0 0.0.0.3
[Spine-ospf-1-area-0.0.0.0]network 10.1.23.0 0.0.0.3
```

#Leaf3

```
[Leaf3]ospf
[Leaf3-ospf-1]area 0
[Leaf3-ospf-1-area-0.0.0.0]network 10.1.23.0 0.0.0.3
[Leaf3-ospf-1-area-0.0.0.0]network 3.3.3.3 0.0.0.0
```

2.2.5 OSPF Configuration Verification

Step 1 Check OSPF neighbor relationship.

```
[Spine]display ospf peer brief
OSPF Process 1 with Router ID 172.18.100.8
      Peer Statistic Information
Total number of peer(s): 2
Peer(s) in full state: 2
```

Area Id	Interface	Neighbor id	State
0.0.0.0	Eth-Trunk1	172.18.100.7	Full
0.0.0.0	Eth-Trunk2	192.168.146.1	Full

Full mean successful neighbor relationship.

Step 2 Ping test from Leaf1 to Leaf3.



```
[Leaf1]ping -a 1.1.1.1 3.3.3.3
PING 3.3.3.3: 56 data bytes, press CTRL_C to break
  Reply from 3.3.3.3: bytes=56 Sequence=1 ttl=253 time=2 ms
  Reply from 3.3.3.3: bytes=56 Sequence=2 ttl=253 time=2 ms
  Reply from 3.3.3.3: bytes=56 Sequence=3 ttl=253 time=1 ms
  Reply from 3.3.3.3: bytes=56 Sequence=4 ttl=253 time=2 ms
  Reply from 3.3.3.3: bytes=56 Sequence=5 ttl=253 time=1 ms

--- 3.3.3.3 ping statistics ---
  5 packet(s) transmitted
  5 packet(s) received
  0.00% packet loss
  round-trip min/avg/max = 1/1/2 ms
```

2.2.6 BGP EVPN and VXLAN Configuration

Establish BGP EVPN peer relationship over Loopback interfaces on Leaf1 and Leaf3. AS number is 100. Configure distributed gateway, advertising IRB route in EVPN.

Step 1 Configuration on Leaf1

```
[Leaf1]evpn-overlay enable #enable EVPN overlay
[Leaf1]bgp 100
[Leaf1-bgp]peer 3.3.3.3 as-number 100
[Leaf1-bgp]peer 3.3.3.3 connect-interface loopBack 0
[Leaf1-bgp]l2vpn-family evpn
[Leaf1-bgp-af-evpn]peer 3.3.3.3 enable #evpn address family
[Leaf1-bgp-af-evpn]peer 3.3.3.3 advertise irb #advertise IRB route
```

Step 2 Configuration on Leaf3

```
[Leaf3]evpn-overlay enable
[Leaf3]bgp 100
[Leaf3-bgp]peer 1.1.1.1 as-number 100
[Leaf3-bgp]peer 1.1.1.1 connect-interface loopBack 0
[Leaf3-bgp]l2vpn-family evpn
[Leaf3-bgp-af-evpn]peer 1.1.1.1 enable
Warning: This operation will reset the peer session. Continue? [Y/N]:y
[Leaf3-bgp-af-evpn]peer 1.1.1.1 advertise irb
```

Step 3 Configure VXLAN tunnel

#Leaf1 NVE configuration

```
[Leaf1]interface Nve 1
Info: Ensure that the IP addresses and MAC addresses of the NVE interfaces on
Devices are the same, as they are dual-active gateways
using M-LAG.
[Leaf1-Nve1]source 1.1.1.1
```

#Leaf3



```
[Leaf3]interface Nve 1
[Leaf3-Nve1]source 3.3.3.3
```

2.2.7 BGP EVPN Configuration Verification

Check BGP EVPN peer relationship.

```
[Leaf1]display bgp evpn peer
BGP local router ID      : 172.18.100.7
Local AS number          : 100
Total number of peers    : 1
Peers in established state : 1
```

Peer	V	AS	MsgRcvd	MsgSent	OutQ	Up/Down	State
PrefRcv							
3.3.3.3	4	100	9	9	0	00:04:20	Established
0							

Peer established.

2.3 Thinking Questions

1. Why in the roadmap we configure BGP EVPN in the last?
2. What are the functions of LoopBack 0?



3 Lab Guide for Agile Controller-DCN

3.1 Introduction

3.1.1 About this lab

This chapter is about the operations on SDN controller Agile Controller-DCN.

3.1.2 Objectives

- Understand how SDN controller take over devices.
- Understand NETCONF and SNMP configurations.
- Understand SDN service models

3.1.3 Topology and Description

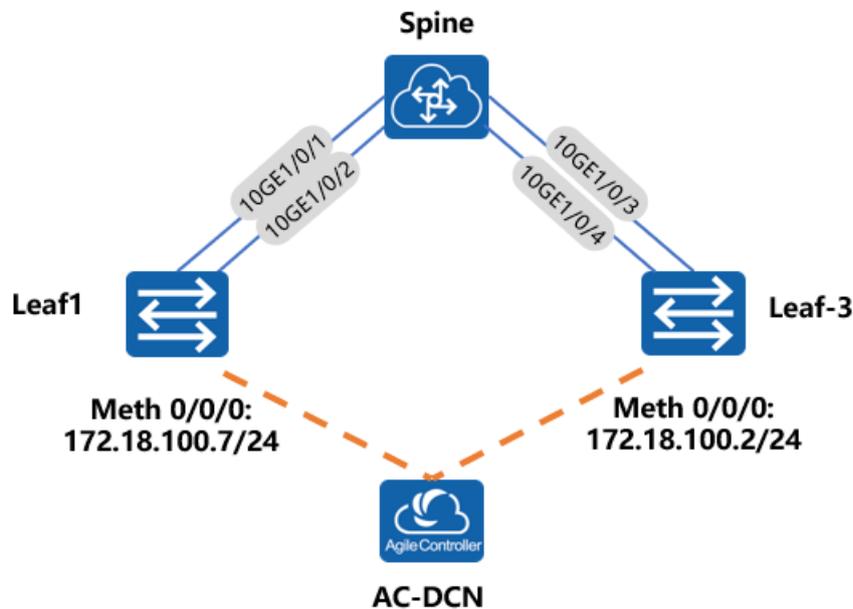


Table 3-1 SDN Topology



3.1.4 Network Planning

Before Agile Controller-DCN automatically delivery network service, physical switches should be taken over by it. There are two southbound protocols required in this timing, SNMP and NETCONF. Parameters are shown as follows.

Figure 3-1 Southbound protocol parameters

Parameter	Value	Description
SNMP Username	admin	SNMP V3
SNMP Authentication protocol and Key	HMAC-SHA/Huawei12#\$	
SNMP Encryption Algorithm and Key	AES_128/Huawei12#\$	
NETCONF Username	netconf-admin	
NETCONF Password	Huawei12#\$	

3.2 Configuration

3.2.1 Roadmap

1. Configure SNMP and NETCONF on switches.
2. AC-DCN discover switches and delivery services.

3.2.2 SNMP Configuration

Step 1 Configure SNMP User and user group on Leaf1.

#SNMP user is admin and user group is dc-admin.

```
[Leaf1]snmp-agent usm-user v3 admin group dc-admin
```

Step 2 Set SNMP authentication protocol to SHA, Encryption Algorithm to AES128.

#Password is Huawei12#\$.

```
[Leaf1]snmp-agent usm-user v3 admin authentication-mode sha  
Please configure the authentication password (8-255)
```



```
Enter Password:
Confirm Password:
[Leaf1]snmp-agent usm-user v3 admin privacy-mode aes128
Please configure the privacy password (8-255)
Enter Password:
Confirm Password:
Warning: The privacy and authentication passwords are the same, which is
insecure. It is recommended that the privacy and authentication passwords be
different.
```

Step 3 Configure AC-DCN specified MIB.

#MIB view is iso-view. OID node is iso.

```
[Leaf1]snmp-agent mib-view included nt iso
[Leaf1]snmp-agent mib-view included rd iso
[Leaf1]snmp-agent mib-view included wt iso
[Leaf1]snmp-agent mib-view included iso-view iso
[Leaf1]snmp-agent group v3 dc-admin privacy read-view rd write-view wt
notify-view nt
```

3.2.3 NETCONF Configuration

Based on planning, NETCONF username is netconf-admin, password is Huawei12#\$.

Step 1 Create NETCONF user

#NETCONF is based on AAA and SSH.

```
[Leaf1]aaa #AAA account
[Leaf1-aaa]local-user netconf-admin password cipher Huawei12#$
Info: A new user is added.
[Leaf1-aaa]local-user netconf-admin service-type ssh
Info: The user netconf's password has been changed to be irreversible.
[Leaf1-aaa]local-user netconf-admin level 3
[Leaf1-aaa]quit
[Leaf1]user-interface vty 0 4 #allow SSH users through VTY
[Leaf1-ui-vty0-4] authentication-mode aaa
Warning: The level of the user-interface(s) will be the default level of AAA
users, please check whether it is correct.
[Leaf1-ui-vty0-4] protocol inbound ssh
[Leaf1-ui-vty0-4]quit
```

Step 2 Create local RSA key pair

```
[Leaf1]rsa local-key-pair create
The key name will be:Leaf1_Host
The range of public key size is (2048 ~ 2048).
NOTE: Key pair generation will take a short while.
```

Step 3 Configure SSH parameters



