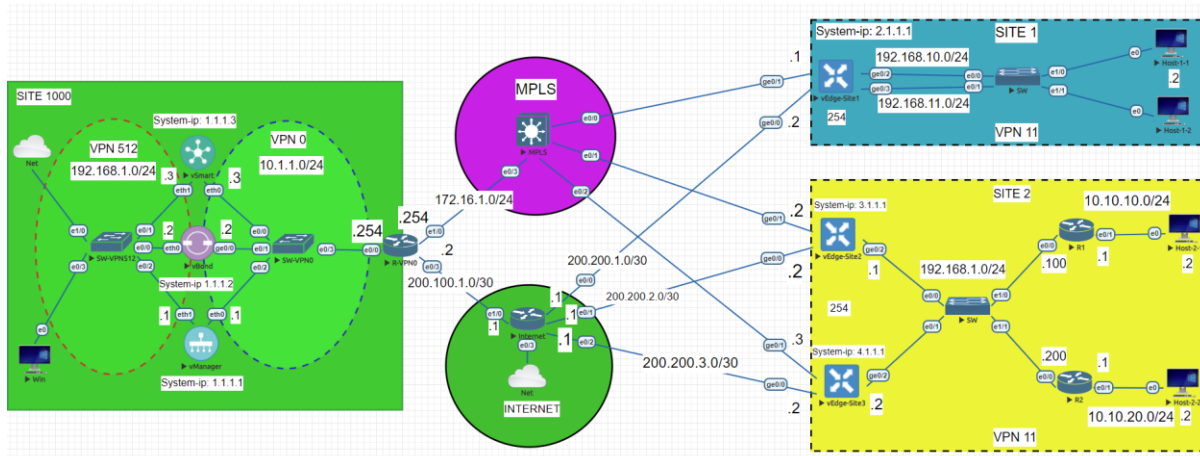


LAB 14: CẤU HÌNH NAT TĨNH VÀ NAT ĐỘNG TRONG SERVICE VPN 11 CỦA SD-WAN

I. Sơ đồ



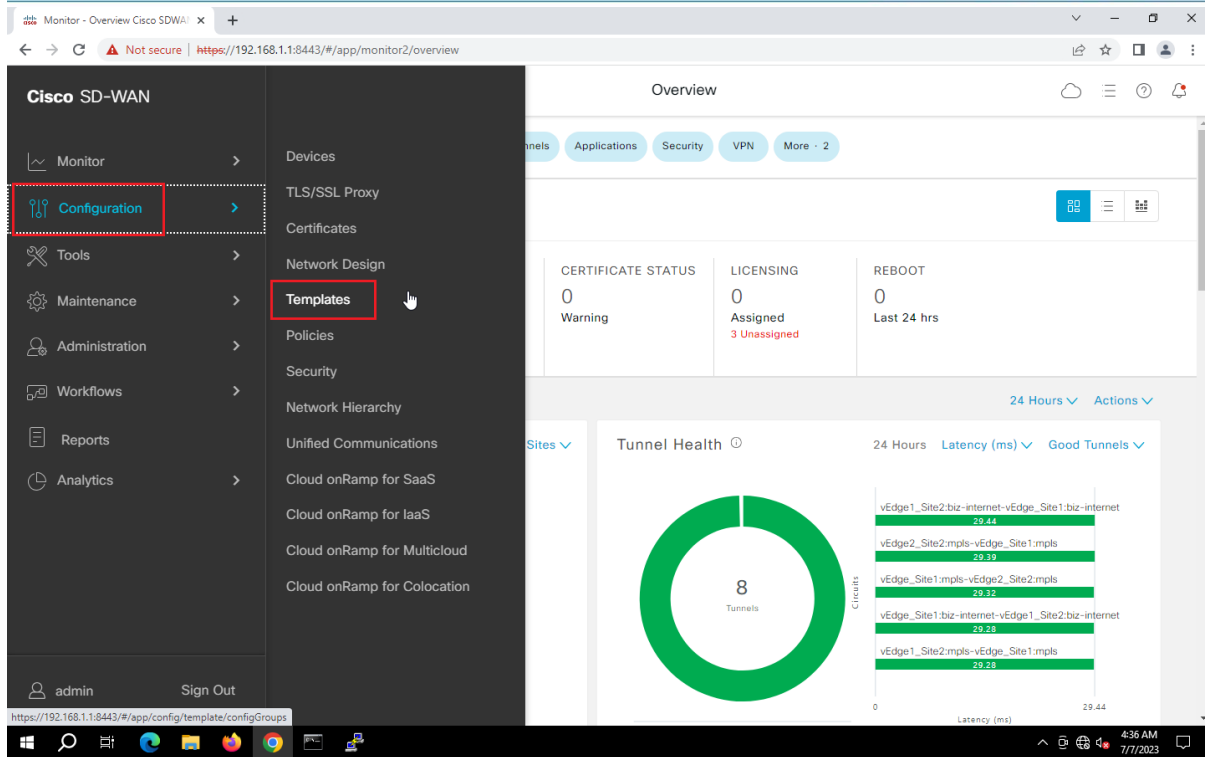
II. Yêu cầu kỹ thuật

- Viết Template cho cổng Ge0/0 của hai thiết bị vEdge1-Site2 và vEdge2-Site2 dùng Dynamic Nat cho Service VPN11 ra ngoài Internet.
- Viết Template cho cổng Ge0/0 của thiết bị vEdge1-Site1 dùng Static Nat cho Service VPN11 ra ngoài Internet.
- Các thiết bị bên trong từng site có thể truy cập ra ngoài Internet.

III. Các bước thực hiện

3.1. Viết template cho cổng ge0/0 của 2 thiết bị vEdge1-Site2 và vEdge2-Site2 dùng Dynamic Nat cho Service VPN11 ra ngoài Internet.

Trong giao diện vManage ta chọn **Configuration > Template > Feature**.



Cisco SD-WAN Monitor Overview

Configuration > **Templates**

Overview

Tunnel Health

8 Tunnels

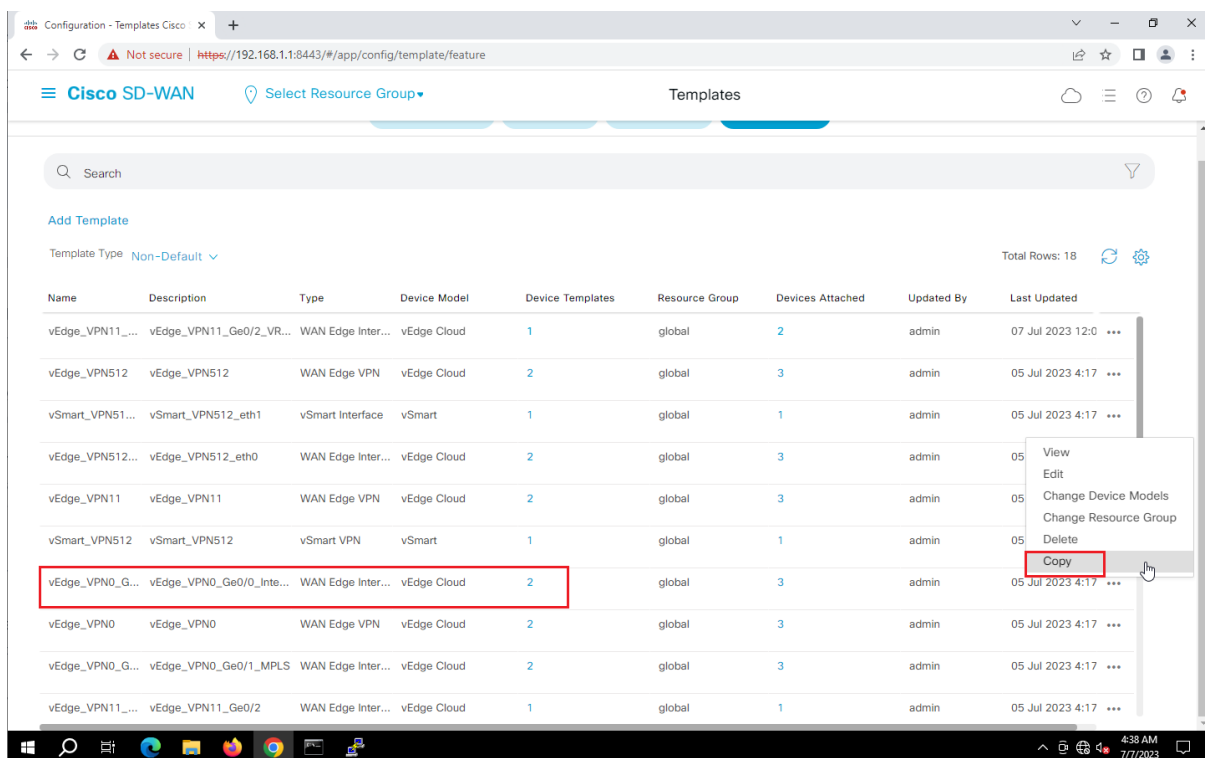
CERTIFICATE STATUS: 0 Warning

LICENSING: 0 Assigned, 3 Unassigned

REBOOT: 0 Last 24 hrs

Tunnel	Latency (ms)
vEdge1_Site2.biz-internet-vEdge_Site1.biz-internet	29.44
vEdge2_Site2.mpls-vEdge_Site1.mpls	29.39
vEdge_Site1.mpls-vEdge2_Site2.mpls	29.32
vEdge_Site1.biz-internet-vEdge1_Site2.biz-internet	29.28
vEdge1_Site2.mpls-vEdge_Site1.mpls	29.23

Tiếp theo chọn Template: *vEdge_VPN0_Ge0/0_Internet* và chọn **Copy**



Configuration - Templates

Select Resource Group

Search

Add Template

Template Type: Non-Default

Total Rows: 18

Name	Description	Type	Device Model	Device Templates	Resource Group	Devices Attached	Updated By	Last Updated
vEdge_VPN11_...	vEdge_VPN11_Ge0/2_VR...	WAN Edge Inter...	vEdge Cloud	1	global	2	admin	07 Jul 2023 12:0
vEdge_VPN512	vEdge_VPN512	WAN Edge VPN	vEdge Cloud	2	global	3	admin	05 Jul 2023 4:17
vSmart_VPN51...	vSmart_VPN512_eth1	vSmart Interface	vSmart	1	global	1	admin	05 Jul 2023 4:17
vEdge_VPN512...	vEdge_VPN512_eth0	WAN Edge Inter...	vEdge Cloud	2	global	3	admin	05 Jul 2023 4:17
vEdge_VPN11	vEdge_VPN11	WAN Edge VPN	vEdge Cloud	2	global	3	admin	05 Jul 2023 4:17
vSmart_VPN512	vSmart_VPN512	vSmart VPN	vSmart	1	global	1	admin	05 Jul 2023 4:17
vEdge_VPN0_G...	vEdge_VPN0_Ge0/0_Inte...	WAN Edge Inter...	vEdge Cloud	2	global	3	admin	05 Jul 2023 4:17
vEdge_VPN0	vEdge_VPN0	WAN Edge VPN	vEdge Cloud	2	global	3	admin	05 Jul 2023 4:17
vEdge_VPN0_G...	vEdge_VPN0_Ge0/1_MPLS	WAN Edge Inter...	vEdge Cloud	2	global	3	admin	05 Jul 2023 4:17
vEdge_VPN11_...	vEdge_VPN11_Ge0/2	WAN Edge Inter...	vEdge Cloud	1	global	1	admin	05 Jul 2023 4:17

Actions: View, Edit, Change Device Models, Change Resource Group, Delete, **Copy**

Ta sửa name template lại thành *vEdge_VPN0_Ge0/0_Internet_Site2*

×

Template Copy

Template Name

vEdge_VPN0_Ge0/0_Internet_Site2

Description

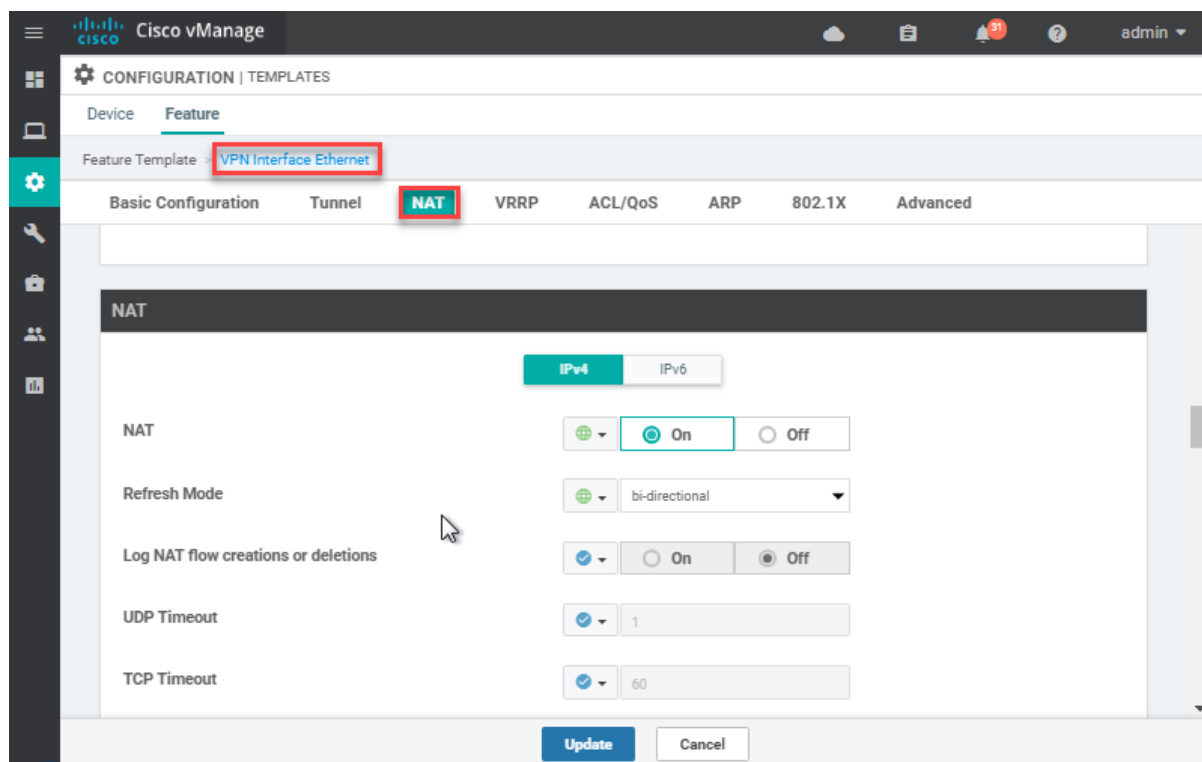
vEdge_VPN0_Ge0/0_Internet_Site2

Copy

Cancel

Tiếp đến chọn Edit template

Trong phần Edit, chọn mục **NAT** và cấu hình các thông số sau:



The screenshot shows the Cisco vManage interface for configuring NAT on a VPN Interface Ethernet template. The 'NAT' tab is selected, and the 'IPv4' configuration is active. The 'NAT' checkbox is checked and highlighted with a red box. The 'Refresh Mode' is set to 'bi-directional'. The 'Log NAT flow creations or deletions' checkbox is checked. The 'UDP Timeout' is set to 1, and the 'TCP Timeout' is set to 60. The 'Update' button is highlighted with a red box.

