



VDI

VDC Cluster Configuration Guide

Version 5.4.5



Change Log

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Chapter 1

1 Introduction

1.1 Document Description

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Due to product version upgrades or other reasons, the contents of this manual may change. Sangfor Technology reserves the right to modify the contents of this manual without any notice or prompt. This manual is only used as a guide. Sangfor Technology makes every effort to provide accurate information in this manual, but it does not guarantee that the contents of the manual are completely error-free.

1.2 Objective

This configuration guide document is mainly applicable to the following engineers.

- Network or application manager
- On-site technical support and maintenance personnel.
- Network administrator that responsible for network configuration and maintenance.

1.3 Abbreviations and conventions

1.3.1 Cluster

A cluster is a group of computers that provide users with a set of network resource services as a whole. These individual computer systems are the nodes of the cluster. An ideal cluster is that users will never be aware of the nodes at the bottom of the cluster system. From the perspective of users, the cluster is a system rather than multiple computer systems, and the administrator of the cluster system can add, delete, and modify the cluster system at will node.

1.3.1.1 Advantage of Cluster

Performance:

The workload of network services is usually a large number of independent tasks. Through a set of server load balancing, high overall performance can be obtained.

Cost performance: The loosely coupled structure of the servers that make up the cluster system has a better cost performance than the tightly coupled multiprocessor system.

Scalability:

The number of nodes in a cluster system can grow to several thousand, and its scalability far exceeds that of a single supercomputer.

High availability:

Both hardware and software are redundant. By detecting software and hardware failures, the failures are shielded, and the surviving nodes provide services to achieve high

availability.

1.3.2 Distributor

A device that acts as a load balancer in the cluster. The distributor can also be a real server.

1.3.3 Real Server

A device that acts as a real server in a cluster.

1.3.4 Node

A general term for distributor and real server.

1.3.5 Cluster IP

The external IP of the cluster. External users access the VDC through this IP.

1.3.6 Cluster Password

The internal communication password of the cluster. Use this password to encrypt the communication information within the cluster.

1.4 Using feedback

If you have any inquiries on this documents, please feel free to give us feedback via email: tech.support@sangfor.com.

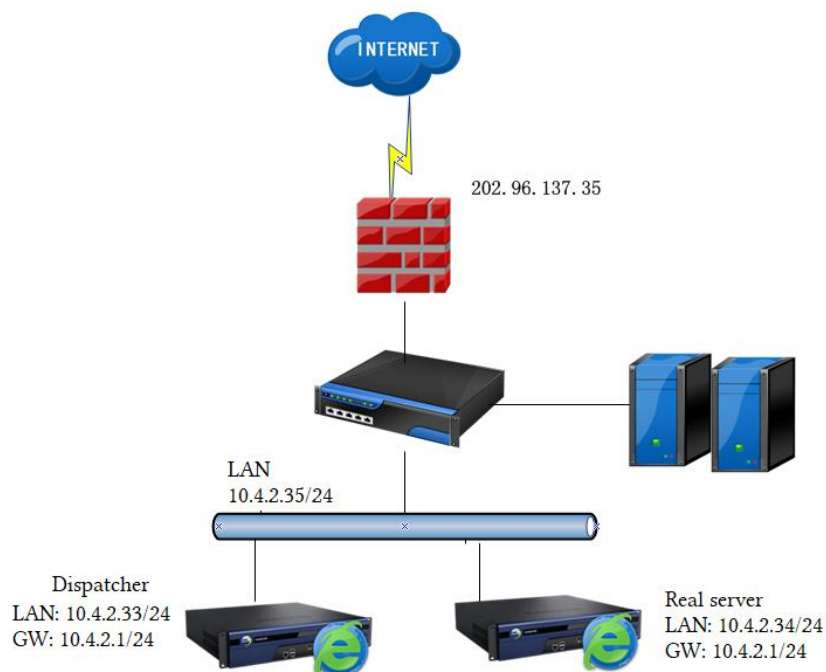
2 Prerequisite

1. The VDC versions are consistent.
2. The VDC cluster serial number is valid.

3 Single-Arm Mode with Single Line

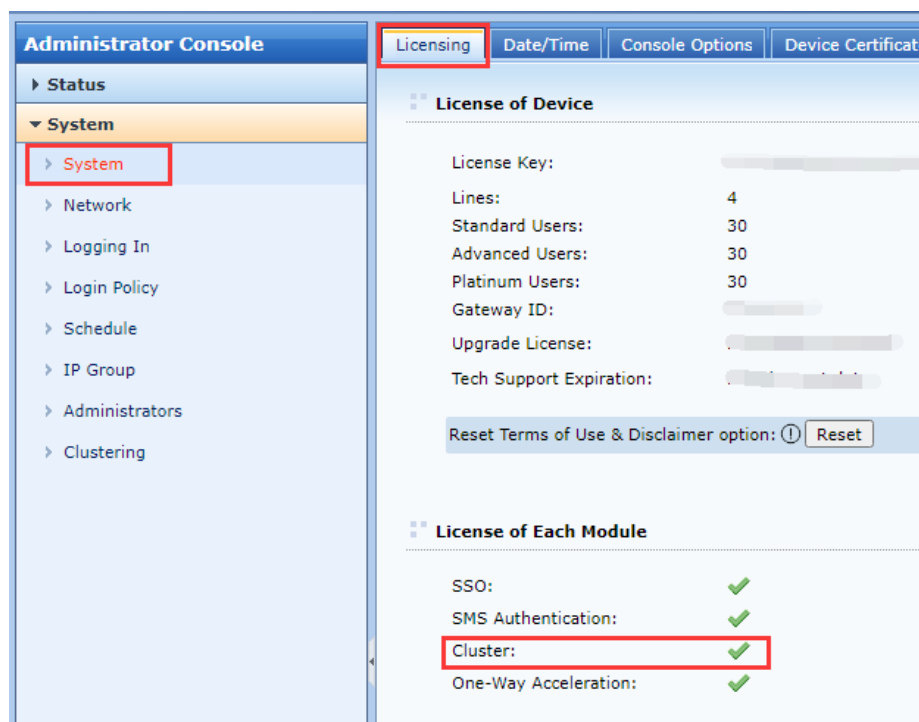
3.1 Application Scenario

In order to improve the stability of internal system access, a customer deployed VDC equipment with a cluster. The customer's network topology is as follows. The VDC equipment is deployed at the customer's network in a single-arm mode. The external network has a single line, the external network line address is 202.96.137.75, and the subnet mask is 255.255.255.0.



