# Configuración de la Función IP SLA con L3out para Realizar un Seguimiento de la Ruta Estática

# Contenido

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# Introducción

Este documento describe cómo configurar el acuerdo de nivel de servicio de protocolo de Internet (IPSLA) en Cisco Application Centric Infrastructure (ACI) para realizar un seguimiento de la ruta estática aprender de una L3out y anunciar a otra L3out solamente si la subred es accesible desde la primera L3out.

# Prerequisites

## Requirements

Cisco recomienda que tenga conocimiento sobre estos temas:

- Software ACI versión 4.1 y posterior
- L3out hacia el dispositivo externo o el servidor
- Chasis EX y -FX
- Realice un seguimiento de la ruta para utilizar las sondas ICMP (protocolo de mensajes de control de Internet) y TCP (en este ejemplo se utiliza la sonda ICMP)

**Nota**: el IP SLA de imagen ACI se soporta en todos los switches de segunda generación Cisco Nexus, que incluye chasis -EX y -FX. Lea <u>Pautas y limitaciones para IP SLA</u>.

## **Componentes Utilizados**

La información que contiene este documento se basa en las siguientes versiones de software y hardware.

- ACI versión 5.2(2f)
- N9K-C93180YC-FX

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. Si tiene una red en vivo, asegúrese de entender el posible impacto de cualquier comando.

# Antecedentes

Algunos servidores tienen varias interfaces (como un loopback) a las que se puede acceder desde ACI a través de la dirección IP física del servidor. En tal caso, puede tener un requisito para agregar una ruta estática y anunciar externamente, pero sólo si la IP física del servidor es accesible. Por lo tanto, la función de seguimiento de IP SLA es una configuración inevitable que sólo puede lograrse mediante la configuración L3out hacia esos servidores. En este momento, las funciones de seguimiento de IP SLA no se soportan para la <u>ruta estática en un dominio de puente</u>. En este documento, buscaremos ejemplos de servidor y configuraciones de ruta de tránsito que utilicen IP SLA.

# Configurar

- L3out hacia el servidor y hacia los dispositivos N3K.
- Configure la opción IP SLA para la dirección IP física del servidor.
- Configure la ruta estática en L3out hacia el servidor que utiliza la pista IP SLA y anuncia desde otra L3out hacia N3K.

## Diagrama de la red



Topología del laboratorio ACI

## Configuraciones

Pasos de resumen:

## Políticas de fabric de ACI:

- Crear contrato (por ejemplo, un filtro predeterminado común que permite utilizar todo el tráfico, pero puede utilizar un filtro específico creado localmente en el mismo arrendatario para permitir el tráfico específico. en tal caso, asegúrese de permitir el protocolo que se utiliza para la opción IP SLA).
- Cree un nuevo L3out hacia el servidor 10.100.0.100/24 (lado ACI SVI 550 con dirección IP 10.100.0.254)
- Crear políticas de seguimiento de IP SLA (política de supervisión de IP SLA, política de seguimiento de miembros, política de lista de seguimiento)
- Agregue la ruta estática en L3out hacia el servidor con la lista de seguimiento de IP SLA.
- Cree un nuevo L3out hacia el dispositivo N3K que utiliza BGP. (EBGP) ACI AS 65535 y N3K AS 65536
- Exportar ruta estática de L3out a N3K.
- Verifique la configuración y el alcance.

 Crear contrato (para este ejemplo, utilice un filtro predeterminado común que permita todo el tráfico; sin embargo, puede utilizar un filtro específico creado localmente en el mismo arrendatario para permitir el tráfico específico, pero en tal caso asegúrese de permitir el protocolo que se utiliza para la opción IP SLA).

