Homologation de route L4-L7 avec structure de transit - Procédure pas à pas de configuration

Contenu

Introduction Conditions préalables Conditions requises Components Used Informations générales Configuration Diagramme du réseau Configuration Vérifiez et dépannez

Introduction

Ce document décrit la procédure pas à pas de configuration du graphique de services L4-L7 avec appairage de route, où le consommateur et le fournisseur sont tous deux externes au fabric ACI (Application Centric Infrastructure).

Contribution de Zahid Hassan, ingénieur des services avancés Cisco.

Conditions préalables

Conditions requises

Cisco vous recommande de prendre connaissance des rubriques suivantes :

- Pools de VLAN statiques qui seront utilisés pour le VLAN d'encapsulation entre les périphériques externes et le fabric ACI
- Domaines physiques et routés externes qui relieront l'emplacement (noeud/chemin feuille) des périphériques externes et le pool de VLAN
- Connexion de couche 3 à un réseau externe (L3Out)

Les étapes de configuration **d'accès au fabric** et **L3Out** précédentes ne sont pas couvertes dans ce document et ont été supposées avoir déjà été effectuées.

Components Used

Les informations contenues dans ce document sont basées sur les versions de logiciel suivantes :

- Contrôleur Cisco APIC (Application Policy Infrastructure Controller) 1.2(1m)
- Package de périphériques ASA (Adaptive Security Appliance) 1.2.4.8
- ASA 5585 9.5(1)
- Nexus 3064 6.0(2)U3(7)

The information in this document was created from the devices in a specific lab environment. All of the devices used in this document started with a cleared (default) configuration. If your network is live, make sure that you understand the potential impact of any command.

Informations générales

L'appairage de route est une fonctionnalité qui permet à un appareil de service tel qu'un équilibreur de charge ou un pare-feu d'annoncer son accessibilité via le fabric ACI jusqu'à un réseau externe.

Le cas d'utilisation présenté ici est un pare-feu physique qui est déployé en tant que graphique de service à deux branches, entre deux sorties L3ou groupes de terminaux externes (EPG). Le graphique de service est associé à un contrat entre le groupe de terminaux externe sur Leaf 101 (N3K-1) et le groupe de terminaux externe sur Leaf 102 (N3K-2). Le fabric ACI fournit un service de transit pour les routeurs (N3K-1 et N3K-2) et l'appairage de route est utilisé, avec le protocole de routage OSPF (Open Shortest Path First), pour échanger des routes entre le pare-feu et le fabric ACI.

Configuration

Diagramme du réseau

L'image suivante montre comment l'appairage de route fonctionne de bout en bout :



VRF1 / BD1			VRF2 / BD2
EXTERNAL-EPG EXTERNAL	EXTERNAL	INTERNAL	INTERNAL EXTERNAL-EPG
		ASA INTERNAL L3OUT	L3OUT N3K-2
10.10.10.0/24 192.168.1.0/30	192.168.1.4/30	.10 192.168.1.8/30	.14 .13 PROVIDER 192.168.1.12/30 20.20.20.0/24
ping 20.20.20.1 source 10.10.10.1			

Configuration

Étape 1. Configurez Virtual Routing and Forwarding1 (VRF1), VRF2, Bridge Domain1 (BD1) et BD2. Associez BD1 à VRF1 et BD2 à VRF2, comme illustré sur l'image :

uluito cisco								P
		arch: enter name, descr	common infra mg					
Tenant T1		 O 	Networke					
🔲 Quick Start			Networks					
4 🐣 Tenant T1								
Application	on Profiles		Drag and drog	o to configure:	BD 🗗 🖑	Common:	3D	
A Networki	ng			u i		~~ °		
Bridg	e Domains							
	17							
VRFs								
🕨 🖻 VE	F1					\bigcirc		
🕨 🗈 VF	RF2							
🕨 🖿 Extern	al Bridged Networks					VRF2		VRF1
🕨 🖿 Extern	al Routed Networks							
🕨 🖿 Route	Profiles					(1) (BE		
Proto	col Policies					(3) (3	E) (ü)	(音) (嘉)
L4-L7 Se	rvice Parameters				ASA_IN_L3O	UTN3K-2_L3OUT BE	02 N3K-1_L3OU	TASA_OUT_L BD1
Troubles	rolicies		•					
Monitorin	n Policies							
▶ 🖿 L4-L7 Se	rvices							

Étape 2. Téléchargez le package de périphériques ASA sous le périphérique L4-L7, comme l'illustre l'image :



Configurez le périphérique L4-L7 pour l'ASA 5585 physique (routé), comme indiqué sur l'image :

alialia cisco									ρ		w
		earch: enter name, descr	common T1 infra								
Tenant T1		 Ø 	14-17 Devices	- 4545585							
💼 Quick Star	t		LT-LI Devices	- AGAGGGG							
🔺 🚢 Tenant T1										Policy Parameters	Fa
🕨 🖿 Applica	ition Profiles		⊖.¥								
🔺 🚞 Netwo	rking										
🕨 🚞 Brio	lge Domains		General		1	Device 1					
🕨 🖿 VRF	s		Manage	ed: 🗹	i	Vanagement IP Address:	172.23.97.1	Management Port: 443	•		
🕨 💼 Exte	ernal Bridged Networks		Nam	ne: ASA5585		Chassis:	select a value	~ @			
🕨 🛄 Exte	ernal Routed Networks		Device Packag	e: CISCO-ASA-1.2		Interfaces:					
🕨 🚞 Roi	ite Profiles		Service Typ	e: Firewall							
🕨 🖿 Pro	tocol Policies		Device Typ	e: PHYSICAL			▲ Name		Path		
🖿 L4-L7 :	Service Parameters		Physical Doma	In: 11_PHY	<u>~</u> 69		GigabitEthernet0/0		Node-105/eth1/2		
🔺 🚞 Securit	y Policies		Context Awa	re: Single	_		GigabitEthernet0/1		Node-106/eth1/2		
🕨 🖿 Cor	itracts		Function Typ	e: GoThrough GoTo							
🕨 💼 Tab	oo Contracts		Cluster Mod	ie: Single Node							
🕨 🖿 Imp	orted Contracts			-	(Cluster					
🕨 🛄 Filb	ers		Credentials		1	Management IP Address:	172.23.98.228	Management Port: 443	\$		
🕨 🖿 Trouble	eshoot Policies		Usernam	ie: admin	_	Device Manager:	172.23.97.1	▲ 10			
Monitor	ring Policies		Passwo	rd:	_	Cluster Interfaces:					
4 🗖 L4-L7 :	Services		Confirm Passwor	rd:			_				
▶ ■ L4-I	L7 Service Graph Templates						туре	 Name 	Concrete Internaces	achiiEthereei0/41	
Rot	iter configurations		Configuration S	State			provider	inside	ASA3365_Device_In[or	gabitEthemetorij	
Fun	ction Profiles		Configuration Issue	es:			consumer	outside	ASA5585_Device_1/[Gi	gabitEthernet0/0]	
▲ L4-	L7 Devices		Devices Sta	te: stable							
▶ 🖪 .	ASA5585										
🖻 💻 imp	orted Devices										
🕨 💻 Dev	rices Selection Policies										

Étape 3. Configurez L3Out pour N3K-1 et associez-vous à BD1 et VRF1.

