使用L3out配置IP SLA功能以跟蹤靜態路由

目錄

相關資訊

簡介

本檔案介紹如何在思科以應用程式為中心的基礎架構(ACI)中設定網際網路通訊協定服務層級協定 (IPSLA),以追蹤從一個L3out得知的靜態路由,並僅當子網可從第一個L3out連線時,才向另一個 L3out通告。

必要條件

需求

思科建議您瞭解以下主題:

- ACI軟體4.1版及更高版本
- •L3out指向外部裝置或伺服器
- EX和 FX機箱
- 跟蹤路由以使用網際網路控制訊息通訊協定(ICMP)和TCP探測(在本範例中使用的是ICMP探測)

註:所有Cisco Nexus第二代交換機(包括 — EX和 — FX機箱)都支援ACI映像IP SLA。請 閱讀<u>IP SLA的准則和限制。</u>

採用元件

本文中的資訊係根據以下軟體和硬體版本:

- ACI版本5.2(2f)
- N9K-C93180YC-FX

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。如果您的網路運作中,請確保您瞭解任何指令可能造成的影響。

背景資訊

某些伺服器有多個介面(如環回),可通過伺服器的物理IP地址從ACI訪問。在這種情況下,您可 能要求新增靜態路由並在外部進行通告,但前提是伺服器的物理IP可以訪問。因此,IP SLA跟蹤功 能是不可避免的配置,只能通過針對這些伺服器的L3out配置來實現。目前,橋接域上的靜態路由不 支<u>持</u>IP <u>SLA跟蹤功能</u>。在本文檔中,我們將查詢使用IP SLA的伺服器示例和傳輸路由配置。

設定

- •朝向伺服器和N3K裝置的L3out。
- 為伺服器的物理IP地址配置IP SLA跟蹤。
- •在L3out下配置到使用IP SLA跟蹤的伺服器的靜態路由,並從另一個L3out通告到N3K。

TN D N9K-C9332C N9K-C9332C 15.2(2f) 15.2(2f) Leaf 101 Leaf 102 N9K-C93180YC-FX N9K-C93180YC-FX 15.2(2f) 15.2(2f) Eth1/3 Eth1/3 L3out_Static_server 100.0.0.1/30 BGP 65535 Encap vlan 507 Encap vlan 550 L3Out 10.100.0.254/24 VRF: TN_D:VRF_S L3Out VRF: TN_D:VRF_S 100.0.2/30 Eth1/1 BGP 65536 Physical IP: 10.100.0.100/24 IP: 100.0.0.2/30 Loopback 507: 200.0.0.1/32 Loopback: 30.30.30.1/32 Nexus3K

網路圖表



組態

摘要步驟:

ACI交換矩陣策略:

- 建立合約(例如,一個允許使用所有流量的通用預設過濾器,但您可以使用在同一租戶本地建立 的特定過濾器來允許特定流量。在這種情況下,請確保允許我們用於IP SLA跟蹤的協定)。
- •建立指向伺服器10.100.0.100/24的新L3out(ACI端SVI 550,IP地址為10.100.0.254)
- 建立IP SLA跟蹤策略(IP SLA監控策略、跟蹤成員策略、跟蹤清單策略)
- •在L3out下向具有IP SLA跟蹤清單的伺服器新增靜態路由。
- •建立使用BGP(EBGP)ACI AS 65535和N3K AS 65536
- •從L3out向N3K匯出靜態路由。
- •驗證配置和可達性。
- 建立合約(例如,使用允許所有流量的通用預設過濾器,但是,您可以使用在同一租戶本地建 立的特定過濾器來允許特定流量,但是在這種情況下,請確保允許使用我們用於IP SLA跟蹤的 協定)。

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	Contract - Contract_L	3out_BGP									0	0
∼ Щ tN_D					Summary	Topology	Policy	Peer Entities	Contract Exception	Faults	History	
> 🚍 Application Profiles					/							-
> 🔤 Networking										Ó	1 1	
See Contracts	Properties											
V 🖼 Standard	Name:	Contract_L3out_BGP										^
Contract_L3out_BGP	Alias:											
E Taboos	Global Alias:											
> 🚞 Imported	Scope:	VRF										
> 🔤 Fitters	QeS Class:	Unspecified										
> 🔤 Polices	Target DSCP:	Unspecified										
> 🚍 Services		Target QSCP Marking works on	ly if the QoS Class is set									
🚞 Security (Beta)	Description:											
	Annotations:	Click to add a new an	notation		-							
	Subjects:										= +	
		= Name	Alas	Filters				Description				
		Allow_Any		common/default								
	L											

