实施ACI传输路由(Multipod)

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简介

本文档介绍如何在以应用为中心的基础设施(ACI)多Pod环境中配置传输路由。

先决条件

要求

Cisco 建议您了解以下主题:

- 1. ACI多面板
- 2. L3Out
- 3. 合同
- 4. 路由协议

使用的组件

本文档中的信息基于以下软件和硬件版本:

- 1. 2台N5K-C5548UP交换机,均在NXOS版本7.3(8)上(用作外部路由器)
- 2. 1台N9K-C9332PQ枝叶交换机和1台N9K-C93108TC-EX枝叶交换机,均位于ACI版本 14.2(7f)上
- 3. 2台N9K-C9336PQ主干交换机,均位于ACI版本14.2(7f)上
- 4. 1台N9K-C9232C交换机(用作IPN设备),位于NXOS版本10.3(3)上

本文档中的信息是在特定实验环境中使用上述设备创建的。本文档中使用的所有设备最初均采用原 始(默认)配置。如果您的网络处于活动状态,请确保您了解所有命令的潜在影响。

背景信息

在传输路由中,思科ACI交换矩阵将从一个第3层输出(L3Out)连接获知的路由通告到另一个L3Out连接。外部第3层域与边界枝叶交换机上的交换矩阵对等。交换矩阵是对等体之间的中转多协议边界网关协议(MP-BGP)域。

配置

网络图



网络图

配置

逻辑节点配置文件用于标识连接到外部网络的枝叶交换机,并且可以向其部署路由协议或静态路由。要查看L3Out中的逻辑节点配置文件,请导航到 Tenant > Networking > L3Outs > L3Out > Logical Node Profiles > Logical Node Profile 如图所示.

MR () (3) (0)	Logical Node Profile - MR	R-BGP_nodeProfile					0) 0
O Quick Start					Delieu	Foulto	Lint	
· ∨ ∰ MR					Policy	Faults	HIST	bry
> E Application Profiles						Ó	+	**-
V Retworking	Properties							
> 🔚 Bridge Domains	Name:	MR-BGP_nodeProfile						
> 🚞 VRFs	Description:	optional						
> 🚞 External Bridged Networks								
✓ ➡ L3Outs	Alias:							
✓	Target DSCP:	Unspecified 🗸						
Logical Node Profiles	Nodes:							+
V 🗧 MR-BGP_nodeProfile		 Node ID 	Router ID	Loopback Address				_
Logical Interface Profiles		topology/pod-1/node-102	50.50.50.55	50.50.50.55				
> E MR-BGP_interfaceProfile								
🗸 🚞 Configured Nodes								
✓								
RP for VRF-MR:MR-VRF								
> 📕 BGP for VRF-MR:MR-VRF								
> 📕 ND for VRF MR:MR-VRF	BGP Peer Connectivity:						÷ :	*-
> 🗧 OSPF for VRF-MR:MR-VRF		Peer IP Address	Peer Controls		Interface			
External EPGs		50.50.50/24			Pod-1/Node-102/eth1/1			
MR-BGP-EXT-EPG								

LEAF102的逻辑节点配置文件

MR () ()	Logical Node Profile - MR	R-OSPF_nodeProfile					0.0
> O⊷ Quick Start					Policy	Faults	History
> Application Profiles	8 👽 🛆 🕚					Ó	± %-
V Networking	Properties						
> 🚞 Bridge Domains	Name:	MR-OSPF_nodeProfile					
> 🥅 VRFs	Description:	optional					
> 🧮 External Bridged Networks							
V 🔚 L3Outs	Alias:						
> 🚯 MR-BGP	Target DSCP:	Unspecified V					
> 🚯 MR-EIGRP	Nodes:						+
∨ 📤 MR-OSPF		 Node ID 	Router ID	Loopback Address			
V E Logical Node Profiles		topology/pod-2/node-202	1.1.1.111	1.1.1.111			
V F MR-OSPF_nodeProfile							
Logical Interface Profiles							
> MR-OSPF_interfaceProfile							
Configured Nodes							
✓							
ARP for VRF-MR:MR-VRF	Create BGP Protocol Profile:						
BGP for VRF-MR:MR-VRF							
> 🗧 ND for VRF- MR:MR-VRF							
> F OSPF for VRF-MR:MR-VRF							
✓							
MR-OSPF-EXT-EPG							