TN_D	000	Contract - Contract_L	3out_BGP									6	0
						Summany	Topology	Dolicy	Deer Entities	Contract Exception	Faults	Hist	
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> 🖬 Networking											Ó	<u>+</u>	*-
Contracts		Properties											
V 🖼 Standard		Name:	Contract_L3out_BGP										^
Contract_L3out_BGP		Alas:											
Taboos		Global Alias:											
> 🥁 Imported		Scope:	VRF										
) 📰 Filters		QoS Class:	Unspecified										
) 🥅 Policies		Target DSCP:	Unspecified										
> 🚍 Services		Deservation	Target QSCP Marking works on	ty it the QoS Class is set									
🚍 Security (Beta)		Description.											
			-										
		Annotations	Click to add a new a	enclation		-							
		Subjects:										11 -	ė.
			= Name	Alas	Filters				Description				
			Allow_Any		common/default								

### Crear contrato

2. Cree un nuevo L3out hacia el servidor 10.100.0.100/24 (lado ACI SVI 550 con dirección IP 10.100.0.254).

TN_D	$\bigcirc$	L3 Outside - L3out Static server
ע_אז ום_א ∪	000	
> E Application Profiles		
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> 🚞 Bridge Domains		
> 🚞 VRFs		
> 🚞 L2Outs		Properties
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> 合 L3out_N3K_BGP		Description
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> 🚞 Logical Node Profiles		
> 🚞 External EPGs		Annotations:  Click to add a new annotation
> Route map for import and export route control	l i	Global Allas:
> 🚞 SR-MPLS VRF L3Outs		Provider Label: enter names separated by comma
> 🚞 Dot1Q Tunnels	4	Consumer Label: select an option
Contracts		Target DSCP: Unspecified
Standard		
> 🔁 Contract_L3out_BGP		PIMv6:
> 🚞 Taboos		Route Control Enforcement: Import
> 🚞 Imported		VRF: VRF_S
Filters		Resolved VRF: TN_D/VRF_S
> Policies		L3 Domain: TN_D_L3Dom
> Services		Route Profile for Interleak: select a value
Security (Beta)		Route Profile for Redistribution:
		<ul> <li>Source</li> </ul>
		Enable BGP/EIGRP/OSPF: BGP OSPF FIGRP
		Route Control for Dampening:
		<ul> <li>Address Family Type</li> </ul>
Crear L 2 out		

Crear L3out



### Conexión del nodo a L3out

TN_D	00	Logical Interface Profile	- L3out_Static_server_inter	faceProfile							0.0
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> E Application Profiles									Policy	rouns	rinocony
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> 📰 Bridge Domains		0000									
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L3Outs		- Path	Side A IP	Side B IP	Secondary IP Address	IP Address	MAC Address	MTU (bytes)	Encap	Encap Sco	ope
> 🚯 L3out_N3K_BGP		Pod-1/Node-101/etb1/3				10 100 0 254/24	00-22-80-58-19-55	inbarit	utan-507	Local	
L3out_Static_server		For those to healths				10.100.0.204/24	00.22.00.10.10.11	ETAIL.	1101 UU7	000	
Logical Node Profiles											
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> E Configured Nodes											
Logical Interface Profiles	_										
L3out_Static_server_interfaceProfile	•										
V 🚞 External EPGs	_										
EXT_static_EPG											

## Conexión de la interfaz a L3out

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> 🖿 Application Profiles						Policy Operational	Health Faults	History
V I Networking					General	Contracts Inherited Contracts	Subject Labels	EPG Labels
> 🔤 Bridge Domains	0000							
> 🖿 VRFs							(	) <u>*</u> X*
> 🖬 L2Outs	Properties	EXT static EPG						
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> 📤 L3out_N3K_BGP	Annotations:	Click to add a new annotation						
L3out_Static_server	Global Alias							
Logical Node Profiles	Description:							
V E L3out_Static_server_nodeProfile								
> 🚞 Configured Nodes								
Logical Interface Profiles	Contract Exception Text	32771						
L3out_Static_server_interfaceProfile	Contract Dioppeni rag.	100 P						
V 🚞 External EPGs	Resolved VRF	uni/tn-TN D/ctx-VRF S						
EXT_static_EPG	QoS Class:	Unspecified						
Route map for import and export route control	Target DSCP:	Unspecified						
> 🔤 SR-MPLS VRF L3Outs	Configuration Status	applied						
> 🚞 Dot1Q Tunnels	Configuration Issues:							
> E Contracts	Preferred Group Member:	Exclude Include						
> 🚍 Policies	Jates Ext. EDO Jacintine	Entrand						
> 🚞 Services	India Ext*E>G Isolatori.	Endeed Chemoroid						
Security (Beta)	Subnets:							· +
O Quick Start		<ul> <li>IP Address</li> </ul>	Scope	Name	Aggregate	Route Control Profile	Route Summarization P	olicy
		0.0.0.0/0	External Subnets for the Extern					~
						Show Us	sge Reset	