建立合約

2.建立指向伺服器10.100.0.100/24的新L3out(ACI端SVI 550,IP地址為10.100.0.254)。

TN_D (00	L3 Outside - L3out_Static_server
∨ <mark>Щ</mark> тм_d		
> E Application Profiles		
🗸 🚞 Networking		
> 🚞 Bridge Domains		
> 🚞 VRFs		
> 🚞 L2Outs		Properties
L3Outs		Name: L3out_Static_server
> 🛧 L3out_N3K_BGP		
✓		Description. Optional
> 🚞 Logical Node Profiles		
> 🚞 External EPGs		Annotations: 🕀 Click to add a new annotation
> 🚞 Route map for import and export route control		Global Alias:
> 🚞 SR-MPLS VRF L3Outs		Provider Label:
> 🚞 Dot1Q Tunnels	4	Consumer Label: select an option
Contracts		Target DSCP: Unspecified
✓		
> 🞏 Contract_L3out_BGP		PIMv6:
> 🚞 Taboos		Route Control Enforcement: Import
> 🚞 Imported		
Filters		Resolved VRE: TN_D/VRE_S
> 🚞 Policies		L3 Domain: TN_D_L3Dom
> 🚞 Services		Route Profile for Interleak: select a value
🚞 Security (Beta)		Route Profile for Redistribution:
		▲ Source
		Enable BGP/EIGRP/OSPF: BGP OSPF EIGRP
		Route Control for Dampening:
		 Address Family Type

建立L3out

TN_D	$\bigcirc \bigcirc \bigcirc \bigcirc$	Logical Node Profile - L3out_Sta	tic_server_nodeProfile		
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> 🧮 Application Profiles					<u>^</u>
V To Networking					
> 🚞 Bridge Domains		Properties			
> 🖿 VRFs		Name	: L3out_Static_server_nodeProfile		
> 🖿 L2Outs		Description			
V 🚍 L3Outs					
> 📤 L3out_N3K_BGP		Alias			
L3out_Static_server		Target DSCP	Unspecified		
Logical Node Profiles		Nodes			
El L3out_Static_server_nodeProfile			 Node ID 	Router ID	Loopback Address
> 🚞 Configured Nodes			topology/port=1/porte=101	101 101 101 101	101 101 101 101
Logical Interface Profiles			coporcy)/pour //main rol	101101101	1011101101
E L3out_Static_server_interfaceProfile	•				
🗸 🚞 External EPGs					
EXT_static_EPG					
Route map for import and export route control					
SR-MPLS VRF L3Outs		Create BGP Protocol Profile			
> 🔤 Dot1Q Tunnels		Create BFD Multihop Protocol Profile			
> 🚞 Contracts					

將節點連線到L3out

TN_D	00	Logical Interface Profile - L	3out Static server inte	rfaceProfile							0.0
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> 🚞 Application Profiles									1.000		(about y
V 🚍 Networking							General Routed S	ub-Interfaces	Routed Interfaces	SVI F	loating SVI
> 📰 Bridge Domains		0.0.0									
> 🗮 VRFs											0 ±
> 🚍 L2Outs											11 +
L3Outs		 Path 	Side A IP	Side B IP	Secondary IP Address	IP Address	MAC Address	MTU (bytes)	Encap	Encap S	scope
> 📤 L3out_N3K_BGP		Ded. 101ede. 101/eb1/2			Hudread	10 100 0 054/04	00.00.00.00.10.00	in the solution	.den 507	Land	
—		Pod-1/Node-101/edi1/3				10.100.0.254/24	00.22.80.76.19.77	EIDEIL	vian-507	Local	
Logical Node Profiles											
El L3out_Static_server_nodeProfile											
> 🧮 Configured Nodes											
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L3out_Static_server_interfaceProfile	•										
🗸 🚞 External EPGs											
- D.G											

