

配置Nexus Dashboard Orchestrator將終端從一個DC遷移到另一個DC

目錄

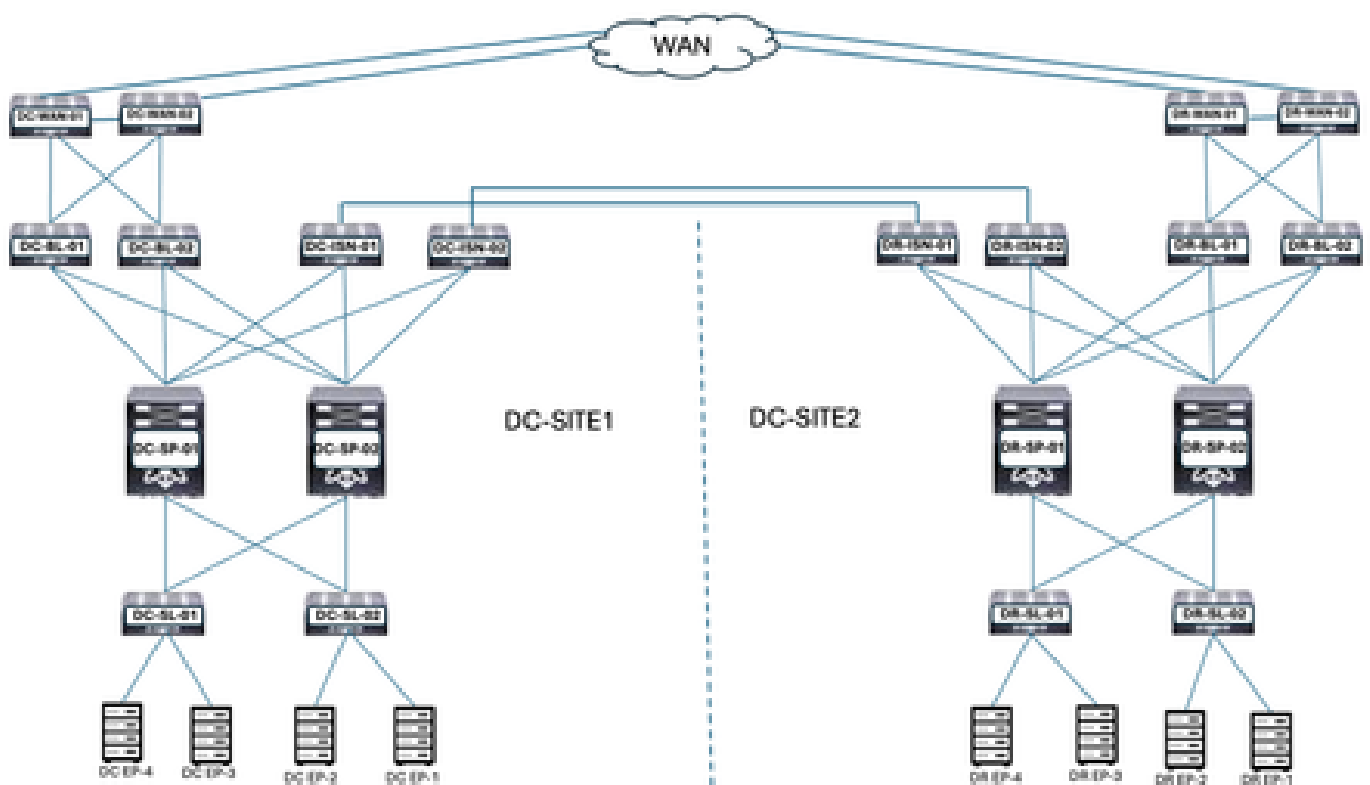
簡介

本文檔介紹將終端從一個資料中心遷移到另一個資料中心所需的設計和配置更改。

物理拓撲

圖1描述了兩個資料中心之間的連通性。

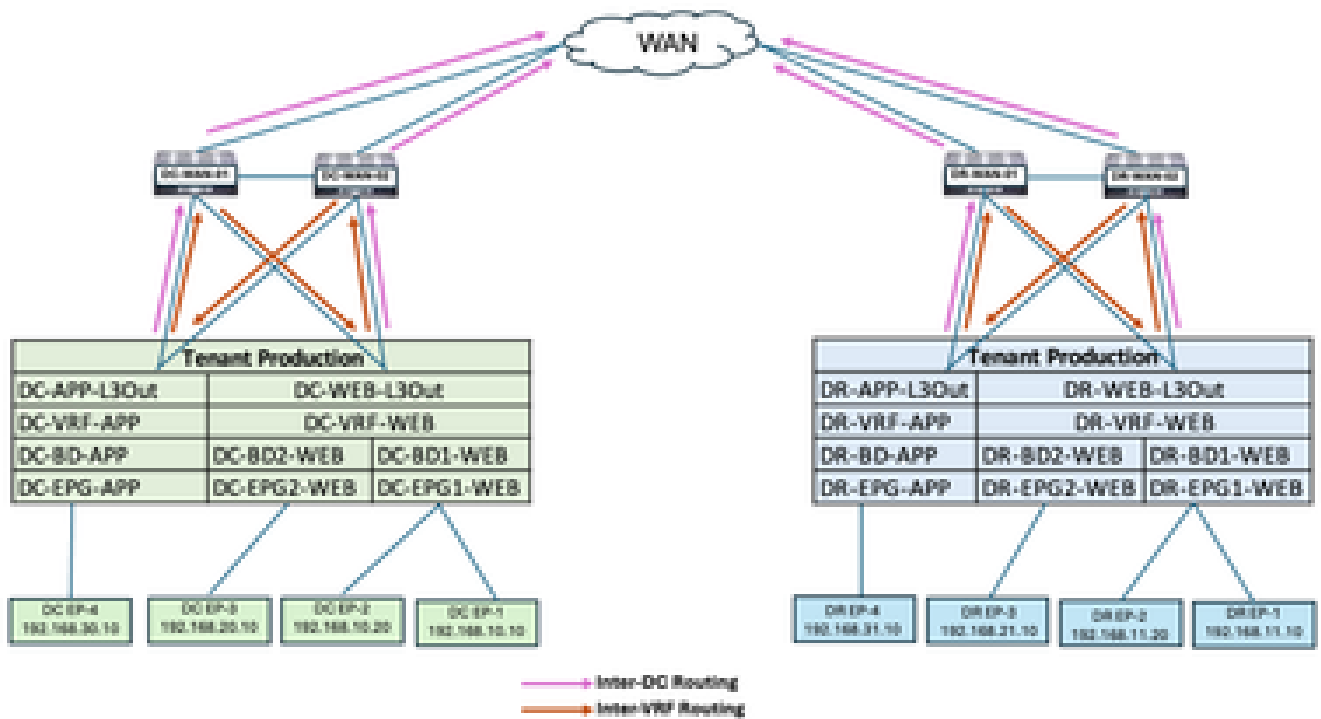
圖 1:物理拓撲



DC和DR位置具有以應用為中心的基礎設施(ACI)。DC和DR位置有WAN交換機、邊界枝葉、主幹、站點間網路裝置(ISN)、伺服器枝葉和連線的終端。

邏輯拓撲

圖 2:邏輯拓撲



兩個站點中配置的邏輯對象：

- 租戶生產在DC和DR站點配置。
- DC-VRF-WEB和DC-VRF-APP配置在DC-SITE1中。DR-VRF-WEB和DR-VRF-APP配置在DR-SITE2中。
- 每個VRF在指向WAN交換機的邊界枝葉上配置本地L3Out。在邊界枝葉上配置指向WAN交換機的預設路由。
- WAN交換機配置了靜態路由，用於VRF間和DC間通訊。
- 兩個資料中心都配置了本地BD和EPG。DC有DC-BD1-WEB/DC-EPG1-WEB、DC-BD2-WEB/DC-EPG2-WEB和DC-BD-APP/DC-EPG-APP。DR有DR-BD1-WEB/DR-EPG1-WEB、DR-BD2-WEB/DR-EPG2-WEB和DR-BD-APP DR-EPG-APP。
- 存在在WEB和APP EPG中連線的終結點。
- DC-SITE1和DR-SITE2已新增到Nexus Dashboard Orchestrator中。

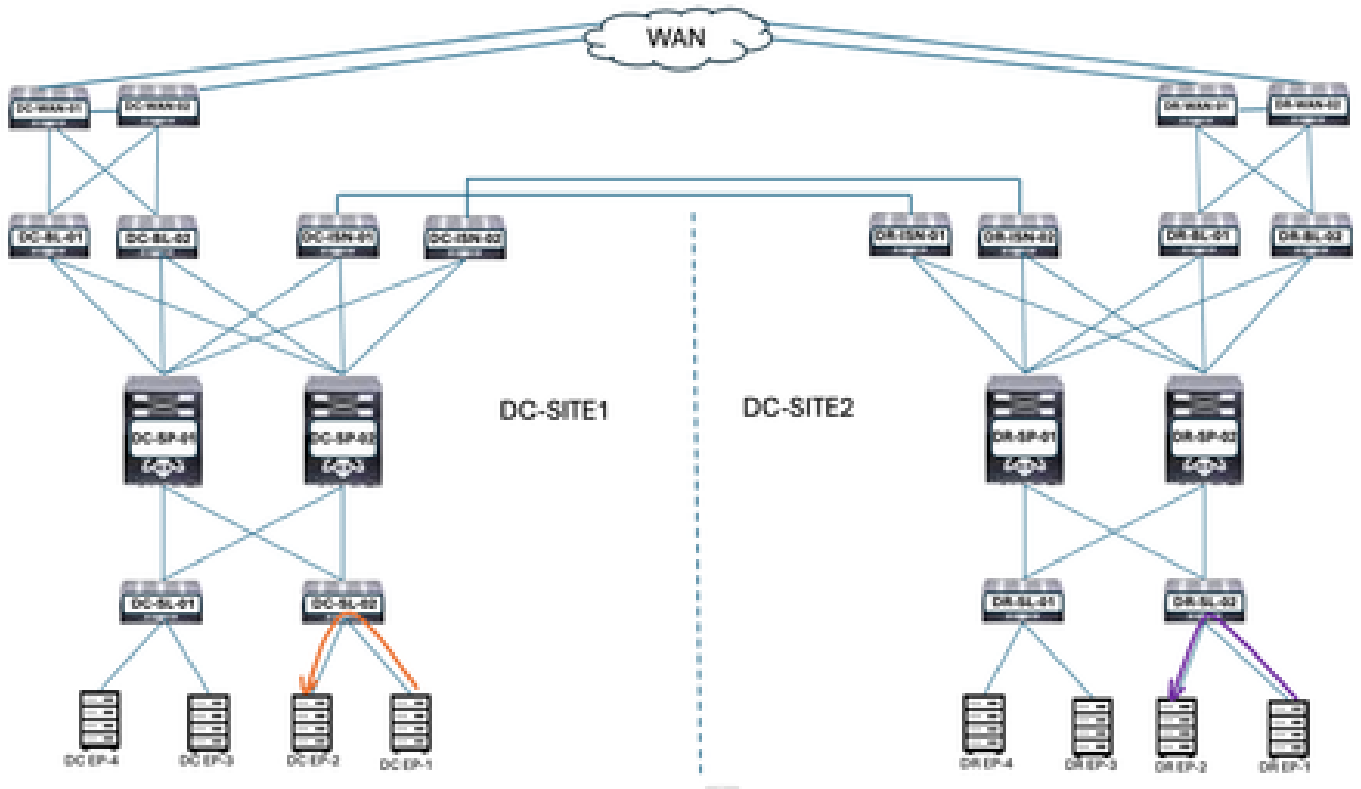
終端遷移前的流量流

資料中心中有多種型別的流量：

- EPG內流量
- EPG間流量
- Inter VRF Traffic flow (VRF間流量流)
- DC間流量

EPG內流量

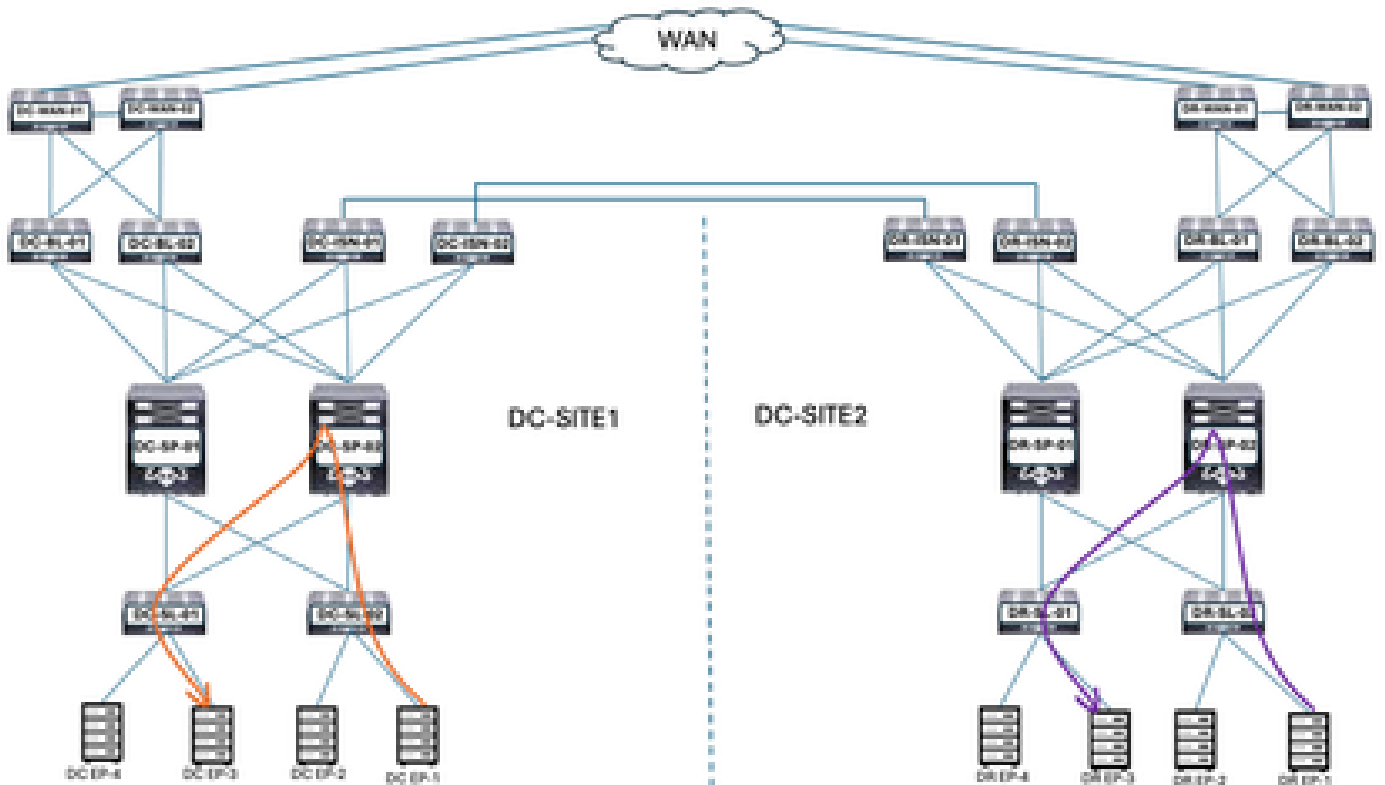
圖 3:EPG內流量



DC-EP-1和DC-EP-2之間的通訊是EPG內通訊，因為兩個端點都屬於DC-EPG1-WEB。DR-EP-1和DR-EP-2之間的通訊是EPG內通訊，因為兩個端點都屬於DR-EPG1-WEB。

EPG間流量

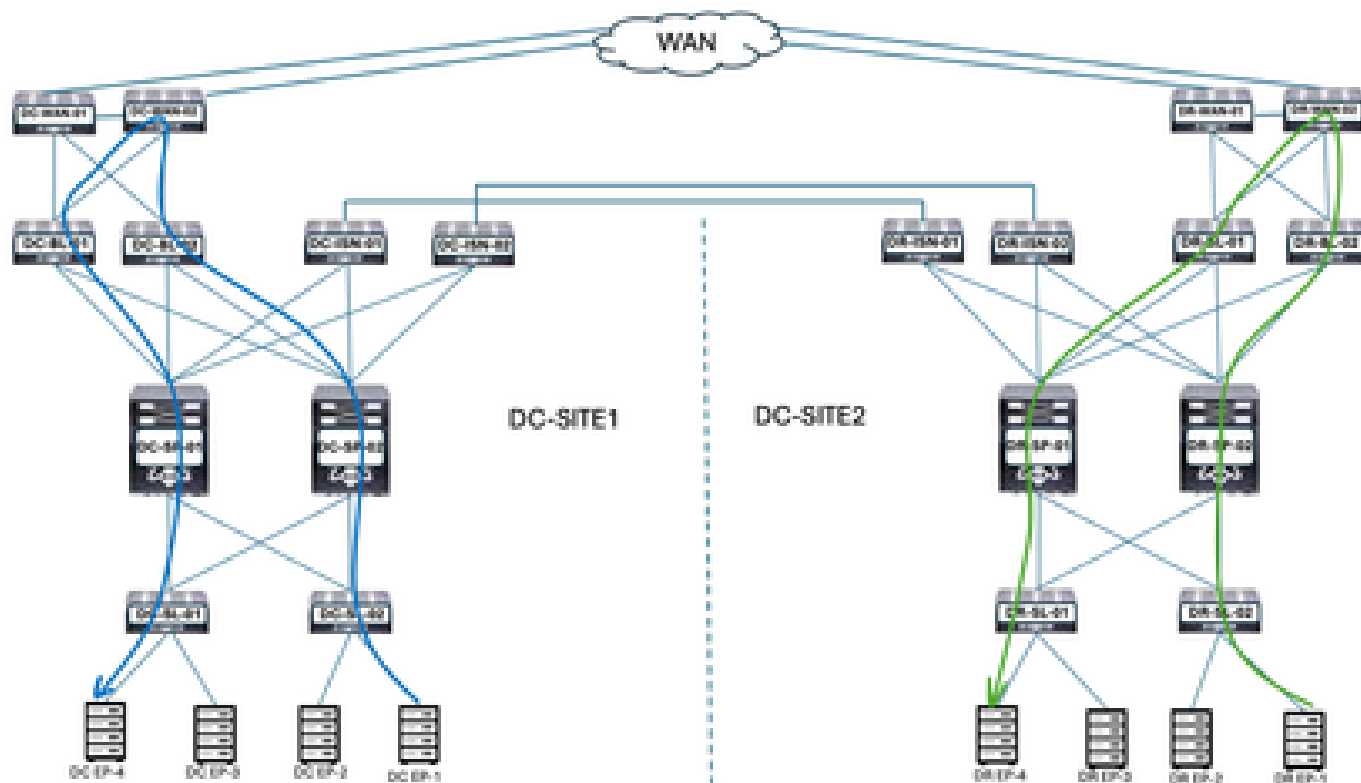
圖 4: EPG間流量



DC-EP-1和DC-EP-3分別是DC-EPG1-WEB和DC-EPG2-WEB的一部分，這兩個端點之間的通訊是EPG間通訊流。DR-EP-1和DR-EP-3分別是DR-EPG1-WEB和DR-EPG2-WEB的一部分，這兩個端點之間的通訊是EPG間通訊流。

VRF間流量傳輸

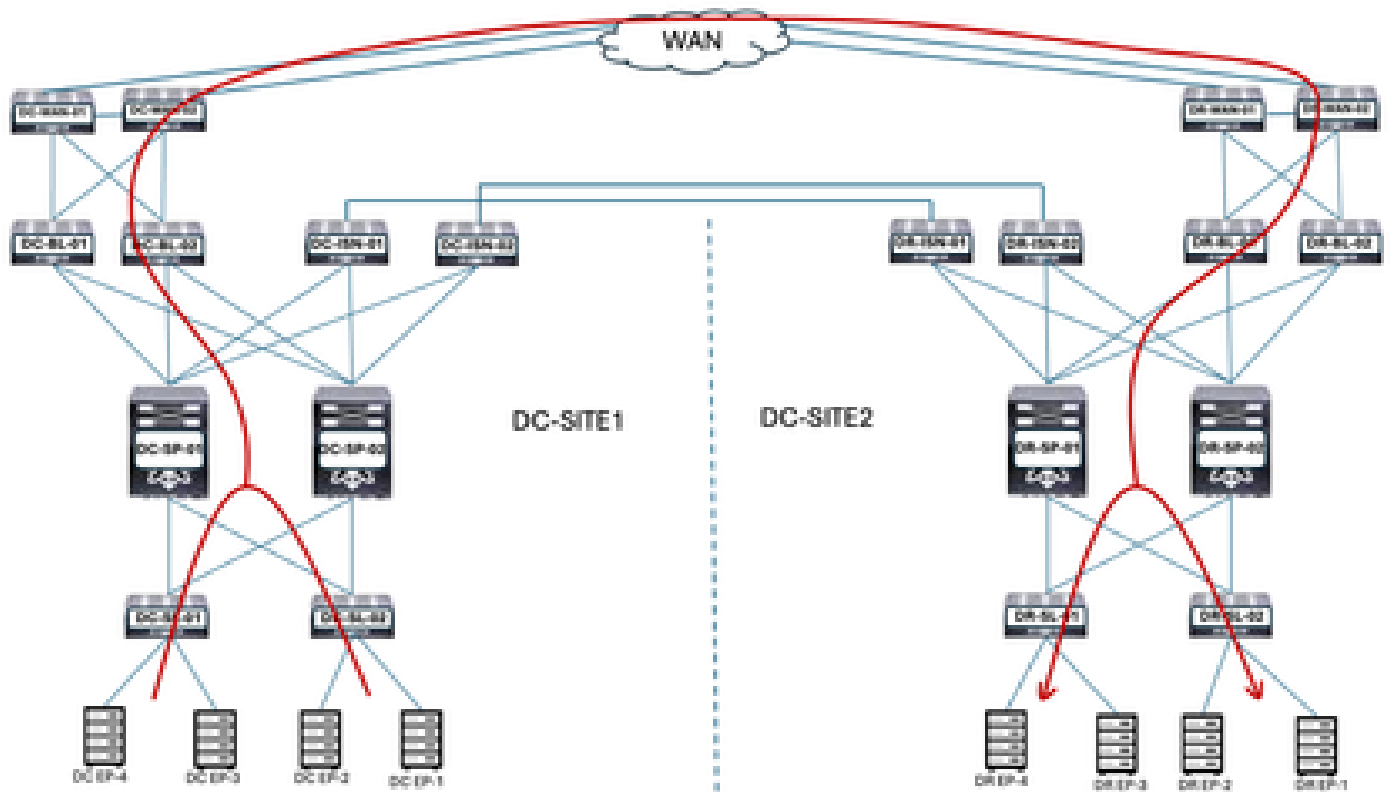
圖 5:VRF間流量傳輸



DC邊界枝葉將流量轉發到DC WAN交換機，以便進行任何VRF間通訊。DC WAN交換機用於VRF間通訊。DC-EP-1/EP-2(VRF WEB)通過WAN交換機與DC-EP-4(VRF APP)通訊。DR邊界枝葉將流量轉發到DR WAN交換機，以便進行VRF間通訊。DR WAN交換機用於VRF間通訊。DR-EP-1/EP-2(VRF WEB)通過WAN交換機與DR-EP-4(VRF APP)通訊。