### Configuración de EPG externo

TN_D	000	External EPG -	EXT_static_EPG							Q	0
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> = vies		Name	<ul> <li>Tenant</li> </ul>	Tenant Alias	Contract Type	Provided /	QoS Class	State	Label	Subject Label	
> L2Outs						Consumed					
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> t3out_N3K_BGP		Contract_L3out_BGP	TN_D		Contract	Provided	Unspecified	formed			
V 🚯 L3out_Static_server											
Logical Node Profiles											
El L3out_Statio_server_nodeProfile											
Configured Nodes											
Logical Interface Profiles											
L3out_Static_server_interfaceProfil	e ·										
V 🔜 External EPGs											
EXT_state_EPG											

Conexión del contrato a L3out

3. Cree políticas de seguimiento de IP SLA (política de supervisión de IP SLA, política de seguimiento de miembros, política de lista de seguimiento).

Política de Monitor de SLA de IP:

TN_D	©€⊙	IP SLA Monitoring Policy - IC	MP_Monitor		
✓ ₩ TN_D	^				
> 🧮 Application Profiles					
> 🧮 Networking		8 🗸 🛆 🕐			
> 🚞 Contracts		Properties			
V 🖿 Policies		Name:	ICMP_Monitor		
V Protocol		Description:			
> 🚞 BFD					
> 🚞 BFD Multihop		SLA Type:		P 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		
		Type of Service.	0		
> 🧮 EIGRP	•	Operation Timeout (milliseconds):	900		
> 🚞 End Point Retention		Threshold (milliseconds):	900		
> 🚞 First Hop Security		Traffic Class Value:	0	$\bigcirc$	
> 🚞 HSRP					
> 🚞 IGMP Interface	_				
> 🧮 IGMP Snoop					
V 🖿 IP SLA					
V 📰 IP SLA Monitoring Policies					
E ICMP_Monitor					
> 🖬 Track Lists					
> 🚞 Track Members					

Configuración de la política de monitoreo de IP SLA

IP SLA Track Members:

TN_D	000	Track Member - :	Server_Physi	ical_IP							0.0
~ 聞 TN_D	^							Delicu	Ctote	Eaulte	History
> E Application Profiles	_							Policy	51815	rauts	riscory
> 🔤 Networking	_									0	± %
> 🔤 Contracts		Properties									
🗠 🚍 Policies	_		Name:	Server_Physical_IP							
V 🚞 Protocol	_		Description:								
> 🚍 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_ser	M U 🚱						
> 🚍 Custom QoS	_		IPSLA Policy:	ICMP_Monitor	V 🚱	State	us of destination track IP				
> 🚞 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 Retention	_										
> 🚍 First Hop Security	_										
> 🚍 HSRP											
> 🔤 IGMP Interface											
> 🧮 IGMP Snoop											
V 🚔 IP SLA											
V P SLA Monitoring Policies											
F ICMP_Monitor											
> 🖿 Track Lists											
Track Members											
F Server_Physical_IP											

Adición de IP para supervisar la política

Política de lista de seguimiento:

TN_D	001	Track List - Tracking_Server_Physical_IP				0.0
~ ■ TN_D	<u>~</u>			<b>C</b>	F	
> E Application Profiles			Policy	Stats	Faults	History
> 🖿 Networking					0	± %-
Contracts		Properties				
V 🖬 Policies		Name: Tracking_Server_Physical_IP				
Protocol		Description: optional				
> 🚍 BFD						
> 🚞 BFD Multihop		Type of Track List: Threshold percentage				
> 🥅 ND RA Prefix		Percentage Up (percentage): 1				
> 🚞 8GP		Percentage Desin (percentage b) (				
> 🧮 Custom QoS		Percentage source generating to unit to the less than fercentage to				
> 🧱 Data Plane Policing		Track list to track member				± +
> 🖿 DHOP		Track Member				
> 🚞 EIGRP		TN_D/Server_Physical_JP				
> 🚞 End Point Retention						
> 🚍 First Hop Security						
> 🧮 HSRP						
> 🥅 IGMP Interface						
> 🧮 IGMP Snoop						
V 🚍 IP SLA						
V IP SLA Monitoring Policies						
F ICMP_Monitor						
🗸 🚍 Track Lists						
Tracking_Server_Physical_IP						
Track Members						
Server_Physical_IP						

Configurar lista de pistas

4. Configure la ruta estática en L3out hacia el servidor con la política de lista de seguimiento de IP SLA creada recientemente.

cisco APIC								admin 🝳	0 0	00
System Tenants Fabric	Virtual Networking	Admin Operatio	ns Apps Integ	grations						
ALL TENANTS   Add Tenant   Tenant !	Search: name or descr	common	TN_D   donwang2	SERVERS   edge						
TN_D	നര		ociation							~ •
✓ III TN_D										00
> E Application Profiles		_						Policy	Faults	History
Networking		00							0	± %-
> 🚞 Bridge Domains		Propertie	s							
> 🖿 VRFs			Node ID:	topology/pod-1/node-101						^
> 🖿 L2Outs			Router ID:	101.101.101.101						
		Use Rou	ter ID as Loopback Address:	This setting will be ignored if loopback addresse	are defined in the table below.					
> \Lambda L3out_N3K_BGP			Loopback Addresses:							+ 1
V 🚯 L3out_Static_server				▲ IP						
Cogical Node Profiles						No items have been found.				
L3out_Static_server_nod	seProfile					Select Actions to create a new item.				
Configured Nodes	-4-101									
> = sopology/pool-1/m	00e-101									_
> External EPGs	**		ersne Loopback Addresses.							+
Route map for import and ex	port route control			* IP						_
SR-MPLS VRF L3Outs						No items have been found. Select Actions to create a new item.				
> E Dot1Q Tunnels										
> E Contracts	Leaf	101								
> 🧮 Policies	N9K-C93 15.2	(2f)	Static Routes:							· +
> 🚞 Services		Eth1/3 L3out Static server		<ul> <li>IP Address</li> </ul>	Description	Track Policy	Next H	op IP		
Security (Beta)	13Out	Encap vlan 507		200.0.0.1/32		TN_D/Tracking_1	Server_Physical_IP 10.100	0.0.100		
> C+ Quick Start	LJOUL	VRF: TN_D:VRF_S			Static route added w	ith IP SLA Track which tracking physica	I IP of server.			
	Physical IP: 10	100.0.100/24							•	~
	Loopback 507	200.0.0.1/32								
							Show U	sage Ro		

Configuración de la ruta estática en L3out

5. Cree un nuevo L3out hacia el dispositivo N3K que utiliza el protocolo de gateway fronterizo (BGP). (EBGP) ACI AS 65535 y N3K AS 65536.

TN_D	L3 Outside - L3out_N3K_BGP
✓ III TN_D	
> Application Profiles	
V 🖿 Networking	
> 🚍 Bridge Domains	
> 🗖 VRFs	
> 🗖 L2Outs	Properties
🗸 🚍 L3Outs	Name: L3out_N3K_BGP
✓ 🛧 L3out_N3K_BGP	Allas:
V 🚔 Logical Node Profiles	Description: Optional
V 🛃 L3out_BGP_nodeProfile	
Configured Nodes	Annotations:  Click to add a new annotation
🗸 🚞 Logical Interface Profiles	Global Alias:
I.3out_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	
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:
	<ul> <li>Address Family Type</li> </ul>