將介面連線到L3out

TN_D C3	External EPG - I	EXT_static_EPC	3							0.0
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Wetworking						General	Contracts	Inherited Contracts	Subject Labels	EPG Labels
> 🚞 Bridge Domains	0.0.0.0									
> 🚍 VRFs										0 ± %.
> 🚍 L2Outs	Properties									
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> 🚯 L3out_N3K_BGP	Annotatio		a nave annatation							
L3out_Static_server	Global Ali		or a menin annotation							
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V E L3out Static server_nodeProfile	Description	on: opponal								
> Configured Nodes										
Logical Interface Profiles	pcT.	ag: 32771								
L3out Static server interfaceProfile	Contract Exception T	90:								
V External EPGs	Configured VRF Nan	me: VRF_S								
EXT static EPG	Resolved VI	RF: uni/tn-TN_D/cb	C-VRF_S							
Route map for import and export route control	QUS Ca	os. Unspecified								
SR-MPLS VRF L3Outs	Target DSC	Unspecified								
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	Intra Ext-EPG Isolati	ion: (Enforced	Unenforced							
Security (Beta)	Subne	MSC .								11 +
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配置外部EPG

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> = vrss > = L20xts		♥Healthy 図 ⑦ (Name	Tenant	Tenant Alias	Contract Type	Provided /	QoS Class	State	Label	Su	O ± %+ bject Label
L3Outs		Contract Type: Contract				Consumed			_		
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U3out_Static_server_nodeProfile Defigured Nodes											
Laout_Static_server_interfaceProfile	e .										
External EPGs EXT_static_EPG											
將合約附加到L3out											

3.建立IP SLA跟蹤策略(IP SLA監視策略、跟蹤成員策略、跟蹤清單策略)。

IP SLA監控策略:

TN_D	$(\mathbf{\hat{F}})$	IP SLA Monitoring Policy - ICI	MP Monitor		
∨ Щ тм_d	<u>^</u>		_		
> 🧮 Application Profiles					
> 🚞 Networking		8 🗸 🛆 🕐			
> Contracts		Properties			
		Name:	ICMP_Monitor		
Protocol		Description:	optional		
> 🚍 BFD					
> 🧮 BFD Multihop		SLA Type:	ICMP TCP	L2Ping	HTTP
> 🧮 ND RA Prefix		SLA Frequency (sec):	5		
> 🚍 BGP		Detect Multiplier:	3		
> Custom QoS		Request Data Size (bytes):	28		
> 🚞 Data Plane Policing		Type of Service:	0		
		Operation Timeout (milliseconds):	900	\sim	
> 🚞 EIGRP	•	Threshold (milliseconds):	900		
End Point Retention		Traffic Class Value:	0		
First Hop Security		nunic oluss vulue.	0	\sim	
IGMP Interface					
IGMP Snoop					
IP SLA Monitoring Policies					
> Track Members					

配置IP SLA監控策略

IP SLA跟蹤成員:

TN_D	00	Track Member - Server_Ph	ysical_IP							00
> □ _ NT ■	^						Dolicy	State	Eaulte	History
> 🚞 Application Profiles	_						Folicy	01003	1 DOILS	Thatony
> 🚍 Networking	_								Ó	÷ **+
> 🚍 Contracts	_	Properties								
Policies	_	Nar	ne: Server_Physical_IP							
Protocol	_	Description	mc optional							
> 🚍 BFD	_									
> 🧮 BFD Multihop	_	Track ID Of Object To Be Track	nd: 2000							
> 🚞 ND RA Prefix	_	Destination IP To Be Track	ND: 10.100.0.100							
> 🚞 BGP	_	Scope of Track Memb	er: L3Out - L3out_Static_s	ierwi 🤍 🛃						
> 🚞 Custom QoS	_	IPSLA Poli	TY: ICMP_Monitor	V 🚱	Status of d	destination track IP				
> 🚞 Data Plane Policing	_	Deploymen	ts: Node ID	Operation Number	Operation Status	Latest Operation Error Message				
			Pod-1/Node-101	2000	Reachable	OK				
> 🚍 ElGRP										
End Point Retention	_									
First Hop Security	_									
> 🚞 HSRP										
> IGMP Interface										
> KGMP Snoop										
V IP SLA Monitoring Policies										
CMP_Monitor										
> Track Lists										
Track Members										
P Server_Physical_IP										
將IP新增到監控策略	各									