LEAF202的逻辑节点配置文件

逻辑接口配置文件用于标识连接到外部设备的L3Out接口。您会看到为虚拟路由和转发(VRF)定义的 几个功能元素:地址解析协议(ARP)、边界网关协议(BGP)、邻居发现和开放最短路径优先 (OSPF),这是两个配置文件的结果。要查看L3Out中的逻辑接口配置文件,请导航到 Tenant > Networking > L3Outs > L3Out > Logical Node Profiles > Logical Node Profile > Logical Interface Profiles > Logical Interface Profile.在这 些示例中,在逻辑接口配置文件中配置了SVI。

MR (P) (C) (C)	Logical Interface Prof	ile - MR-BGP_	interfaceProfile						0 0
C Quick Start								Policy	Faults History
∼ III MR								roncy	Thotory
> E Application Profiles					General Ro	outed Sub-Interface	s Routed Inf	erfaces	SVI Floating SVI
V The Networking	0000								o +
> 🚞 Bridge Domains									0 =
> 🚞 VRFs									■ +
External Bridged Networks	 Path 	Side A IP	Side B IP	Address	IP Address	MAC Address	MTU (bytes)	Encap	Encap Scope
V 🚞 L3Outs	Pod-1/Node-102/eth1/1				50.50.50.51/24	00:22:BD:F8:19:FF	inherit	vlan-499	Local
✓ ▲ MR-BGP									
V 📷 Logical Node Profiles									
RR-BGP_nodeProfile									
Logical Interface Profiles									
> F MR-BGP_interfaceProfile									
Configured Nodes									
✓									
ARP for VRF-MR:MR-VRF									
> ■ BGP for VRF-MR:MR-VRF									
> F ND for VRF- MR:MR-VRF									
> E OSPF for VRF-MR-MR-VRF									
V 🚞 External EPGs									
MR-BGP-EXT-EPG									
Route map for import and export route control									

LEAF102、eth1/1的逻辑接口配置文件



LEAF202的逻辑接口配置文件,eth1/2

外部EPG实例配置文件(外部EPG、L3Out EPG)表示具有相同安全行为的一组外部子网。其他子 网也可以与其他作用域关联,这些作用域定义该子网的路由行为。 要查看L3Out中的外部EPG,请 导航至 Tenant > Networking > L3Out > L3Out > External EPG > External EPG 如图所示.

MR (* 🕄 🕲 🔘	External EPG Insta	nce Profile - MR-B	GP-EXT-EPG					0.0
O Quick Start						0		
∼ III MR					Policy	Operational	Stats He	alth Faults History
> E Application Profiles						Ge	neral Contra	cts Inherited Contracts
V I Networking	0 0 0 0							
> 🚞 Bridge Domains								0 * %
> 🧮 VRFs	Properties							
> 🚞 External Bridged Networks	Name: Alias	MR-BGP-EXT-EPG						Í
✓	Taos							
∨ 🚯 MR-BGP	Tugo.	enter tags separated by comm	14 14					
V 🚞 Logical Node Profiles	Global Alias:							
V 📕 MR-BGP_nodeProfile	Description:	optional						
Logical Interface Profiles								
> E MR-BGP_interfaceProfile	pcTag:	49159						
Configured Nodes	Contract Exception Tag:							
topology/pod-1/node-102	Configured VRF Name:	MR-VRF						
ARP for VRF-MR:MR-VRF	Resolved VRF:	uni/tn-MR/ctx-MR-VRF						
> 📑 BGP for VRF-MR:MR-VRF	QoS Glass.	Unspecified						
> F ND for VRF- MR:MR-VRF	Target DSCP.	Unspecified	Y					
> E OSPF for VRF-MR:MR-VRF	Configuration Status: Configuration Issues:	appiled						
✓	Preferred Group Member	Exclude Include						
MR-BGP-EXT-EPG	Cubaste:)					
Route map for import and export route control	Subnets.							+ 1
> 🛧 MR-EIGRP		 IP Address 	scope	Name	Aggregat	e R	oute Control Profile	Policy
> 🚯 MR-OSPF		49.49.49.49/32	External Subnets for th					

