# 使用傳輸交換矩陣的L4-L7路由對等 — 配置演練

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# 簡介

本檔案介紹使用路由對等的L4-L7服務圖的配置演練,其中消費者和提供商均位於以應用為中心的基礎設施(ACI)交換矩陣外部。

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# 必要條件

### 需求

思科建議您瞭解以下主題:

- •靜態VLAN池,將用於外部裝置和ACI交換矩陣之間的封裝VLAN
- 將外部裝置的位置(枝葉節點/路徑)與VLAN池結合在一起的外部物理域和路由域

• 到外部網路(L3Out)的第3層連線

本文檔未介紹前面的交換矩陣訪問和L3Out配置步驟,並假定這些步驟已經完成。

### 採用元件

本檔案中的資訊是根據以下軟體版本:

- •思科應用政策基礎架構控制器(思科APIC) 1.2(1m)
- 自適應安全裝置(ASA)裝置包 1.2.4.8
- ASA 5585 9.5(1)
- Nexus 3064 6.0(2)U3(7)

本文中的資訊是根據特定實驗室環境內的裝置所建立。文中使用到的所有裝置皆從已清除(預設))的組態來啟動。如果您的網路正在作用,請確保您已瞭解任何指令可能造成的影響。

背景資訊

路由對等功能使服務裝置(例如負載均衡器或防火牆)能夠通過ACI交換矩陣向外部網路通告其可 達性。

此處提供的使用案例是在兩個L3Outs或外部終端組(EPG)之間部署為雙臂服務圖的物理防火牆。 服 務圖與枝葉101上的外部EPG(N3K-1)與枝葉102上的外部EPG(N3K-2)之間的合約相關聯。 ACI交換 矩陣為路由器(N3K-1和N3K-2)提供中轉服務,並且使用路由對等(使用開放最短路徑優先 (OSPF)作為路由協定)在防火牆和ACI交換矩陣之間交換路由。

# 設定

### 網路圖表

下圖顯示路由對等端如何運作:





### 設定

步驟1.配置虛擬路由和轉發1(VRF1)、VRF2、網橋域1(BD1)和BD2。將BD1與VRF1關聯,將 BD2與VRF2關聯,如下圖所示:



### 步驟2.上傳L4-L7裝置下的ASA裝置包,如下圖所示:

ululu cisco				L4-L7 Services			
				Inventory Packages			
CISCO Packages Quick Stat Quick Stat CISCO-ASA-12 CIS	e Types e Functions es Function Profiles yForRoutedMode yForTransparentMode	Quick Start HELP The Packages menu system (IPS). Device p You can use the Impo Quick Start Import a Device P	allows you to import L4-L7 d packages contain descriptior r <b>t a Device Package</b> wizard Package	inventory Packages evice packages, which are used it is of the functional capability and : to import a device package for a fu	o define, configure, and mon settings along with interface: unction that you want to mana	tor a network service device such as a fire s and network connectivity information for e age with APIC. We recommend that you imp <b>See Also</b> L4-L7 Service	wail, SSL offload, loo ach function. A netwo ort device packages I Device Types

為物理ASA 5585(路由)配置L4-L7裝置,如下圖所示:

ahaha cisco		Tenants							ρ		w
		Search: enter name, descr	common   T1   infra								
Tenant T1		<ul> <li>O</li> </ul>	14-17 Devices	4545595							
💼 Quick Sta	rt		L4-L7 Devices	- 4949369							
🔺 🐣 Tenant T1	1									Policy Paramete	ers Fa
🕨 🚞 Applic:	ation Profiles										
🔺 🚞 Netwo	orking										
🕨 🚞 Bri	dge Domains		General			Device 1					
🕨 🖿 VR	Fs		Manag	ed: 🗹		Management IP Address:	172.23.97.1	Management Port: 443	٠		
🕨 💼 Ext	ternal Bridged Networks		Nar	ne: ASA5585		Chassis:	select a value	- ¢			
🕨 🚞 Ext	ternal Routed Networks		Device Packa	ge: CISCO-ASA-1.2		Interfaces:					
🕨 🖿 Ro	ute Profiles		Service Ty	pe: Firewall							
🕨 🚞 Pro	otocol Policies		Device Ty Device J Demo	pe: PHYSICAL			▲ Name		Path		
L4-L7	Service Parameters		Filysical Dome	III. 11_PHT	<u> </u>		GigabitEthernet0/0		Node-105/eth1/2		
🔺 🖿 Securi	ity Policies		Context Awa	are: Single			GigabitEthernet0/1		Node-106/eth1/2		
E Co	ntracts		Function Ty	pe: GoThrough GoTo							
Tai	boo Contracts		Cluster Mo	de: Single Node							
🕨 💻 Imp	ported Contracts					Cluster					
P 🖬 Filt	ters		Credentials			Management IP Address:	172.23.96.228	Management Port: 443	<b>\$</b>		
P I roubi	leshoot Policies		Useman	ne: admin	_	Device Manager:	172.23.97.1	₽			
Monito	Ormig Policies		Passwo	ird:		Cluster Interfaces:					
L4-L7	Services		Confirm Passwo	ird:	_		Type	<ul> <li>Name</li> </ul>	Concrete Interfaces		
k = L4-	-L7 Service Oraph Templates		0	04-4-			.,,=		ASA5585 Device 1/IG	agabitEthernet0/11	
Ku	nction Profiles		Configuration	State			provider	inside		, ,	
2 Tu	J 7 Devices		Comiguration Issu	es. ata: etable			consumer	outside	ASA5585_Device_1/[G	3igabitEthernet0/0]	
	AS45585		Devices Sta	ate. Stable							
> = im	norted Devices										
Der Der	vices Selection Policies				1						

### 步驟3.為N3K-1配置L3Out並與BD1和VRF1關聯。

外部路由網路用於在ACI交換矩陣中為路由對等指定路由配置,如下圖所示:

cisco				VM Networking	L4-L7 Services	Admin	Operations
		arch: enter name, descr	common   infra   mgmt   T1				
Tenant T1		<ul> <li>Ø</li> </ul>	L3 Outside - N3K-1	L L SOUT			
🔲 Quick Start							
🔺 🐣 Tenant T1							
🕨 🔲 Applicatio	on Profiles						
🔺 🔲 Networki	ng						
🕨 💻 Bridgi	e Domains						
VRFs			Properties				
Extern	nal Bridged Networks		Name	N3K-1 1 30UT			
🔺 🔲 Extern	nal Routed Networks		Description	optional			
) 🗖 Se	et Action Rule Profiles						
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► 🕾 AS	A_OUT_L3OUT		Label	:	7.0011111		
▶ 🕮 N3	3K-1_L30UT		Target DSCP	: unspecified			
▶ @ N	3K-2_L3OUT		Pouto Control Enforcement	·			
🕨 💻 Route	Profiles		Route Control Enloitement	. Dimport	Export		
Proto	col Policies		VRF	: T1/VRF1	<u> </u>		
L4-L7 Se	rvice Parameters		Resolved VRF	T1/VRF1			
Security F	Policies		External Routed Domain	: T1_L3OUT	<u>▼</u> 🖉		
Troubles	hoot Policies		Route Profile for Interleak	select a value	<b>-</b> ⊕		
🕨 💻 Monitorin	ig Policies		Route Control For Dampening				
L4-L7 Se	ervices						
				<ul> <li>Address Family</li> </ul>	Туре		
							No item
							Select Actio
			Enable BGP/EIGRP/OSPF	BGP	EIGRP		
			L	OSPF			
			OSPF Area ID	: 0.0.0.1			
			OSPF Area Control	🗄 🗹 Send redistribute	ed LSAs into NSSA area		
				<ul> <li>Originate summ:</li> <li>Summers forward</li> </ul>	ary LSA		
				_ ouppress i01Wal	ang address in translated LBA		
			OSPF Area Type	NSSA area	egular area Stub area		
			OSPF Area Cost	: 1	<b>\$</b>		

附註:所有用於路由對等的L3Out介面必須相應地配置為具有VLAN封裝的交換機虛擬介面 (SVI)。

alialia cisco	System	Tenants	Fabric	VM Networking	L4-L7 Services	Admin	Operations	Q	i	A web
		enter name, descr	common   infra   mgm							
Tenant T1		<ul> <li>O</li> </ul>	Logical Interfac	e Profile - N3K-1	IP					
💼 Quick Start			Logical Internac	e i folle - Nore i						_
🔺 🚢 Tenant T1										Policy Fault
Application	n Profiles		Ð₩							
🔺 🚞 Networkin	g									
🕨 🖿 Bridge	Domains		Properties							
VRFs				Name: N3K-1_IP						
Externa	al Bridged Networks			Description: optional						
🔺 🛄 Externa	al Routed Networks									
Set	Action Rule Profiles			Label:						
Mat	ch Action Rule Profiles			ND policy: select a value	<b>•</b>					
▶ 655 AS/	LIN_L3OUT		Egress Data Plane P	olicing Policy: select a value	· · ·					
P CD AS/			Ingress Data Plane P	olicing Policy: select a value	•					
- CO N3	K-1_L3UUT		Rou	uted Interfaces:						
	NOV 1 NO									
-	S N3K-1_NP			A Path		IP Address	MA	Address	MTU (Bytes)	
	Logical Interface Promes						No items have been	found.		
	OSPF Interface Profile	1					Select Actions to create	a new item.		
	🕯 🖿 Configured Nodes		•							
	topology/pod-1/node-105			SVI:						
> <b>m</b>	Networks									
	Route Profiles			A Path	IP Address	Side A IP	Side B IP	MAC Address	MTU (Bytes)	Encap
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🕨 🖿 Route	Profiles									
🕨 🚞 Protoc	ol Policies									
🖿 L4-L7 Ser	vice Parameters		Deuterio	Durk Internet						
🕨 🖿 Security P	olicies		Routed a	Sub-Interfaces:						
Troublesh	oot Policies			A Path		IP Address	MAC Address	MTU (Bytes)	E	incap
Monitoring	Policies						No items have been	found.		
▶ 🖿 L4-L7 Ser	vices						Select Actions to create	a new item.		