NAT > Global > On

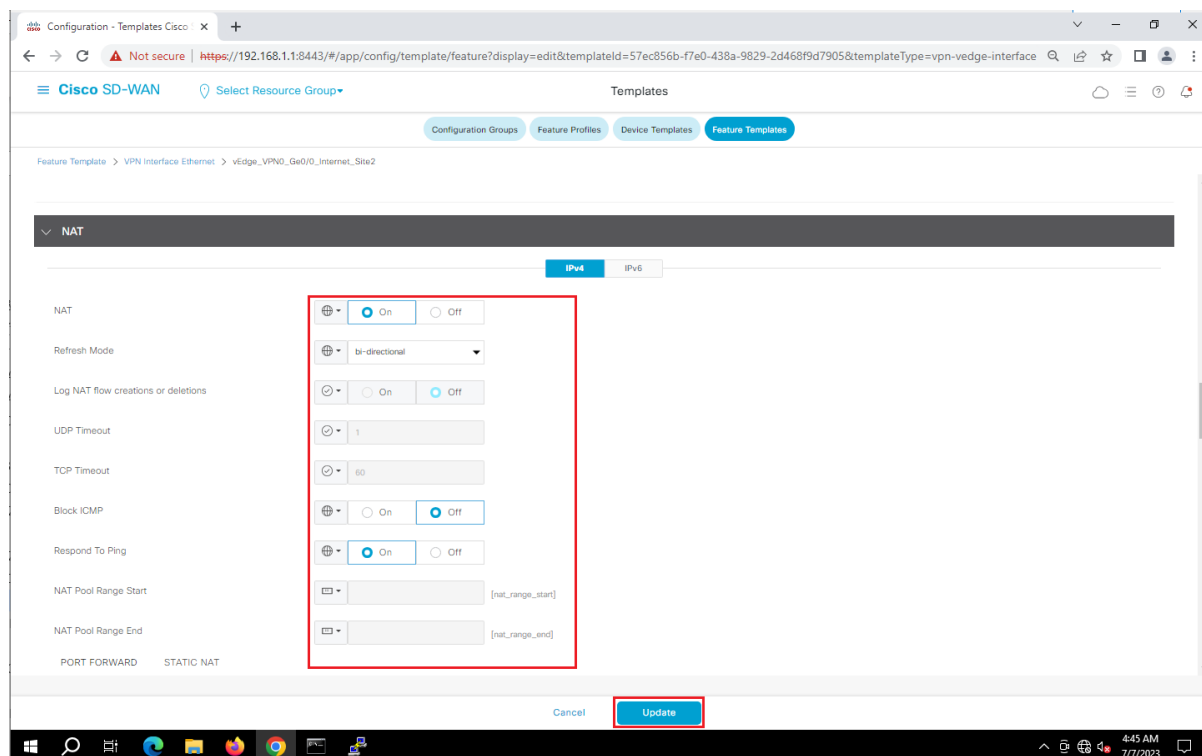
Refresh Mode > Global > bi-directional

Block ICMP > Global > Off

Respond to Ping > Global > On

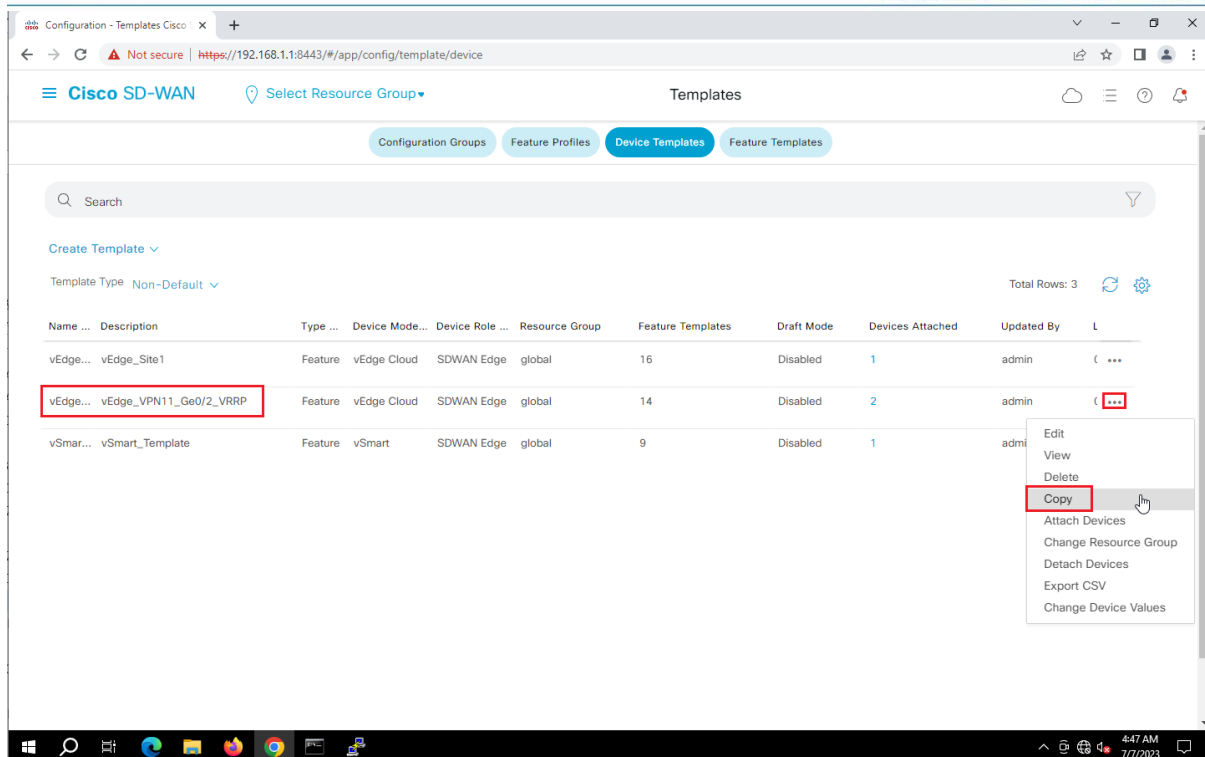
NAT Pool Range start > Device Specific > nat_range_start

NAT Pool Range end > Device Specific > nat_range_end



Tiếp theo chọn **Update** để thay đổi cấu hình.

Qua tab **Device Template** chọn copy template *vEdge_VPN11_Ge0/2_VRRP*



Configuration Groups Feature Profiles **Device Templates** Feature Templates

Search

Create Template ▾

Template Type Non-Default ▾

Total Rows: 3

Name	Description	Type	Device Mode	Device Role	Resource Group	Feature Templates	Draft Mode	Devices Attached	Updated By	L
vEdge...	vEdge_Site1	Feature	vEdge Cloud	SDWAN Edge	global	16	Disabled	1	admin	(...)
vEdge...	vEdge_VPN11_Geo0/2_VRRP	Feature	vEdge Cloud	SDWAN Edge	global	14	Disabled	2	admin	(...)
vSmar...	vSmart_Template	Feature	vSmart	SDWAN Edge	global	9	Disabled	1	admin	(...)

- Edit
- View
- Delete
- Copy**
- Attach Devices
- Change Resource Group
- Detach Devices
- Export CSV
- Change Device Values

Ta sửa name template thành *vEdge_Site2_Dynamic_NAT*

×

Template Copy

Template Name

vEdge_Site2_Dynamic_NAT

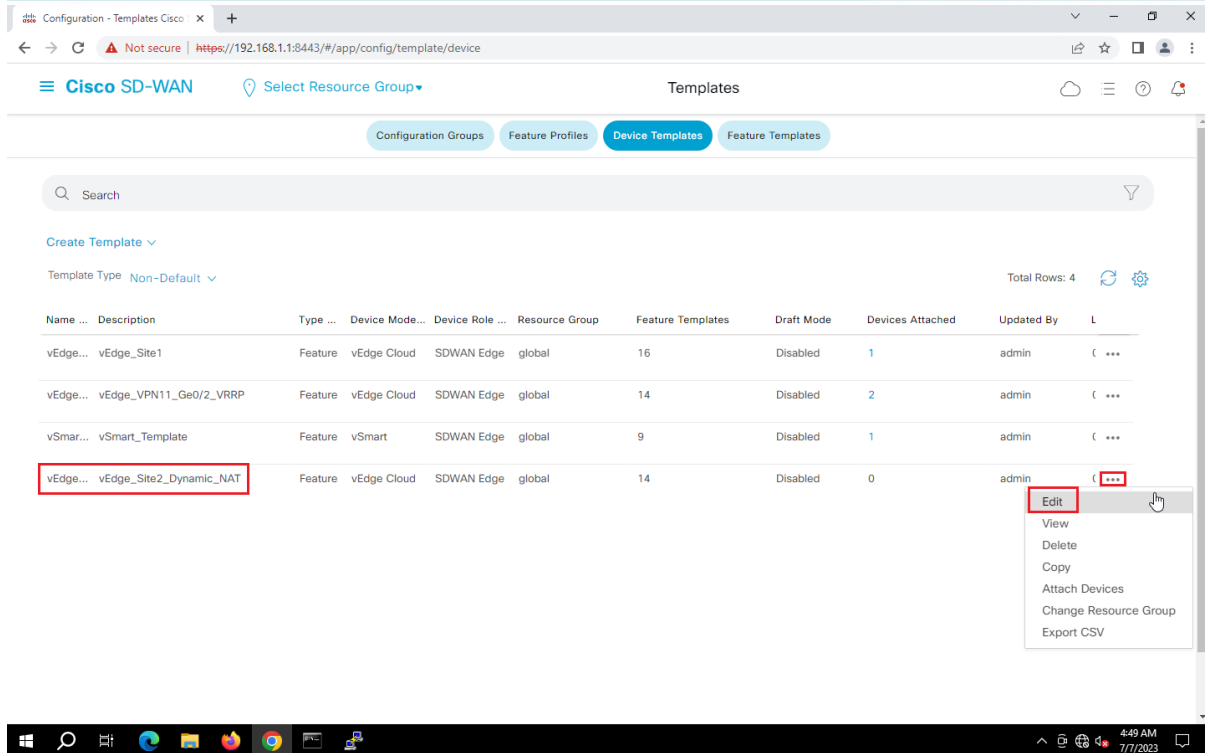
Description

vEdge_Site2_Dynamic_NAT

Copy

Cancel

Sau đó chọn **Edit** template



Configuration - Templates Cisco

Not secure | https://192.168.1.1:8443/#/app/config/template/device

Cisco SD-WAN Select Resource Group

Templates

Configuration Groups Feature Profiles **Device Templates** Feature Templates

Search

Create Template

Template Type Non-Default

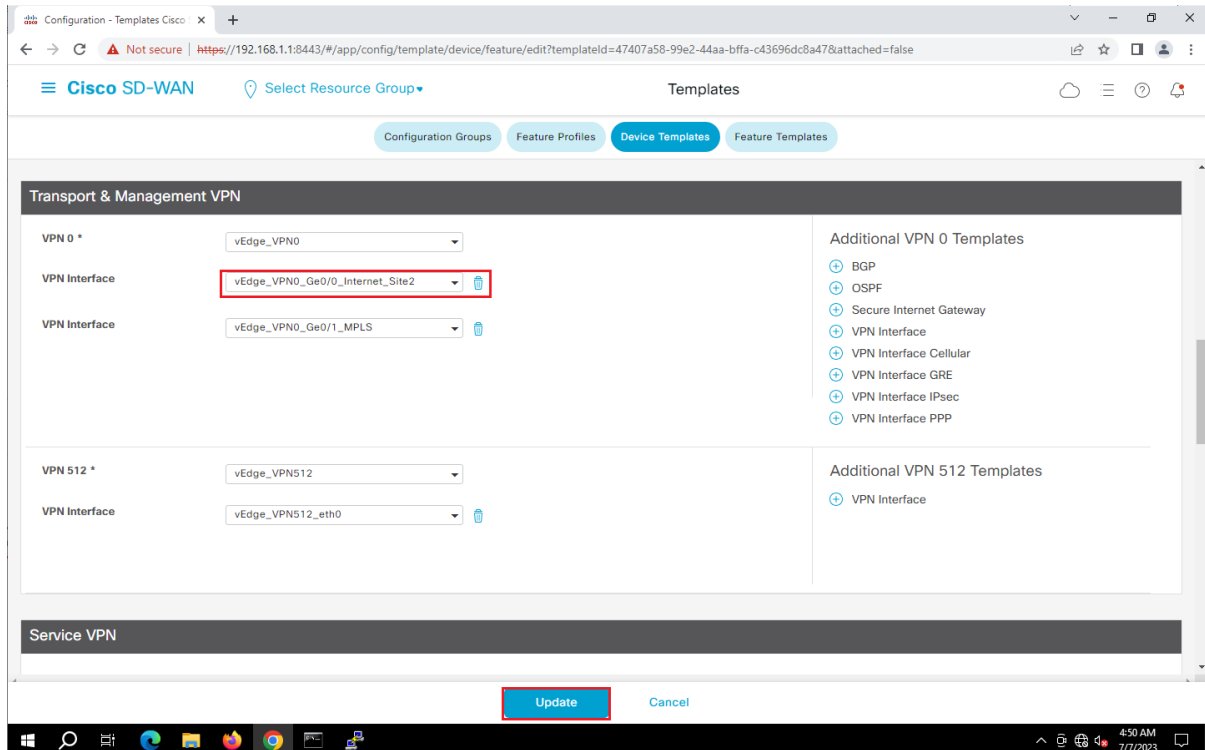
Total Rows: 4

Name	Description	Type	Device Mode	Device Role	Resource Group	Feature Templates	Draft Mode	Devices Attached	Updated By	L
vEdge_Site1		Feature	vEdge Cloud	SDWAN Edge	global	16	Disabled	1	admin	(...)
vEdge_VPN11_Ge0/2_VRRP		Feature	vEdge Cloud	SDWAN Edge	global	14	Disabled	2	admin	(...)
vSmar_Template		Feature	vSmart	SDWAN Edge	global	9	Disabled	1	admin	(...)
vEdge_Site2_Dynamic_NAT		Feature	vEdge Cloud	SDWAN Edge	global	14	Disabled	0	admin	(...)

Edit View Delete Copy Attach Devices Change Resource Group Export CSV

4:49 AM 7/7/2023

Trong phần Transport & Management VPN sửa VPN Interface VPN 0 thành *vEdge_VPN0_Ge0/0_Internet_Site2*, sau đó chọn **Update**



Configuration - Templates Cisco

Not secure | https://192.168.1.1:8443/#/app/config/template/device/feature/edit?templateId=47407a58-99e2-44aa-bffa-c43696dc8a47&attached=false

Cisco SD-WAN Select Resource Group

Templates

Configuration Groups Feature Profiles **Device Templates** Feature Templates

Transport & Management VPN

VPN 0 * vEdge_VPN0

VPN Interface vEdge_VPN0_Ge0/0_Internet_Site2

VPN Interface vEdge_VPN0_Ge0/1_MPLS

Additional VPN 0 Templates

- BGP
- OSPF
- Secure Internet Gateway
- VPN Interface
- VPN Interface Cellular
- VPN Interface GRE
- VPN Interface IPsec
- VPN Interface PPP

VPN 512 * vEdge_VPN512

VPN Interface vEdge_VPN512_eth0

Additional VPN 512 Templates

- VPN Interface

Service VPN

Update Cancel

4:50 AM 7/7/2023

Sau đó chọn **Attach Devices** template, chọn vEdge1-Site2, vEdge2-Site2, chọn Attach

Configuration - Templates Cisco

Not secure | https://192.168.1.1:8443/#/app/config/template/device

Cisco SD-WAN Select Resource Group

Templates

Configuration Groups Feature Profiles Device Templates Feature Templates

Search

Create Template

Template Type Non-Default

Total Rows: 4

Name	Description	Type	Device Mode	Device Role	Resource Group	Feature Templates	Draft Mode	Devices Attached	Updated By	L
vEdge...	vEdge_Site1	Feature	vEdge Cloud	SDWAN Edge	global	16	Disabled	1	admin	(...)
vEdge...	vEdge_VPN11_Ge0/2_VRRP	Feature	vEdge Cloud	SDWAN Edge	global	14	Disabled	2	admin	(...)
vSmar...	vSmart_Template	Feature	vSmart	SDWAN Edge	global	9	Disabled	1	admin	(...)
vEdge...	vEdge_Site2_Dynamic_NAT	Feature	vEdge Cloud	SDWAN Edge	global	14	Disabled	0	admin	(...)