MR-BGP L3Out的外部EPG实例配置文件

MR (*) (*) (*)	External EPG Insta	nce Profile - MR-OS	SPF-EXT-EPG					0.0
O Quick Start					Dollary	Operational	State Har	Ith Faulte History
· ∨ ∰ MR					Policy	Operational	Stats Hee	in Faults History
> E Application Profiles						Ge	neral Contra	cts Inherited Contracts
V 🚞 Networking	0000					_		C 1 40
> 🚞 Bridge Domains								0 - *
> 🚞 VRFs	Properties	ND OODE EVE FOO						
> 🚞 External Bridged Networks	Name: Alias:	MR-USPF-EXT-EPG						í
√	Taos							
> 🚯 MR-BGP	1095.	enter tags separated by comm	1 Y					
> 合 MR-EIGRP	Global Alias:							
✓	Description:	optional						
🗸 🚞 Logical Node Profiles								
V 📕 MR-OSPF_nodeProfile	pcTag:	49156						
Logical Interface Profiles	Contract Exception Tag:							
> 🗧 MR-OSPF_interfaceProfile	Configured VRF Name:	MR-VRF						
Configured Nodes	Resolved VRF:	uni/tn-MR/ctx-MR-VRF						
✓	QoS Class:	Unspecified						
ARP for VRF-MR:MR-VRF	Target DSCP:	Unspecified	\sim					
BGP for VRF-MR:MR-VRF	Configuration Status:	applied						
> P ND for VRF- MR:MR-VRF	Configuration issues.	Turbula Instala						
> SPF for VRF-MR:MR-VRF	Preferred Group Member:	Exclude)					
V 🚞 External EPGs	Subnets:							3 +
MR-OSPF-EXT-EPG		 IP Address 	Scope	Name	Aggregate	e Ri	oute Control Profile	Route Summarization Policy
> 🔚 Route map for import and export route control		101.101.101.101/32	External Subnets for t	h				

MR-OSPF L3Out的外部EPG实例配置文件

在这些示例中, MR-PERMIT-ICMP合同同时用作外部EPG中提供的和使用的合同。

MR (🗈 🗊 💿 🛛 🗢 External EP	G Instance Pro	ofile - MR-BGP-EX	T-EPG						0.0
> C+ Quick Start						Dellas	0	the state	Faulta III	
✓ III MR						Policy	Operational S	tats Health	Faults Hi	istory
> E Application Profiles							General	Contracts	Inherited Cont	tracts
🗸 🚞 Networking										
> 🚞 Bridge Domains	♥ Healthy (※)								0 -	***
> 🥅 VRFs	Name	 Tenant 	Tenant Alias	Contract Type	Provided / Consumed	QoS Class	s State	Label	Subject L	.abel
> 🚞 External Bridged Networks	Contract Type: Co	otract								
V 🚞 L3Outs	MD_DEDMIT_ICMD	MD		Contract	Drouided	Unenacifiad	i formad			
✓ 🚯 MR-BGP	MR-PERMIT-IOMP	mex		Contract	Provided	onspecified	ionned			
Logical Node Profiles	MR-PERMIT-ICMP	MR		Contract	Consumed	Unspecified	i formed			
V 🗧 MR-BGP_nodeProfile										
Logical Interface Profiles										
> 🗧 MR-BGP_interfaceProf	file									
Configured Nodes										
topology/pod-1/node-	-102									
ARP for VRF-MR.MI	R-VRF									
> 🗧 BGP for VRF-MR:M	IR-VRF									
> 🗾 ND for VRF- MR:MF	R-VRF									
> OSPF for VRF-MRM	MR-VRF									
V 🚞 External EPGs										
MR-BGP-EXT-EPG										
Route map for import and export	t route control									