## Configuración del protocolo BGP

TN_D (D)@00	Logical Node Profile - L3out BC	iP nodeProfile		
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> 🚞 Application Profiles				
Histworking				
> 🧱 Bridge Domains	Properties			
> 🚞 VRFs	Nam	r: L3out_BGP_nodeProfile		
> 🖴 120us	Description	n optional		
See 130x8				
V 🚯 LBour, NOK, BOP	Ala	ĸ		
🗸 🚍 Logical Node Profiles	Target DSCI	E Unspecified		
V 🕫 L3out_B3P_nodeProfile	Noder	E Contraction of the second se		
> 🔛 Configured Nodes		< Note D	Source D	Loopbeck Address
Logical Interface Profiles		toopingvitood-1/mode-102	102.102.102.102	102 102 102 102
2 L3out_N3K_B3P_interfaceProfile		and the second		
9 BSP Peer 100.0.0.2- Node-102/1/3				
V 🔛 External EPCo				
EXT_NIK_BOP_EPO				
> 🚍 Route map for import and export route control				
> 🚯 L3out_Static_server	EGP Peer Connectivity			
> 🚍 SR-MPLS VRF L3Outs		Peer IP Address	Peer Controls	Interface
> 🚞 Dot1Q Turnets		100.0.2		Pod-1/Node-102/eth1/3
> 🚞 Contracts				
> 🚔 Policies				
> 🚍 Services				
🗎 Security (Beta)				
> Or Quick Start				
	Create BGP Protocol Profile			
	Create BFD Multihop Protocol Profile			

Perfil de Peer BGP



Configuración de la política de peer BGP



Configuración del perfil de interfaz lógica en L3out

cisco APIC		admin 🕲 😋 🔁 😳 🕲
System Tenants Fabric Virtual Networking Admi	Admin Operations Apps Integrations	
ALL TENANTS   Add Tenant   Tenant Search: name or direct	i common i TNLD i donvange i SERMES i edge	
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> E Application Profiles		Poncy Operational Health Faults History
W Metworking		General Contracts Inherited Contracts Subject Labels EPG Labels
> 🔛 Bridge Domains	10000	0.1.4
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> 🔤 L20vis	PTOPETER Name: D.C. ASC. 809.190	A
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V Call Lawe Not Cop	Annotations: 🚳 Click to add a new annotation	
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<ul> <li>Unitigated houses</li> <li>Elit Looked Interface Decision</li> </ul>		
< B Lind NIK BSP internation	pc%g: 16305	
BCP Peer 100 0 0 2- Node-100/1/3	Contract Exception Tag:	
V Bill Deternal DPCs	Configured VRF Name: VRF_S	
DIT_NIK_BOP_EPG	Resolved VWF: units TR_DCtch+VFF_5	
Route map for import and expert route control	toto Law Mitigother V	
> 🕰 Llout_State_server	Contraction States united	
> 🔤 SR-MPLS VIE LOOVS	Configuration Issues:	
> 🔛 Dot1Q Tunnels	Professed Group Member: Exclude Include	
> 🔛 Contracts	Name Conception and Conce	
> 🔤 Pokces		
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Security (lieta)	A DE ANDERS DOUGE DA LA DE LA DESARCE DE LA	Pove control more Pove commanization Policy
> Or Quokstat	0.0.0.00 Deema cubleds for the Deema Updeed UPG	
	100.0.0.1/2 Expert Route Control System	

### Subred de exportación EPG externa en tránsito L3out

TN_D	000	External EPG - EXT_N3	K_BGP_EPG						
Th_D									Policy Operational
V 🔤 Networking								General	Contracts Inherited Contracts
> 📑 Bridge Domains		Theathy 🕢 🔿 🔿							<u> </u>
> 🔤 ves > 🗃 L20vs		Name	<ul> <li>Tenant</li> </ul>	Tenant Alias	Contract Type	Provided / Consumed	QoS Class	State	Label
v 🚍 130.45		G Contract Type: Contract							
V 🙆 LIGHT_NIK_BOP		Contract_L3out_BGP	TN_D		Contract	Consumed	Unspecified	formed	
English Node Profiles									
V B L3out_BOP_nodeProfile									
> 🔤 Configured Nodes									
Logical Interface Profiles									
Z L3out_N3K_B0P_interfaceProfile									
BSP Peer 100.0.0.2 - Node-102/1/3									
V EE Friend Folis									

Conexión del contrato a EPG externo

6. Exportar ruta estática de L3out a N3K.

```
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
```

## Verificación

Utilize esta sección para confirmar que su configuración funcione correctamente.