```
[Leaf1]ssh user netconf authentication-type password
Info: Succeeded in adding a new SSH user.
[Leaf1]ssh user netconf service-type snetconf
[Leaf1]snetconf server enable
Info: Succeeded in starting the SNETCONF server on SSH port 22.
```

Default SSH port is 22. Configurations on Leaf3 are the same.

3.2.4 AC-DCN configuration

Make sure the reachability from devices to AC-DCN. Then login AC-DCN discover devices.

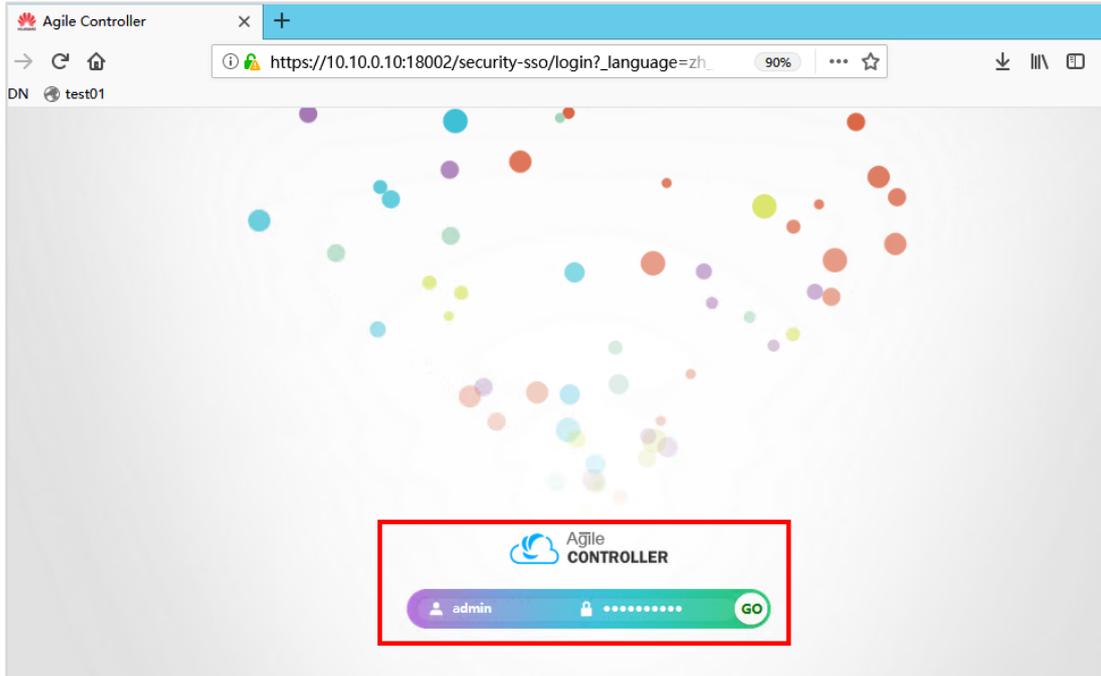
#172.18.100.7 is the management ip address of Leaf1. 10.10.0.10 is the IP addresses of AC-DCN.

```
[Leaf1]ping -a 172.18.100.7 10.10.0.10
PING 10.10.0.10: 56 data bytes, press CTRL_C to break
  Reply from 10.10.0.10: bytes=56 Sequence=1 ttl=63 time=1 ms
  Reply from 10.10.0.10: bytes=56 Sequence=2 ttl=63 time=1 ms
  Reply from 10.10.0.10: bytes=56 Sequence=3 ttl=63 time=1 ms
  Reply from 10.10.0.10: bytes=56 Sequence=4 ttl=63 time=1 ms
  Reply from 10.10.0.10: bytes=56 Sequence=5 ttl=63 time=1 ms