MR-PERMIT-ICMP合同适用于MR-BGP-EXT-EPG

MR	🕆 🗟 💿 Ex	ternal EPG I	nstance Profil	e - MR-OSPF-EX	T-EPG							0.0
> (▶ Quick Start <tr > Ⅲ MR							Policy	Operational	Stats	Health	Faults	History
> Application Profiles								Gen	neral	Contracts	Inherited	Contracts
V 🖬 Networking	Chies	Hhar 🙆 🔿									0	1 40
> 🧰 Bridge Domains	Nemo		- U	Tennet Allen	Contract Trace	Denvided /	Or C Clar	cinin		Label	Cubi	
> 🚞 VRFs	Name		 Tenant 	Tenant Alias	Contract Type	Consumed	Q05 Clas	s State		Label	Subj	ect Label
External Bridged Networks	G Contr	act Type: Contr	act									
V 🚞 L3Outs	MR-P8	RMIT-ICMP	MR		Contract	Provided	Unspecifie	d formed				
> 📤 MR-BGP	MD-D	DMIT-ICMP	MD		Contract	Consumed	Unsnerifie	t formed				
> 合 MR-EIGRP	inter a	AND TO ME	and the second sec		Combus	Constitution	onspecifie	1011104				
V 🛧 MR-OSPF												
Logical Node Profiles												
✓ ■ MR-OSPF_nodeProfile												
Logical Interface Profil	les											
> F MR-OSPF_interface	eProfile											
Configured Nodes												
✓	xde-202											
ARP for VRF-M	R:MR-VRF											
BGP for VRF-MI	R:MR-VRF											
> 📮 ND for VRF- MR	CMR-VRF											
> 📑 OSPF for VRF-N	MR:MR-VRF											
External EPGs												
MR-OSPI-EXT-EPG												
Route map for import and exp	port route control											

MR-PERMIT-ICMP合同适用于MR-OSPF-EXT-EPG

开启 LEAF102, BGP与邻居建立 50.50.50.50 接收外部网络 49.49.49.49/32.

MR () () ()	BGP Peer Entry	y - 50.50.50.	50							0.0
O Quick Start										
∼ III MR						General	Address	Health	Faults	History
> E Application Profiles	8000									0 +
V Metworking	Properties									
> 🧮 Bridge Domains	1	/rf Name: MR:MF	R-VRF		Lest Deest Du Lie	1070 01 01	T00-00-00-000-	00.00		
> 🚞 VRFs	BG	P Version: BGP V	ersion 4		Major Error Reset By Us	: None	100.00.00.000	00.00		
> 🧱 External Bridged Networks	Remote	Router Id: 50.50.	50.50		Minor Error Reset By Us	: None				
V 🚍 L3Outs	В	Up For: 2022	sned 07-27T17-17-22 #	93+00:00	Last Error Value By Us	c 0				
V 🚯 MR-BGP	Re	mote As: 65001	07 L7117.17.LL.4	30-00.00	Last Error Len By Us	: 0				
V 🔚 Logical Node Profiles	Updat	e Source: vlan14			Last Error Data By Us	: 1970-01-01	T00-00-00 000+	00:00		
V R MR-BGP nodeProfile	Restart Time A	dvertised Default			 Major Error Reset By Peer	: None	100.00.00.000	00.00		
V 🖿 Logical Interface Profiles	н	old Time: 180			 Minor Error Reset By Peer	: None				
V MR-BGP interfaceProfile	Keepaliv	e Interval: 60			Last Error Value By Peer	: 0				
BGP Peer Connectivity Profile 5		Neighbor: 50.50.	50.50		Last Error Len By Peer	c 0				
V Configured Nodes		Link: eBGP			Capabilities Advertised	: AS4 capable	Dynamic Dynam	ic graceful res	tart Dynamic	
	Shutdow	n Reason: Unspe	cified			multiprotocol helper IPv4 u	Dynamic old, Dynamic old, Dynamic ast, Refresh, R	namic refresh, efresh	Graceful restar	t
ARP for VRF-MR MR-VRF	State	e Reason: none			Capabilities Received	: AS4 capable	Capability param	eter, Dynamic,	Dynamic grace	eful
	Directly	Attached vian14				restart,Dynar restart,IPv4 u	nic multiprotocol inicast,Refresh,R	,Dynamic old,[efresh	Dynamic refres	h,Graceful
	Tcp Md5 Authe	internace. intication: disable	d							
Non-104 169 1 2	Connection Es	tablished: 1								
50 50 50 50	Connection	Dropped: 0								
	Connection	Attempts: na								
	Message Stat	tistics								
External EPGs		Sent	Rcvd							
	Opens	1	1							
Route map for import and export route control	Notifications	0	0							
	Hederee									
	opulaes	0	4							
Det10 Tunnele	Keepalives	1692	1689							
	Route Refresh	0	0							
	Capability	1	1							
/ Provides	Total	1702	1693							
/ Services	Total bytes	32485	32186							
	Butes in queue	0	0							
	Next Hon	~	~							
	HOATHOP									
		Refcount:								

