

地址ACI故障代码F0467: invalid-vlan , invalid-path , encap-already-in-use

目录

[简介](#)

[背景信息](#)

[Intersight Connected ACI交换矩阵](#)

[ACI故障F0467场景](#)

[无效的VLAN配置 : invalid-vlan](#)

[场景](#)

[潜在原因 : 关联的VLAN池不包含所需的VLAN](#)

[潜在原因 : 具有未与域关联的所需VLAN的VLAN池](#)

[路径配置无效 : 路径无效](#)

[场景](#)

[快速入门隔离](#)

[潜在原因 : 缺少域与AAEP的关联](#)

[潜在原因 : 缺少AAEP到IPG的关联](#)

[潜在原因 : 缺少IPG与接口选择器的关联](#)

[潜在原因 : 缺少接口选择器与接口配置文件关联](#)

[潜在原因 : 缺少接口配置文件与交换机配置文件关联](#)

[Encap Already Used in Another EPG \(已在另一个EPG中使用 \) : encap-already-in-use](#)

[场景](#)

[快速入门隔离](#)

[补救选项](#)

[其他详细信息](#)

[成功配置参考](#)

[EPG与静态路径关联](#)

[EPG与AAEP关联](#)

[EPG到域的关联](#)

[域与AAEP和vlan池的关联](#)

[要封装块和域关联的VLAN池](#)

[AAEP到域的关联](#)

[IPG与AAEP关联](#)

[枝叶配置文件与接口选择器关联](#)

[接口选择器与接口策略组关联](#)

[Vlan部署验证](#)

[场景](#)

[通过APIC检查ACI交换矩阵VLAN部署](#)

[通过交换机CLI检查VLAN部署](#)

[通过交换机CLI检查平台无关的VLAN部署](#)

[检查SVI VLAN部署](#)

[参考图](#)

[静态路径绑定的高级编程序列](#)
[访问策略关系框图](#)
[映射到访问策略的独立NXOS命令](#)
[VLAN验证命令工作表](#)
[相关信息](#)

简介

本文档介绍补救ACI故障F3274的后续步骤；invalid-vlan、invalid-path或encap-already-in-use。

背景信息

ACI故障F0467会在不同的场景中标记，但将为每个场景显示不同的“原因”。

ACI故障F0467最常见的“原因”值包括：

- invalid-vlan
- 无效路径
- encap-already-in-use

ACI故障F3274的所有原因都可能影响交换机节点接口上的vlan部署。

Intersight Connected ACI交换矩阵

主动式ACI服务会主动[监控此故障](#)。

如果您有与Intersight连接的ACI交换矩阵，则会代表您生成服务请求，以指明在Intersight连接的ACI交换矩阵中找到了此故障的实例。

ACI故障F0467场景

无效的VLAN配置：invalid-vlan

场景

- 使用封装VLAN 421配置的新EPG
- 分配给EPG的物理域
- EPG上VLAN 421的静态端口绑定
- 故障F0467 — 使用指向EPG的指针针对交换机节点进行标记
- 故障调试消息包含：invalid-vlan:vlan-x :EpG未与域关联，或者域未分配此vlan

EPG - lc_EPG

Fault Properties

General Troubleshooting History

Fault Code: F0467
 Severity: minor
 Last Transition: 2023-06-04T14:35:08.407+00:00
 Lifecycle: Raised
 Affected Object: [topology/pod-1/node-103/local/svc-policyelem-id-0/uni/epp/fv-\[uni/tn-lc_TN/ap-lc_APP/epg-lc_EPG\]/node-103/stpathatt-\[eth1/13\]/nwissues](#)
 Description: Fault delegate: Configuration failed for uni/tn-lc_TN/ap-lc_APP/epg-lc_EPG node 103 eth1/13 due to Invalid VLAN Configuration, debug message: invalid-vlan: vlan-421 :Either the EpG is not associated with a domain or the domain does not have this vlan assigned to it;
 Type: Config
 Cause: configuration-failed
 Change Set: configQual:invalid-vlan, configSt:failed-to-apply, debugMessage:invalid-vlan: vlan-421 :Either the EpG is not associated with a domain or the domain does not have this vlan assigned to it;, temporaryError:no
 Created: 2023-06-04T14:33:00.796+00:00
 Code: F0467
 Number of Occurrences: 1
 Original Severity: minor
 Previous Severity: minor
 Highest Severity: minor

故障说明明确表明“EpG未与域关联，或者域未分配此vlan”。

<#root>

```
APIC# moquery -c faultInst -f 'fault.Inst.code=="F0467"' | grep lc_EPG
descr : Configuration failed for uni/tn-lc_TN/ap-lc_APP/epg-lc_EPG
```

```
node 103 eth1/13
```

```
due to Invalid VLAN Configuration, debug message:
```

```
invalid-vlan:
```

```
vlan-421
```

```
:
```

```
Either the EpG is not associated with a domain or the domain does not have this vlan assigned to it
```

```
;
```

```
dn : topology/pod-1/node-103/local/svc-policyelem-id-0/uni/epp/fv-[uni/tn-lc_TN/ap-lc_APP/epg-lc_EPG]/n
```

潜在原因：关联的VLAN池不包含所需的VLAN

枝叶节点上未部署访问封装VLAN 421。

<#root>

Node-103#

```
show vlan encap-id
```

421

```
extended
```

```
<<< Empty >>>
```

未创建EPG关联的静态路径。

```
<#root>
```

```
APIC#
```

```
moquery -c l2RtDomIfConn | grep lc_EPG | grep dn
```

```
<<< Empty >>>
```

域lc_phys_dom将其与lc_EPG EPG关联。

```
<#root>
```

```
APIC#
```

```
moquery -c fvRsDomAtt | grep -A 25 lc_EPG | grep rn
```

```
rn : rsdmAtt-[uni/
```

```
phys-lc_phys_dom
```

```
]
```

存在域到VLAN池的关联。

```
<#root>
```

```
APIC# moquery -c infraRsVlanNs | grep -A 15
```

```
lc_phys_dom
```

```
| grep tDn
```

```
tDn : uni/infra/vlanns-[
```

```
lc_vlan_pool
```

```
]-static
```

Vlan池lc_vlan_pool的范围仅包括VLAN 420。

```
<#root>
```

```
APIC# moquery -c fvnsEncapBlk | grep
```

```
lc_vlan_pool
```

```
dn : uni/infra/vlanns-[lc_vlan_pool]-static/from-[
```

```
vlan-420
```

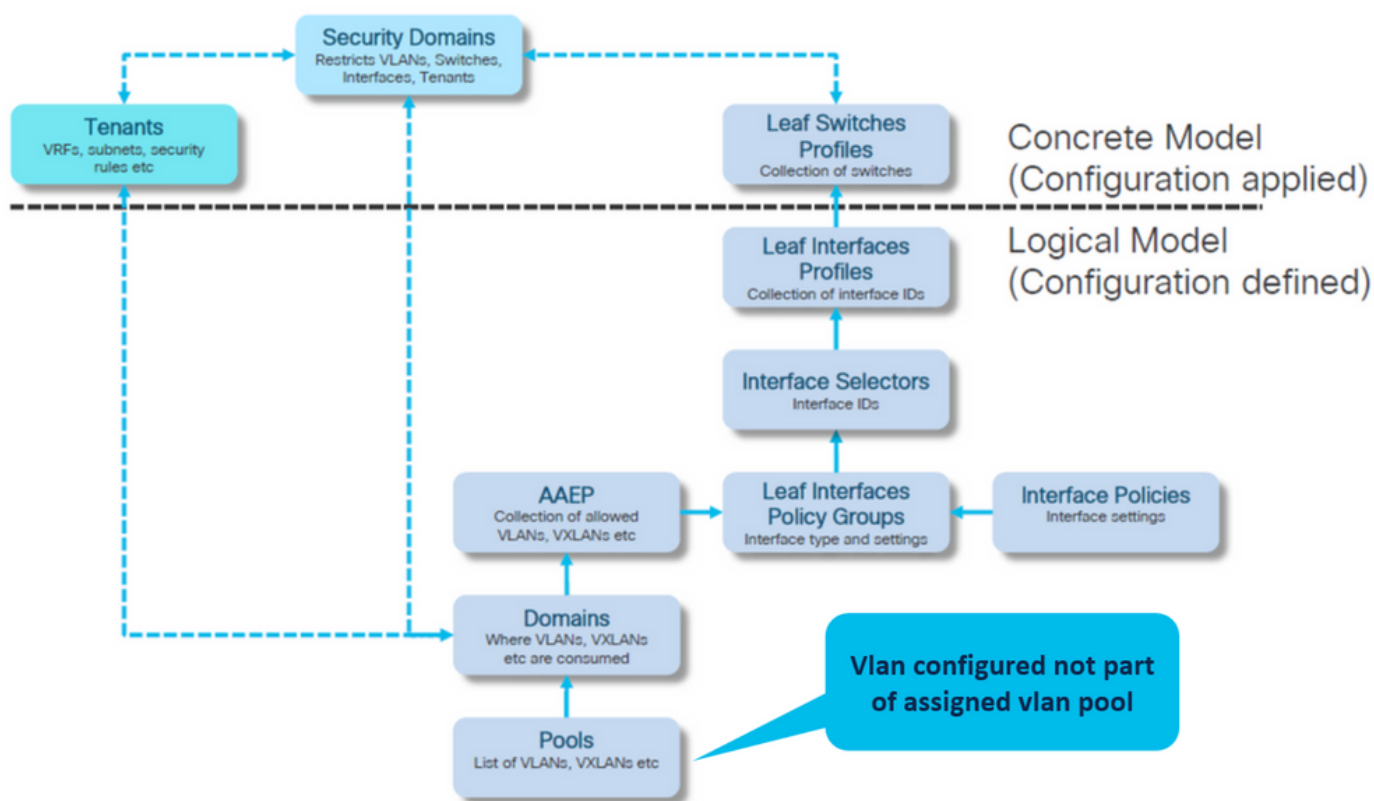
```
]-to-[
```

```
vlan-420
```

```
]
```

vlan 421不在上述池中，因此出现错误“invalid-vlan: vlan-421 : Epg未与域关联或域未分配此vlan”