# 為N3K-1 L3Out外部EPG配置子網的匯入/匯出路由控制,如下圖所示:

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		h: enter name, descr	common   infra   mgmt					
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🔲 Quick Start			External Network	instance Profile	- NSK-I_EXI_NET			
🔺 🐣 Tenant T1								Policy Operation
🕨 🖿 Applicatio	n Profiles							
🔺 🖿 Networkir	g							General
🕨 🖿 Bridge	Domains		<b>⊖ ±</b>			4	Δ 🛕 🕕 🕕 100	
🕨 🖿 VRFs			Dueneuties					
🕨 🖿 Extern	al Bridged Networks		Properties	NOV 4 EVT NET				
🔺 🚞 Extern	al Routed Networks		Tags:	NJR-1_EAT_NET				
🕨 🚞 Sel	Action Rule Profiles			enter taga separated by comm	18			
🕨 🖿 Ma	ch Action Rule Profiles		Description:	optional				
▶ 🕮 AS	LIN_L3OUT							
► 🕾 AS	_OUT_L3OUT		Configued VRF name:	VRF1				
4 🕮 N3	K-1_L30UT		Resolved VRF:	uni/tn-T1/ctx-VRF1				
4	Logical Node Profiles		QoS Class:	Unspecified 🚽				
-	■ N3K-1_NP		Target DSCP:	unspecified	-			
	Logical Interface Profiles		Configuration Status:	applied				
	N3K-1_IP		Configuration Issues:					
	Configured Nodes		Subnets:					
	topology/pod-1/node-105							
	Networks			<ul> <li>IP Address</li> </ul>	Scope		Aggregate	Route Control Profile
	NJK-1_EXI_NET			10.10.10.0/24	External Sub	nets for the External EPG		
-	Pouto Profiles			20.20.20.0/24	Export Route	Control Subnet	]	
► 🖨 N3	Koule Homes							
Route	Profiles							
Protoc	nl Policies		Route Control Profile:					
L4-L7 Set	vice Parameters			<ul> <li>Name</li> </ul>			Di	rection
Security P	olicies							
🕨 🖿 Troublest	oot Policies						No items have be Select Actions to crea	en rouna. Je a new item.
🕨 🖿 Monitorini	Policies							

為ASA外部介面配置L3Out並與BD1和VRF1關聯,如下圖所示:

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		arch: enter name, descr	common   T1   infra   mg				
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🔺 🐣 Tenant T1							
🕨 🖿 Application	n Profiles						
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🕨 🖿 Externa	al Bridged Networks		Properties				
🔺 🚞 Extern:	al Routed Networks		Na	me: ASA_OUI_L3OUI			
🕨 🖿 Set	Action Rule Profiles		Descript	ion: optional			
🕨 🖿 Mat	ch Action Rule Profiles						
🕨 🕾 ASA	LIN_L3OUT		Ta	gs:	<b></b>		
4 🕾 AS/	A_OUT_L3OUT		Lai	enter taga separateo by: cel:	comma		
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▶ 🕾 N3F	<-1_L30UT		v	RF: T1/VRF1	<u>▼</u> 🗗		
▶ 🕾 N3I	K-2_L30UT		Resolved V	RF: T1/VRF1			
Route	Profiles		External Routed Dom	ain: T1_L3OUT	✓ CP		
Protoc	ol Policies		Route Profile for Interle	ak: select a value	- @		
L4-L7 Ser	vice Parameters		Route Control For Dampen	ing:			
Security P	olicies						
Troublesh	oot Policies			<ul> <li>Address Family Ty</li> </ul>	/pe	Route Dan	1pening Policy
Monitoring	Policies					No items have been found	h.
L4-L7 Ser	vices					Select Actions to create a new	item.
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			Enable Bor /Elonn / de	OSPE			
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			OGFF Alea Coll	Originate summar	y LSA		
				Suppress forward	ing address in translated LSA		
			OSPF Area T	rpe: NSSA area Rei	gular area Stub area		
			OSPF Area C	ost: 0	<b>^</b>		
1							

alialia cisco	System	Tenants	Fabric	VM Networking	L4-L7 Services	Admin	Operations	Q		Adv. i welcor
		enter name, descr	I common   T1   infra   mg							
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Quick Start			Logical Interface	Profile - ASA_U						
🔺 🚢 Tenant T1										Policy Faults
🕨 🖿 Applicatio	n Profiles		DE							
🔺 🚞 Networki	ıg									A
🕨 🖿 Bridge	Domains		Properties							
🕨 🖿 VRFs				Name: ASA_OUT_IP						
🕨 🖿 Extern	al Bridged Networks		C	Description: optional						
🔺 🚞 Extern	al Routed Networks									
🕨 🖿 Se	Action Rule Profiles			Label:						
🕨 🚞 Ma	tch Action Rule Profiles			ND policy: select a value						
🕨 🕾 AS	A_IN_L3OUT		Egress Data Plane Polic	ing Policy _ select a value						
🖌 🕾 AS	A_OUT_L3OUT		Lares Date Plane Polic	ing Policy. select a value	<u> </u>					
4	Logical Node Profiles		Ingress Data Plane Polic	ing Policy: select a value	•					
	ASA_OUT_NP		Routed	Interfaces:						
	🔺 🖿 Logical Interface Profiles			<ul> <li>Path</li> </ul>		IP Address	M	AC Address	MTU (Bytes	s)
	ASA_OUT_IP		1							
	📃 OSPF Interface Profile						No items have be Select Actions to crea	en Found. ite a new item.		
	🔺 🖿 Configured Nodes									
	🔺 📜 topology/pod-1/node-105		4							
	BGP for VRF-T1:VRF1			SVI:						
	OSPE for VRF-T1:VRF1									
) i i i i i i i i i i i i i i i i i i i	Networks			A Path	IP Address	Side A IP	Side B IP	MAC Address	MTU (Bytes)	Encap
)	Route Profiles			Node-105/eth	1/2 192.168.1.	6/30		00:22:BD:F8:19:FF	1500	vlan-101
▶ 🕾 N3	K-1_L30UT									
🕨 🖽 N3	K-2_L3OUT									
🕨 🖿 Route	Profiles									
🕨 🚞 Proto	ol Policies		Routed Sub	-Interfaces:						
🖿 L4-L7 Se	vice Parameters			▲ Path		IP Address	MAC Address	MTU (Bytes)		Елсар
🕨 🖿 Security P	olicies						Alle Annue In succession	an farmed		
🕨 🖿 Troublesi	noot Policies						Select Actions to crea	ite a new item.		
🕨 🖿 Monitorin	g Policies									
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為ASA外部L3Out外部EPG配置子網的匯入/匯出路由控制,如下圖所示:

ALL TERVAUTE 1 Add Tenant 1 Common [11] 1 6/s 1 mgml     Tenant 1     Configuration Frofiles     Application Frofiles     All TERVAUTE 1 Add Tenant 1     Properties     Properties     Properties     Properties     Properties     Outlon Frofiles     All TERVAUTE 1 Add Tenant 2     Properties     Properties     Properties        Properties        Outlon Frofiles        Properties                    Properties	Operational Stats Ceneral Contracts
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Tenant Ti A papirization Profiles A pagirization Pr	Operational Stats Ceneral Contracts
<ul> <li>Application Profiles</li> <li>Retworking</li> <li>Bridge Domains</li> <li>VRFs</li> <li>External Bridged Networks</li> <li>External Bridged N</li></ul>	Contracts
<ul> <li>Networking</li> <li>Bridge Domains</li> <li>Bridge Domains</li> <li>Bridge Domains</li> <li>Bridge Networks</li> <li>External Bridged Networks</li> <li>Bridge Networks</li> <li>B</li></ul>	Conseti
<ul> <li>Bridge Domains</li> <li>WRF 5 </li> </ul> <ul> <li>WRF 6</li> </ul> <ul> <li>Consult indiged Networks</li> </ul> <ul> <li>Estamal Routed Networks</li> </ul> <ul> <li>Station Rule Profiles</li> <li>Station Rule Profiles</li> <li>Station Rule Profiles</li> <li>Station Node Profiles</li> <li>Station Node Profiles</li> <li>Station Node Profiles</li> <li>Station Statis: applied</li> <li>Configuration Statis: applied</li> <li>Configuration Statis: applied</li> <li>Configuration Statis: applied</li> </ul>	
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Edemai Roude Notworks     Edemai Roude	
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Match Action Rule Profiles     Ada Ag, IN_L3OUT     Ada Ag, UN_L3OUT   Configued VFR name: VFE1 Configuration Status: applied Co	
ASA_INI_ISJOUT     Configued VRF name. VFF1       Configued VRF name. VFF1     Resolved VRF: mint.T1/ctx-VRF1       Configued VRF name. VFF1     Configued VRF: mint.T1/ctx-VRF1       Configued VRF name. VFF1     Configued VRF: mint.T1/ctx-VRF1       Configued VRF: mint.T1/ctx-VRF1     Configued VRF1       Configued VRF: mint.T1/ctx-VRF1     Configued VRF1       Configued	
ABA_OUT_LSOUT     Configued VPF name: VRE1       Resolved VPF name: VRE1     Resolved VPF name: Track VRE1       Resolved VPF name: Track VRE1     QoS Class: Unspecified       AL1.7 Service Parmeters     Configuration Status: applied       Configuration Status: applied     Configuration Issues:       ANX-1_LSOUT     Subnets:	
Image: Networks     QoS Class:     Unspecified       Image: Note Parameters     Target DSCP:     unspecified       Image: Nate Parameters     Configuration Status:     applied       Image: Configuration Status:     applied     Configuration Status:       Image: Nate Parameters     Configuration Status:     applied       Image: Nate Parameters     Submets:     Submets:	
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1417 Senire Parameters 10.10.10.024 Export Note Control Subset	
Externity Policies 20.20.20.024 External SubnetS for the External EPO Shared Founds Control Subnet	
Trublehod Policies	
Monitoring Policies	
Roule Control Profile:	
- Name Direction	
No Rens have been found. Select Actions to create a new Rem.	