LEAF102上的BGP对等条目



LEAF102上VRF MR:MR-VRF的BGP摘要



LEAF102上VRF MR:MR-VRF的BGP路由

开启 LEAF202, OSPF与邻居建立 1.1.1.222 接收外部网络 101.101.101.101/32.

MR () ()	OSPF - MR:MR-VRF						0.0
> C+ Quick Start				0	an and Hashth	Foulto	History
∼ ∰ MR				Ge	eneral Health	Faults	History
> E Application Profiles							0 🛓
V 📰 Networking	PROPERTIES		STATS				
> 🚞 Bridge Domains	Name: MR:N	/R-VRF	Int	terface Count: 2			
> 🧮 VRFs	Route ID: 1.1.1	.111		Activeareacnt: 1			
> 🧮 External Bridged Networks	Distance: 110		Active	Nssa Areacnt: 0			
V 🔚 L3Outs	Max ECMP: 8 Bandwidth Reference		Active	stub Areacht: 0 e Ext Areacht: 1			
> 🚯 MR-BGP	(Mbps): 4000	0		Extareacnt: 1			
> 🚯 MR-EIGRP	Operational State: Up			Nssa Areacnt: 0			
V 🕰 MR-OSPF				Stubareacnt: 0			
V 🖿 Logical Node Profiles				Areacnt: 1			
			0	pagas Lsacht: 0			
V III I onical Interface Profiles							
MD-OSDE interfaceDrofile	Neighbors						
	 Neighbor Id 	State	Peer Ip		Interface		
Continguied Houses	1 1 1 222	Full	10 101 101	100	eth1/2		
		Full	10.101.101		6011/2		
	Page 1 Of 1		Objects Per Page: 1	5 🗸		Displaying Obje	cts 1 - 1 Of 1
	Inter Protocol Route Leak	Into OSPF					
NO RO VIE*- MICHINE-VIE* OSDE for VIE*-MICHINE-VIE*	 Name 	Redistribution Protocol	Route Map	Scope	Asn		
	MR:MR-VRF	BGP	exp-ctx-proto-2555906	Inter protocol leak	65535		
Interfaces	MR:MR-VRF	COOP	exp-ctx-st-2555906	Inter protocol leak	1		
F Interface eth1/2	MR:MR-VRF	Direct	exp-ctx-st-2555906	Inter protocol leak	1		
F Interface io1	MR-MR-VRF	EIGRP	exp-ctx-proto-2555906	Inter protocol leak	1		
Routes		Otatia	and all at DEEEDOG	later protocol loci	1		
V 📰 External EPGs	MPCMR-VRP	5:300	exp-ctx-st-2000900	inter protocol leak	1		
MR-OSPF-EXT-EPG							
Route map for import and export route control							