### Nexus3K.



Anuncio de ruta de tránsito explicado por la topología

#### 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

Se puede alcanzar el loopback del servidor con el origen como dirección de loopback N3K.

#### 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

Tabla de ruta de la hoja 102 de ACI (que tiene L3out hacia Nexus 3K).

#### 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
30.30.30.1/32, 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
102.102.102.102/32, ubest/mbest: 2/0, attached, direct
    *via 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
```

Verificación de la configuración IP SLA de la hoja 101 desde la CLI.

```
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

Track 1

List Threshold percentage Threshold percentage is up 6 changes, last change 2021-09-16T00:01:50.339+00:00 Threshold percentage up 1% down 0% Tracked List Members: Object 2 (100)% up Attached to:

```
Route prefix 200.0.1/32

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
```

Verificación con el comando Managed Object Query (Moquery):

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

# fv.IPSLAMonitoringPol							
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

# fv.TrackMe	mb	er
name	:	Server_Physical_IP
annotation	:	
childAction	:	
descr	:	
dn	:	uni/tn-TN_D/trackmember-Server_Physical_IP
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

## Troubleshoot

Actualmente, no hay información específica de troubleshooting disponible para esta configuración.

En caso de que la desconexión de link o la dirección IP física no sean accesibles, ACI IP SLA muestra el tiempo de espera de IP de destino después de que el umbral configurado alcance.



TN_D	00	Track Member - Server_Phys	ical_IP			
TN_D TN_D Application Profiles						Polis
> 🖬 Networking		8 9 4 0				
> 🧮 Contracts		Properties				
🗸 🚞 Policies		Name:	Server_Physical_IP			
Protocol		Description:				
> 🚍 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_ser	w 🗸 🔁		
> 🚞 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 ms (2seconds)	Unreachable	Timeout
> 🚞 EIGRP						
> 🚞 End Point Retention						
First Hop Security						
> 🚍 HSRP						
> 🧮 IGMP Interface	_					
> 🚍 IGMP Snoop						
V 🖿 IP SLA						
> IP SLA Monitoring Policies						
> 🚞 Track Lists						
V 🚍 Track Members						
Server_Physical_IP						

Estado del link de monitoreo de IP SLA después de que el link se haya caído

Verificación de la CLI de la hoja 101 (puede ver el tiempo de espera para el "Código de retorno de la última operación").

#### 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
```

### Tan pronto como el servidor es accesible, muestra el estado OK.

TN_D	00	Track Member - Server_Phys	ical_IP					
~ <b>⊞</b> т⊾d	<u> </u>							0
> C Application Profiles							Policy	Stats
> 📰 Networking								
> Contracts		Properties						
Policies		Name:	Server_Physical_IP					
V 🖿 Protocol		Description:						
> 🚍 BFD								
> 🧮 BFD Multihop		Track ID Of Object To Be Tracked:	2000					
> 🧮 ND RA Prefix		Destination IP To Be Tracked:	10.100.0.100					
> 🚞 8GP		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 Retention								
> 🚞 First Hop Security								
> 🚞 HSRP								
> 🧮 IGMP Interface								
> 🚞 IGMP Snoop								
V 🚞 IP SLA								
> 🖿 IP SLA Monitoring Policies								
> 🚞 Track Lists								
V 🖿 Track Members								
Server Physical IP								

Estado del monitor de SLA de IP después de activar el enlace

#### 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

# Información Relacionada

- Guía de Configuración de Redes de Capa 3 de Cisco APIC, Versión 5.2(x)
- Soporte Técnico y Documentación Cisco Systems