# 為ASA-Internal配置L3out並與BD2和VRF2關聯,如下圖所示:

ululu cisco							Ą
		mich: enter name, descr	common   T1   infra   mgn				
Tenant T1		S 0	1.2 Outside ASA				
💼 Quick Start			Lo Outside - ASA	_IN_L3001			
🔺 🐣 Tenant T1							
🕨 🖿 Application	Profiles						
🔺 🚞 Networkin	g						
🕨 🖿 Bridge	Domains		⊖ <b>±</b>			Δ \Lambda 🕕 🕛	
🕨 🖿 VRFs							
🕨 🖿 Externa	l Bridged Networks		Properties				
🔺 🖿 Externa	I Routed Networks		Nam	ie: ASA_IN_L3OUT			
🕨 🖿 Set	Action Rule Profiles		Descriptio	in: optional			
🕨 🖿 Mat	ch Action Rule Profiles						
🔺 🕾 ASA	_IN_L3OUT		Tag	IS: 1 🗷	<b>*</b>		
4	_ogical Node Profiles		Labe	enter taga separated by c el:	omma		
▶ [	ASA_IN_NP		Tarret DSC	P: upppoified			
) h 💼 1	Networks						
) i i i i i i i i i i i i i i i i i i i	Route Profiles		Route Control Enforcement	nt: 🔲 Import	🗹 Export		
🕨 🕾 ASA	_OUT_L3OUT		VR	F: T1/VRF2	<b>-</b> ₽		
🕨 🕾 N3ł	-1_L3OUT		Resolved VR	F: T1//RF2			
🕨 🕾 N3F	(-2_L3OUT		External Routed Domai	in: T1_L3OUT	<b>→</b> @		
🕨 🖿 Route I	Profiles		* Route Profile for Interlea	k: select a value			
🕨 🖿 Protoci	al Policies		Route Control For Dampenin	IG.			
🔲 L4-L7 Sen	ice Parameters						
🕨 🖿 Security Pi	olicies			<ul> <li>Address Family Type</li> </ul>	e	Ros	ite Dampening Policy
🕨 🖿 Troublesh	oot Policies					No items have been	n found.
Monitoring	Policies					Select Actions to create	e a new item.
🕨 🕨 L4-L7 Ser	rices						
			Enable BGP/EIGRP/OSP	F: BGP			
				OSPF			
			OSPF Area I	U: 0			
			OSPF Area Contr	ol: 🗹 Send redistributed	LSAs into NSSA area		
				Originate summan Suppress forwardi	LSA og address in franslated I SA		
			0005				
			OSPF Area Typ	ie: NSSA area Reg	ular area Stub area		
			OSPF Area Cos	st: 0	\$		

ahaha	System	Tenants	Eabric VM N	letworking	14-17 Services	Admin	Operations	Q	i		Advanced Mor
cisco											
		ch: enter name, descr	common   T1   infra   mgmt								
Tenant T1		M 🖸	Logical Interface Profil	ASA IN I	-						
💼 Quick Start			Logical Interface From	e - A0A_IN_I							
🔺 🚢 Tenant T1										Policy Fai	ults Histor
🕨 🚞 Applicatio	n Profiles		⊖I↓								ACTIONS *
🔺 🚞 Networkir	g										
🕨 🛄 Bridge	Domains		Properties								
VRFs			Nam	e: ASA_IN_IP							
Eidem	al Bridged Networks		Descriptio	n: optional							
🔺 🛄 Extern	al Routed Networks										
Set	Action Rule Profiles		Labe	el:							
Ma	tch Action Rule Profiles		ND polic	y: select a value	<b>•</b>						
AS	A_IN_L3OUT		Egress Data Plane Policing Polic	y: select a value	•						
	Logical Node Profiles		Ingress Data Plane Policing Polic	y: select a value	*						
1	ASA_IN_NP		Routed Interface	s							
	Logical Interface Profiles										~ +
	ASA_IN_IP			A Path		IP Address	MAC Add	dreas	MTU (Bytes)		
	Configured Nodes						No items have been foun	d.			
	Conligated Nodes Interview 106						Select Actions to create a new	witem.			
F 💼	Networks										
> <b></b>	Route Profiles										
▶ 🕮 AS	A OUT L3OUT		5.	/L.							× +
▶ 🕮 N3	 K-1 L30UT			<ul> <li>Path</li> </ul>	IP Address	Side A IP	Side B IP	MAC Address	MTU (Bytes)	Encap	
🕨 🙆 N3	- K-2_L30UT			Node-106/eth1/2	192.168.1.10/30			00:22:BD:F8:19:FF	1500	vlan-102	
🕨 🛄 Route	Profiles										
🕨 🖿 Protoc	ol Policies										
🖿 L4-L7 Sei	vice Parameters										
🕨 🖿 Security P	olicies		Routed Sub-Interface	s:							× +
🕨 🚞 Troublest	ioot Policies			<ul> <li>Path</li> </ul>	IP Add	reaa	MAC Address	MTU (Bytes)	Encap		
🕨 🖿 Monitorini	Policies						No New Joseph Lange Street				
🕨 🖿 L4-L7 Se	vices						Select Actions to create a new	u. vitem.			

# 為ASA內部L3Out外部EPG配置子網的匯入/匯出路由控制,如下圖所示:

ululu cisco								Q
		arch: enter name, descr	common   T1   infra   mg					
Tenant T1 Quick Start		2 10	External Network	Instance Profile	- ASA_IN_EXT_N	ET		_
Tenant T1	- Desilies							Policy Ope
Applicatio	in Profiles							Genera
Heimorkin	Domains		Ð₩				A A O O 100	
VRFs								
🕨 🖿 Extern	al Bridged Networks		Properties					
🔺 🖿 Extern	al Routed Networks		Name: Tags:	ASA_IN_EXT_NET				
🕨 🖿 Se	t Action Rule Profiles		1680.	enter taga separated by comm	a 🗸			
🕨 🖿 Ma	tch Action Rule Profiles		Description:	optional				
⊿ dB As	A_IN_L3OUT							
	Logical Node Profiles		Configued VRF name:	VRF2				
	AGA IN EVT NET		Resolved VRF:	uni/tn-T1/ctx-VRF2				
	Route Profiles		QoS Class:	Unspecified -	-			
▶ 🕾 AS.	A OUT LIGUT		Target DSCP:	unspecified				
▶ 🕾 N3	K-1_L30UT		Configuration Status:	applied				
▶ 🕾 N3	- IK-2_L30UT		Configuration Issues:					
🕨 🚞 Route	Profiles		Subnets:					
🕨 🖿 Protoc	ol Policies			<ul> <li>IP Address</li> </ul>	Scope		Aggregate	Route Control Profile
🖿 L4-L7 Sei	rvice Parameters			10.10.10.0/24	External Sub Shared Rou	onets for the External EPC	)	
Becurity F	olicies			20 20 20 0/24	Export Route	e Control Subnet	4	
Troublest	noot Policies			20.20.20.0724	Shared Rou	te Control Subnet		
Monitorin	g Policies							
▶ ■ L4-L7 Se	rvices		Route Control Profile:					
				<ul> <li>Name</li> </ul>			וח	rection
							No items have be Select Actions to crea	en rouna. ite a new item.
1								

為N3K-2配置L3Out並與BD2和VRF2關聯,如下圖所示:

ululu cisco							Q
		arch: enter name, descr	common   T1   infra   mgm				
Tenant T1		0 ව	1.2 Outoida - N2K				
Quick Start Quick Start A Prenant T1 P Applicatio Retworkin	in Profiles			2_13001			
🕨 🖿 Bridge	Domains		⊖₹			Δ \Lambda 🕛 🕕	
<ul> <li>VRFs</li> <li>Extern</li> <li>Extern</li> <li>Se</li> <li>Ma</li> </ul>	al Bridged Networks Ial Routed Networks t Action Rule Profiles tch Action Rule Profiles		Properties Nam Description	e: N3K-2_L3OUT n: optional			
▶ 🕾 AS ▶ 🕾 AS ▶ 🕾 N3	A_IN_L3OUT A_OUT_L3OUT K-1_L3OUT		Tag: Labe Tamet DSCD	enter tags separated by	comma		
🔺 🕮 N3	IK-2_L3OUT		Route Control Enforcemen	t Import			
<ul> <li>Route</li> <li>Protoc</li> <li>14-17 Set</li> </ul>	Logical Node Profiles Networks Route Profiles Profiles :ol Policies nice Parameters		Resolved VRI Resolved VRI External Routed Domain Route Profile for Interlea		v Bipon v Ø v Ø v Ø v Ø		
🕨 🖿 Security F	Policies		Route Control For Dampenin	g:			
<ul> <li>Troublest</li> <li>Monitoring</li> <li>L4-L7 Se</li> </ul>	hoot Policies g Policies ivices			Address Family Ty	rpe	 Route No items have been f Select Actions to create a	: Dampening Policy ound. new Rem.
			Enable BGP/EIGRP/OSP OSPF Area ID OSPF Area Contro OSPF Area Typ OSPF Area Cos	E BGP V OSPF D: 0.0.0.1 E Send redistributed V originate summar Suppress forwardi E. NSSA area Red t: 0	EIORP ILSAS into NSSA area YLSA ing address in translated LSA guilar area Stub area		