LEAF202上的OSPF邻居条目

LEAF202# show i	p ospf neighbors vrf M	MR:MR-VRF			
OSPF Process I	D default VRF MR:MR-VF	RF			
Total number o	f neighbors: 1				
Neighbor ID	Pri State	Up Time	Address	Interface	
1.1.1.222	1 FULL/ -	2d04h	10.101.101.100	Eth1/2	

LEAF202上VRF MR:MR-VRF的OSPF邻居



LEAF202上VRF MR:MR-VRF的OSPF路由

两者 LEAF102 和 LEAF202,VRF的MP-BGP表显示外部BGP网络, 49.49.49.49.32,但它显示为外部的 LEAF102 和内部 LEAF202.OSPF外部网络, 101.101.101.101.32也出现在两个枝叶交换机上的BGP表中;打开 LEAF202 它显示为从OSPF和on LEAF102 显示为internal。



LEAF102上VRF MR:MR-VRF的MP-BGP表

LEAF202# show bgp vpnv4 unicast vrf MR:MR-VRF BGP routing table information for VRF overlay-1, address family VPNv4 Unicast BGP table version is 95, local router ID is 20.0.248.0 Status: s-suppressed, x-deleted, S-stale, d-dampened, h-history, *-valid, >-best Path type: i-internal, e-external, c-confed, l-local, a-aggregate, r-redist, I-injected Origin codes: i - IGP, e - EGP, ? - incomplete, | - multipath, & - backup Network Next Hop Metric LocPrf Weight Path Route Distinguisher: 202:2555906 (VRF MR:MR-VRF) *>i49.49.49.49/32 10.0.232.68 100 0 65010 65001 i *>r101.101.101.101/32 0.0.0.0 41 100 32768 ?

LEAF202上VRF MR:MR-VRF的MP-BGP表

BGP IPv4表包含等效信息。

LEAF102# show bgp ipv	4 unicast vrf MR:MR-	VRF				
BGP routing table info	ormation for VRF MR:	MR-VRF, addr	ress family	IPv4 Unica:	st	
BGP table version is	37, local router ID	is 50.50.50.	55			
Status: s-suppressed,	x-deleted, S-stale,	d-dampened,	h-history,	*-valid,	>-best	
Path type: i-internal	, e-external, c-conf	ed, l-local,	a-aggregat	e, r-redist	t, I-injected	
Origin codes: i - IGP	, e - EGP, ? - incom	plete, - m	nultipath, &	a - backup		
Network	Next Hop	Metric	LocPrf	Weight Path	า	
*>e49.49.49.49/32	50.50.50.50			0 650	10 65001 i	
*>i101.101.101.101/32	20.0.248.0	41	100	0 ?		

LEAF102上VRF MR:MR-VRF的BGP IPv4表

LEAF202# show bgp ipv4 BGP routing table info BGP table version is 3 Status: s-suppressed, Path type: i-internal, Origin codes: i - IGP	4 unicast vrf MR:MR prmation for VRF MR 31, local router ID x-deleted, S-stale , e-external, c-con , e - EGP, ? - inco	-VRF :MR-VRF, add is 1.1.1.11 , d-dampened fed, l-local mplete, -	ress family 1 , h-history, , a-aggregat multipath, 8	IPv4 Ur , *-vali ce, r-re & - back	nicast id, >-t edist, kup	best I-injected	
Network *>i49.49.49.49/32 *>r101.101.101.101/32	Next Hop 10.0.232.68 0.0.0.0	Metric 41	LocPrf 100 100	Weight 0 32768	Path 65010 ?	65001 i	