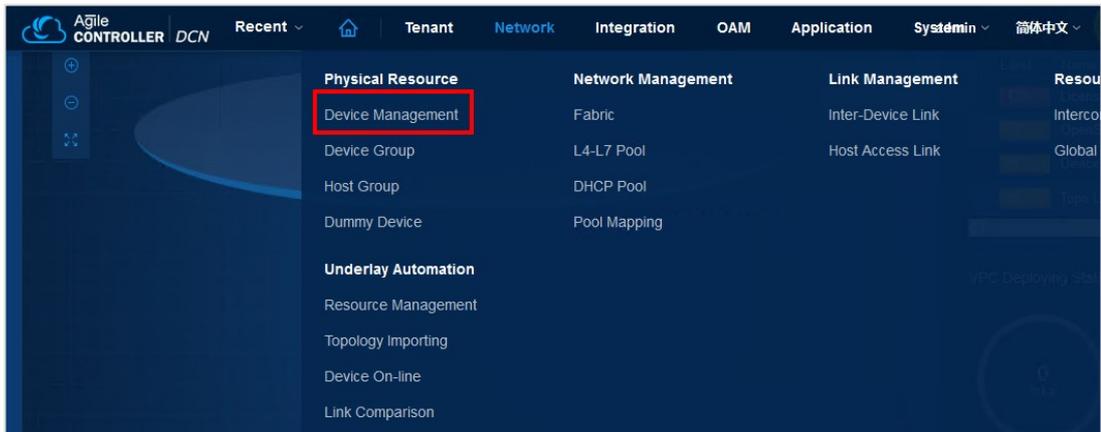
--- 10.10.0.10 ping statistics ---
  5 packet(s) transmitted
  5 packet(s) received
  0.00% packet loss
  round-trip min/avg/max = 1/1/1 ms
```

Step 1 AC-DCN take over devices.

#login AC-DCN with username admin password Huawei@123.



#点击网络-设备管理，跳转设备发现页面。



#Click Automatic discovery



The screenshot shows the Agile Controller DCN interface with a 'Device Discovery Help' dialog box open. The dialog contains three sections: 'Discover Device', 'Discover Registered Device', and 'Import Discovery'. The 'Automatic Discovery' button under the 'Discover Device' section is highlighted with a red box. The interface also shows a 'Device Discovery' dropdown menu in the background.

#Enter IP Section in devices management IP addresses, SNMP parameters.

The screenshot shows a configuration wizard with two steps: '1. Scanning rule configuration' and '2. Select device to be added to controller'. The 'IP Section' is configured with 'Start IP Address' as 172.18.100.2 and 'End IP Address' as 172.18.100.7. The 'SNMP V3 Protocol' is enabled, and the configuration is set to 'Customized'. The 'User Name' is 'admin', the 'Authentication Protocol' is 'HMAC_SHA', the 'Encryption Algorithm' is 'AES_128', and both the 'Authentication Key' and 'Private Key' are masked with dots.

#Enter NETCONF parameters configured in underlay devices. Click Start.



NETCONF Protocol ON

Information If the connection protocol is RESTful, disable NETCONF. After devices are successfully added, go to the device management page to perform related configurations.

Protocol configuration ... Customized Template

* User Name : * Password :

* Port :

#Devices discovered. Click Add and OK. If failed, please check IP connection and SNMP configuration.

Discovered Devices | Undiscovered Devi...

Select All Clear All Config **Add** Device Name or IP Address

<input checked="" type="checkbox"/>	Device Name	Processing Status	IP Addr...	Device Model	Software Version	VPN Name	SNMP Status
<input checked="" type="checkbox"/>	Leaf1	Not added	172.18.100.7	CE6880-24S...	V200R003C00SP...		Normal
<input checked="" type="checkbox"/>	Leaf3	Not added	172.18.100.2	CE6855-48S...	V200R005C00SP...		Normal

Total records: 2 Line

#Make sure devices are in Normal status. If not, please check NETCONF configuration.

Total 2 Devices Operational: 2 Faulty: 0 0% The status is abnormal. See online help for troubleshooting.

ALL 0 / 2 Abnormal/Total **Switch** 0 / 2 Abnormal/Total

Delete Modify Synchronize Device Discovery More

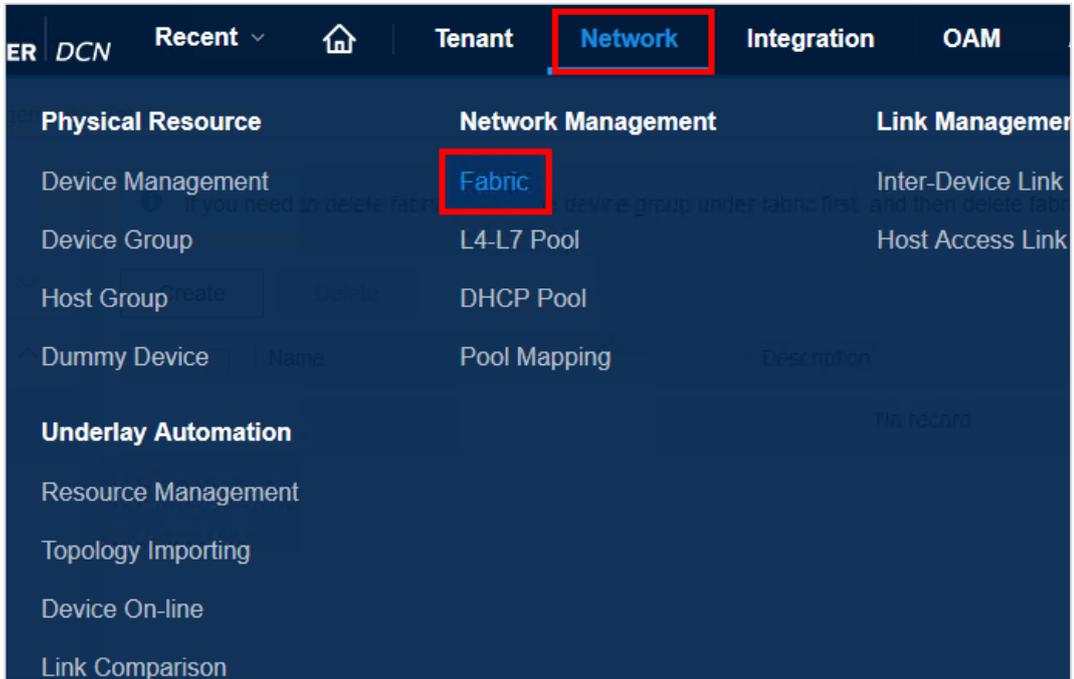
<input type="checkbox"/>	Device Name	Manage...	Device ...	Device ...	Lo...	Status	To B...	Supported ...	Operat...	Inter...
<input checked="" type="checkbox"/>	Leaf1	172.18.100.7	SWITCH	CE6880-24...	Beijin...	● Normal	No	NETCONF:...	<input type="button" value="edit"/> <input type="button" value="refresh"/>	<input type="button" value="View"/>
<input checked="" type="checkbox"/>	Leaf3	172.18.100.2	SWITCH	CE6855-48...	Beijin...	● Normal	No	NETCONF:...	<input type="button" value="edit"/> <input type="button" value="refresh"/>	<input type="button" value="View"/>

Total records: 2 Line

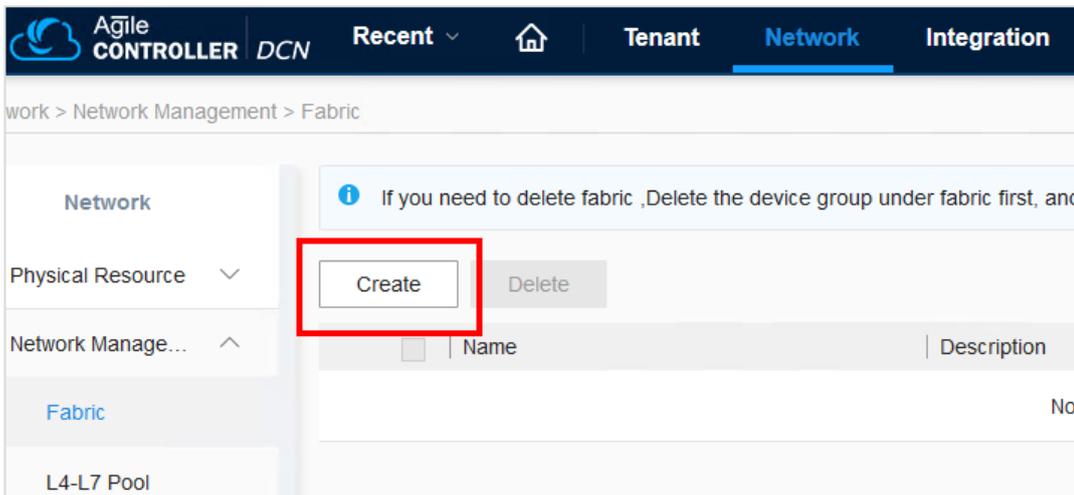


Step 2 Fabric Creation

Click Network-Fabric.



#Create Fabric and add devices. Network services will be delivered based on Fabric.



#Choose Fabric parameters which should be the same as underlay configuration. Choose Distributed here, for IRB routes are configured in BGP EVPN.



Basic Information
* Name: Description:

Network Features

* Physical Network Mode: * Gateway Group Policy:

* Network Type: Centralized * BGP EVPN:

* ARP Broadcast Suppression: Enable * Outbound Interface Type: VlanIf

DCI Split_Group: * DMicro-segmentation capability: Enable

Logical Network Storm Suppression Default Value

All Broadcast multicast Unknown-unicast

Broadcast: CIR: Kbps CBS: byte

multicast: CIR: Kbps CBS: byte

Unknown-unicast: CIR: Kbps CBS: byte

#Set Leaf3 as egress gateway. Click Next.

The Agile Controller supports device groups of one or more devices.

Add Device to Fabric

<input type="checkbox"/>	Group Name	Type	Device Quantity	Egress Gateway	VTEP IP Ad
<input type="checkbox"/>	Leaf1	Single	1	No	1.1.1.1
<input checked="" type="checkbox"/>	Leaf3	Single	1	No	3.3.3.3

Total records: 2 Line

#Click Finish.



1. Create Fabric ✓ 2. Add Device ✓ 3. Configure View

Fabric | Device Group

Basic Information

Name: Fabric Description:

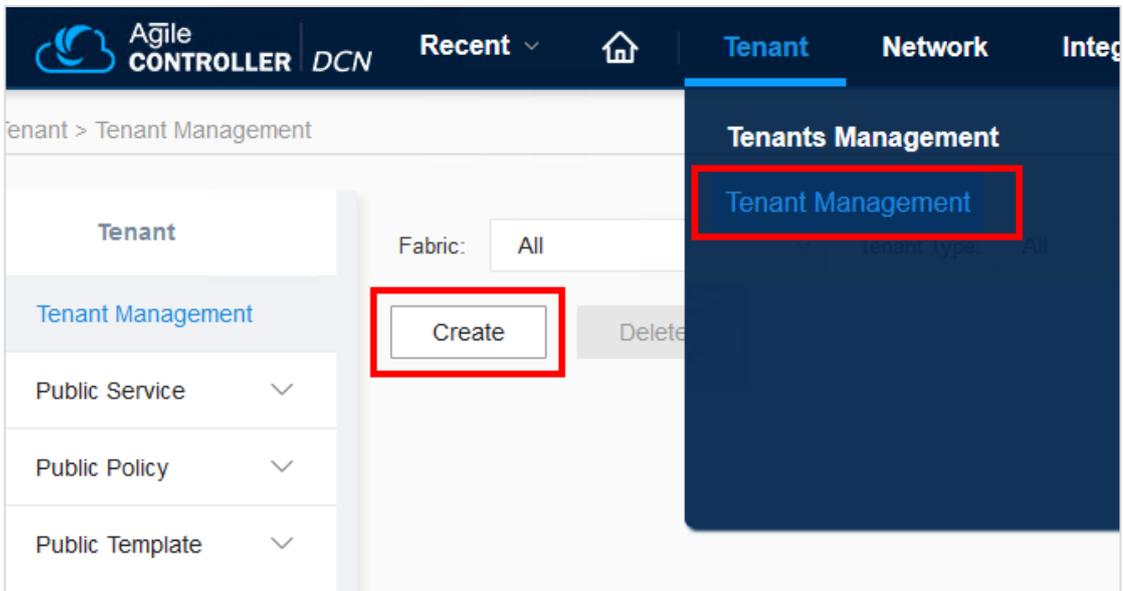
Network Features