ululu cisco	System	Tenants	Fabric VM N	etworking	L4-L7 Services	Admin	Operations	Q	i	w
		rch: enter name, descr	I common   T1   infra   mgmt							
Tenant T1		Sector 10 (1998)	Lociael Interface Drafile							
🔲 Quick Start			Logical Interface Profile	e - NSK-2_IP						
🔺 🚢 Tenant T1										Policy Far
🕨 🖿 Application	Profiles									
🔺 🚞 Networking	1									
🕨 🖿 Bridge D	Domains		Properties							
🕨 🖿 VRFs			Name	N3K-2_IP						
🕨 🖿 External	Bridged Networks		Description	: optional						
🔺 🖿 External	Routed Networks									
🕨 🖿 Set A	Action Rule Profiles		Label							
🕨 🚞 Matci	h Action Rule Profiles		ND policy	select a value	•					
🕨 🕾 ASA_	IN_L3OUT		Egress Data Plane Policing Policy	aelect a value						
🕨 🕾 ASA_	_OUT_L3OUT		Ingress Data Place Policing Policy	· enlest e velue						
🕨 🕾 N3К-	-1_L3OUT		ingread bate Field Folicing Folicy	. select a value						
🔺 🕮 N3K-	-2_L30UT		Routed Interfaces							
4 🖿 L	ogical Node Profiles			🔺 Path		IP Address	MAC #	ddress	MTU (Bytes)	
⊿ Ц	N3K-2_NP						No items have been fo	und		
4	Logical Interface Profiles						Select Actions to create a	new item.		
	N3K-2_IP									
	OSPF Interface Profile		4							
>	Configured Nodes		sv							
• • N	letworks			* Dath	ID Address	Side A IP	Cide P ID	MAC Address	MTU (Puton)	Front
▶ <b>■</b> R	Route Profiles				IP Multiess	Side Air	Side b IP	1000 ADD 50 40 55	MTO (Dytea)	Licep
Route Pi	rofiles			Node-106/eth1/4	192.168.1.14/30			00:22:8D:F8:19:FF	1500	vian-103
Protocol	I Policies									
L4-L7 Servi	ice Parameters									
Security Pol	licies		Routed Sub-Interfaces							
r irouplesho	por monord's									
Monitoring F	roncies			A Path	IP Addre	88	MAC Address	MTU (Bytes)	Encaj	,p
r 🔲 L4-L7 Servi	1.62						No items have been fo Select Actions to create a r	und. new item.		

為外部EPG的N3K-2 L3Out配置子網的匯入/匯出路由控制,如下圖所示:

ululu cisco		Tenants						Q
		arch: enter name, descr	common   T1   infra   mg					
Tenant T1		<ul> <li>O</li> </ul>	Evternal Network	Instance Profile	N3K-2 EXT NE	т		
🔲 Quick Start			- External Network	instance i rome	- NOR-2_EXT_NE			_
🔺 🐣 Tenant T1								Policy Operational
🕨 🖿 Application	Profiles							General
🔺 💼 Networkini	3							
🕨 🖿 Bridge	Domains		⊖±				⚠ 🔔 🕕 🛑 100	
VRFs			Properties					
🕨 🛄 Externa	I Bridged Networks		Name	N3K.2 FXT NET				
🔺 🔲 Externa	I Routed Networks		Tags:		•			
🕨 🛄 Set.	Action Rule Profiles			enter taga separated by comma				
🕨 🛄 Mate	h Action Rule Profiles		Description:	optional				
► 🖾 ASA	_IN_L3OUT							
► 🖾 ASA	_OUT_L3OUT		Configued VRF name:	VRF2				
N3k	-1_L3OUT		Resolved VRF:	uni/tn-T1/ctx-VRF2				
🔺 😁 N3k	-2_L3OUT		QoS Class:	Unspecified 🗸				
	ogical Node Profiles.		Target DSCP:	unspecified				
4	Vetworks		Configuration Status:	applied				
<b>4</b> 8	N3K-2_EXT_NET		Configuration Issues:					
	L4-L7 Service Parameters		Subnets:					
h 🗖 Dente d	Coute Profiles		1					
Route F	TOILES			<ul> <li>IP Address</li> </ul>	Scope		Aggregate	Route Control Profile
FI01000	in Folicies			10.10.10.0/24	Export Route	e Control Subnet		
E4-E7 Servity Provide August 1 Service August 1 Servic	licipe			20.20.20.0/24	External Sut	onets for the External EP	°G	
Troubleshi	ant Policies							
Monitoring	Policies							
I 4-1 7 Sen	ires		Route Control Profile:					
				<ul> <li>Name</li> </ul>			Di	rection
							No items have be Select Actions to crea	en round. be a new item.

# 步驟4.建立功能設定檔群組,並根據現有範本設定功能設定檔,如下圖所示:

cisco											Adv welco
		earch: enter name, descr	common   T1   infra								
Tenant T1		<ul> <li>O</li> </ul>	1417 Sonioos	Eurotion Profile	ACASSOS ED						
💼 Quick Start			L4-L7 Services	Function Frome -	ASASSSS_FF						
🔺 🚢 Tenant T1											General Faults
🕨 🖿 Applicati	on Profiles										
🕨 🖿 Networki	ng										
🖿 L4-L7 Se	rvice Parameters		Properties								
🕨 🖿 Security	Policies		Nam	ne: ASA5585_FP							
Troubles	hoot Policies		Descriptio	on:							
🕨 🖿 Monitorin	g Policies		Associated Function	on: CISCO-ASA-1.2/Firewall							
4 🖿 L4-L7 Se	rvices										
▶ 🖿 L4-L7	Service Graph Templates										
Route	er configurations										
Funct	ion Profiles										
▲ Cal As	A5585_FPG										
	ASA5585_FP		FEATURES AN	ID PARAMETERS							
<ul> <li>E4+L7</li> <li>Import</li> </ul>	ted Devices		Features:	Basic Par	ameters All Parameters						
🕨 🖿 Devic	es Selection Policies			Meta Folder	r/Param Key		Name	Value	Mandatory	Locked	Shared
🕨 🖿 Deplo	ived Graph Instances		Interfaces	🔺 😅 Dev	ice Config		Device				
🕨 🖿 Deplo	ived Devices		AccessLists	> 📮 +	Access List		access-list-inbound			false	false
📃 Inban	d Management Configuration for L4-L	_7 devices	NAT	> 🗭 I	interface Related Configuratio	n	externallf			false	false
🕨 🖿 Devic	e Managers		TrafficSelectionOt	bjects Pierce	interface Related Configuratio	n	internallf			false	false
🕨 🖿 Chas	sis		All	🔺 🗇 Fun	ction Config		Function				
				► 🖵 E	External Interface Configuratio	in	ExtConfig			false	false
					Internal Interface Configuration	n	IntConfig			false	false
1											





ACTIONS +

Properties Name: ASA5585\_FP Description:

**⊖ ±** 🖊

:

#### Associated Function: CISCO-ASA-1.2/Firewall

#### FEATURES AND PARAMETERS

Features:	Basic Parameters All Parameters					
links of a sec	Meta Folder/Param Key	Name	Value	Mandatory	Locked	Shared
Interlaces	🔺 😅 Device Config	Device				
AccessLists	Access List	access-list-inbound			false	false
NAT	🔺 🎯 Interface Related Configuration	externallf			false	false
TrafficSelectionObjects	🔺 😅 Access Group	ExtAccessGroup			false	
All	Inbound Access List	name	access-list-inbound	false	false	
	🔺 😅 Interface Specific Configuration	externallfCfg			false	
	🔺 🚔 IPv4 Address Configuration	IPv4Address			false	
	IPv4 Address	ipv4_address	192.168.1.5/30	true	false	
	E Security Level	external_security_level	50	false	false	
	Interface Related Configuration	internallf			false	false
	🔺 🚔 Interface Specific Configuration	internallfCfg			false	
	IPv4 Address Configuration	IPv4Address			false	
	- 🗐 IPv4 Address	ipv4_address	192.168.1.9/30	true	false	
	El Security Level	internal_security_level	100	false	false	
	- Sunction Config	Function				
	External Interface Configuration	ExtConfig			false	false
	- 🗐 Interface Configuration	ExtConfigrel	externallf	false	false	
	Internal Interface Configuration	IntConfig			false	false
	- 🔄 Interface Configuration	InConfigrel	internallf	false	false	

### 步驟5.建立合約並將「Scope」欄位修改為Tenant,如下圖所示:

			VM Networking	L4-L7 Service		Operations
	arch: enter name, descr	common   T1   infra   m				
	S 0	Contract - PERM				
		Contract - PERM				
on Profiles		Ð₩				<b>A A O O</b>
ing						
e Domains		Properties				
		Name	PERMIT_ALL			
nal Bridged Networks		Label				
nal Routed Networks		Scope	Tenant 🗸			
e Profiles		QoS Class	:Unspecified 🚽 👻			
col Policies		Target DSCP	unspecified			
ervice Parameters			For "unspecified", put "64"			
Policies		Description	optional			
racts						
ERMIT_ALL		Subjects				
PERMIT_ALL			• Name	,	litore	
o Contracts				-		
rted Contracts			PERMIT_ALL		17PERMIT_ALL	
S						
hoot Policies						
ng Policies						
ervices						
	System ALL TENANTS   Add Tenant   Sea on Profiles ing e Domains anal Bridged Networks anal Routed Networks a Profiles col Policies arxis PROMI_ALL PERMIT_ALL o Contracts red Contracts s thed Contracts s theout Policies ary Pol	System       Tenants         ALL TENANTS   Add Tenant   Search   enter name, descr       Image: Search   enter name, descr         on Profiles       Image: Search   enter name, descr         ing       Image: Search   enter name, descr         on Profiles       Image: Search   enter name, descr         ing       Image: Search   enter name, descr         on Profiles       Image: Search   enter name, descr         ing       Image: Search   enter name, descr         all Bridged Networks       Image: Search   enter name, descr         all Bridged Networks       Image: Search   enter name, descr         all Routed Networks       Image: Search   enter name, descr         all Routed Networks       Image: Search   enter name, descr         aprofiles       Image: Search   enter name, descr         autor Policies       Image: Search   enter name, descr         aprofiles       Image: Search   enter name, descr         aprofiles <th>System Tenants Fabric   ALL TENANTS   Add Tenant   Search enter name, descr I common   T   Infa   m   Image: Contract - PERM   on Profiles   ing   e Domains   anal Bridged Networks   anal Bridged Networks   anal Rotided Networks   and Rotide Netw</th> <th>System Tenants Fabric VM Networking   ALLTENANTS   Add Tenant   Search enter name, dear common   T   infna   mgmt   Image: Search   Sear</th> <th>System Tenants Fabric VM Networking L4-L7 Service     ALL TENANTS   Add Tenant   Search enter name, deace I common   T   Infra   mgmt      on Profiles   ing Contract - PERMIT_ALL   on Profiles</th> <th>System Tenants Fabric VM Networking L4-L7 Services Admin   Admin   ALTENANTS   Add Tenant   Search I common   11   Infra   mont   Contract - PERMIT_ALL   on Profiles Contract - PERMIT_ALL   in Brouded Networks I souge officiel   inal Brouded Networks I souge officiel   <t< th=""></t<></th>	System Tenants Fabric   ALL TENANTS   Add Tenant   Search enter name, descr I common   T   Infa   m   Image: Contract - PERM   on Profiles   ing   e Domains   anal Bridged Networks   anal Bridged Networks   anal Rotided Networks   and Rotide Netw	System Tenants Fabric VM Networking   ALLTENANTS   Add Tenant   Search enter name, dear common   T   infna   mgmt   Image: Search   Sear	System Tenants Fabric VM Networking L4-L7 Service     ALL TENANTS   Add Tenant   Search enter name, deace I common   T   Infra   mgmt      on Profiles   ing Contract - PERMIT_ALL   on Profiles	System Tenants Fabric VM Networking L4-L7 Services Admin   Admin   ALTENANTS   Add Tenant   Search I common   11   Infra   mont   Contract - PERMIT_ALL   on Profiles Contract - PERMIT_ALL   in Brouded Networks I souge officiel   inal Brouded Networks I souge officiel <t< th=""></t<>