在前面引用的方框图中，此特定VLAN池引用突出显示



将缺少的vlan 421添加到特定vlan范围

Vlan池与封装和域关联(Fabric > Access Policies > Pool > VLAN > lc_vlan_pool)

Properties

Name: lc_vlan_pool

Description: optional

Alias:

Allocation Mode: Static Allocation

Encap Blocks:

VLAN Range	Description	Allocation Mode	Role
[420]		Static Allocation	External or On the wire encapsulations
[421]		Static Allocation	External or On the wire encapsulations

Domains:

Name	Type
lc_phys_dom	Physical Domain

添加VLAN 421后的VLAN池范围验证

```
<#root>
```

```
APIC#
```

```
moquery -c fvnsEncapBlk | grep lc_vlan_pool
```

```
dn : uni/infra/vlanns-[lc_vlan_pool]-static/from-[
```

```
vlan-420
```

```
]-to-[
```

```
vlan-420
```

```
]
```

```
dn : uni/infra/vlanns-[lc_vlan_pool]-static/from-[
```

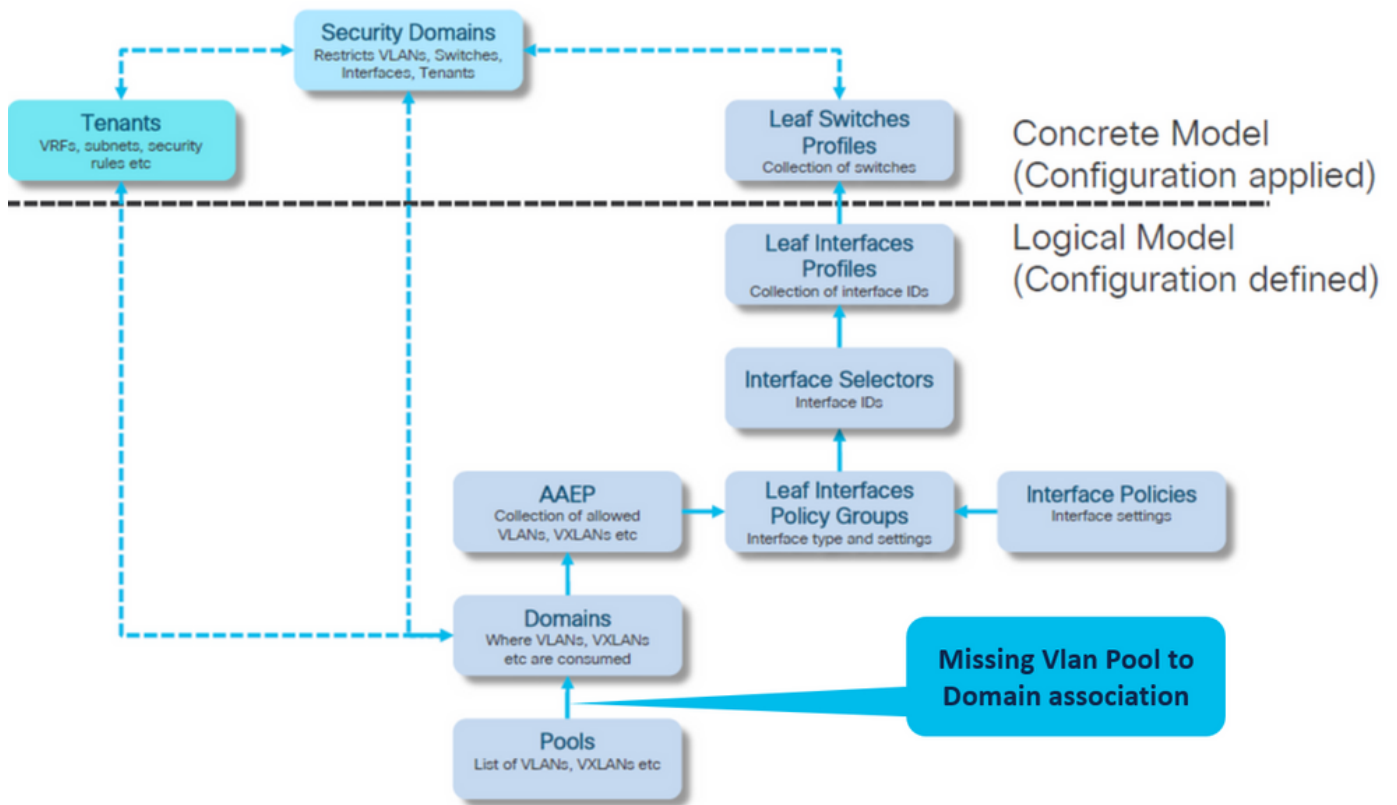
```
vlan-421
```

```
]-to-[
```

```
vlan-421
```

```
]
```

潜在原因：具有未与域关联的所需VLAN的VLAN池



Fabric > Access Policies > Physical and External Domains > Physical Domains > lc_phys_dom



[+]域与Vlan池的关联

<#root>

```
APIC# moquery -c infraRsVlanNs | grep -A 15
```

```
lc_phys_dom
```

```
| grep tDn
```

```
<< EMPTY >>
```

修复：包括丢失的VLAN关联



路径配置无效：路径无效

场景

- 已配置EPG
- 分配给EPG的域
- 在EPG上为VLAN 420创建静态端口绑定，节点103 eth 1/13
- 故障F0467 — 使用指向EPG的指针针对交换机节点进行标记
- 故障调试消息包含：invalid-path:EpG/L3Out未与域关联，或者域未向其分配此接口

当在没有相应的访问策略允许正确应用该配置的情况下进行交换机/端口/VLAN声明时，会引发此故障。

根据对此故障的描述，访问策略关系的另一个元素可能丢失。

EPG - lc_EPG到租户的故障关联 > lc_TN > lc_AP > lc_EPG >故障 >故障

EPG - lc_EPG

Fault Properties

General Troubleshooting History

Fault Code: F0467
 Severity: minor
 Last Transition: 2023-06-04T21:39:12.971+00:00
 Lifecycle: Raised
 Affected Object: [topology/pod-1/node-103/local/svc-policyelem-id-0/uni/epp/fv-\[uni/tn-lc_TN/ap-lc_APP/epg-lc_EPG\]/node-103/stpathatt-\[eth1/13\]/nwissues](#)
 Description: Fault delegate: Configuration failed for uni/tn-lc_TN/ap-lc_APP/epg-lc_EPG node 103 eth1/13 due to Invalid Path Configuration, debug message: invalid-path: Either the EpG/L3Out is not associated with a domain or the domain does not have this interface assigned to it;
 Type: Config
 Cause: configuration-failed
 Change Set: configQual:invalid-path, configSt:failed-to-apply, debugMessage:invalid-path: Either the EpG/L3Out is not associated with a domain or the domain does not have this interface assigned to it;, temporaryError:no
 Created: 2023-06-04T21:36:56.851+00:00
 Code: F0467
 Number of Occurrences: 1
 Original Severity: minor
 Previous Severity: minor
 Highest Severity: minor

受影响的EPG、交换机节点ID和端口号在故障描述和DN中：

<#root>

```
APIC# moquery -c faultInst -f 'fault.Inst.code=="F0467"' | grep
```

```
lc_EPG
```

```
descr          : Configuration failed for
```

```
uni/tn-lc_TN/ap-lc_APP/epg-lc_EPG
```

```
node 103 eth1/13
```

```
due to Invalid Path Configuration, debug message:
```

```
invalid-path:
```

```
Either the EpG/L3Out is not associated with a domain or the domain does not have this interface assigned to it;  
dn          : topology/pod-1/node-103/local/svc-policyelem-id-0/uni/epp/fv-[
```

```
uni/tn-lc_TN/ap-lc_APP/epg-lc_EPG
```

```
]/
```

```
node-
```

```
103
```

```
/stpathatt-[
```

```
eth1/
```

```
13
```