跟蹤清單策略:

TN_D	Track List - Tracking_Server_Physical_IP				0.0
✓ I TN_D		Defense of			
> C Application Profiles		Policy 8	stats	Faults	History
> 🚍 Networking				0	± %-
Contracts	Properties				
V Tolicies	Name: Tracking_Server_Physical_IP				
V 🚍 Protocol	Description: optional				
> 🚞 BFD					
> 🧱 BFD Multihop	Type of Track List: Threshold percentage				
> 🥅 ND RA Prefix	Percentage Up (percentage): 1				
> 🚍 BGP	Percentage Opencentance Development				
> 🚍 Custom QoS	Percentage bown genominger, v v v v v v v v v v v v v v v v v v v				
> 🔤 Data Plane Policing	Track list to track member				+
> E DHOP	Track Member				
EIGRP	TN_D/Server_Physical_JP				
> 🧮 End Point Retention					
First Hop Security					
> 🚞 HSRP					
> 🧰 IGMP Interface					
> 🧮 IGMP Snoop					
V 📰 IP SLA					
V III P SLA Monitoring Policies					
F ICMP_Monitor					
🗸 🔚 Track Lists					
Tracking_Server_Physical_IP					
V 🚍 Track Members					
8 Server_Physical_P					

配置跟蹤清單

4.使用新建立的IP SLA跟蹤清單策略在L3out下配置通往伺服器的靜態路由。

cisco APIC							admin 🔍	000	00
System Tenants Fabric V	/irtual Networking	Admin Operations	Apps Integ	rations					
ALL TENANTS Add Tenant Tenant S	Search: name or descr	common T	N_D donwang2	SERVERS edge					
TN_D	ന	Node Assoc	iation						0.0
~ Щ TN_D									00
> E Application Profiles							Policy	Faults	History
V 🖿 Networking		8 🔿 🛆						Ó	± ***
> 🔤 Bridge Domains		Properties							
> 🚔 VRFs			Node ID: 1	topology/pod-1/node-101					î
> = 12005		Use Router I	D as Loopback Address:	N					
> 1 L3out, N3K, BGP			Loophack Addresses:	This setting will be ignored if loopback addresse	s are defined in the table below.				
V 🚯 L3out_Static_server			Loophene Para Care	• IP					+
Logical Node Profiles						his items have been found			_
L3out_Static_server_node	eProfile					Select Actions to create a new item.			
Configured Nodes									
> F topology/pod-1/no	xde-101								
 Logical Interface Profil Enternal EDGr. 	kes	* Inters	te Loopback Addresses:						÷ +
External pros Route man for import and ext	nort route control			▲ IP					_
SR-MPLS VRF L3Outs						No items have been found. Select Actions to create a new item.			
> E Dot1Q Tunnets									
> 🧰 Contracts	Leaf	101 180VC-EX							
> E Policies	15.3	2(21)	Static Routes:					1	1 +
> E Services		L3out_Static_server		 IP Address 	Description	Track Policy	Next Hop IP		
Security (Beta)	L3Out	Encap vlan 507 10.100.0.254/24		200.0.0.1/32		TN_D/Tracking_Server_Physical_IP	10.100.0.100		
) Criquexisan		VRF: TN_D:VRF_S			Static route added with IP	SLA Track which tracking physical IP of server.			
	Physical IP: 10 Loopback 507	100.0.100/24							Ŷ
	100,100,000						Show Usage		