3.2 Verify Authorization

1. Deploy the equipment correctly according to the network topology, without connecting the WAN port, and ensure that the LAN port of the dispatch and the real server can communicate with each other.
2. WEBUI path: [System]-[Licensing], confirm that the cluster license has been activated, and the cluster configuration activates the cluster function based on the cluster license.



3.3 Network port configuration

1. Configure the working mode, LAN port address, gateway address, and DNS address of the two VDCs respectively. The external network line does not need to be configured.

Note: The LAN port address must be in the same network segment as the cluster IP address.

WEBUI: [System]→[Network]→[Deployment]

Dispatch: Set the IP address of the LAN port to 10.4.2.33/24, and the subnet mask to 255.255.255.0, fill in 10.4.2.1/24 for the default gateway, fill in the correct DNS for the primary and standby DNS.

Administrator Console

Deployment | Multiline Options | Routes | HOSTS

Deployment

Mode: ☒ Single-Arm ☐ Gateway

The device connects to Internet via front-end device

Internal Interfaces

LAN:

IP Address: 10.4.2.33 *

Netmask: 255.255.255.0 *

Default Gateway: 10.4.2.1 *

Preferred DNS: 8.8.8.8 *

Alternate DNS: *

Multi-IP

Real server: The IP address of the LAN port is set to 10.4.2.34/24, the subnet mask is 255.255.255.0, the default gateway is 10.4.2.1/24, the primary and secondary DNS must be filled in the correct DNS.

Administrator Console

Deployment | Multiline Options | Routes | HOSTS

Deployment

Mode: ☒ Single-Arm ☐ Gateway

The device connects to Internet via front-end device

Internal Interfaces

LAN:

IP Address: 10.4.2.34 *

Netmask: 255.255.255.0 *

Default Gateway: 10.4.2.1 *

Preferred DNS: 8.8.8.8 *

Alternate DNS: *

Multi-IP

3.4 Cluster configuration

1. Enable the cluster deployment in [System]-[Clustering]-[Cluster Deployment], and set the same "Cluster Key".
2. Set the dispatcher election rules: If the dispatcher has been decided, then directly select "This device preferred" on the device. Other devices can only become real servers, and you must select "Elect Distributor by Priority".

If no dispatcher is specified and "Elected by priority level" is selected on each device, and set the priority value, then the smaller the value, the higher the priority, and the device with the highest priority becomes the dispatcher.

3. Set the LAN port cluster IP.

Dispatch :LAN port cluster 10.4.2.35/24, LAN port cluster mask 255.255.255.0.

Real server: LAN port cluster 10.4.2.35/24, LAN port cluster mask 255.255.255.0.

Note: The cluster IP of the LAN port and the IP set for the internal network interface of each device must be in the same network segment.

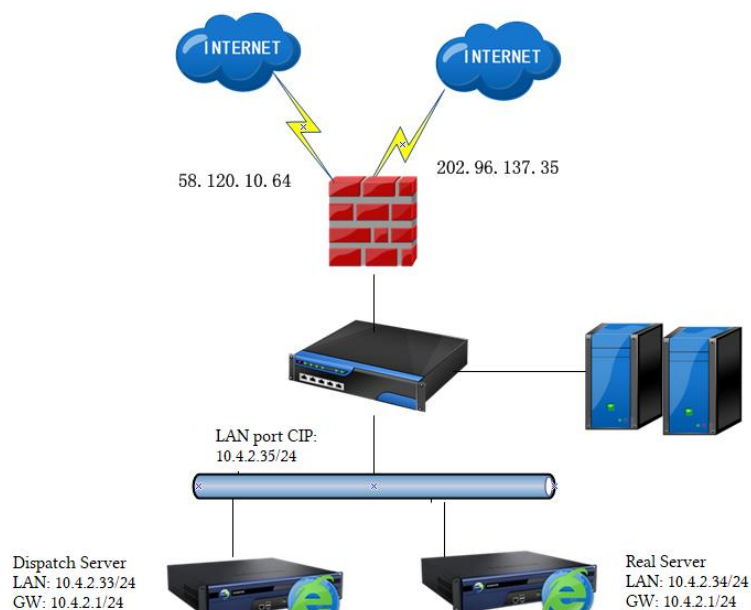
3.5 View cluster running status

Cluster Deployment Node Status Cluster Online User									
Refresh Dispatcher: 10.4.2.33 Total Licenses: 0 (0 standard users/0 advanced users/0 platinum users) Total Online Users: 0 (0 standard users/0 advanced users/0 platinum users) View									
Node IP	Type	System Status	CPU Usage	Licensed Users (Standard/Advanced/Plati...	Online Users (Standard/Advanced/Platinu...	Operation			
<input type="checkbox"/> 10.4.2.33	Dispatcher	Running	9%	0(0/0/0)	0(0/0/0)	Stop VDC	Restart Svc	Restart Device	Login to Node
<input type="checkbox"/> 10.4.2.34	Real Server	Running	9%	0(0/0/0)	0(0/0/0)	Stop VDC	Restart Svc	Restart Device	Login to Node