Edit
View
Delete
Copy
Attach Devices
Change Resource Group
Export CSV

4:53 AM 7/7/2023

Attach Devices

Attach device from the list below

2 Items Selected

Available Devices

Select All

All Search

Name	Device IP
84c6527e-45e6-c5a8-c33c-fff9d8ad42a4	
80060207-b2bd-a5fa-691f-72386930a34e	
f121e275-5c29-cbce-71c1-783ee2126db4	
ecf8966f-55f0-b701-b9df-717fe3ca0fd0	
be5ba729-6684-943c-1e91-7d6ff296e97b	
57569bb0-0758-89a6-37e7-1f8e62ced210	
a95df91b-578a-e6a2-8da8-589f11f0b758	
vEdge_Site1	2.1.1.1
vbond	1.1.1.2

Selected Devices

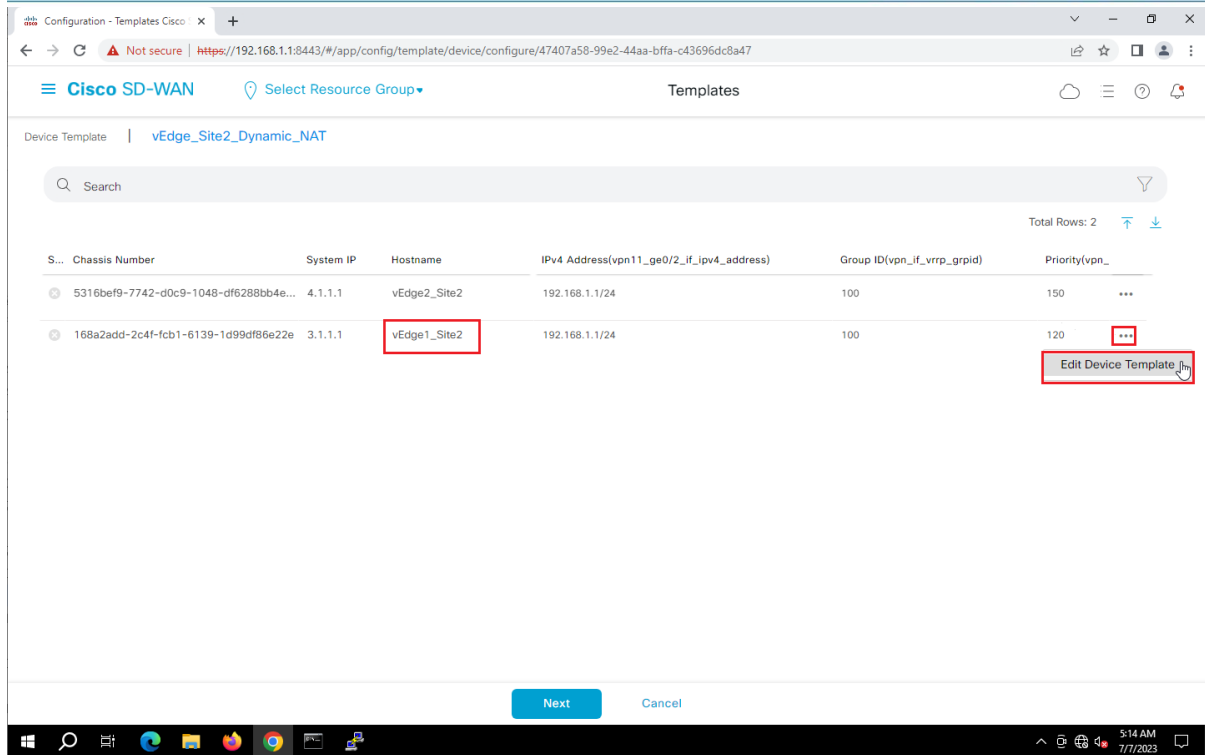
Select All

All Search

Name	Device IP
vEdge1_Site2	3.1.1.1
vEdge2_Site2	4.1.1.1

Attach Cancel

Ở thiết bị vEdge1-Site2



Configuration - Templates Cisco

Not secure | https://192.168.1.1:8443/#/app/config/template/device/configure/47407a58-99e2-44aa-bffa-c43696dc8a47

Cisco SD-WAN | Select Resource Group

Templates

Device Template | vEdge_Site2_Dynamic_NAT

Search

Total Rows: 2

S...	Chassis Number	System IP	Hostname	IPv4 Address(vpn11_ge0/2_if_ipv4_address)	Group ID(vpn_if_vrrp_grpid)	Priority(vpn_
5316bef9-7742-d0c9-1048-df6288bb4e...	4.1.1.1	vEdge2_Site2	192.168.1.1/24	100	150	...
168a2add-2c4f-fcb1-6139-1d99df86e22e	3.1.1.1	vEdge1_Site2	192.168.1.1/24	100	120	...

Edit Device Template

Next Cancel

5:14 AM 7/7/2023

nat_range_start: 200.200.2.130

nat_range_end: 200.200.2.150

Update Device Template

Variable List (Hover over each field for more information)

IPv4 Address(vpn11_ge0/2_if_ipv4_address)	192.168.1.1/24
Group ID(vpn_if_vrrp_grpid)	100
Priority(vpn_if_vrrp_priority)	120
IP Address(vpn_if_vrrp_vrrp_ipaddress)	192.168.1.254
Router ID(ospf_router_id)	3.1.1.1
Address(vpn0_Internet_next_hop_ip_address_1)	200.200.2.1
IPv4 Address(vpn0_ge0/1_MPLS_if_ipv4_address)	172.16.1.2/24
IPv4 Address(vpn0_ge0/0_Internet_if_ipv4_address)	200.200.2.2/30
NAT Pool Range Start(nat_range_start)	200.200.2.130
NAT Pool Range End(nat_range_end)	200.200.2.150
Hostname	vEdge1_Site2
System IP	3.1.1.1
Site ID	2

Generate Password

Update

Cancel

Chọn **Update** để thay đổi cấu hình.

Ở thiết bị **vEdge2-Site2**

nat_range_start: 200.200.3.150

nat_range_end: 200.200.3.170

Update Device Template

Variable List (Hover over each field for more information)

IPv4 Address(vpn11_ge0/2_if_ipv4_address)	192.168.1.1/24
Group ID(vpn_if_vrrp_grpid)	100
Priority(vpn_if_vrrp_priority)	150
IP Address(vpn_if_vrrp_vrrp_ipaddress)	192.168.1.254
Router ID(ospf_router_id)	4.1.1.1
Address(vpn0_Internet_next_hop_ip_address_1)	200.200.3.1
IPv4 Address(vpn0_ge0/1_MPLS_if_ipv4_address)	172.16.1.3/24
IPv4 Address(vpn0_ge0/0_Internet_if_ipv4_address)	200.200.3.2/30
NAT Pool Range Start(nat_range_start)	200.200.3.150
NAT Pool Range End(nat_range_end)	200.200.3.170
Hostname	vEdge2_Site2
System IP	4.1.1.1
Site ID	2

Generate Password

Update

Cancel

Chọn **Update** để thay đổi cấu hình.

Chọn **Configure Devices** để đẩy cấu hình xuống các thiết bị vEdge1-Site2, vEdge2-Site2

Configuration - Templates Cisco x +

Not secure | https://192.168.1.1:8443/#/app/config/template/device/configure/47407a58-99e2-44aa-bffa-c43696dc8a47

Cisco SD-WAN Select Resource Group Templates

Device Template | vEdge_Site2_Dynamic_NAT

Search

Total Rows: 2

S...	Chassis Number	System IP	Hostname	IPv4 Address(vpn11_ge0/2_if_ipv4_address)	Group ID(vpn_if_vrrp_grpid)	Priority(vpn_
✓	5316bef9-7742-d0c9-1048-df6288bb4e...	4.1.1.1	vEdge2_Site2	192.168.1.1/24	100	150 ***
✓	168a2add-2c4f-fcb1-6139-1d99df86e22e	3.1.1.1	vEdge1_Site2	192.168.1.1/24	100	120 ***

Next Cancel

Configuration - Templates Cisco x +

Not secure | https://192.168.1.1:8443/#/app/config/template/device/configure/preview/47407a58-99e2-44aa-bffa-c43696dc8a47

Cisco SD-WAN Select Resource Group Templates

Device Template vEdge_Site2_Dynamic_... Total 1

Device list (Total: 2 devices)

Filter/Search

5316bef9-7742-d0c9-1048-df6288bb4e56
vEdge2_Site2[4.1.1.1]

168a2add-2c4f-fcb1-6139-1d99df86e22e
vEdge1_Site2[3.1.1.1]

Please select a device from the device list

Configure Device Rollback Timer

Back Configure Devices Cancel

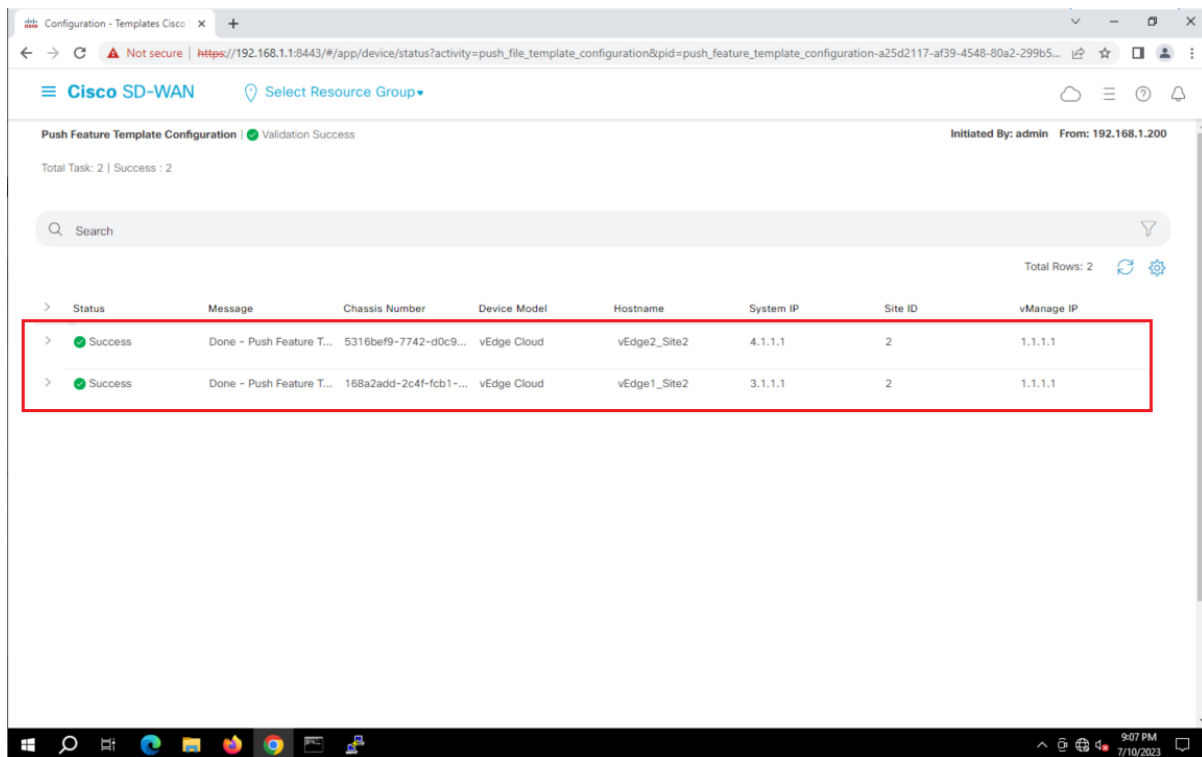
Configure Devices

Committing these changes affect the configuration on 2 devices. Are you sure you want to proceed?

☒ Confirm configuration changes on 2 devices.

OK

Cancel



Configuration - Templates Cisco

Not secure | https://192.168.1.1:8443/#/app/device/status?activity=push_file_template_configuration&pid=push_feature_template_configuration-a25d2117-af39-4548-80a2-299b5...

Cisco SD-WAN | Select Resource Group

Push Feature Template Configuration | Validation Success | Initiated By: admin | From: 192.168.1.200