在L3out下配置靜態路由

5.建立一個新的指向N3K裝置的L3out,該裝置使用邊界網關協定(BGP)。(EBGP)ACI AS 65535和 N3K AS 65536。

TN_D	3 () L3 Outside - L3out_N3K_BGP
~ ⊞ TN_D	
> Application Profiles	
🗸 🚍 Networking	
> 🚞 Bridge Domains	
> 🚞 VRFs	
> 🚞 L2Outs	Properties
🗸 🚞 L3Outs	Name: L3out_N3K_BGP
V 📤 L3out_N3K_BGP	Alles.
🗸 🚞 Logical Node Profiles	Description. Opublia
✓	
> 🧮 Configured Nodes	Annotations: 🔀 Click to add a new annotation
🗸 🚞 Logical Interface Profiles	Global Alias:
L3out_N3K_BGP_interfaceProfile	Provider Label:
BGP Peer 100.0.0.2- Node-102/1/3	Consumer Label: select an option
V 🚞 External EPGs	Target DSCP: Unspecified
EXT_N3K_BGP_EPG	PIM:
Route map for import and export route control	PIMv6:
> 🚯 L3out_Static_server	Route Control Enforcement: Import
> 🚞 SR-MPLS VRF L3Outs	VRF: VRF S
> 🚍 Dot1Q Tunnels	Resolved VRF: TN D/VRF S
> 🚞 Contracts	L3 Domain: TN D_L3Dom
> 🚍 Policies	Route Profile for Interleak: select a value
> 🚍 Services	Route Profile for Redistribution:
🚞 Security (Beta)	▲ Source
Quick Start	
	Enable BGP/EIGRP/OSPF BGP OSPF EIGRP
	Route Control for Dampening:
	Address Family Type

設定BGP通訊協定

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() () () () () () () () () () () () () (Logical Node Profile - L3out_B	GP_nodeProfile		
> Ⅲ 1N_D				
> 🚞 Application Profiles				
Networking				
> 🚞 Bridge Domains	Properties			
> 🧮 VRFs	Nam	e: L3out_BGP_nodeProfile		
> 🖿 120m	Descriptio	n: optional		
V 🗎 Liðus				
V 📣 LSovit, NOK, BOP	Abs	κ.		
V E Logical Node Profiles	Target DSC	P. Unpedified		
V 🕈 L3out_B0P_noduProfile	Node	6		
> 🔛 Configured Nodes		• Note D	Souther (D	Loophark Address
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BSP Paer 100.0.0.2- Node-102/1/3				
V 🚍 Edemai (PCs				
EXT_NAK_BOP_EPG				
> 🧰 Route map for import and export route control				
> 🙆 L3out_Static_server	EGP Peer Connectivit	x I		
> 🚞 SR-MPLS VRF L3Duts		Peer P Address	Peer Controls	Interface
> 🚞 Dot1Q Turnels		100.0.0.2		Pod-1/Node-102/wth1/3
> 🚍 Contracts				
> 🚍 Policies				
> 🚍 Services				
E Security (Beta)				
> () Quick Start				
	Create BGP Protocol Profil	• •		
	Create BFD Multihop Protocol Profil	e: 🖸		

BGP對等設定檔



配置BGP對等策略



在L3out下配置邏輯介面配置檔案

cisco APIC		admin (8) (2) (2) (2) (2)
System Tenants Fabric Virtual Networking Admin Operations A	ops Integrations	
ALL TENANTS Add Tenant Tenant Search: mame or cirecr common TN_D	donwang? SERVERS edge	
TN_D (D)@10	Futernal FPG - FXT N1K ROP FPG	0.0
~ 🗒 m.a		00
> 🔤 Application Profiles		Policy Operational Health Faults History
Metworking		General Contracts Inherited Contracts Subject Labels EPG Labels
> 🔛 Bridge Domains	10000	A 1 4
> 🔤 VRFs		0 2
> 🚞 L20/8	PTOPHTHEI Name: D.C. Mic. MOP. (PG	~
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Concel Node Profiles	Quotal Alas:	
Claw bor notentie	Description: optional	
/ Complete Notes		
 Ecopia Interace Proves Interaction Proves Interaction Proves 	pcTng: 16386	
Bill Bar Mo A 5 1- Mark 1917 /	Contract Exception Tag	
Section 100 million 100 million	Configured VRF Name: VRF_S	
E DT NOK HOP LING	Reserved VRF: urys:rTNL_E(ctor-VRF_S	
Route map for import and export route control	Kuo Luas, Ungeothed	
> 🕰 Läsut, Statu, server	Target DOC*, Unspecified	
> 🔤 SR-MPLS VIE L30//S	Configuration Startus, approv Configuration Startus	
) 🔤 Dot1Q Tunnels	Professol Reveals Memory Collaboration Parliage	
> 🗮 Contracts		
> 🖬 Falces	Inter De-DPo Boleton, Enforced Overfaced	
> 🧮 Services	Subnets	2.4
E Securty (Beta)	 IP Address Scroe Name Approxim 	Route Control Profile Route Summarization Policy
> Or Dark Start	0.0.0.07 Datemal Subjects for the External EPG	
	200.0.0.1/32 Export Route Control Subret	