LEAF202上VRF MR:MR-VRF的BGP IPv4表

但是,OSPF外部网络、 101.101.101/32不在的路由表中 N5K1.

```
N5K1# show ip route vrf MR-BGP
IP Route Table for VRF "MR-BGP"
'*' denotes best ucast next-hop
'[x/y]' denotes [preference/metric]
'[x/y]' denotes [preference/metric]
'%<string>' in via output denotes VRF <string>
49.49.49.49.49,32, ubest/mbest: 2/0, attached
    *via 49.49.49, Lo50, [0/0], 1d07h, local
    *via 49.49.49, Lo50, [0/0], 1d07h, direct
50.50.50.0/24, ubest/mbest: 1/0, attached
    *via 50.50.50,50, Vlan499, [0/0], 1d07h, direct
50.50.50.50/32, ubest/mbest: 1/0, attached
    *via 50.50.50,50, Vlan499, [0/0], 1d07h, local
```

RIB,用于N5K1上的VRF MR-BGP

同样,BGP外部网络、 49.49.49/32,不在 N5K2 的肋骨。

NSK2# show ip route vrf MR-OSPF IP Route Table for VRF "MR-OSPF" '*' denotes best ucast next-hop	
(x/u) denotes best measured (not nic)	
[x/y] denotes [preference/metric]	
"% <string>" in via output denotes VRF <string></string></string>	
1.1.1.111/32, ubest/mbest: 1/0	
*via 10.101.101.101, Eth1/5, [110/41], 2d05h, ospf-1, intra	
10.101.101.0/24, ubest/mbest: 1/0, attached	
*via 10.101.101.100, Eth1/5, [0/0], 6d22h, direct	
10.101.101.100/32, ubest/mbest: 1/0, attached	
*via 10.101.101.100, Eth1/5, [0/0], 6d22h, local	
101.101.101/32, ubest/mbest: 2/0, attached	
*via 101.101.101, Lo101, [0/0], 2d04h, local	
*via 101.101.101, Lo101, [0/0], 2d04h, direct	

RIB,用于N5K2上的VRF MR-OSPF

在BGP L3Out中,导航至 External EPGs > External EPG > Subnets 并选择 + 图标的右上角。输入从OSPF L3Out接收的外部子网的IP地址。 101.101.101/32. 选择 Export Route Control Subnet 如果 Route Control 并清除 External Subnets for the External EPG 分类。点击 Submit.此 Export Route Control Subnet 选项允许将网络导出(通告

✓ ➡ External EPGs ➡ MR-BGP-E	XT-EPG	- Preferred Group Member: Subnets:	Exclude Include)				
Route map for Amage Annual A	import and export route control		 IP Address 	Scope	Name	Aggregate	Route Control Profile	Route Summarization Policy Create
> 🔥 MR-OSPF			49.49.49.49/32	External Subnets for th.				rowy
创建新子网								
Create Subnet								? ⊗
IP Address:	101.101.101.101/32							
Name:	address/mask							
Route Control:	Route Control Subnet Route Control Subnet Route Control Subnet	Ag D	i gregate Aggregate Export Aggregate Import Aggregate Shared Ri			Route Summariza BGP Route Summa	tion Policy arization Policy: select an opt	ion
Route Control Profile:								÷ 1
	Name				Direction			
Route control is	used for filtering externa	al routes advertised ou	It of the fabric, all	owed into the fabrie	c, or leaked to othe	er VRFs within the fa	bric.	
External EPG classificat	ion: al Subnets for External EPG I Security Import Subnet							
External EPG cl	assification is used to ide	ntify the external netw	vorks associated v	vith this external EF	PG for policy enforce	cement (Contracts).		
为新子网配置正确	的选项						Car	submit

开启 N5K1,OSPF外部网络, 101.101.101/32现在通过BGP接收。



RIB,用于N5K1上的VRF MR-BGP

在OSPF L3Out中,导航至 External EPGs > External EPG > Subnets 并选择 + 图标的右上角。输入从BGP L3Out接收的外部子网的IP地址。 49.49.49/32. 选择 Export Route Control Subnet 如果 Route Control 部分并清除 External Subnets for the External EPG 分类。点击 Submit.