步驟6.如圖所示,建立L4-L7服務圖模板,其中服務圖關聯涉及外部路由網路策略和路由器配置與裝 置選擇策略的關聯。

ALL TENANTS   Add Tenant   Search: enter name, descr	common   T1   infa   mgmt	
Tenant T1 SI		
Cuick Start	L4-L7 Service Graph Template - ASA5585_SGT	
Enant T1		Topology Policy
Application Profiles		
Interview Part Int		
L4-L7 Service Parameters	Consumer	
Security Policies		
🕨 💼 Troubleshoot Policies	ASA5585	
Monitoring Policies		
🔺 🧮 L4-L7 Services	N1	
L4-L7 Service Graph Templates.		
ASA5585_SGT	ASA5585 information	
Function Node - N1	Firewall: Routed	
Router configurations	Profile: ASA5585_FP	
Function Profiles		
L4-L7 Devices		
Imported Devices		
Devices Selection Policies		
Deployed Graph Instances		
Deployed Devices		
📃 Inband Management Configuration for L4-L7 devices		
🕨 🖿 Device Managers		
🕨 💼 Chassis		
	1	
Create I 4 I 7 Service Create Template		
Create L4-L7 Service Graph Template		
Drag device clusters to create graph nodes.		
	Curch Numery ADAPTERS COT	
Device Clusters	Graph Name: ASA5382_5G1	
	Granh Tyne: Create & New One Clone &n Evisting One	
0 +		
🚟 T1 /ASA5585 (Managed Firewall)		
	Consumer	rovider
		$\bigcirc$
		EPG
	ASA5585	$\smile$
	N1	
	Please drag a device from devices table and drop it here to create a service node	
	ASA5585 Information	
	Firewall:   Routed  Transparent	
	Profile: 11/ASA5585_FPG/ASA5585_FP	
	SUBMIT	CANCEL

用於指定將在服務裝置(ASA 5585)上使用的路由器ID的路由器配置,如下圖所示:

ululu cisco		Tenants	Fabric	VM Networking	L4-L7 Services	Admin
	ALL TENANTS   Add Tenant   Se	arch: enter name, descr	common   T1   infra			
Tenant T1		<ul> <li>O</li> </ul>	Router configu	ration - ASA5585		
🔲 Quick Start 4 🐣 Tenant T1						
🕨 🖿 Applicatio	n Profiles					
🕨 🖿 Networkir	g					
🔲 L4-L7 Sei	vice Parameters		Properties			
🕨 🖿 Security F	olicies		Na	ame: ASA5585		
🕨 🖿 Troublest	oot Policies		Route	r ID: 3.3.3.3		
🕨 🖿 Monitorini	Policies		Descrip	tion: optional		
🔺 🚞 L4-L7 Se	vices					
L4-L7	Service Graph Templates					
🖌 🗖 Route	rconfigurations					
📃 AS.	\$5585					
🕨 🖿 Functi	on Profiles					
▶ 💼 L4-L7	Devices					
🕨 🖿 Import	ed Devices					
🕨 🖿 Device	s Selection Policies					
🕨 🖿 Deplo	red Graph Instances					
🕨 🖿 Deplo	red Devices					
📃 Inband	Management Configuration for L4-L	7 devices	4			
🕨 🖿 Device	Managers					
🕨 🖿 Chass	is					

# 將鄰接型別從L2更改為L3,如下圖所示:

uluitu cisco									P	i
		arch: enter name, descr	common   T1   infra   mg							
Tenant T1		O 18	1.4-1.7 Service G	anh Template -	ASA5585 SCT					
🔲 Quick Start			L4-L7 Service Gr	apri rempiate -	YOYOOO_001					
🔺 🚢 Tenant T1										Topology
🕨 🖿 Applicati	on Profiles		.⊖.↓							
🕨 🖿 Networki	ing									
🖿 L4-L7 Se	ervice Parameters		Properties							
🕨 🖿 Security I	Policies		Name:	ASA5585_SGT						
🕨 🖿 Troubles	shoot Policies		Template Name:	JNSPECIFIED						
🕨 🖿 Monitorin	ng Policies		Configuration Issues:							
4 🖿 L4-L7 Se	ervices		Description:	optional						
🔺 🗖 L4-L7	7 Service Graph Templates									
- 🗸 🔨 AS	SA5585_SGT		Label:							
▲ 🚇	Function Node - N1		Function Nodes:	<ul> <li>Name</li> </ul>		Function Name	Fu	nction Type		Description
	📃 consumer			N1		CISCO-ASA-1.2/Firewall	Go	To		
	E provider									
P Route	er contigurations									
P Funct	tion Profiles									
	r Devices									
P in input	ined Devices									
Depic	wed Granh Instances									
Depic	wed Devices		Terminal Nodes:	<ul> <li>Name</li> </ul>		Provi	der/Consumer		Description	
1 Inban	nd Management Configuration for L4-L7	/ devices		T1		Cons	umar			
🕨 🖿 Devic	e Managers									
🕨 🖿 Chas	sis			12		Provi	der			
			Connections:	Name	Connected Nodes		Linicast Route	Adjacency Type	Pase	ription
				- munic	NIL TI		True	Adjacency Type	Desci	npasa
				01	DOL, 11		ine			
				C2	N1, T2		True	L3		
1										

應用服務圖模板,如下圖所示:



### 將服務圖附加到合約,如下圖所示:

ululu cisco	System	Tenants	Fabric	VM Networking	L4-L7 Services	Admin	Operations	Q	i
		earch: enter name, descr	common   T1   infra						
Tenant T1		S 0	Apply L4-L7 Serv	ice Graph Template	To EPGs				í X
🔲 Quick Start									
🔺 🚢 Tenant T1			STEP 1 > Contra	act					1. Contract 2. Graph
Application	on Profiles		OTEL TY CONIN	461					
Networki	ng								
L4-L7 Se	rvice Parameters		Config A Contract	I Between EPGs					
Security I			- EPGs Information	500 J.C					2
Mapitoria	a Policies		Consume	r EPG / External Network: T	I/N3K-1_L3OUT/N3K-1_EXT_	NI ▼ 🖑	Provider EPG / External Network: T1/N3K-	-2_L3UUI/N3K-2_EXT_NI 👻 📳	č.
1 = L4-L7 Se	rvices								
📕 🗖 L4-L7	Service Graph Templates		- Contract Information -	Ornhaut @ Ornhaut of			0-1-10-10-1		
AS	A5585_SGT			Contract. O Create A New C	contract C	Choose An Existing	Contract Subject		
🕨 🕨 Route	r configurations		Contra	act Name: PERMIT_ALL					
🕨 🖿 Funct	ion Profiles		No Filter (Allow	All Traffic): 🗹					
▶ 💼 L4-L7	Devices								
Importante	ted Devices								
Devic	es Selection Policies								
Deplo									
P Depic	yed Devices d Management Configuration for L4-L								
Devic	e Manageris								
🕨 🖿 Chas	sis								
									PREVIOUS NEXT CANCEL



如果需要,請新增/更改L4-L7引數,如下圖所示:



### 第7步:Route-tag Policy,為VRF1配置Route-tag Policy(Tag:100),如下圖所示:

ululu cisco												
		arch: enter name, descr	I common I infra I mgn									
Tenant T1		S 0	VRF - VRF1									
Quick Start								Dollar				
<ul> <li>Tenant I1</li> <li>Application</li> </ul>	n Profiles							Policy				
🔺 💼 Networkin	g											
🕨 🚞 Bridge	Domains		Properties									
VREs	F1		Route Tag Policy	- VRF1_RTP			<b>OX</b>					
	Deployed VRFs (Simple Mode)			_								
	EPG Collection for Context						Policy History					
VRI k Evterns							ACTIONS *					
Externa	al Routed Networks		Properties									
🕨 🖿 Route	Profiles		Descripti	ne: VRF1_RTP			_					
Protoc	ol Policies											
E4-L7 Ser Security P	olicies		Т	ag: 100	\$							
🕨 💼 Troublesh	oot Policies											
Monitoring	Policies											
P L4-L7 Ser			•									
							-					
							-					
						SHOW USAGE	SUBMIT CLOSE					
				- EIGRP	Address Family Type		EIGRP Address Family Context					
						No items ha Select Actions to	o create a new item.					
				DNS labels:								
				Route Tag Policy: VPE1 PTP								
				Wate hag roncy. VRF1_RTF	· · · ·							
									s	HOW USAG	E SUBMIT	