DC間流量

圖 6:DC間流量



DC端點和DR端點之間的通訊轉發到邊界枝葉。邊界枝葉將流量轉發到WAN交換機。WAN交換機用於DC間通訊。

遷移計畫

Nexus Dashboard Orchestrator用於建立兩個站點之間的多站點、跨站點和終端延伸的EPG/BD從DC-SITE1遷移到DR-SITE2、

方案1建立

通過Nexus Dashboard Orchestrator建立的架構1。

圖 7:租戶模板 — 新增架構

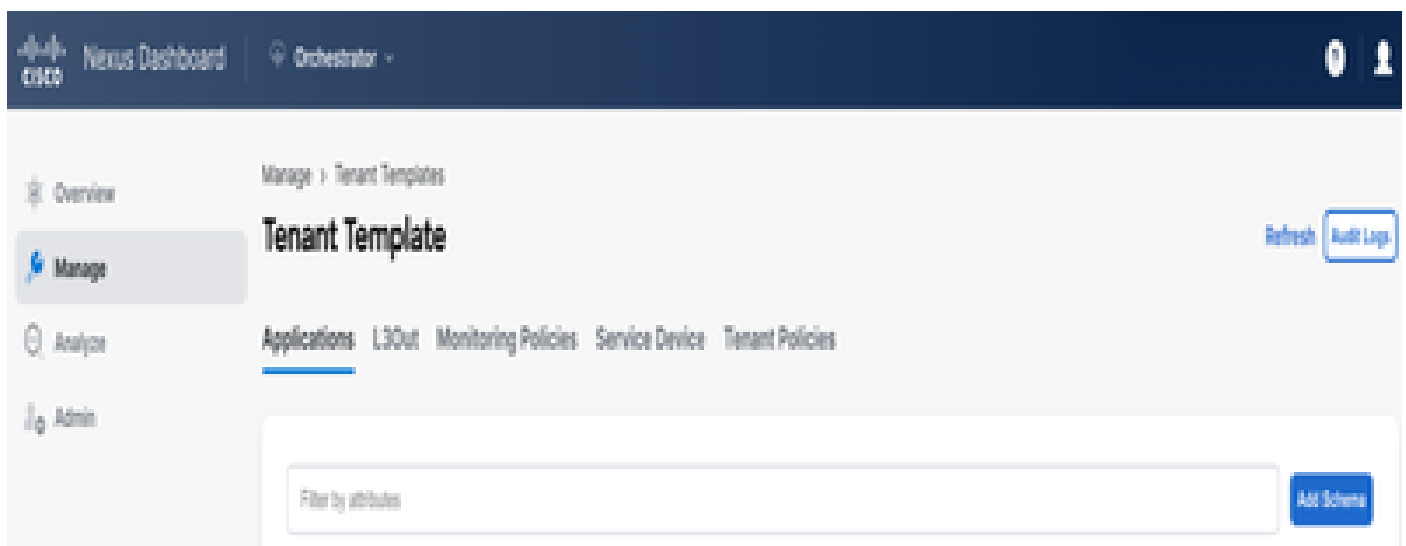
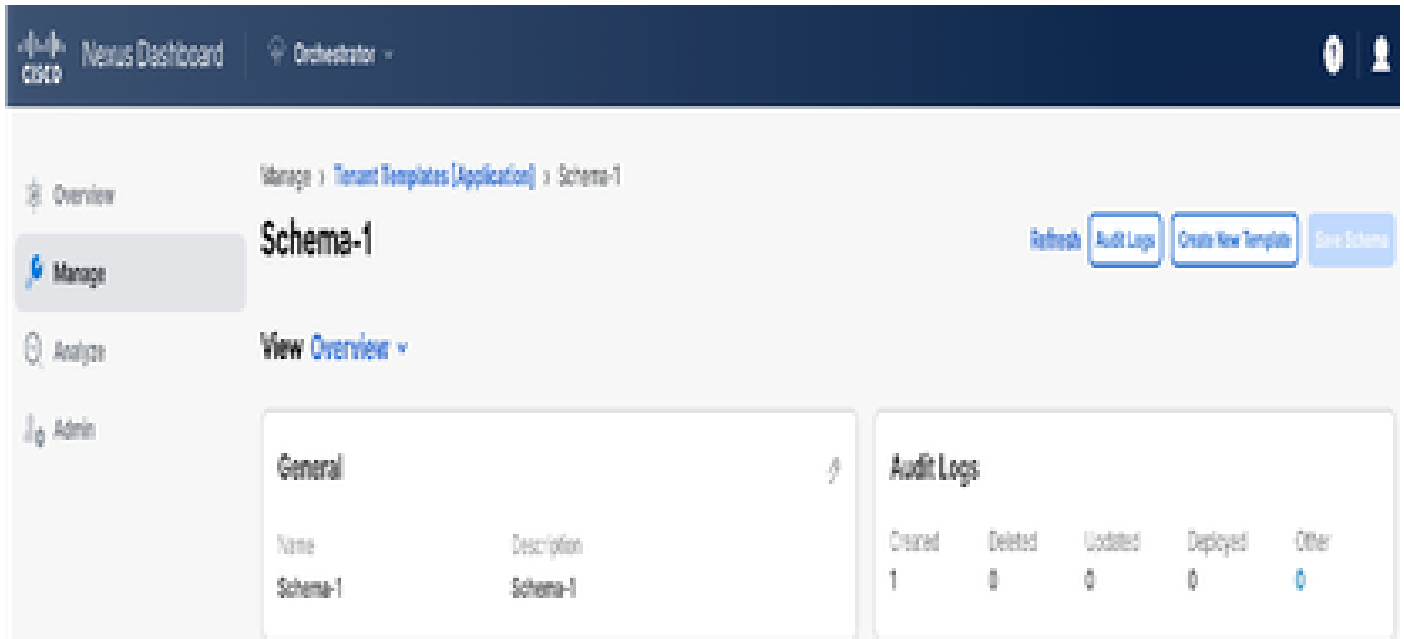


圖 8:新增架構名稱



模板 — VRF — 合約 — 延伸建立

在架構1中建立模板 — VRF-Contract-Stretched。DC-SITE1和DR-SITE2將成為此模板的一部分，租戶生產將與同一模板相關聯。這是拉伸模板。VRF和合約必須是單獨模板的一部分，因為這些對象在其他BD/EPG之間共用。此模板用於將DC-SITE1 VRF和合約延伸到DR-SITE2。

圖 9:新增應用模板 — 選擇ACI多雲

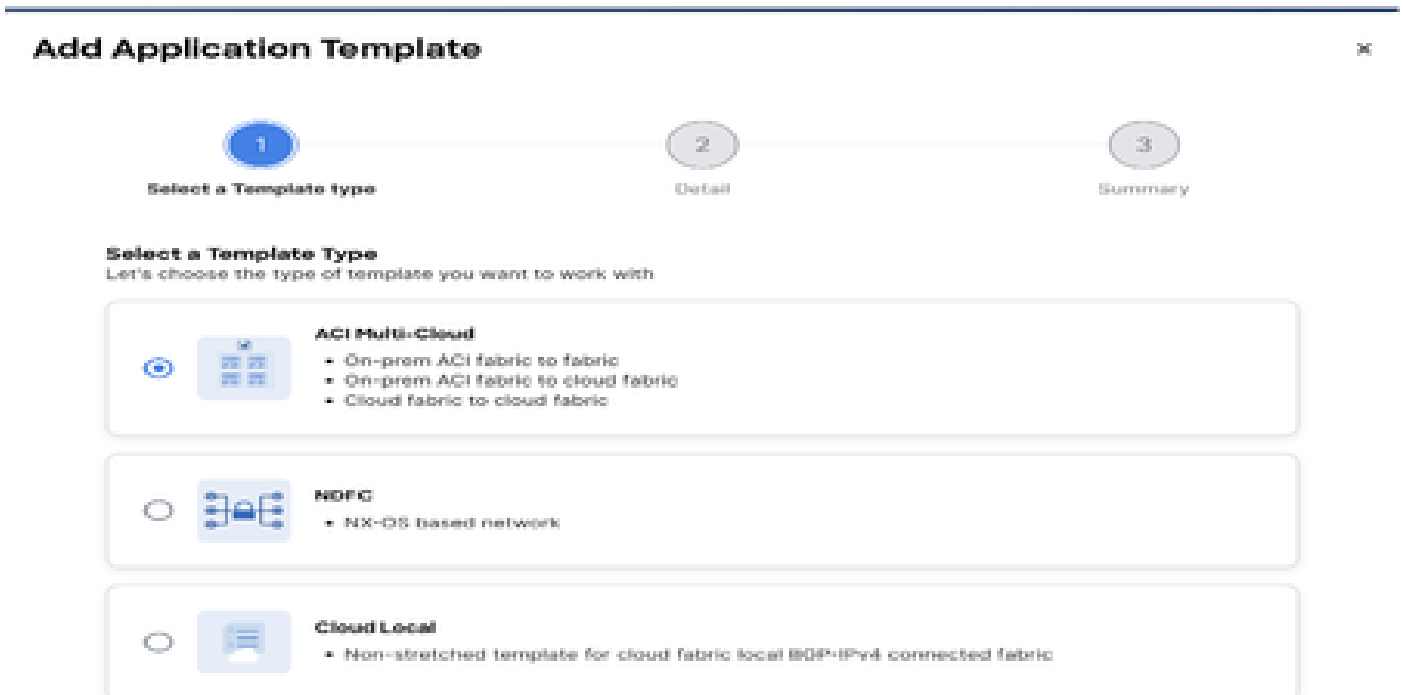


圖 10:新增模板名稱Template-WEB-VRF-Contract-Longed，選擇租戶生產

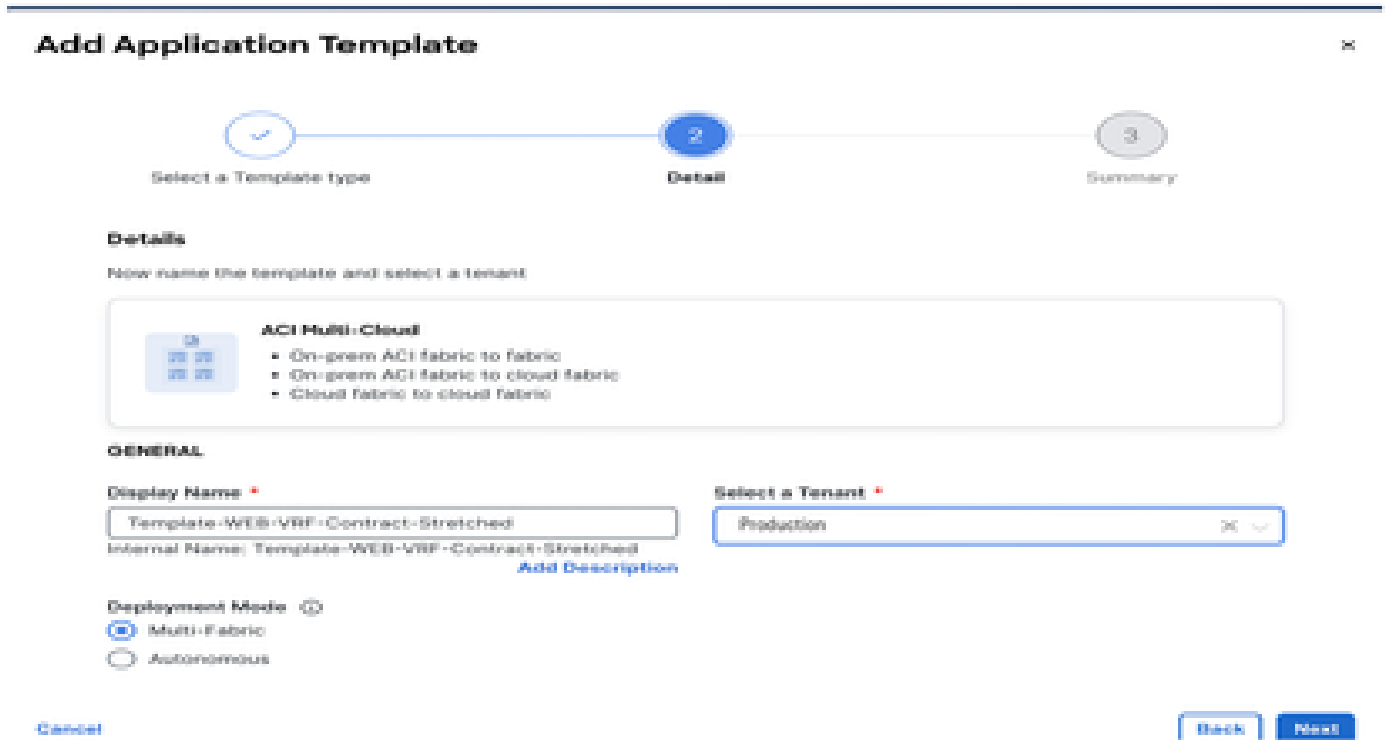
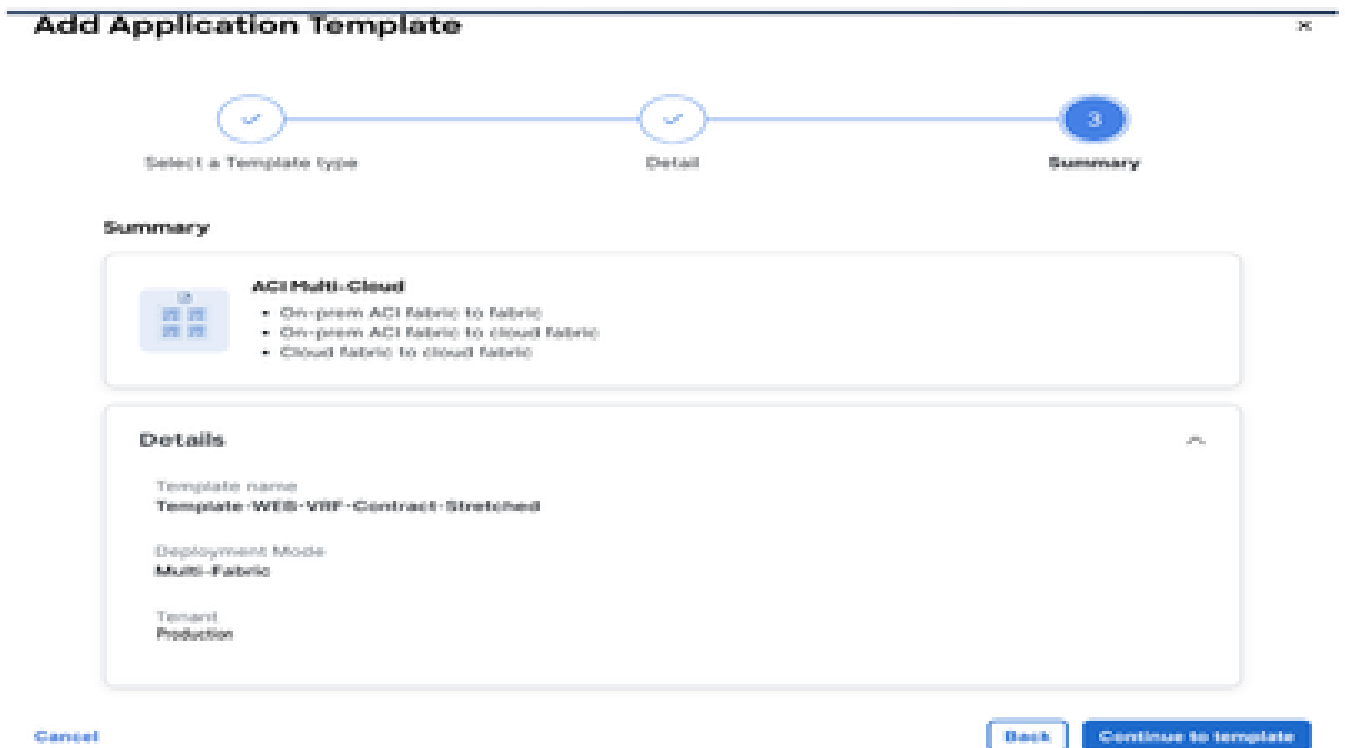


圖 11: 模板 — WEB-VRF — 合約延伸詳細資訊



在模板 — VRF-Contract-Longed 中匯入 VRF-Contract

從 DC-SITE1 匯入 DC-VRF-WEB 和 DC-VRF-WEB-Contract。為 EPG 間通訊和 EPG 到 L3Out 通訊建立合約。

圖 12: 點選 Import 並選擇 DC-SITE1

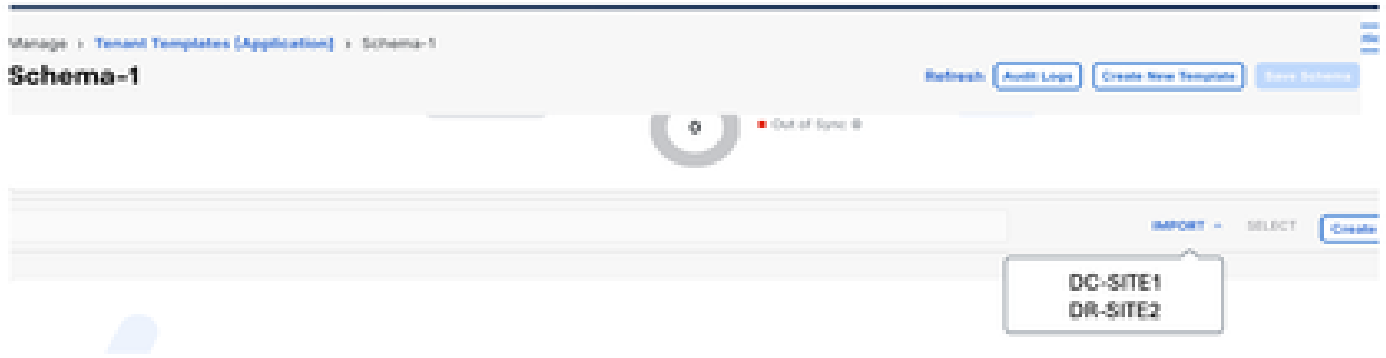


圖 13:從DC-SITE1選擇合約

Import from DC-SITE1			X
POLICY TYPE	<input type="checkbox"/> SELECT TO IMPORT	<input type="text"/>	IMPORT RELATIONS
APPLICATION PROFILE 0 out of 2	<input type="checkbox"/> DC-EPG-TO-EPG-APP-CON 1 FILTER		
EPG 0 out of 3	<input checked="" type="checkbox"/> DC-EPG-TO-EPG-WEB-CON 1 FILTER		<input checked="" type="checkbox"/>
EXTERNAL EPG 0 out of 2	<input type="checkbox"/> DC-EPG-TO-L3Out-APP-CON 1 FILTER		
CONTRACT 2 out of 4	<input checked="" type="checkbox"/> DC-EPG-TO-L3Out-WEB-CON 1 FILTER		<input checked="" type="checkbox"/>

圖 14:從DC-SITE1中選擇篩選器

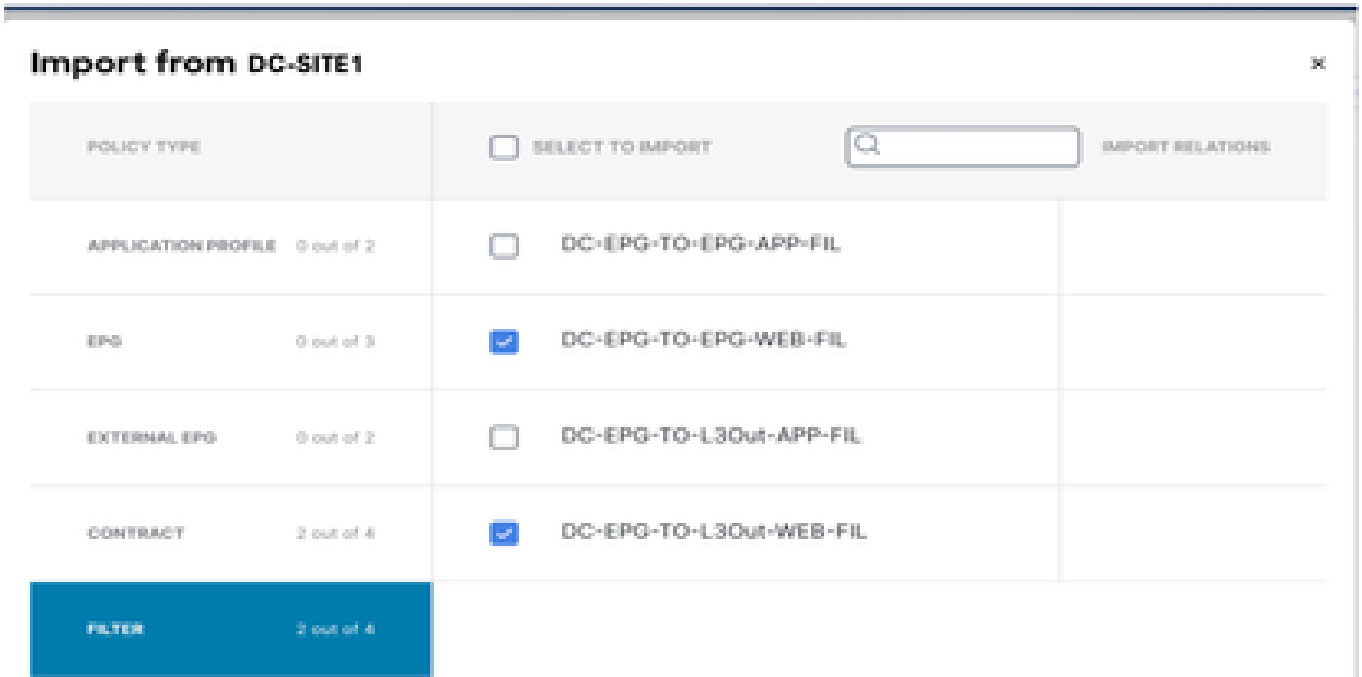


圖 15:從DC-SITE1選擇VRF

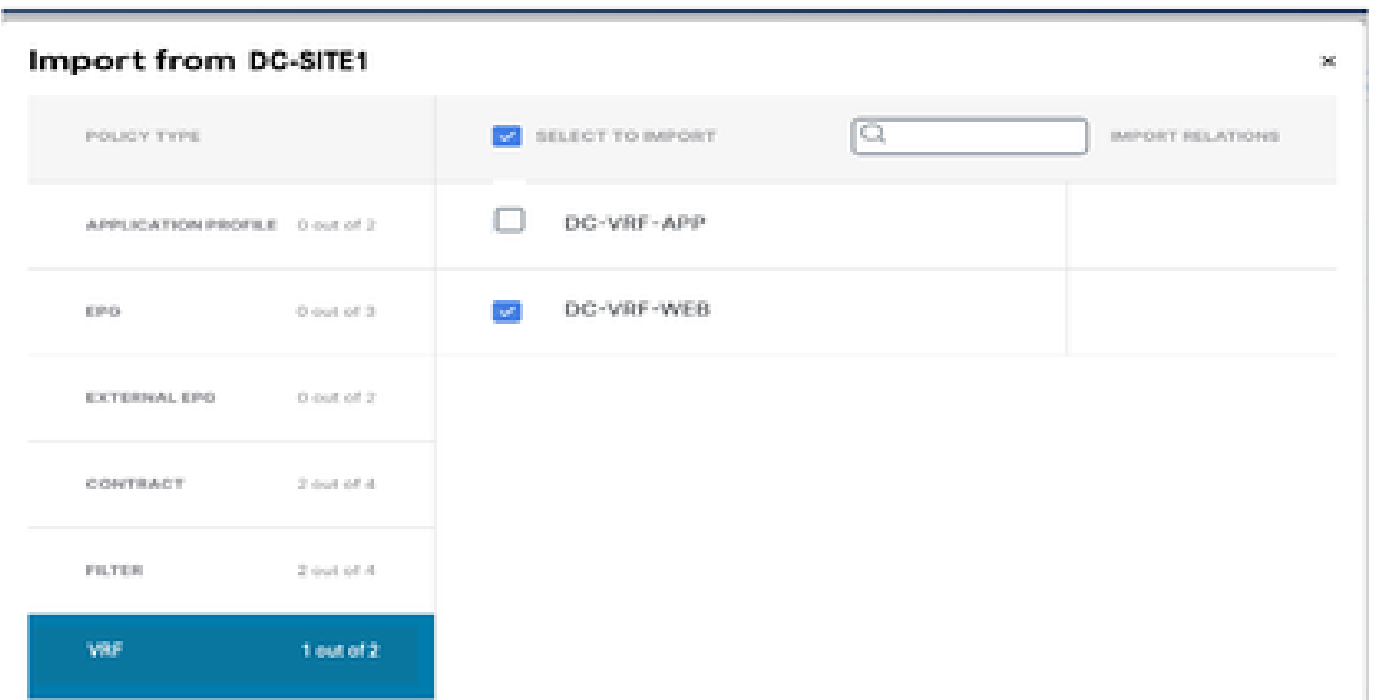
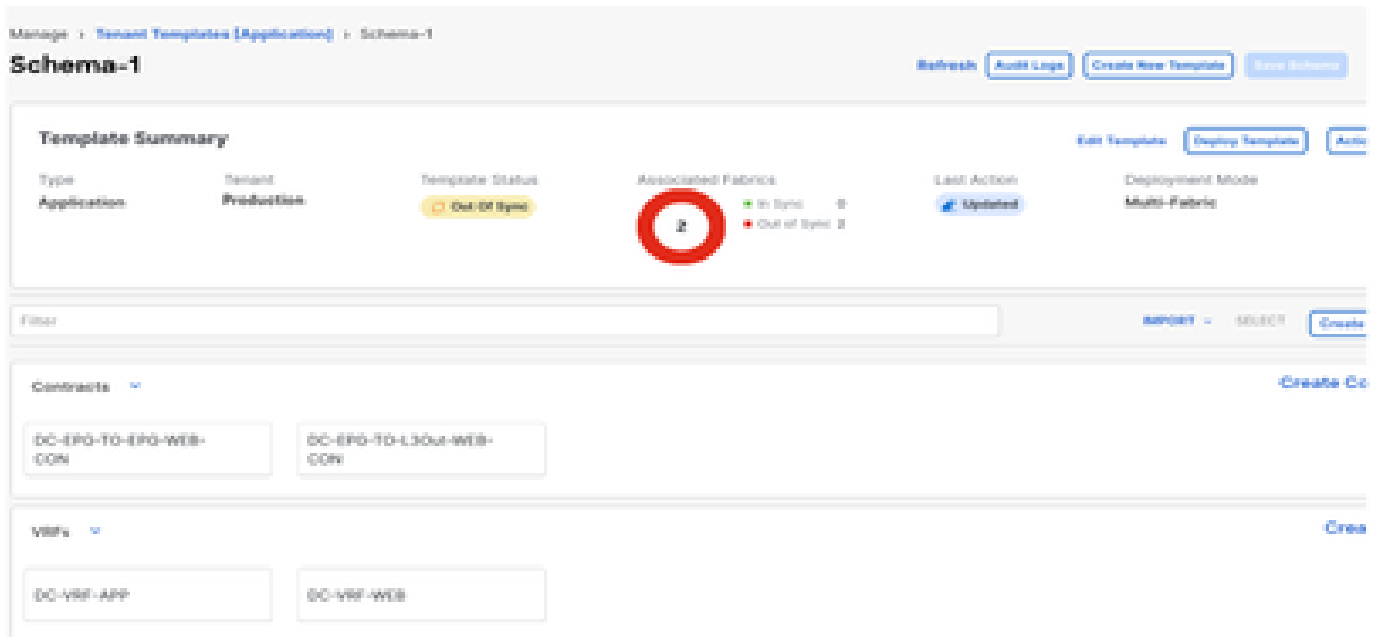