4 Single-Arm Mode with Multiple Line

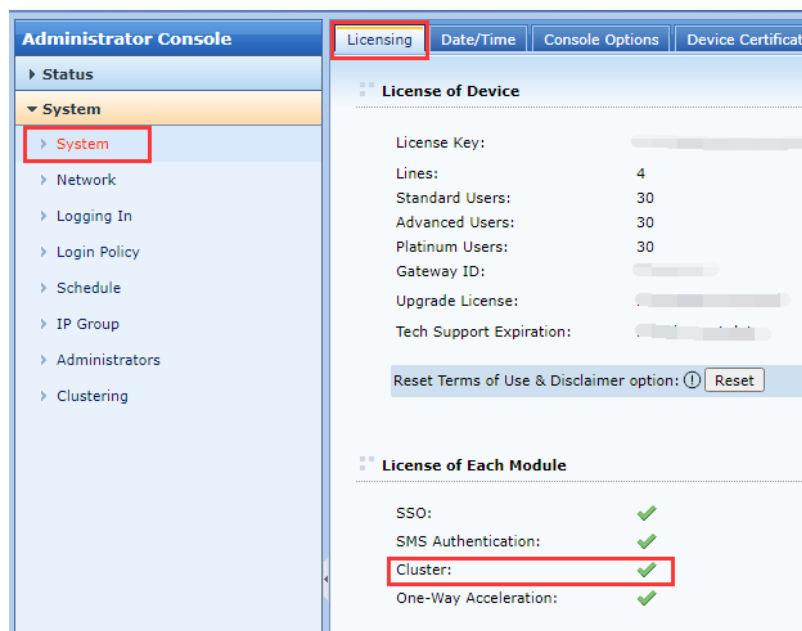
4.1 Application Scenario

In order to improve the stability of internal system access, a customer deployed VDC equipment in a cluster. The customer's network topology is as follows. The VDC equipment is deployed at the egress of the customer's network in a single-arm mode with dual lines on the external network.



4.2 Verify Authorization

1. Deploy the equipment correctly according to the network topology, without connecting the WAN port, and ensure that the LAN port of the dispatch and the real server can communicate with each other.
2. WEBUI path: [System]-[Licensing], confirm that the cluster license has been activated, and the cluster configuration activates the cluster function based on the cluster license.



4.3 Network port configuration

1. Configure the working mode, LAN port address, gateway address, and DNS address of the two VDCs respectively. The external network line does not need to be configured.

Note: The LAN port address must be in the same network segment as the cluster IP address.

WEBUI: [System]→[Network]→[Deployment]

Dispatch: Set the IP address of the LAN port to 10.4.2.33/24, and the subnet mask to 255.255.255.0, fill in 10.4.2.1/24 for the default gateway, fill in the correct DNS for the primary and standby DNS.

Administrator Console

Deployment | Multiline Options | Routes | HOSTS

Deployment

Mode: ☒ Single-Arm ☐ Gateway

The device connects to Internet via front-end device

Internal Interfaces

LAN:

IP Address: 10.4.2.33 *

Netmask: 255.255.255.0 *

Default Gateway: 10.4.2.1 *

Preferred DNS: 8.8.8.8 *

Alternate DNS: *

Multi-IP

Real server: The IP address of the LAN port is set to 10.4.2.34/24, the subnet mask is 255.255.255.0, the default gateway is 10.4.2.1/24, the primary and secondary DNS must be filled in the correct DNS.

Administrator Console

Deployment | Multiline Options | Routes | HOSTS

Deployment

Mode: ☒ Single-Arm ☐ Gateway

The device connects to Internet via front-end device

Internal Interfaces

LAN:

IP Address: 10.4.2.34 *

Netmask: 255.255.255.0 *

Default Gateway: 10.4.2.1 *

Preferred DNS: 8.8.8.8 *

Alternate DNS: *

Multi-IP

4.4 Cluster configuration

1. Enable the cluster deployment in [System]-[Clustering]-[Cluster Deployment], and set the same "Cluster Key".
2. Set the dispatcher election rules: If the dispatcher has been decided, then directly select "This device preferred" on the device. Other devices can only become real servers, and you must select "Elect Distributor by Priority". If no dispatcher is specified and "Elected by priority level" is selected on each device, and set the priority value, then the smaller the value, the higher the priority, and the device with the highest priority becomes the dispatcher.
3. Set the LAN port cluster IP.

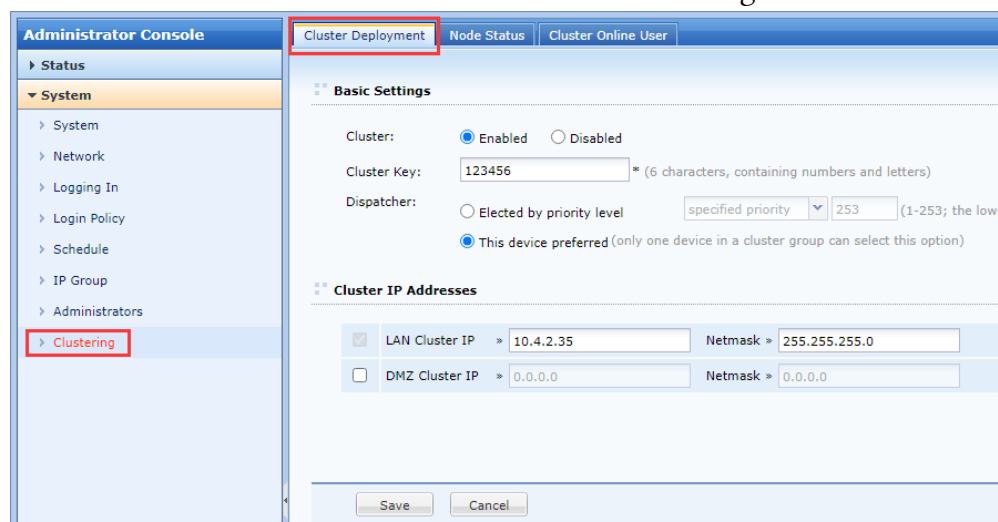
Dispatch :

LAN port cluster 10.4.2.35/24, LAN port cluster mask 255.255.255.0.