Physical Network Mode:	VXLAN	Gateway Group Policy:	Load Balancing
Network Type:	Distributed	BGP EVPN:	Enable
ARP Broadcast Suppression:	Disable	DCI Split_Group:	
Outbound Interface Type:	vBdf	DMicro-segmentation capability:	Disable

Previous Finish

Step 3 Tenant Creation

#Click Tenant Management, then click Create.



#Set Name in HCIA-DC. Enter your own account and password.



1. Basic Information 2. Authorize 3. Advance

* Name: HCIA-DC

Description:

Logo:

* Admin Account: dc@huawei.com

* Password:

* Confirm Password:

Next Cancel

#Add Fabric into tenant.

1. Basic Information 2. Authorize

* Fabric:

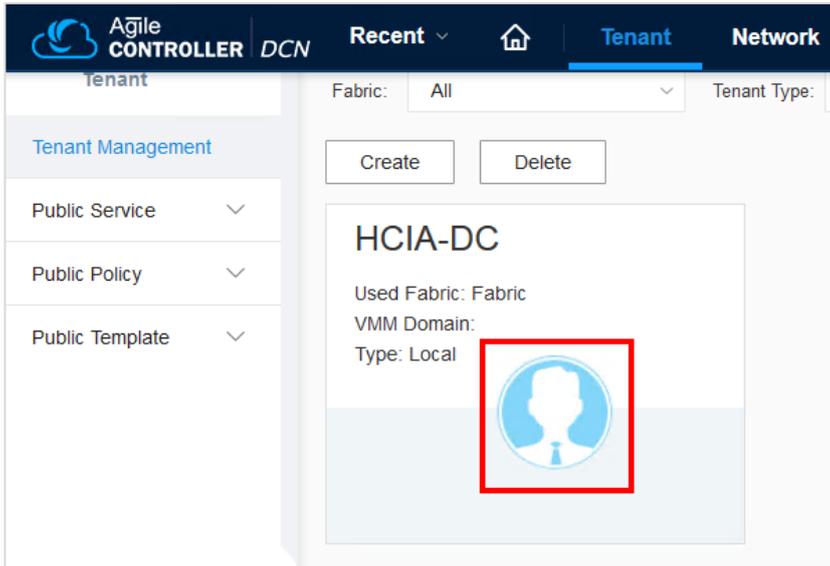
Add Fabric

Selected: 1	Name	Description
<input checked="" type="checkbox"/>	Fabric	

Total records: 1 10 Line 1

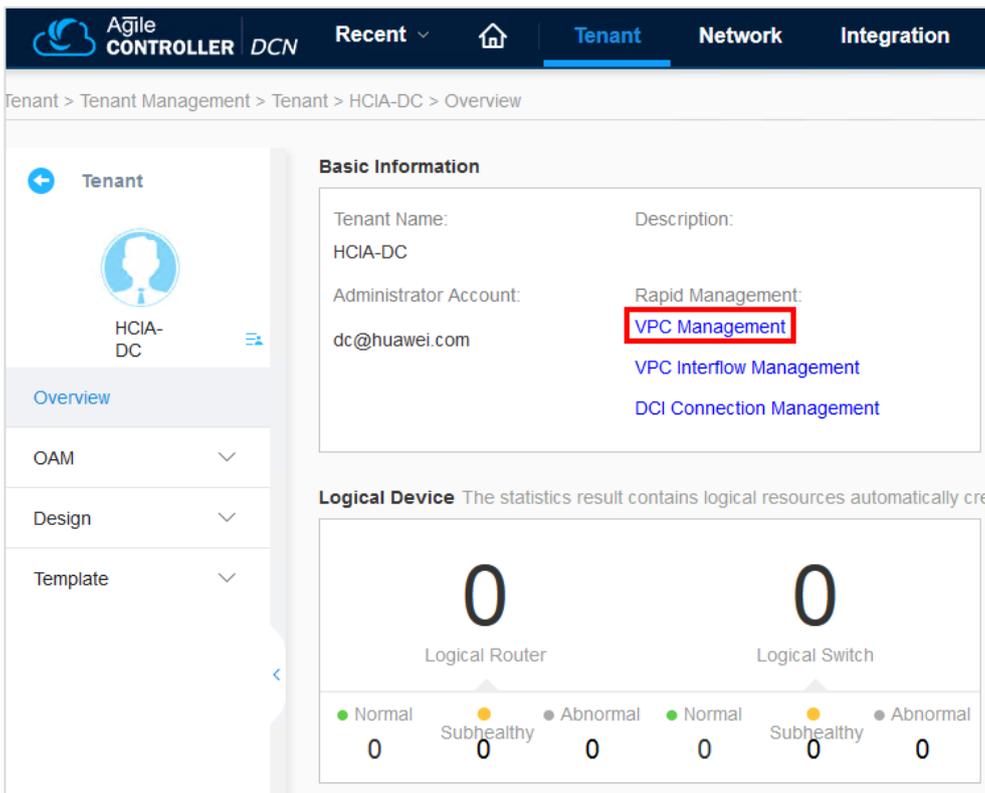
OK Cancel

#Click OK until tenant created. Click the picture of tenant, start orchestration.

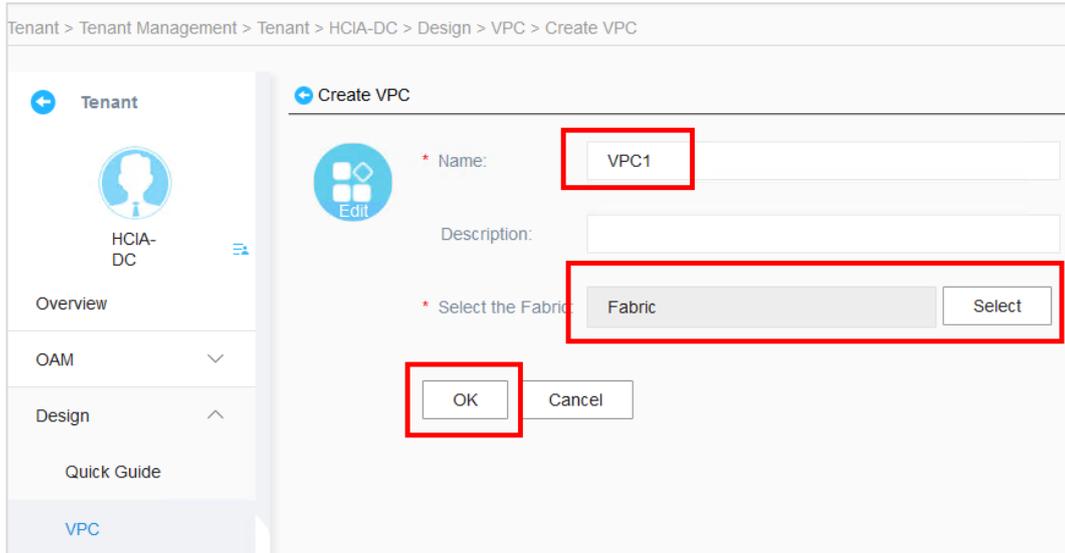


Step 4 VPC Creation

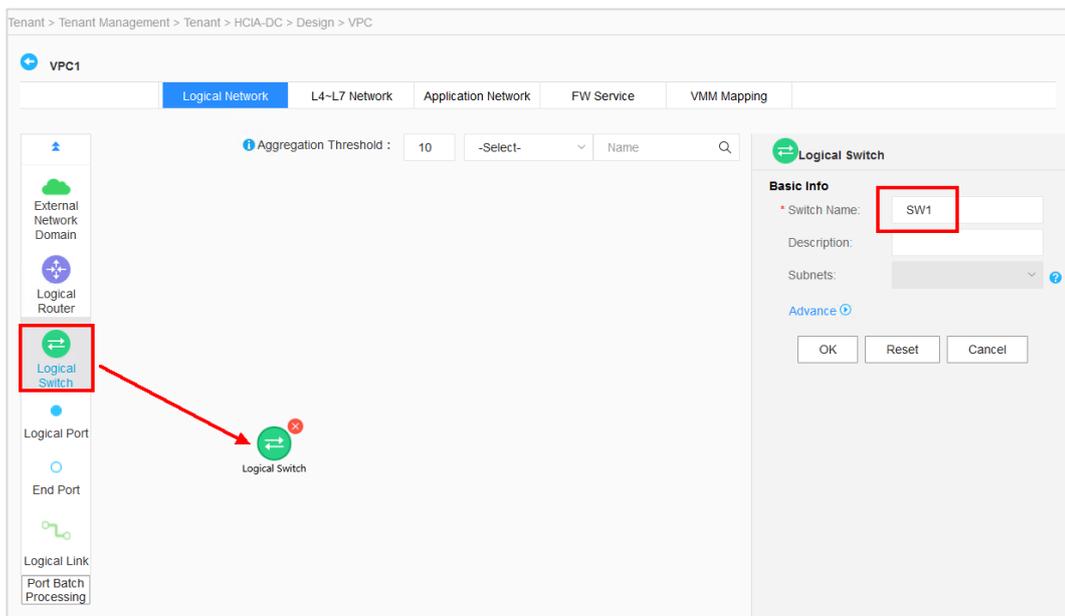
#Click VPC Management



#Enter VPC Name in VPC1 and associate a Fabric.



#Drag Logical Switch into blank area to create it. Enter Switch Name and other parameters in right bar.



#Drag Logical Port into blank area. Enter its parameters in right bar based on planning.



VPC1

Logical Network | L4-L7 Network | Application Network | FW Service | VMM Mapping

Aggregation Threshold : 10 | -Select- | Name

External Network Domain

Logical Router

Logical Switch

Logical Port

End Port

Logical Link

Port Batch Processing

SW1

Logical Port

Logical Port

After the logical port is connected to the user port, the return route from the external network to the subnet segment to which the logical port belongs is triggered.

Basic Info

Port Name: Port1

Description:

Status: down

Related Switch: SW1

L2 Access:

Access Mode: User Network I ...

Access Type: Dot1q

VLAN: 1000

Fabric: Fabric

Device Group and Port: Select

Device Group: Please select

Port:

#Simulate user traffic accessing from interface 10GE 1/0/10 with VLAN 1000.

Select the Device and Port

Info: You can select ports from multiple devices.

Device Group | Name

Leaf1

Leaf3

Device Port | Name

Leaf1

10GE1/0/1

10GE1/0/10

10GE1/0/11

10GE1/0/12

10GE1/0/13

10GE1/0/14

#Click Ok, then the logical port connects logical switch.



The image shows a configuration dialog for L2 Access on the left and a network diagram on the right. The dialog has the following fields:

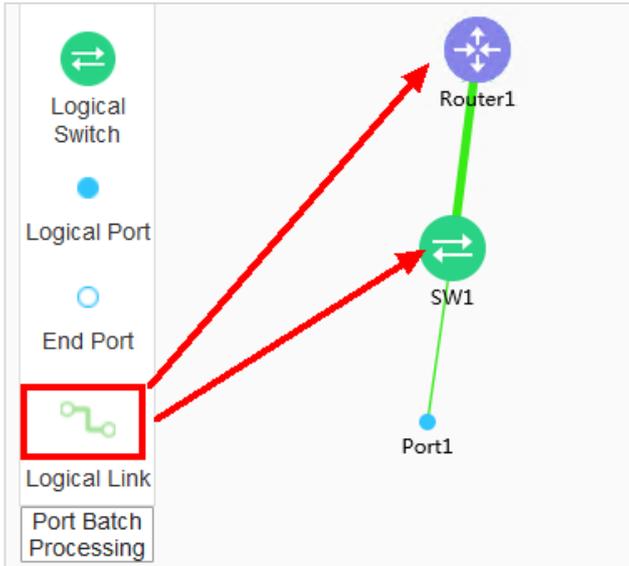
- Access Mode: User Network I ...
- Access Type: Dot1q
- VLAN: 1000
- Fabric: Fabric
- Device Group and Port: Select
- Device Group: Leaf1 (highlighted with a red box)
- Port: 10GE1/0/10(Leaf1) (highlighted with a red box)

Buttons at the bottom include Advance, OK (highlighted with a red box), Reset, and Cancel. The network diagram on the right shows a Logical Switch connected to a Logical Port, which is connected to a Physical Port (Port1) on a switch (SW1).

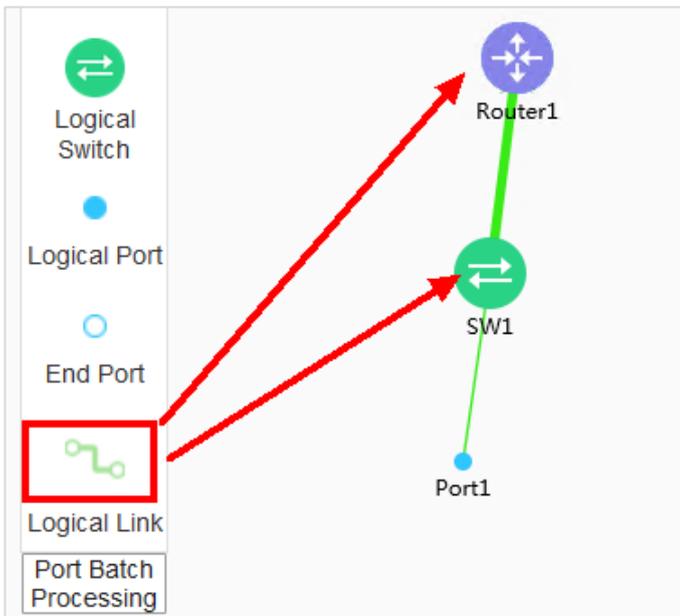
#Drag Logical Router into blank area. Set router parameters like Name, subnet and vrf.

The image shows a network management interface. On the left, a sidebar contains icons for External Network Domain, Logical Router (highlighted with a red box), Logical Switch, Logical Port, End Port, Logical Link, and Port Batch Processing. A red arrow points from the Logical Router icon to a newly added Logical Router icon in the main workspace. The main workspace also shows a Logical Switch (SW1) connected to a Logical Port, which is connected to a Physical Port (Port1). On the right, the configuration panel for the Logical Router is visible. It includes fields for Router Name (Router1), Description, Default Egress-Fabric (Fabric), Vrf Alloc Mode (Automatic), Vrf, and VNI. The Advance button is highlighted with a red box. Below the configuration fields, there is a table for Subnet List with columns for CIDR and Gateway IP, and an Add button highlighted with a red box.

#Add a subnet 192.168.0.0/24 and gateway 192.168.0.1.



#Create Logical Link after router creation. Connect router and switch.

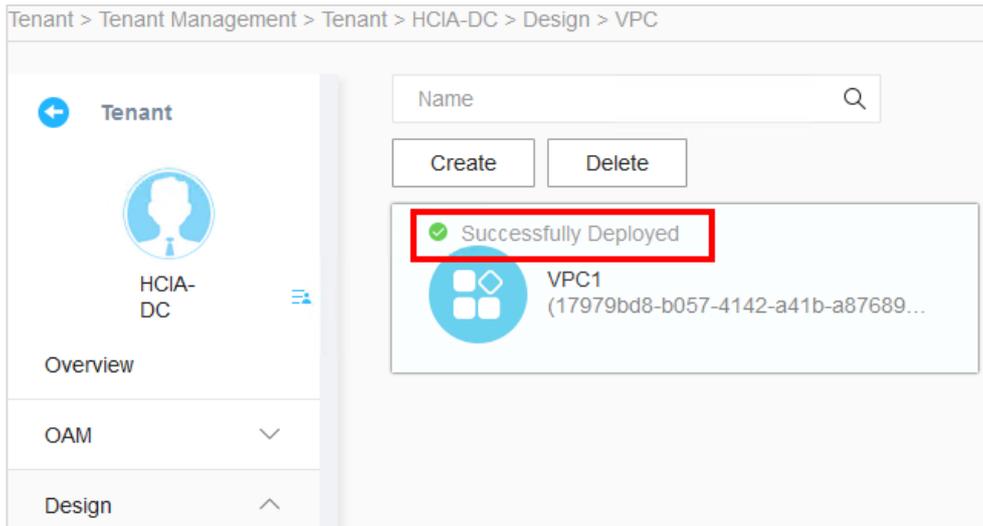


#Click Logical Switch, choose a subnet created in Logical router.



#Back to previous page. Click Deploy to deploy VPC service.

#Deployed successfully.



Now user subnet 192.168.0.0/24 can access VXLAN Fabric from Leaf1 interface 10G1/0/10 with VLAN 1000. Gateway is located in Leaf1.

3.2.5 AC-DCN Network Service Verification

Login Leaf1 to check the changed configuration last time. (delivered by AC-DCN)