Le réseau routé externe est utilisé pour spécifier la configuration de routage dans le fabric ACI pour l'appairage de route, comme l'illustre l'image :

ululu cisco				VM Networking	L4-L7 Services	Admin	Operations
		earch: enter name, descr	common infra mgmt T1				
Tenant T1							
Quick Start			L3 Outside - N3K-1	I_L3001			
🔺 🐣 Tenant T1							
🕨 🖿 Applicatio	n Profiles						
🔺 🚞 Networkir	ng						
🕨 🖿 Bridge	Domains		⊖ ±				⚠ ▲ 🛛 🕛
🕨 🖿 VRFs			Properties				
🕨 🖿 Extern	al Bridged Networks		Froperties	N3K 1 1 30UT			
🔺 🚞 Extern	al Routed Networks		Description	r optional			
🕨 🖿 Sei	t Action Rule Profiles		Soonplan				
🕨 🛄 Ma	tch Action Rule Profiles		Таля				
▶ 🖽 AS.	A_IN_L3OUT		lags	enter taga separated	l by comma		
AS	A_001_L3001		Label	:			
► 🖨 N3	K-1_L3001		Target DSCP	: unspecified			
P D N3	Profiles		Route Control Enforcement	t 🗌 Import	🗹 Export		
	ol Policies		VPF	. T1/V/DE1	10		
L4-L7 Ser	vice Parameters		Deseturity		¥ Ľ		
🕨 🖿 Security P	olicies		External Routed Domain	: T1 L30UT			
🕨 🖿 Troublest	noot Policies		Route Profile for Interleak	select a value	 		
🕨 🖿 Monitoring	g Policies		Deute Central Fer Desservice		<u>*</u> 6		
🕨 🖿 L4-L7 Sei	rvices		Route Control For Dampening				
				 Address Famil 	у Туре		
							No item
							Select Actio
			Enable BGP/EIGRP/OSPF	BGP	L] EIGRP		
			OSPE Area ID	: 0.0.01			
			USPF Area Control	🖸 Send redistribi Viginate sumi	uted LSAS Into NSSA area mary LSA		
				Suppress forw	arding address in translated LS	A	
			OSPF Area Type	NSSA area	Regular area Stub area		
			OSPF Area Cost	: 1	÷		
					`		

Note: Toutes les interfaces L3Out utilisées pour l'appairage de route doivent être configurées en tant qu'interface virtuelle de commutateur (SVI) avec un encap VLAN en conséquence.

									A i web
	nch: enter name, descr	common infra mgmt T1							
	 O 	Logical Interface P	rofilo - N3K-1	ID					
		Logical Interface P	Tome - Nore1_						_
									Policy Fault
Profiles		⊡ ↓							
9									
Domains		Properties							
			Name: N3K-1_IP						
l Bridged Networks		De	scription: optional						
I Routed Networks									
Action Rule Profiles			Label:						
ch Action Rule Profiles		N	D policy: select a value	*					
_IN_L3OUT		Egress Data Plane Policin	g Policy: select a value	· · · · · · · · · · · · · · · · · · ·					
_OUT_L3OUT		Ingress Data Plane Policin	a Policy; select a value						
(-1_L30UT		- Routed In	torfacas:						
Logical Node Profiles		Rodied III	nenaces.						
N3K-1_NP			A Path		IP Address	MAC	Address	MTU (Bytes	i)
Logical Interface Profiles						No items have been f	ound.		
N3K-1_IP						Select Actions to create a	new item.		
OSPF Interface Profile									
Configured Nodes									
topology/pod-1/node-105			SVI:						
Retworks			A Path	IP Address	Side A IP	Side B IP	MAC Address	MTU (Bytes)	Encap
Could Fromes			Node-105/eth1	/3 192 168 1 2/30			00:22 BD E8:19 FF	1500	vlan-100
Profiles									
1 Policies									
ice Parameters									
olicies		Routed Sub-In	terfaces:						
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Policies									
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Configurez le contrôle de route d'importation/exportation sur les sous-réseaux pour l'EPG externe N3K-1 L3Out, comme illustré dans l'image :

ululu cisco								Q
		enter name, descr	common infra mgmt					
Tenant T1		≤ O	External Network	Instance Profile	- N3K-1 EXT NET			
🔲 Quick Start			External Network	motanee Frome				_
🔺 🐣 Tenant T1								Policy Operatic
🕨 🖿 Applicatio	n Profiles							General
🔺 🛄 Networkir	ng							0010101
🕨 🖿 Bridge	Domains		€±				🗥 🛕 🕕 🕕 100	
VRFs			Properties					
Extern	al Bridged Networks		Name:	N3K-1_EXT_NET				
4 🔲 Extern	al Routed Networks		Tags:	1 8	•			
P Set	t Action Rule Profiles			enter tags separated by comm	9			
Ma	ton Action Rule Profiles		Description:	optional				
	A_IN_L3001							
	K_1 30UT		Configued VRF name:	VRF1				
	Logical Node Profiles		Resolved VRF:	uni/tn-T1/ctx-VRF1				
1	Signal Nobel Tollies		QoS Class:	Unspecified -				
	4 📕 Logical Interface Profiles		Target DSCP:	unspecified				
	▶ 🗐 N3K-1 IP		Configuration Status:	applied				
	Configured Nodes		Configuration Issues:					
	topology/pod-1/node-105		Subnets:					
× 🖿	Networks			 IP Address 	Scope		Aggregate	Route Control Profile
	SN3K-1_EXT_NET			10.10.10.0/24	External Subn	ets for the External EPG	1	
	L4-L7 Service Parameters			20.20.20.0/24	Export Route (Control Subnet		
•	Route Profiles							
▶ 🖽 N3	K-2_L30UT							
Route	Profiles		Route Control Profile:					
Protoc	ol Policies							
L4-L7 Ser	rvice Parameters			 Name 			Di	rection
Security P	olicies						No items have be Select Actions to coord	en found.
Troublest	noot Policies						Select Actions to the	ite a new item.
Monitorini	g Policies							