Real server :

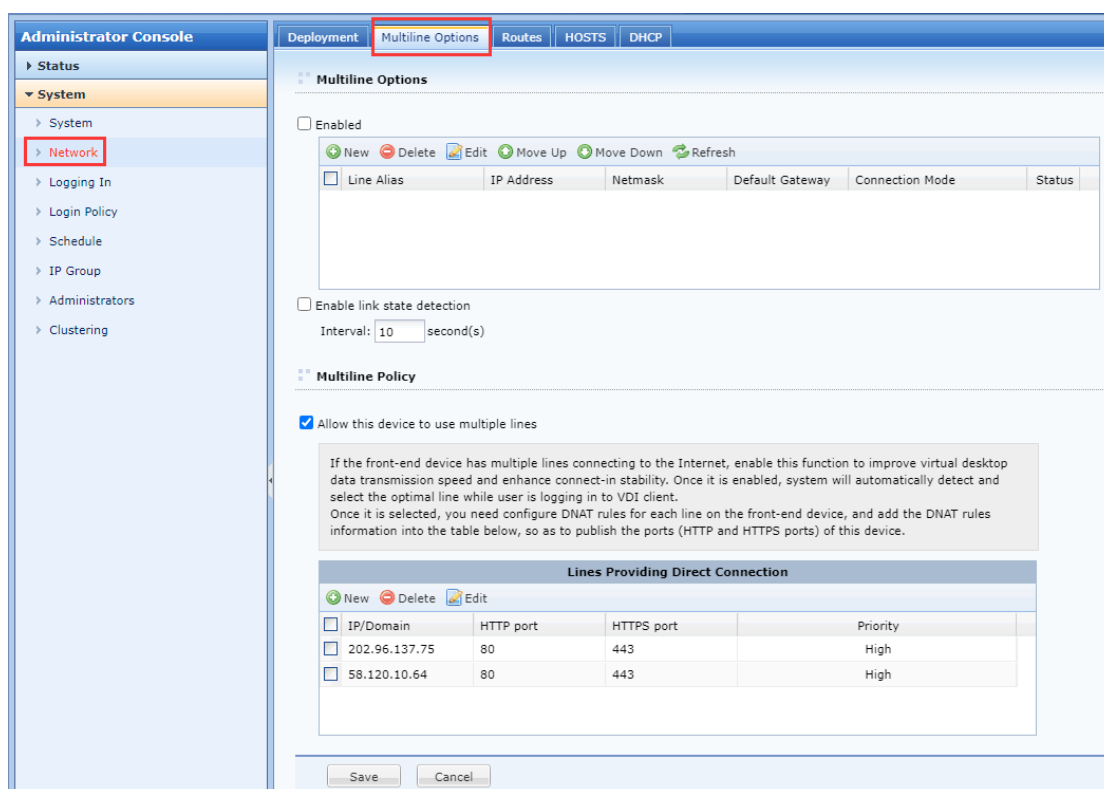
LAN port cluster 10.4.2.35/24, LAN port cluster mask 255.255.255.0.

Note: The cluster IP of the LAN port and the IP set for the internal network interface of each device must be in the same network segment.



4.5 Cluster multiline configuration

1. In [System]-[Network]-[Multiline Options], check [Enable], and add two lines, fill in the real public network IP address of the external network line. It is recommended that both the distributor and the real server enable automatic multi-line routing.
2. Dispatcher:
Add extra network lines. Fill in the IP address 202.96.137.75, HTTP port 80, and HTTPS port 443 of the external line 1, fill in the IP address 58.120.10.64, HTTP port 80, and HTTPS port 443 of the external line 2.
3. Real server:
Add external network lines. Fill in the IP address 202.96.137.75, HTTP port 80, and HTTPS port 443 of the extranet line 1. Fill in the IP address 58.120.10.64, HTTP port 80, and HTTPS port 443 of the external line 2.



After the single-arm cluster multi-line deployment configuration is completed, users on the external network can access through port 80 of the public network IP 202.96.137.75 or 58.120.10.64, and use this line to jump to 443 to access VDI if the line is preferred.

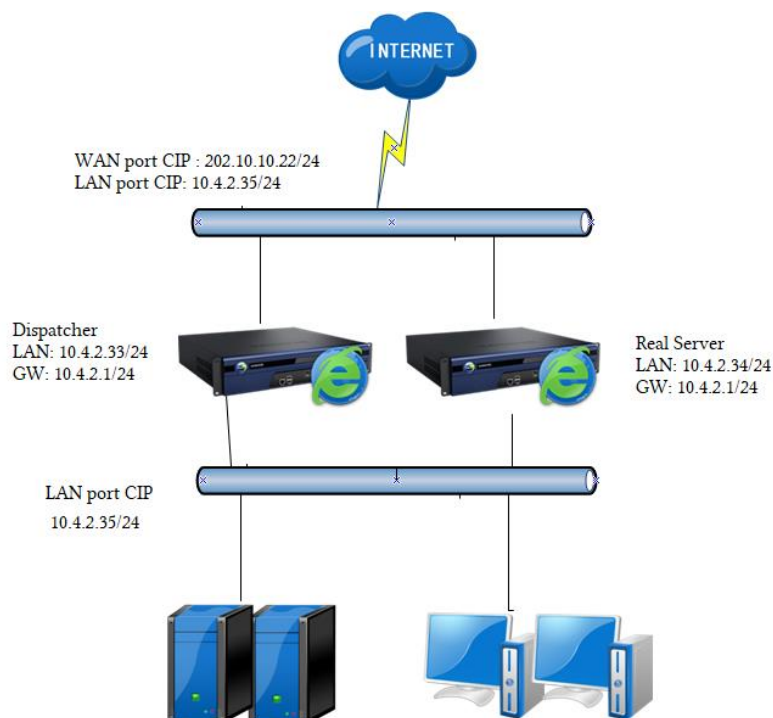
4.6 View cluster running status.