```
[Leaf1]display configuration commit changes last 1
Building configuration
#
+ ip vpn-instance Router1_0000001
+ ipv4-family
+ route-distinguisher 1:10002
+ vpn-target 0:10002 export-extcommunity
+ vpn-target 0:10002 export-extcommunity evpn
+ vpn-target 0:10002 import-extcommunity
+ vpn-target 0:10002 import-extcommunity evpn
+ description HCIA-DC_Router1
+ vxlan vni 10002
#
+ bridge-domain 1
+ vxlan vni 10001
+ evpn
+ route-distinguisher 1:10001
+ vpn-target 0:10001 export-extcommunity
+ vpn-target 0:10002 export-extcommunity
+ vpn-target 0:10001 import-extcommunity
#
+ interface Vbdif1
+ ip binding vpn-instance Router1_0000001
+ ip address 192.168.0.1 255.255.255.0
+ mac-address 0000-5e00-0102
+ vxlan anycast-gateway enable
+ arp collect host enable
#
+ interface 10GE1/0/10.1 mode 12
+ encapsulation dot1q vid 1000
```



```
+ bridge-domain 1
#
interface Nve1
+ vni 10001 head-end peer-list protocol bgp
#
bgp 100
+ ipv4-family vpn-instance Router1_0000001
+ default-route imported
+ import-route direct
+ import-route static
+ maximum load-balancing 32
+ advertise l2vpn evpn
#
```

3.3 Thinking Questions

1. Why should we configure BGP EVPN and VXLAN in previous chapter?
2. If we did not configure BGP EVPN and VXLAN, can we deploy VPC successfully?
3. Why should we create a Fabric?
4. What are the roles of logical port, logical switch and logical router?



4 Lab Guide for Huawei Cloud

4.1 Introduction

4.1.1 About this lab

This chapter is about deploying Huawei Cloud Cloud services. FusionSphere OpenStack connects Agile Controller-DCN. Apply for networking and computing services on ManageOne.

4.1.2 Objectives

- Understand Huawei Cloud architecture
- Understand how to connect AC-DCN to FusionSphere OpenStack.
- Understand how to apply for services on ManageOne.

4.1.3 External Network Planning

Agile Controller-DCN creates a external gateway, which will be called by OpenStack, mapping to Service OM external network for VPC creation.

Figure 4-1 External Network

Portal	Parameter	Value
Agile Controller-DCN	External gateway	None
Service OM	External network	None(Location)



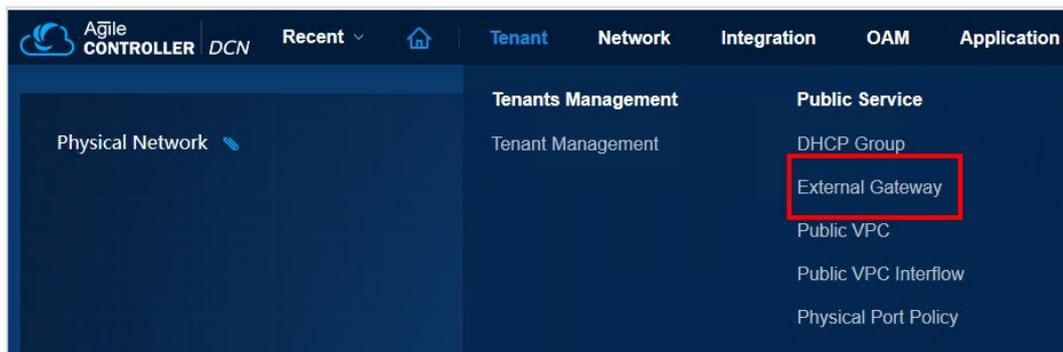
4.2 Configuration

4.2.1 Roadmap

1. Create external gateway on AC-DCN.
2. Create external network on Service OM.
3. Create a Tenant on ManageOne ServiceCenter.
4. Tenant administrator apply for cloud services.

4.2.2 AC-DCN External Gateway Creation

Step 1 **Login AC-DCN, click External Gateway.**



Step 2 **External gateway creation**

#Create external gateway in None Type.



Tenant > Public Service > External Gateway > Create External Gateway

Tenant

Tenant Management

Public Service ^

DHCP Group

External Gate...

Public VPC

Public VPC C...

Physical Port ...

1. Basic Information

* Name: vRouter

* External Network Type: None

Description:

* Fabric: Fabric

OK Cancel

#创建成功。

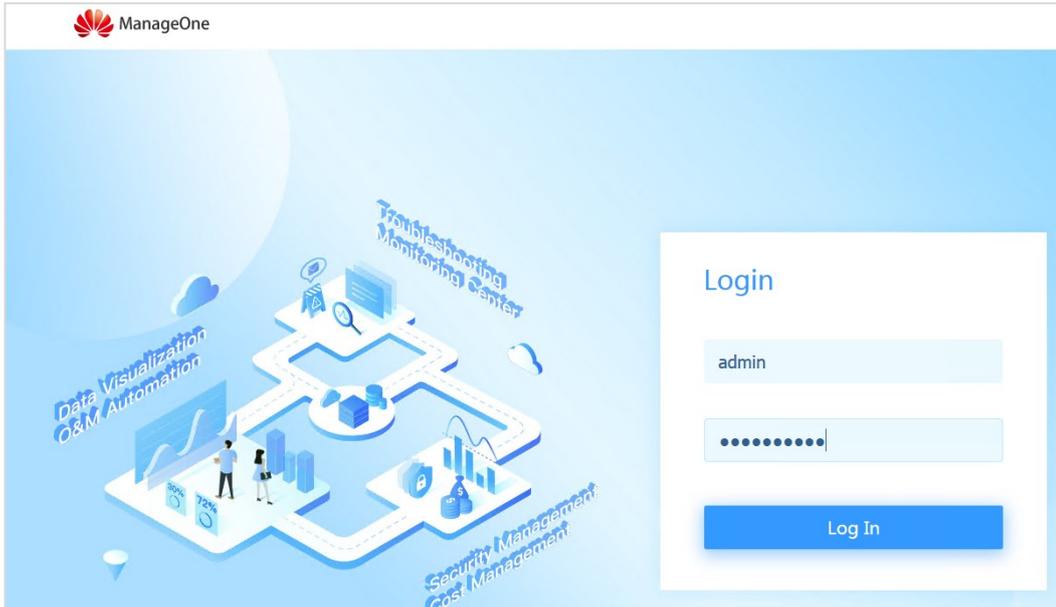
	Create	Delete	Refresh						
	Gatew...	Description	Gatew...	Public IP	Public ...	Fabric	Tenant S...	Status	Operation
→	<input type="checkbox"/>	vRouter				Fabric		Done	

Total records: 1 10 Line < 1 >

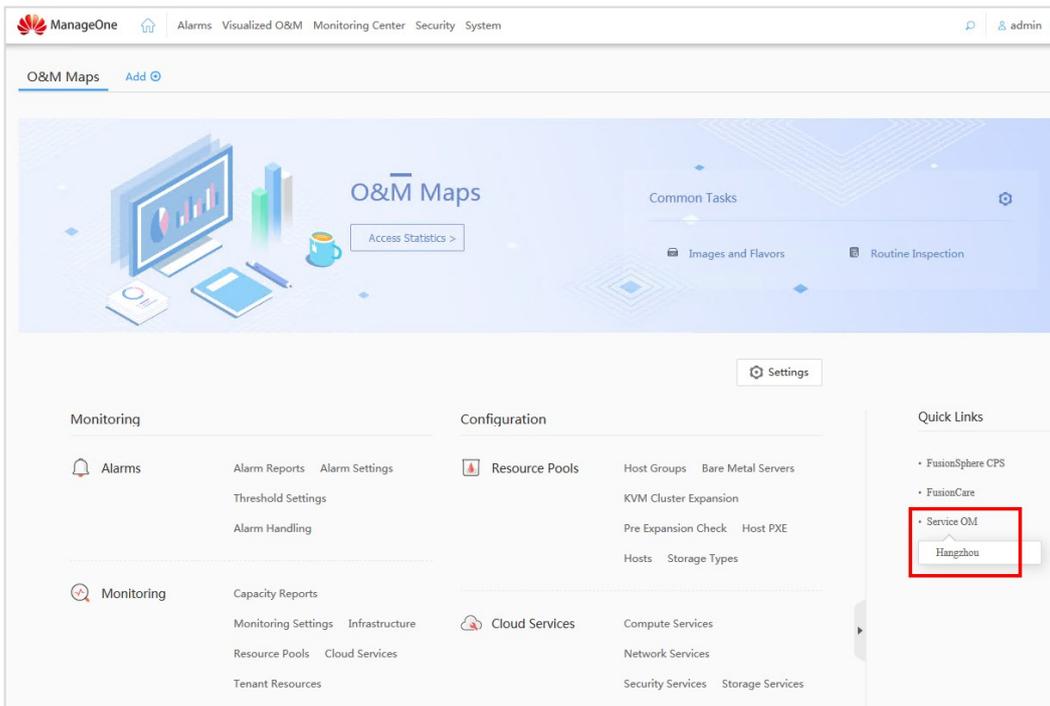
4.2.3 Service OM External Network Creation

Step 1 Login Service OM

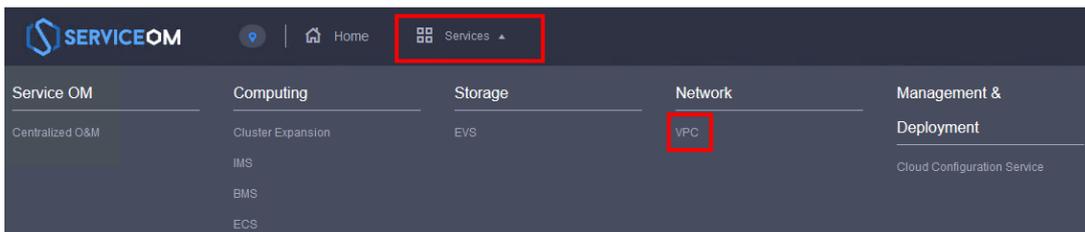
#Login ManageOne OperationCenter



#Click Quick Links jump to Service OM.



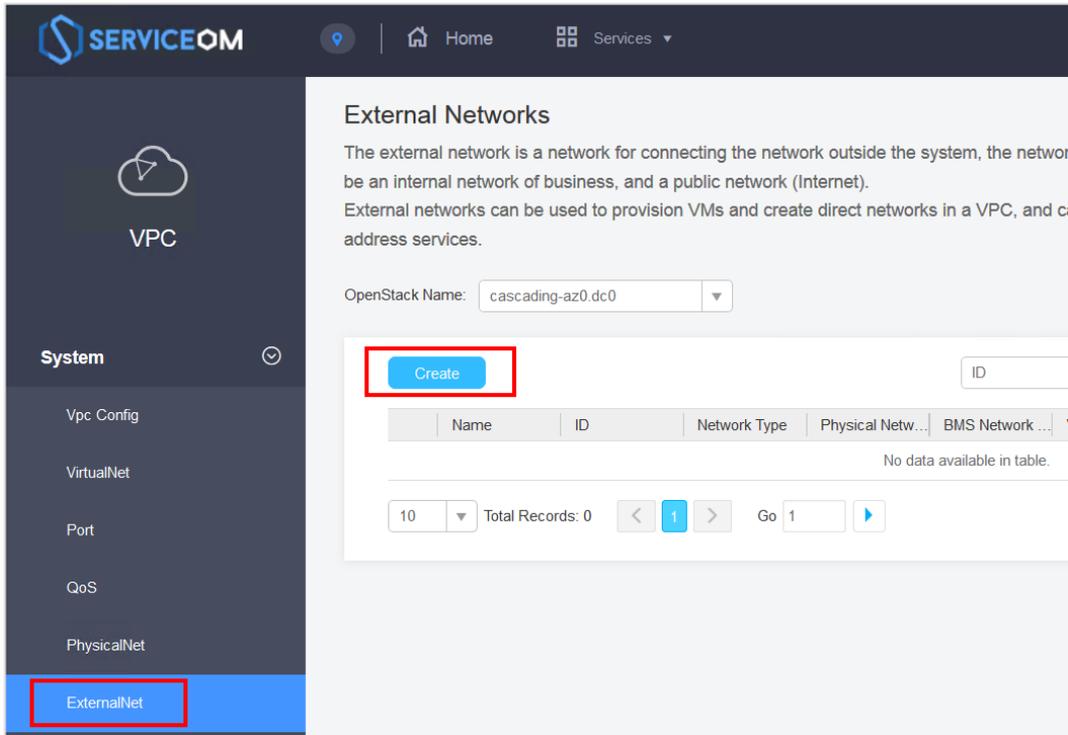
#Click VPC



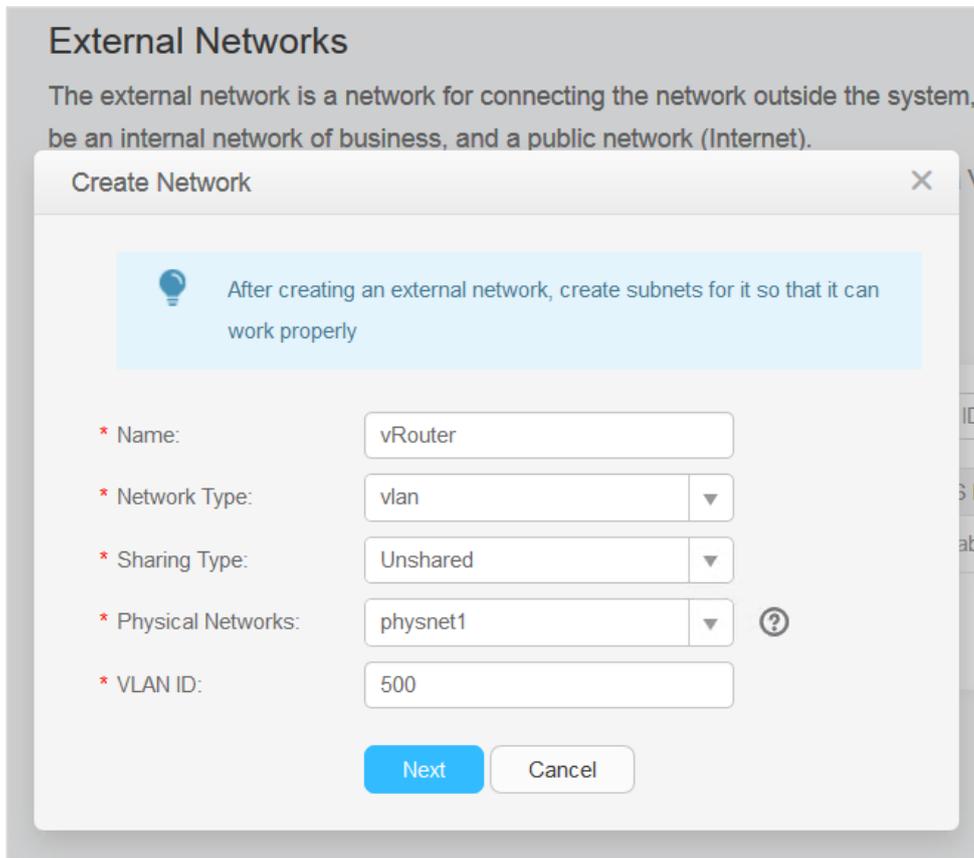
Step 2 External Network Creation



#Click ExternalNet, then click Create.

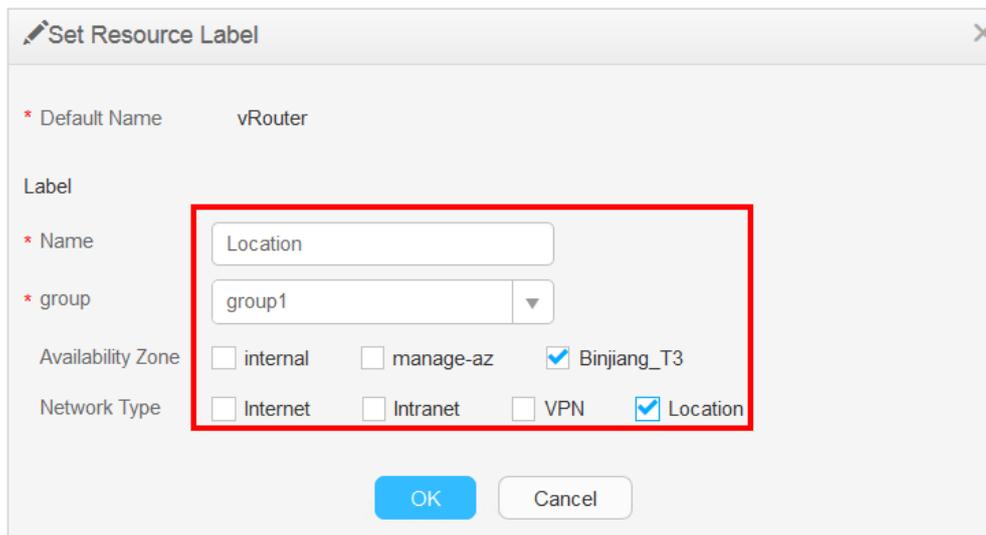


#Enter parameters which should be relating to external gateway configuration on Agile Controller-DCN. Keep names the same.





#Set resource label. Choose group1 and availability zone Binjiang_T3. Set the location network type.



The image shows a 'Set Resource Label' dialog box. The 'Default Name' is 'vRouter'. The 'Label' section contains a 'Name' field with 'Location' entered. The 'group' dropdown is set to 'group1'. Under 'Availability Zone', 'Binjiang_T3' is selected. Under 'Network Type', 'Location' is selected. The 'OK' and 'Cancel' buttons are at the bottom.