Configurez L3Out pour l'interface externe ASA et associez-vous à BD1 et VRF1, comme illustré dans l'image :

ululu cisco	System	Tenants	Fabric	VM Networking	L4-L7 Services	Admin	Operations	٩
		arch: enter name, descr	common T1 infra mgm					
Tenant T1		⊴ 0	L3 Outside - ASA_	OUT_L3OUT				
	n Profiles ig Domains al Bridged Networks al Routed Networks Action Rule Profiles ch Action Rule Profiles A_IN_L3OUT A_OUT_L3OUT Logical Node Profiles Networks Route Profiles K+2_L3OUT K+2_L3OUT		Properties Name Description Tage Labe Target DSCF Route Control Enforcement	e: ASA_OUT_L3OUT .: optional .:	omma ▼ ▼ Export			
 Route Protoc L4-L7 Ser Security P 	Profiles ol Policies vice Parameters olicies		External Routed Domain Route Profile for Interleal Route Control For Dampening	n: T1_L3OUT K: select a value g:	₽ ₽			
 Troublest Monitoring L4-L7 Set 	noot Policies g Policies vices			 Address Family Typ 	e		Route I No items have been for Select Actions to create a r	Dampening Policy und. new Rem.
			Enable BGP/EIGRP/OSP/ OSPF Area ID OSPF Area Contro OSPF Area Typi OSPF Area Cos	F: BOP Ø OSPF 2: 0 Ø Originate summary Suppress forwardin NSSA area Regi	CSAs into NSSA area LSA g address in translated LSA Jar area Stub area €			

ululu cisco	System	Tenants	Fabric \	/M Networking	L4-L7 Services	Admin	Operations	Q	i	Adv: welcor
		arch: enter name, descr	common T1 infra mgmt							
Tenant T1		S 2	Logical Interface Pr							
💼 Quick Start			Logical Interface Pro	ulle - ASA_O						
🔺 🐣 Tenant T1										Policy Faults
🕨 🖿 Application	Profiles									
🔺 🚞 Networkin	3									
🕨 🖿 Bridge	Domains		Properties							
🕨 🖿 VRFs			- · · ·	Name: ASA_OUT_IP						
🕨 🖿 Externa	I Bridged Networks		Desc	ription: optional						
🔺 🚞 Externa	I Routed Networks									
🕨 🖿 Set.	Action Rule Profiles			Label:						
🕨 🖿 Mati	h Action Rule Profiles		ND	policy: select a value	•					
🕨 🕾 ASA	_IN_L3OUT		Egress Data Plane Policing	Policy select a value						
🖌 🕀 ASA	_OUT_L3OUT		Ingress Data Diana Daliaing I	Delieve colocitic value						
A 🖬 1	ogical Node Profiles.		ingless bata Halle Policing I	Folicy. select a value	· · ·					
- 1	ASA_OUT_NP		Routed Inter	rfaces:						
	📫 Logical Interface Profiles			 Path 		IP Address		MAC Address	MTU (Bytes)	
	ASA_OUT_IP						Alle Berne Berne	have formed		
	📙 OSPF Interface Profile						Select Actions to c	eate a new item.		
-	Configured Nodes									
	4 📕 topology/pod-1/node-105		4							
	BGP for VRF-T1:VRF1			SVI:						
	OSPE for VRF-T1:VRF1					13-13-14				
Image: A start and a start	letworks			A Path	IP Address	Side A IP	Side B IP	MAC Address	MTU (Bytes)	Encap
► 6	Route Profiles			Node-105/eth	/2 192.168.1.6	/30		00:22:BD:F8:19:FF	1500	vlan-101
🕨 🕾 N3k	-1_L30UT									
▶ 🕮 N3F	-2_L3OUT									
🕨 🖿 Route F	Profiles		Douted Cub Jeta	400000						
🕨 🚞 Protoco	I Policies		Routed SUD-Intel	naves.						
L4-L7 Sen	ice Parameters			 Path 		IP Address	MAC Address	MTU (Bytes)	En	cap
Security Po	licies						No items have	been found.		
Troublesh	oot Policies						Select Actions to c	eate a new item.		
🕨 🖿 Monitoring	Policies									
L4-L7 Sen	ices									

Configurez le contrôle de route Import/Export sur les sous-réseaux pour l'EPG externe L3Out ASA-External, comme illustré dans l'image :

cisco								م ا	i
		arch: enter name, descr	common T1 infra mg						
Tenant T1		 S 	External Network	Instance Profile		NET			
🔲 Quick Start			External NetWORK	motarice infolle.	MON_OOI_EXI_	(and)			1
🔺 🚢 Tenant T1								Policy	Operational Stats
🕨 🖿 Application	n Profiles								General Contracto
🔺 🚞 Networkins	g							\	Contracts
🕨 🖿 Bridge i	Domains		₽₹				🛆 🛕 🌖 🚺 100		
VRFs			Properties						
🕨 🚞 Externa	al Bridged Networks		Name	ASA OUT FXT NFT					
🔺 🛄 Externa	al Routed Networks		Tags:		-				
🕨 🚞 Seti	Action Rule Profiles			enter tags separated by comma					
🕨 🚞 Matu	ch Action Rule Profiles		Description:	optional					
🕨 🕾 ASA	A_IN_L3OUT								
ASA	LOUT_L3OUT		Configued VRF name: V	VRF1					
) i	Logical Node Profiles		Resolved VRF: 4	uni/tn-T1/ctx-VRF1					
4	Networks		QoS Class:	Unspecified 🗸					
▲ 1	ASA_OUT_EXT_NET		Target DSCP:	unspecified					
	L4-L/ Service Parameters		Configuration Status: a	applied					
Market 1	NULLE PROTILES		Configuration Issues:						
► 📼 N3ł			Subnets:						
⊭ 🚥 N3ł ⊨ 💼 nauta n	rreLouur				2			Device 1 1 1 1 1	
Route i	1 Policies			 IP Address 	Scope	Control Rubant	Aggregate	Route Control Profile	Route Summa
	ice Parameters			10.10.10.0/24	Export Route Shared Rout	te Control Subnet			
 Decir den Security Po 	licies			20.20.20.0/24	External Sub Shared Rout	nets for the External EPG 'e Control Subnet			
Troubleche	hot Policies				Sharearting				
Monitoring	Policies								
▶ 🖿 L4-17 Serv	ices		Route Control Profile:						
	-			 Name 			Direction		
							No items have been found. Select Actions to create a new item.		

Configurez L3out pour ASA-Internal et associez-le à BD2 et VRF2, comme illustré dans l'image :

ululu cisco							Q
		arch: enter name, descr	common T1 infra mgn				
Tenant T1		O N	13 Outcide - ASA				
🔲 Quick Start			Lo Outside - Hori				
🔺 🚢 Tenant T1							
🕨 🖿 Applicatio	in Profiles						
🔺 🚞 Networki	ng						
🕨 🖿 Bridge	Domains					⚠ ▲ 🕛 🕕	
🕨 🖿 VRFs			Branartian				
🕨 🖿 Extern	al Bridged Networks		Figherities	O ASA IN LOUIT			
🔺 🚞 Extern	al Routed Networks		Descriptio	n: ontional			
🕨 🖿 Se	t Action Rule Profiles		Descriptio	. opnoridi			
🕨 🖿 Ma	tch Action Rule Profiles						
🔺 🕾 AS	A_IN_L3OUT		lag	enter taga apparated by			
4	Logical Node Profiles		Labe	el:			
Þ	📃 ASA_IN_NP		Target DSC	P: unspecified			
	Networks		Route Control Enforceme	of Discount	- Current		
	Route Profiles		Node Control Enlorcemen	inc 🛄 Import			
► GB AS	A_OUT_L3OUT		VR	F: T1/VRF2	<u> </u>		
▶ 🕮 N3	K-1_L30UT		Resolved VR	F: T1/VRF2			
▶ 🗠 N3	IK-2_L30UT		External Routed Domai	in: T1_L3OUT	<u> </u>		
Route	Profiles		Route Profile for Interlea	k: select a value	▼ 🗗		
P Proto	col Policies		Route Control For Dampenin	ig:			
L4-L7 Se	ivice Parameters						
Security F	runcies			 Address Family Ty 	pe		Route Dampening Policy
Monitorin	n Bolicios					No items have b Select Actions to cre	een found.
Morntonn	y Folicies					Solder Medialis to er	Sate a new really
F L4+L7 88	THLES						
			Enable BGP/EIGRP/OSP	F: BOP			
				OSPF			
			OSPF Area I	D: 0			
			ORE Area Contr	ol: 🔽 Cond radiatributed	L Pås into NPPA area		
			COLL VISA COLL	Originate summar	y LSA		
				Suppress forwardi	ng address in translated LSA		
			OSPF Area Typ	ie: NSSA area Reg	gular area Stub area		
			OSPF Area Cos	st: 0	÷		

