使用POAP配置NXOS到ACI的自動轉換

目錄

簡介

本文檔介紹如何透過自動調配(POAP)自動轉換將OS （ 作業系統 ）從Nexus作業系統(NXOS®)切換到ACI。

何時需要它？

在現有的流程中，如果使用NXOS®映像接收退回材料授權(RMA)/新交換機，則將這些交換機轉換為ACI模式並將其增加到ACI交換矩陣將非常耗時且複雜。

有三種情況需要此功能，

1)更換故障枝葉/主幹交換機

2)增加新的枝葉/主幹以擴展ACI交換矩陣

3)增加/更換遠端枝葉

必備條件

ACI版本5.2(3)中引入了將NXOS®轉換為ACI模式的現有過程非常複雜且非常耗時，因此可簡化該過程並使其接近即插即用（ 加電自動調配 ）POAP自動轉換功能。POAP功能在NXOS®7.X版本開始提供，該版本總結說您嘗試增加的新交換機必須運行更高的版本。

什麼是POAP？

POAP代表Power on auto provisioning。找不到啟動配置時，Nexus交換機上會自動觸發POAP進程。

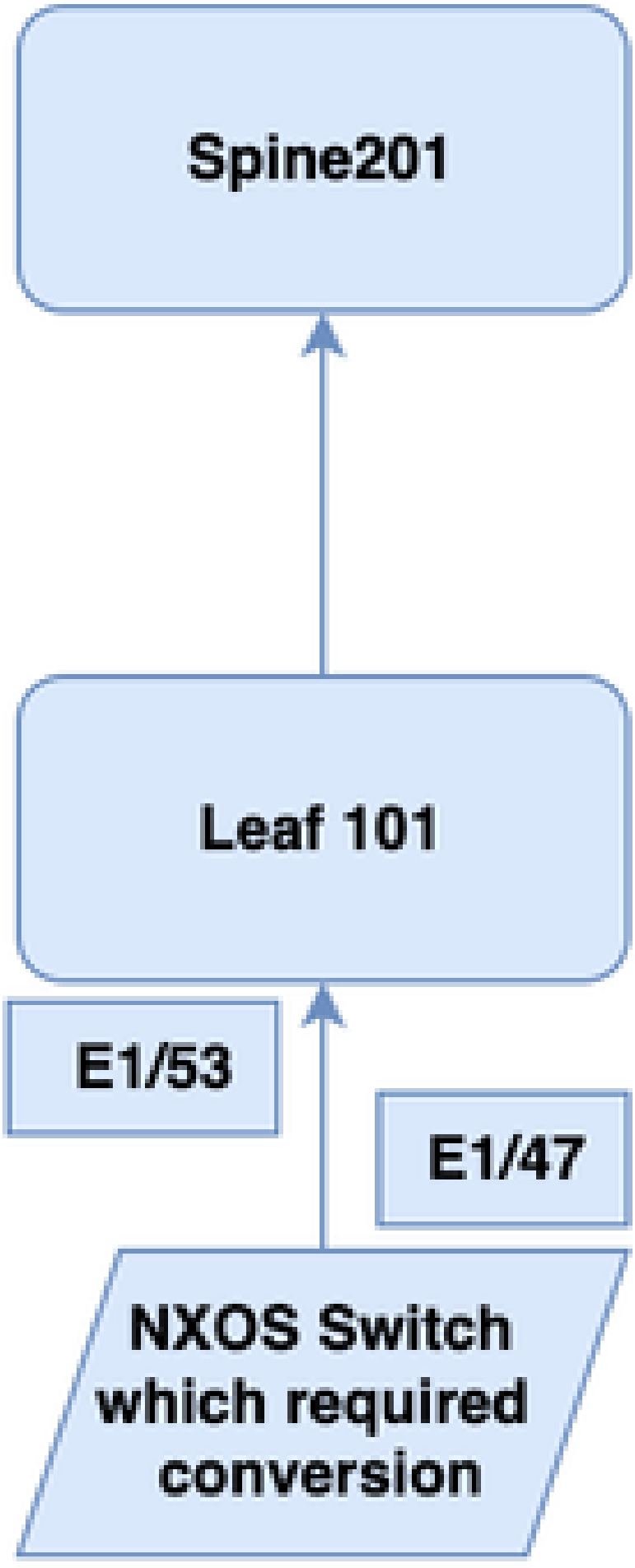
當觸發Poap時，交換機將首先從管理介面啟動動態主機配置協定(DHCP)進程，如果未收到DHCP確認，則在所有其他埠上啟動此DHCP發現。在ACI中，APIC充當DHCP伺服器，為交換機提供IP地址和python指令碼位置。下載python指令碼後，將會呼叫ACI映像下載並在交換機上自動進