外部EPG匯出傳輸中的子網L3out

TN_D	000	External EPG - EXT_N3	K_BGP_EPG						
> ₩ Th(_0) > ₩ Application Profiles									Policy Operational
V Matworking								General	Contracts Inherited Contracts
> 🧱 Bridge Domains									
> 🖿 VRFs		Name	• Tenant	Tenant Alian	Contract Tune	Provided / Consumed	OnS Class	State	Label
> 🚞 120/IS			A Infindia	PERSON PERSON	consect type	Frended / Containing	000 01010	C.B.W	CAUCH
V 🚔 L30uts		G Contract Type: Contract							
V 🙆 Läoit_NäK_BBP		Contract_Lisout_BRIP	TN_D		Contract	Consumed	Unspecified	formed	
V 🚞 Logical Node Profiles									
13out_BOP_nodeProfile									
> 🧮 Configured Nodes									
Logical Interface Profiles									
L3out_N3K_BOP_interfaceProfile									
BCP Peer 100.0.0.2 - Node-102/1/3									
V C Deternel FDOs									

將合約附加到外部EPG

6.從L3out向N3K匯出靜態路由。

```
switchname N3K
feature bgp
feature interface-vlan
interface Vlan550
 no shutdown
 vrf member BGP_L3out
 ip address 100.0.2/30
interface loopback200
 vrf member BGP_L3out
 ip address 30.30.30.1/32
interface Ethernet1/1
 switchport mode trunk
router bgp 65536
 address-family ipv4 unicast
 neighbor 100.0.0.1
 vrf BGP_L3out
   router-id 3.3.3.3
   address-family ipv4 unicast
     network 30.30.30.1/32
   neighbor 100.0.0.1
     remote-as 65535
     update-source Vlan550
     address-family ipv4 unicast
```



使用本節內容,確認您的組態是否正常運作。

Nexus3K。



傳輸路由通告由拓撲說明

N3K# routing vrf BGP_L3out

N3K%BGP_L3out# show ip route IP Route Table for VRF "BGP_L3out" '*' denotes best ucast next-hop '**' denotes best mcast next-hop '[x/y]' denotes [preference/metric] '%' in via output denotes VRF 30.30.30.1/32, ubest/mbest: 2/0, attached *via 30.30.30.1, Lo200, [0/0], 02:35:27, local *via 30.30.30.1, Lo200, [0/0], 02:35:27, direct 100.0.0/30, ubest/mbest: 1/0, attached *via 100.0.0.2, Vlan550, [0/0], 05:52:18, direct 100.0.0.2/32, ubest/mbest: 1/0, attached *via 100.0.0.2, Vlan550, [0/0], 05:52:18, local 200.0.0.1/32, ubest/mbest: 1/0 *via 100.0.0.1, [20/0], 02:32:36, bgp-65536, external, tag 65535

源為N3K環回地址可訪問伺服器環回。

N3K

interface loopback200
vrf member BGP_L3out
ip address 30.30.30.1/32

N3K# ping 200.0.0.1 vrf BGP_L3out source 30.30.30.1

PING 200.0.0.1 (200.0.0.1): 56 data bytes 64 bytes from 200.0.0.1: icmp_seq=0 ttl=252 time=0.94 ms 64 bytes from 200.0.0.1: icmp_seq=1 ttl=252 time=0.729 ms 64 bytes from 200.0.0.1: icmp_seq=2 ttl=252 time=0.658 ms 64 bytes from 200.0.0.1: icmp_seq=3 ttl=252 time=0.706 ms 64 bytes from 200.0.0.1: icmp_seq=4 ttl=252 time=0.655 ms --- 200.0.0.1 ping statistics ---5 packets transmitted, 5 packets received, 0.00% packet loss round-trip min/avg/max = 0.655/0.737/0.94 ms