ululu cisco	System	Tenants	Fabric	VM Networking	L4-L7 Services	Admin	Operations	٩	i		Advanced Mor welcome, admin
		arch: enter name, descr	common T1 infra mg								
Tenant T1 Quick Start		₫ 🖸	Logical Interface	Profile - ASA_IN	_IP						
Tenant T1	Profiles									Policy	auits Histor
A Detworking	Fiumes		₽₹								ACTIONS *
Internet in the second seco	, Domains		Properties								
▶ 🚞 VRFs			rioperaeo	Name: ASA_IN_IP							
🕨 🚞 External	Bridged Networks			Description: optional							
🔺 🚞 Externa	Routed Networks										
▶ 🖿 Set/	Action Rule Profiles			Label:							
🕨 🚞 Mate	h Action Rule Profiles			ND policy: select a value	-						
🔺 🙆 ASA	IN_L30UT		Enress Data Plane Polis	icing Policy: select a value							
4 🖿 L	ogical Node Profiles		Ingress Data Plane Polis	ising Policy: select a value							
4 🛽	ASA_IN_NP		ingless Data Plate Polit	cing Policy. select a value	<u> </u>						
4	Logical Interface Profiles		Routed	d Interfaces:							× +
	A 🗄 ASA_IN_IP			A Path		IP Address	MA	C Address	MTU (Bytes)		
	OSPF Interface Profile						No items have been	n found			
4	Configured Nodes						Select Actions to create	e a new item.			
	topology/pod-1/node-106										
P 🔳 N	letworks		•								
Þ 🗖 101	coute Profiles			SVI:							× +
 ASA ASA 	1.1.2017			A Path	IP Address	Side A IP	Side B IP	MAC Address	MTU (Bytes)	Encap	
 Mak Mak 	-1_E3001			Node-106/eth	/2 192.168.1.1	0/30		00:22:BD:F8:19:FF	1500	vlan-102	
Route P	rofiles										
Protoco	l Policies										
🖿 L4-L7 Servi	ice Parameters										
🕨 🖿 Security Po	licies		Routed Sub	b-Interfaces:							× +
🕨 🖿 Troublesho	ot Policies			 Path 		IP Address	MAC Address	MTU (Bytea)	Encar		
🕨 🚞 Monitoring	Policies										
▶ 🖿 L4-L7 Serv	ices						No items have been Select Actions to create	n round. e a new item.			

Configurez le contrôle de route Import/Export sur les sous-réseaux pour l'EPG externe L3Out interne ASA, comme illustré dans l'image :

ululu cisco								Q
		arch: <mark>enter name, descr</mark>	common T1 infra mg	mt				
Tenant T1		⊴ ⊙	External Network	Instance Profile	- ASA IN EXT NE	ET		
🔲 Quick Start								
4 🐣 Tenant T1								Policy Ope
🕨 🖿 Applicatio	in Profiles							Genera
🔺 🚞 Networkir	ng							Oellen
🕨 🥅 Bridge	9 Domains					6	A 🕕 🕕 100	
VRFs			Properties					
🕨 🧮 Extern	al Bridged Networks		Name	ASA IN EXT NET				
🔺 💻 Extern	al Routed Networks		Tags:		•			
) Se	t Action Rule Profiles			enter tags separated by comma	9			
Ma	ton Action Rule Profiles		Description:	optional				
	A_IN_L3UUT							
	Logical Node Profiles		Configued VRF name:	VRF2				
	ADA IN EVE NET		Resolved VRF:	uni/tn-T1/ctx-VRF2				
	Boute Profiles		QoS Class:	Unspecified -				
b 🖨 40			Target DSCP:	unspecified				
► 🕀 N3	K-1 L30UT		Configuration Status:	applied				
► 🔂 N3	K-2 L30UT		Configuration Issues:					
Route	Profiles		Subnets:					
🕨 🖿 Protoc	ol Policies			 IP Address 	Scope		Aggregate	Route Control Profile
🖿 L4-L7 Sei	vice Parameters			10 10 10 0/24	External Sub	nets for the External EPG		
🕨 🖿 Security F	olicies				Shared Rout	te Control Subnet	4	
🕨 🖿 Troublest	noot Policies			20.20.20.0/24	Shared Rout	te Control Subnet		
🕨 🖿 Monitorini	g Policies							
🕨 🖿 L4-L7 Se	rvices		Route Control Profile:					
			o o o o o o o o o o o o o o o o o o o					
				▲ Name			Di	rection
							No items have be Select Actions to crea	en found. ite a new item.

Configurez L3Out pour N3K-2 et associez-vous à BD2 et VRF2, comme illustré dans l'image :

ululu cisco							Q
	ALL TENANTS Add Tenant Search:	enter name, descr	common T1 infra mgmt				
Tenant T1		S 2	1.2 Outside NI2K 2				
💼 Quick Start			L3 Outside - NSK-2	_L3001			
🔺 🐣 Tenant T1							
🕨 🖿 Application	n Profiles						
🔺 🚞 Networkin	g						
🕨 🖿 Bridge	Domains		⊖±			🛆 🔺 🕕 🕕	
🕨 🖿 VRFs			Descrition				
🕨 🖿 Externa	al Bridged Networks		Properties	NOK 2 L 20UT			
🔺 🚞 Externa	al Routed Networks		Name.	nan-z_Lauur			
🕨 🖿 Set	Action Rule Profiles		Description.	optional			
🕨 🖿 Mat	ch Action Rule Profiles						
🕨 🕾 ASA	LIN_L3OUT		Tags:				
🕨 🕾 ASA	_OUT_L3OUT		Label:	emer taga sebarated by co	mina		
▶ 🕾 N3F	<-1_L30UT		Tarraet DSCP	unspecified			
🔺 😂 N3F	<-2_L30UT		Dente Ocertei Enformente		-		
► = 1	Logical Node Profiles		Route Control Enforcement	lmport	M Expert		
► = 1	Networks		VRF:	T1/VRF2	<u>-</u> 🗗		
► •	Route Profiles		Resolved VRF:	T1/VRF2			
Route I	Profiles		External Routed Domain:	T1_L3OUT	<u>▼</u> 🗗		
Protoci	ol Policies		Route Profile for Interleak:	select a value	- @		
L4-L7 Sen	rice Parameters		Route Control For Dampening:				
Security Pr	olicies						
Troublesh	oot Policies			 Address Family Typ 	e	Route Da	ampening Policy
Monitoring	Policies					No items have been four	nd
L4-L7 Sen	vices					belect Actions to create a ne	aw item.
			Enable BOD/EIODD/OCDE				
			Enable Bon /Elon / Josh /	OSPE			
			OSPE Area ID:	0.0.0.1			
			USPF Area Control:	 Send redistributed L Originate summary 	.SAs into NSSA area I SA		
				Suppress forwardin	g address in translated LSA		
			OSPF Area Type:	NSSA area Regu	Jar area Stub area		
			OSPF Area Cost:	0	A		
					<u> </u>		
I.							