创建新子网

Create Subnet					? ⊗
IP Address: Name:	49.49.49/32 address/mask				
Route Control: Export Import Share	Route Control Subnet Route Control Subnet d Route Control Subnet	Aggregate Aggregate Export Aggregate Import Aggregate Shared Routes		Route Summarization Policy select an option	V
Route Control Profile:					î +
	Name		Direction		
Route control is	s used for filtering external rou	tes advertised out of the fabric, allowed into the	fabric, or leaked to othe	r VRFs within the fabric.	
External EPG classifica	tion: al Subnets for External EPG d Security Import Subnet				
External EPG c	lassification is used to identify	the external networks associated with this extern	nal EPG for policy enforc	ement (Contracts).	



为新子网配置正确的选项

现在开始 N5K2,BGP外部网络, 49.49.49/32通过OSPF接收。

N5K2# show ip route vrf MR-OSPF
IP Route Table for VRF "MR-OSPF"
'*' denotes best ucast next-hop
'**' denotes best mcast next-hop
'[x/y]' denotes [preference/metric]
'% <string>' in via output denotes VRF <string></string></string>
1.1.1.111/32, ubest/mbest: 1/0
*via 10.101.101.101, Eth1/5, [110/41], 2d05h, ospf-1, intra
10.101.101.0/24, ubest/mbest: 1/0, attached
*via 10.101.101.100, Eth1/5, [0/0], 6d22h, direct
10.101.100/32, ubest/mbest: 1/0, attached
*via 10.101.101.100, Eth1/5, [0/0], 6d22h, local
49.49.49/32, ubest/mbest: 1/0
*via 10.101.101.101, Eth1/5, [110/1], 00:01:59, ospf-1, type-2, tag 4294967295,
101.101.101/32, ubest/mbest: 2/0, attached
*via 101.101.101.101, Lo101, [0/0], 2d05h, local
*via 101.101.101.101, Lo101, [0/0], 2d05h, direct

RIB,用于N5K2上的VRF MR-OSPF

Ping在两个网络之间运行,因为 MR-PERMIT-ICMP 之前应用于两个外部EPG的合同。

```
N5K1# ping 101.101.101 vrf MR-BGP source 49.49.49.49

PING 101.101.101.101 (101.101.101) from 49.49.49.49: 56 data bytes

64 bytes from 101.101.101.101: icmp_seq=0 ttl=252 time=3.059 ms

64 bytes from 101.101.101.101: icmp_seq=1 ttl=252 time=2.963 ms

64 bytes from 101.101.101.101: icmp_seq=2 ttl=252 time=7.928 ms

64 bytes from 101.101.101.101: icmp_seq=3 ttl=252 time=2.954 ms

64 bytes from 101.101.101.101: icmp_seq=4 ttl=252 time=2.982 ms

--- 101.101.101.101 ping statistics ---

5 packets transmitted, 5 packets received, 0.00% packet loss

round-trip min/avg/max = 2.954/3.977/7.928 ms
```

N5K1上的通信验证

N5K2# ping 49.49.49.49 vrf MR-OSPF source 101.101.101.101 PING 49.49.49.49 (49.49.49) from 101.101.101.101: 56 data bytes 64 bytes from 49.49.49.49: icmp_seq=0 ttl=252 time=3.107 ms 64 bytes from 49.49.49.49: icmp_seq=1 ttl=252 time=2.99 ms 64 bytes from 49.49.49.49: icmp_seq=2 ttl=252 time=2.98 ms 64 bytes from 49.49.49.49: icmp_seq=3 ttl=252 time=2.986 ms 64 bytes from 49.49.49.49: icmp_seq=4 ttl=252 time=2.986 ms 64 bytes from 49.49.49.49: icmp_seq=4 ttl=252 time=2.99 ms --- 49.49.49.49 ping statistics ---5 packets transmitted, 5 packets received, 0.00% packet loss round-trip min/avg/max = 2.98/3.01/3.107 ms

N5K2上的通信验证

相关信息

- <u>思科APIC第3层网络配置指南,版本6.0(x)</u>
- <u>思科以应用为中心的基础设施基础知识,版本4.2(x)</u>
- <u>思科APIC第3层网络配置指南,版本3.x及更低版本</u>
- <u>思科技术支持和下载</u>

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