ACI枝葉102路由表(具有指向Nexus 3K的L3out)。

Leaf102# show ip route vrf TN_D:VRF_S

IP Route Table for VRF "TN_D:VRF_S"
'*' denotes best ucast next-hop
'**' denotes best mcast next-hop
'[x/y]' denotes [preference/metric]
'%' in via output denotes VRF
10.100.0.0/24, ubest/mbest: 1/0
 *via 10.0.96.64%overlay-1, [200/0], 02:56:36, bgp-65535, internal, tag 65535
30.30.1/32, ubest/mbest: 1/0

of N3K.
 *via 100.0.0.2%TN_D:VRF_S, [20/0], 02:44:34, bgp-65535, external, tag 65536
100.0.0/30, ubest/mbest: 1/0, attached, direct
 *via 100.0.0.1, vlan19, [0/0], 05:09:37, direct
100.0.0.1/32, ubest/mbest: 1/0, attached
 *via 100.0.0.1, vlan19, [0/0], 05:09:37, local, local
101.101.101.101/32, ubest/mbest: 1/0
 *via 10.0.96.64%overlay-1, [1/0], 02:56:36, bgp-65535, internal, tag 65535
102.102.102.102.102,102, lo5, [0/0], 16:49:13, local, local
 *via 102.102.102.102, lo5, [0/0], 16:49:13, direct
200.0.0.1/32, ubest/mbest: 1/0
 *via 10.0.96.64%overlay-1, [1/0], 02:42:15, bgp-65535, internal, tag 65535

從CLI驗證枝葉101 IP SLA配置。

```
Leaf101# show ip sla configuration
IP SLAs Infrastructure Engine-III
Entry number: 2000
Owner: owner-icmp-echo-dme
Taq:
Operation timeout (milliseconds): 900
Type of operation to perform: icmp-echo
Target address/Source address: 10.100.0.100/0.0.0.0
Traffic-Class parameter: 0x0
Type Of Service parameter: 0x0
Request size (ARR data portion): 28
Verify data: No
Vrf Name: TN_D:VRF_S
Schedule:
   Operation frequency (seconds): 5 (not considered if randomly scheduled)
  Next Scheduled Start Time: Start Time already passed
   Group Scheduled : FALSE
   Randomly Scheduled : FALSE
   Life (seconds): Forever
   Entry Ageout (seconds): 3600
   Recurring (Starting Everyday): FALSE
   Status of entry (SNMP RowStatus): Active
Threshold (milliseconds): 900
Distribution Statistics:
   Number of statistic hours kept: 2
   Number of statistic distribution buckets kept: 1
   Statistic distribution interval (milliseconds): 20
History Statistics:
  Number of history Lives kept: 0
   Number of history Buckets kept: 15
   History Filter Type: None
Leaf101# show track brief
```

TrackId	Туре	Instance	Parameter	State	Last Change
4	IP SLA	2000	reachability	up	2021-09-16T18:08:42.364+00:00
3	List		percentage	up	2021-09-16T18:08:42.365+00:00

Leaf101# show track

```
Route prefix 200.0.0.1/32

Track 2

IP SLA 2000

reachability is up

6 changes, last change 2021-09-16T00:01:50.338+00:00

Tracked by:

Track List 1
```

使用託管對象查詢(Moquery)命令進行驗證:

apic1# moquery -c fvIPSLAMonitoringPol -f 'fv.IPSLAMonitoringPol.name=="ICMP_Monitor"'
Total Objects shown: 1

<pre># fv.IPSLAMonitoring</pre>	201	L
name	:	ICMP_Monitor
annotation	:	
childAction	:	
descr	:	
dn	:	uni/tn-TN_D/ipslaMonitoringPol-ICMP_Monitor
extMngdBy	:	
httpMethod	:	get
httpUri	:	/
httpVersion	:	HTTP10
ipv4Tos	:	0
ipv6TrfClass	:	0
lcOwn	:	local
modTs	:	2021-09-15T21:18:48.195+00:00
monPolDn	:	uni/tn-common/monepg-default
nameAlias	:	
ownerKey	:	
ownerTag	:	
reqDataSize	:	28
rn	:	ipslaMonitoringPol-ICMP_Monitor
slaDetectMultiplier	:	3
slaFrequency	:	5
slaPort	:	0
slaType	:	icmp
status	:	
threshold	:	900
timeout	:	900
uid	:	15374
userdom	:	:all:

apic1# moquery -c fvTrackMember -f 'fv.TrackMember.name=="Server_Physical_IP"'
Total Objects shown: 1