Cluster Deployment		Node Status		Cluster Online User			
Refresh		Dispatcher: 10.4.2.33		Total Licenses: 0 (0 standard users/0 advanced users/0 platinum users)		Total Online Users: 0 (0 standard users/0 advanced users/0 platinum users) View	
<input type="checkbox"/>	Node IP ▾	Type	System Status	CPU Usage	Licensed Users (Standard/Advanced/Plati...	Online Users (Standard/Advanced/Platinu...	Operation
<input type="checkbox"/>	10.4.2.33	Dispatcher	Running	9%	0(0/0/0)	0(0/0/0)	Stop VDC Restart Srvc Restart Device Login to Node
<input type="checkbox"/>	10.4.2.34	Real Server	Running	9%	0(0/0/0)	0(0/0/0)	Stop VDC Restart Srvc Restart Device Login to Node

5 Gateway cluster with single line

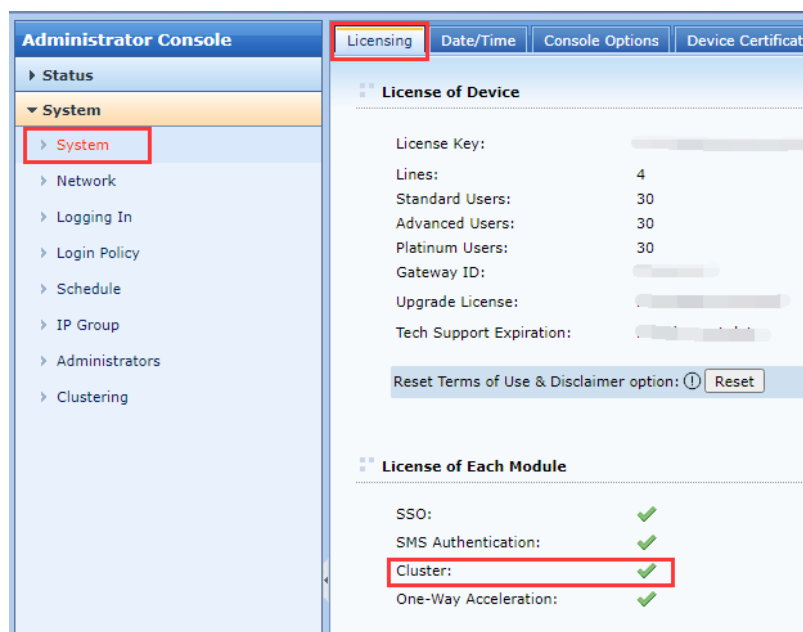
5.1 Application Scenario

In order to improve the stability of internal system access, a customer deployed VDC equipment in a cluster. The customer network topology is as follows. The VDC equipment is deployed at the exit of the customer network in gateway mode, with a single line on the external network, the external network line address is 202.96.137.75, and the subnet mask is 255.255.255.0.



5.2 Verify Authorization

1. Deploy the equipment correctly according to the network topology, without connecting the WAN port, and ensure that the LAN port of the dispatch and the real server can communicate with each other.
2. WEBUI path: [System]-[Licensing], confirm that the cluster license has been activated, and the cluster configuration activates the cluster function based on the cluster license.



5.3 Network port configuration

1. Dispatcher:

Configure the network port in [System]-[Network]-[Deployment] and select [Gateway]. LAN port settings IP address is 10.4.2.33, subnet mask 255.255.255.0, WAN port settings IP is 200.200.1.10, subnet mask 255.255.255.0, default gateway 200.200.1.1, the primary and backup DNS must fill in the correct DNS. As shown below:

Administrator Console

Deployment | Multiline Options | Routes | HOSTS | DHCP

System

- System
- Network**
- Logging In
- Login Policy
- Schedule
- IP Group
- Administrators
- Clustering

Deployment

Mode: ☐ Single-Arm ☒ Gateway

WAN and LAN interfaces need to be configured.

Internal Interfaces

LAN:

IP Address: 10.4.2.33 *
Netmask: 255.255.255.0 *
Multi-IP

DMZ:

IP Address: 10.254.253.254 *
Netmask: 255.255.255.0 *

External Interfaces (WAN Interfaces)

Line	Type	IP Address	Netmask	Default Gateway	Status
Line 1	Ethernet	200.200.1.10	255.255.255.0	200.200.1.1	Enabled
Line 2	--	--	--	--	Disabled
Line 3	--	--	--	--	Disabled
Line 4	--	--	--	--	Disabled