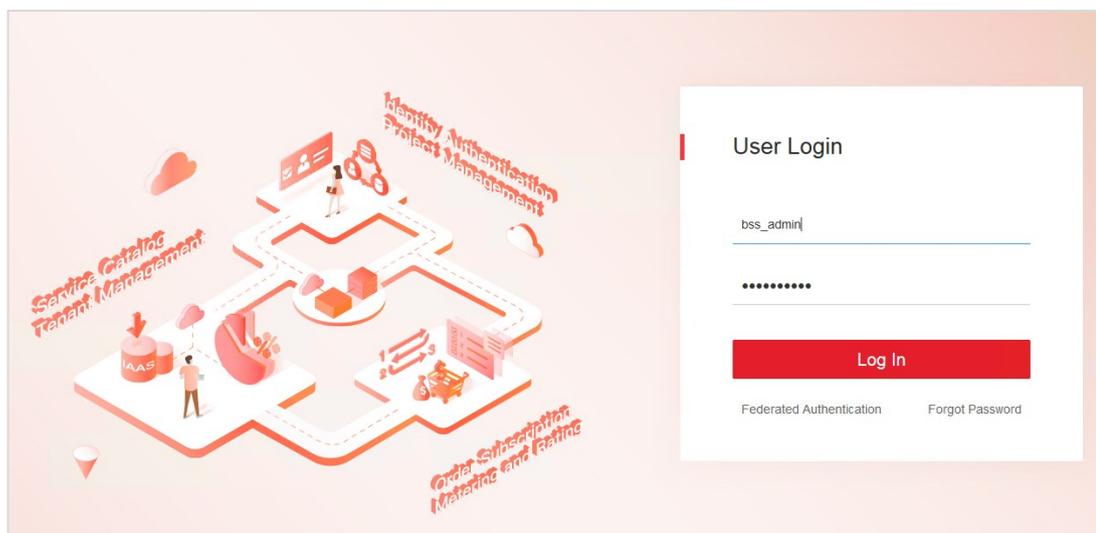
4.2.4 ManageOne ServiceCenter Configuration

Create a Tenant and apply for cloud services on ManageOne ServiceCenter.

4.2.4.1 Tenant Creation

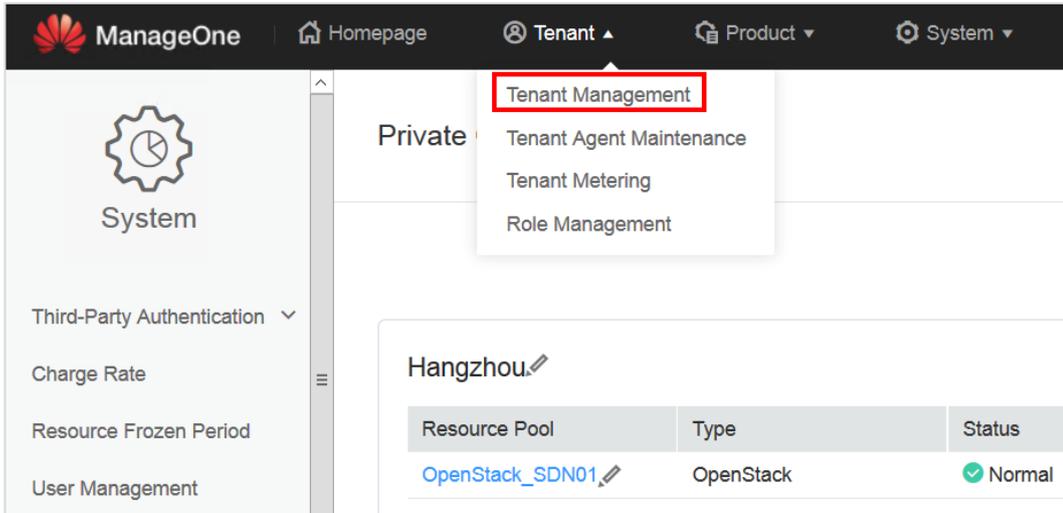
Step 1 Login ManageOne ServiceCenter

#login with account bss_admin

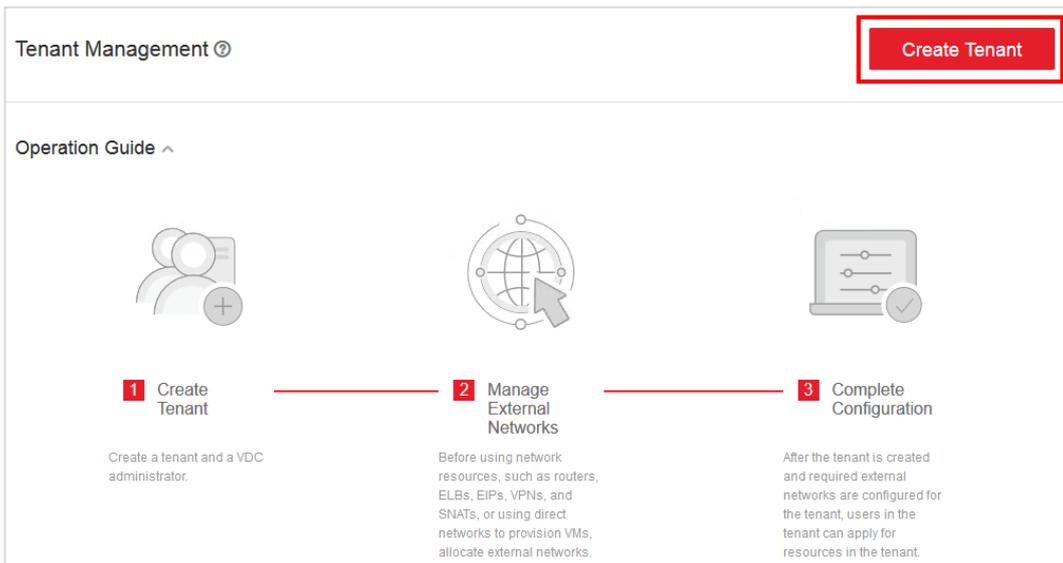


Step 2 Creat a Tenant

#Click Tenant Management



#Click Create Tenant



#Enter basic tenant information.

Basic Information

* Tenant Name: Description:

* Project Name: HUAWEI CLOUD Account:

Access Third-party Authentication: Select Two-Factor Authentication:

#Create tenant administrator. Username is vdc01admin, password is Huawei@123.



Create Administrator

* User Name: Email  :

* Password: Mobile Number  : -

* Confirm Password: Description:

#Enable VPC, select a region. Click Create.

Enable VDC Service

If you want to use other configured tenant quota information, click [here](#) to import it.

Select Region

* Region : Select all regions
 Hangzhou

Set Quotas

After creation, you cannot change the setting for whether quotas are limited.

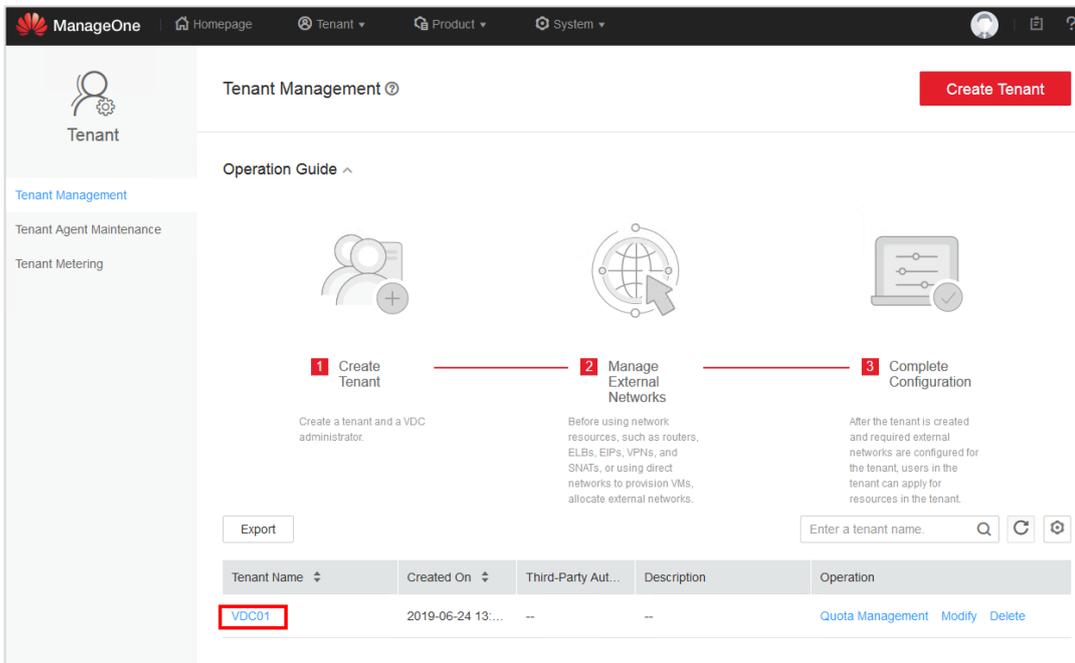
Use Default Settings : Yes No

Quotas of services supporting unlimited quota are set to be unlimited by default. Quotas of services not supporting unlimited quota are set to be fixed by default.

Associate with an approval process

Step 3 Assign external network to tenant.

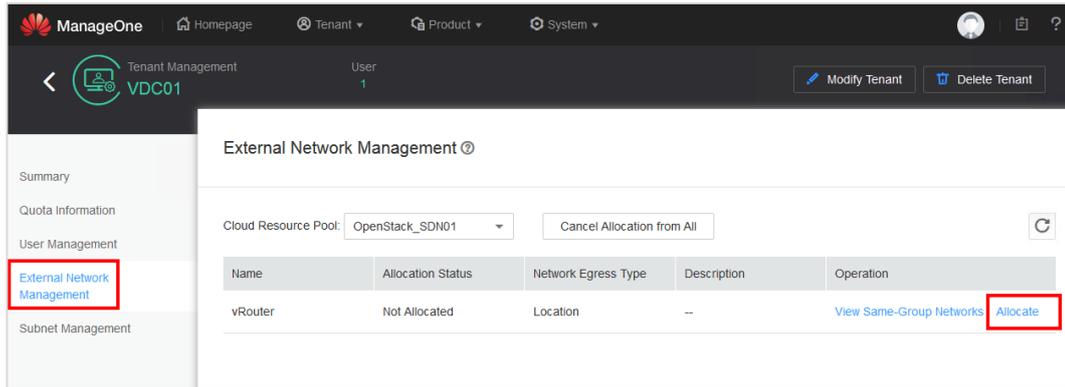
#Click the tenant name.



The screenshot shows the ManageOne Tenant Management page. It includes a navigation menu on the left with 'Tenant Management' selected. The main content area features an 'Operation Guide' with three steps: 1. Create Tenant, 2. Manage External Networks, and 3. Complete Configuration. Below the guide is a table of tenants.

Tenant Name	Created On	Third-Party Aut...	Description	Operation
VDC01	2019-06-24 13:...	--	--	Quota Management Modify Delete

#Click External Network Management. Click Allocate.



Tenant Creation is done.

4.2.4.2 Cloud Service Application

Use tenant account login ManageOne and create a tenant network 192.168.10.0/24. Apply for a ECS within the network.

Step 1 Login ServiceCenter

#use username vdc01admin and password Huawei@123, that created previously.



#Modify login password into Huawei12#\$.



i To improve account security, enter a new password.

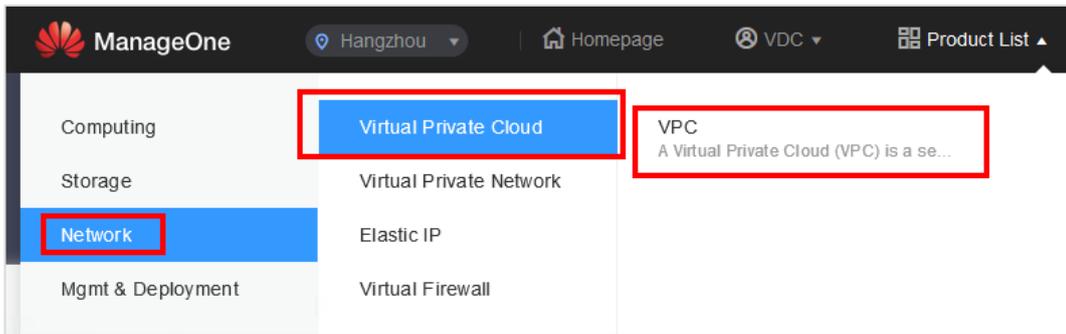
Old Password

New Password

Confirm Password

Step 2 Network Service Creation

#Click Network - VPC.



#Confirm Application.



The screenshot shows the ManageOne console interface. At the top, there are navigation tabs: "VPC with Internet Access (Optional)", "VPC with Internet Access (Optional) and Peering with Another VPC", and "VPC with Internet Access (Optional) and VPN Connection". Below the tabs, there is explanatory text and a list of bullet points:

- Subnet 2 can access the external network through the NAT gateway and EIP. Instances in this subnet share an EIP to access the external network.
- Subnet 1 is isolated from external networks and therefore delivers high security. Instances in this subnet cannot directly communicate with external networks.

A network diagram illustrates the setup. It shows a VPC containing two subnets: Subnet1 and Subnet2. Subnet1 contains two ECS instances. Subnet2 contains two ECS instances. A NAT Gateway is connected to Subnet2 and an EIP. The EIP is connected to the Internet. A VPC icon is also shown.

At the bottom right of the console, there is a red button labeled "Confirm Application".

#Modify Name in vpc01. External Network is what we created on Service OM.

Basic Information

Region: Hangzhou To change the region, use the region selector in the upper left corner of this page.

* Name: Enter 1 to 64 characters. Only letters, digits, underscores (_), and hyphens (-) are allowed.

* External Network: All AZs Location ?
Group:group1
AZ:az0.dc0

NTP Server Address 1:

NTP Server Address 2:

* Required Duration: Unlimited

#Enter network information. Click Apply Now.



Subnet Settings

* Subnet 1 Name:
Enter 1 to 64 characters. Only letters, digits, underscores (_), and hyphens (-) are allowed.