]/nwissues/fault-F0467

快速入门隔离

确认是否已部署vlan。如果不是，可以运行这些命令来隔离配置错误。

在下面的cmds中，lc_EPG是用于输出过滤的EPG名称。

枝叶节点上未部署Encap-vlan

```
Node-103# show vlan encap-id 420 extended
<<< Empty >>>
```

[1] EPG关联策略的静态路径为空。

```
<#root>
```

```
APIC#
```

```
moquery -c l2RtDomIfConn | grep lc_EPG | grep dn
```

```
<<< Empty >>>
```

[2]域与EPG的关联

```
<#root>
```

```
APIC#
```

```
moquery -c fvRsDomAtt | grep -A 25 lc_EPG | grep rn
```

```
rn : rsdomAtt-[uni/
```

```
phys-lc_phys_dom
```

```
]
```

[3]域与Vlan池的关联

```
<#root>
```

```
APIC#
```

```
moquery -c infraRsVlanNs | grep -A 15 lc_phys_dom | grep tDn
```

```
tDn : uni/infra/vlanns-[  
lc_vlan_pool  
]-static
```

[4] Vlan池范围验证

```
<#root>  
APIC#  
moquery -c fvnsEncapBlk | grep lc_vlan_pool  
  
dn : uni/infra/vlanns-[lc_vlan_pool]-static/from-[  
vlan-420  
]-to-[  
vlan-420  
]
```

[5]域与AAEP的关联

```
<#root>  
APIC#  
moquery -c infraRtDomP | grep lc_phys_dom  
  
dn : uni/phys-lc_phys_dom/rtdomP-[uni/infra/attentp-  
lc_AAEP  
]
```

[6] AAEP到接口策略组关联(IPG)

```
<#root>  
rtp-aci08-apic1#  
moquery -c infraRtAttEntP | grep lc_AAEP  
  
dn : uni/infra/attentp-lc_AAEP/rtattEntP-[uni/infra/funcprof/accportgrp-  
lc_IPG  
]
```

[7] IPG与接口选择器关联

<#root>

APIC#

```
moquery -c infraRsAccBaseGrp | grep -B 15 lc_IPG | grep dn
```

dn : uni/infra/accportprof-leaf103_IP/hports-

lc_Interface_Selector

-typ-range/rsaccBaseGrp

[8]接口配置文件与交换机配置文件关联

<#root>

APIC#

```
moquery -c infraRsAccPortP | grep leaf103_IP | grep dn
```

dn : uni/infra/nprof-

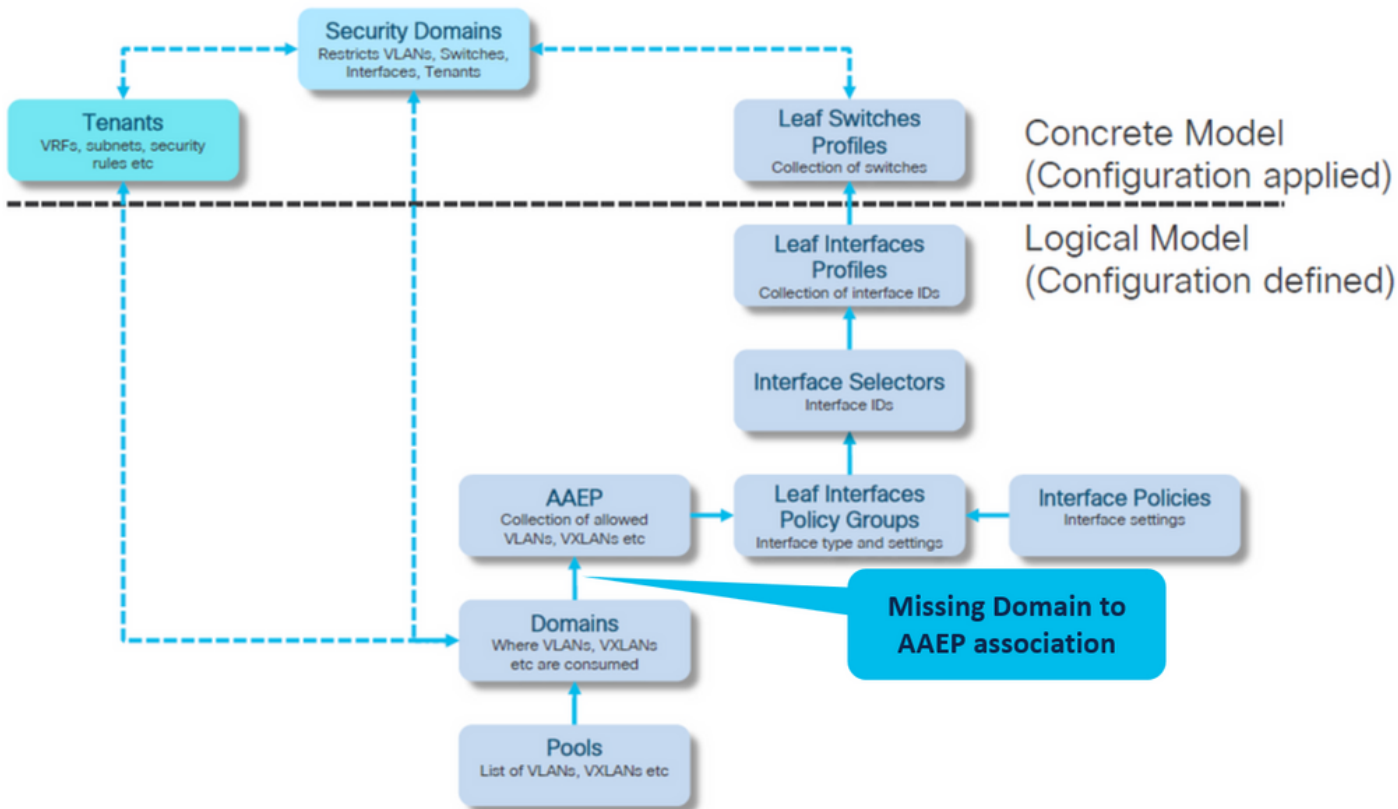
leaf103_SP

/rsaccPortP-[uni/infra/accportprof-leaf103_IP]

如果给定静态路径配置，缺少任何关联的所需访问策略，则会出现无效路径原因。浏览潜在原因，逐跳验证访问策略。

1. 缺少域与AAEP的关联
2. 缺少AAEP到IPG的关联
3. 缺少IPG与接口选择器的关联
4. 缺少接口选择器与接口配置文件关联
5. 缺少接口配置文件与交换机配置文件关联

潜在原因：缺少域与AAEP的关联



交换矩阵>访问策略>策略>全局> AAEP > lc_AAEP

Attachable Access Entity Profile - lc_AAEP



[+] EPG关联策略的静态路径为空

<#root>

```
APIC# moquery -c l2RtDomIfConn | grep lc_EPG | grep dn
<< EMPTY >>
```