ululu cisco	System	Tenants	Fabric VM	Networking	L4-L7 Services	Admin	Operations	Q	i	
		sarch: enter name, descr	common T1 infra mgmt							
Tenant T1		0 N	Logical Interface Profi	In - N3K-2 ID						
🔲 Quick Start			Logical Interface From	ic - Noic 2_ii						_
🔺 🚢 Tenant T1										Policy Fau
🕨 🖿 Application	n Profiles		Ð₩							
🔺 🚞 Networkin	g									
🕨 🚞 Bridge	Domains		Properties							
🕨 🖿 VRFs			Nar	ne: N3K-2_IP						
🕨 💼 Externa	al Bridged Networks		Descripti	on: optional						
🔺 🚞 Externa	al Routed Networks									
🕨 🖿 Set	Action Rule Profiles		Lat	el:						
🕨 🖿 Mat	ch Action Rule Profiles		ND poli	cy: select a value	•					
► 🖽 ASA	_IN_L3OUT		Egress Data Plane Policing Poli	cy: select a value	-					
► 🖽 ASA	_OUT_L3OUT		Ingress Data Plane Policing Poli	cy: select a value	•					
▶ 🖽 N3F	(-1_L3OUT		Douted Interfee		<u> </u>					
A GP N31	<-2_L3OUT		Rouled Internac	85.						
4	Logical Node Profiles			A Path		IP Address	MAC A	ddress	MTU (Bytes)	
4.1	N3K-2_NP						No items have been fou	ind.		
-	Logical Interface Profiles						Select Actions to create a n	iew item.		
	▲ N3K-2_IP									
	USPF Interface Profile		•							
	 Contigured Nodes 		5	WI:						
	Networks Route Profiles			A Path	IP Address	Side A IP	Side B IP	MAC Address	MTU (Bytes)	Encap
k 🗖 Routo I	Profile Filines			Node-106/eth1/4	192 168 1 14/30			00:22:BD:E8:19:EE	1500	vian-103
Protoco	1 Policies							and a second of the second		
L4-L7 Sen	vice Parameters									
En En Security Pr	nlicies									
Troublesh	not Policies		Routed Sub-Interfac	es:						
🕨 🚞 Monitoring	Policies			. Doth	ID Addee		MAC Address	MTU (Datas)	Feed	
L4-L7 Ser	vices			- Faul	IP Addre	55 55	WAG AUGIESS	wito (bytes)	Enca	P
							No items have been for Select Actions to create a n	und. Jew item.		

Configurez le contrôle de route d'importation/exportation sur les sous-réseaux pour N3K-2 L3Out pour EPG externe, comme illustré dans l'image :

cisco								ρ
		arch: enter name, descr	common T1 infra mg					
Tenant T1			Extornal Notwork	Instance Profile	N2K 2 EVT NET	-		
🔲 Quick Start			External Network	Instance Prome	- NOR-2_EAT_NET			
🔺 🐣 Tenant T1								Policy Operational
🕨 🖿 Applicatio	on Profiles							Concept
🔺 🖿 Networki	ng							General C
🕨 🖿 Bridge	e Domains		⊖±				Δ 🚺 🕕 🚺 100	
🕨 🖿 VRFs			Properties					
🕨 🗖 Extern	nal Bridged Networks		Name	N3K-2 EXT NET				
🔺 🛄 Extern	nal Routed Networks		Tags:		•			
> 🖿 Se	t Action Rule Profiles			enter tags separated by comm	8			
🕨 📫 Ma	atch Action Rule Profiles		Description:	optional				
▶ 🙆 AS	A_IN_L3OUT							
▶ 😂 AS	A_OUT_L3OUT		Configued VRF name:	VRF2				
▶ 😂 N3	SK-1_L3OUT		Resolved VRF:	uni/tn-T1/ctx-VRF2				
4 😂 N3	3K-2_L3OUT		QoS Class:	Unspecified -				
	Logical Node Profiles		Target DSCP:	unspecified				
4			Configuration Status:	applied				
-	LALZ Conico Poromotoro		Configuration Issues:					
	Le-L/ Delette Parameters		Subnets:					
Route	Profiles			 IP Address 	Scope		Agregate	Route Control Profile
🕨 🖿 Proto	col Policies			10 10 10 0/24	Scope	Control Culturat		
🔲 L4-L7 Se	rvice Parameters			10.10.10.0024	Export Route	Control Subliet		
🕨 🖿 Security F	Policies			20.20.20.0/24	External Subi	nets for the External I	EPG	
🕨 🖿 Troubles	hoot Policies							
🕨 🖿 Monitorin	g Policies		Douto Control Brofilo:					
🕨 🖿 L4-L7 Se	rvices		Route Control Profile.					
				 Name 			Dir	rection
							No items have bee Select Actions to creal	in found. ce a new Rem.

Étape 4. Créez un groupe de profils de fonction et configurez un profil de fonction à partir du modèle existant, comme illustré dans l'image :