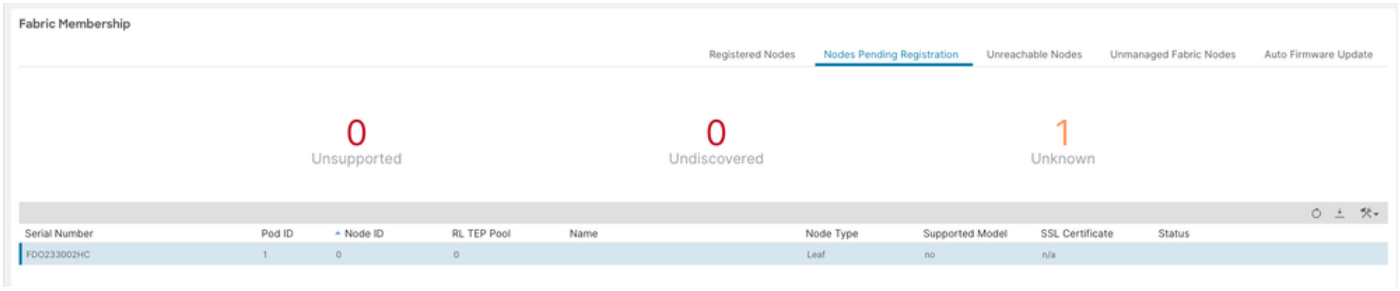
行轉換。ACI在基礎設施網路中運行Poap。

拓撲

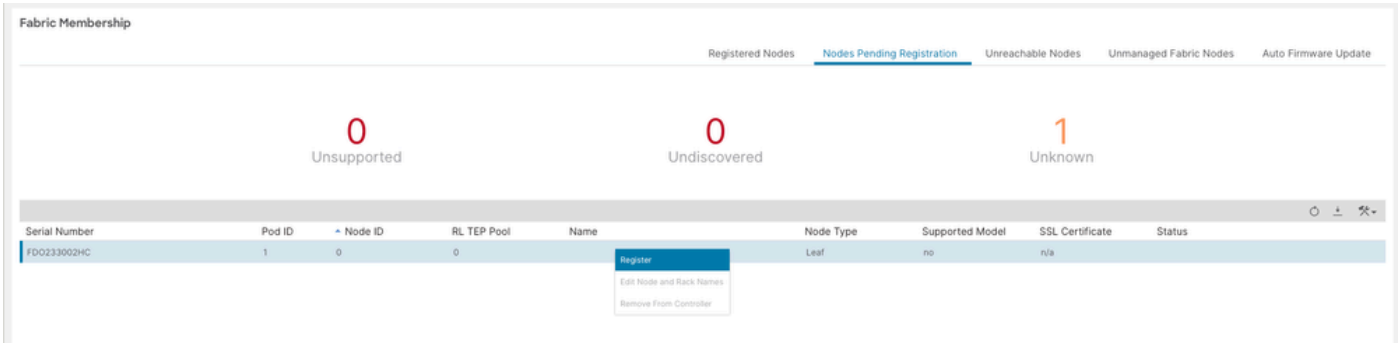
在此拓撲中，您需要轉換主幹節點201、枝葉節點101和nxos交換機。此nxos交換機可以直接連線到主幹或枝葉交換機，這意味著轉換成功後，您可以將它直接安裝到交換矩陣。