[+]域与AAEP关联

<#root>

```
APIC# moquery -c infraRtDomP | grep
```

lc_phys_dom

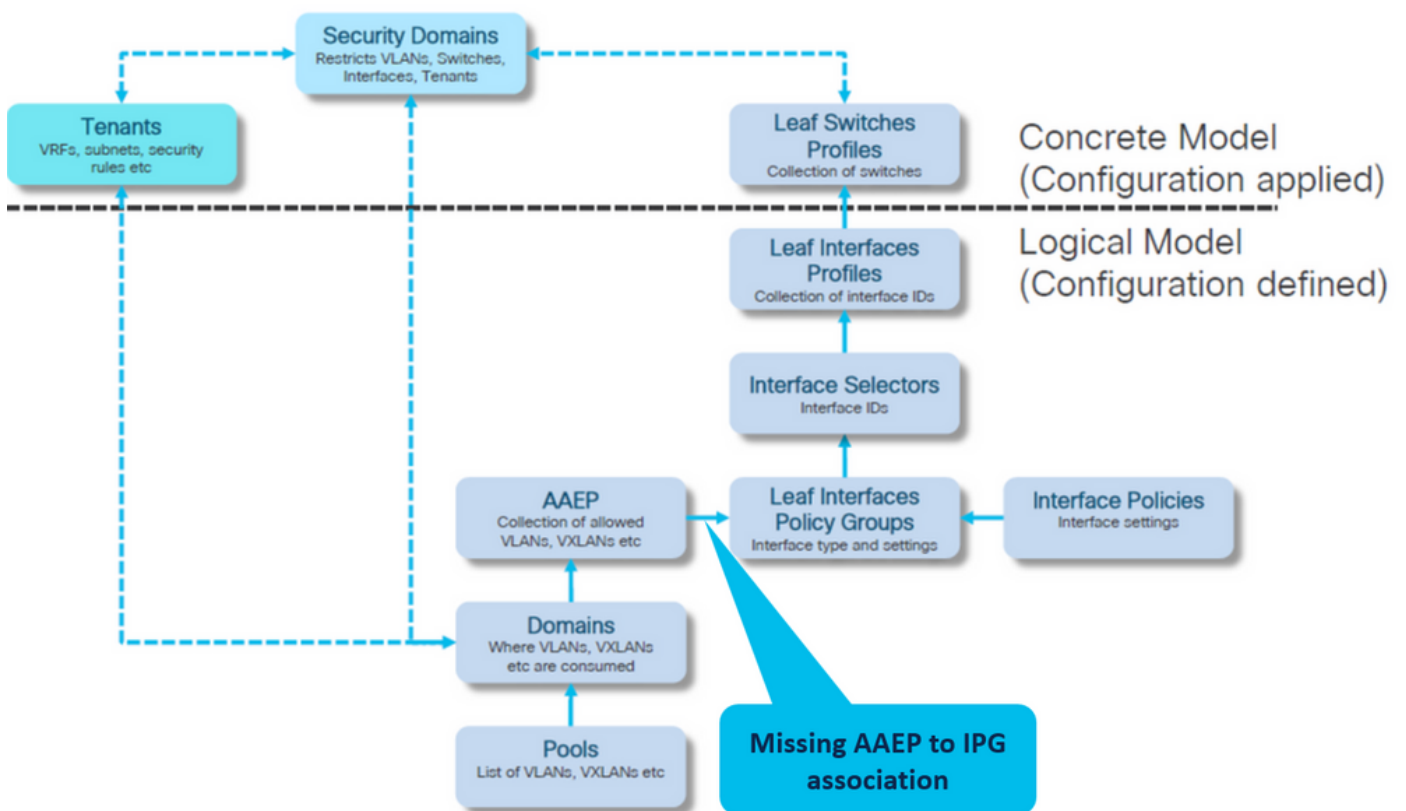
<< EMPTY >>

修复：包括缺少的域关联

Fabric > Access Policies > Physical and External Domains > Physical Domains > lc_phys_dom



潜在原因：缺少AAEP到IPG的关联



IPG与AAEP关联

Fabric > Access Policies > Interfaces > Leaf Interfaces > Policy Groups > Leaf Access Port > lc_IPG

Properties

Name: lc_IPG

Description: optional

Alias:

Attached Entity Profile: select an option

CDP Policy: select a value

Link Level Policy: select a value

LLDP Policy: select a value

[+] EPG关联策略的静态路径为空

<#root>

```
APIC# moquery -c l2RtDomIfConn | grep lc_EPG | grep dn
```

```
<< EMPTY >>
```

[+] IPG到AAEP的关联为空

<#root>

```
APIC# moquery -c infraRsAttEntP | grep -A 15
```

```
lc_IPG
```

```
| grep tDn
```

```
<< EMPTY >>
```

修复：缺少AAEP到IPG的关联

Fabric > Access Policies > Interfaces > Leaf Interfaces > Policy Groups > Leaf Access Port > lc_IPG

Properties

Name: lc_IPG

Description: optional

Alias:

Attached Entity Profile: lc_AAEP

CDP Policy: select a value

Link Level Policy: select a value

LLDP Policy: select a value

[+] IPG与AAEP关联

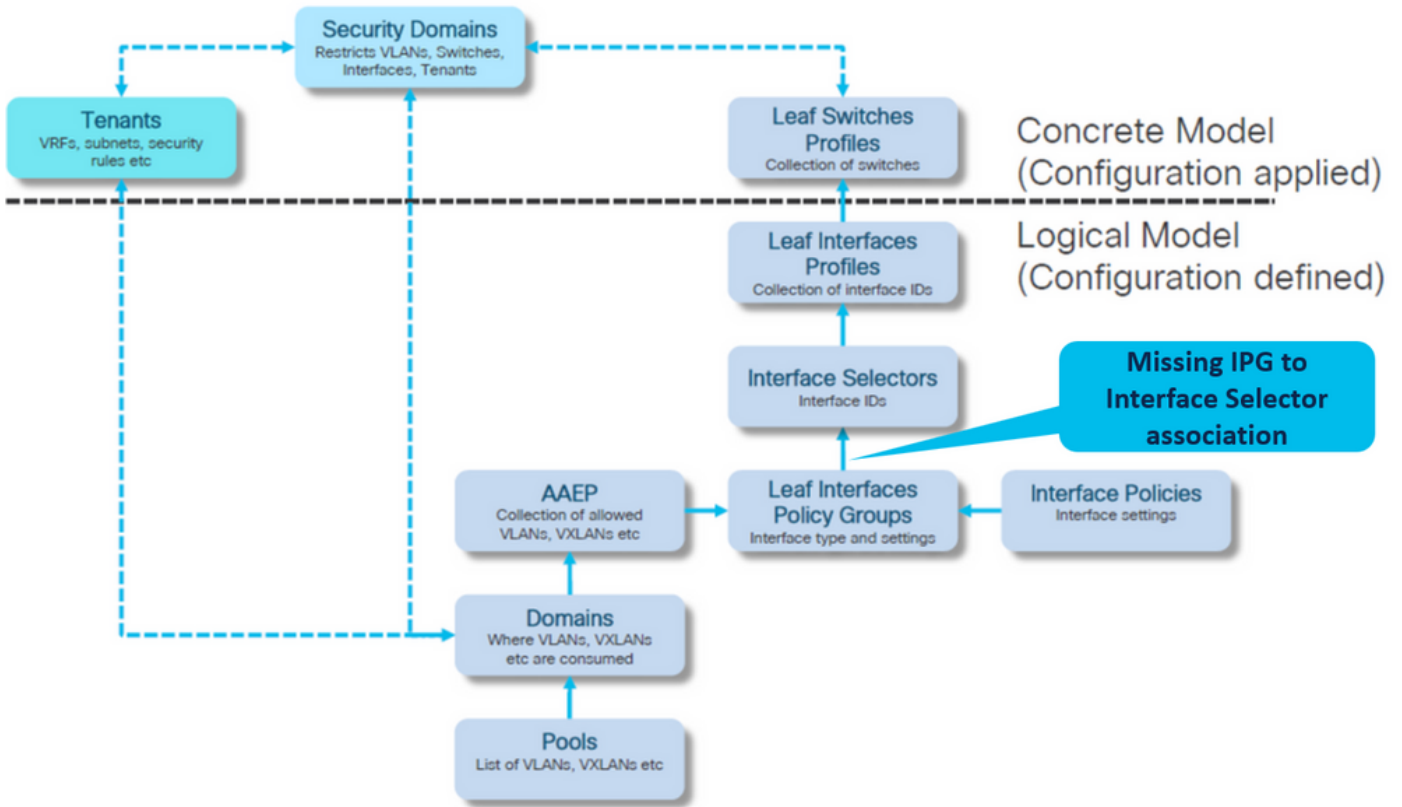
<#root>

```
APIC# moquery -c infraRsAttEntP | grep -A 15
```

```
lc_IPG
```

```
| grep tDn
tDn : uni/infra/attentp-
lc_AAEP
```

潜在原因：缺少IPG与接口选择器的关联



接口选择器与接口策略组关联

交换矩阵>访问策略>接口>枝叶接口>配置文件>枝叶103_IP > lc_Interface_Selector



[+] IPG与接口选择器关联

<#root>

```
APIC# moquery -c infraRsAccBaseGrp | grep -B 15
```

```
lc_IPG
```



```
| grep dn
```

```
<< EMPTY >>
```

修复：接口选择器与接口策略组关联



[+] IPG与接口选择器关联

```
<#root>
```

```
APIC# moquery -c infraRsAccBaseGrp | grep -B 15
```

```
lc_IPG
```