DHCP: ⓘ

Address Settings

* Subnet 1 Segment: / Network Segment Information ⓘ

Gateway:

IP Address Pool: - ⓘ

[+ Add IP Address Pool](#)

DNS Server Address 1:

[Apply Now](#)

#VPC created successfully.

Virtual Private Cloud ⓘ

VPC Name/ID	Status	Subnet	Network N...	AZ/Group
vpc01 79d382e6-12bb-...	Normal	0	Location	Binjiang_T3/group1

Step 3 ECS application.

#Click Product List-ECS.

ManageOne Hangzhou Homepage VDC Product List ▲

Computing	Elastic Cloud Server	ECS Elastic, scalable computing servers
Storage	Image Management Service	
Network		
Mgmt & Deployment		

#Enter ECS Name ecs-01, select a specification.



Basic Information

* ECS Name:

* AZ: Binjiang_T3

* ECS Type: General-Purpose ECSS
Provides a balance of computing, memory, and network resources. It is a good choice for many applications, such as web servers, enterprise R&D and testing environments, and small-scale databases.

vCPUs: All Memory: All

Flavor Name	vCPUs/Memory
<input type="radio"/> m1.medium	2vCPUs 4GB
<input type="radio"/> m1.small	1vCPU 2GB
<input type="radio"/> m1.xlarge	8vCPUs 16GB
<input checked="" type="radio"/> m1.large	4vCPUs 8GB

Selected Specifications: m1.large|4 vCPUs|8 GB
If you need to create a flavor, contact the administrator to create one on Service OM. To learn more details, click [here](#).

#Select a image, CentOS.

* Image Type: Public Image Private Image Shared Image

* Image: [View Image](#)

If a new image is needed, contact the administrator to create, upload, and register the image on Service OM. Click [here](#) to learn about detailed operations.

* CD-ROM Drive: Use Not use
If the CD-ROM drive is used and VMTools is installed in the image you have selected, VMTools can be automatically upgraded after ECS provisioning. VMTools improves I/O performance for Windows ECSs and reports Linux ECS faults in a timely manner.

* Same storage: Yes No

* Disk: System Disk
[Add Data Disk](#) You can add 10 more disks.

* Required Duration:

#Select VPC network, vpc01. Click Apply Now.

Network

* VPC: [View VPC](#)

* Security Group: default (c114b4fb-3e79-4eea-9e71-e0...) [View Security Group](#)

* NIC: Primary NIC Self-assigned IPv4 address [View Allocated IP Address](#)

[Add NIC](#) You can add 11 more NICs.

EIP: Do Not Use Automatically Assign Specify [View EIP](#)

An ECS without an EIP cannot access the Internet. However, it can still be used as a service ECS deployed in a cluster or on a private network.

Current Configuration

Region:	Hangzhou
AZ:	Binjiang_T3
Specifications:	m1.large 4 vCPUs 8 GB
Image:	CentOS
System Disk:	TypeSAS, 30 GB
EIP:	Not required
Quantity:	1

[Apply Now](#)

#Submit



Apply for ECS [Learn how to apply for an ECS.](#)

Specify Details Confirm Specifications Finish

Resource Details:

Product Name	Configuration	Quantity
1. ECS	Region: Hangzhou AZ: Binjiang_T3 Specifications: m1.large4 vCPUs8 GB Image: CentOS System Disk: TypeSAS , 30 GB EIP: Not required	1

[Previous](#) [Submit](#)

#Cloud platform will choose a host to create this VM.

My Space

My Orders @

Export All cloud services All application types All application statuses

Order Number	Cloud Service	Order for...	Order form state	Created At	Expiration Date
20190624075059888190384	Elastic Cloud Ser...	Apply for	Implementing	2019-06-24 15:5...	Permanently Effe...
20190624074809092516437	Virtual Private Clo...	Apply for	Successful	2019-06-24 15:4...	Permanently Effe...

4.2.5 Verification

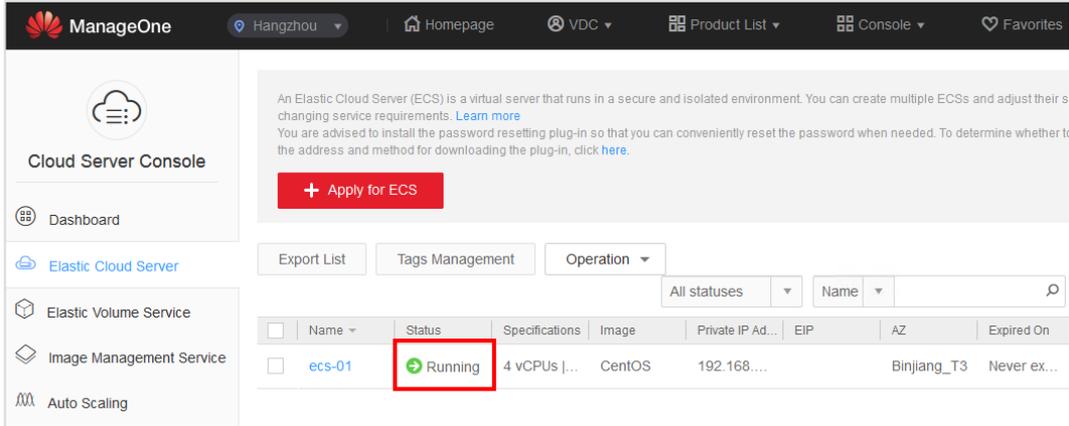
Step 1 ECS

#Click Console-ECS.

ManageOne Hangzhou Homepage VDC Product List **Console** Favorites

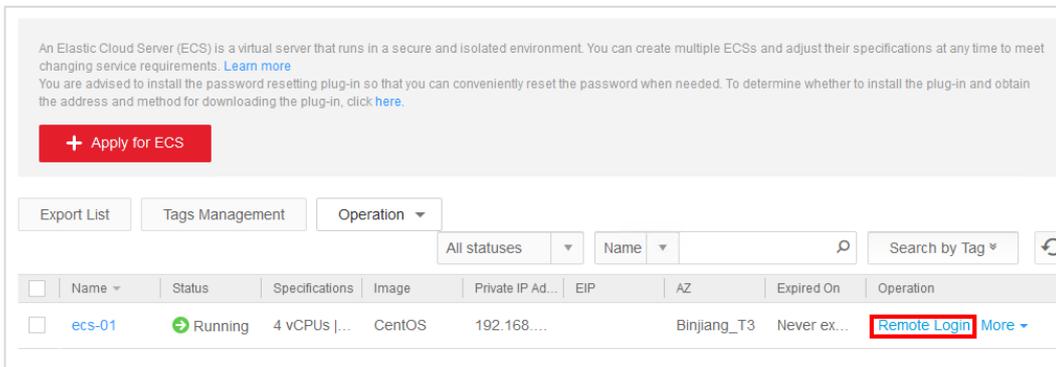
Computing Elastic Cloud Server Auto Scaling Image Management Service	Storage Elastic Volume Service	Network Virtual Private Cloud Virtual Private Network Elastic IP Virtual Firewall
Mgmt & Deployment vAPP Offline Services	Application Simple Message Notification	

#ECS is running.

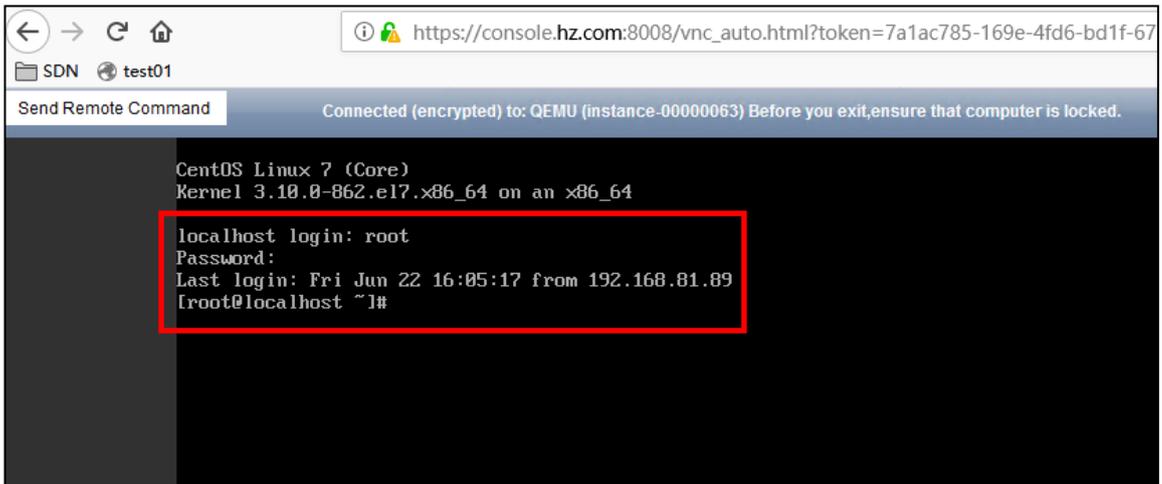


Step 2 Network Verification

#Click Remote Login.



#Enter username root and password Huawei@123.



#routel shows the routing table. Ping gateway.