配置VRF2的路由標籤策略(標籤:200),如下圖所示:

uluilu cisco												
		earch: enter name, descr	common   infra   mgmt									
Tenant T1		S 0	VRE - VRE2									
🔲 Quick Start												
Tenant T1								Policy			-lealth Fa	
Application			€			🛆 🛕 🕕 🚺 100						
Networkin     Bridge	Domains											
VRFs			Route Tag Policy - \	RF2_RTP								
► 🖻 VRI	-1						Policy History					
🕨 🖻 VR	F2		O₩				ACTIONS +					
Edemi	al Bridged Networks											
Edern:	al Routed Networks		Properties									
Protec			Name:	VRF2_RIP								
L4-L7 Ser	vice Parameters		Description.									
🕨 💼 Security P	olicies		Teg:	200								
🕨 🖿 Troublesh	oot Policies				<u> </u>							
Monitoring	Policies											
L4-L7 Ser	vices											
							-					
						SHOW USAGE	SUBMIT CLOSE					
			EIGRP CONTEXT PERA	ouress Family.								
				← EIGRP /	Address Family Type	E	IGRP Address Family Context					
						No items have b	een found.					
				DNS labels:								
			Rou	ute Tag Policy: VRF2_RTP	· ~ @							
			L									5
									SI	OW USAGE	SUBMIT	

# 第8步:檢查狀態並驗證裝置選擇策略,如下圖所示:

cisco							Operations		
		arch: enter name, descr	common   T1   infra   mg						
Tenant T1		S 0	Logical Interface	Context - consu	mer				
🔲 Quick Start			Logical Internace	Context - Conse	mor				
🔺 🐣 Tenant T1									
Application	Profiles		€¥						
🕨 🖿 Networkin	1								
🖿 L4-L7 Sen	ice Parameters		Properties						
Security Press	licies		Connector Name:	consumer	_				
Troublesh	oot Policies		Pluster Interface:	outside	_ 년 <sup>2</sup>				
Monitoring	Policies		Associated Network:	Bridge Domain L3 B	external Network				
4 L4-L7 Sen	ices		L3 External Network:	T1/ASA_OUT_L3OUT/#	· @				
L4-L/ S	ervice Graph Templates		Redistribute:	bgp 🙁 ospf 🗷 🔍 👻					
Router	configurations								
	lavines								
	d Devices		Subnets:					$\times$	+
A Device	s Selection Policies			IP/Mask	Scope	Preferred	Subnet Control		
🖌 🙆 PEF	MIT_ALL-ASA5585_SGT-N1					No items have been found			
	onsumer					Select Actions to create a new item.			
1	rovider								
🕨 🖿 Deploy	ed Graph Instances		•						
🕨 🖿 Deploy	ed Devices		Virtual IP Addresses:					×	+
📃 Inband	Management Configuration for L4-L7	7 devices		<ul> <li>IP Address</li> </ul>					
🕨 🖿 Device	Managers								_
🕨 🖿 Chass	s					No items have been found. Select Actions to create a new item.			

alialia cisco	System	Tenants	Fabric	VM Networking	L4-L7 Services	Admin	Operations			
		earch: enter name, descr	Leommon   T1   infra   mgmt							
Tenant T1		<ul> <li>O</li> </ul>	Logical Interface	Contout provid	lor					
📖 Quick Start			Logical Interface Context - provider							
🔺 🐣 Tenant T1										
Application Profiles										
Networking										
🖿 L4-L7 S	ervice Parameters		Properties							
🕨 💼 Security Policies			Connector Name:	Connector Name: provider						
🕨 🖿 Trouble	shoot Policies		Cluster Interface:	Cluster Interface: inside						
🕨 🚞 Monitori	ng Policies		Associated Network:	Associated Network Bridge Domain L3 External Network						
🔺 🛄 L4-L7 Services			L3 External Network: T1/ASA IN L30/IT/AS							
▶ 🥅 L4-L	7 Service Graph Templates		Pediatribute: Les est							
🕨 🖿 Rout	er configurations									
🕨 🛄 Fund	tion Profiles									
L4-L7 Devices			Subnets:					~	+	
Imported Devices										
Devices Selection Policies			IP/Mask	Scope	Preferred	Subnet Control				
PERMIT_ALL-ASA5585_S0T-N1     consumer     prowder						No items have been found. Select Actions to create a new item	een found.			
						Joiett Actions to create a new item.				
Deployed Graph instances     Deployed Devices     Lebard Meanagement Configuration for L4117 devices		<ul> <li>Virtual IP Addresses:</li> </ul>								
		intaan haarooooo.					×	+		
inda 📃	id Management Conliguration for L4-L		<ul> <li>IP Address</li> </ul>							
E Devi	.e managers					No items have been found.				
F Cha	0010					Select Actions to create a new item.				

### 驗證已部署的圖形例項,如下圖所示:

رالالله System Tenants								Advanced M welcome, adm	
ALL TENANTS   Add Tenant   Search: enter name, descr	common   T1   infra   mgr								
Tenant T1 🧐 💽	Eunction Node - N	и							
Cuick Start	- I dilotion nouce in						_		
A Prevant T1							P	olicy Faults Hist	
Application Profiles	€±								
Networking	Proportion								
L4-L7 Service Parameters	Properties	14							
Security Policies	Function Type: (	Fundamental							
Indubieshout Policies     Monitoring Rolicies	Devices: I	Device: 3545585							
A L4-L7 Services	Cluster Interfaces:	<ul> <li>Name</li> </ul>		Concrete In	iterfaces			Елсар	
L4-L7 Service Graph Templates		inside		ASA5585	Device 1/[GigabitEthernet0/1]			unknown	
Router configurations		outside		ASA5585	Device 1/(GigabitEthemet0/0)			unknown	
Function Profiles		Galoide		Nan3505_	Sence_noigubilenemenoj			Gillarown	
▶ 🖿 L4-L7 Devices	Function Connectors:	<ul> <li>Name</li> </ul>		Ence	P	Class ID			
Imported Devices		concurner		idan	101	22772			
Devices Selection Policies		consumer		viair		52115			
PERMIT_ALL-ASA5585_SGT-N1		provider		vian-	102	49156			
L consumer									
E provider									
Deployed Graph Instances	1								
Europhon Node - N1									
Deployed Devices	Eoldona And Dan	amatara							
Inband Management Configuration for L4-L7 devices	Folders And Par	ameters							
🕨 🗖 Device Managers	Features:	Basic Pa	arameters All Parameters						
🕨 🧰 Chassis	i oddaros.	Meta Folde	er/Param Kev		Name	Value	Override Name/	Value To	
		india Police	any ranam way		NUTRE		Gvernae Name)		

Beneric de la de	uluulu cisco	System	Tenants	Fabric	VM Networking	L4-L7 Services	Admin	Operations	
Between the second s			enter name, descr	common   T1   infra   n	ngmt				
Bit Set Set Set Set Set Set Set Set Set Se	Tenant T1		<ul> <li>O</li> </ul>	Deployed Devic	es				
Bit and a set of the set of th	🔲 Quick Start				00				
Second	Prenant T1     Prenant T1								
• * * * * * * * * * * * * * * * * * * *	Application Profiles     Metworking			₽₹					
All Set and	L4-L7 Service Parameters			<ul> <li>Device Name</li> </ul>		1	/RF		
Bit A Discrete States	Security Policies			ASA5585		1	none		
Server and a server and a server and a server and a server a se	Troubleshoot Policies								
And a contract of the set of t	Monitoring Policies L4-L7 Services								
Beerstender	▶ 💼 L4-L3	<ul> <li>L4-L7 Service Graph Templates</li> </ul>							
Service State S	🕨 🖿 Routi	er configurations							
	🕨 🖿 Func	tion Profiles							
Second	E L4-L,	/ Devices rted Devices							
Server all and all all all all all all all all all al	🔺 🖿 Devid	es Selection Policies							
	🔺 🛅 P	ERMIT_ALL-ASA5585_SGT-N1							
Second	1	, consumer							
		, provider		1					
	A Depl	oyed Graph Instances		•					
Server 2018 Ser	1	Function Node - N1							
Second	🔺 🛄 Depl	oyed Devices							
	<b>▲ **</b> A:	BA5585-none							
<complex-block></complex-block>		BGP Device Configuration							
<complex-block></complex-block>		OSPF Device Configuration							
<complex-block></complex-block>		BGP Graph Instance Configuration							
<complex-block></complex-block>		OSPF Graph Instance Configuration							
	4	💙 N1							
		Connector N1/consumer							
Sector		Connector N1/provider	1000						
Change of the set o	🖿 Devic	ia Managemeni Coniiguration ior L4-L7 dev :e Managers	ices						
Open         Teste         Witherport         Lot Dense         Append         Opendo         P         1           Contracting and	Chas	sis							
Image: Section 1 and 1	a la sta								
Algebraic Lange (Line Workson (Line Construction)       Particular (Line Construction)         Image: An and an and and an and and and and and	cisco		Fabric					ρ	
bound with the first build wit	AL Tonant T4	L TENANTS   Add Tenant   Search: enter name, dea	I common   T1   infra	i   mgmt					
<ul> <li>** Turtit</li> <li>** Standard</li> <li>**</li></ul>	Quick Start		Device OSPF	Configurations					
The state of th	Tenant T1      Application Broken	- Marcine	Ð₹						
LUC Strates Control Functions LUC Stra	<ul> <li>Mathematical Processing</li> <li>Networking</li> </ul>	nie2	Name	Enable	Context Name Address Family	r Area Area Control		Area Type Networks	
* Trube Total Status * Trube VIET IPV Beacher and Status * Adv_UUT_LOUT_area_1 Trube VIET IPV Beacher and Status Reptarance Adv_UUT_ECT_VIET (02:20:20:20) * Adv_UUT_ECT_VIET (	L4-L7 Service	Parameters	ASA_IN_L3OUT_are	a_0 True	VRF2 IPv4	Backbone area Send redistributed LS	As into NSSA area	Regular area ASA_IN_EXT_NET (1	0.10.10.0/24)
I Automa previous I Automa previous<	<ul> <li>Troubleshoot I</li> </ul>	Policies	ASA_OUT_L3OUT_a	rea_0 True	VRF1 IPv4	Backbone area Send redistributed LS Originate summary L	As into NSSA area SA	Regulararea ASA_OUT_EXT_NET	(20.20.20.0/24)
<ul> <li>Industry of up of translates</li> <li>Industry of up o</li></ul>	Monitoring Pol	icies							
<ul> <li>Provide configuration</li> <li>Provide configuration for L-L-J devices</li> <li>Provide Runaigeneent Configuration for L-L-L-L-L-L-L-L-L-L-L-L-L-L-L-L-L-L-L-</li></ul>	► L4-L7 Servi	, ice Graph Templates							
<ul> <li>L-L-J Draces</li> <li>I-Decise Drace</li></ul>	Router con	figurations							
Producto Dekes     Producto Policies     Productor Policies	▶ 💼 L4-L7 Devi	ces							
<ul> <li>PERRIT_ALLASASSS_SOTTI</li> <li>Consumer</li> <li>Perrot</li> <li>Pe</li></ul>	Imported D Imported D	evices rlection Policies							
Image: Constant of Con		_ALL-ASA5585_SGT-N1							
<ul> <li>Perkit Lik AASASS</li> <li>Perkit Lik AASASS</li> <li>Perkit Lik AASASS</li> <li>Perkit Lik AASASS</li> <li>Post Divise Configuration</li> <li>Oser Divise Configuration for L+L7 divises</li> <li>Divise Configuration for L+L7 divises</li> <li>Divise</li> </ul>	💷 cons 📃 provi	ider							
<ul> <li>Perkil _ LAxAsses _ N</li> <li>B DP Drive Configuration</li> <li>G DF Drive Configuration</li> <li>G DF Drive Instance Configuration</li> <li>G DF Drive Instance Configuration</li> <li>G Def Drive Instance Configuration for L4-L7 devices</li> <li>D Def</li></ul>	🔺 💼 Deployed (	Fraph Instances	4						
Configuration     Configuration for L4-L7 devices     Consector NI Nprovider     Consector NI N	ERMI	_ALL-ASA5585_SG1+11 :tion Node - N1							
<ul> <li>* Accounting</li> <li>* DP Dovice Configuration</li> <li>* PERMIT ALL-MARGES Soft</li> <li>* PERMIT ALL-MARGES Soft</li> <li>* OP Craph Instance Configuration</li> <li>* OP The Instance Configuration for L4-L7 devices</li> <li>* Ovice Managers</li> <li>* Chassis</li> </ul>	Deployed D	Devices .							
Corper Device Configuration Corper Device Dengunation CORPE Orapin Instance Configuration CORPE Orapin Instance Configuration Corrector N1 Incondumer Connector N1 I	BGP	Device Configuration							
■ DPP Graph Instance Configuration ■ DPP Graph Instance Configuration ■ OPP Graph Instance Configuration ■ OPP Graph Instance Configuration ■ Consector N1 Norosiumer ■ Consector N1 Norosiumer ■ Dedice Managers ■ Chassis ■ Chassis		F Device Configuration							
● Characterizations Configuration ● N II ■ Connector NI / Sconsector NI /		GP Graph Instance Configuration							
Connector NI/Consumer Connector NI/Provider Inband Management Configuration for L+L7 devices Device Managers Chassis		SPF Graph Instance Configuration							
Leconector N1/provider Linband Management Configuration for L+L7 devices Device Managers Chassis ■ Chassis		Connector N1/consumer							
■ Device Managers ■ Chassis ■  ●  ●  ●  ●  ●  ●  ●  ●  ●  ●  ●  ●	E	Connector N1/provider							
■◎◎◎◎	📠 mband Mar	lagers							
<b>駖</b> 證和疑難排解	🖿 Chassis								
<b>駖</b> 證和疑難排解									
驗諝和疑難排解		<u> </u>							
	<b>驗</b> 證?	<b>扣疑難排解</b>							