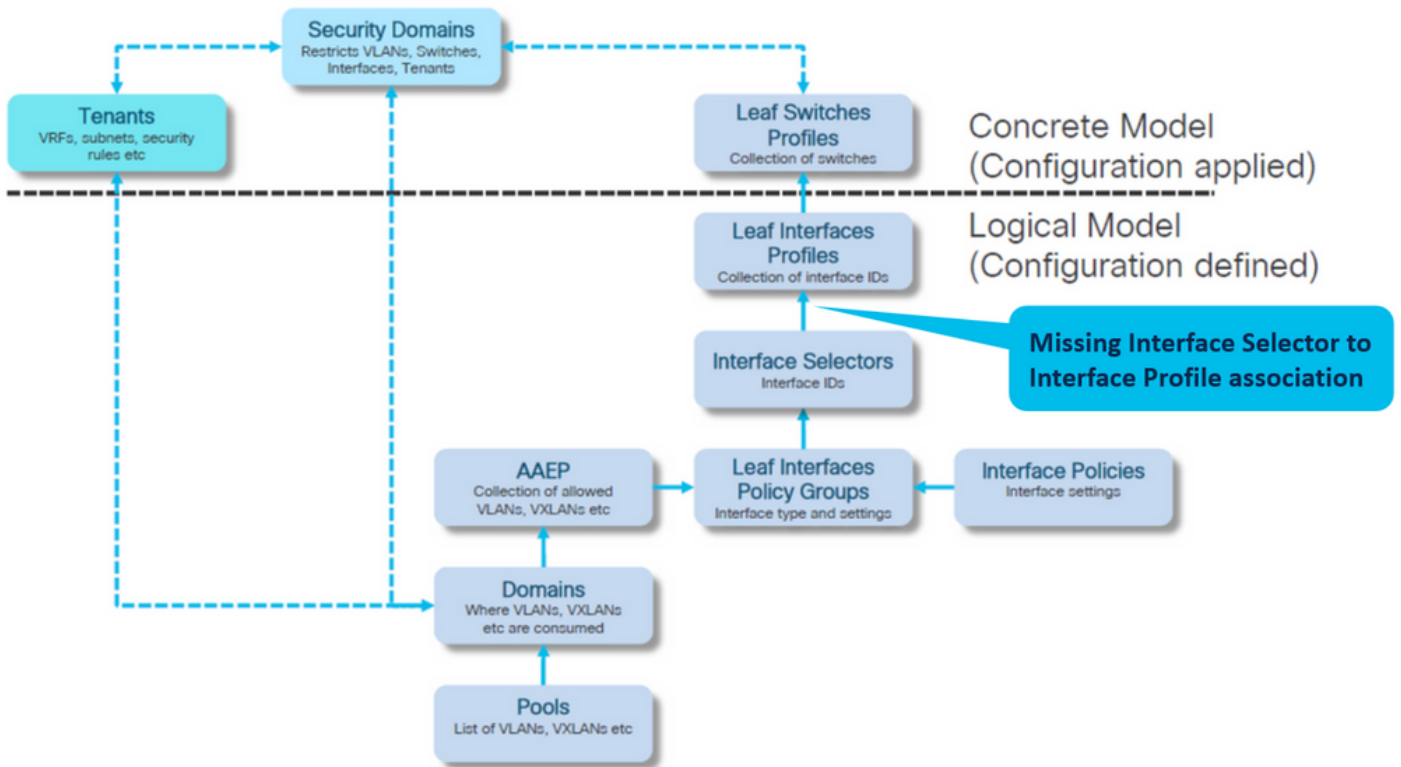
```
| grep dn
```

```
dn : uni/infra/accportprof-lead103_IP/hports-
```

```
lc_Interface_Selector
```

```
-typ-range/rsaccBaseGrp
```

潜在原因：缺少接口选择器与接口配置文件关联



接口配置文件与接口选择器关联

Fabric > Access Policies > Interfaces > Leaf Interfaces > Profiles > leaf103_IP



故障排除：

```
<#root>
```

```
APIC# moquery -c infraHPortS | grep leaf103_IP
```

```
<< EMPTY >>
```

将接口配置文件与接口选择器关联

Properties

Name: leaf103_IP
 Description: optional
 Alias:

Name	Blocks	Policy Group
lc_Interface_Selector	1/13	lc_IPG

<#root>

APIC# moquery -c infraHPorts | grep

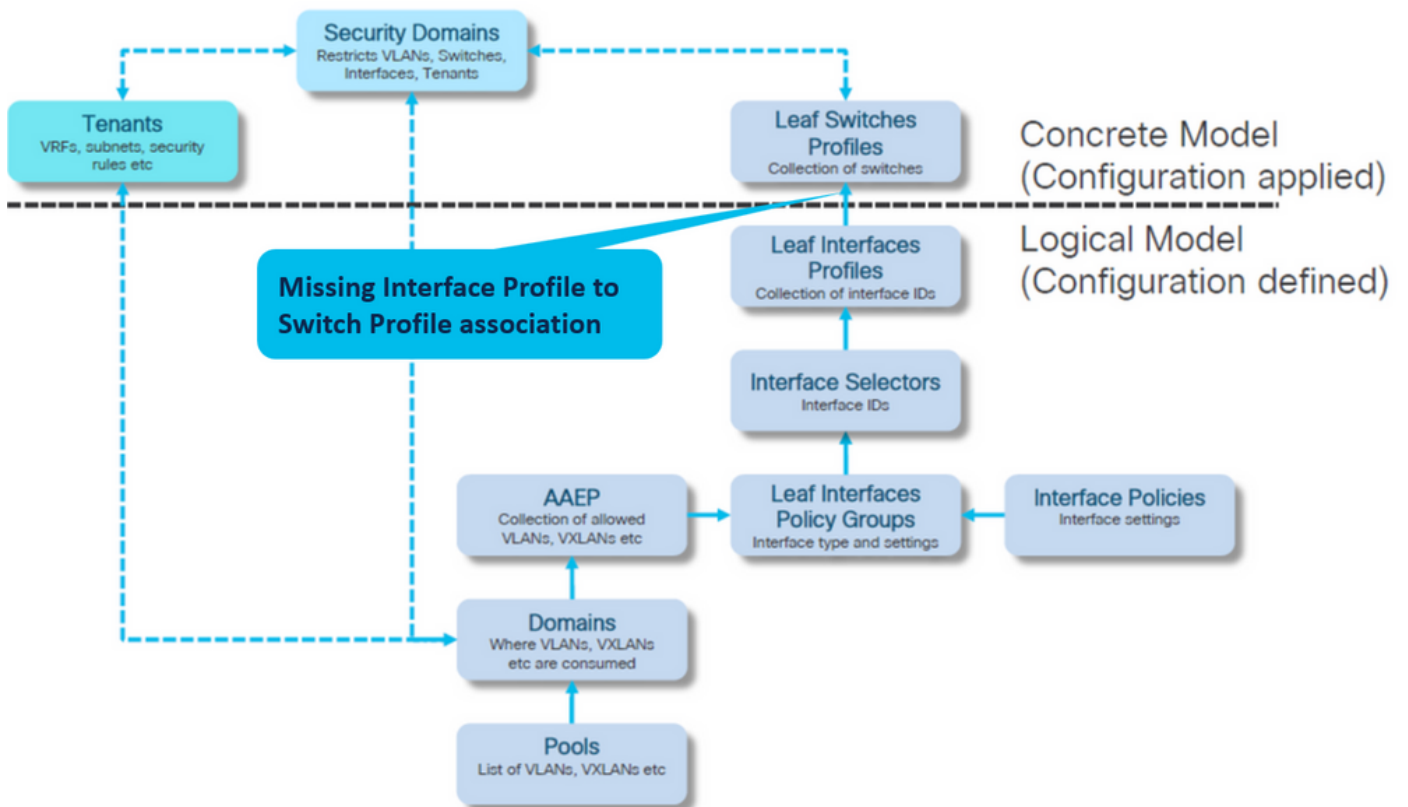
leaf103_IP

dn : uni/infra/accportprof-leaf103_IP/hports-

lc_Interface_Selector

-typ-range

潜在原因：缺少接口配置文件与交换机配置文件关联



接口配置文件与交换机配置文件关联

交换矩阵>访问策略>交换机>枝叶交换机>配置文件>枝叶103_SP

Policy Faults History

Properties

Name: leaf103_SP
Description: optional

Leaf Selectors:

Name	Blocks	Policy Group
leaf103_SP	103	leaf103_SPG

Associated Interface Selector Profiles:

Name	Description	State
No items have been found. Select Actions to create a new item.		

<#root>

```
APIC# moquery -c infraRsAccPortP | grep leaf103_IP | grep dn
```

```
<< EMPTY >>
```

将枝叶配置文件修复到接口选择器配置文件关联

Policy Faults History

Properties

Name: leaf103_SP
Description: optional

Leaf Selectors:

Name	Blocks	Policy Group
leaf103_SP	103	leaf103_SPG

Associated Interface Selector Profiles:

Name	Description	State
leaf103_IP		formed

[+]接口配置文件与交换机配置文件关联

<#root>

```
APIC# moquery -c infraRsAccPortP | grep
```

```
leaf103_IP
```

```
| grep dn
dn : uni/infra/nprof-
```

```
leaf103_SP
```

```
/rsaccPortP-[uni/infra/accportprof-leaf103_IP]
```