圖 16:模板 — WEB-VRF — 合約 — 使用VRF和合約資訊擴展



部署模板 — VRF — 合約 — 延長

點選Deploy Template-VRF-Contract-Longed並選擇DC-SITE1和DR-SITE2

圖 17:將交換矩陣新增到模板 — VRF-Contract-Stretched



圖 18:向外部署同步模板

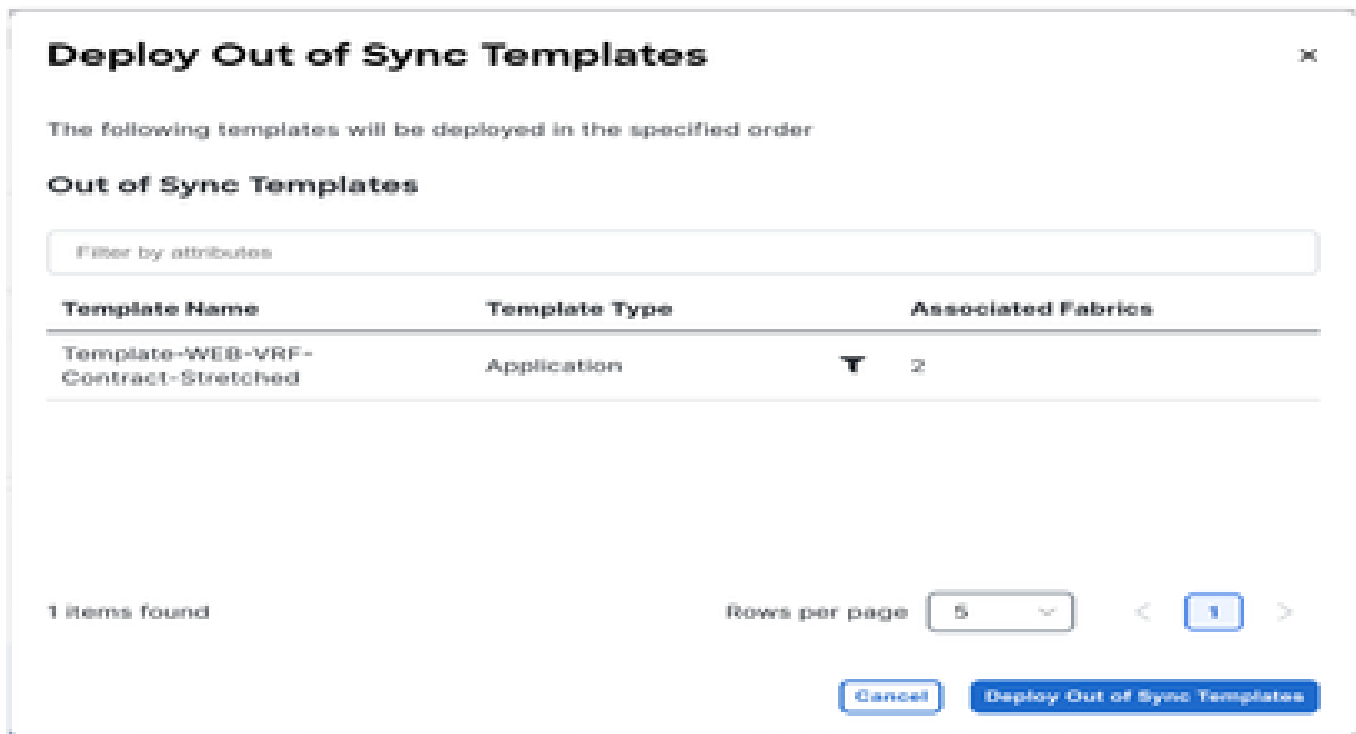


圖 19:部署已完成

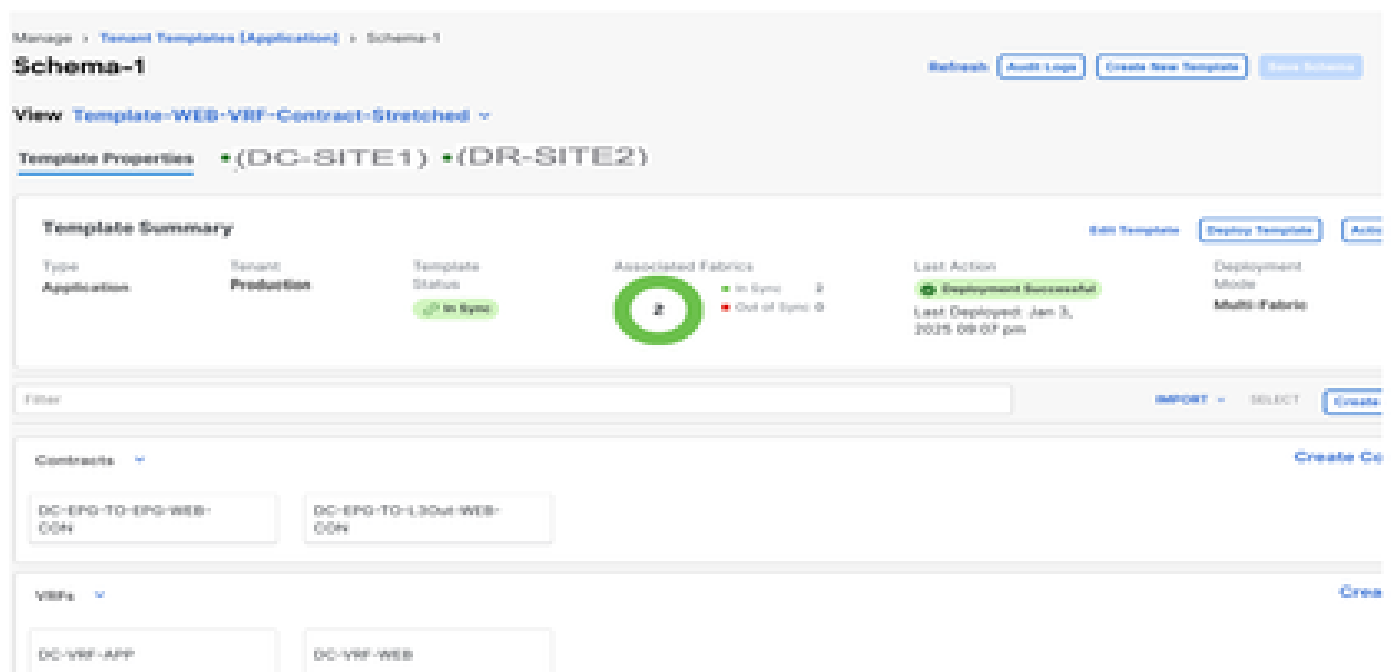
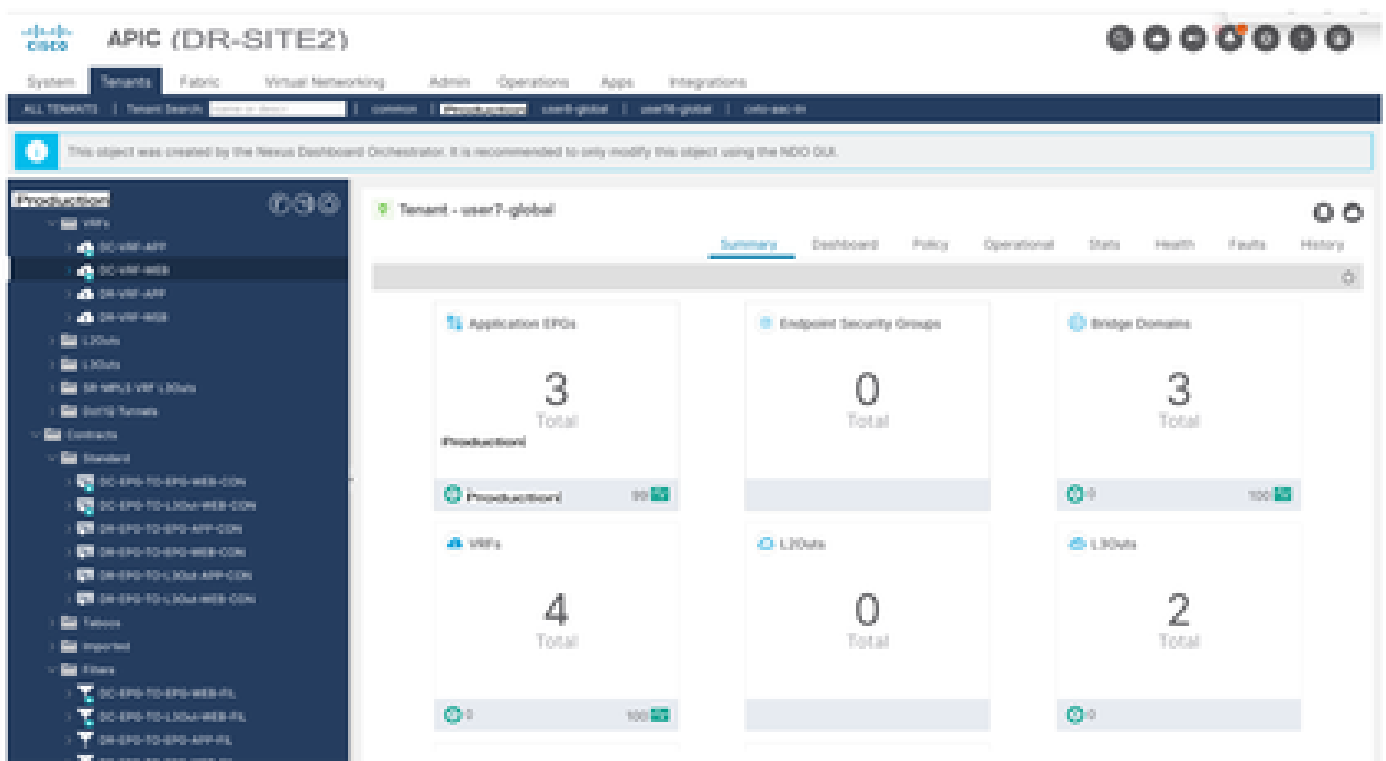
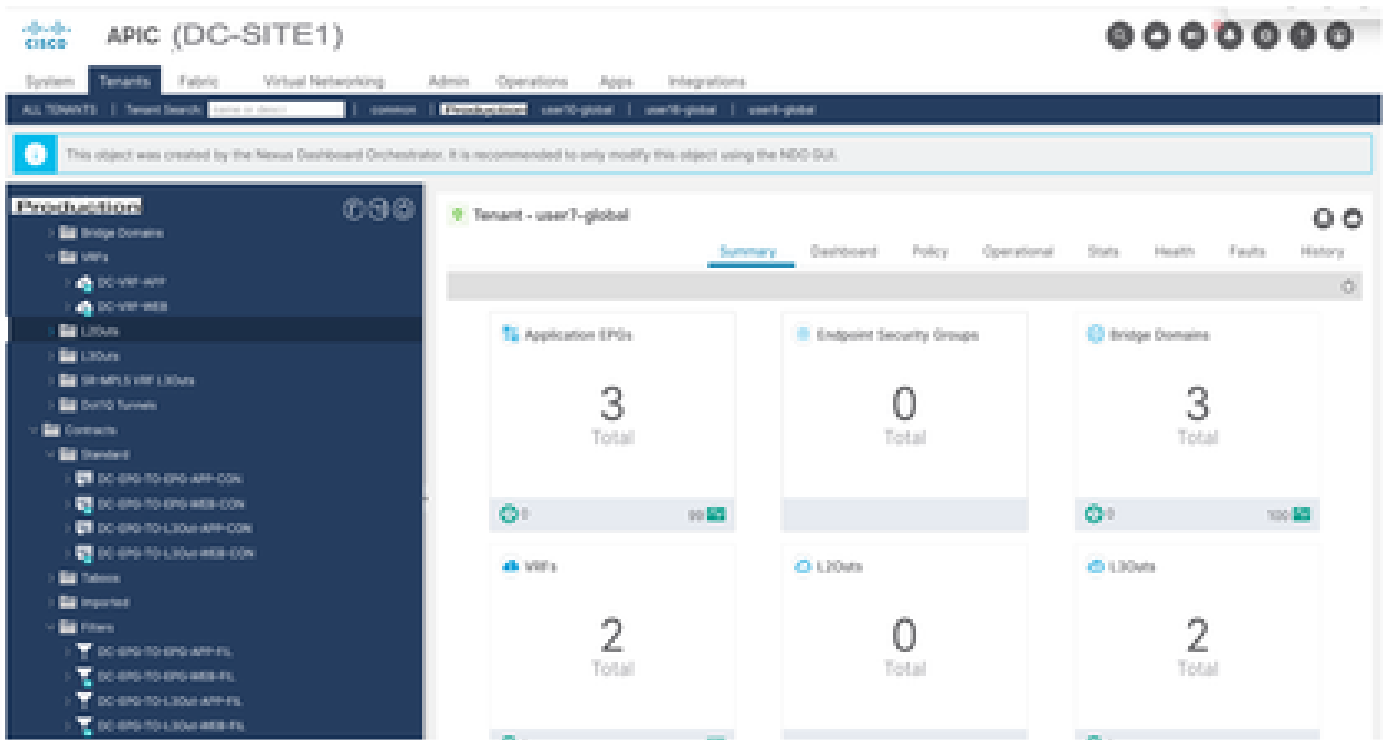


圖 20:驗證兩個站點上部署的VRF和合約



模板 — EPG1-BD1 — 拉伸建立

在架構1中建立模板 — EPG1-BD1-Tended。將DC-SITE1和DR-SITE2新增到與同一模板關聯的模板和租戶 — Production。這是拉伸模板。此模板用於將DC-EPG1-WEB和DC-BD1-WEB拉伸到DR-SITE2。

圖 21:新增應用模板 — 選擇ACI多雲

Add Application Template

☰

1 Select a Template type 2 Detail 3 Summary

Select a Template Type
Let's choose the type of template you want to work with

- ACI Multi-Cloud**
 - On-prem ACI fabric to fabric
 - On-prem ACI fabric to cloud fabric
 - Cloud fabric to cloud fabric
- NDPC**
 - NX-OS based network
- Cloud Local**
 - Non-stretched template for cloud fabric local BGP+IPv4 connected fabric

圖 22:新增模板名稱Template-EPG1-BD1-Longed，選擇租戶生產

Add Application Template

☰

1 Select a Template type 2 Detail 3 Summary

Details
Now name the template and select a tenant

- ACI Multi-Cloud**
 - On-prem ACI fabric to fabric
 - On-prem ACI fabric to cloud fabric
 - Cloud fabric to cloud fabric

GENERAL

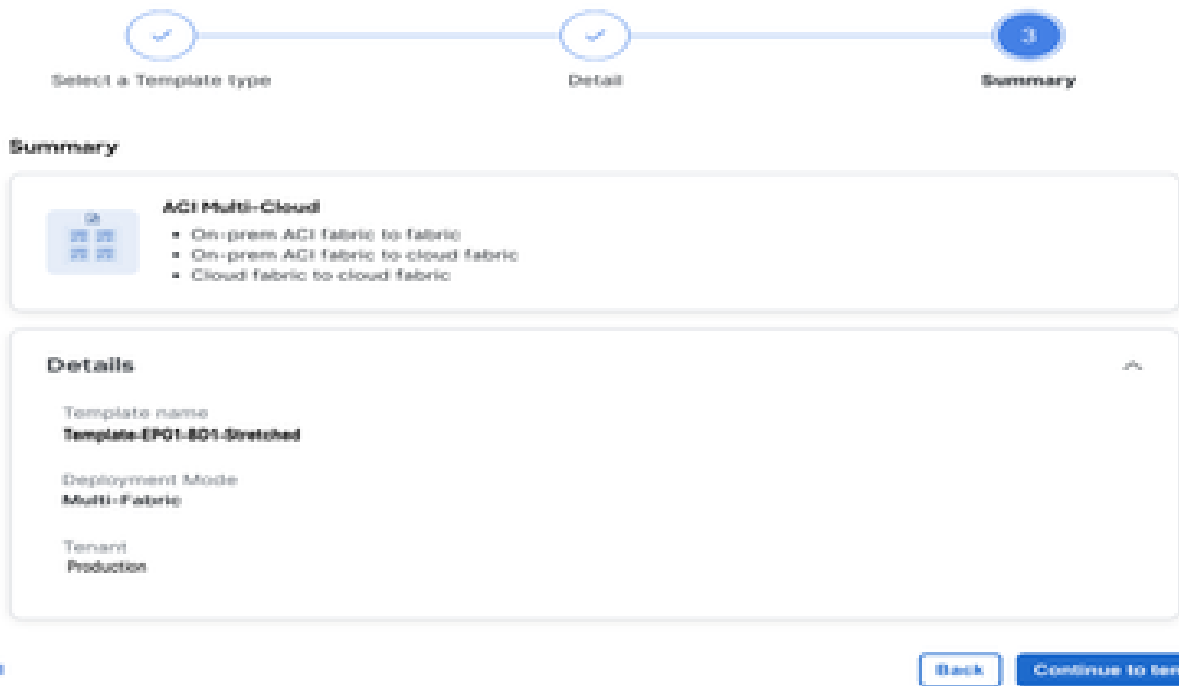
Display Name:
Internal Name: Template-EPG1-BD1-Stretched [Add Description](#)

Select a Tenant:

Deployment Mode: Multi-Fabric Autonomous

[Cancel](#) [Back](#) [Next](#)

圖 23:模板 — EPG1-BD1 — 延伸詳細資訊



在Template-EPG1-BD1-Tended中匯入EPG1-BD1

從DC-SITE1匯入DC-EPG1-WEB和DC-BD1-WEB。

圖 24: 點選Import並選擇DC-SITE1

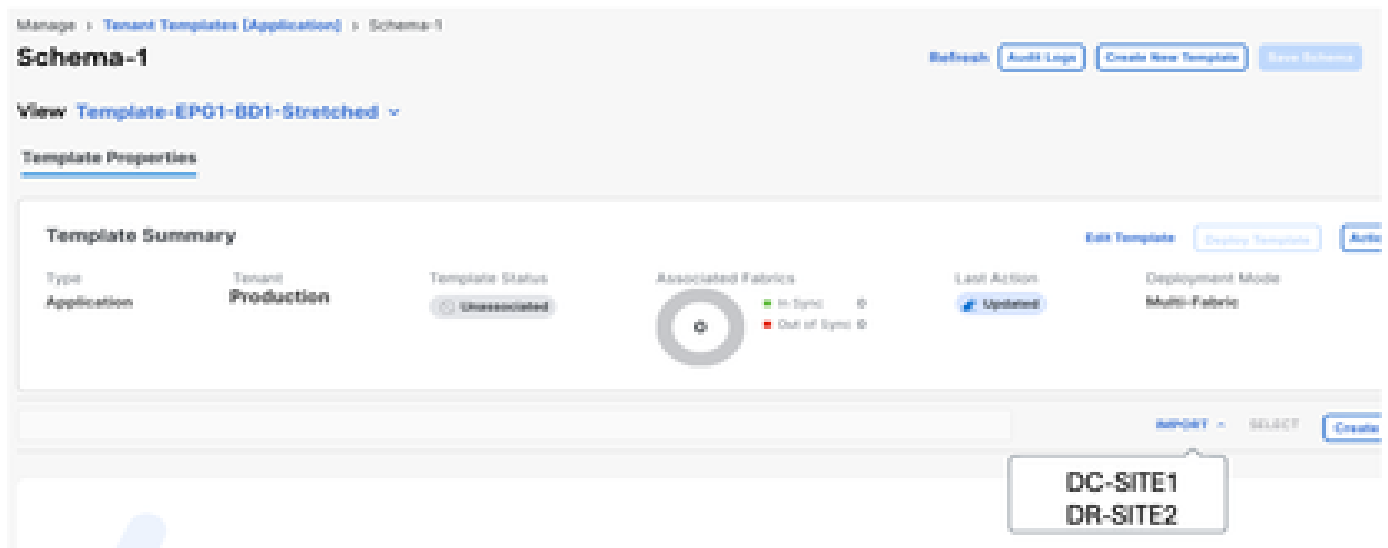


圖25：從DC-SITE1中選擇DC-EPG1-WEB

Import from DC-SITE1 X







POLICY TYPE	<input type="checkbox"/> SELECT TO IMPORT	<input type="text" value=""/>	IMPORT RELATIONS
APPLICATION PROFILE 1 out of 2	<input checked="" type="checkbox"/>  DC-EPG1-WEB 1 AP • 4 CONTRACT • 1 BD		<input checked="" type="checkbox"/>
EPG 1 out of 3	<input type="checkbox"/>  DC-EPG2-WEB 1 AP • 4 CONTRACT • 1 BD		
EXTERNAL EPG 0 out of 2	<input type="checkbox"/>  DC-EPG-APP 1 AP • 4 CONTRACT • 1 BD		

圖26：從DC-SITE1中選擇DC-BD1-WEB

Import from DC-SITE1 X

POLICY TYPE	<input type="checkbox"/> SELECT TO IMPORT	<input type="text" value=""/>	IMPORT RELATIONS
APPLICATION PROFILE 1 out of 2	<input checked="" type="checkbox"/>  DC-BD1-WEB 1 VRF		<input type="checkbox"/>
EPG 1 out of 3	<input type="checkbox"/>  DC-BD2-WEB 1 VRF		
EXTERNAL EPG 0 out of 2	<input type="checkbox"/>  DC-BD-APP 1 VRF		
CONTRACT 0 out of 4			
FILTER 0 out of 4			
VRF 0 out of 2			
BD 1 out of 3			

[Import](#)

更改Template-EPG1-BD1-Tended中的BD設定

在DC-BD1-WEB設定中啟用L2 Stretch並新增網關IP地址。此模板用於跨站點和在DC-SITE1和DR-SITE2中配置的任播網關擴展BD。

圖 27:在DC-BD1-WEB中選擇L2 Stretch

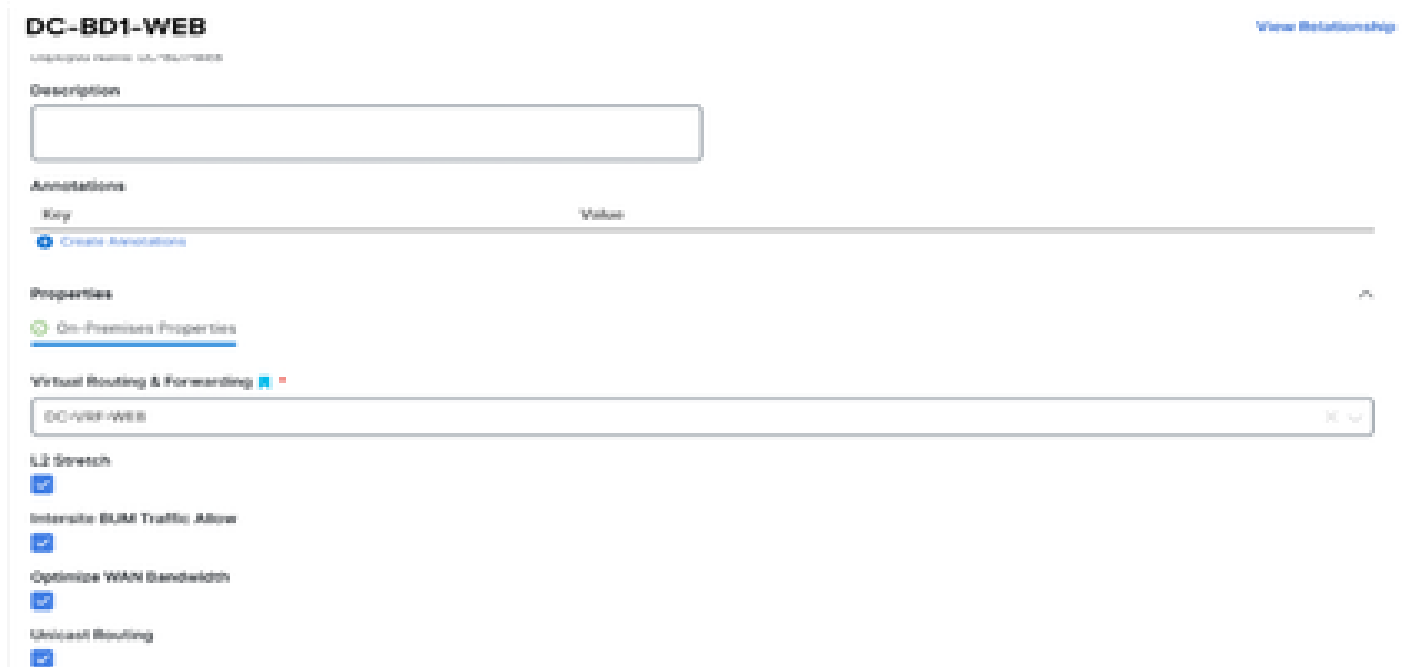
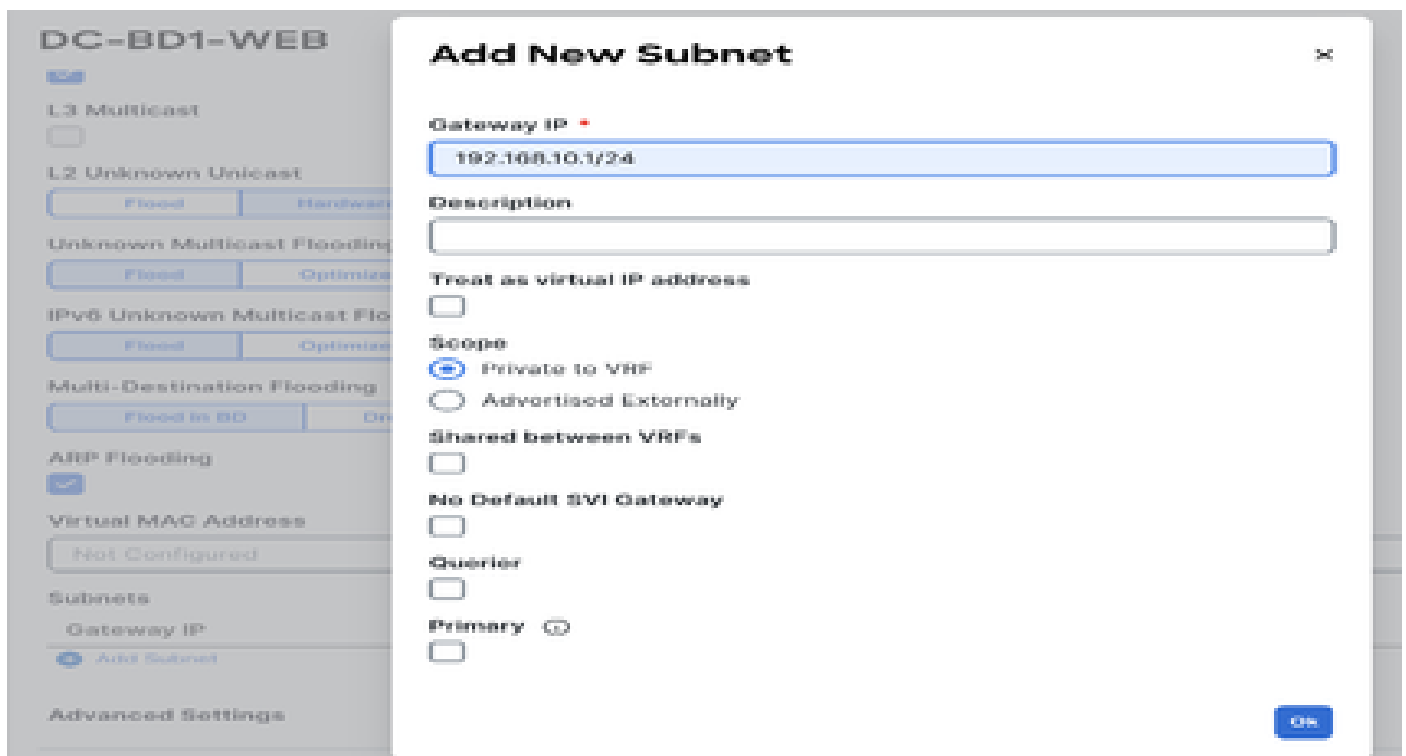