Total Task: 2 | Success: 2

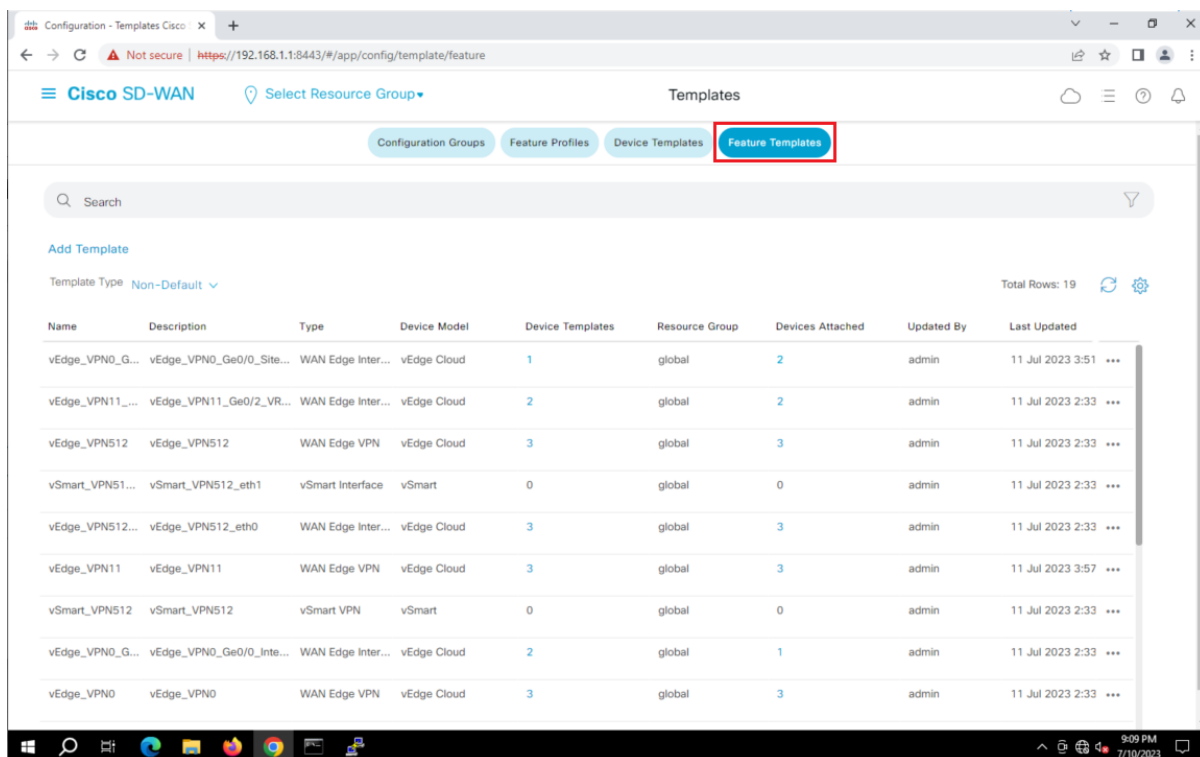
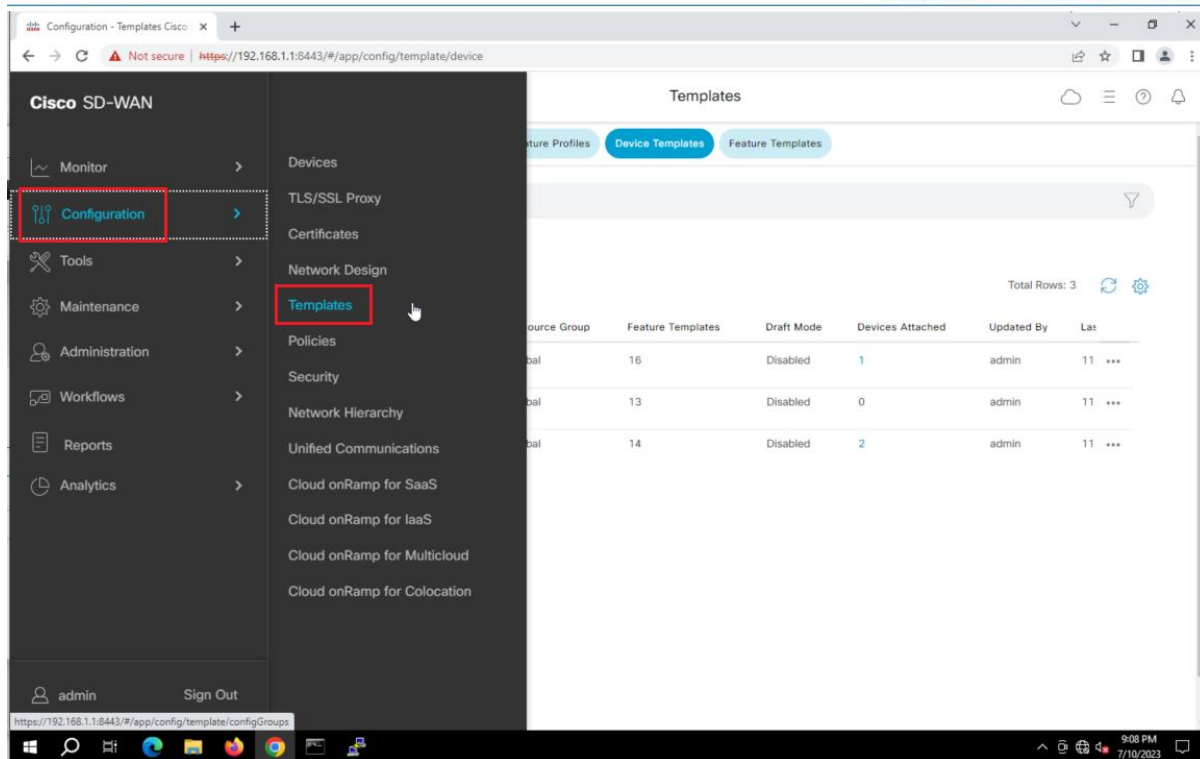
Search

Total Rows: 2

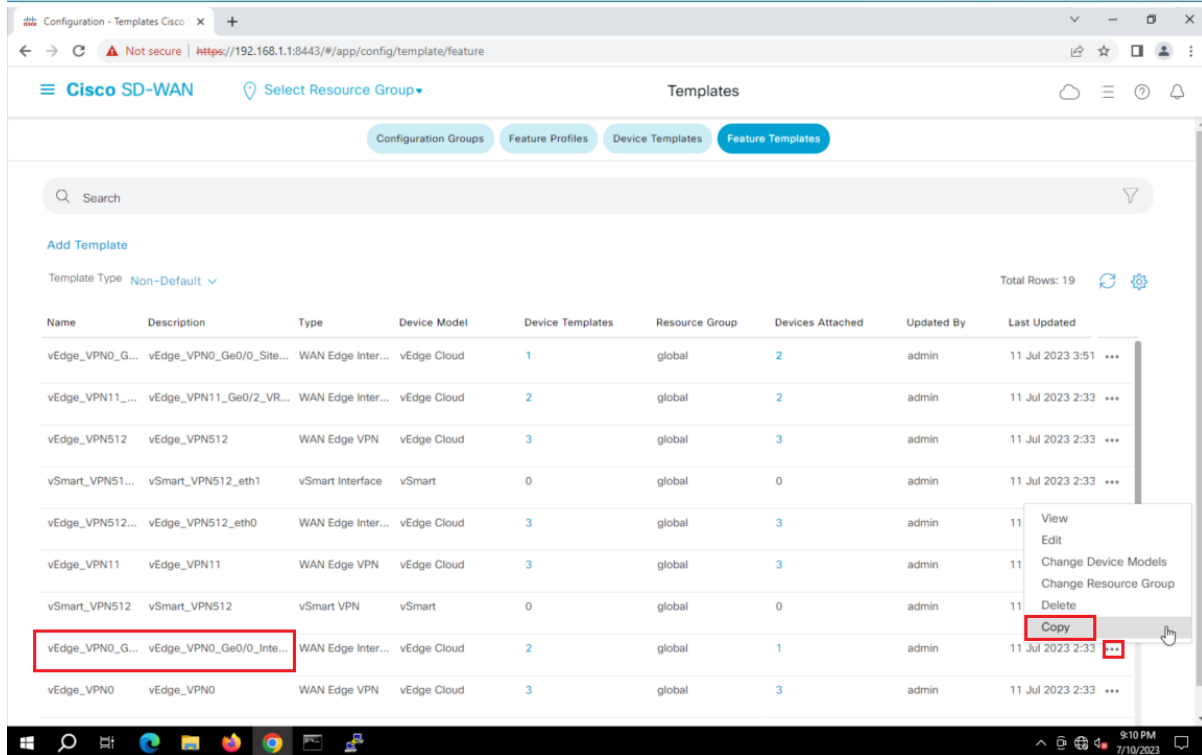
Status	Message	Chassis Number	Device Model	Hostname	System IP	Site ID	vManage IP
Success	Done - Push Feature T...	5316bef9-7742-d0c9...	vEdge Cloud	vEdge2_Site2	4.1.1.1	2	1.1.1.1
Success	Done - Push Feature T...	168a2add-2c4f-fcb1...	vEdge Cloud	vEdge1_Site2	3.1.1.1	2	1.1.1.1

3.2. Viết template cổng ge0/0 của 2 thiết bị vEdge1 dùng Static Nat cho Service VPN11 ra ngoài Internet.

Trong giao diện vManage ta chọn **Configuration > Template > Feature**.



Tiếp theo chọn Template: *vEdge_VPN0_Ge0/0_Internet* và chọn **Copy**



Configuration - Templates Cisco

Not secure | https://192.168.1.1:8443/#/app/config/template/feature

Cisco SD-WAN Select Resource Group

Templates

Configuration Groups Feature Profiles Device Templates Feature Templates

Search

Add Template

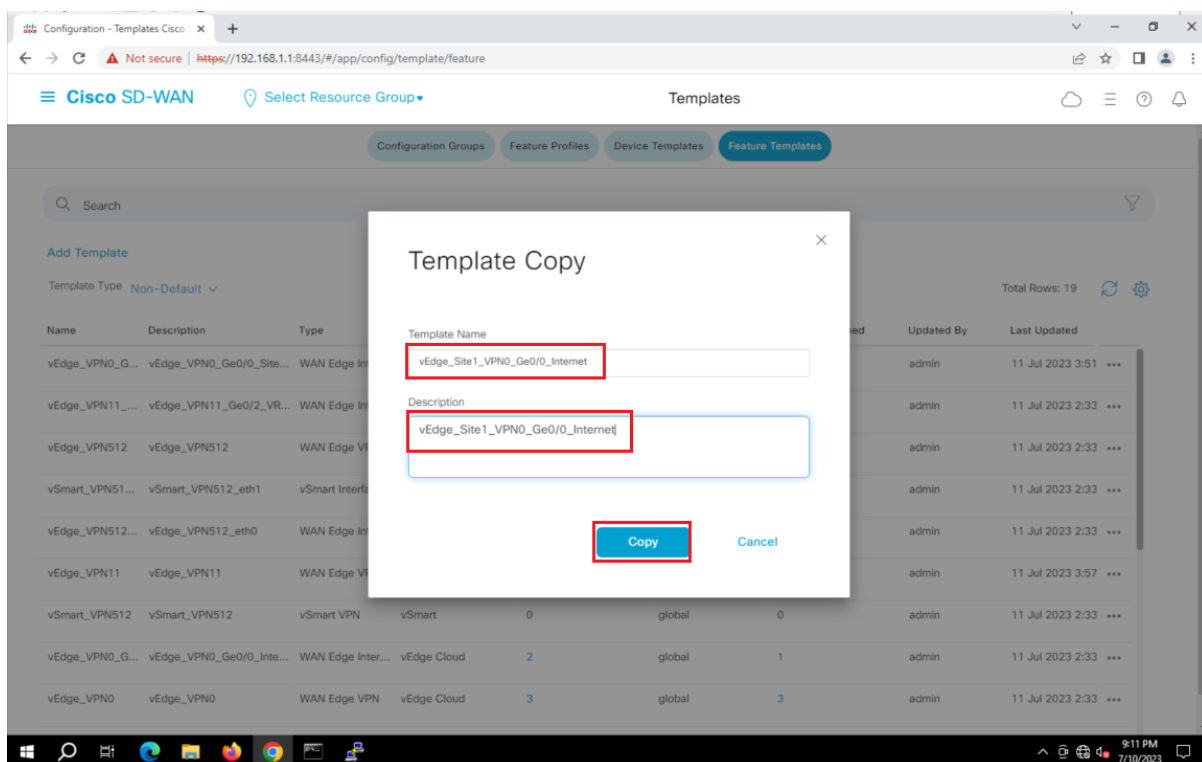
Template Type Non-Default

Total Rows: 19

Name	Description	Type	Device Model	Device Templates	Resource Group	Devices Attached	Updated By	Last Updated
vEdge_VPN0_Ge0/0_Internet	vEdge_VPN0_Ge0/0_Internet	WAN Edge Inter...	vEdge Cloud	1	global	2	admin	11 Jul 2023 3:51
vEdge_VPN11...	vEdge_VPN11_Ge0/2_VR...	WAN Edge Inter...	vEdge Cloud	2	global	2	admin	11 Jul 2023 2:33
vEdge_VPN512	vEdge_VPN512	WAN Edge VPN	vEdge Cloud	3	global	3	admin	11 Jul 2023 2:33
vSmart_VPN51...	vSmart_VPN512_eth1	vSmart Interface	vSmart	0	global	0	admin	11 Jul 2023 2:33
vEdge_VPN512...	vEdge_VPN512_eth0	WAN Edge Inter...	vEdge Cloud	3	global	3	admin	11 Jul 2023 2:33
vEdge_VPN11	vEdge_VPN11	WAN Edge VPN	vEdge Cloud	3	global	3	admin	11 Jul 2023 2:33
vSmart_VPN512	vSmart_VPN512	vSmart VPN	vSmart	0	global	0	admin	11 Jul 2023 2:33
vEdge_VPN0_Ge0/0_Internet	vEdge_VPN0_Ge0/0_Internet	WAN Edge Inter...	vEdge Cloud	2	global	1	admin	11 Jul 2023 2:33
vEdge_VPN0	vEdge_VPN0	WAN Edge VPN	vEdge Cloud	3	global	3	admin	11 Jul 2023 2:33

View Edit Change Device Models Change Resource Group Delete Copy

Sửa lại name Template thành `vEdge_Site1_VPN0_Ge0/0_Internet`, sau đó chọn **Copy**



Configuration - Templates Cisco

Not secure | https://192.168.1.1:8443/#/app/config/template/feature

Cisco SD-WAN Select Resource Group

Templates

Configuration Groups Feature Profiles Device Templates Feature Templates

Search

Add Template

Template Type Non-Default

Total Rows: 19

Name	Description	Type	Device Model	Device Templates	Resource Group	Devices Attached	Updated By	Last Updated
vEdge_VPN0_Ge0/0_Internet	vEdge_VPN0_Ge0/0_Internet	WAN Edge Inter...	vEdge Cloud	1	global	2	admin	11 Jul 2023 3:51
vEdge_VPN11...	vEdge_VPN11_Ge0/2_VR...	WAN Edge Inter...	vEdge Cloud	2	global	2	admin	11 Jul 2023 2:33
vEdge_VPN512	vEdge_VPN512	WAN Edge VPN	vEdge Cloud	3	global	3	admin	11 Jul 2023 2:33
vSmart_VPN51...	vSmart_VPN512_eth1	vSmart Interface	vSmart	0	global	0	admin	11 Jul 2023 2:33
vEdge_VPN512...	vEdge_VPN512_eth0	WAN Edge Inter...	vEdge Cloud	3	global	3	admin	11 Jul 2023 2:33
vEdge_VPN11	vEdge_VPN11	WAN Edge VPN	vEdge Cloud	3	global	3	admin	11 Jul 2023 2:33
vSmart_VPN512	vSmart_VPN512	vSmart VPN	vSmart	0	global	0	admin	11 Jul 2023 2:33
vEdge_VPN0_Ge0/0_Internet	vEdge_VPN0_Ge0/0_Internet	WAN Edge Inter...	vEdge Cloud	2	global	1	admin	11 Jul 2023 2:33
vEdge_VPN0	vEdge_VPN0	WAN Edge VPN	vEdge Cloud	3	global	3	admin	11 Jul 2023 2:33

Template Copy

Template Name

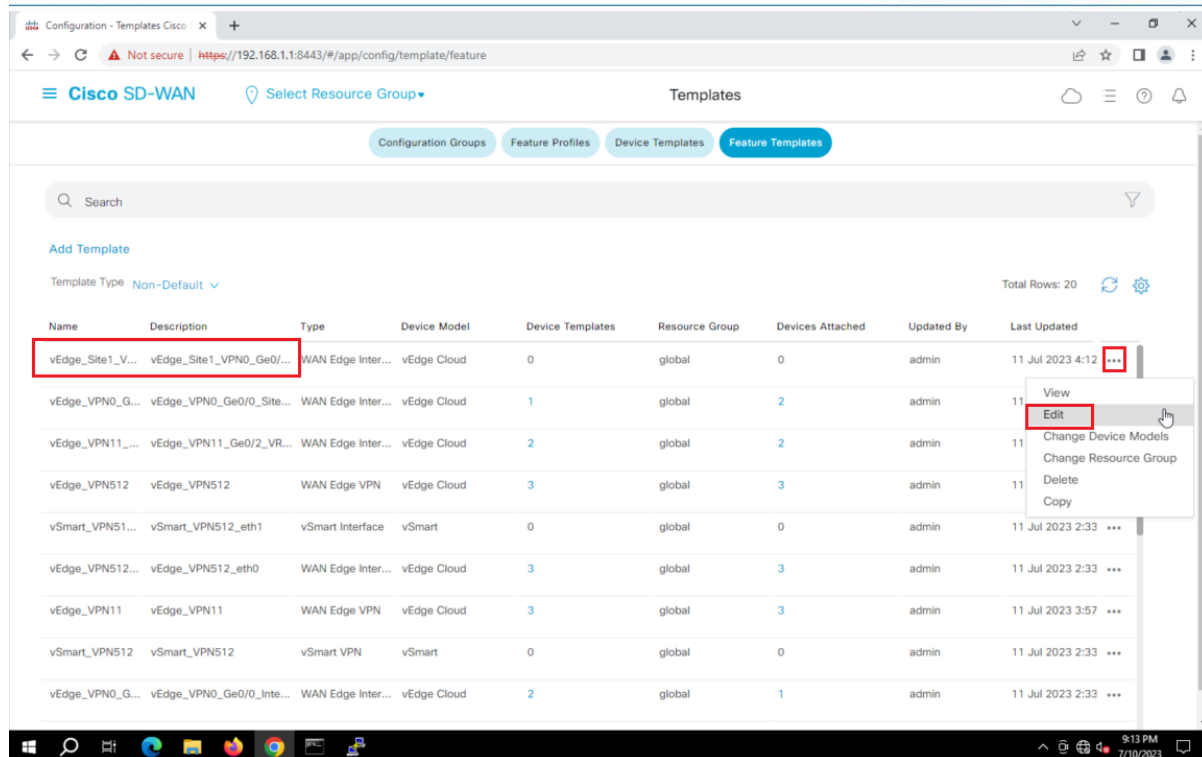
vEdge_Site1_VPN0_Ge0/0_Internet

Description

vEdge_Site1_VPN0_Ge0/0_Internet

Copy Cancel

Trong phần **Edit**, chọn mục **NAT** và cấu hình các thông số sau:



Configuration - Templates Cisco

Not secure | https://192.168.1.1:8443/#/app/config/template/feature

Cisco SD-WAN Select Resource Group

Templates

Configuration Groups Feature Profiles Device Templates Feature Templates

Search

Add Template

Template Type Non-Default

Total Rows: 20

Name	Description	Type	Device Model	Device Templates	Resource Group	Devices Attached	Updated By	Last Updated
vEdge_Site1_V...	vEdge_Site1_VPN0_Ge0/...	WAN Edge Inter...	vEdge Cloud	0	global	0	admin	11 Jul 2023 4:12
vEdge_VPN0_G...	vEdge_VPN0_Ge0/0_Site...	WAN Edge Inter...	vEdge Cloud	1	global	2	admin	11 Jul 2023 2:33
vEdge_VPN11...	vEdge_VPN11_Ge0/2_VR...	WAN Edge Inter...	vEdge Cloud	2	global	2	admin	11 Jul 2023 2:33
vEdge_VPN512	vEdge_VPN512	WAN Edge VPN	vEdge Cloud	3	global	3	admin	11 Jul 2023 2:33
vSmart_VPN51...	vSmart_VPN512_eth1	vSmart Interface	vSmart	0	global	0	admin	11 Jul 2023 2:33
vEdge_VPN512...	vEdge_VPN512_eth0	WAN Edge Inter...	vEdge Cloud	3	global	3	admin	11 Jul 2023 2:33
vEdge_VPN11	vEdge_VPN11	WAN Edge VPN	vEdge Cloud	3	global	3	admin	11 Jul 2023 3:57
vSmart_VPN512	vSmart_VPN512	vSmart VPN	vSmart	0	global	0	admin	11 Jul 2023 2:33
vEdge_VPN0_G...	vEdge_VPN0_Ge0/0_Inte...	WAN Edge Inter...	vEdge Cloud	2	global	1	admin	11 Jul 2023 2:33

View Edit Change Device Models Change Resource Group Delete Copy

NAT > Global > On

Refresh Mode > Global > bi-directional

Block ICMP > Global > Off

Respond to Ping > Global > On

NAT Pool Range start > Device Specific > nat_range_start

NAT Pool Range end > Device Specific > nat_range_end

Configuration - Templates Cisco

Not secure | https://192.168.1.1:8443/#/app/config/template/feature?display=edit&templateId=d99e5393-06a8-4a66-a24d-076435838376&templateType=vpn-vedge-interface

Cisco SD-WAN Select Resource Group

Templates

Configuration Groups Feature Profiles Device Templates Feature Templates

Feature Template > VPN Interface Ethernet > vEdge_Site1_VPN0_Ge0/0_Internet

NAT

IPv4 IPv6

NAT ☒ On ☐ Off

Refresh Mode ☒ bi-directional

Log NAT flow creations or deletions ☒ On ☐ Off

UDP Timeout 1

TCP Timeout 60

Block ICMP ☐ On ☒ Off

Respond To Ping ☒ On ☐ Off

Cancel Update

Configuration - Templates Cisco

Not secure | https://192.168.1.1:8443/#/app/config/template/feature?display=edit&templateId=d99e5393-06a8-4a66-a24d-076435838376&templateType=vpn-vedge-interface

Cisco SD-WAN Select Resource Group

Templates

Configuration Groups Feature Profiles Device Templates Feature Templates

Feature Template > VPN Interface Ethernet > vEdge_Site1_VPN0_Ge0/0_Internet

TCP Timeout 60

Block ICMP ☐ On ☒ Off

Respond To Ping ☒ On ☐ Off

NAT Pool Range Start [nat_range_start]

NAT Pool Range End [nat_range_end]

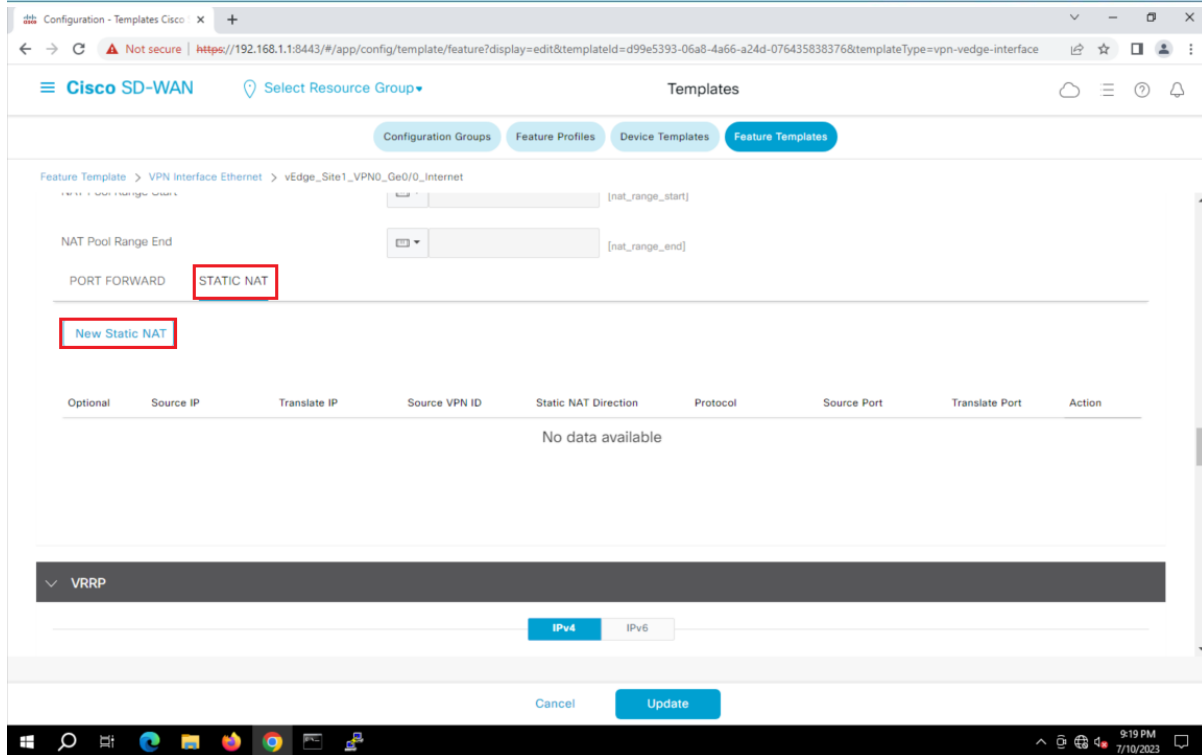
PORT FORWARD STATIC NAT

New Port Forwarding Rule

Optional	Port Start Range	Port End Range	Protocol	VPN	Private IP	Action
No data available						

Cancel Update

Ở mục Static Nat, chọn New Static Nat để tạo thư mục mới:



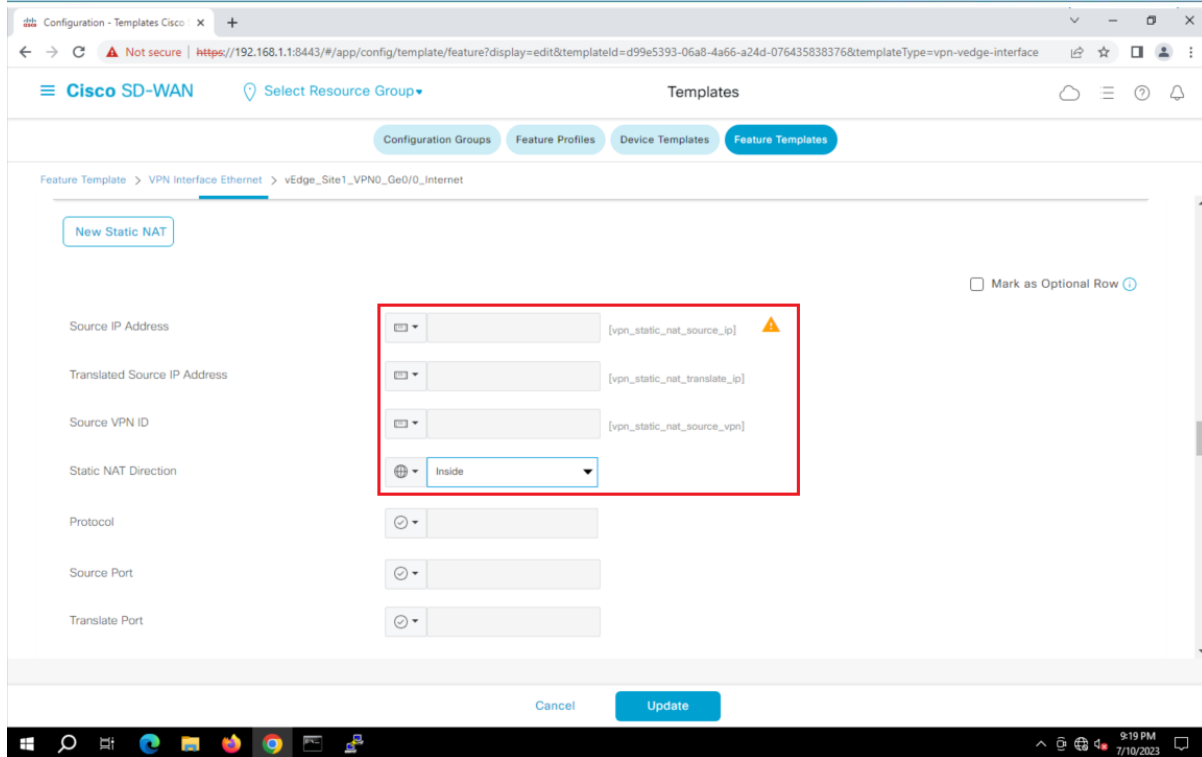
Trong mục Static NAT, ta cấu hình các thông số sau:

Source IP Address > Device Specific > vpn_static_nat_source_ip

Translated Source IP Address > Device Specific > vpn_static_nat_translated_ip

Source VPN ID > Device Specific > vpn_static_nat_source_vpn

Static NAT Direction > Global > Inside



Configuration - Templates Cisco

Not secure | https://192.168.1.1:8443/#/app/config/template/feature?display=edit&templateId=d99e5393-06a8-4a66-a24d-076435838376&templateType=vpn-vedge-interface

Cisco SD-WAN Select Resource Group

Templates

Configuration Groups Feature Profiles Device Templates Feature Templates

Feature Template > VPN Interface Ethernet > vEdge_Site1_VPN0_Ge0/0/0_Internet

New Static NAT

Mark as Optional Row

Source IP Address [vpn_static_nat_source_ip]

Translated Source IP Address [vpn_static_nat_translate_ip]

Source VPN ID [vpn_static_nat_source_vpn]

Static NAT Direction Inside

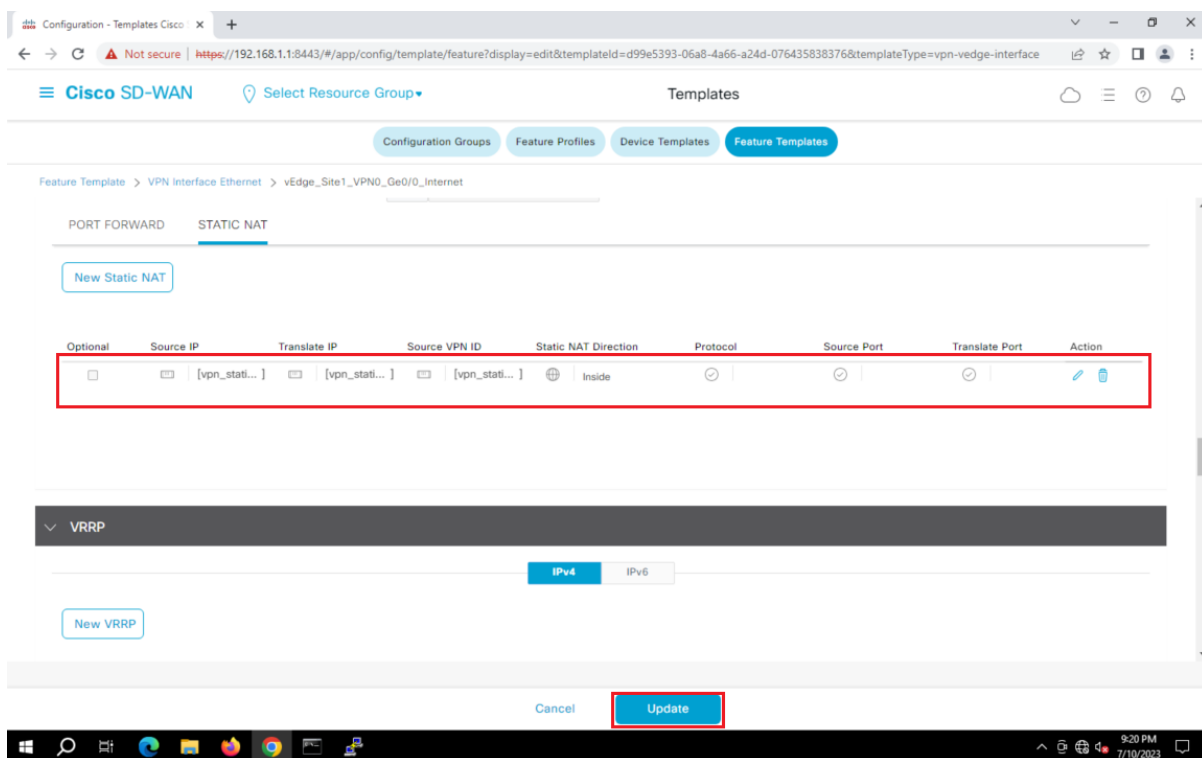
Protocol

Source Port

Translate Port

Cancel Update

Chọn Add để thêm thư mục mới.