Encap Already Used in Another EPG (已在另一个EPG中使用) : encap-already-in-use

场景

默认情况下，VLAN具有全局范围。给定的VLAN ID只能用于给定枝叶交换机上的单个EPG。

任何在给定枝叶交换机内的多个EPG上重复使用同一VLAN的尝试都会导致encap-already-in-use F467故障。

EPG到租户的故障关联 > lc_TN > lc_AP > lc_EPG >故障 >故障

EPG - lc_EPG

Fault Properties

General Troubleshooting History

Fault Code: F0467
Severity: minor
Last Transition: 2023-07-03T15:02:06.354+00:00
Lifecycle: Soaking
Affected Object: topology/pod-1/node-103/local/svc-policyelem-id-0/uni/epp/fv-[uni/tn-lc_TN/ap-lc_APP/epg-lc_EPG]/node-103/stpathatt-[eth1/13]/nwissues
Description: Fault delegate: Configuration failed for uni/tn-lc_TN/ap-lc_APP/epg-lc_EPG node 103 eth1/13 due to Encap Already Used in Another EPG, debug message: encap-already-in-use: Encap (vlan-420) is already in use by lc_TN_Dup:lc_APP:lc_EPG;
Type: Config
Cause: configuration-failed
Change Set: configQual:encap-already-in-use, configSt:failed-to-apply, debugMessage:encap-already-in-use: Encap (vlan-420) is already in use by lc_TN_Dup:lc_APP:lc_EPG;, temporaryError:no
Created: 2023-07-03T15:02:06.354+00:00
Code: F0467
Number of Occurrences: 1
Original Severity: minor
Previous Severity: minor
Highest Severity: minor

```
APIC# moquery -c faultInst -f 'fault.Inst.code=="F0467"' | grep lc_EPG
changeSet : configQual:encap-already-in-use, configSt:failed-to-apply, debugMessage:encap-already-in-use: Encap (vlan-420) is already in use by lc_TN_Dup:lc_APP:lc_EPG;
descr : Configuration failed for uni/tn-lc_TN/ap-lc_APP/epg-lc_EPG node 103 eth1/13 due to Encap Already Used in Another EPG, debug message: encap-already-in-use: Encap (vlan-420) is already in use by lc_TN_Dup:lc_APP:lc_EPG;
dn : topology/pod-1/node-103/local/svc-policyelem-id-0/uni/epp/fv-[uni/tn-lc_TN/ap-lc_APP/epg-lc_EPG]/node-103/stpathatt-[eth1/13]/nwissues
```

快速入门隔离

[+]您可以确认已在其他租户lc_TN_Dup上使用的封装

```
Node-103# show vlan extended | egrep "Encap|----|vlan-420"
VLAN Name          Encap          Ports
-----
```

补救选项

选项 1：

在枝叶或VPC对上使用不同的VLAN编号。

选项 2：

在没有尝试部署Vlan的不同枝叶或VPC对上使用相同的VLAN。

选项 3：

删除重复的EPG上的静态端口关联，这将允许新部署。

选项 4：

在v1.1版本之前的ACI版本中，给定VLAN封装只映射到枝叶交换机上的单个EPG。如果同一枝叶交换机上有第二个EPG具有相同的VLAN封装，则ACI会引发此故障。

从v1.1版本开始，您可以在Per Port VLAN配置中，在给定的枝叶交换机（或FEX）上部署多个EPG和相同的VLAN封装

每端口VLAN配置指南

https://www.cisco.com/c/en/us/td/docs/switches/datacenter/aci/apic/sw/2-x/L2_config/b_Cisco_APIC_Layer_2_Configuration_Guide/b_Cisco_APIC_Layer_2_Configuration_Guide_c

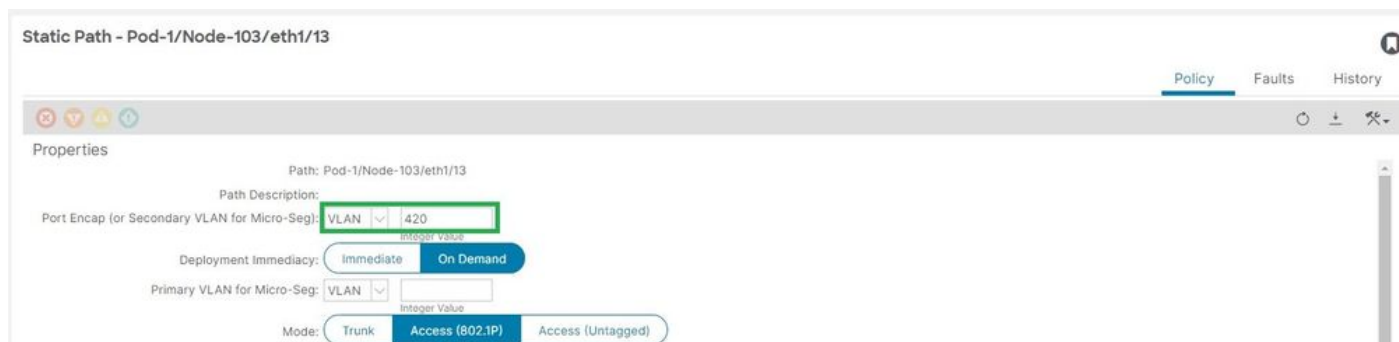
其他详细信息

成功配置参考

本部分可用作功能设置完整配置的参考指南。

EPG与静态路径关联

租户 > 1c_TN > 1c_AP > 1c_EPG > 静态端口



[+]静态端口到EPG关联策略

<#root>

```
APIC# moquery -c l2RtDomIfConn | grep lc_EPG | grep dn
dn : topology/pod-1/node-103/sys/ctx-[vlan-2195458]/bd-[vlan-16416666]/vlan-[
```

vlan-420

```
]rtfvDomIfConn-[uni/epg/fv-[uni/tn-lc_TN/ap-lc_APP/epg-
```

lc_EPG

```
]/
```

node-103

```
/stpathatt-[
```

eth1/13

```
]conndef/conn-[vlan-420]-[0.0.0.0]]
```

EPG与AAEP关联

交换矩阵>访问策略>策略>全局>AAEP > lc_AAEP

Attachable Access Entity Profile - lc_AAEP

Policy Operational Faults History

Properties

Name: lc_AAEP
Description: optional

Enable Infrastructure VLAN:

Domains (VMM, Physical or External) Associated to Interfaces:

name	State
lc_phys_dom (Physical)	formed

Application EPGs

Application EPGs	Encap	Primary Encap	Mode
lc_TN/lc_APP/lc_EPG	vlan-420	unknown	Access (802.1P)

Show Usage Reset Submit

<#root>

```
APIC# moquery -c fvIfConn -f 'fv.IfConn.encap=="
```

vlan-420

```
"" | grep dn
```

```
dn : uni/epg/fv-[uni/tn-lc_TN/ap-lc_APP/epg-lc_EPG]/node-103/attEntitypathatt-[lc_AAEP]/conndef/conn-[
```

vlan-420

]-[0.0.0.0]

EPG到域的关联

租户> lc_TN > lc_AP > lc_EPG >域

Domains (VMs and Bare-Metals)

Domain	Type	Deployment	Resolution	Allow Micro-Segmentation	Primary VLAN	Port Encap	Switching Mode	Encap Mode	Cos Value	Enhanced Lag Policy	Custom EPG Name
lc_phys_dom	Physical Domain						native	Auto	Cos0		

[+]域lc_phys_dom已将其关联到EPG。

<#root>

```
APIC# moquery -c fvRsDomAtt | grep -A 25
```

```
lc_EPG
```

```
| grep rn  
rn : rsdmAtt-[uni/
```

```
phys-lc_phys_dom
```

```
]
```

域与AAEP和vlan池的关联

Fabric > Access Policies > Physical and External Domains> Physical Domains > lc_phys_dom

Physical Domain - lc_phys_dom

Policy | Faults | History

Properties

Name: lc_phys_dom

Associated Attachable Entity Profiles: lc_AAEP

VLAN Pools: lc_vlan_pool(static)

Security Domains:

Select	Name	Description
--------	------	-------------

[+]域与AAEP关联

<#root>


```
APIC# moquery -c infraRtDomP | grep
```

```
lc_phys_dom
```

```
dn : uni/phys-lc_phys_dom/rtdomP-[uni/infra/attentp-
```

```
lc_AAEP
```

```
]
```

[+]域与Vlan池的关联

<#root>

```
APIC# moquery -c infraRsVlanNs | grep -A 15
```

```
lc_phys_dom
```

```
 | grep tDn  
tDn : uni/infra/vlanns-[
```

```
lc_vlan_pool
```

```
]-static
```

要封装块和域关联的VLAN池

Fabric > Access Policies > Pool > VLAN > lc_vlan_pool

VLAN Pool - lc_vlan_pool (Static Allocation)

Policy Operational Faults History

Properties

Name: lc_vlan_pool
Description: optional
Alias:

Allocation Mode: Static Allocation

Encap Blocks:	VLAN Range	Description	Allocation Mode	Role
	[420]		Static Allocation	External or On the wire encapsulations

Domains:

Name	Type
lc_phys_dom	Physical Domain

[+] Vlan池范围验证

<#root>

```
APIC# moquery -c fvnsEncapBlk | grep
```

```
lc_vlan_pool
```

```
dn : uni/infra/vlanns-[lc_vlan_pool]-static/from-[  
vlan-420  
]-to-[  
vlan-420  
]
```

[+]已使用lc_vlan_pool的域

<#root>

```
APIC# moquery -c fvnsRtVlanNs | grep
```

```
lc_vlan_pool
```

```
dn : uni/infra/vlanns-[lc_pool]-dynamic/rtinfraVlanNs-[uni/  
phys-lc_phys_dom  
]
```