	Tenants								Adv welco
	earch: enter name, descr	common T1 infra							
	0 10	1417 Services	Eurotion Profile	A\$45595 ED					
		L4-L7 Services	s Function Frome-	- ASA5565_FF					
									General Faults
n Profiles		$\mathbf{O} \mathbf{I}$							A
g									
vice Parameters		Properties							
olicies		Nar	me: ASA5585_FP						
noot Policies		Descripti	on:						
3 Policies		Associated Functi	on: CISCO-ASA-1.2/Firewall						
vices									
Service Graph Templates									
rcontigurations									
on Profiles									
ADD80_FFG									
Roxesso_rr		FEATURES AN	ID PARAMETERS						
ed Devices		Features:	Basic Par	rameters All Parameters					
s Selection Policies			Meta Folde	r/Param Key		Name Val	lue Mandatory	Locked	Shared
/ed Graph Instances		Interfaces	🔺 😅 Dev	vice Config		Device			
/ed Devices		AccessLists	• • • • • • • • • • • • • • • • • • •	Access List		access-list-inbound		false	false
Management Configuration for L4-L	.7 devices	NAT		Interface Related Configuration		externallf		false	false
Managers		TrafficSelectionO	biects 📃 🕨 📮 I	Interface Related Configuration		internallf		false	false
lis		All	🔺 😅 Fun	action Config		Function			
				External Interface Configuration		ExtConfig		false	false
				Internal Interface Configuration		IntConfig		false	false
	System ALL TENANTS I Add Tenend 1 6 In Profiles In Profiles Index Parameters Index Paramete	System Tenants ALL TENANTS Add Tonant Search enter name, dear Image: State S	System Tenans Fabric ALLTENANTS AddTensel 1 Searce enter name, desc Common 11 1 eter al	System Tenants Eabric VM Networking ALLTENANTS 1 Add Transet 1 Search enter nome, desc 1 cremon 1 11 indea 1 mpm Image: Search and the sea	System Tenants Eatric VM Networking L4-L7 Services ALL TENANTS Add Tenants Board Information Thinking mpm Information Thinking mpm Image: Service Service Craph Templates Image: AbaSobis_FP Image: AbaSobis_FP Decision Image: AbaSobis_FP Image: AbaSobis_FP Masses: FPO Image: AbaSobis_FP Image: AbaSobis_FP Masses: FPO Image: AbaSobis_FP Image: AbaSobis_FP Masses: FPO Image: AbaSobis_FP Image: AbaSobis_FP	System Tenants Fabric VM Networking L4L7 Services Admin RLTENANT2 1 4d, Tonne 1 Search Internance, decide <t< th=""><th>System Tenans Fabric VM Networking L4.17 Services Admin Operations In Profiles In Profile In Pro</th><th>System Teams Fains VM Medworking L4L7 Services Adm Operations ALTERINATION Services ALTERINATION Services ALTERINATION Services AND Products Or Products Pr</th><th>System Tensto Fable MM Notwork L4L3 Serves Adm Operation P I ALT204071 Additional Generation Tenstore Internet Handle <</th></t<>	System Tenans Fabric VM Networking L4.17 Services Admin Operations In Profiles In Profile In Pro	System Teams Fains VM Medworking L4L7 Services Adm Operations ALTERINATION Services ALTERINATION Services ALTERINATION Services AND Products Or Products Pr	System Tensto Fable MM Notwork L4L3 Serves Adm Operation P I ALT204071 Additional Generation Tenstore Internet Handle <

i

L4-L7 Services Function Profile - ASA5585_FP

						General Faults	Histe
± ∕		Δ Δ Ο Ο				1	ACTIONS
roperties Name: ASA5585 Description: Associated Function: CISCO-AS	_FP SA.1.2:Firewall						
	AMETERS Basic Parameters All Parameters						
- Cataloo.	Meta Folder/Param Key	Name	Value	Mandatory	Locked	Shared	
	✓ ➡ Device Config	Device					
	Access List	access-list-inbound			false	false	
	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		
	El Security Level	external_security_level	50	false	false		
	Interface Related Configuration	internallf			false	false	
	🔺 😅 Interface Specific Configuration	internallfCfg			false		
	IPv4 Address Configuration	IPv4Address			false		
	E IPv4 Address	ipv4_address	192.168.1.9/30	true	false		
	- 🔄 Security Level	internal_security_level	100	false	false		
	Function 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		

Étape 5. Créez un contrat et modifiez le champ Étendue en Locataire, comme illustré dans l'image :



Étape 6. Comme l'illustre l'image, créez un modèle de graphique de service L4-L7 dans lequel l'association de graphique de service implique l'association d'une stratégie réseau routée externe et d'une configuration de routeur avec une stratégie de sélection de périphérique.

ALL TEMATO LANDTONIN . Doorby entername deer	
ALL TENANTS (Add Tenant) Search, tenes here, descri	I common i i i jimina jimgine
Tenant T1 🧧 🖸	L4-L7 Service Graph Template - ASA5585 SGT
Cuick Start	
A 🏝 Tenant T1	Tepplagy Policy
Application Profiles	
Metworking	Consumer Provider
L4-L7 Service Parameters	
East 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	

Create L4-L7 Service Graph Template		i X
Drag device clusters to create graph nodes. Device Clusters T / ASA5585 (Managed Firewall)	Graph Name: ASA5585_SGT Graph Type: © Create A New One © Clone An Existing One Consumer	Provider
	SUBM	IT CANCEL

Configuration du routeur pour spécifier l'ID de routeur qui sera utilisé sur l'appareil de service (ASA 5585), comme illustré sur l'image :

ululu cisco		Tenants	Fabric	VM Networking	L4-L7 Services	Admin					
	ALL TENANTS Add Tenant Se	arch: enter name, descr	common T1 infr								
Tenant T1		 O 	Router config	uration - ASA5585							
🔲 Quick Start			. to the opting								
Tenant T1											
Application	n Profiles		⊖±								
Networking	ig										
L4-L7 Se	vice Parameters		Properties								
🕨 💻 Security F	olicies			Name: ASA5585							
Troubles	noot Policies		Rout	ter ID: 3.3.3.3							
🕨 💻 Monitorin	g Policies		Descr	iption: optional							
4 🔲 L4-L7 Se	rvices										
L4-L7	Service Graph Templates										
Z Route	r configurations										
le As	A5585										
🕨 💻 Functi	on Profiles										
▶ 💻 L4-L7	Devices										
🕨 💻 Impor	ed Devices										
🕨 🗖 Devici	es Selection Policies										
🕨 🗖 Deplo	yed Graph Instances										
🕨 🖿 Deplo	yed Devices										
📃 Inban	d Management Configuration for L4-L	7 devices	4								
🕨 🖿 Devic	e Managers										
🕨 🖿 Chas	sis										

Modifiez le type de contiguïté de L2 à L3, comme illustré sur l'image :

alialia cisco									P	i
		arch: enter name, descr	common T1 infra mg							
Tenant T1		 O 	14-17 Service Gr	anh Template -	AS45585 SGT					
💼 Quick Start			L-LI Service G	apri rempiate -	-X0X0000_001					
🔺 🐣 Tenant T1										Topology
🕨 🖿 Applicat	tion Profiles		⊖¥				A A O O			
Network	king									
🔲 L4-L7 S	iervice Parameters		Properties							
Necurity	Policies		Name:	ASA5585_SGT						
Trouble	shoot Policies		Template Name:	UNSPECIFIED						
Monitori	ing Policies		Configuration Issues:							
▲ ■ L4-L7 S	lervices		Description.	opuoriai						
	.7 Service Graph Templates									
	Eurotion Node N1		Label:							
			Function Nodes:	🔺 Name		Function Name	Fun	ction Type		Description
	a provider			N1		CISCO-ASA-1.2/Firewa	all Gol	То		
▶ 🗖 Rou	ter configurations									
🕨 🖿 Fund	ction Profiles									
▶ 🖿 L4-L	.7 Devices									
► 🖿 Imp	orted Devices									
🕨 🖿 Devi	ices Selection Policies		4							
🕨 🖿 Dep	loyed Graph Instances									
🕨 🖿 Dep	loyed Devices		Terminal Nodes:	🔺 Name		Pro	vider/Consumer		Description	
📃 Inba	nd Management Configuration for L4-L7	7 devices		T1		Co	nsumer			
🕨 🖿 Devi	ice Managers			Т2		Pro	wider			
🕨 🖿 Cha	ssis									
			Connections:	 Name 	Connected Nodes		Unicast Route	Adjacency Type	Descri	ption
				C1	N1, T1		True	L3		
				C2	N1, T2		True	L3		

Appliquer le modèle de graphique de service, comme illustré dans l'image :