租戶的APIC配置:

```
apicl# sh running-config tenant T1
```

```
# Command: show running-config tenant T1
```

```
# Time: Thu Feb 25 16:05:14 2016
    tenant T1
```

```
access-list PERMIT_ALL
 match ip
  exit
contract PERMIT_ALL
 scope tenant
  subject PERMIT_ALL
   access-group PERMIT_ALL both
    1417 graph ASA5585_SGT
    exit
  exit
vrf context VRF1
  exit
vrf context VRF2
  exit
13out ASA_IN_L3OUT
 vrf member VRF2
  exit
13out ASA_OUT_L3OUT
 vrf member VRF1
  exit
13out N3K-1_L3OUT
 vrf member VRF1
  exit
13out N3K-2_L3OUT
 vrf member VRF2
  exit
bridge-domain BD1
 vrf member VRF1
  exit
bridge-domain BD2
 vrf member VRF2
  exit
application AP1
  epg EPG1
   bridge-domain member BD1
   exit
  epg EPG2
   bridge-domain member BD2
    exit
  exit
external-13 epg ASA_IN_EXT_NET 13out ASA_IN_L3OUT
  vrf member VRF2
  match ip 10.10.10.0/24
  exit
external-13 epg ASA_OUT_EXT_NET 13out ASA_OUT_L3OUT
 vrf member VRF1
 match ip 20.20.20.0/24
  exit
external-13 epg N3K-1_EXT_NET 13out N3K-1_L3OUT
  vrf member VRF1
  match ip 10.10.10.0/24
  contract consumer PERMIT_ALL
  exit
external-13 epg N3K-2_EXT_NET 13out N3K-2_L3OUT
  vrf member VRF2
  match ip 20.20.20.0/24
 contract provider PERMIT_ALL
  exit
interface bridge-domain BD1
  exit
interface bridge-domain BD2
  exit
1417 cluster name ASA5585 type physical vlan-domain T1_PHY service FW function go-to
  cluster-device ASA5585_Device_1
```

cluster-interface inside member device ASA5585\_Device\_1 device-interface GigabitEthernet0/1 interface ethernet 1/2 leaf 106 exit exit cluster-interface outside member device ASA5585\_Device\_1 device-interface GigabitEthernet0/0 interface ethernet 1/2 leaf 105 exit exit exit 1417 graph ASA5585\_SGT contract PERMIT\_ALL service N1 device-cluster-tenant T1 device-cluster ASA5585 mode FW\_ROUTED connector consumer cluster-interface outside 1417-peer tenant T1 out ASA\_OUT\_L3OUT epg ASA\_OUT\_EXT\_NET redistribute bgp,ospf exit connector provider cluster-interface inside 1417-peer tenant T1 out ASA\_IN\_L3OUT epg ASA\_IN\_EXT\_NET redistribute bgp,ospf exit rtr-cfg ASA5585 exit connection C1 terminal consumer service N1 connector consumer connection C2 terminal provider service N1 connector provider exit rtr-cfg ASA5585 router-id 3.3.3.3 exit exit apic1#

#### 驗證枝葉101上的OSPF鄰居關係和路由表:

leaf101# show ip ospf neighbors vrf T1:VRF1 OSPF Process ID default VRF T1:VRF1 Total number of neighbors: 2 Neighbor ID Pri State Up Time Address Interface 1.1.1.1 1 FULL/BDR 02:07:19 192.168.1.1 Vlan8 3.3.3.3 1 FULL/BDR 00:38:35 192.168.1.5 Vlan9 leaf101# show ip route vrf T1:VRF1 IP Route Table for VRF "T1:VRF1" '\*' denotes best ucast next-hop '\*\*' denotes best mcast next-hop '[x/y]' denotes [preference/metric] '%<string>' in via output denotes VRF <string> 10.10.10.0/24, ubest/mbest: 1/0 \*via 192.168.1.1, vlan8, [110/8], 01:59:50, ospf-default, intra 20.20.20.0/24, ubest/mbest: 1/0 \*via 192.168.1.5, vlan9, [110/22], 00:30:20, ospf-default, inter 100.100.100.100/32, ubest/mbest: 2/0, attached, direct \*via 100.100.100.100, lo1, [1/0], 02:21:22, local, local \*via 100.100.100.100, lo1, [1/0], 02:21:22, direct 192.168.1.0/30, ubest/mbest: 1/0, attached, direct \*via 192.168.1.2, vlan8, [1/0], 02:35:53, direct 192.168.1.2/32, ubest/mbest: 1/0, attached \*via 192.168.1.2, vlan8, [1/0], 02:35:53, local, local 192.168.1.4/30, ubest/mbest: 1/0, attached, direct \*via 192.168.1.6, vlan9, [1/0], 02:20:53, direct 192.168.1.6/32, ubest/mbest: 1/0, attached \*via 192.168.1.6, vlan9, [1/0], 02:20:53, local, local

192.168.1.8/30, ubest/mbest: 1/0
 \*via 192.168.1.5, vlan9, [110/14], 00:30:20, ospf-default, intra
200.200.200.200/32, ubest/mbest: 1/0
 \*via 192.168.1.5, vlan9, [110/15], 00:30:20, ospf-default, intra
 \*via 192.168.1.5, vlan9, [110/15], 00:30:20, ospf-default, intra

```
驗證枝葉102上的OSPF鄰居關係和路由表:
```

leaf102# show ip ospf neighbors vrf T1:VRF2 OSPF Process ID default VRF T1:VRF2 Total number of neighbors: 2 Interface Neighbor ID Pri State Up Time Address 00:37:07 192.168.1.9 3.3.3.3 1 FULL/BDR Vlan14 2.2.2.2 1 FULL/BDR 02:09:59 192.168.1.13 Vlan15 leaf102# show ip route vrf T1:VRF2 IP Route Table for VRF "T1:VRF2" '\*' denotes best ucast next-hop '\*\*' denotes best mcast next-hop '[x/y]' denotes [preference/metric] '%<string>' in via output denotes VRF <string> 10.10.10.0/24, ubest/mbest: 1/0 \*via 192.168.1.9, vlan14, [110/22], 00:35:22, ospf-default, inter 20.20.20.0/24, ubest/mbest: 1/0 \*via 192.168.1.13, vlan15, [110/8], 02:08:13, ospf-default, intra 192.168.1.4/30, ubest/mbest: 1/0 \*via 192.168.1.9, vlan14, [110/14], 00:35:22, ospf-default, intra 192.168.1.8/30, ubest/mbest: 1/0, attached, direct \*via 192.168.1.10, vlan14, [1/0], 02:14:29, direct 192.168.1.10/32, ubest/mbest: 1/0, attached \*via 192.168.1.10, vlan14, [1/0], 02:14:29, local, local 192.168.1.12/30, ubest/mbest: 1/0, attached, direct \*via 192.168.1.14, vlan15, [1/0], 02:09:04, direct 192.168.1.14/32, ubest/mbest: 1/0, attached \*via 192.168.1.14, vlan15, [1/0], 02:09:04, local, local 200.200.200.200/32, ubest/mbest: 2/0, attached, direct \*via 200.200.200.200, lo4, [1/0], 02:10:02, local, local \*via 200.200.200.200, lo4, [1/0], 02:10:02, direct