圖 28:新增網關IP/子網



部署模板 — EPG1-BD1-Longed

點選Deploy Template-EPG1-BD1-Longed並選擇DC-SITE1和DR-SITE2

圖29:將交換矩陣新增到Template-EPG1-BD1-Extended



圖 30:向外部署同步模板

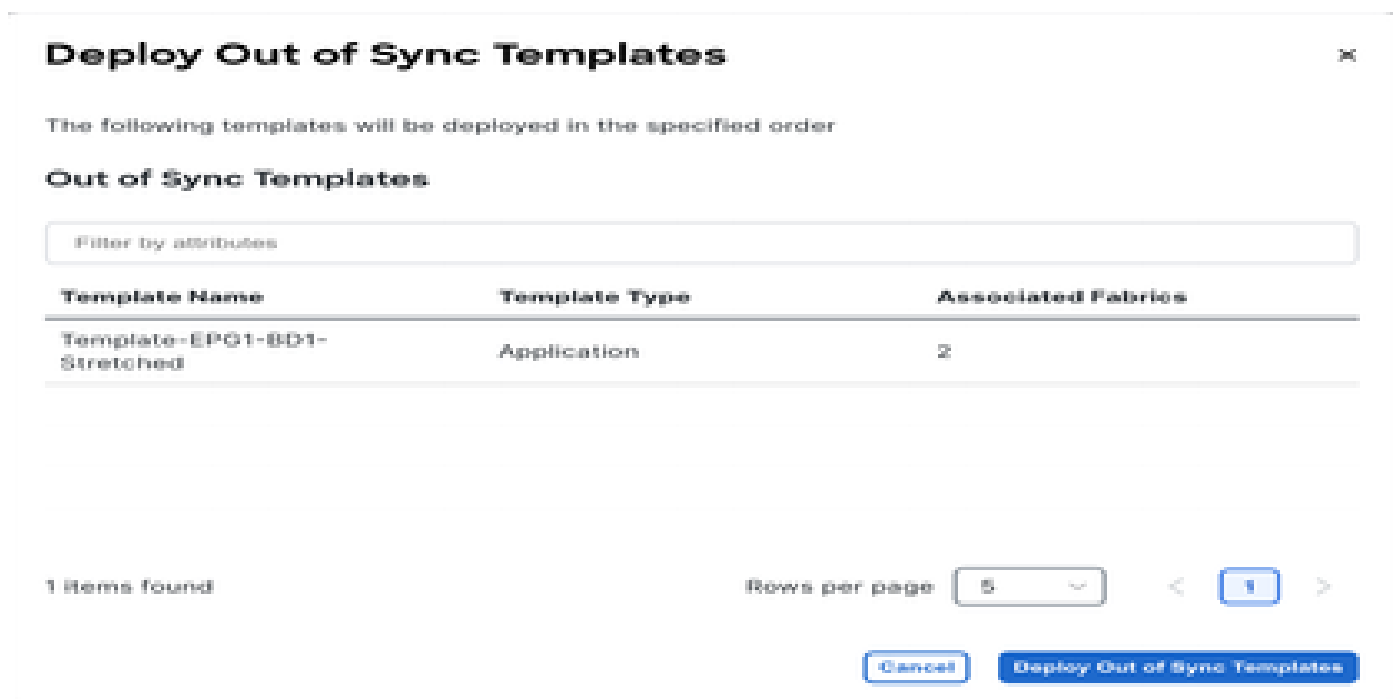
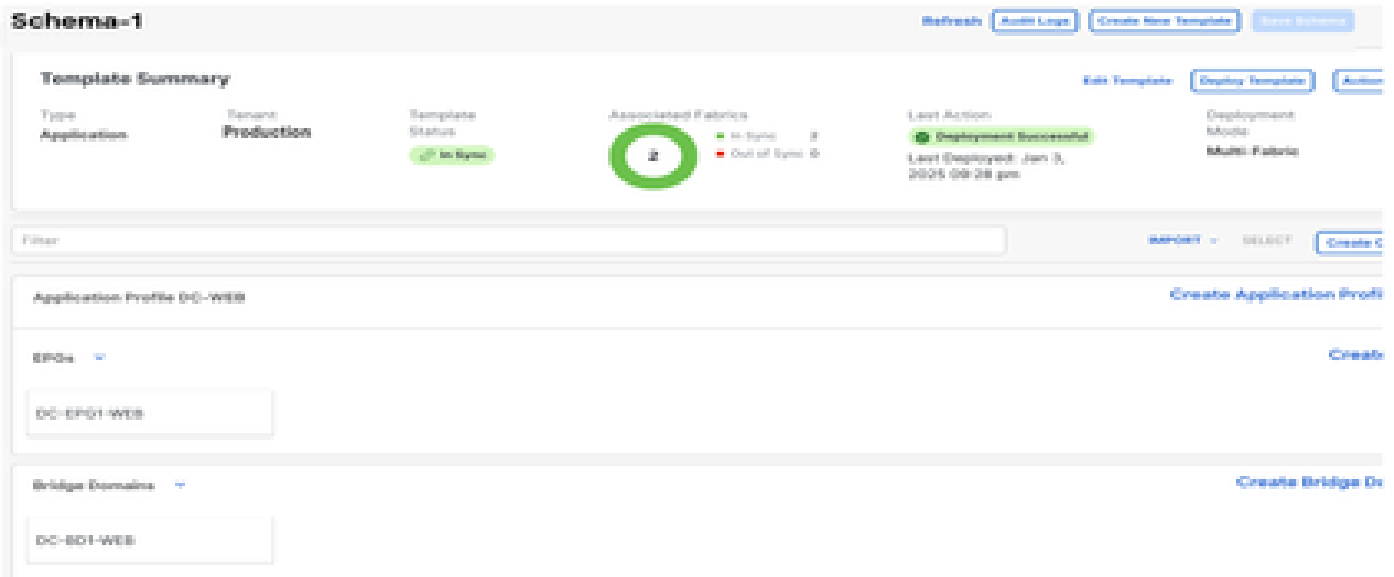


圖 31:部署已完成



將DC-EP-1從DC-SITE1遷移到DR-SITE2

在DC-EPG1-WEB的DR-SITE2中配置靜態繫結並關聯DR-SITE2物理域。將DC-EP-1從DC-SITE1遷移到DR-SITE2。

圖 32:當前在DC-SITE1中學習的DC-EP-1

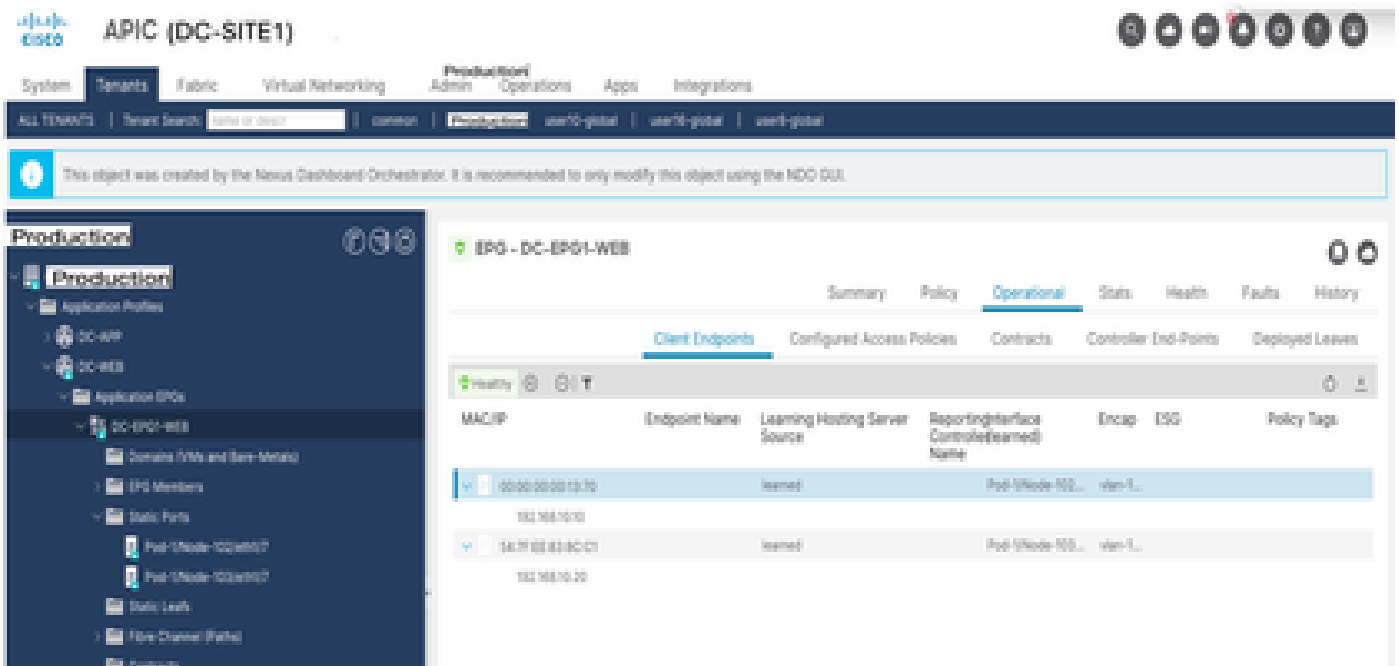


圖 33:從DC-SITE1中刪除的DC-EP-1

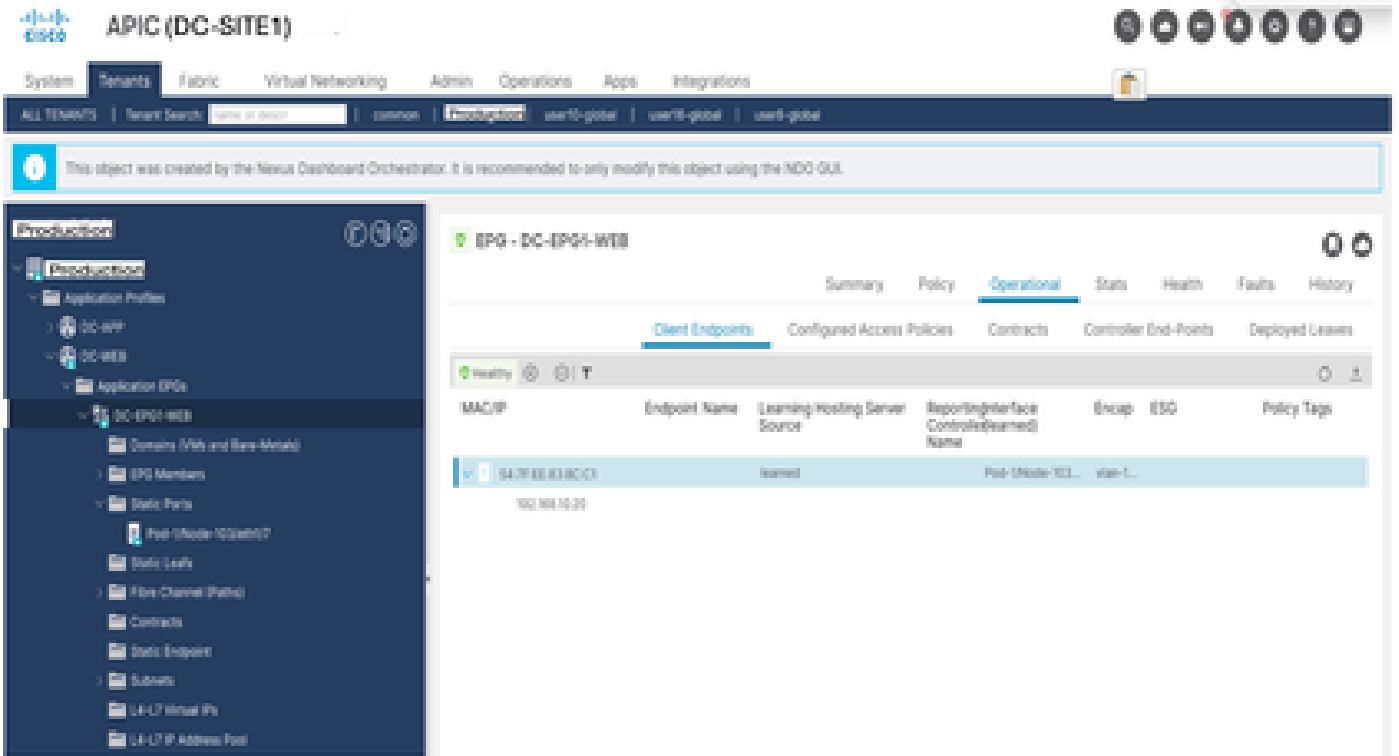


圖 34:在DR-SITE2中新增物理域

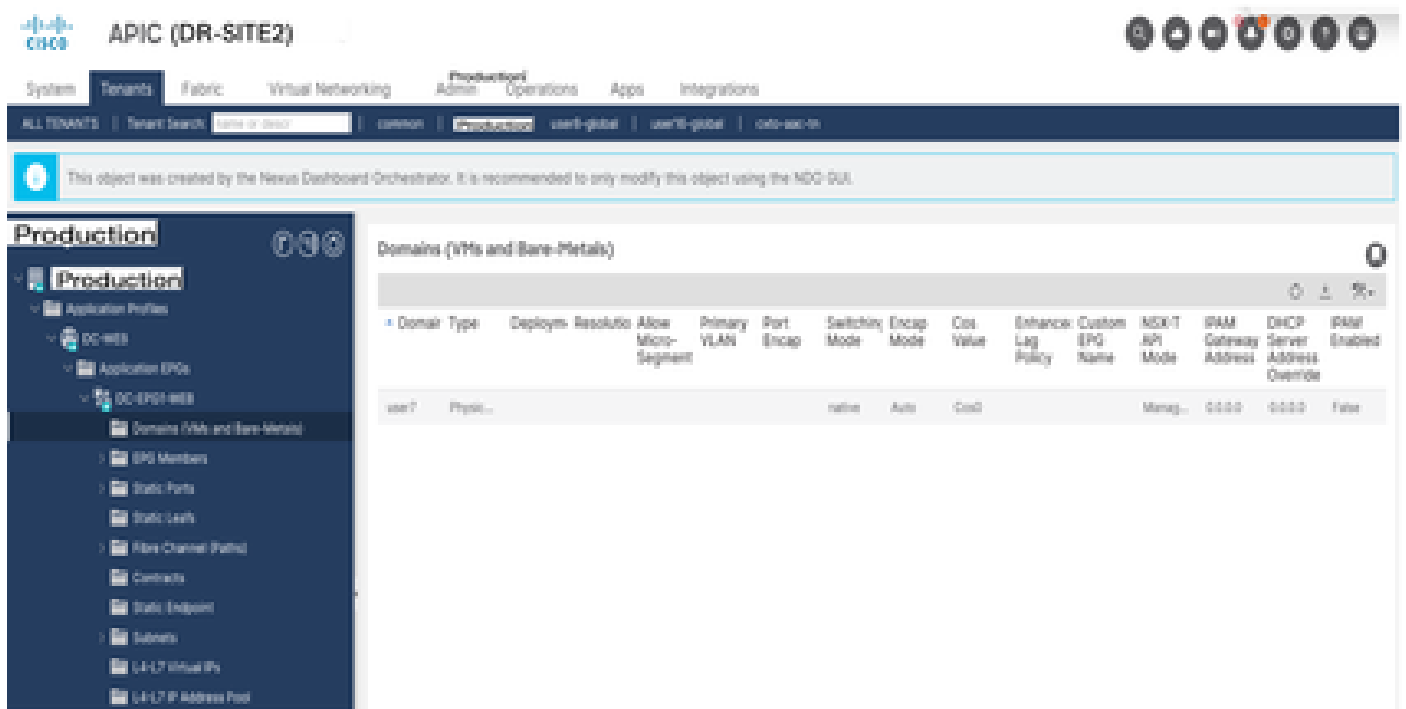


圖 35:在DR-SITE2中新增靜態繫結

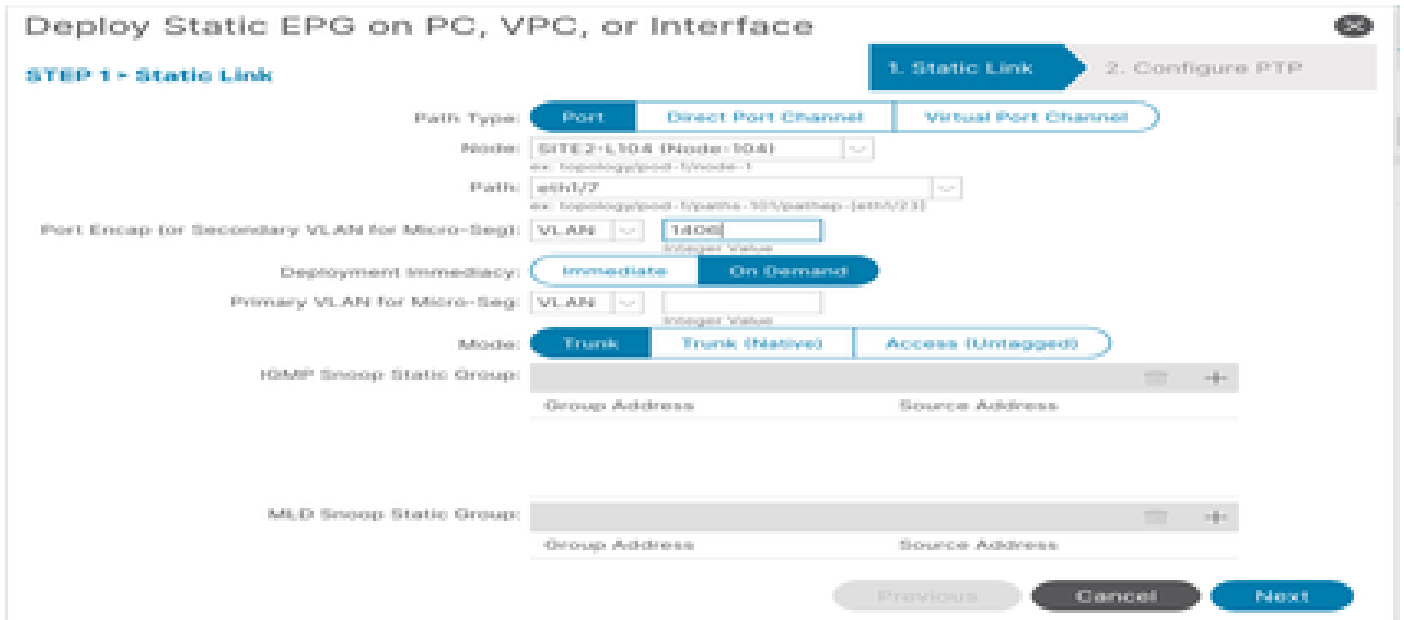
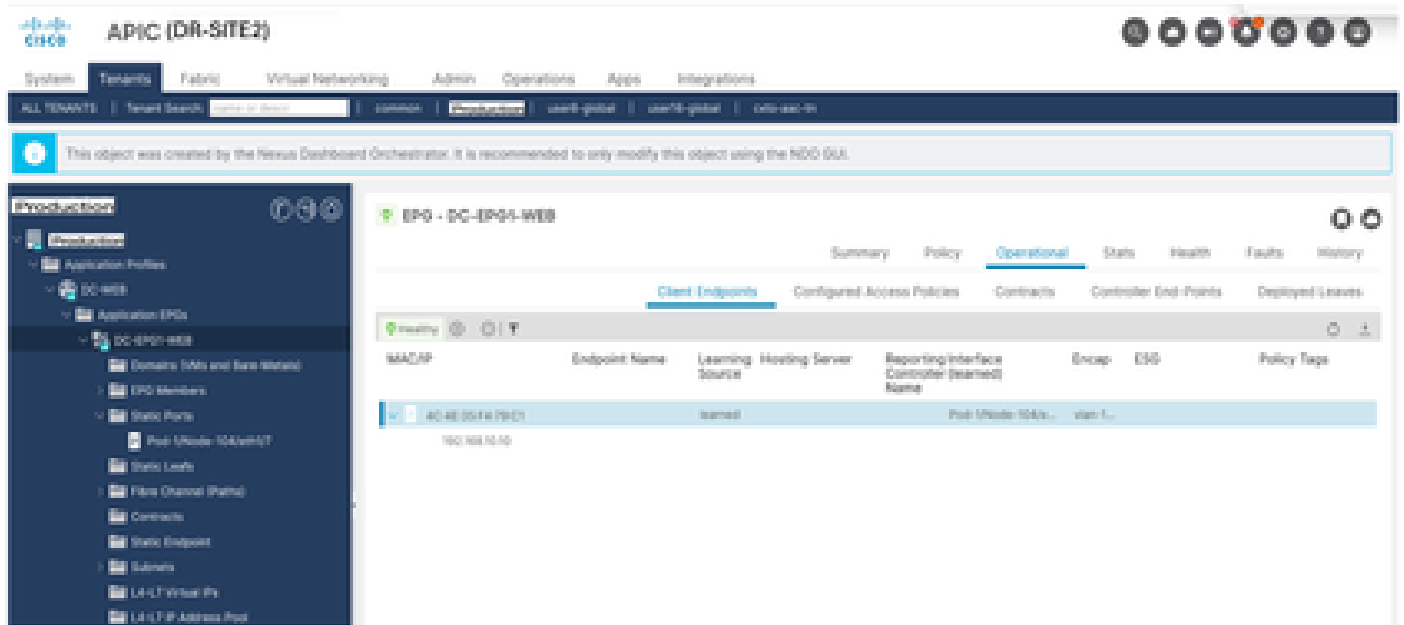