AAEP到域的关联

交换矩阵>访问策略>策略>全局> AAEP > lc_AAEP



<#root>

```
APIC# moquery -c infraRsDomP | grep
```

```
lc_AAEP
```

```
dn : uni/infra/attentp-lc_AAEP/rsdomP-[uni/phys-  
lc_phys_dom  
]
```

IPG与AAEP关联

Fabric > Access Policies > Interfaces > Leaf Interfaces > Policy Groups > Leaf Access Port > lc_IPG

Leaf Access Port Policy Group - lc_IPG

Properties

Name: lc_IPG
Description: optional

Alias:

Attached Entity Profile: lc_AAEP

CDP Policy: select a value

Link Level Policy: select a value

LLDP Policy: select a value

[+] IPG与AAEP关联

<#root>

```
APIC# moquery -c infraRsAttEntP | grep -A 15
```

```
lc_IPG
```

```
| grep tDn  
tDn : uni/infra/attentp-
```

```
lc_AAEP
```

枝叶配置文件与接口选择器关联

Fabric > Access Policies > Interfaces > Leaf Interfaces > Profiles > leaf103_IP

Leaf Interface Profile - leaf103_IP

Properties

Name: leaf103_IP
Description: optional

Alias:

Interface Selectors:

Name	Blocks	Policy Group
lc_Interface_Selector	1/13	lc_IPG

<#root>

```
APIC# moquery -c infraHPortS | grep
```

```
leaf103_IP
```

```
dn : uni/infra/accportprof-leaf103_IP/hports-
```

```
lc_Interface_Selector
```

-typ-range

接口选择器与接口策略组关联

交换矩阵>访问策略>接口>枝叶接口>配置文件>枝叶103_IP > Ic_Interface_Selector



[+] IPG与接口选择器关联

<#root>

```
APIC# moquery -c infraRsAccBaseGrp | grep -B 15
```

```
lc_IPG
```

```
| grep dn  
dn : uni/infra/accportprof-
```

```
lead103_IP
```

```
/hports-
```

```
lc_Interface_Selector
```

```
-typ-range/rsaccBaseGrp
```

枝叶接口配置文件与接口选择器和枝叶交换机配置文件关联

交换矩阵>访问策略>交换机>枝叶交换机>配置文件>枝叶103_SP

Properties

Name: leaf103_SP
Description: optional

Leaf Selectors:

Name	Blocks	Policy Group
leaf103_SP	103	leaf103_SPG

Associated Interface Selector Profiles:

Name	Description	State
leaf103_IP		formed

[+]枝叶接口配置文件与交换机配置文件关联

```
<#root>
```

```
APIC# moquery -c infraRsAccPortP | grep
```

```
leaf103_IP
```

```
| grep dn  
dn : uni/infra/nprof-
```

```
leaf103_SP
```

```
/rsaccPortP-[uni/infra/accportprof-
```

```
leaf103_IP
```

```
]
```

[+]交换机配置文件与交换机端口组关联

```
<#root>
```

```
APIC# moquery -c infraRsAccNodePGrp | grep -A 8
```

```
leaf103_SP
```

```
| grep tDn  
tDn : uni/infra/funcprof/accnodepgrp-
```

```
leaf103_SPG
```

Vlan部署验证

场景

- 接入封装VLAN 420部署在节点103 - E1/13上

- 部署所有相关访问策略和EPG配置

通过APIC检查ACI交换矩阵VLAN部署

可以根据相关的VLAN封装过滤对fvIfConn类的查询，以显示已部署VLAN的每个EPG/交换机/接口组合。

```
<#root>
```

```
APIC#
```

```
moquery -c fvIfConn -f
```

```
'fv.IfConn.encap=="vlan-420"' | grep dn
```

```
dn                : uni/epp/fv-[uni/tn-1c_TN/ap-1c_APP/epg-1c_EPG]/
```

```
node-
```

```
103
```

```
/stpathatt-[
```

```
eth1/
```

```
13
```

```
]/conndef/conn-[
```

```
vlan-
```

```
420
```

```
]-[0.0.0.0]
```

通过交换机CLI检查VLAN部署

可以在任何交换机上运行“show vlan extended”，以检查交换机上当前部署了哪些VLAN，以及VLAN所绑定的EPG和接口。

“encap-id xx”过滤器在ACI版本4.2及更高版本上可用。

```
<#root>
```

```
Node-103#
```

```
show vlan encap-id
```

```
420
```

```
extended
```

VLAN Name	Encap	Ports
2	vlan-420	Eth1/13

通过交换机CLI检查平台无关的VLAN部署

ACI交换机节点中的每个VLAN都映射到某个独立于平台(PI)的VLAN，该VLAN是每个交换机节点的本地值。

接入封装映射到称为“FD VLAN”的PI VLAN，而网桥域映射到称为“BD VLAN”的PI Vlan。

可以在交换机上运行“show system internal epm vlan all”以显示枝叶上部署的vlan列表。

<#root>

Node-103#

show vlan extended | egrep

"Encap|----|1/13"

VLAN Name	Encap	Ports
2		
1c_TN:1c_APP:1c_EPG		
vlan-		
420		
Eth1/13	--> FD vlan 2	
18		
1c_TN:1c_BD	vxlan-16416666	Eth1/13 --> BD vlan 18

可以使用“show interface”命令验证FD vlan和BD vlan到接口的规划。

<#root>

Node-103#

show interface eth

1/13 trunk | grep -A 2

Allowed

Port Vlans Allowed on Trunk

Eth1/13

2,18

检查SVI VLAN部署

如果使用BD SVI验证第3层VLAN，则使用moquery class fvSubnet获取子网的IP地址。

<#root>

APIC#

```
moquery -c fvSubnet | grep lc_BD
```

```
dn : uni/tn-lc_TN/BD-lc_BD/subnet-[201.201.201.254/24]
```

然后对照检查“show ip interface brief”并检查匹配的IP地址以验证VLAN和预期的VRF。

在本示例中，验证来自上一个CLI输出示例的BD Vlan 18。

<#root>

Node-103#

```
show ip interface brief
```

...

```
IP Interface Status for VRF "
```

```
lc_TN:lc_VR
```

```
F"(16)
```

Interface	Address	Interface Status
-----------	---------	------------------

```
vlan18
```

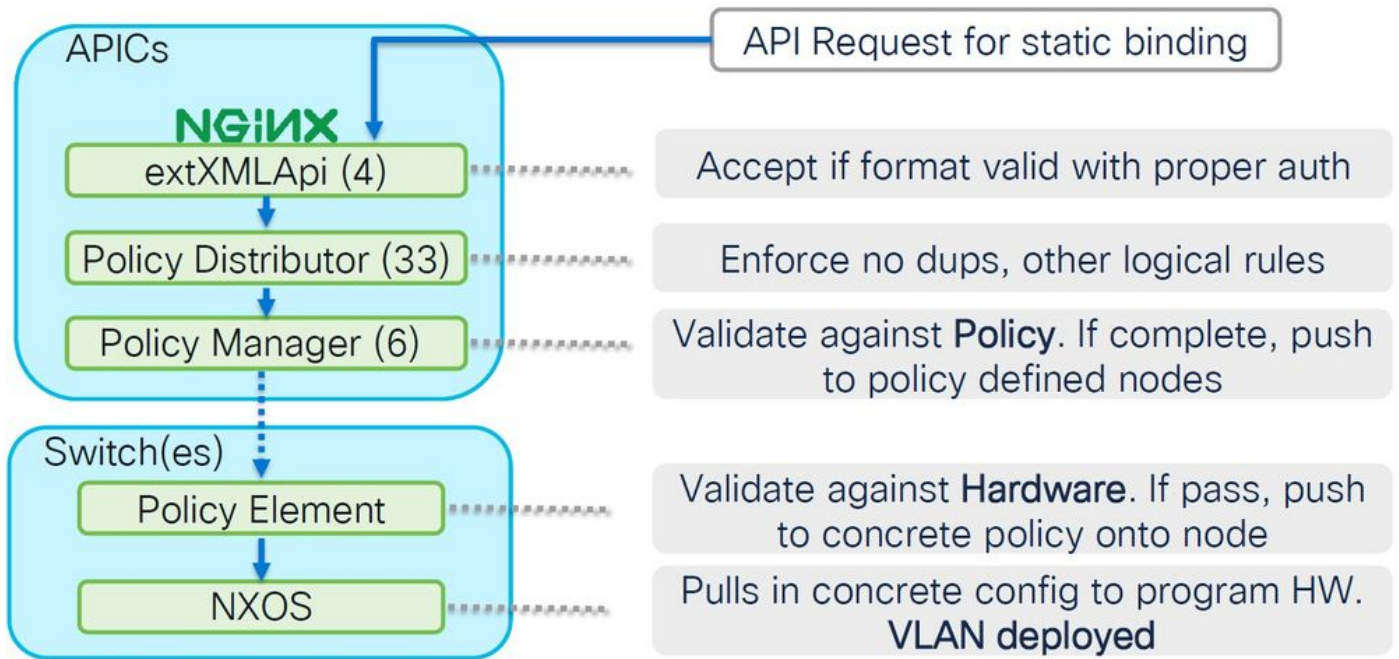
```
201.201.201.254/24
```

```
protocol-up/link-up/admin-up
```