#### 驗證ASA 5585上的配置、OSPF鄰居關係和路由表:

```
ASA5585# sh run interface
interface GigabitEthernet0/0
no nameif
security-level 0
no ip address
1
interface GigabitEthernet0/0.101
nameif externalIf
security-level 50
ip address 192.168.1.5 255.255.255.252
1
interface GigabitEthernet0/1
no nameif
security-level 100
no ip address
interface GigabitEthernet0/1.102
nameif internalIf
```

```
security-level 100
ip address 192.168.1.9 255.255.255.252
1
interface Management0/0
management-only
nameif management
security-level 0
ip address 172.23.97.1 255.255.254.0
ASA5585# sh run router
router ospf 1
router-id 3.3.3.3
network 192.168.1.4 255.255.255.252 area 0
network 192.168.1.8 255.255.255.252 area 0
area O
log-adj-changes
!
ASA5585# sh ospf neighbor
Neighbor ID
              Pri State
                                   Dead Time Address
                                                               Interface
100.100.100.100 1 FULL/DR
                                    0:00:38 192.168.1.6
                                                              externalIf
                                    0:00:33 192.168.1.10 internalIf
200.200.200.200 1 FULL/DR
ASA5585# sh route ospf
Routing Table: T1
Codes: L - local, C - connected, S - static, R - RIP, M - mobile, B - BGP
      D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
      N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
      E1 - OSPF external type 1, E2 - OSPF external type 2
      i - IS-IS, su - IS-IS summary, L1 - IS-IS level-1, L2 - IS-IS level-2
      ia - IS-IS inter area, * - candidate default, U - per-user static route
      o - ODR, P - periodic downloaded static route, + - replicated route
Gateway of last resort is not set
       10.10.10.0 255.255.255.0
O IA
          [110/18] via 192.168.1.6, 00:22:57, externalIf
O IA
        20.20.20.0 255.255.255.0
          [110/18] via 192.168.1.10, 00:22:47, internalIf
        200.200.200.200 255.255.255.255
0
          [110/11] via 192.168.1.10, 00:22:47, internalIf
ASA5585# sh access-list
access-list cached ACL log flows: total 0, denied 0 (deny-flow-max 4096)
           alert-interval 300
access-list access-list-inbound; 3 elements; name hash: 0xcb5bd6c7
access-list access-list-inbound line 1 extended permit tcp any any eq www (hitcnt=0) 0xc873a747
access-list access-list-inbound line 2 extended permit tcp any any eq https (hitcnt=0)
0x48bedbdd
```

access-list access-list-inbound line 3 extended permit icmp any any (hitcnt=6) 0xe4b5a75d 驗證N3K-1上的配置、OSPF鄰居關係和路由表:

```
N3K-1# sh run ospf
!Command: show running-config ospf
!Time: Thu Feb 25 15:40:55 2016
version 6.0(2)U3(7)
feature ospf
router ospf 1
 router-id 1.1.1.1
interface Ethernet1/21
  ip router ospf 1 area 0.0.0.1
interface Ethernet1/47
  ip router ospf 1 area 0.0.0.1
N3K-1# sh ip ospf neighbors
 OSPF Process ID 1 VRF default
 Total number of neighbors: 1
                                                        Interface
1.2 Eth1/47
 Neighbor ID Pri State
                                      Up Time Address
 100.100.100.100 1 FULL/DR
                                     01:36:24 192.168.1.2
                                                              Eth1/47
N3K-1# sh ip ospf route
 OSPF Process ID 1 VRF default, Routing Table
  (D) denotes route is directly attached
                                             (R) denotes route is in RIB
10.10.10.0/24 (intra)(D) area 0.0.0.1
     via 10.10.10.0/Eth1/21* , cost 4
20.20.20.0/24 (inter)(R) area 0.0.0.1
     via 192.168.1.2/Eth1/47 , cost 62
100.100.100.100/32 (intra)(R) area 0.0.0.1
     via 192.168.1.2/Eth1/47 , cost 41
192.168.1.0/30 (intra)(D) area 0.0.0.1
     via 192.168.1.1/Eth1/47* , cost 40
```

#### 驗證N3K-2上的配置、OSPF鄰居關係和路由表:

N3K-2# sh run ospf

!Command: show running-config ospf
!Time: Thu Feb 25 15:44:47 2016

version 6.0(2)U3(7)
feature ospf

router ospf 1 router-id 2.2.2.2

interface loopback0
ip ospf network point-to-point
ip router ospf 1 area 0.0.0.0

```
interface Ethernet1/21
  ip router ospf 1 area 0.0.0.1
```

```
interface Ethernet1/47
  ip router ospf 1 area 0.0.0.1
```

N3K-2# sh ip ospf neighbors OSPF Process ID 1 VRF default Total number of neighbors: 1 Neighbor ID Pri State Up Time Address Interface 01:43:50 192.168.1.14 Eth1/47 200.200.200.200 1 FULL/DR N3K-2# sh ip ospf route OSPF Process ID 1 VRF default, Routing Table (D) denotes route is directly attached (R) denotes route is in RIB 2.2.2.0/30 (intra)(D) area 0.0.0.0 via 2.2.2.0/Lo0\* , cost 1 10.10.10.0/24 (inter)(R) area 0.0.0.1 via 192.168.1.14/Eth1/47 , cost 62 20.20.20.0/24 (intra)(D) area 0.0.0.1 via 20.20.20.0/Eth1/21\* , cost 4 192.168.1.12/30 (intra)(D) area 0.0.0.1 via 192.168.1.13/Eth1/47\* , cost 40

#### 驗證枝葉和資料包命中計數上的合約過濾器規則:。

leaf101# show system internal policy-mgr stats
Requested Rule Statistics
[CUT]
Rule (4107) DN (sys/actrl/scope-3112964/rule-3112964-s-32773-d-49158-f-33) Ingress: 1316,
Egress: 0, Pkts: 0 RevPkts: 0
Rule (4108) DN (sys/actrl/scope-3112964/rule-3112964-s-49158-d-32773-f-33) Ingress: 1317,
Egress: 0, Pkts: 0 RevPkts: 0

leaf101# show system internal policy-mgr stats
Requested Rule Statistics
[CUT]
Rule (4107) DN (sys/actrl/scope-3112964/rule-3112964-s-32773-d-49158-f-33) Ingress: 2317,
Egress: 0, Pkts: 0 RevPkts: 0
Rule (4108) DN (sys/actrl/scope-3112964/rule-3112964-s-49158-d-32773-f-33) Ingress: 2317,
Egress: 0, Pkts: 0 RevPkts: 0

leaf102# show system internal policy-mgr stats Requested Rule Statistics [CUT] Rule (4103) DN (sys/actrl/scope-2752520/rule-2752520-s-49156-d-6019-f-default) Ingress: 3394, Egress: 0, Pkts: 0 RevPkts: 0 Rule (4104) DN (sys/actrl/scope-2752520/rule-2752520-s-6019-d-49156-f-default) Ingress: 3394, Egress: 0, Pkts: 0 RevPkts: 0 [CUT] leaf102# show system internal policy-mgr stats Requested Rule Statistics [CUT] Rule (4103) DN (sys/actrl/scope-2752520/rule-2752520-s-49156-d-6019-f-default) Ingress: 4392, Egress: 0, Pkts: 0 RevPkts: 0 Rule (4104) DN (sys/actrl/scope-2752520/rule-2752520-s-6019-d-49156-f-default) Ingress: 4392, Egress: 0, Pkts: 0 RevPkts: 0 [CUT]

#### N3K-1與N3K-2的可達性測試:

N3K-1# ping 20.20.20.1 source 10.10.10.1 PING 20.20.20.1 (20.20.20.1) from 10.10.10.1: 56 data bytes 64 bytes from 20.20.20.1: icmp\_seq=0 ttl=250 time=2.098 ms 64 bytes from 20.20.20.1: icmp\_seq=1 ttl=250 time=0.922 ms 64 bytes from 20.20.20.1: icmp\_seq=2 ttl=250 time=0.926 ms 64 bytes from 20.20.20.1: icmp\_seq=3 ttl=250 time=0.893 ms 64 bytes from 20.20.20.1: icmp\_seq=4 ttl=250 time=0.941 ms

--- 20.20.20.1 ping statistics ---

5 packets transmitted, 5 packets received, 0.00% packet loss round-trip min/avg/max = 0.893/1.156/2.098 ms

N3K-2# ping 10.10.10.1 source 20.20.20.1 PING 10.10.10.1 (10.10.10.1) from 20.20.20.1: 56 data bytes 64 bytes from 10.10.10.1: icmp\_seq=0 ttl=250 time=2.075 ms 64 bytes from 10.10.10.1: icmp\_seq=1 ttl=250 time=0.915 ms 64 bytes from 10.10.10.1: icmp\_seq=2 ttl=250 time=0.888 ms 64 bytes from 10.10.10.1: icmp\_seq=3 ttl=250 time=1.747 ms 64 bytes from 10.10.10.1: icmp\_seq=4 ttl=250 time=0.828 ms

--- 10.10.10.1 ping statistics ---5 packets transmitted, 5 packets received, 0.00% packet loss round-trip min/avg/max = 0.828/1.29/2.075 ms

附件是租戶的XML配置檔案和用於此演示的ASA功能配置檔案。