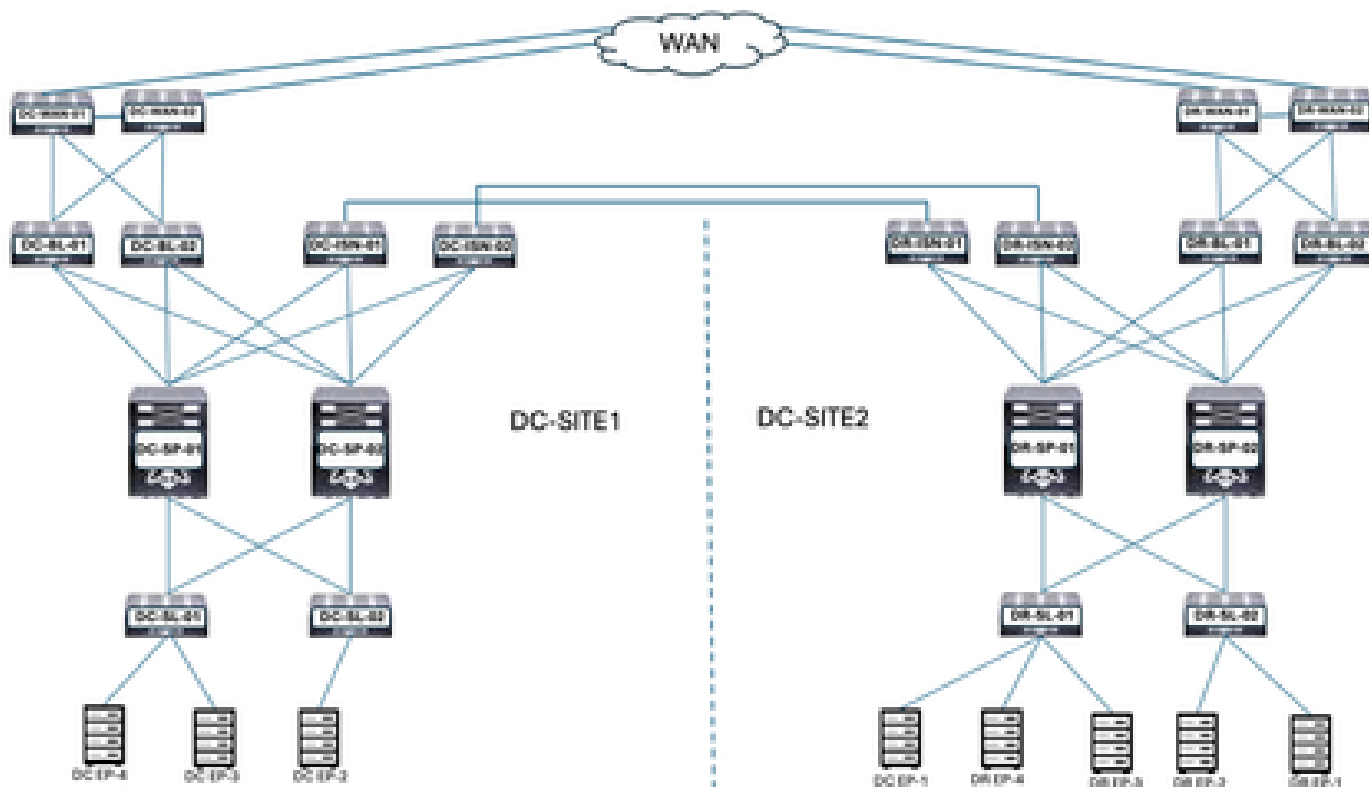
圖 36:DC-EP-1在DR-SITE2中獲知



DC-EP-1遷移後的物理設計

DC-EP-1連線到DR-SITE2伺服器枝葉。

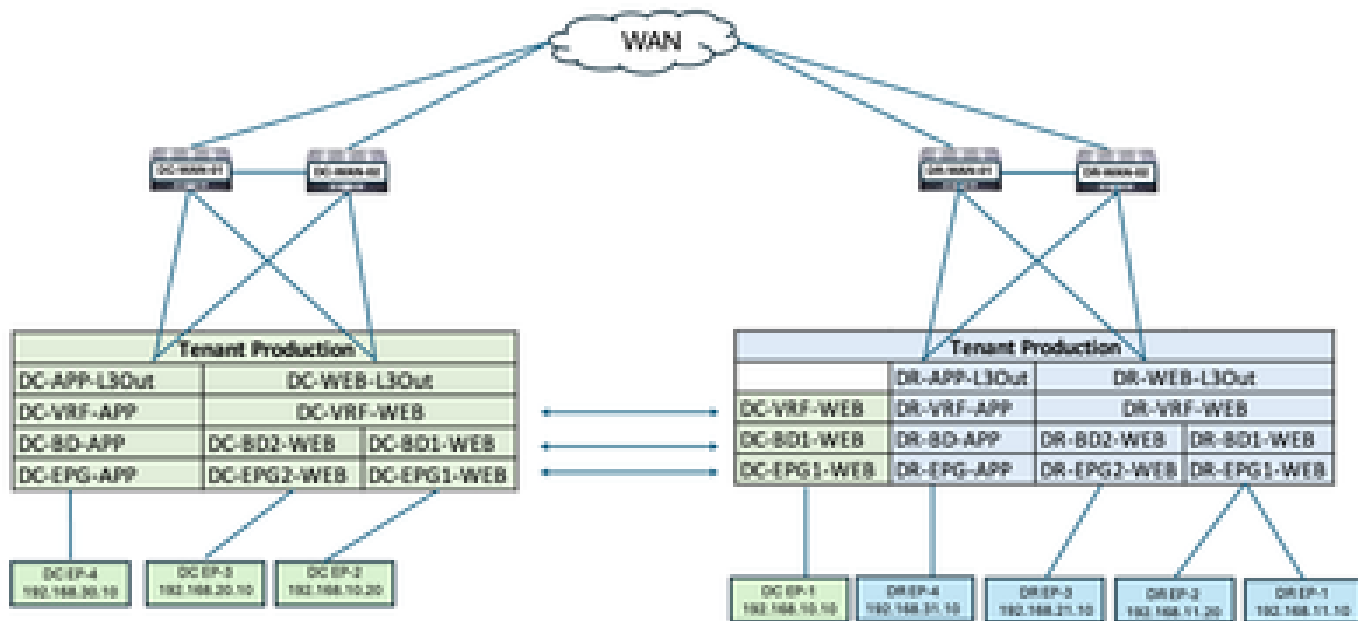
圖 37:DC-EP-1遷移後的物理設計



DC-EP-1遷移後的邏輯設計

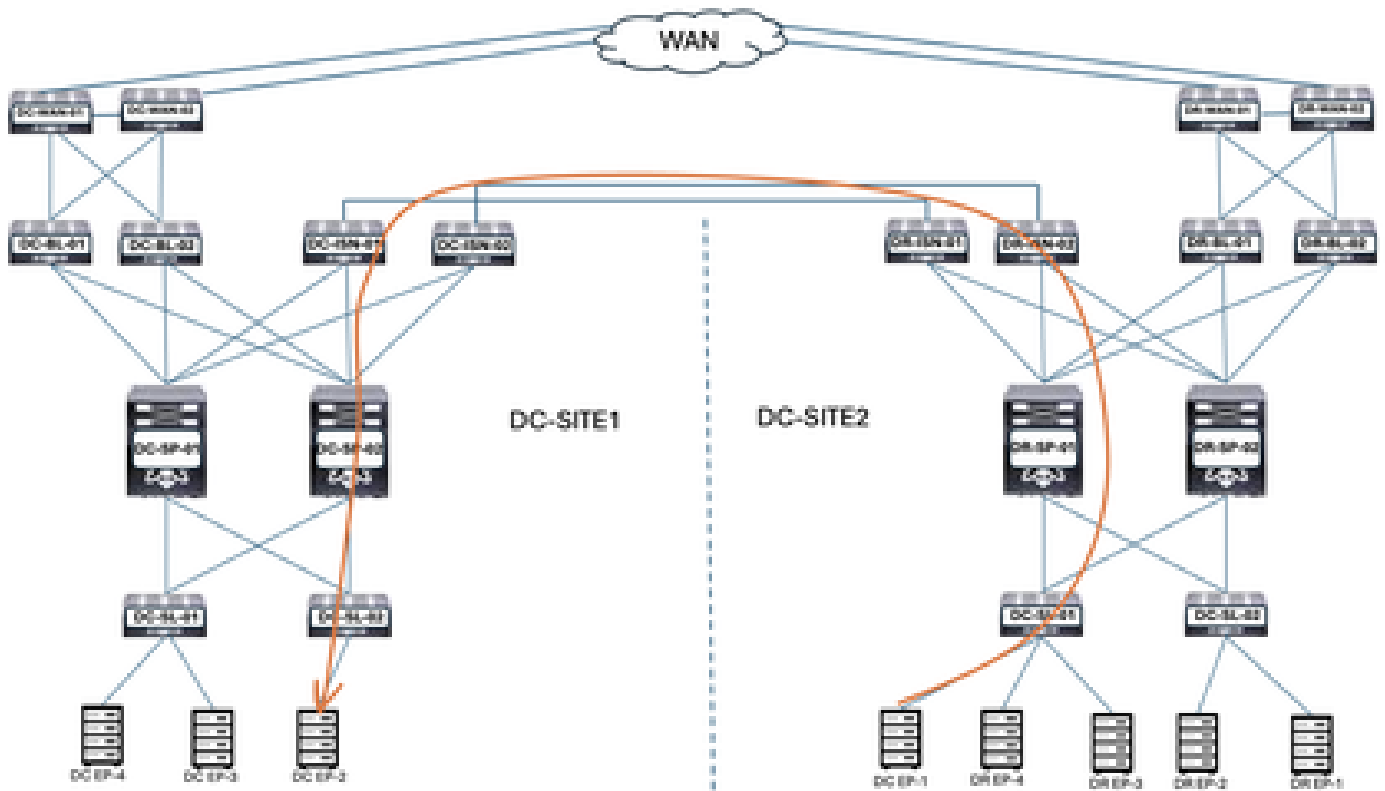
DC-EP-1連線到DR-SITE2伺服器枝葉。DC-EPG1-WEB、DC-BD1-WEB和DC-VRF-WEB在DC-SITE1和DR-SITE2之間延伸。

圖 38:DC-EP-1遷移後的邏輯設計



DC-EP-1遷移後的EPG內流量

圖 39:DC-EP-1遷移後的EPG內流量



DC-EP-1和DC-EP-2之間的通訊是EPG內通訊，因為兩個端點都屬於DC-EPG1-WEB。此通訊通過DC ISN到DR ISN多站點/重疊連結進行。

DC-EP-1和DC-EP-2之間的Ping響應

圖 40:DC-EP-1和DC-EP-2之間的Ping響應

```
# ping 192.168.10.20 source 192.168.10.10 vrf site-1
PING 192.168.10.20 (192.168.10.20) from 192.168.10.10: 56 data bytes
64 bytes from 192.168.10.20: icmp_seq=0 ttl=254 time=2.592 ms
64 bytes from 192.168.10.20: icmp_seq=1 ttl=254 time=1.931 ms
64 bytes from 192.168.10.20: icmp_seq=2 ttl=254 time=1.89 ms
64 bytes from 192.168.10.20: icmp_seq=3 ttl=254 time=2.063 ms
64 bytes from 192.168.10.20: icmp_seq=4 ttl=254 time=1.989 ms

--- 192.168.10.20 ping statistics ---
5 packets transmitted, 5 packets received, 0.00% packet loss
round-trip min/avg/max = 1.89/2.092/2.592 ms
```

從主幹路由表

DC-EP-1從DR-SP-01/DR-SP-02的DC-SP-01/DC-SP-02中獲知。

圖 41:從主幹路由表

DC-EP-1在DC-SITE1-SP-01中從DR-SITE2-SP-01獲知

```

DC-SITE1-SP-01# show bgp l2vpn evpn vrf overlay-1

Route Distinguisher: 1:49985577
*>e[2]:[0]:[0]:[48]:[4c4e.35f4.79c1]:[0]:[0.0.0.0]/216
      172.16.0.13                                0 65002 i
*>e[2]:[0]:[0]:[48]:[4c4e.35f4.79c1]:[32]:[192.168.10.10]/272
      172.16.0.13                                0 65002 i

```

DR-SITE2-SP-01覆蓋單播TEP IP

```

DR-SITE2-SP-01# show ip int vrf overlay-1

lo5, Interface status: protocol-up/link-up/admin-up, iod: 86, mode: dci-ucast
IP address: 172.16.0.13, IP subnet: 172.16.0.13/32
IP broadcast address: 255.255.255.255
IP primary address route-preference: 0, tag: 0

```

模板 — EPG2-BD2-Site1建立

一旦DC-EPG2-WEB和DC-BD2-WEB是Nexus Dashboard Orchestrator的一部分，DC-EP-1和DC-EP-3之間就會發生EPG間通訊。

在架構1中建立模板EPG2-BD2-Site1。DC-SITE1新增到與同一模板關聯的模板和租戶 — Production。這是特定於站點的模板。此模板用於匯入Template-EPG2-BD2-Site1用於DC-EP-1和DC-EP-3之間的通訊。

DC-EP-1和DC-EP-3通訊要求DC-EPG2-BD2必須是Nexus Dashboard Orchestrator的一部分。

圖 42:DC-EP-1和DC-EP-3無法通訊

```

# ping 192.168.20.10 source 192.168.10.10 vrf site-1
PING 192.168.20.10 (192.168.20.10) from 192.168.10.10: 56 data bytes
Request 0 timed out
Request 1 timed out
Request 2 timed out
Request 3 timed out
Request 4 timed out

--- 192.168.20.10 ping statistics ---
5 packets transmitted, 0 packets received, 100.00% packet loss

```

圖 43:新增應用模板 — 選擇ACI多雲

Add Application Template

X

1 Select a Template type 2 Detail 3 Summary

Select a Template Type
Let's choose the type of template you want to work with

- ACI Multi-Cloud**
 - On-prem ACI fabric to fabric
 - On-prem ACI fabric to cloud fabric
 - Cloud fabric to cloud fabric
- NDPC**
 - ND-OS based network
- Cloud Local**
 - Non-stretched template for cloud fabric local BGP/IPv4 connected fabric

圖 44:新增模板名稱Template-EPG2-BD2-Site1，選擇租戶生產

Add Application Template

X

1 Select a Template type 2 Detail 3 Summary

Details
Now name the template and select a tenant

- ACI Multi-Cloud**
 - On-prem ACI fabric to fabric
 - On-prem ACI fabric to cloud fabric
 - Cloud fabric to cloud fabric

GENERAL

Display Name *
Template-EPG2-BD2-Site1
Internal Name: Template-EPG2-BD2-Site1 [Add Description](#)

Select a Tenant *
Production

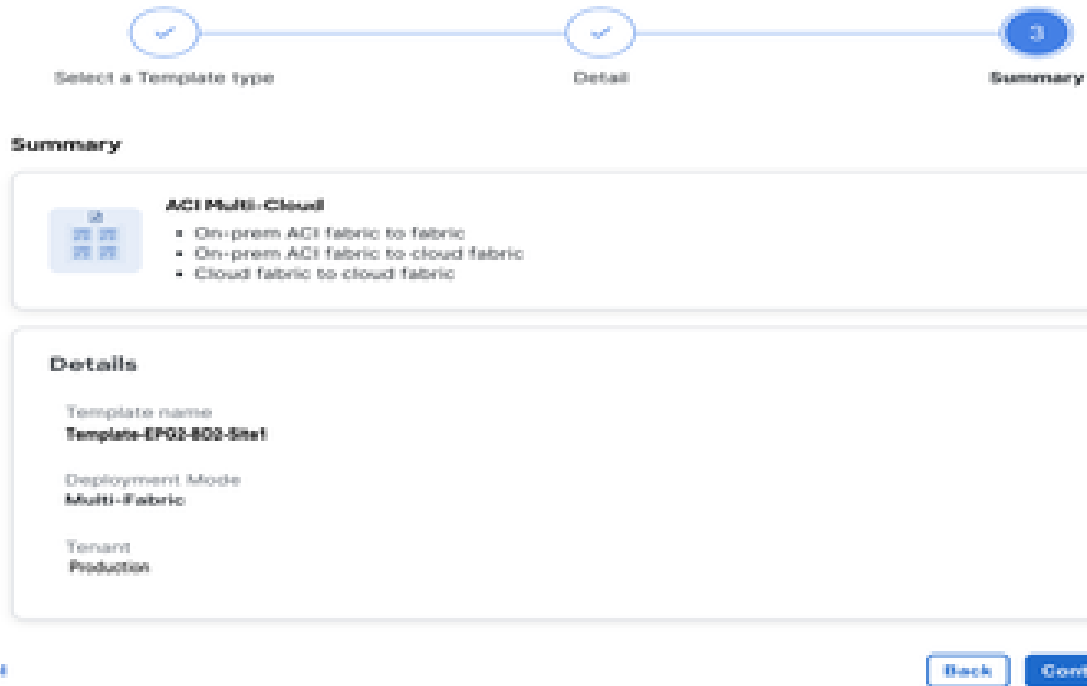
Deployment Mode ⓘ
 Multi-Fabric
 Autonomous

[Cancel](#) [Back](#) [Next](#)

圖 45:Template-EPG2-BD2-Site1詳細資訊

Add Application Template

✕



在Template-EPG2-BD2-Site1中匯入EPG2-BD2

從DC-SITE1匯入DC-EPG2-WEB和DC-BD2-WEB。

圖 46: 點選Import並選擇DC-SITE1

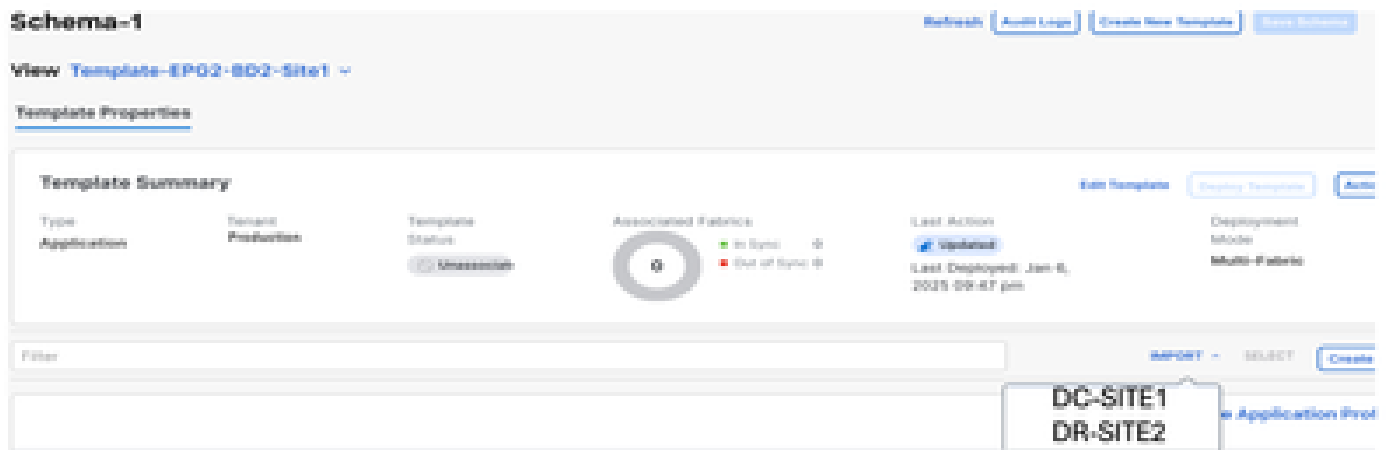


圖47：從DC-SITE1中選擇DC-EPG2-WEB

Import from DC-SITE1

POLICY TYPE	<input type="checkbox"/> SELECT TO IMPORT	<input type="text"/>	IMPORT RELATIONS
APPLICATION PROFILE 1 out of 2	<input type="checkbox"/>	DC-EPG1-WEB 1 AP • 4 CONTRACT • 1 BD	
EPG 1 out of 3	<input checked="" type="checkbox"/>	DC-EPG2-WEB 1 AP • 4 CONTRACT • 1 BD	<input checked="" type="checkbox"/>
EXTERNAL EPG 0 out of 2	<input type="checkbox"/>	DC-EPG-APP 1 AP • 4 CONTRACT • 1 BD	

圖48：從DC-SITE1中選擇DC-BD2-WEB

Import from DC-SITE1

POLICY TYPE	<input type="checkbox"/> SELECT TO IMPORT	<input type="text"/>	IMPORT RELATIONS
APPLICATION PROFILE 1 out of 2	<input type="checkbox"/>	DC-BD1-WEB 1 VRF	
EPG 1 out of 3	<input checked="" type="checkbox"/>	DC-BD2-WEB 1 VRF	<input checked="" type="checkbox"/>
EXTERNAL EPG 0 out of 2	<input type="checkbox"/>	DC-BD-APP 1 VRF	
CONTRACT 0 out of 4			
FILTER 0 out of 4			
VRF 0 out of 2			
BD 1 out of 3			

Import

圖 49: 匯入與DC-EPG2-WEB關聯的合約

DC-EPG2-WEB [View Relationship](#)

Common Properties

Display Name

Deployed Name: DC-EPG2-WEB

Description

Annotations

Key	Value
Create Annotations	

Contracts

Name	Type	Actions
DC-EPG-TO-L3Out-WEB-COM	provider	edit delete
DC-EPG-TO-EPG-WEB-COM	provider	edit delete
DC-EPG-TO-L3Out-WEB-COM	consumer	edit delete
DC-EPG-TO-EPG-WEB-COM	consumer	edit delete

部署模板 — EPG2-BD2-Site1

點選Deploy Template-EPG2-BD2-Site1並選擇DC-SITE1

圖50:將交換矩陣新增到模板 — EPG2-BD2-Site1

Add Fabrics To Template-EPG2-BD2-Site1 x

Name

DC-SITE1
6.0(5N)

DR-SITE2
6.0(5N)

[Ok](#)

圖 51:向外部署同步模板

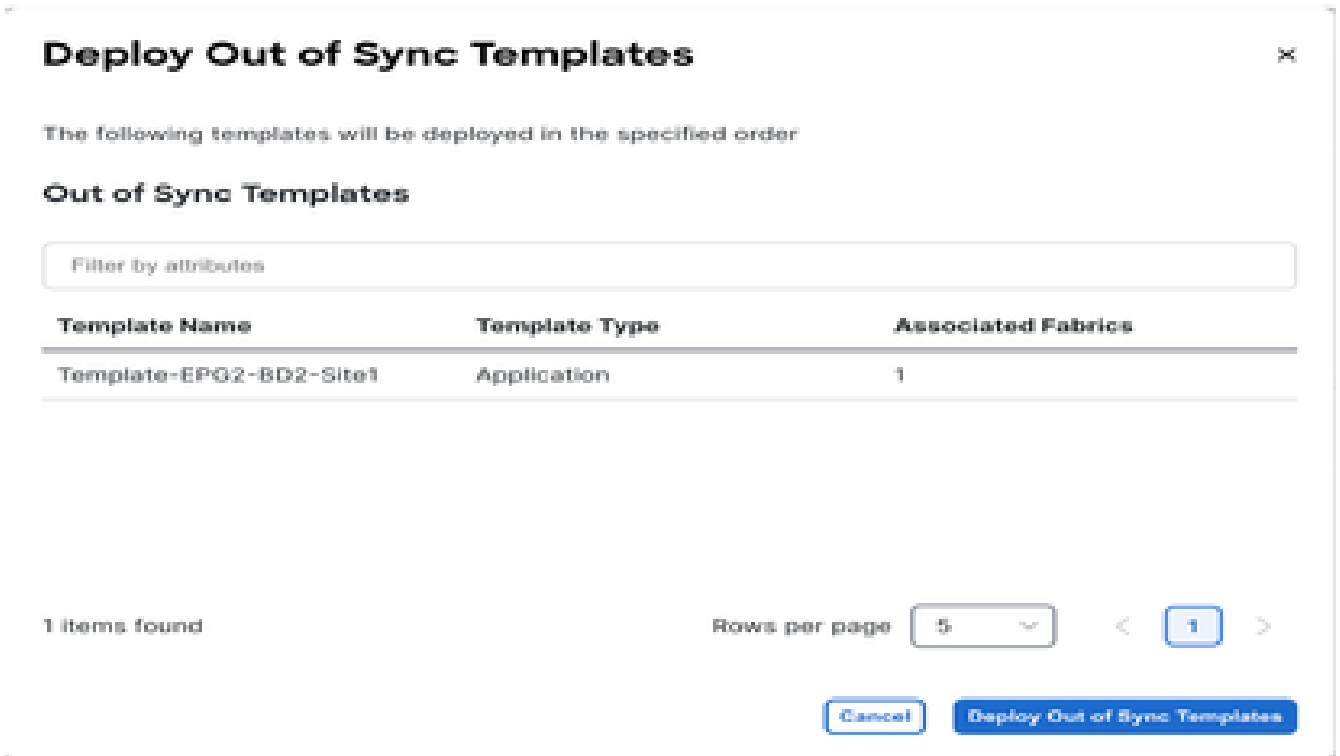


圖 52:部署已完成

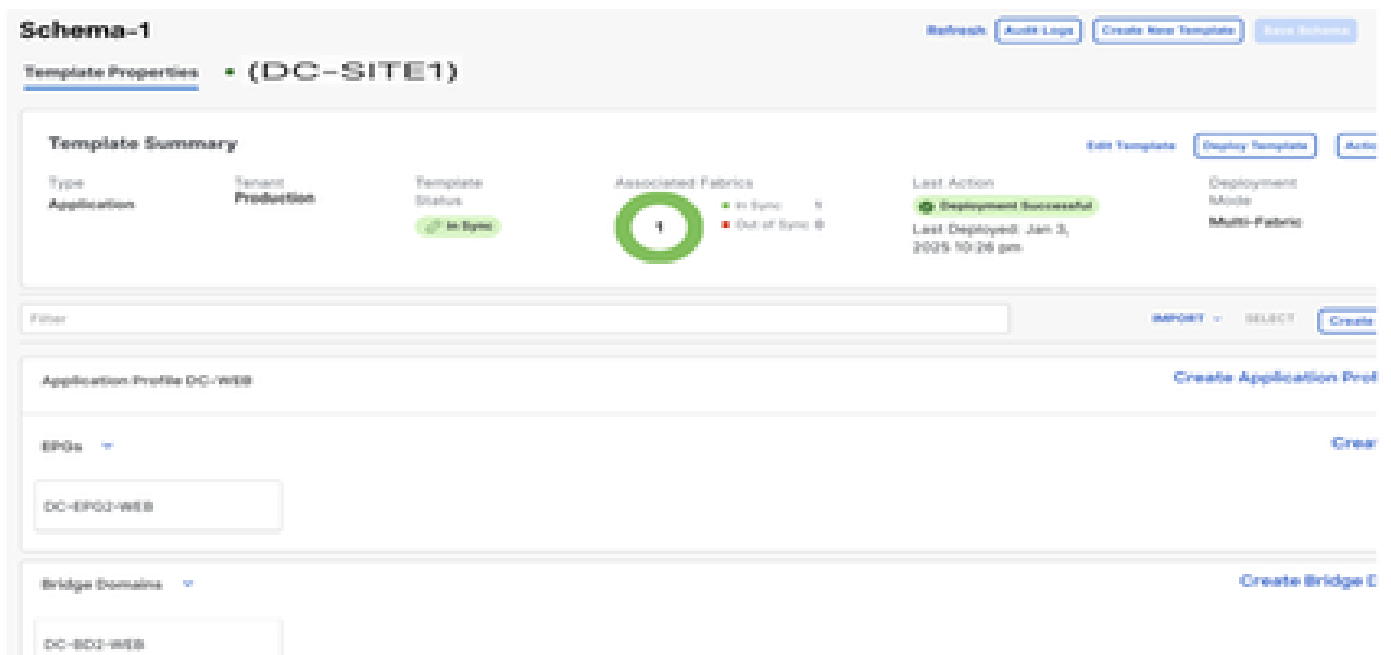
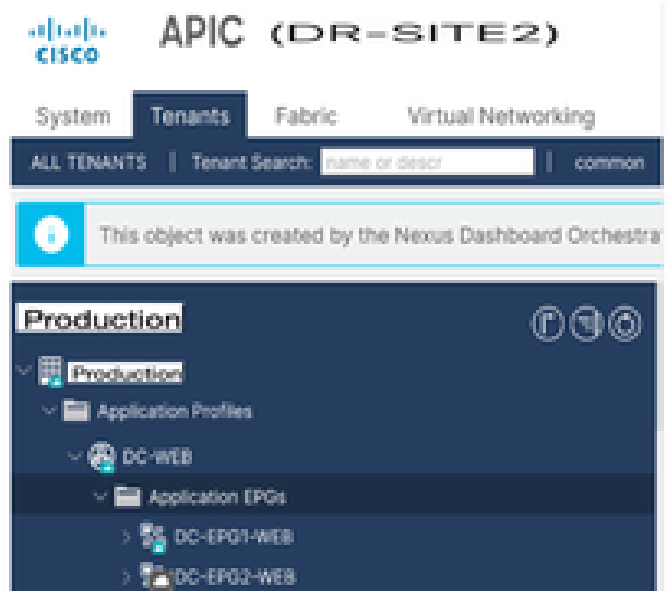
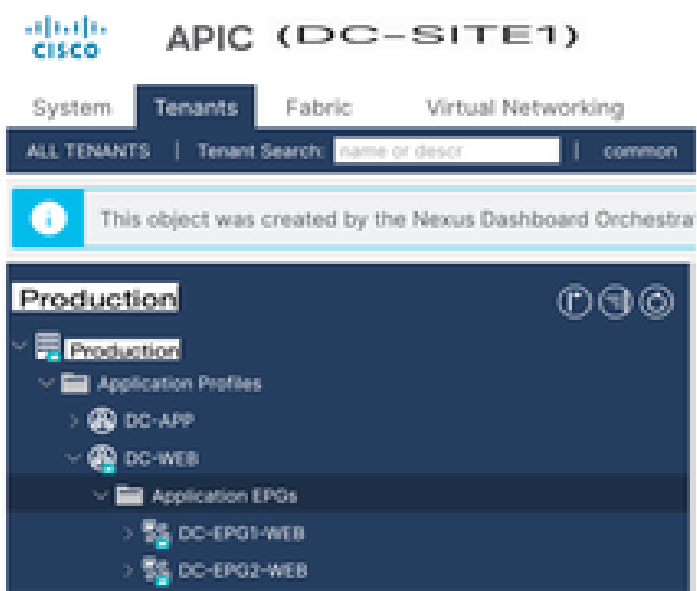