Configuration - Templates Cisco

Not secure | https://192.168.1.1:8443/#/app/config/template/feature?display=edit&templateId=d99e5393-06a8-4a66-a24d-076435838376&templateType=vpn-vedge-interface

Cisco SD-WAN Select Resource Group

Templates

Configuration Groups Feature Profiles Device Templates Feature Templates

Feature Template > VPN Interface Ethernet > vEdge_Site1_VPN0_Ge0/0/0_Internet

PORT FORWARD STATIC NAT

New Static NAT

Optional	Source IP	Translate IP	Source VPN ID	Static NAT Direction	Protocol	Source Port	Translate Port	Action
☐	[vpn_stati...]	[vpn_stati...]	[vpn_stati...]	Inside				 

VRRP

IPv4 IPv6

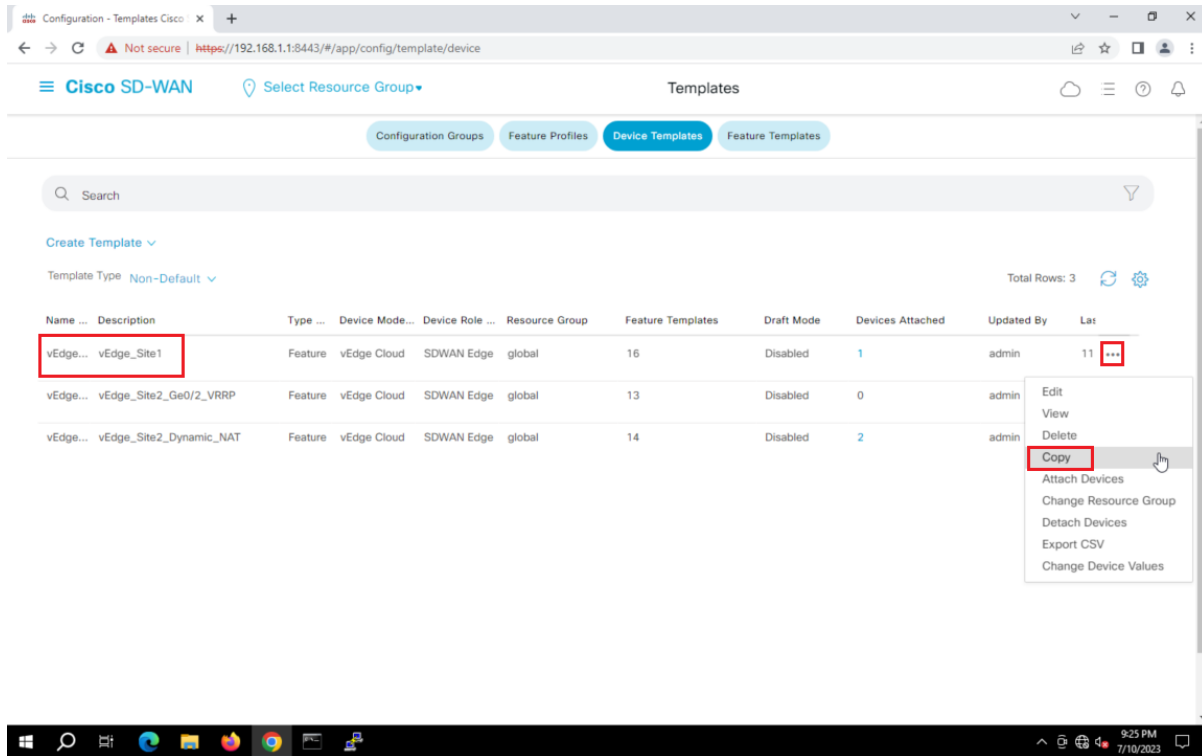
New VRRP

Cancel Update

Tiếp theo chọn Update để lưu đổi cấu hình.

Ở giao diện vManage, **Configuration > Templates** (tab Device).

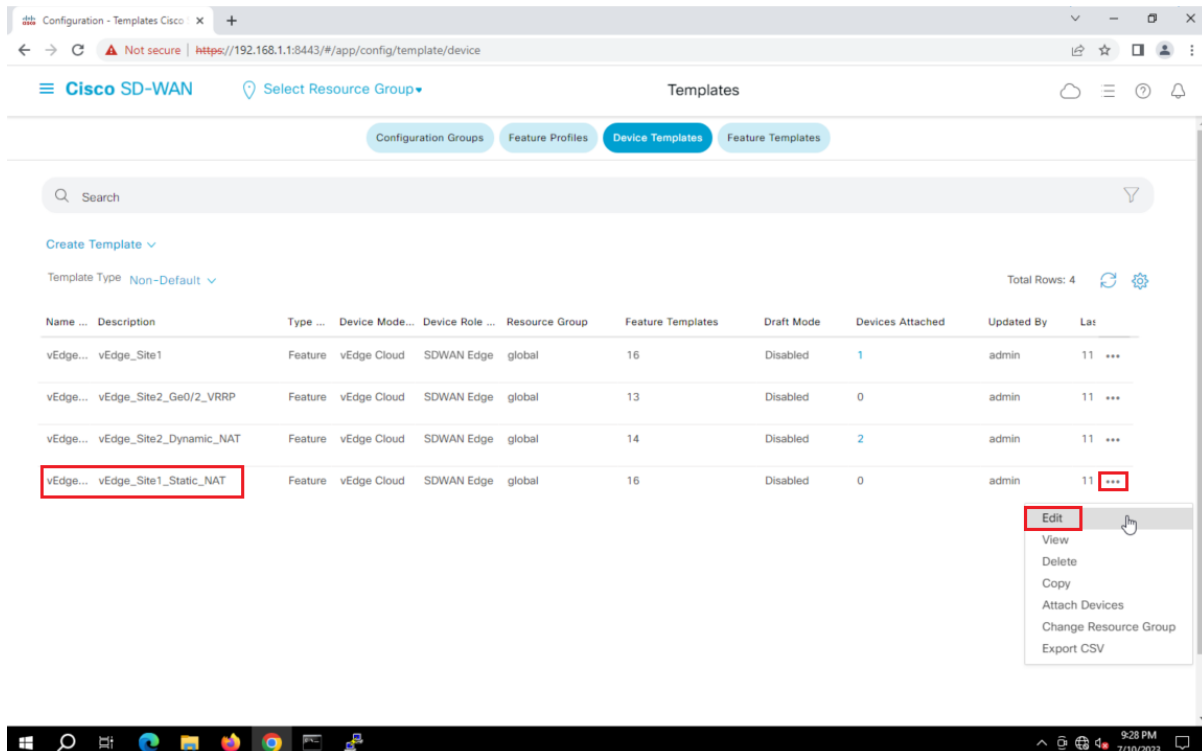
Chọn Template *vEdge_Site1* rồi chọn **Copy**, sửa tên Template thành *vEdge_Site1_Static_NAT* rồi chọn **Copy**



The screenshot shows the Cisco SD-WAN vManage interface. The 'Templates' tab is selected. A table lists templates with columns: Name, Description, Type, Device Mode, Device Role, Resource Group, Feature Templates, Draft Mode, Devices Attached, Updated By, and Last. The first row, 'vEdge_Site1', is highlighted. A context menu is open over this row, and the 'Copy' option is selected.

Name	Description	Type	Device Mode	Device Role	Resource Group	Feature Templates	Draft Mode	Devices Attached	Updated By	Last
vEdge_Site1	vEdge_Site1	Feature	vEdge Cloud	SDWAN Edge	global	16	Disabled	1	admin	11
vEdge_Site2_Ge0/2_VRRP	vEdge_Site2_Ge0/2_VRRP	Feature	vEdge Cloud	SDWAN Edge	global	13	Disabled	0	admin	11
vEdge_Site2_Dynamic_NAT	vEdge_Site2_Dynamic_NAT	Feature	vEdge Cloud	SDWAN Edge	global	14	Disabled	2	admin	11

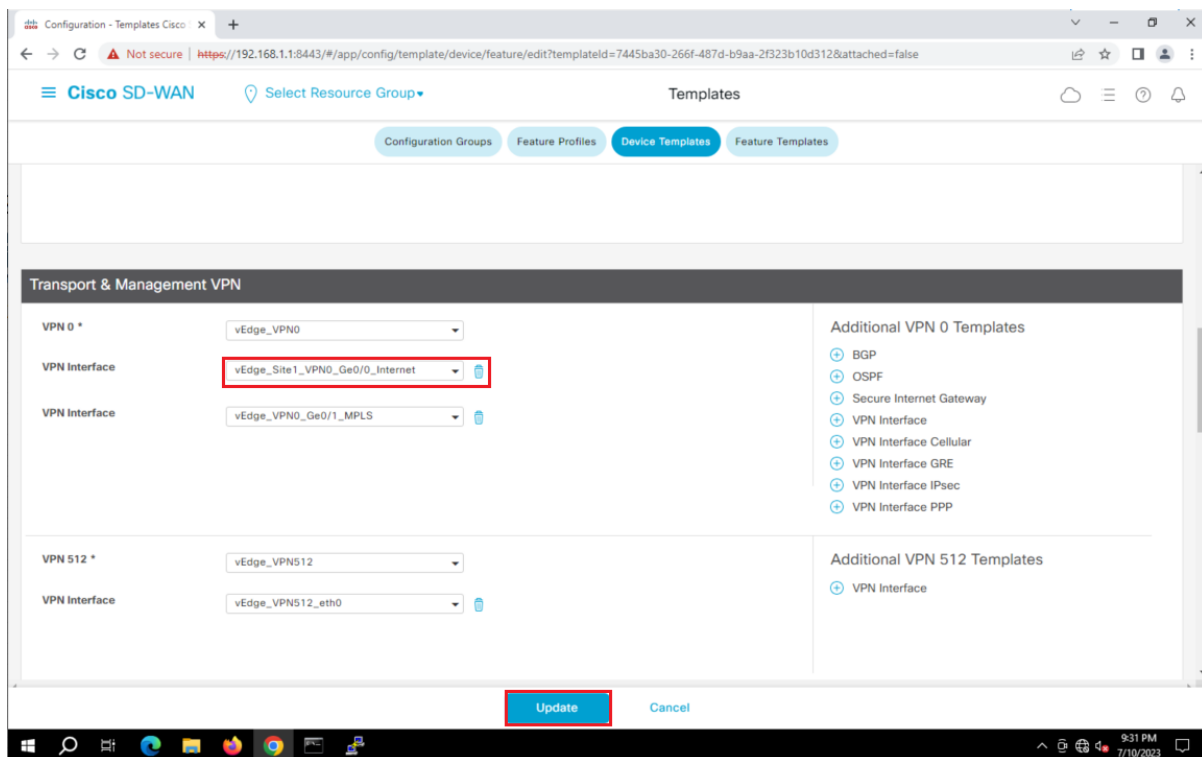
Chọn **Edit** Template *vEdge_Site1_Static_NAT*



The screenshot shows the Cisco SD-WAN vManage interface. The 'Templates' tab is selected. A table lists templates with columns: Name, Description, Type, Device Mode, Device Role, Resource Group, Feature Templates, Draft Mode, Devices Attached, Updated By, and Last. The last row, 'vEdge_Site1_Static_NAT', is highlighted. A context menu is open over this row, and the 'Edit' option is selected.

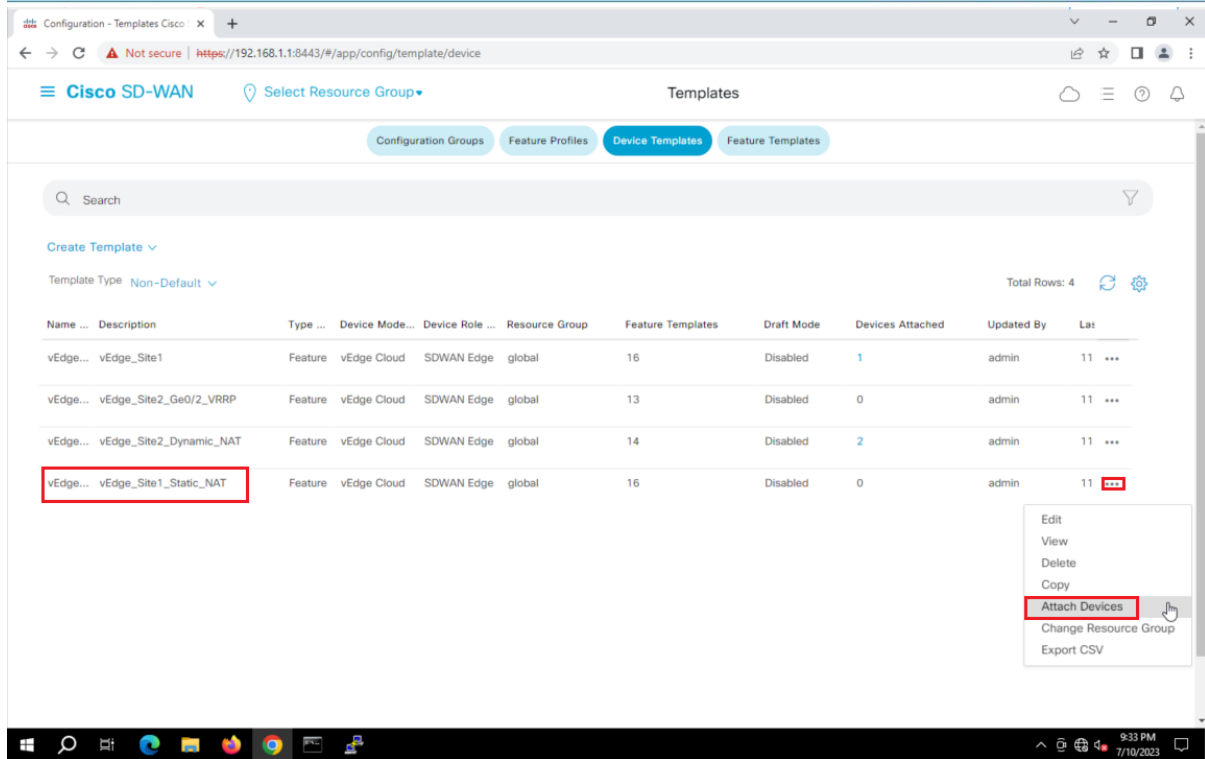
Name	Description	Type	Device Mode	Device Role	Resource Group	Feature Templates	Draft Mode	Devices Attached	Updated By	Last
vEdge_Site1	vEdge_Site1	Feature	vEdge Cloud	SDWAN Edge	global	16	Disabled	1	admin	11
vEdge_Site2_Ge0/2_VRRP	vEdge_Site2_Ge0/2_VRRP	Feature	vEdge Cloud	SDWAN Edge	global	13	Disabled	0	admin	11
vEdge_Site2_Dynamic_NAT	vEdge_Site2_Dynamic_NAT	Feature	vEdge Cloud	SDWAN Edge	global	14	Disabled	2	admin	11
vEdge_Site1_Static_NAT	vEdge_Site1_Static_NAT	Feature	vEdge Cloud	SDWAN Edge	global	16	Disabled	0	admin	11

Ở phần **Transport & Management VPN** chọn template đã tạo ở trên (*Template vEdge_Site1_VPN0_Ge0/0_Internet*)



Tiếp theo chọn **Update** để lưu đổi cấu hình.