<pre># fv.TrackMe</pre>	mb	er
name	:	Server_Physical_IP
annotation	:	
childAction	:	
descr	:	
dn	:	uni/tn-TN_D/trackmember-Server_Physical_IF
dstIpAddr	:	10.100.0.100
extMngdBy	:	
id	:	2000
lcOwn	:	local
modTs	:	2021-09-15T21:16:22.992+00:00
monPolDn	:	uni/tn-common/monepg-default
nameAlias	:	
ownerKey	:	
ownerTag	:	

rn : trackmember-Server_Physical_IP
scopeDn : uni/tn-TN_D/out-L3out_Static_server
status :
uid : 15374
userdom : :all:

apic1# moquery -c fvTrackList -f 'fv.TrackList.name=="Tracking_Server_Physical_IP"'
Total Objects shown: 1

<pre># fv.TrackList</pre>		
name	:	Tracking_Server_Physical_IP
annotation	:	
childAction	:	
descr	:	
dn	:	uni/tn-TN_D/tracklist-Tracking_Server_Physical_IP
extMngdBy	:	
lcOwn	:	local
modTs	:	2021-09-15T07:41:15.958+00:00
monPolDn	:	uni/tn-common/monepg-default
nameAlias	:	
ownerKey	:	
ownerTag	:	
percentageDown	:	0
percentageUp	:	1
rn	:	tracklist-Tracking_Server_Physical_IP
status	:	
type	:	percentage
uid	:	15374
userdom	:	:all:
weightDown	:	0
weightUp	:	1

疑難排解

目前尚無適用於此組態的具體疑難排解資訊。

如果鏈路斷開或物理IP地址無法訪問,ACI IP SLA在配置的閾值達到之後顯示目標IP「timeout」。



L3out介面關閉



鏈路關閉後IP SLA監控鏈路狀態

枝葉101 CLI驗證(您可以看到「上次操作返回代碼」超時)。

Leaf101# show ip sla statistics

IPSLAs Latest Operation Statistics IPSLA operation id: 2000 Latest RTT: NoConnection/Busy/Timeout Latest operation start time: 23:54:30 UTC Wed Sep 15 2021 Latest operation return code: Timeout Number of successes: 658 Number of failures: 61 Operation time to live: forever

只要伺服器可訪問,它就會顯示OK狀態。

TN_D	00	Track Member - Server_Phys	ical_IP					
~ Щ t0	^						Policy	Stats
> Application Profiles	_							
> 🚞 Networking	_							
> 🚞 Contracts	_	Properties						
V 🚞 Policies	_	Name:	Server_Physical_IP					
V 🔤 Protocol	_	Description:	optional					
> 🚞 BFD	_							
> 🚍 BFD Multihop	_	Track ID Of Object To Be Tracked:	2000					
> 🔤 ND RA Prefix	_	Destination IP To Be Tracked:	10.100.0.100					
> 🚞 BGP	_	Scope of Track Member:	L3Out - L3out_Static_serv	V 🕑				
> 🧮 Custom QoS	_	IPSLA Policy:	ICMP_Monitor	V 🕝				
> 🚞 Data Plane Policing	_	Deployments:	Node ID	Operation Number	Operation Status	Latest Operation Error Message		
> 🖿 DHCP			Pod-1/Node-101	2000	Reachable	OK		
> 🚞 EIGRP								
> End Point Ratention								
First Hop Security	_							
> 🚞 HSRP	_							
> 🔤 IGMP Interface								
> 🔚 IGMP Snoop								
V 🖿 IP SLA								
> 🚞 IP SLA Monitoring Policies								
> 🚞 Track Lists								
V 🚍 Track Members								
Server_Physical_IP								

鏈路啟動後的IP SLA監控狀態

Leaf101# show ip sla statistics

IPSLAs Latest Operation Statistics IPSLA operation id: 2000 Latest RTT: 1 milliseconds Latest operation start time: 00:03:15 UTC Thu Sep 16 2021 Latest operation return code: OK Number of successes: 18 Number of failures: 86 Operation time to live: forever

相關資訊

- <u>思科APIC第3層網路配置指南5.2(x)版</u>
- <u>技術支援與文件 Cisco Systems</u>