Link Status

LAN DMZ WAN1 WAN2 WAN3 WAN4

Save Cancel

Edit Line

☒ Enable this line

Line Type: ☒ Ethernet ☐ PPPoE

Ethernet Settings

☐ Obtain IP and DNS server using DHCP

☒ Use the IP address and DNS server below

IP Address: 200.200.1.10 Preferred DNS: 8.8.8.8

Netmask: 255.255.255.0 Alternate DNS: 8.8.4.4

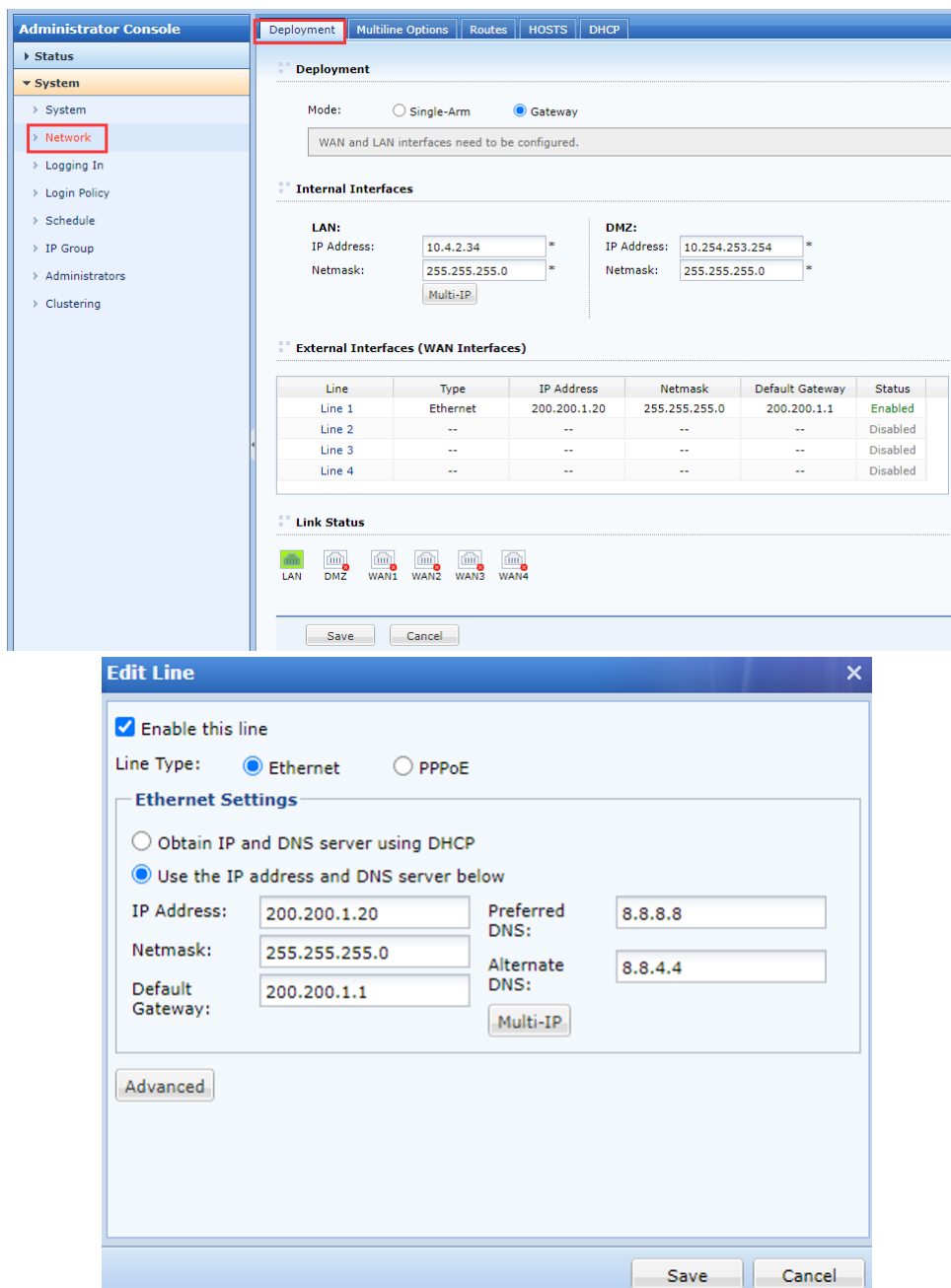
Default Gateway: 200.200.1.1 Multi-IP

Advanced

Save Cancel

2. Real server:

Configure the network port in [System]-[Network]-[Deployment] and select [Gateway]. The IP address of the LAN port is 10.4.2.34 and the subnet mask are 255.255.255.0, the IP of the WAN port is 200.200.1.20, the subnet mask is 255.255.255.0, and the default gateway is 200.200.1.1. The primary and secondary DNS must be filled in with the correct DNS. As shown below:



5.4 Cluster configuration

1. Check [Enable] in [System]-[Cluster]-[Cluster Deployment]-[Basic Settings], and set [Cluster Key]. Both the dispatcher and the real server must check [Enable] and set the same [Cluster Key].

2. Set the LAN port cluster IP and WAN port cluster IP.

Dispatcher:

LAN port cluster 10.4.2.35, LAN port cluster mask 255.255.255.0, WAN1 port cluster IP fill in the real external network IP address 202.10.10.22, WAN1 port cluster mask 255.255.255.0, WAN1 port gateway 202.10.10.1.

Real server:

LAN port cluster 10.4.2.35, LAN port cluster mask 255.255.255.0; WAN1 port cluster IP fill in the real external network IP address 202.10.10.22, WAN1 port cluster mask 255.255.255.0, WAN1 port gateway 202.10.10.1. As shown below:

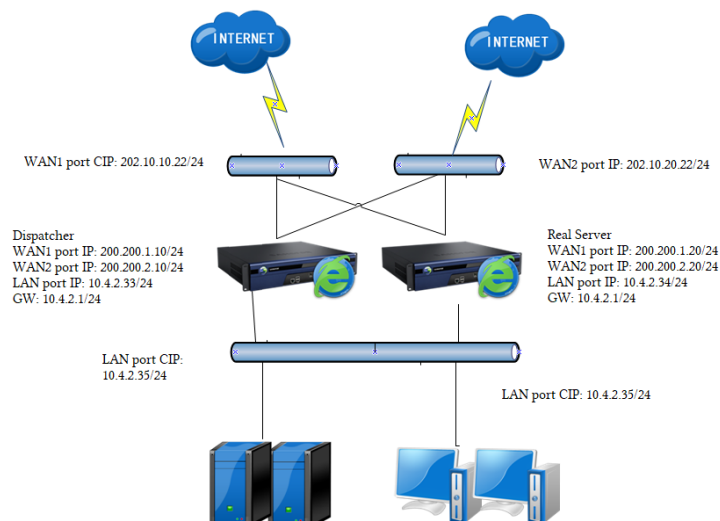
5.5 View cluster running status.