参考图

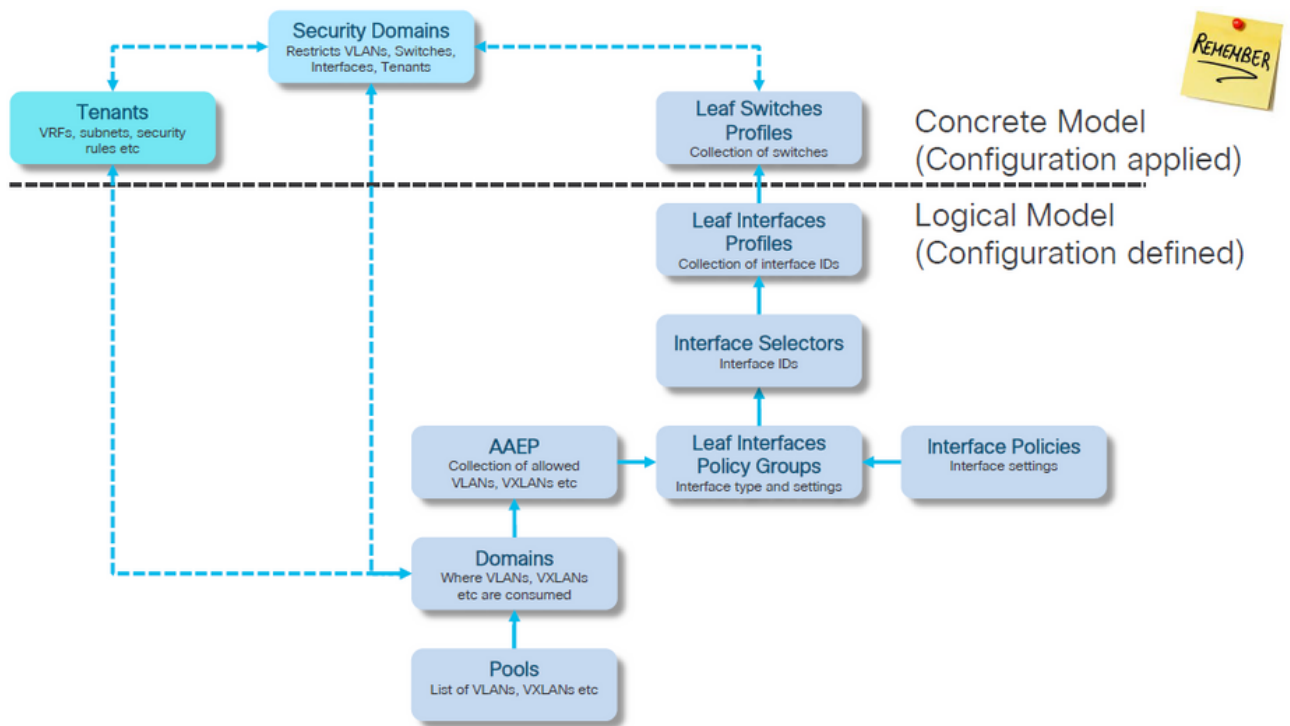
静态路径绑定的高级编程序列

此高级序列汇总了从VLAN静态路径API调用到交换机节点VLAN部署所涉及的步骤。



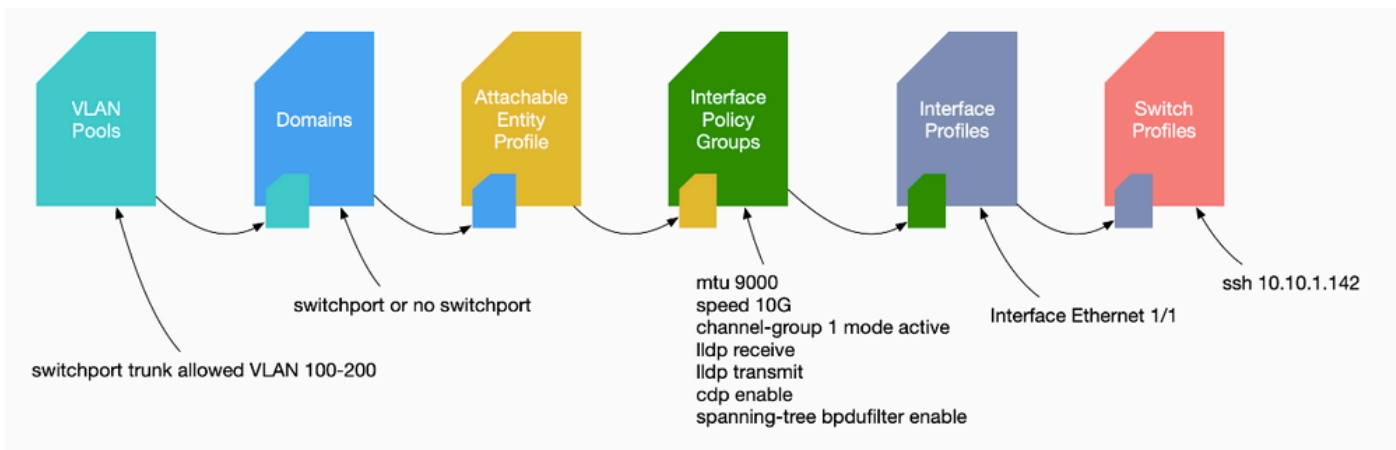
访问策略关系框图

此方框图显示访问策略之间的关系，以确保成功部署交换机节点VLAN。



映射到访问策略的独立NXOS命令

实际上，每个网络工程师都采用了访问策略的思想；只有访问策略通过独立设备的CLI界面在文件中定义为文本。



当发现故障F0467时，必须首先了解访问策略并确保其配置正确。

VLAN验证命令工作表

每个命令输出都将提供一个变量，该变量将用于列表中的下一个命令。

本文档中引用了这些命令来排除不同场景故障。

节点	命令	目的
APIC	<code>moquery -c faultInst -f 'fault.Inst.code=="F0467"'</code>	列出交换矩阵中当前处于活动状态的所有F0467故障
	<code>moquery -c l2RtDomIfConn grep <epg_name> grep dn</code>	显示与特定epg关联的静态/动态路径。
	<code>moquery -c fvRsDomAtt grep -A 25<epg_name> grep rn</code>	显示与EPG关联的域
	<code>moquery -c infraRsVlanNs grep -A 15 <dom_name> grep tDn</code>	显示与域关联的vlan池名称。域名是从上一个命令中提取的
	<code>moquery -c fvnsEncapBlk grep <vlan_pool_name></code>	显示与特定vlan池关联的vlan编号
	<code>moquery -c infraRtDomP grep <dom_name></code>	显示与域关联的AEP
	<code>moquery -c infraRtAttEntP grep <AEP_name></code>	显示与域关联的接口配置文件组(IPG)
	<code>moquery -c infraRsAccBaseGrp grep -B 15 <IPG_name> grep dn</code>	显示接口配置文件组(IPG)与接口选择器的关联
	<code>moquery -c infraRsAccPortP grep <Interface_Sector> grep dn</code>	显示接口配置文件与交换机配置文件的关联
	<code>moquery -c fvIfConn -f 'fv.IfConn.encap=="<encap_vlan>" grep dn</code>	显示在交换矩阵上部署特定封装vlan的所有接口
	<code>moquery -c fvnsRtVlanNs grep <vlan_pool_name> grep dn</code>	显示与vlan池关联的域

	moquery -c fvSubnet grep <BD_name>	显示与域关联的svi IP
交换机	show vlan encap-id <encap_vlan> extended	显示PI vlan和租户、应用配置文件和EPG名称的详细信息
	show vlan extended egrep "Encap -- <port:example 1/13>"	显示特定端口上vlan的详细信息。
	show int eth <port> trunk grep -A 2允许	显示在特定端口上转发的vlan。请注意，vlan编号是内部vlan编号。
	show ip int bri vrf <vrf>	显示为特定vrf部署的第3层接口
	show vpc brief	显示此交换机是VPC对的一部分时的vpc相关信息。

相关信息

- <https://www.ciscolive.com/on-demand/on-demand-library.html?¤tTab=session&search=BRKDCN-3900>
- <https://www.ciscolive.com/on-demand/on-demand-library.html?¤tTab=session&search=BRKACI-2770>
- https://www.cisco.com/c/dam/en/us/td/docs/switches/datacenter/aci/apic/sw/4-x/troubleshooting/Cisco_TroubleshootingApplicationCentricInfrastructureSecondEdition.pdf

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