Associez le graphique de service au contrat, comme illustré sur l'image :

ululu cisco										
		Search: enter name, descr	common T1 infra r							
Tenant T1		S 0	Apply L4-L7 Service	ce Graph Template	To EPGs					i X
Quick Start Control Contro Control Control Control Control Control Control	Profiles		STEP 1 > Contra	ct					1. Contract	2. Graph
 L4-L7 Serv Security Po Troubleshi Monitoring L4-L7 Serv 	ice Parameters ilicies pot Policies Policies ices		Config A Contract	EPG / External Network:	I/N3K-1_L3OUT/N3K-1_EXT_N	Prov	vider EPG / External Network:	3K-2_L3OUT/N3K-2_EXT_NI ▾ 🗗	S	
L4-L7 8 L4-L7 8 C ASA E Router E Euclio L4-L7 0 E Devices E Deploy	enrice Graph Templates 5555_SOT configurations n Profiles evices d Devices s Selection Policies d Graph Instances		Contract Information — Contra	Contract: Contract: Create A New C Ct Name: PERMIT_ALL	Contract ©	Choose An Existing Cont	act Subject			
 Deploy Inband Device Chassi 	ad Devices Management Configuration for L4- Managers s	-L7 devices								
									PREVIOUS	CANCEL



Ajoutez/modifiez le paramètre L4-L7 si nécessaire, comme l'illustre l'image :



Étape 7 : Route-tag Policy, configure Route-tag Policy for VRF1 (Tag:100), comme l'illustre l'image :

uluilu cisco	System	Tenants	Fabric	VM Networking	L4-L7 Services	Admin	Operations		ρ		i		A web
		arch: enter name, descr	I common I infra I mgn	it T1									
Tenant T1 Quick Start Quick Start Tenant T1		80	VRF - VRF1						Policy	Operational	Stats	Health	Fault
🕨 🕨 Application	n Profiles Ig		⊖₹				Δ 🛦 🕕 🕕 100						
Bridge	Domains		Properties										
VRI 🖸 VRI	F1		Route Tag Policy	- VRF1_RTP				i X					
0	EPG Collection for Context							Policy History					
 Externa 	F2 al Bridged Networks		Dranartian					ACTIONS *					
 Externa Route 	al Routed Networks Profiles		Nar	ne: VRF1_RTP									
Protoc L4-L7 Ser	ol Policies vice Parameters		Descripti	on: optional									
Becurity P Becurity P	olicles			ag: 100	<u> </u>								
Monitoring) Policies												
F L4-L7 081													
				▲ EIGRP	Address Family Type		SHOW USAGE	SUBMIT CLOSE					
							No items have Select Actions to cr	been found. reate a new item.					
				DNS labels: Route Tag Policy: VRF1_RTI	P 🗸 🗗								
										s	HOW USAG	ie sui	BMIT

Configurez la stratégie de balise de route pour VRF2 (Tag:200), comme indiqué dans l'image :

ululu cisco												
		earch: enter name, descr	common infra mg									
Tenant T1		S 🖸	VRE - VRE2									
🔲 Quick Start			VIXI - VIXI Z									
Tenant T1								Policy				
Applicatio			⊖±			Δ 🛕 🕕 🕕 100						
🕨 🖿 Bridge	2 Domains		Route Tag Policy	V - VRE2 RTP								
🔺 🖿 VRFs			into and indigination	,								
VF	F1						Policy History					
P Puter	al Bridged Networks		⊖±				ACTIONS *					
🕨 💼 Extern	al Routed Networks		Properties									
🕨 🖿 Route	Profiles		N	ame: VRF2_RTP								
🕨 🖿 Proto	ol Policies		Descrip	otion: optional								
L4-L7 Se	rvice Parameters						_					
Troubles	hoot Policies		. L	Tag: 200	2							
🕨 💼 Monitorin	g Policies											
🕨 🚞 L4-L7 Se	rvices											
						SHOW USAGE	SUBMIT CLOSE					
			EIGRP CONIEX	Per Address Family.								
				- EIGRP	Address Family Type		EIGRP Address Family Context					
						No items have Select Actions to c	been found. reate a new item.					
				DNS labels:								
				Route Tag Policy: VRF2_RTF	<u>ب</u> ک							
									S	HOW USAGE	SUBMIT	٦

Étape 8 : Vérifiez l'état et vérifiez la stratégie de sélection des périphériques, comme illustré sur l'image :

uluilu cisco							Operations				
		arch: enter name, descr	common T1 infra mg								
Tenant T1		S 🖸	Logical Interface	Context cone	LIFACE.						
🔲 Quick Start			Logical Interface Context - consumer								
🔺 🐣 Tenant T1											
🕨 🖿 Applicatio	n Profiles										
Image:											
🖿 L4-L7 Ser	vice Parameters		Properties								
🕨 🖿 Security P	olicies		Connector Name:	Connector Name: consumer							
🕨 🕨 Troublest	oot Policies		Cluster Interface:	outside	<u>-</u> C						
🕨 🖿 Monitoring	Policies		Associated Network:	Associated Network: Bridge Domain L3 External Network L3 External Network: T1/ASA_OUT_L3OUT/4							
4 🔲 L4-L7 Ser	vices		L3 External Network:								
▶ ■ L4-L7	Service Graph Templates		Redistribute:	Redistribute: hon a carf a							
Router	configurations										
Function	on Profiles										
L4-L7 Devices			Subnets:					×	+		
Imported Devices				IP/Maak	Scone	Preferred	Subnet Control				
	RMIT ALLASA5585 SGT.N1								_		
	consumer					No items have been found. Select Actions to create a new item.					
1	provider										
Deploy	ed Graph Instances		4								
🕨 🖿 Deploy	red Devices		Virtual IP Addresses:					×	+		
📃 Inband	Management Configuration for L4-L7	devices		 ID Address 							
🕨 🖿 Device	Managers			- IF Addless							
🕨 🖿 Chass	is					No items have been found. Select Actions to create a new item.					

uluih cisco	System	Tenants	Fabric	VM Networking	L4-L7 Services	Admin	Operations				
		earch: enter name, descr	common T1 infra mg								
Tenant T1 🛃 🖸			Logical Interface Context - provider								
🖿 Quick Start			Cogical Internace	Context - provid							
🔺 🐣 Tenant T1											
🕨 🖿 Applicatio	n Profiles										
🕨 🖿 Networkin	g										
🖿 L4-L7 Ser	vice Parameters		Properties								
🕨 🖿 Security P	olicies		Connector Name:	provider							
🕨 🖿 Troublest	oot Policies		Cluster Interface:	inside	<u>r</u> 🕑						
🕨 🖿 Monitoring	Policies		Associated Network:	Bridge Domain	External Network						
🔺 🖿 L4-L7 Ser	vices		L3 External Network:	3 External Network: T1/ASA IN 130107/AS							
🕨 🖿 L4-L7 Service Graph Templates											
🕨 🖿 Router	configurations		Teolorite and	ugp o uspi o							
🕨 🛄 Functio	on Profiles										
L4-L7 Devices			Subnets:					~~	+		
Imported Devices								~	Ŧ		
🔺 🔲 Device	s Selection Policies			IP/Mask	Scope	Preferred	Subnet Control				
4 🖸 PE	RMIT_ALL-ASA5585_SGT-N1					No items have been found.					
1	consumer					pelett Actions to treate a new item.					
	provider										
Deployed Graph Instances			 Virtual IP &ddresses: 								
Deployed Devices			Villaurii Madresses.					×	+		
📃 Inband	i Management Configuration for L4-L3	/ devices		 IP Address 							
Device managers						No items have been found.					
r 🗖 Chass	15					Select Actions to create a new item.					