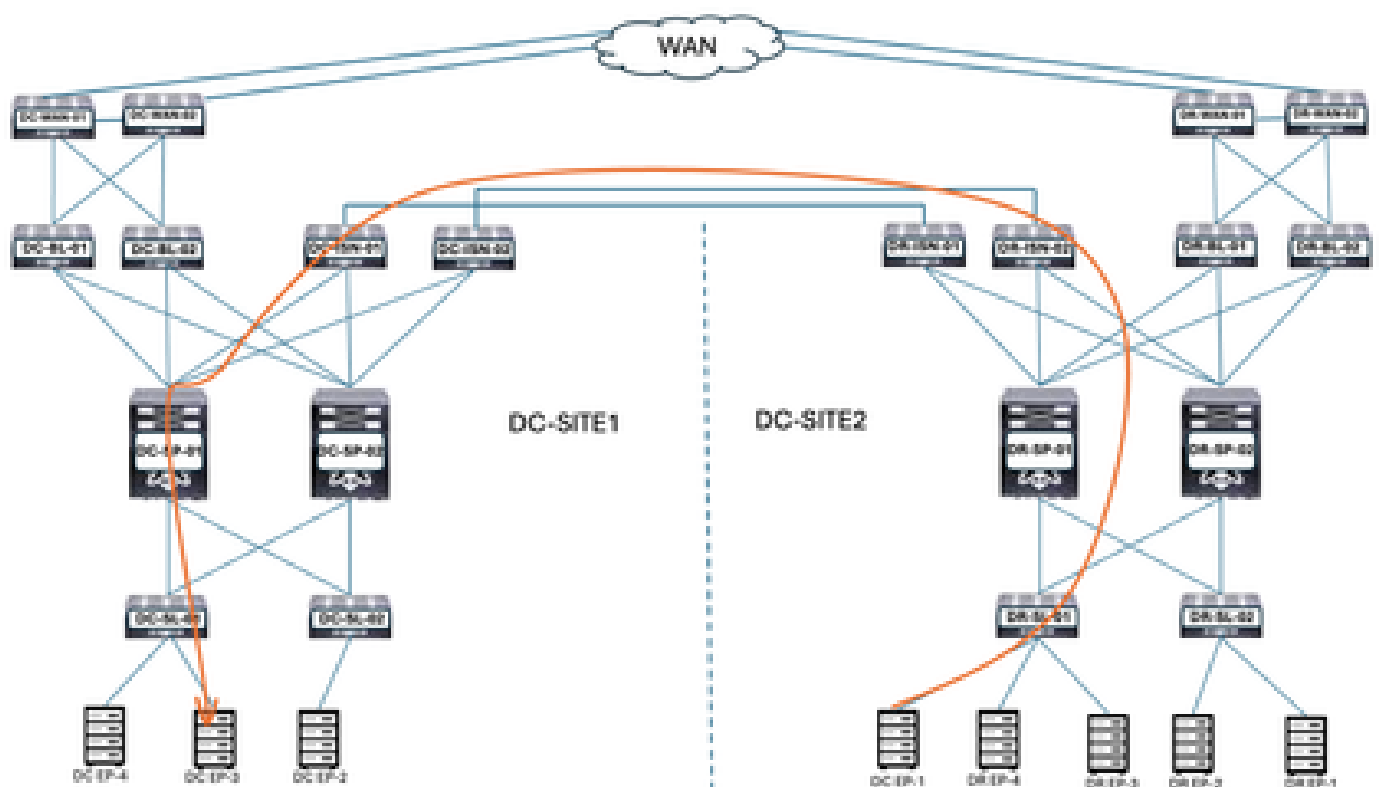
圖 53:DC-EPG2-WEB部署在兩個站點

在DR-SITE2中為DC-EPG2-WEB建立陰影EPG



EP-1遷移後的EPG間流量

圖 54:EP-1遷移後的EPG間流量



DC-EP-1和DC-EP-3之間的通訊是EPG間通訊，因為兩個端點分別屬於DC-EPG1-WEB和DC-EPG2-WEB。此通訊通過DC ISN到DR ISN多站點/重疊連結進行。

DC-EP-1和DC-EP-3之間的Ping響應

圖 55:DC-EP-1和DC-EP-3之間的Ping響應

```
# ping 192.168.20.10 source 192.168.10.10 vrf site-1
PING 192.168.20.10 (192.168.20.10) from 192.168.10.10: 56 data bytes
64 bytes from 192.168.20.10: icmp_seq=0 ttl=252 time=1.498 ms
64 bytes from 192.168.20.10: icmp_seq=1 ttl=252 time=1.255 ms
64 bytes from 192.168.20.10: icmp_seq=2 ttl=252 time=1.129 ms
64 bytes from 192.168.20.10: icmp_seq=3 ttl=252 time=1.084 ms
64 bytes from 192.168.20.10: icmp_seq=4 ttl=252 time=1.537 ms

--- 192.168.20.10 ping statistics ---
5 packets transmitted, 5 packets received, 0.00% packet loss
round-trip min/avg/max = 1.084/1.3/1.537 ms
```

Template-WEB-L3Out-Site1建立

在Schema-1內建立的Template-Web-L3Out-Site1。DC-SITE1已新增到模板，並與同一模板關聯的Tenant-Production。這是特定於站點的模板。此模板用於DC-EP-1 Inter-VRF和Inter-DC通訊。

圖 56:新增應用模板 — 選擇ACI多雲

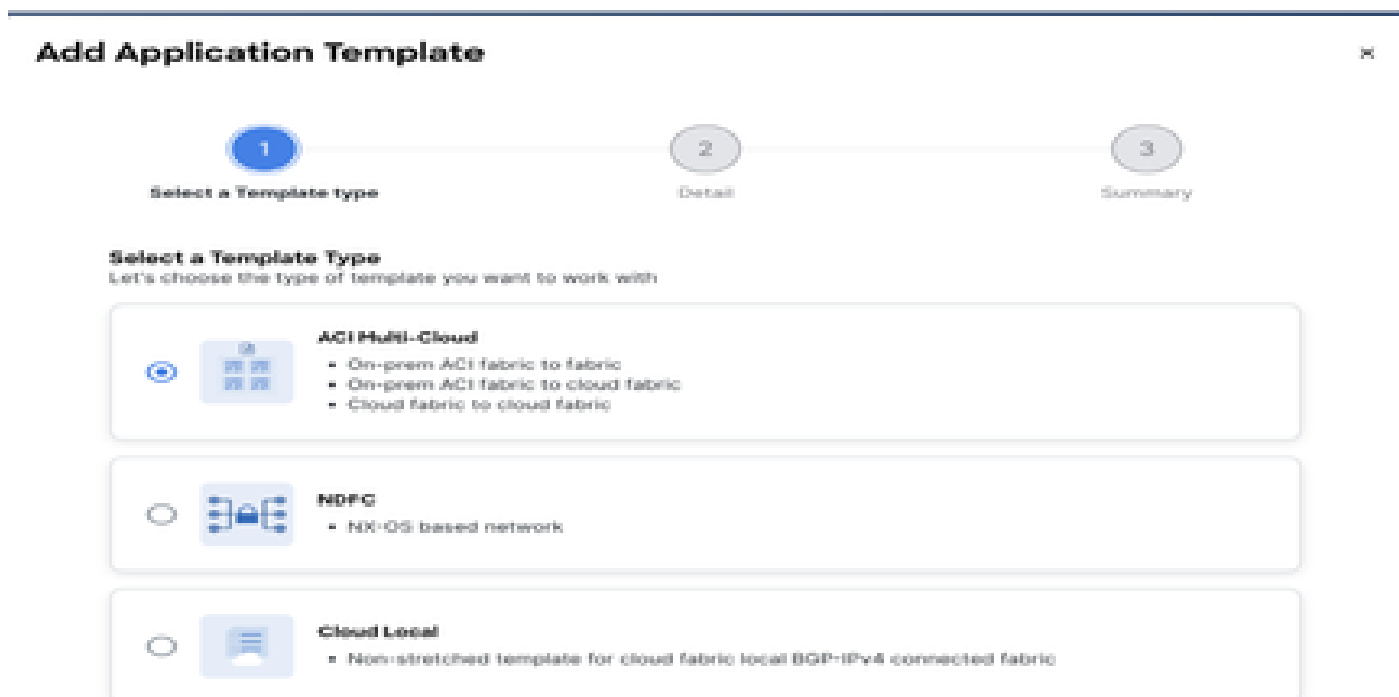


圖57:新增模板名稱Template-WEB-L3Out-Site1，選擇租戶生產

Add Application Template

1 Select a Template type

2 **Detail**

3 Summary

Details

Now name the template and select a tenant.

ACI Multi-Cloud

- On-prem ACI fabric to fabric
- On-prem ACI fabric to cloud fabric
- Cloud fabric to cloud fabric

GENERAL

Display Name *

Template-WEB-L3Out-Site1

Internal Name: Template-WEB-L3Out-Site1 [Add Description](#)

Select a Tenant *

Production

Deployment Mode ⊕

Multi-Fabric

Autonomous

[Cancel](#) [Back](#) [Next](#)

圖58:Template-WEB-L3Out-Site1詳細資訊

Add Application Template

1 Select a Template type

2 Detail

3 **Summary**

Summary

ACI Multi-Cloud

- On-prem ACI fabric to fabric
- On-prem ACI fabric to cloud fabric
- Cloud fabric to cloud fabric

Details

Template name
Template-WEB-L3Out-Site1

Deployment Mode
Multi-Fabric

Tenant
Production

[Cancel](#) [Back](#) [Continue to template](#)

在Template-WEB-L3Out-Site1中匯入外部EPG和L3Out

在Template-WEB-L3Out-Site1中匯入外部EPG和L3Out

圖 59:點選Import並選擇DC-SITE1

Schema-1

Refresh Audit Logs Create New Template Save Schema

Template Properties

Template Summary

Edit Template Deploy Template Act

Type: Application Tenant: Production Template Status: Unassociated Associated Fabrics: 0 (0 In-Sync, 0 Out of Sync) Last Action: Updated Deployment Mode: Multi-Fabric

IMPORT SELECT Create

DC-SITE1
DR-SITE2

圖60:從DC-SITE1選擇EXT-APP-EPG

Import from DC-SITE1

X

POLICY TYPE	SELECT TO IMPORT	IMPORT RELATIONS
APPLICATION PROFILE 0 out of 2	<input type="checkbox"/> EXT-APP-EPG ⚠ DC-APP-L3OUT 2 CONTRACT • 1 VRF • 1 L3OUT	
EPG 0 out of 3	<input checked="" type="checkbox"/> EXT-WEB-EPG ⚠ DC-WEB-L3OUT 2 CONTRACT • 1 VRF • 1 L3OUT	<input checked="" type="checkbox"/>
EXTERNAL EPG 1 out of 2		

圖61：從DC-SITE1選擇DC-APP-L3Out

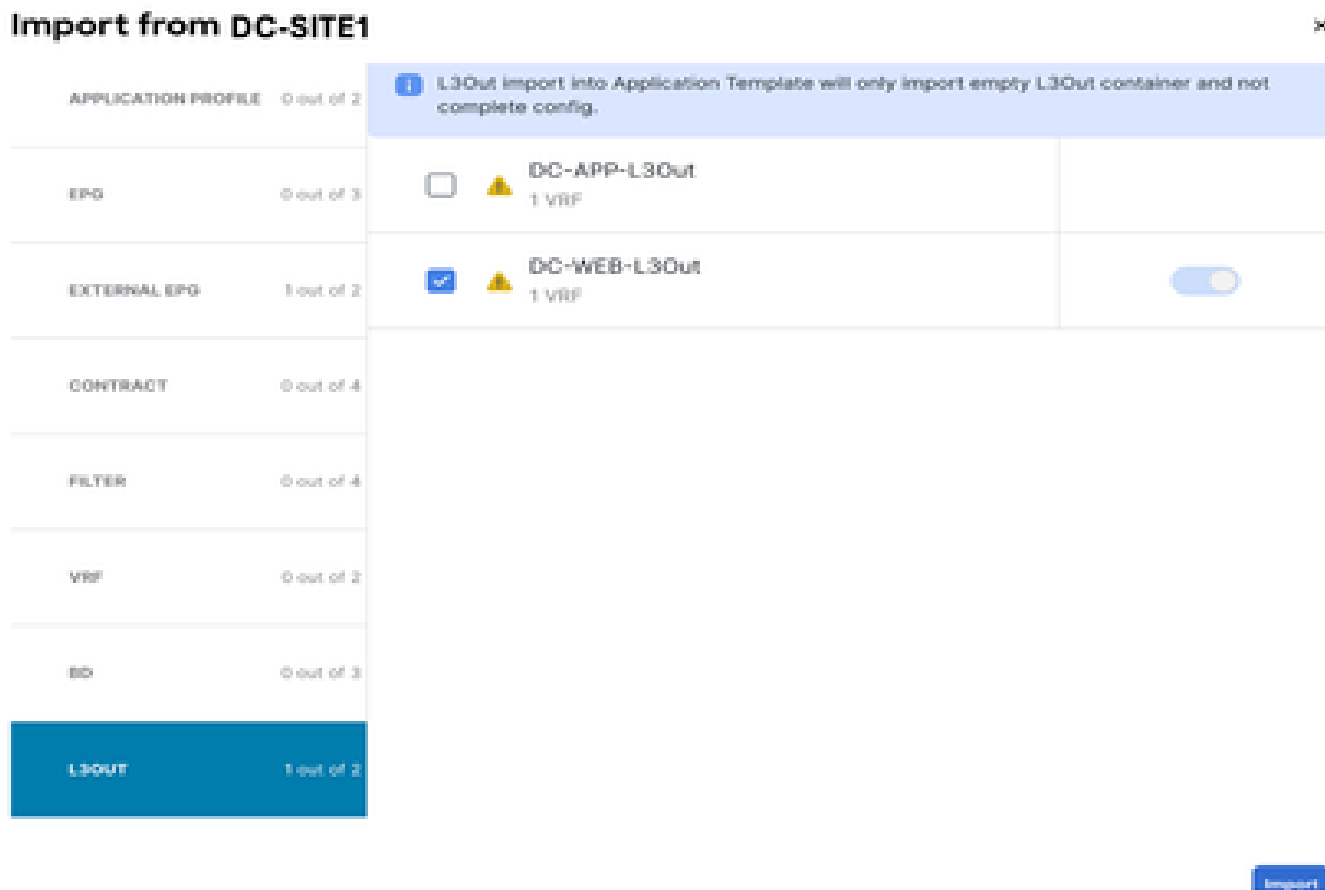


圖62:匯入與EXT-WEB-EPG關聯的合約

在DR-SITE2中建立的EXT-WEB-EPG的陰影以及應用的DC合約。

EXT-WEB-EPG View Relationship

Virtual Routing & Forwarding ■

Contracts

Name	Type	Actions
DC-EPG-TO-L3Out-WEB-COH	provider	✎ 🗑
DC-EPG-TO-L3Out-WEB-COH	consumer	✎ 🗑

[Add Contract](#)

Select Fabric Type

ON-PREM CLOUD

On-Premises Properties

L3Out

Subnets

Prefix/Prefix Length	Actions
0.0.0.0/0	✎ 🗑

[Add Subnet](#)

OK

部署Template-WEB-L3Out-Site1

點選Deploy Template-WEB-L3Out-Site1並選擇DC-SITE1

圖63:將結構新增到Template-WEB-L3Out-Site1

Add Fabrics To Template-WEB-L3Out-Site1 ✕

Name

DC-SITE1
LOCK

DR-SITE2
LOCK

OK

圖64:部署同步模板

Deploy Out of Sync Templates



The following templates will be deployed in the specified order

Out of Sync Templates

Filter by attributes

Template Name	Template Type	Associated Fabrics
Template-WEB-L3Out-Site1	Application	1

1 items found

Rows per page 5 < 1 >

Cancel Deploy Out of Sync Templates

圖65:部署已完成

Schema-1

Refresh Audit Logs Create New Template View Schema

View Template-WEB-L3Out-Site1

Template Properties COX-ARJOC-LAB-SITE1

Template Summary

Type Application	Tenant Production	Template Status In Sync	Associated Fabrics 1	Last Action Deployment Successful	Deployment Mode Multi-Fabric
---------------------	----------------------	---	--------------------------------------	---	---------------------------------

Filter IMPORT - SELECT Create

External EPGs

EXT-WEB-EPG Create External

L3Outs

DC-WEB-L3Out Create

檢驗DC-VRF-WEB的DR伺服器枝葉中的路由

DC-VRF-WEB的DR伺服器枝葉中安裝的靜態路由。

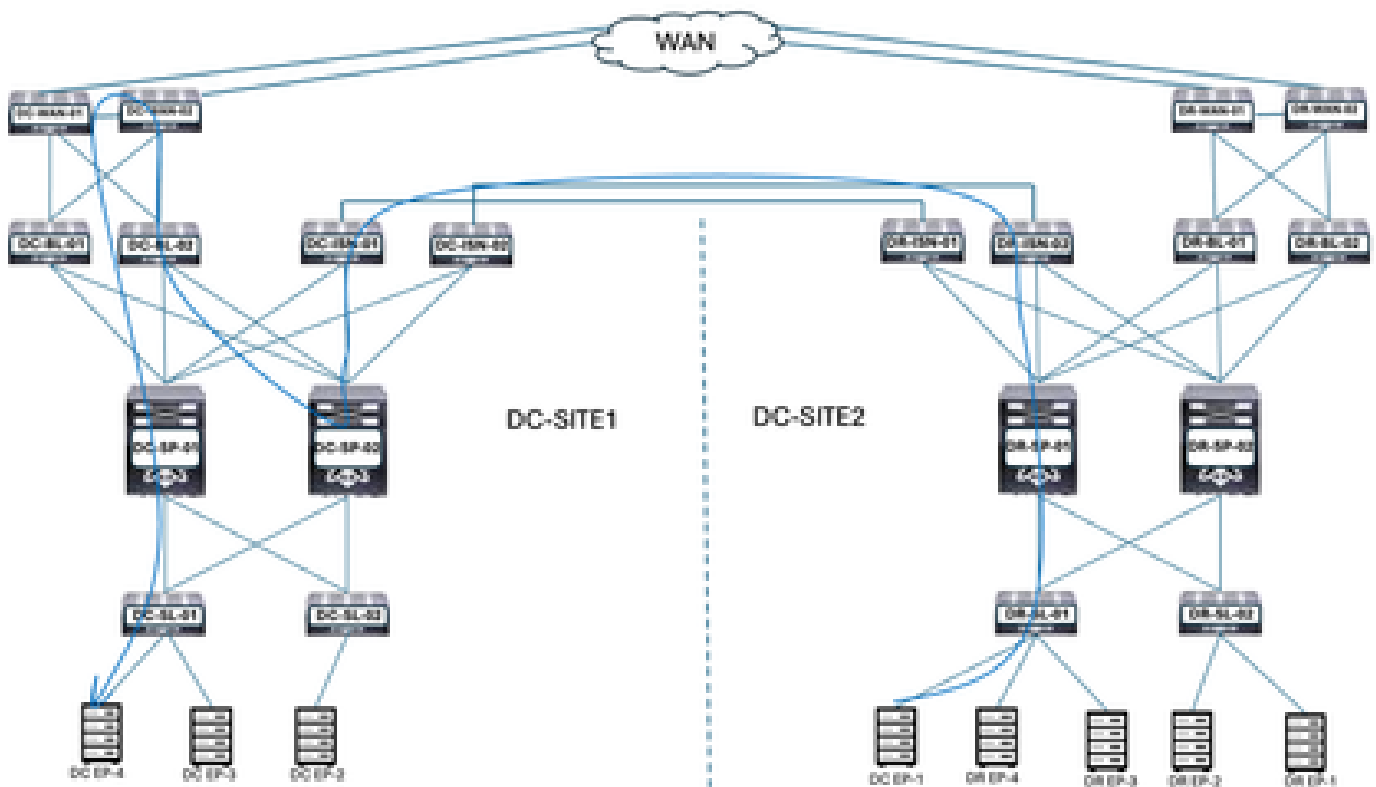
圖 66:檢驗DC-VRF-WEB的DR伺服器枝葉中的路由

```
DR-SL-01# show ip route vrf Production:DC-VRF-WEB
IP Route Table for VRF "Production:DC-VRF-WEB"
'*' denotes best ucast next-hop
 '**' denotes best mcast next-hop
 '[x/y]' denotes [preference/metric]
 '%<string>' in via output denotes VRF <string>

0.0.0.0/0, ubest/mbest: 1/0
  *via 172.16.1.232%overlay-1, [200/0], 00:04:41, bgp-65002, internal, tag 65001, rvid: vxlan-2883589
```

DC-EP-1遷移後的VRF間流量

圖 67:DC-EP-1遷移後的VRF間流量



DC-EP-1使用DC-WEB-L3Out與DC-EP-4進行通訊。流量從DR-ISN流到DC-ISN多站點鏈路，從DC-ISN流到DC-SP-01/DC-SP-02，從DC-SP流到DC-BL。DC-BL-01/DC-BL-02將流量轉發到DC-WAN交換機以進行VRF間路由。