Sau đó chọn **Attach Devices** template, chọn vEdge-Site1, chọn Attach



Configuration Groups Feature Profiles **Device Templates** Feature Templates

Search

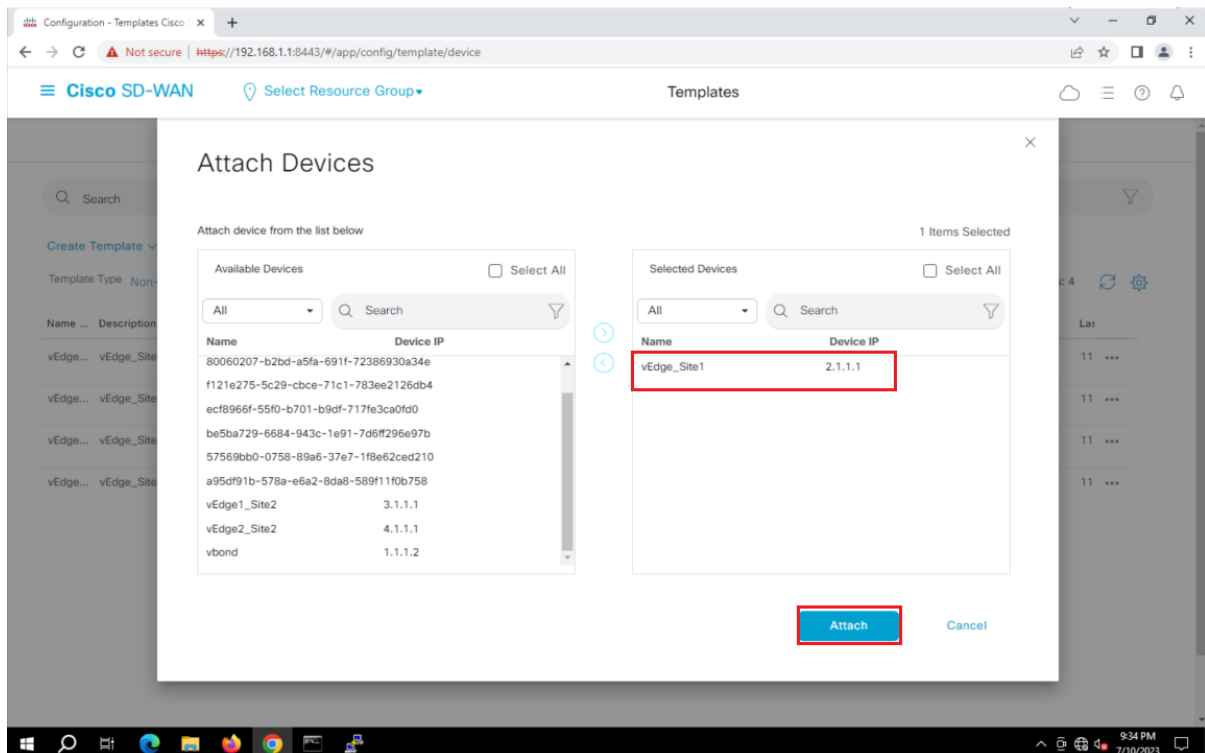
Create Template ▾

Template Type Non-Default ▾

Total Rows: 4

Name	Description	Type	Device Mode	Device Role	Resource Group	Feature Templates	Draft Mode	Devices Attached	Updated By	Last
vEdge_Site1		Feature	vEdge Cloud	SDWAN Edge	global	16	Disabled	1	admin	11
vEdge_Site2_Ge0/2_VRRP		Feature	vEdge Cloud	SDWAN Edge	global	13	Disabled	0	admin	11
vEdge_Site2_Dynamic_NAT		Feature	vEdge Cloud	SDWAN Edge	global	14	Disabled	2	admin	11
vEdge_Site1_Static_NAT		Feature	vEdge Cloud	SDWAN Edge	global	16	Disabled	0	admin	11

- Edit
- View
- Delete
- Copy
- Attach Devices**
- Change Resource Group
- Export CSV



Attach Devices

Attach device from the list below

1 Items Selected

Available Devices

Select All

Search

Name	Device IP
80060207-b2bd-a5fa-691f-72386930a34e	
f121e275-5c29-cbce-71c1-783ee2126db4	
ecf8966f-55f0-b701-b9df-717fe3ca0fd0	
be5ba729-6684-943c-1e91-7d6f296e97b	
57569bb0-0758-89a6-37e7-1f8e62ced210	
a95df91b-578a-e6a2-8da8-589f110b758	
vEdge1_Site2	3.1.1.1
vEdge2_Site2	4.1.1.1
vbond	1.1.1.2

Selected Devices

Select All

Search

Name	Device IP
vEdge_Site1	2.1.1.1

Attach Cancel

Ở thiết bị vEdge-Site1

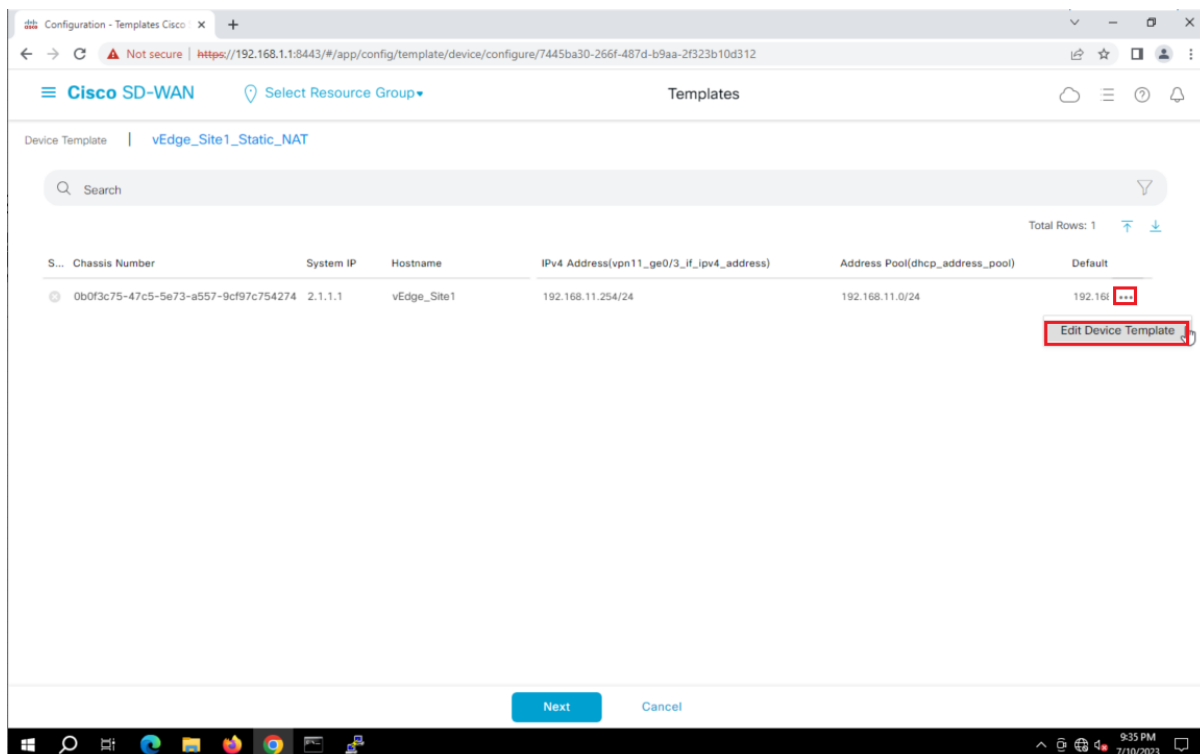
nat_range_start: 200.200.1.3

nat_range_end: 200.200.1.30

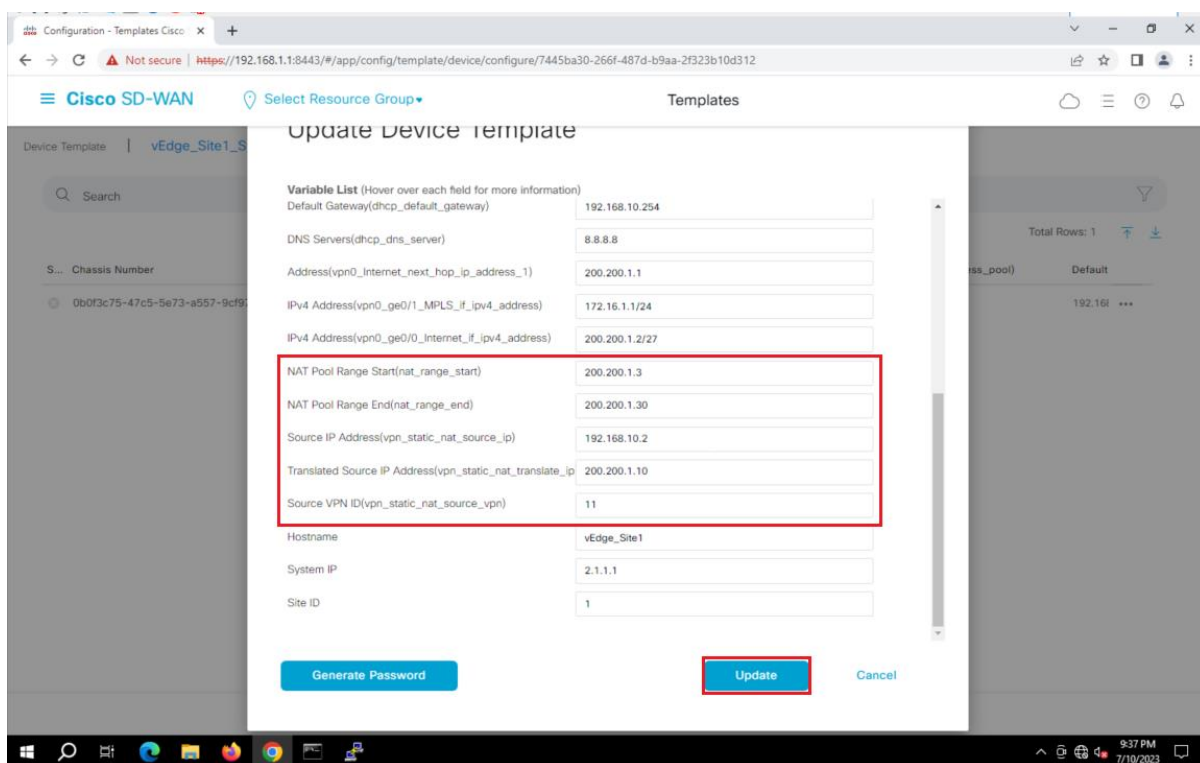
vpn_static_nat_source_ip: 192.168.10.2

vpn_static_nat_translated_ip: 200.200.1.10

vpn_static_nat_source_vpn: 11



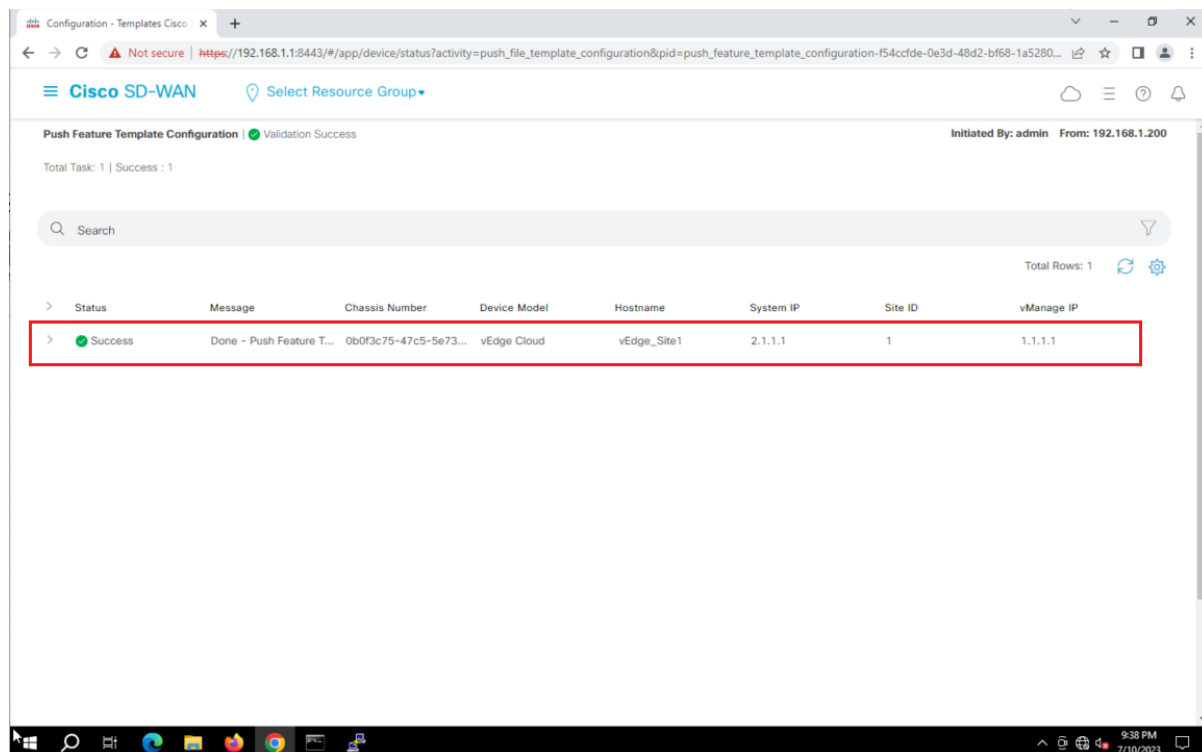
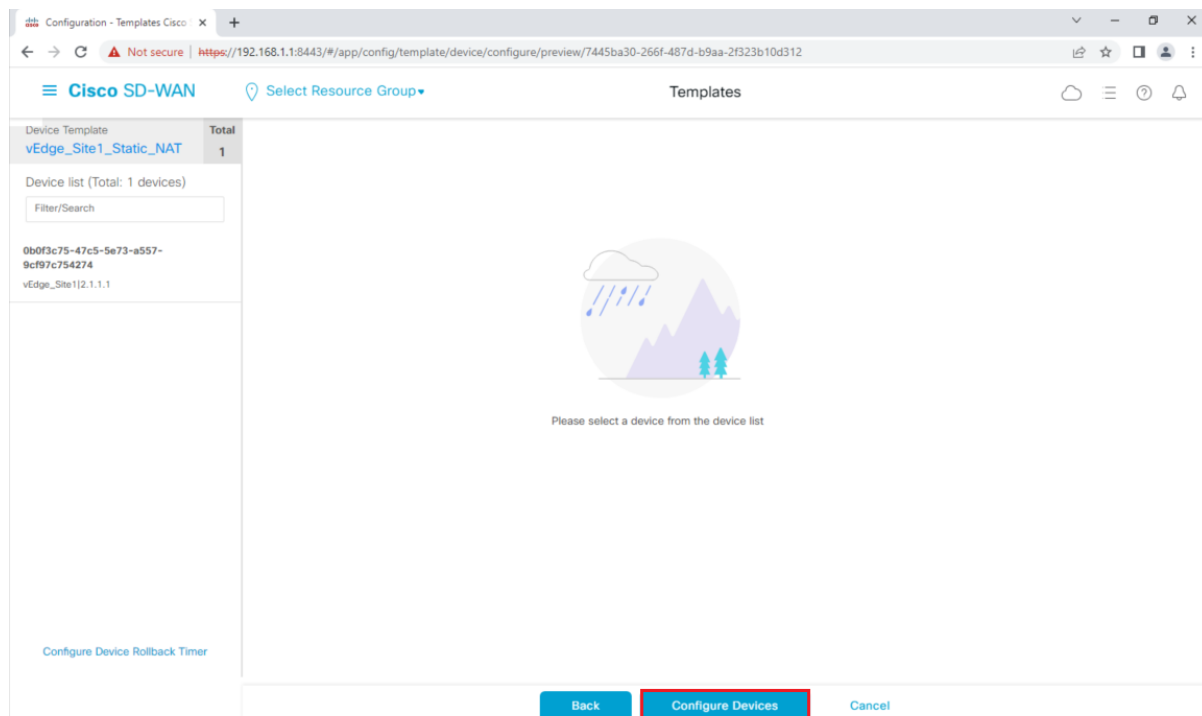
The screenshot shows the Cisco SD-WAN Templates page. The breadcrumb trail is "Configuration - Templates Cisco" > "Templates". The page title is "vEdge_Site1_Static_NAT". Below the title is a search bar and a table with columns: S..., Chassis Number, System IP, Hostname, IPv4 Address(vpn11_ge0/3_if_ipv4_address), Address Pool(dhcp_address_pool), and Default. The table contains one row with the following values: 0b0f3c75-47c5-5e73-a557-9cf97c754274, 2.1.1.1, vEdge_Site1, 192.168.11.254/24, 192.168.11.0/24, and 192.168.11.0/24. A red box highlights the "Edit Device Template" button in the bottom right corner of the table.