Cluster Deployment		Node Status		Cluster Online User	
Refresh		Dispatcher: 10.4.2.33		Total Licenses: 0 (0 standard users/0 advanced users/0 platinum users) Total Online Users: 0 (0 standard users/0 advanced users/0 platinum users) View	
Node IP	Type	System Status	CPU Usage	Licensed Users (Standard/Advanced/Platinu...	Online Users (Standard/Advanced/Platinu...
10.4.2.33	Dispatcher	Running	9%	0(0/0/0)	0(0/0/0)
10.4.2.34	Real Server	Running	9%	0(0/0/0)	0(0/0/0)

6 Gateway cluster with multiple line

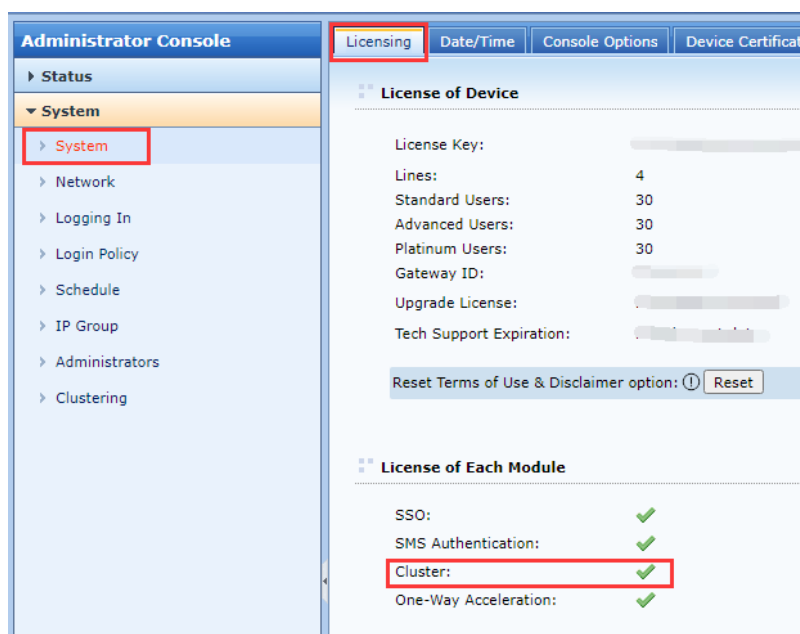
6.1 Application Scenario

In order to improve the stability of internal system access, a customer deployed VDC equipment in a cluster. The customer's network topology is as follows. VDC equipment is deployed at the egress of the customer's network in gateway mode, with dual lines on the external network.



6.2 Verify Authorization

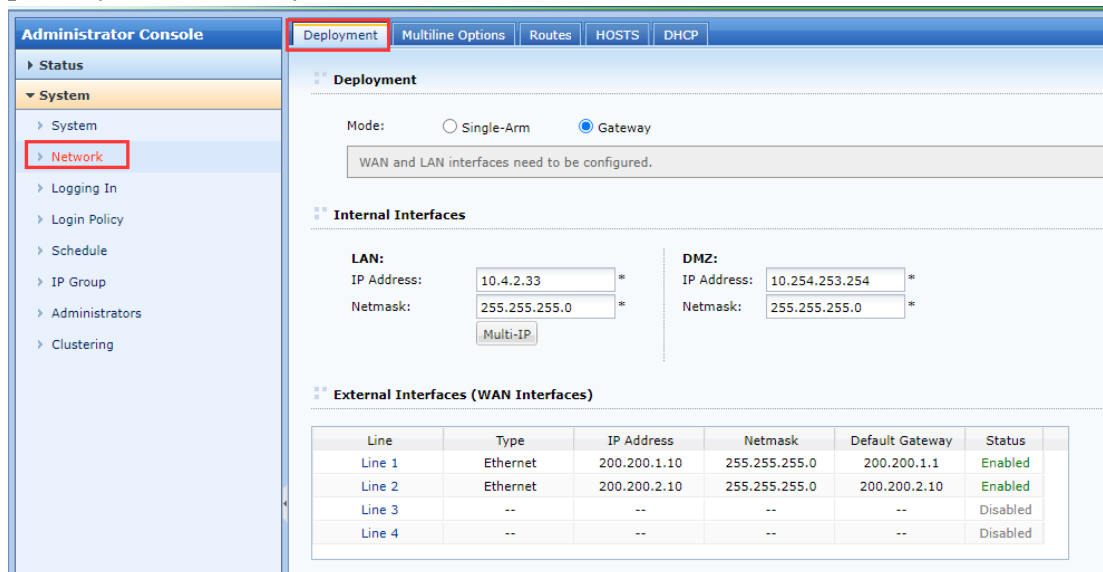
1. Deploy the equipment correctly according to the network topology, without connecting the WAN port, and ensure that the LAN port of the dispatch and the real server can communicate with each other.
2. WEBUI path: [System]-[Licensing], confirm that the cluster license has been activated, and the cluster configuration activates the cluster function based on the cluster license.



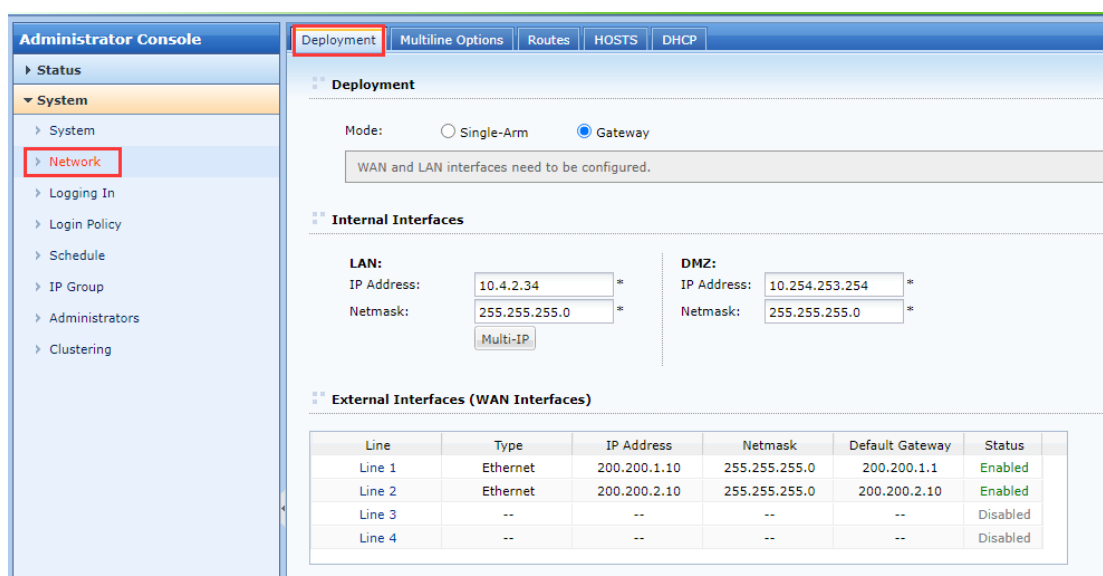
6.3 Network port configuration

1. Distributor: Configure the network port in [System]-[Network]- [Deployment] and select [Gateway]. The IP address of the LAN port is set to 10.4.2.33, the subnet mask is 255.255.255.0. The IP address of the WAN1 port is set to 200.200.1.10, the subnet mask is 255.255.255.0, and the default gateway is 200.200.1.1. The primary and