DC-EP-1和DC-EP-4之間的Ping響應

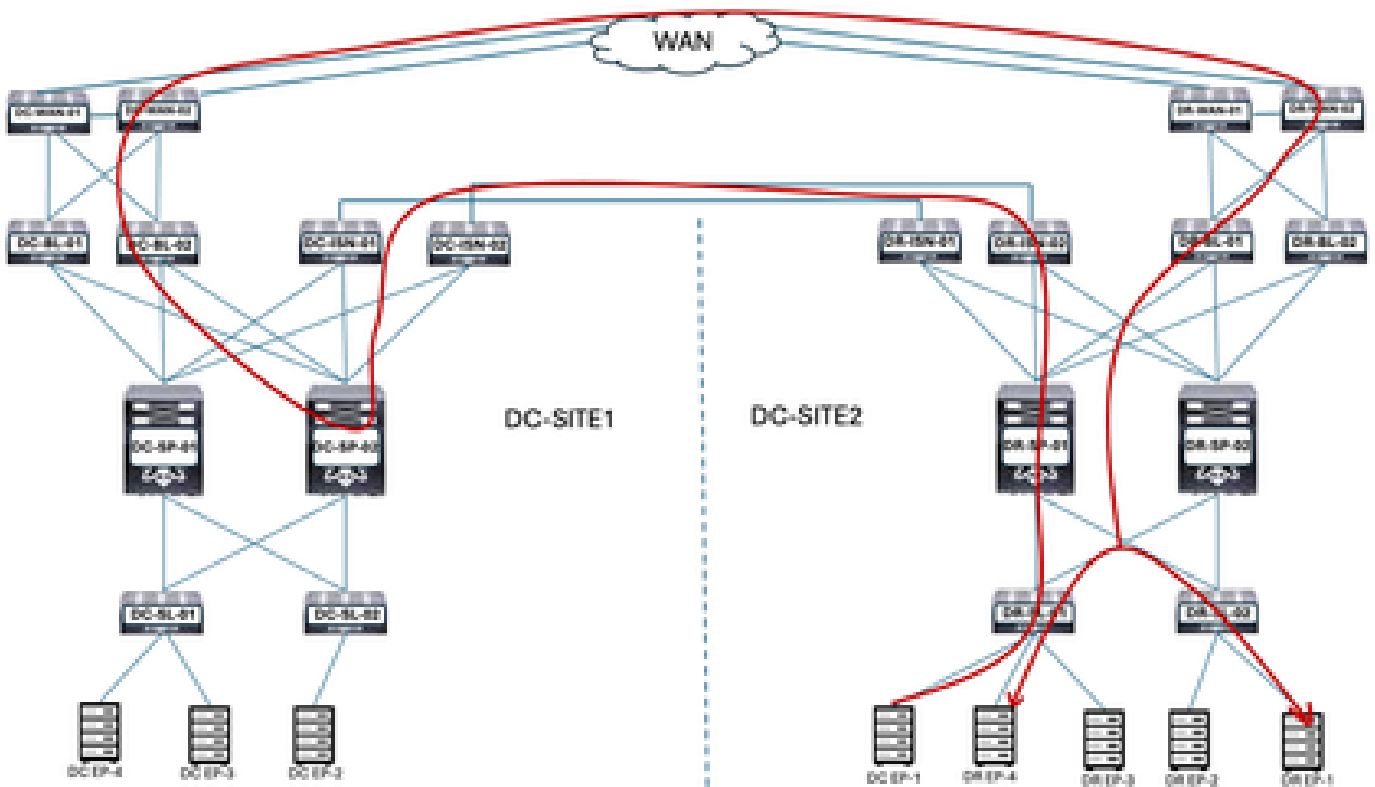
圖 68:DC-EP-1和DC-EP-4之間的Ping響應

```
# ping 192.168.30.10 source 192.168.10.10 vrf site-1
PING 192.168.30.10 (192.168.30.10) from 192.168.10.10: 56 data bytes
64 bytes from 192.168.30.10: icmp_seq=0 ttl=249 time=1.781 ms
64 bytes from 192.168.30.10: icmp_seq=1 ttl=249 time=2.617 ms
64 bytes from 192.168.30.10: icmp_seq=2 ttl=249 time=1.288 ms
64 bytes from 192.168.30.10: icmp_seq=3 ttl=249 time=1.116 ms
64 bytes from 192.168.30.10: icmp_seq=4 ttl=249 time=1.135 ms

--- 192.168.30.10 ping statistics ---
5 packets transmitted, 5 packets received, 0.00% packet loss
round-trip min/avg/max = 1.116/1.587/2.617 ms
SITE2-EP1#
```

DC-EP-1遷移後的DC間流量

圖 69:DC-EP-1遷移後的DC間流量



DC-EP-1使用DC-WEB-L3Out與DR端點通訊。從DR-ISP到DC-ISP多站點鏈路、DC-ISP到DC-SP-01/DC-SP-02以及從DC-SP到DC-BL的流量。DC-BL-01/DC-BL-02將流量轉發到DR終端的DC-WAN交換機。

DC-EP-1和DR-EP之間的Ping響應

圖 70:DC-EP-1和DR-EP之間的Ping響應

```

SITE2-EP1# ping 192.168.11.10 source 192.168.10.10 vrf site-1
PING 192.168.11.10 (192.168.11.10) from 192.168.10.10: 56 data bytes
Request 0 timed out
64 bytes from 192.168.11.10: icmp_seq=1 ttl=249 time=2.245 ms
64 bytes from 192.168.11.10: icmp_seq=2 ttl=249 time=1.893 ms
64 bytes from 192.168.11.10: icmp_seq=3 ttl=249 time=1.725 ms
64 bytes from 192.168.11.10: icmp_seq=4 ttl=249 time=1.991 ms

--- 192.168.11.10 ping statistics ---
5 packets transmitted, 4 packets received, 20.00% packet loss
round-trip min/avg/max = 1.725/1.908/2.245 ms
SITE2-EP1#
SITE2-EP1#
SITE2-EP1# ping 192.168.11.20 source 192.168.10.10 vrf site-1
PING 192.168.11.20 (192.168.11.20) from 192.168.10.10: 56 data bytes
Request 0 timed out
64 bytes from 192.168.11.20: icmp_seq=1 ttl=249 time=1.714 ms
64 bytes from 192.168.11.20: icmp_seq=2 ttl=249 time=1.493 ms
64 bytes from 192.168.11.20: icmp_seq=3 ttl=249 time=1.245 ms
64 bytes from 192.168.11.20: icmp_seq=4 ttl=249 time=1.292 ms

--- 192.168.11.20 ping statistics ---
5 packets transmitted, 4 packets received, 20.00% packet loss
round-trip min/avg/max = 1.493/1.313/1.714 ms
SITE2-EP1#
SITE2-EP1#
SITE2-EP1# ping 192.168.21.10 source 192.168.10.10 vrf site-1
PING 192.168.21.10 (192.168.21.10) from 192.168.10.10: 56 data bytes
64 bytes from 192.168.21.10: icmp_seq=0 ttl=249 time=1.554 ms
64 bytes from 192.168.21.10: icmp_seq=1 ttl=249 time=1.163 ms
64 bytes from 192.168.21.10: icmp_seq=2 ttl=249 time=1.178 ms
64 bytes from 192.168.21.10: icmp_seq=3 ttl=249 time=1.255 ms
64 bytes from 192.168.21.10: icmp_seq=4 ttl=249 time=1.261 ms

--- 192.168.21.10 ping statistics ---
5 packets transmitted, 5 packets received, 0.00% packet loss
round-trip min/avg/max = 1.163/1.262/1.554 ms
SITE2-EP1#
SITE2-EP1#
SITE2-EP1# ping 192.168.31.10 source 192.168.10.10 vrf site-1
PING 192.168.31.10 (192.168.31.10) from 192.168.10.10: 56 data bytes
64 bytes from 192.168.31.10: icmp_seq=0 ttl=249 time=1.51 ms
64 bytes from 192.168.31.10: icmp_seq=1 ttl=249 time=1.31 ms
64 bytes from 192.168.31.10: icmp_seq=2 ttl=249 time=1.263 ms
64 bytes from 192.168.31.10: icmp_seq=3 ttl=249 time=1.278 ms
64 bytes from 192.168.31.10: icmp_seq=4 ttl=249 time=1.247 ms

--- 192.168.31.10 ping statistics ---
5 packets transmitted, 5 packets received, 0.00% packet loss
round-trip min/avg/max = 1.247/1.321/1.51 ms

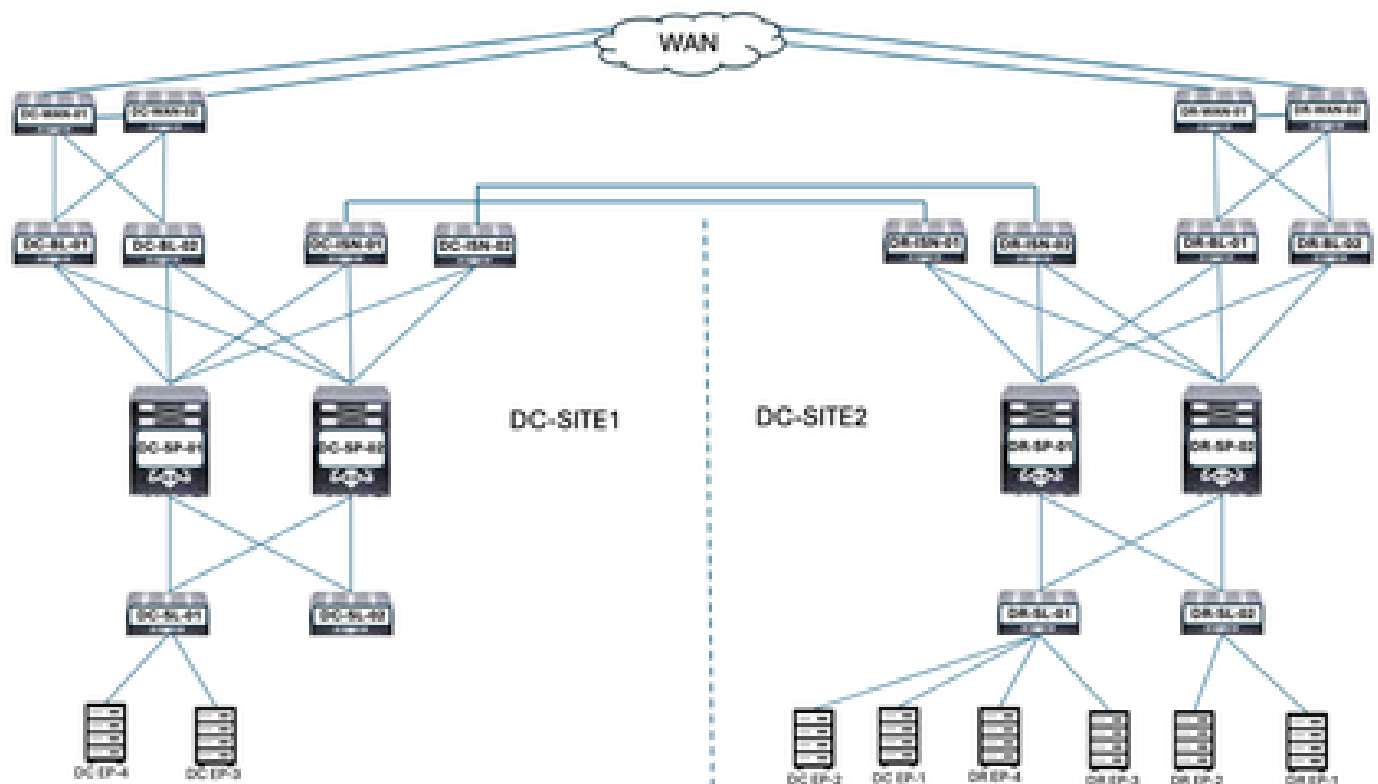
```

遷移剩餘端點

剩餘端點遷移後的物理設計

將剩餘終端從DC遷移到DR DC-EPG1-WEB後，物理圖發生了相應更改。

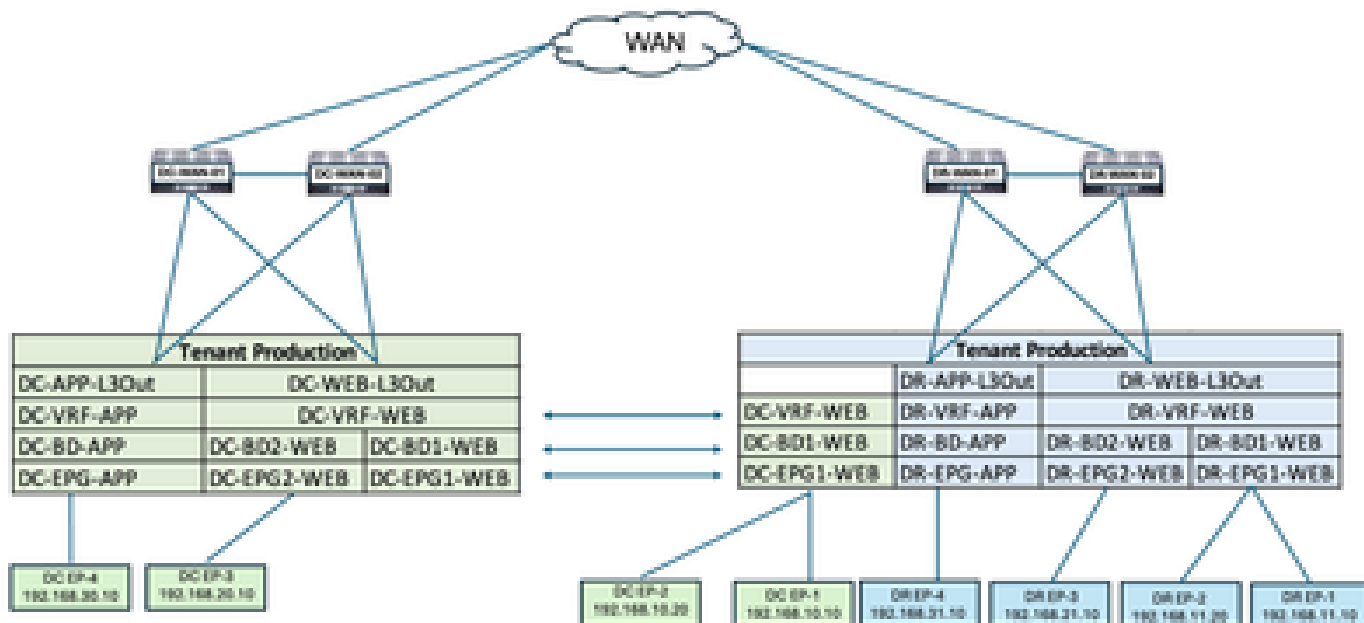
圖 71:所有終端從DC遷移到DR後的物理設計



其餘端點遷移後的邏輯設計

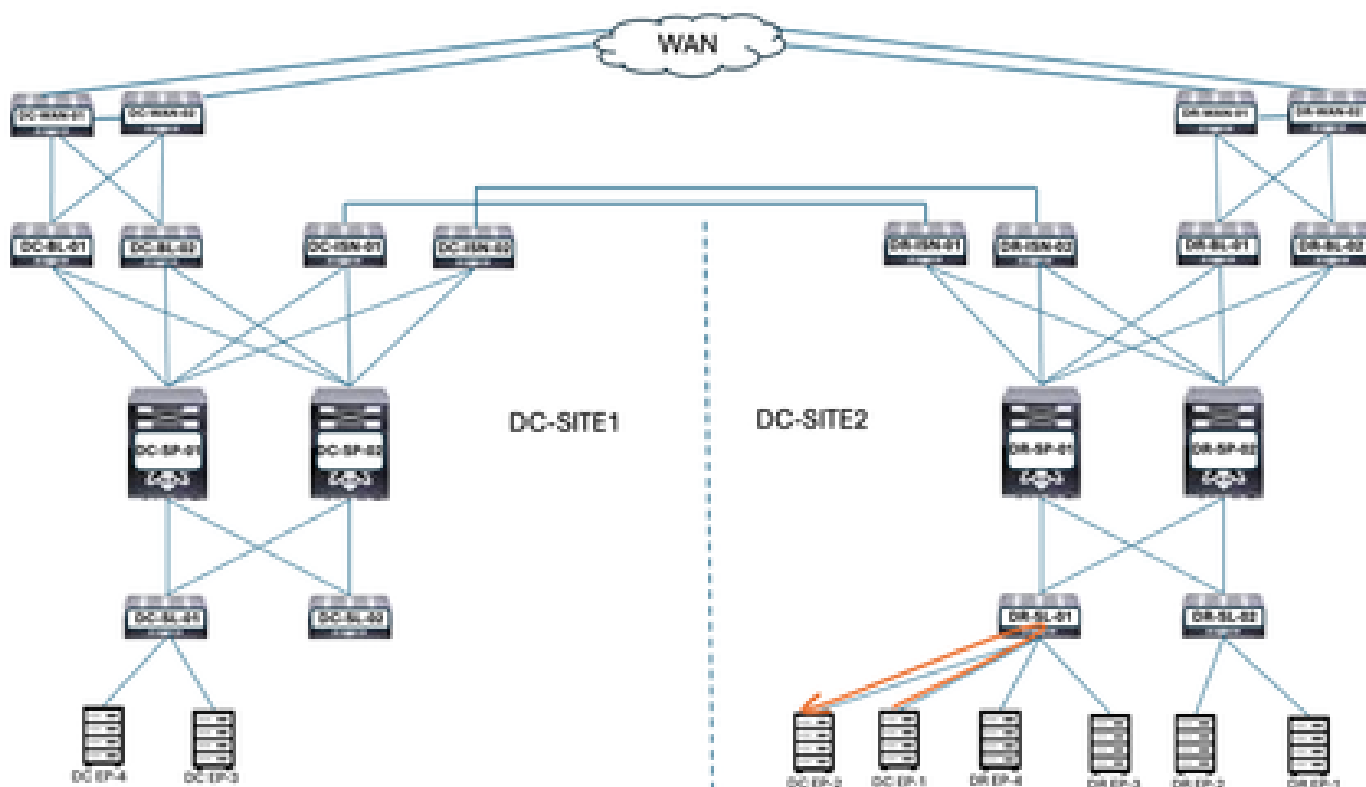
DC-EPG1-WEB、DC-BD1-WEB和DC-VRF-WEB已在DC和DR站點之間延伸。DC剩餘終端從DC遷移到DR站點。

圖 72:恢復終端遷移後的邏輯設計



剩餘終端遷移後的EPG內流量

圖 73:剩餘終端遷移後的EPG內流量



DC-EP-1和DC-EP-2之間的通訊是EPG內通訊，因為兩個端點都屬於DC-EPG1-WEB。此通訊直接在DR站點內發生。

Inter EPG、Inter VRF和Inter DC流量流仍與DC-EP-1遷移類似。

從DC站點取消部署Template-EPG1-BD1-Loaded

所有終端都從DC遷移到DC-EPG1-WEB的DR站點。DC站點中不需要使用DC-EPG1-WEB和DC-BD1-WEB。從DC站點取消部署Template-EPG1-BD1-Loaded，這將從Site-1刪除EPG和BD。

圖 74: 點選Undeploy Template

The screenshot displays the 'Schema-1' configuration page. At the top, there are buttons for 'Refresh', 'Audit Logs', 'Create New Template', and 'Save Schema'. Below this, the page title is 'View Template-EPG1-BD1-Stretched'. The 'Template Properties' section shows 'DC-SITE1' and 'DR-SITE2' selected. The 'Template Summary' section includes a table with the following data:

Type	Tenant	Template Status	Associated Fabrics	Last Action
Application	Production	In Sync	2 In Sync, 0 Out of Sync	Deployment Last Deployed: 2025-05-07 pm

Below the summary, there is a 'Filter' input field, an 'Application Profile DC-WEB' section, and an 'EPGs' dropdown menu with 'DC-EPG1-WEB' selected. A 'Bridge Domains' dropdown is also visible at the bottom. A context menu is open over the 'Undeploy Template' button, listing various actions such as 'Add/Remove Fabrics', 'Disassociate Fabric', 'Clone Template', 'Delete Template', 'View Deployed Configuration', 'View Deployment Dependencies', 'View Deployment Plan', 'Reconcile Configuration Drifts', 'View Version History', 'Roll Back Version', and 'Tag'.

圖 75: 選擇DC-SITE1並按一下「取消部署」

Undeploy Template-EPG1-BD1-Stretched

⚠ Undeploying this template will permanently remove applied policies from selected fabric. Review and take measure to prevent any functionality loss.

Fabric: **DC-SITE1**

Plan: **DC-SITE1**

Legend: ● Created ● Deleted ● Modified ● Existing ● Shadow

[View Payload](#) [Download Payload](#)

[Undeploy](#)

從DC站點取消關聯模板 — EPG1-BD1-Extended

此步驟將Template-EPG1-BD-Tended從DC站點分離。

圖 76: 點選取消關聯模板(Disassociate Template)

Schema-1 [Refresh](#) [Audit Logs](#) [Create New Template](#) [View Schema](#)

View **Template-EPG1-BD1-Stretched**

Template Properties: **DC-SITE1** **DR-SITE2**

Template Summary

Type: Application	Tenant: Production	Template Status: ● Out of Sync	Associated Fabric: ● In Sync (1) ● Out of Sync (1)	Last Action: ● Undeployed Last Deployed: 2025-05-11 pm
-------------------	--------------------	--	--	--

Filter:

Application Profile: DC-WEB

EPGs:

Bridge Domains:

[Create Bridge E](#)

- Add/Remove Fabric
- Disassociate Fabric**
- Clone Template
- Undeploy Template
- Delete Template ⚠
- View Deployed Configuration
- View Deployment Dependencies
- View Deployment Plan
- Reconcile Configuration Drifts
- View Version History
- Roll Back Version
- Tag

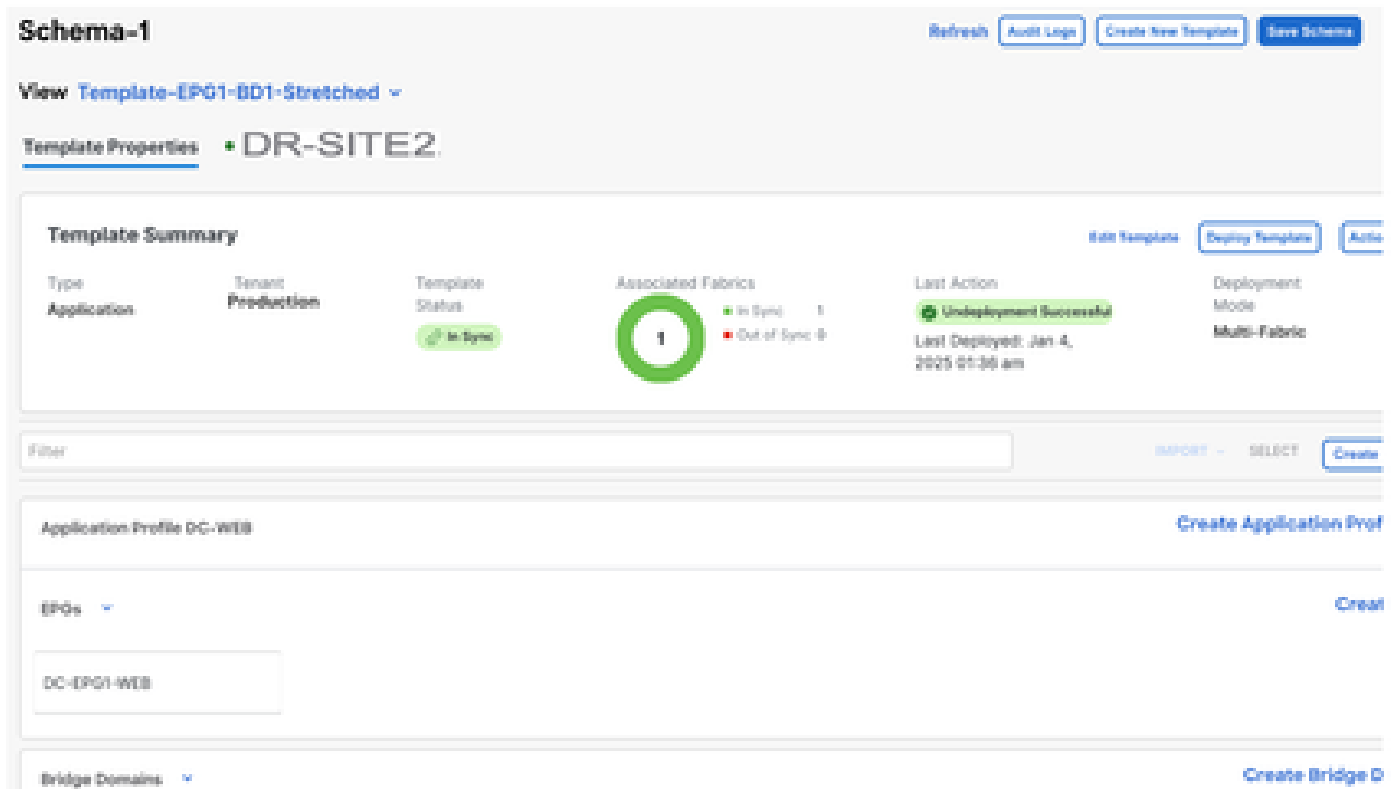
圖 77: 取消選中DC-SITE1

Add Fabrics To Template-EPG1-BD1-Stretched

34



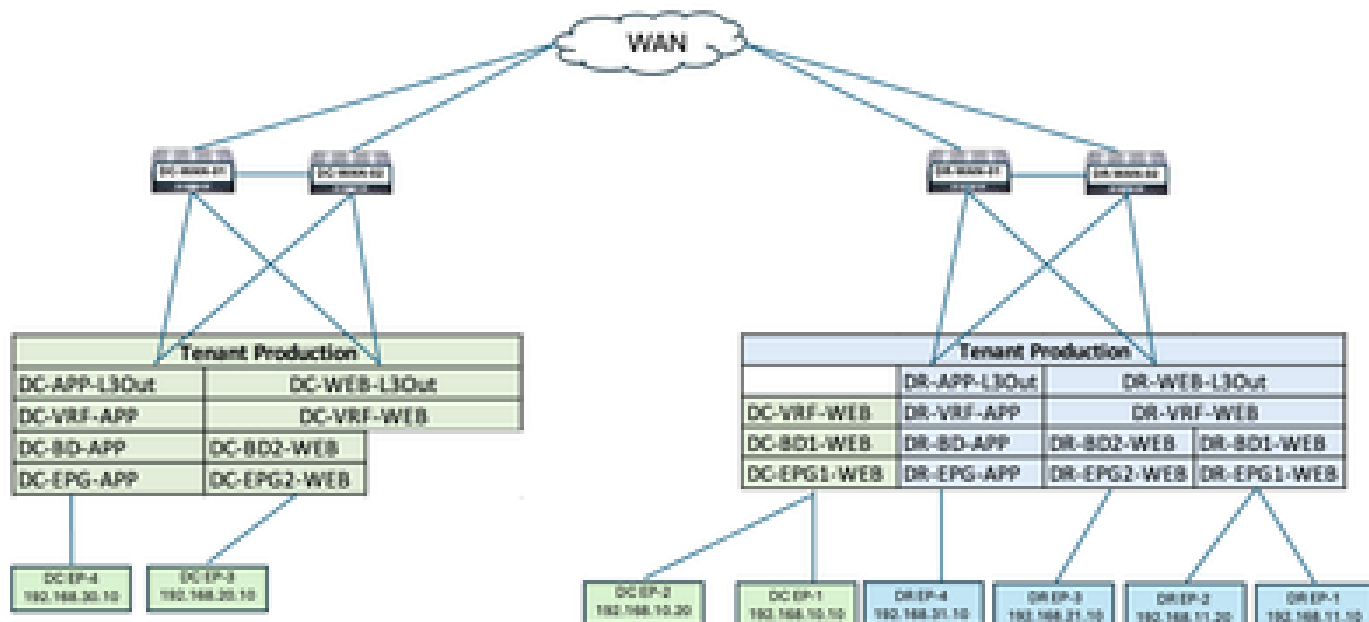
圖 78:DC-SITE2模板 — EPG1-BD1 — 伸展部分



從DC取消部署模板 — EPG1-BD1 — 拉伸後的邏輯設計

取消部署模板後，DC-EPG1-WEB和DC-BD1-WEB不是DC站點的一部分。

圖 79:取消部署模板後的邏輯設計



模板 — VRF — 合約 — 站點2建立

在架構1中建立模板 — VRF-Contract-Site2。DR-SITE2新增到與同一模板關聯的模板和租戶 — Production。這是特定於站點的模板。此模板用於關聯來自DR站點的DC-EPG1-WEB和DC-BD1-WEB的VRF和合約。

圖80:添加應用模板 — 選擇ACI多雲

Add Application Template

1 Select a Template Type

2 Detail

3 Summary

Select a Template Type
Let's choose the type of template you want to work with

- ACI Multi-Cloud**
 - On-prem ACI fabric to fabric
 - On-prem ACI fabric to cloud fabric
 - Cloud fabric to cloud fabric
- NDPC**
 - HX-OS based network
- Cloud Local**
 - Non-stretched template for cloud fabric local BGP-IPv4 connected fabric

圖81:新增模板名稱Template-VRF-Contract-Site2，選擇租戶生產

Add Application Template ✕

1 2 3

Select a Template type Detail Summary

Details

Now name the template and select a tenant

+

ACI Multi-Cloud

- On-prem ACI fabric to fabric
- On-prem ACI fabric to cloud fabric
- Cloud fabric to cloud fabric

GENERAL

Display Name *

Internal Name: Template-VRF-Contract-Site2.