Vérifiez l'instance du graphique déployé, comme illustré dans l'image :

uluilu cisco	System	Tenants	Fabric	VM Networking	L4-L7 Services	Admin	Operations	٩	i	Advanced M welcome, adm	
		arch: enter name, descr	common T1 infra mgr								
Tenant T1		S 0	Function Node - N	11							
🔲 Quick Start									_	_	
Tenant T1										Policy Faults Hist	
Application	Profiles		⊖±				Δ 🗛 🕕 🕕				
Networking	Decementary		Properties								
E4-L7 Servite Pol	liciae		Name:	41							
Troublesho	nt Policies		Function Type: 0	Function Type: GoTo							
Monitoring I	Policies		Devices: A	ASA5585							
🔺 🖿 L4-L7 Servi	ices		Cluster Interfaces:	▲ Name	Name Concrete Interfaces					Encap	
▶ 🖿 L4-L7 S	ervice Graph Templates			inside	ASA5585_Device_1/[GigabitEthernet0/1]					unknown	
🕨 🖿 Router o	onfigurations			outside		ASA5585	Device 1/[GigabitEthernet0/0]			unknown	
🕨 🖿 Function	Function Profiles										
▶ 🖿 L4-L7 D	 L4-L7 Devices Imported Devices 		Function Connectors:	 Name 		Ence	ID	Class ID			
Importer				consumer		vlan	-101	32773			
Image: A marked block of the second secon	Devices Selection Policies			providor		udan.	102	40166			
▲ I PER	PERMIT_ALL-ASA5585_SGT-N1			provider		viair	-102	45150			
1	rouidor										
	ed Granh Instances										
⊿ V* PER	MIT ALL-ASA5585 SGT-T1										
E.F.	unction Node - N1										
🕨 🗖 Deploye	d Devices		Folders And Par	ameters							
📃 Inband I	Management Configuration for L4-L3	/ devices	T Olders 7 and T an	ameters							
🕨 🖿 Device N	fanagers		Features:	Basic	Parameters All Parameters						
🕨 🖿 Chassis	3			Meta Fol	ider/Param Key		Name	Value	Override Name	Value To	
1											

ululu cisco				VM Netv					Operations	
	ALL TENANTS Add Tenant Search: e	nter name, descr	common T1 infra							
Tenant T1		⊴ ⊙	Doployed Dovi	000						
🔲 Quick Start				ices						
Tenant T1	Durdlan									
Application Profiles Networking			€₹							
L4-L7 Service Parameters			A Device Name				VRF			
🕨 🖿 Security Policies			ASA5585				none			
Troubles	shoot Policies									
Monitorir Monitorir L4-L7 Si	ng Policies ervices									
🕨 🛄 L4-L3	7 Service Graph Templates									
🕨 🗖 Routi	er configurations									
Func	tion Profiles									
 L4-L Impo 	rted Devices									
🔺 🚞 Devid	ces Selection Policies									
4 🖸 P	ERMIT_ALL-ASA5585_SGT-N1									
12	, consumer									
💻 🗖 🔺	oved Graph Instances		•							
⊿ 💎 P	ERMIT_ALL-ASA5585_SGT-T1									
1	Function Node - N1									
A Depi	oyed Devices									
	BGP Device Configuration									
	OSPF Device Configuration									
A V	PERMIT_ALL-ASA5585_SGT-T1									
	BGP Graph Instance Configuration									
4	✓ N1									
_	Connector N1/consumer									
1	E Connector N1/provider									
📃 Inbar	nd Management Configuration for L4-L7 device	s								
🖿 Chas	ssis									
de de										
cisco	System Tenants	Fabric			Adn				Q	1
AL	LL TENANTS Add Tenant Search: enter name, descr	common T1 infra	mgmt							
💼 Quick Start		Device OSPF	Configurations							
 Tenant T1 Application Pro 	ofiles	⊙₹								
Networking		Name	Enable	Context Name	Address Family	Area	Area Control	Area Type	Networks	
L4-L7 Service	Parameters es	ASA_IN_L3OUT_area	a_0 True	VRF2	IPv4	Backbone area	Send redistributed LSAs into NSS Originate summary LSA	5A area Regular area	ASA_IN_EXT_NET (10.10.1	10.0/24)
Troubleshoot I	Policies	ASA_OUT_L3OUT_a	rea_0 True	VRF1	IPv4	Backbone area	Send redistributed LSAs into NSS Originate summary LSA	3A area Regular area	ASA_OUT_EXT_NET (20.2	20.20.0/24)
Implementation and the services	s									
L4-L7 Servi Router con	ice Graph Templates figurations									
Function Pr	rofiles									
 L4-L7 Devi Imported D 	ces)evices									
🔺 🖿 Devices Se	election Policies T. Al. IASA5585, SGT-N1									
📃 cons	sumer									
📃 provi 📕 🖌	ider Graph Instances									
▲ 💙 PERMIT	T_ALL-ASA5585_SGT-T1									
🔺 🖿 Deployed D	Devices									
▲ 💙 ASA558	35-none ? Device Configuration									
OSP	P Device Configuration									
PER	RMIT_ALL-ASA5585_SGT-T1									
	OSPF Graph Instance Configuration									
	Connector N1/consumer									
🗐 🔝 Inband Mar	Connector N1/provider nagement Configuration for L4-L7 devices									
Device Mar	nagers									
📕 Chassis										

Vérifiez et dépannez

Configuration APIC pour le locataire :

```
apic1# 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#
```

Vérifiez la relation de voisinage OSPF et la table de routage sur la feuille 101 :

```
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
                                    02:07:19 192.168.1.1
1.1.1.1
                 1 FULL/BDR
                                                             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
Vérifiez la relation de voisinage OSPF et la table de routage sur la feuille 102:

```
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
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
```

Vérifiez la configuration, la relation de voisinage OSPF et la table de routage sur ASA 5585 :

```
ASA5585# sh run interface
interface GigabitEthernet0/0
no nameif
security-level 0
no ip address
!
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
1
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 Vérifiez la configuration, la relation de voisinage OSPF et la table de routage sur N3K-1 :

```
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
                                      Up Time Address Interface
01:36:24 192.168.1.2 Eth1/47
 Neighbor ID Pri State
 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
```

Vérifiez la configuration, la relation de voisinage OSPF et la table de routage sur N3K-2 :

```
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
```

```
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
```

Vérifiez les règles de filtre de contrat sur leaf et le nombre de succès de paquet : .

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]

Test d'accessibilité entre N3K-1 et N3K-2 :

```
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

Vous trouverez ci-joint le fichier de configuration XML du locataire et le profil de fonction ASA, utilisés pour cette démonstration.