secondary DNS must be filled in with the correct DNS. The WAN2 port is set to IP 200.200.2.10, subnet mask 255.255.255.0, default gateway 200.200.2.1, and the primary and secondary DNS must be filled in with the correct DNS. As shown below:



2. Real server: Configure the network port in [System Settings]-[Network Configuration]-[Deployment Mode] and select [Gateway Mode]. The IP address of the LAN port is 10.4.2.34 and the subnet mask is 255.255.255.0; the IP address of the WAN1 port is 200.200.1.20, the subnet mask is 255.255.255.0, and the default gateway is 200.200.1.1. The primary and secondary DNS must be filled in with the correct DNS. The WAN2 port is set to IP 200.200.2.20, subnet mask 255.255.255.0, default gateway 200.200.2.1, and the primary and secondary DNS must be filled in with the correct DNS. As shown below:



6.4 Cluster configuration

1. Check [Enable] in [System]-[Cluster]-[Cluster Deployment]-[Basic Settings], and set [Cluster Key]. Both the dispatcher and the real server must check [Enable] and set the same [Cluster Key].
2. Set LAN port cluster IP and WAN port cluster IP.

Dispatcher:

LAN port cluster 10.4.2.35, LAN port cluster mask 255.255.255.0. WAN1 port cluster IP fill in the real external network IP address 202.10.10.22, WAN1 port cluster mask 255.255.255.0, WAN1 port gateway 202.10.10.1. WAN2 port cluster IP fill in the real external network IP address 202.10.20.22, WAN2 port cluster mask 255.255.255.0, WAN2 port gateway 202.10.20.1.

Real server:

LAN port cluster 10.4.2.35, LAN port cluster mask 255.255.255.0. WAN1 port cluster IP fill in the real external network IP address 202.10.10.22, WAN1 port cluster mask 255.255.255.0, WAN1 port gateway 202.10.10.1.

WAN2 port cluster IP fill in the real external network IP address 202.10.20.22, WAN2 port cluster mask 255.255.255.0, WAN2 port gateway 202.10.20.1. As shown below:

The screenshot displays the 'Cluster Deployment' configuration page in the Administrator Console. The left sidebar shows the navigation menu with 'Clustering' selected. The main content area is divided into 'Basic Settings' and 'Cluster IP Addresses'.

Basic Settings:

- Cluster: ☒ Enabled ☐ Disabled
- Cluster Key: 123456 * (6 characters, containing numbers and letters)
- Dispatcher: ☐ Elected by priority level ☒ This device preferred (only one device in a cluster group can select this option)

Cluster IP Addresses:

Cluster Type	Cluster IP	Netmask
<input checked="" type="checkbox"/> LAN Cluster IP	10.4.2.35	255.255.255.0
<input type="checkbox"/> DMZ Cluster IP	0.0.0.0	0.0.0.0
<input checked="" type="checkbox"/> WAN1 Cluster IP	202.10.10.22	255.255.255.0
WAN1 Gateway	202.10.10.1	
<input checked="" type="checkbox"/> WAN2 Cluster IP	202.10.20.22	255.255.255.0
WAN2 Gateway	202.10.20.1	

6.5 Multiline options

Enter [System]-[Network]-[Multiline Options], check [Enable], and create two lines, the interface is as shown below:

Multiline Options

☒ Enabled

New Delete Edit Move Up Move Down Refresh

Line Alias	IP Address	Netmask	Default Gateway	Connection Mode	Status
Telecom	202.96.137.75	255.255.255.0	202.96.137.1	Directly connect Internet	Unkn...
Netcom	50.120.10.64	255.255.255.0	50.120.10.1	Directly connect Internet	Unkn...

☒ Enable link state detection
Interval: 10 second(s)

Check [Enable multi-line], select [VDI users connect directly (local device has public IP address)], the interface is as shown in the figure below:

☒ Allow this device to use multiple lines

Connection Method:

☒ VDI users connect in directly (local device has public IP address)

☐ VDI users connect in via front-end device (local device has no public IP address)

Line Alias	Line Type	IP Address	Netmask	Default Gateway	Priority	Advanc...
Line 1	Ethernet	192.200.200.39	255.255.255.0	192.200.200.19	High	Edit
Line 2	Ethernet	--	--	--	High	Edit

6.6 View cluster running status.

Cluster Deployment		Node Status		Cluster Online User	
Refresh	Dispatcher: 10.4.2.33	Total Licenses: 0 (0 standard users/0 advanced users/0 platinum users)		Total Online Users: 0 (0 standard users/0 advanced users/0 platinum users) View	
Node IP	Type	System Status	CPU Usage	Licensed Users (Standard/Advanced/Plati...	Online Users (Standard/Advanced/Platinu...
10.4.2.33	Dispatcher	Running	9%	0(0/0/0)	0(0/0/0)
10.4.2.34	Real Server	Running	9%	0(0/0/0)	0(0/0/0)

7 Precautions

1. It is recommended to configure the device with the best performance in the cluster to always be the dispatcher.
2. After clicking "Save", you need to click "Apply changes" to make the configuration take effect on the device
3. The VDC equipment cluster does not support dynamic IP, and the front-end gateway equipment cannot use dial-up access to the Internet.



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