The screenshot shows the "Update Device Template" dialog box. The "Variable List" section contains the following fields: Default Gateway(dhcp_default_gateway) with value 192.168.10.254, DNS Servers(dhcp_dns_server) with value 8.8.8.8, Address(vpn0_Internet_next_hop_ip_address_1) with value 200.200.1.1, IPv4 Address(vpn0_ge0/1_MPLS_if_ipv4_address) with value 172.16.1.1/24, IPv4 Address(vpn0_ge0/0_Internet_if_ipv4_address) with value 200.200.1.2/27, NAT Pool Range Start(nat_range_start) with value 200.200.1.3, NAT Pool Range End(nat_range_end) with value 200.200.1.30, Source IP Address(vpn_static_nat_source_ip) with value 192.168.10.2, Translated Source IP Address(vpn_static_nat_translate_ip) with value 200.200.1.10, and Source VPN ID(vpn_static_nat_source_vpn) with value 11. A red box highlights the NAT Pool Range Start, NAT Pool Range End, Source IP Address, Translated Source IP Address, and Source VPN ID fields. The "Update" button is highlighted with a red box.

Chọn **Update** để thay đổi cấu hình.

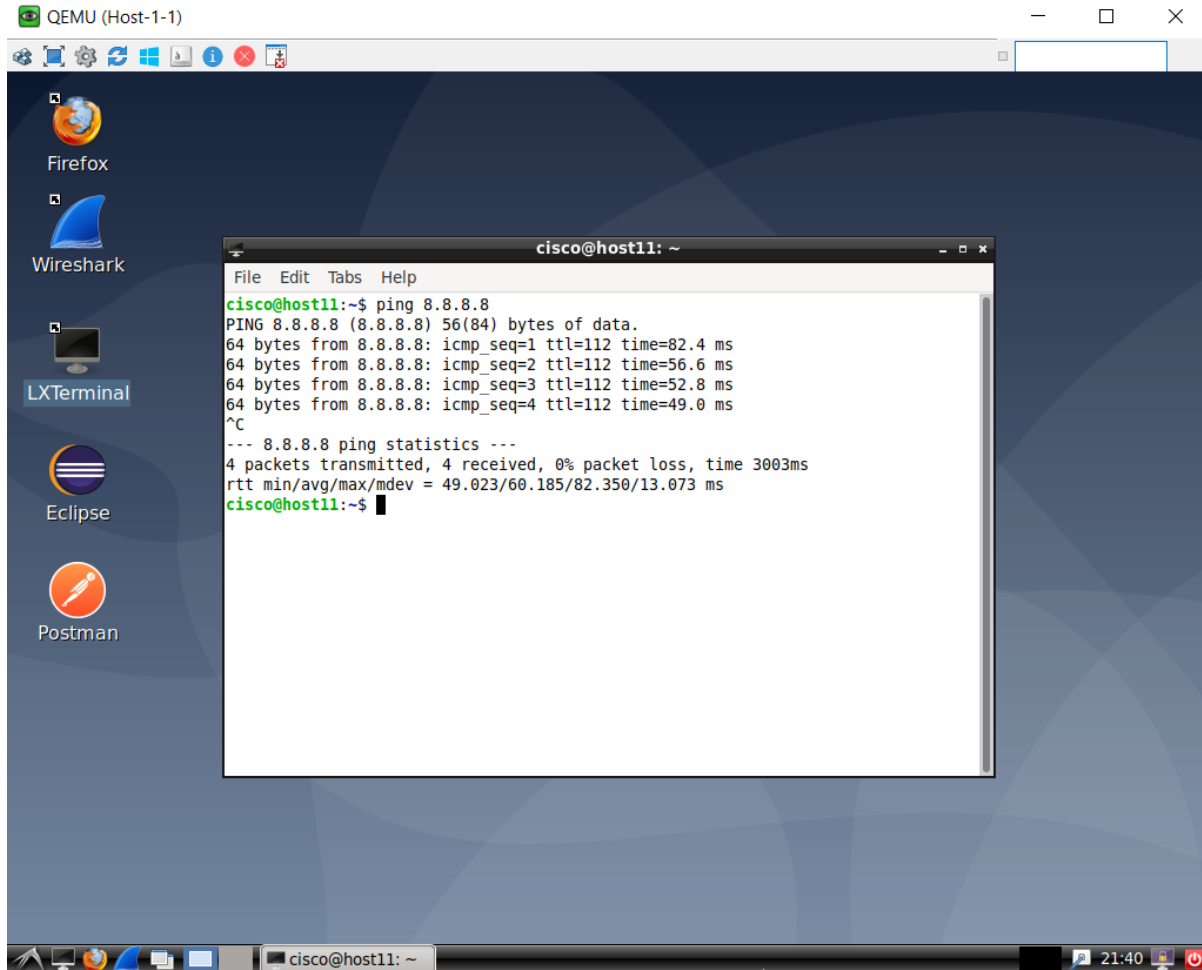
Chọn **Configure Devices** để đẩy cấu hình xuống thiết bị vEdge-Site1



IV. Kiểm tra các thiết bị có thể truy cập ra được Internet.

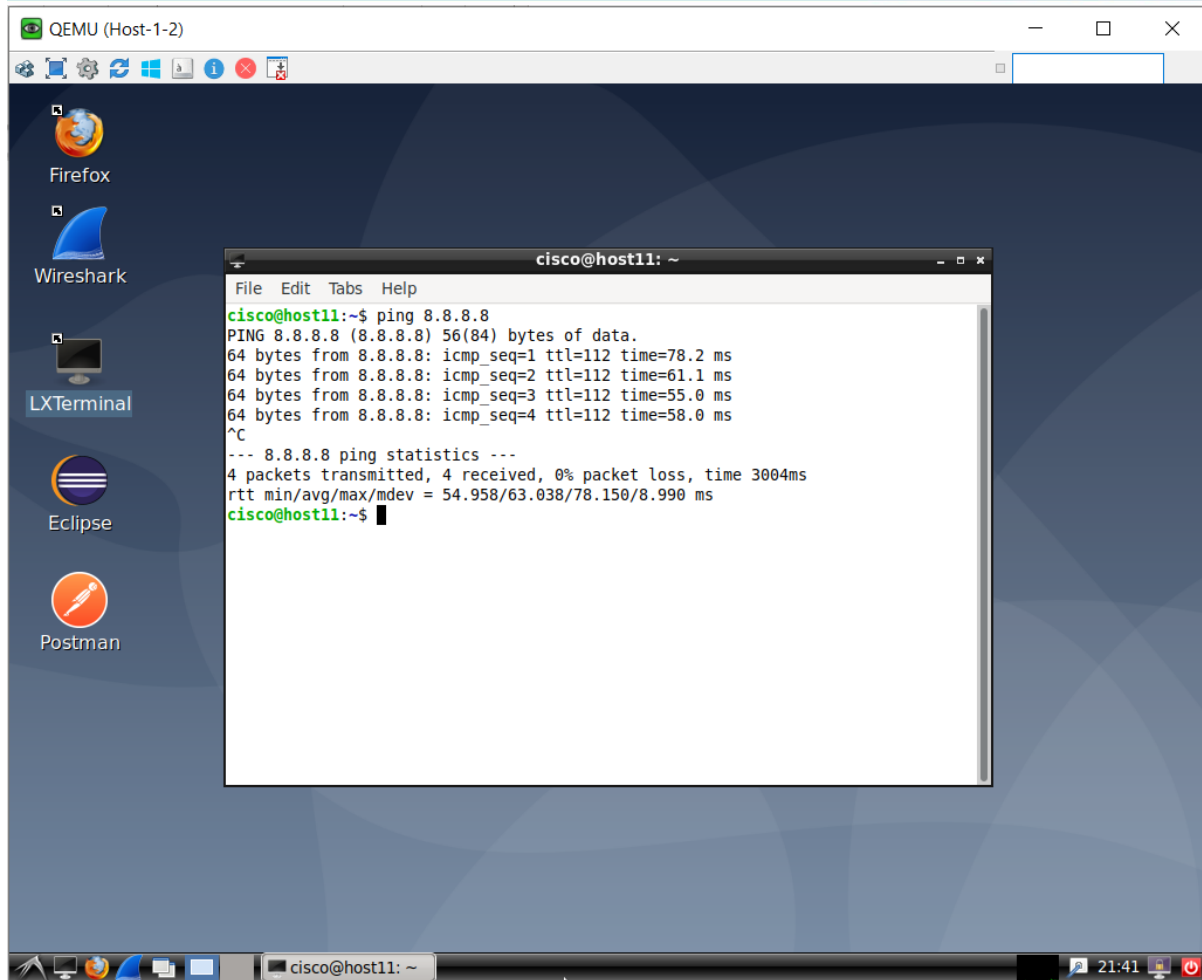
Ở Site 1:

Host-1-1



```
cisco@host11: ~  
File Edit Tabs Help  
cisco@host11:~$ ping 8.8.8.8  
PING 8.8.8.8 (8.8.8.8) 56(84) bytes of data:  
64 bytes from 8.8.8.8: icmp_seq=1 ttl=112 time=82.4 ms  
64 bytes from 8.8.8.8: icmp_seq=2 ttl=112 time=56.6 ms  
64 bytes from 8.8.8.8: icmp_seq=3 ttl=112 time=52.8 ms  
64 bytes from 8.8.8.8: icmp_seq=4 ttl=112 time=49.0 ms  
^C  
--- 8.8.8.8 ping statistics ---  
4 packets transmitted, 4 received, 0% packet loss, time 3003ms  
rtt min/avg/max/mdev = 49.023/60.185/82.350/13.073 ms  
cisco@host11:~$
```

Host-1-2



Ở site 2

R1

```

R1>ping 8.8.8.8
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 8.8.8.8, timeout is 2 seconds:
!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 58/60/61 ms
R1>
  
```

R2

```

R2>ping 8.8.8.8
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 8.8.8.8, timeout is 2 seconds:
!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 51/60/72 ms
R2>
  
```

Dùng lệnh **show ip nat filter** | tab để lọc các địa chỉ ip NAT.

Ở vEdge-Site1



vEdge_Site1# show ip nat filter tab																
				PRIVATE	PRIVATE	PRIVATE	PRIVATE	PUBLIC		PUBLIC	PUBLIC					
NAT	NAT			SOURCE	DEST	SOURCE	DEST	SOURCE	PUBLIC DEST	SOURCE	DEST	FILTER	IDLE	OUTBOUND	OUTBOUND	INBOUND
VPN	IFNAME	VPN	PROTOCOL	ADDRESS	ADDRESS	PORT	PORT	ADDRESS	ADDRESS	PORT	PORT	STATE	TIMEOUT	PACKETS	OCTETS	PACKETS
OCTETS	DIRECTION															
0	ge0/0	0	udp	200.200.1.2	10.1.1.1	12366	12746	200.200.1.2	10.1.1.1	12366	12746	established	0:00:00:59	1987	903124	2626
619379	-	-														
0	ge0/0	0	udp	200.200.1.2	10.1.1.2	12366	12346	200.200.1.2	10.1.1.2	12366	12346	established	0:00:00:59	334	83900	316
58266	-	-														
0	ge0/0	0	udp	200.200.1.2	10.1.1.3	12366	12346	200.200.1.2	10.1.1.3	12366	12346	established	0:00:00:59	290	54236	298
58408	-	-														
0	ge0/0	0	udp	200.200.1.2	200.200.2.2	12366	12346	200.200.1.2	200.200.2.2	12366	12346	established	0:00:00:59	298	46786	0
0	-	-														
0	ge0/0	0	udp	200.200.1.2	200.200.2.2	12366	12366	200.200.1.2	200.200.2.2	12366	12366	established	0:00:00:59	596	91486	596
99830	-	-														
0	ge0/0	0	udp	200.200.1.2	200.200.3.2	12366	12346	200.200.1.2	200.200.3.2	12366	12346	established	0:00:00:59	298	46786	0
0	-	-														
0	ge0/0	0	udp	200.200.1.2	200.200.3.2	12366	12366	200.200.1.2	200.200.3.2	12366	12366	established	0:00:00:59	595	91336	595
99659	-	-														
0	ge0/0	11	icmp	192.168.10.2	8.8.8.8	5701	5701	200.200.1.10	8.8.8.8	5701	5701	established	0:00:00:05	9	882	9
882	-	-														
0	ge0/0	11	icmp	192.168.11.2	8.8.8.8	5808	5808	200.200.1.3	8.8.8.8	5808	5808	established	0:00:00:05	4	392	4
392	-	-														

vEdge_Site1#

Ở vEdge2-Site2

vEdge2_Site2# show ip nat filter tab																
				PRIVATE	PRIVATE	PRIVATE	PRIVATE	PUBLIC		PUBLIC	PUBLIC					
NAT	NAT			SOURCE	DEST	SOURCE	DEST	SOURCE	PUBLIC DEST	SOURCE	DEST	FILTER	IDLE	OUTBOUND	OUTBOUND	INBOUND
VPN	IFNAME	VPN	PROTOCOL	ADDRESS	ADDRESS	PORT	PORT	ADDRESS	ADDRESS	PORT	PORT	STATE	TIMEOUT	PACKETS	OCTETS	PACKETS
OCTETS	DIRECTION															

0	ge0/0	0	udp	200.200.3.2	10.1.1.1	12366	12446	200.200.3.2	10.1.1.1	12366	12446	established	0:00:01:00	17083	7076569	21811
5099220	-	-														
0	ge0/0	0	udp	200.200.3.2	10.1.1.2	12366	12346	200.200.3.2	10.1.1.2	12366	12346	established	0:00:00:59	5303	1342642	5008
928218	-	-														
0	ge0/0	0	udp	200.200.3.2	10.1.1.3	12366	12446	200.200.3.2	10.1.1.3	12366	12446	established	0:00:00:59	5189	926836	5189
990958	-	-														
0	ge0/0	0	udp	200.200.3.2	200.200.1.2	12366	12346	200.200.3.2	200.200.1.2	12366	12346	established	0:00:00:59	4716	740412	0
0	-	-														
0	ge0/0	0	udp	200.200.3.2	200.200.1.2	12366	12366	200.200.3.2	200.200.1.2	12366	12366	established	0:00:00:59	9440	1454256	9439
1586252	-	-														
0	ge0/0	11	icmp	192.168.1.200	8.8.8.8	10	10	200.200.3.5	8.8.8.8	10	10	established	0:00:00:01	5	570	5
550	-	-														
0	ge0/0	11	icmp	192.168.1.200	8.8.8.8	11	11	200.200.3.6	8.8.8.8	11	11	established	0:00:00:02	5	570	5
550	-	-														
vEdge2_Site2#																



CÔNG TY TNHH TƯ VẤN VÀ DỊCH VỤ CHUYÊN VIỆT
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