[Add Description](#)

Select a Tenant *

Production ✕ ▾

Deployment Mode ⊞

Multi-Fabric

Autonomous


[Cancel](#)[Back](#) [Next](#)

圖82:Template-VRF-Contract-Site2詳細資訊

Add Application Template



Summary



ACI Multi-Cloud

- On-prem ACI fabric to fabric
- On-prem ACI fabric to cloud fabric
- Cloud fabric to cloud fabric

Details

Template name
Template-VRF-Contract-Site2

Deployment Mode
Multi-Fabric

Tenant
Production

Cancel

Back

Continue to template

在Template-VRF-Contract-Site2中匯入VRF合約

從DR-SITE2匯入DR-VRF-WEB和DR-VRF-WEB合約。

圖83:按一下Import並選擇DR-SITE2

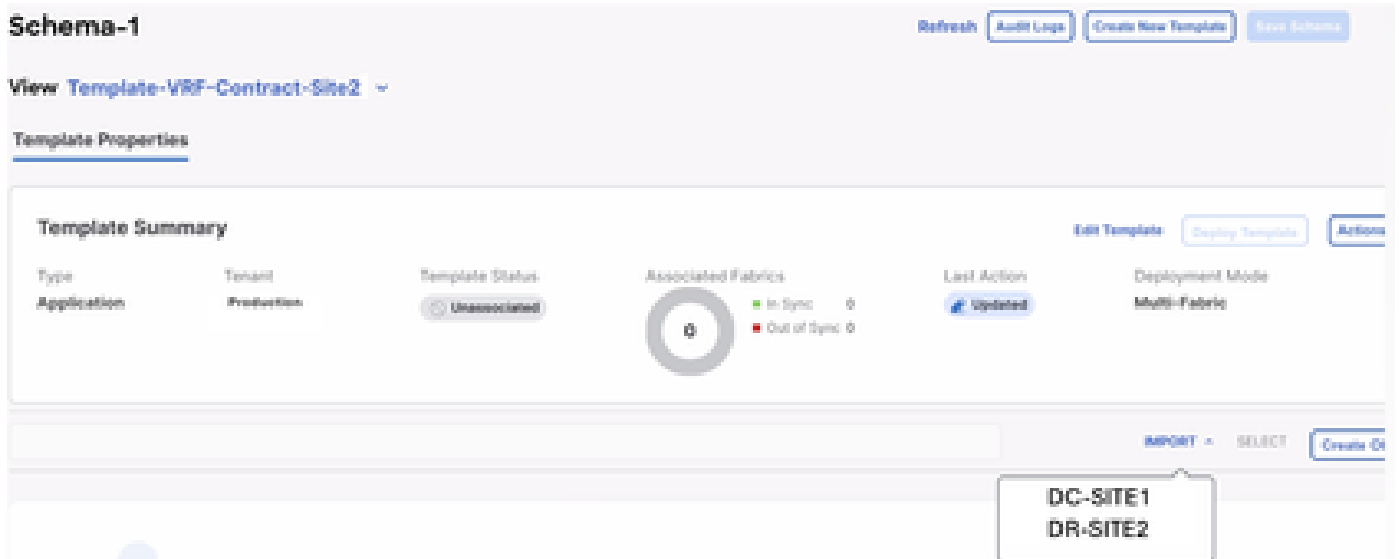


圖84:從DR-SITE2中選擇合約

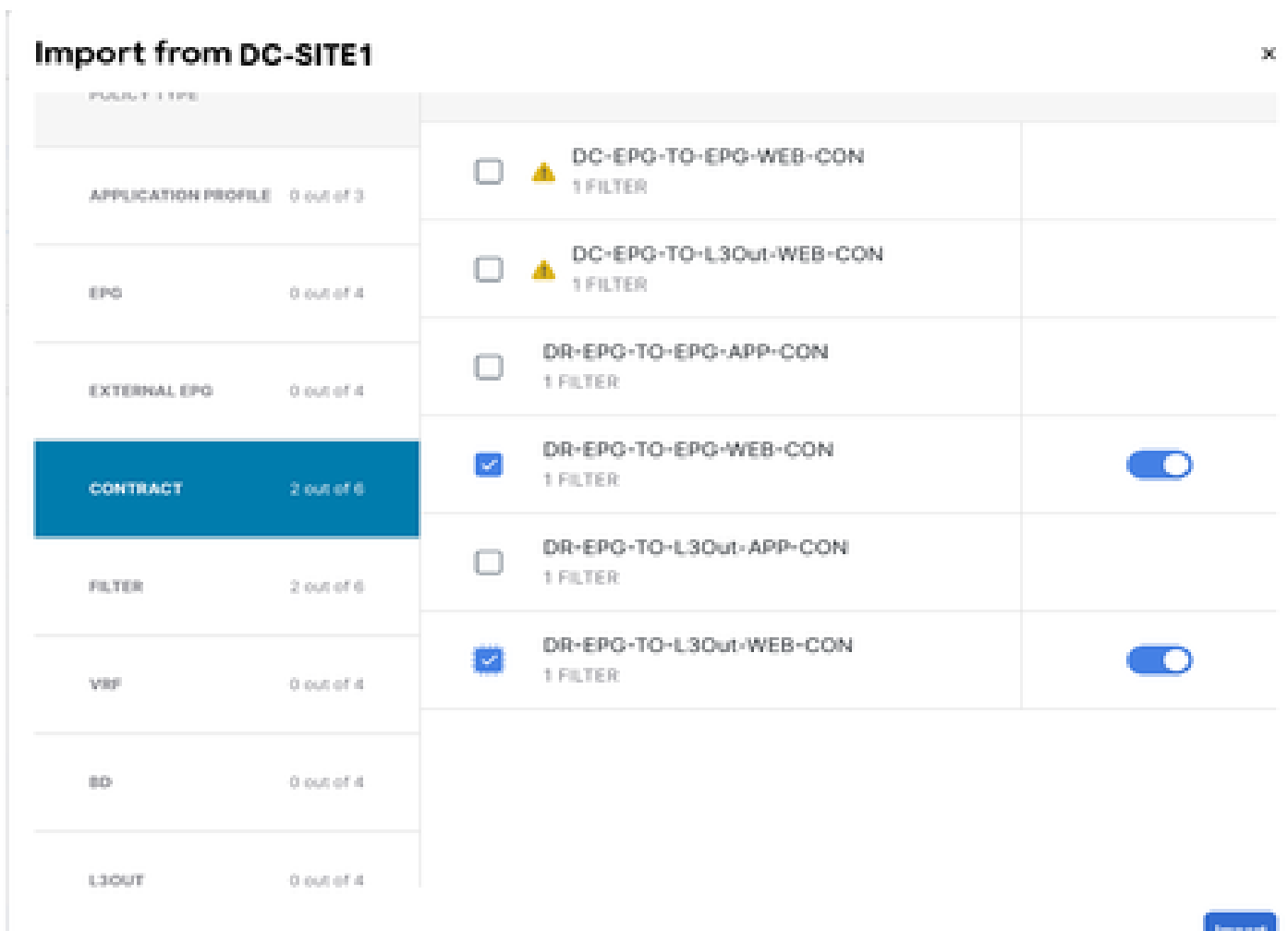


圖85:選擇DR-SITE2中的篩選器

Import from DC-SITE1

X

APPLICATION PROFILE	0 out of 3	<input type="checkbox"/>	DC-EPG-TO-EPG-WEB-FIL	
EPG	0 out of 4	<input type="checkbox"/>	DC-EPG-TO-L3Out-WEB-FIL	
EXTERNAL EPG	0 out of 4	<input type="checkbox"/>	DR-EPG-TO-EPG-APP-FIL	
CONTRACT	2 out of 6	<input checked="" type="checkbox"/>	DR-EPG-TO-EPG-WEB-FIL	
FILTER	2 out of 6	<input type="checkbox"/>	DR-EPG-TO-L3Out-APP-FIL	
VRF	0 out of 4	<input checked="" type="checkbox"/>	DR-EPG-TO-L3Out-WEB-FIL	
BD	0 out of 4			
L3OUT	0 out of 4			

Import

圖86:從DR-SITE2中選擇VRF

Import from DC-SITE1

✕

APPLICATION PROFILE	0 out of 3	<input type="checkbox"/>	DC-VRF-APP
EPG	0 out of 4	<input type="checkbox"/>	DC-VRF-WEB
EXTERNAL EPG	0 out of 4	<input type="checkbox"/>	DR-VRF-APP
CONTRACT	2 out of 6	<input checked="" type="checkbox"/>	DR-VRF-WEB
FILTER	2 out of 6		
VRF	1 out of 4		
BD	0 out of 4		
L3OUT	0 out of 4		

[Import](#)

圖 87:包含VRF/合約資訊的模板 — WEB-VRF-Contract-Site2

Schema-1

Refresh Audit Logs Create New Template Save Schema

1 Out of Sync 0

Filter [IMPORT](#) [SELECT](#) [Create](#)

Contracts [Create Co](#)

DR-EPG-TO-EPG-WEB-CON DR-EPG-TO-L3Out-WEB-CON

VRFs [Crea](#)

DR-VRF-WEB

Filters [Crea](#)

DR-EPG-TO-EPG-WEB-FIL DR-EPG-TO-L3Out-WEB-FIL

部署模板 — VRF-Contract-Site2

點選Deploy Template-VRF-Contract-Site2並選擇DR-SITE2

圖88：將交換矩陣新增到Template-VRF-Contract-Site2

Add Fabrics To Template-VRF-Site2

Name

● DC-SITE1
6.0(5h)

● DR-SITE2
6.0(5h)

圖89:向外部署同步模板

Deploy Out of Sync Templates

The following templates will be deployed in the specified order

Out of Sync Templates

Filter by attributes

Template Name	Template Type	Associated Fabrics
Template-VRF-Contract-Site2	Application	1

1 items found

Rows per page

5

<

1

>

Cancel

Deploy Out of Sync Templates

圖90:部署已完成

Schema-1 Refresh Audit Logs Create New Template Save Schema

Type	Tenant	Template	Associated Fabrics	Last Action	Deployment
Application	Production	Status In Sync	1 In Sync 0 Out of Sync	Deployment Successful Last Deployed: Jan 4, 2025 01:57 am	Mode Multi-Fabric

Filter REPORT SELECT Create

Contracts Create Co

DR-EPG-TO-EPG-WEB-CO1 DR-EPG-TO-L3Out-WEB-CO1

VRFs Crea

DR-VRF-WEB

Filters Creab

DR-EPG-TO-EPG-WEB-FIL DR-EPG-TO-L3Out-WEB-FIL

將DR-VRF-WEB關聯到DC-BD1-WEB

從之前建立的Template-EPG1-BD1-Longed將DR-VRF-WEB關聯到DC-BD1-WEB。DC-BD1-WEB是DR-SITE2的一部分。

圖 91:點選Template-EPG1-BD1-Longed

Schema-1 Refresh Audit Logs Create New Template Save Schema

View Template-EPG1-BD1-Stretched

Template Properties DR-SITE2

Template Summary Edit Template Deploy Template Actio

Type	Tenant	Template	Associated Fabrics	Last Action	Deployment
Application	Production	Status In Sync	1 In Sync 0 Out of Sync	Deployment Successful Last Deployed: Jan 4, 2025 01:36 am	Mode Multi-Fabric

Filter REPORT SELECT Create

Application Profile DC-WEB Create Application Prof

EPGs Creat

DC-EPG-WEB

Bridge Domains Create Bridge D

圖 92:將DR-VRF-WEB關聯到DC-BD1-WEB

The screenshot shows the configuration page for DC-BD1-WEB. At the top right, there is a 'View Relationship' link. Below the title, there is a large empty text box. Under the 'Annotations' section, there is a table with columns 'Key' and 'Value', and a 'Create Annotations' button. The 'Properties' section includes 'On-Premises Properties'. The 'Virtual Routing & Forwarding' section has a dropdown menu currently set to 'DR-VRF-WEB'. Below this, several checkboxes are visible: 'L3 Stretch' (checked), 'Inter-site BUM Traffic Allow' (checked), 'Optimize WAN Bandwidth' (checked), 'Unicast Routing' (checked), and 'L3 Multicast' (unchecked). A 'Go' button is located at the bottom right.

將DR-Contracts應用於DC-EPG1-WEB

將DR合約應用於DC-EPG1-WEB，DC-EPG1-WEB將DR合約用於從DC-EPG1-WEB進行通訊，用於DC間、VRF間和EPG間。DC-EPG1-WEB是DR-SITE2的一部分

圖 93:從DC-EPG1-WEB刪除DC-Contracts

The screenshot shows the configuration page for DC-EPG1-WEB. At the top right, there is a 'View Relationship' link. Under the 'Common Properties' section, there is a 'Display Name' field containing 'DC-EPG1-WEB' and a 'Description' field. Below this is an 'Annotations' table with 'Key' and 'Value' columns and a 'Create Annotations' button. The 'Contracts' section contains a table with the following entries:

Name	Type	Actions
DC-EPG-TG-L3Out-WEB-COM	provider	[edit] [delete]
DC-EPG-TG-EPG-WEB-COM	provider	[edit] [delete]
DC-EPG-TG-L3Out-WEB-COM	consumer	[edit] [delete]
DC-EPG-TG-EPG-WEB-COM	consumer	[edit] [delete]

At the bottom left, there is a 'Load Defaults' button.

圖 94:在DC-EPG1-WEB中新增災難恢複合約

DC-EPG1-WEB View Relationship

Display Name *

Deployed Name: DC-EPG1-WEB

Description

Annotations

Key	Value
+ Create Annotations	

Contracts

Name	Type	Actions
DR-EPG-TD-EPG-WEB-CON	consumer	edit delete
DR-EPG-TD-EPG-WEB-CON	provider	edit delete
DR-EPG-TD-L3Out-WEB-CON	consumer	edit delete
DR-EPG-TD-L3Out-WEB-CON	provider	edit delete

[+ Add Contract](#)

EPG Type

Application Service

[OK](#)

圖95:模板 — EPG1-BD1 — 延伸資訊

Schema-1 Refresh Audit Logs Create New Template Save Schema

Template Properties * DR-SITE2

Template Summary

Type	Tenant	Template Status	Associated Fabrics	Last Action	Deployment Mode
Application	Production	Out of Sync	<div style="border: 2px solid red; border-radius: 50%; width: 30px; height: 30px; display: flex; align-items: center; justify-content: center; margin: 0 auto;">1</div> 0 In Sync 0 Out of Sync	Updated Last Deployed: Jan 4, 2021 01:52 am	Multi-Fabric

Filter IMPORT - SELECT [Create O](#)

Application Profile DC-WEB [Create Application Profil](#)

EPGs [Create](#)

Bridge Domains [Create Bridge Do](#)

圖96：向外部署同步模板

Deploy Out of Sync Templates

x

The following templates will be deployed in the specified order

Out of Sync Templates

Filter by attributes

Template Name	Template Type	Associated Fabrics
Template-EPG1-BD1-Stretched	Application	1

1 items found

Rows per page

5

<

1

>

Cancel

Deploy Out of Sync Templates

圖97:部署已完成

Schema-1 Refresh Audit Logs Create New Template Edit Schema

Template Summary Edit Template Deploy Template Auto

Type Application	Tenant Production	Template Status In Sync	Associated Fabrics 1	Last Action Deployment Successful Last Deployed: Jan 4, 2025 02:02 am	Deployment Mode Multi-Fabric
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Filter IMPORT SELECT Create

Application Profile DC-WEB Create Application Prof

EPOs Create

DC-EPO1-WEB

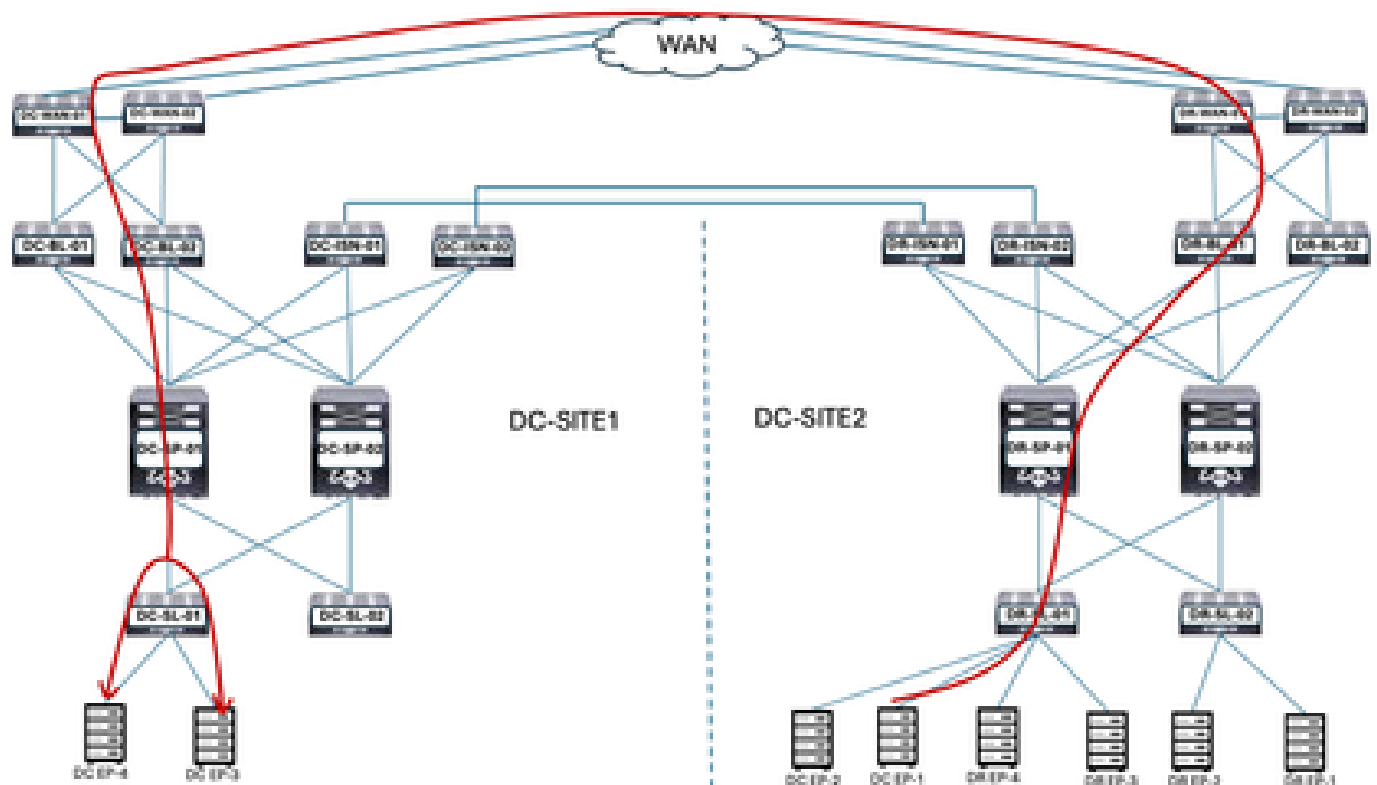
Bridge Domains Create Bridge E

DC-BD1-WEB

DC-Endpoint-1流量

DC-Endpoint-1開始使用DR-L3Out-WEB與DC端點進行通訊。此通訊需要更改WAN交換機上的路由。

圖 98:DC-Endpoint-1流量



DC-EP-1和DC/DR-EP之間的Ping響應

圖 99:DC-EP-1和DC-EP-2之間的Ping響應

```

SITE2-EPI# ping 192.168.30.10 source 192.168.10.10 vrf site-1
PING 192.168.30.10 (192.168.30.10) from 192.168.10.10: 56 data bytes
64 bytes from 192.168.30.10: icmp_seq=0 ttl=249 time=2.406 ms
64 bytes from 192.168.30.10: icmp_seq=1 ttl=249 time=1.85 ms
64 bytes from 192.168.30.10: icmp_seq=2 ttl=249 time=1.863 ms
64 bytes from 192.168.30.10: icmp_seq=3 ttl=249 time=1.88 ms
64 bytes from 192.168.30.10: icmp_seq=4 ttl=249 time=0.987 ms

--- 192.168.30.10 ping statistics ---
5 packets transmitted, 5 packets received, 0.00% packet loss
round-trip min/avg/max = 0.987/1.317/2.406 ms
SITE2-EPI#
SITE2-EPI# ping 192.168.11.10 source 192.168.10.10 vrf site-1
PING 192.168.11.10 (192.168.11.10) from 192.168.10.10: 56 data bytes
Request 0 timed out
64 bytes from 192.168.11.10: icmp_seq=1 ttl=252 time=1.439 ms
64 bytes from 192.168.11.10: icmp_seq=2 ttl=252 time=0.993 ms
64 bytes from 192.168.11.10: icmp_seq=3 ttl=252 time=1.615 ms
64 bytes from 192.168.11.10: icmp_seq=4 ttl=252 time=1.187 ms

--- 192.168.11.10 ping statistics ---
5 packets transmitted, 4 packets received, 20.00% packet loss
round-trip min/avg/max = 0.993/1.208/1.615 ms
SITE2-EPI#
SITE2-EPI# ping 192.168.21.10 source 192.168.10.10 vrf site-1
PING 192.168.21.10 (192.168.21.10) from 192.168.10.10: 56 data bytes
64 bytes from 192.168.21.10: icmp_seq=0 ttl=252 time=1.491 ms
64 bytes from 192.168.21.10: icmp_seq=1 ttl=252 time=1.593 ms
64 bytes from 192.168.21.10: icmp_seq=2 ttl=252 time=1.816 ms
64 bytes from 192.168.21.10: icmp_seq=3 ttl=252 time=1.81 ms
64 bytes from 192.168.21.10: icmp_seq=4 ttl=252 time=1.848 ms

--- 192.168.21.10 ping statistics ---
5 packets transmitted, 5 packets received, 0.00% packet loss
round-trip min/avg/max = 1.81/1.231/1.593 ms
SITE2-EPI# ping 192.168.31.10 source 192.168.10.10 vrf site-1
PING 192.168.31.10 (192.168.31.10) from 192.168.10.10: 56 data bytes
64 bytes from 192.168.31.10: icmp_seq=0 ttl=249 time=1.353 ms
64 bytes from 192.168.31.10: icmp_seq=1 ttl=249 time=1.129 ms
64 bytes from 192.168.31.10: icmp_seq=2 ttl=249 time=1.814 ms
64 bytes from 192.168.31.10: icmp_seq=3 ttl=249 time=1.485 ms
64 bytes from 192.168.31.10: icmp_seq=4 ttl=249 time=1.347 ms

--- 192.168.31.10 ping statistics ---
5 packets transmitted, 5 packets received, 0.00% packet loss
round-trip min/avg/max = 1.814/1.265/1.485 ms
#####

```

關於此翻譯

思科已使用電腦和人工技術翻譯本文件，讓全世界的使用者能夠以自己的語言理解支援內容。請注意，即使是最佳機器翻譯，也不如專業譯者翻譯的內容準確。Cisco Systems, Inc. 對這些翻譯的準確度概不負責，並建議一律查看原始英文文件（提供連結）。