```
[root@localhost ~]# route
target gateway source proto scope dev tbl
169.254.169.254 192.168.10.222
192.168.10.0/24 192.168.10.128 kernel link eth0
127.0.0.0 broadcast 127.0.0.1 kernel link lo local
127.0.0.0/8 local 127.0.0.1 kernel host lo local
127.0.0.1 local 127.0.0.1 kernel host lo local
127.255.255.255 broadcast 127.0.0.1 kernel link lo local
192.168.10.0 broadcast 192.168.10.128 kernel link eth0 local
192.168.10.128 local 192.168.10.128 kernel host eth0 local
192.168.10.255 broadcast 192.168.10.128 kernel link eth0 local
:::/96 unreachable lo
::ffff:0.0.0.0/96 unreachable lo
2002:a00::/24 unreachable lo
2002:7f00::/24 unreachable lo
2002:a9fe::/32 unreachable lo
2002:ac10::/28 unreachable lo
2002:c0a8::/32 unreachable lo
2002:e000::/19 unreachable lo
3ffe:ffff::/32 unreachable lo
fe80::/64 kernel eth0
fe80::/64 kernel eth0
default unreachable kernel lo
::1 local unspec lo local
fe80::ff4a:ec78:3fa6:e200 local unspec eth0 local
ff00::/8 kernel eth0 local
default unreachable kernel lo

[root@localhost ~]# ping 192.168.10.1
PING 192.168.10.1 (192.168.10.1) 56(84) bytes of data:
64 bytes from 192.168.10.1: icmp_seq=1 ttl=254 time=26.8 ms
64 bytes from 192.168.10.1: icmp_seq=2 ttl=254 time=0.824 ms
64 bytes from 192.168.10.1: icmp_seq=3 ttl=254 time=0.833 ms
64 bytes from 192.168.10.1: icmp_seq=4 ttl=254 time=0.776 ms
```

Gateway reachable.

4.3 Thinking Questions

1. Can we have different names for AC-DCN external gateway and Service OM external network?
2. What are the roles of ManageOne ServiceCenter and OperationCenter?
3. Where locates the gateway 192.168.10.1?



Recommendations

- Huawei Learning Website
 - <http://learning.huawei.com/en>
- Huawei e-Learning
 - <https://ilearningx.huawei.com/portal/#/portal/ebg/51>
- Huawei Certification
 - http://support.huawei.com/learning/NavigationAction!createNavi?navId=_31&lang=en
- Find Training
 - http://support.huawei.com/learning/NavigationAction!createNavi?navId=_trainingsearch&lang=en



More Information

- Huawei learning APP