在本配置示例中，您需要將ACI枝葉101埠E1/53連線到新的交換機節點埠E1/47。請確保只有枝葉和主幹上的交換矩陣埠可用於POAP。

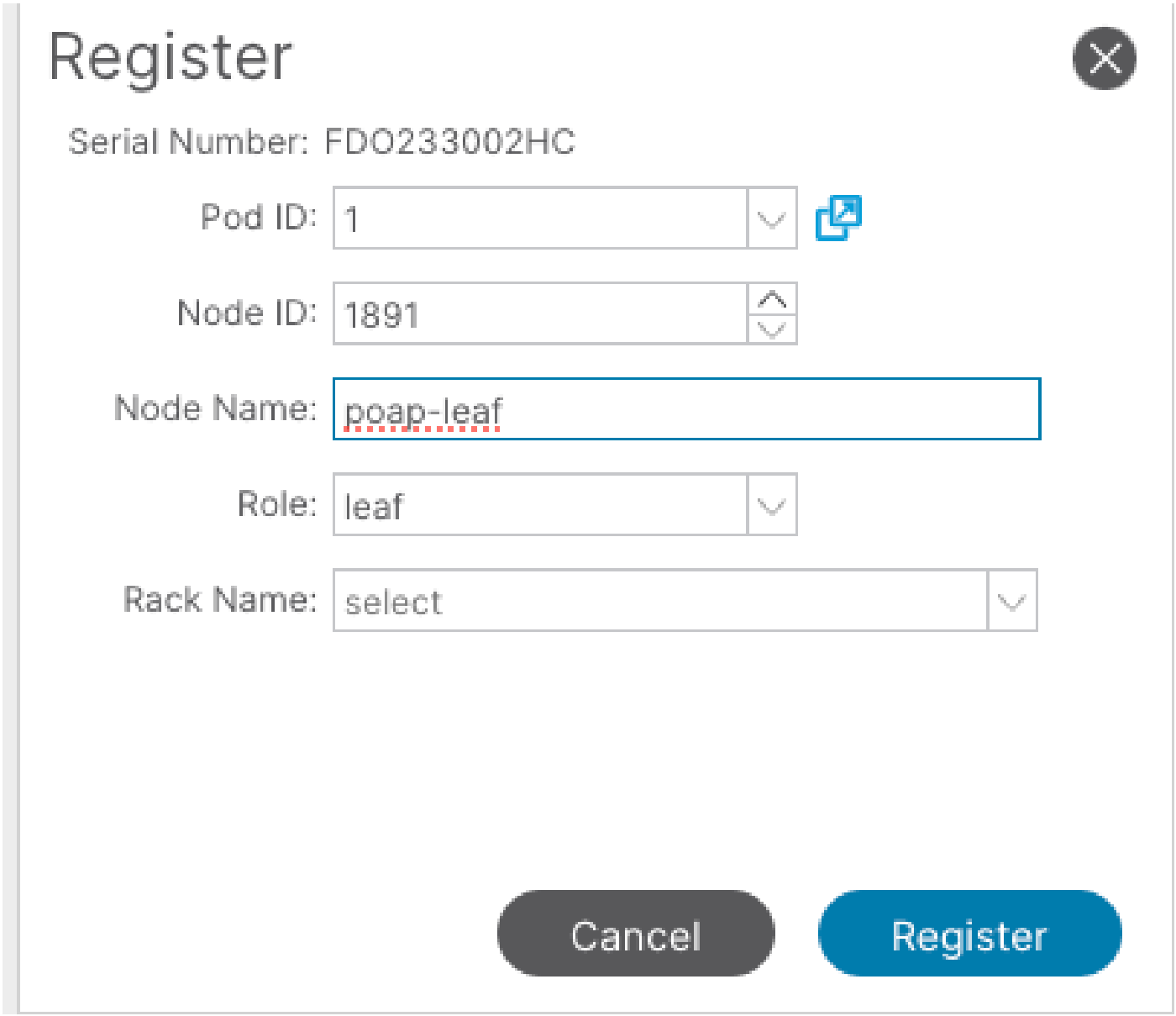

Spine201
Leaf 101
E1/53
E1/47
NXOS Switch which required conversion



第6步：註冊新的交換機節點，按一下右鍵並選擇註冊。



第7步：增加節點ID、節點名稱並註冊枝葉。



第8步：在NXOS交換機啟動期間，會出現提示，詢問您是否要中止POAP並繼續正常設定。選擇「否」，繼續POAP。

（如果裝置具有啟動配置，則必須執行寫擦除並重新載入裝置，以強制nexus交換機進入POAP模式。）

```
Abort Power On Auto Provisioning [yes - continue with normal setup, skip - bypass password and basic co

>>>> This message appears on the console which means POAP process started on new switch node, Do not br
```

第9步：觀察新交換機節點的控制檯，您將看到這些日誌。

<#root>

%$ %POAP-2-POAP_DHCP_DISCOVER_START: [FDO233002HC-A4:53:0E:3D:D9:A3] -

POAP DHCP Discover phase started <<< POAP Process started, new switch node is sending DHCP discover

2024 Jun 24 13:21:31 switch %$ VDC-1 %$ %POAP-2-POAP_INFO: - Abort Power On Auto Provisioning [yes -

2024 Jun 24 13:21:32 switch %$ VDC-1 %$ %POAP-2-POAP_INFO:

Recieved DHCP offer from server ip - 10.0.0.1 <<< DHCP offer has been recived from APIC

2024 Jun 24 13:21:39 switch %$ VDC-1 %$ %POAP-2-POAP_INFO: Recieved DHCP offer from server ip - 10.0.0

2024 Jun 24 13:21:39 switch %$ VDC-1 %$ %POAP-2-POAP_INFO: [FDO233002HC-A4:53:0E:3D:D9:A3] - Using DHCP

Eth1/47

from 10.0.0.1

<<< This is the interface used on new switch node

2024 Jun 24 13:21:39 switch %$ VDC-1 %$ %POAP-2-POAP_INFO: [FDO233002HC-A4:53:0E:3D:D9:A3] -

Assigned Host Name: poap-leaf <<< Hostname assigned to new switch node based on node-name you specifie

2024 Jun 24 13:21:39 switch %$ VDC-1 %$ %POAP-2-POAP_INFO: [FDO233002HC-A4:53:0E:3D:D9:A3] -

Assigned IP address: 10.0.232.68 <<< New switch node got an IP Address

2024 Jun 24 13:21:39 switch %$ VDC-1 %$ %POAP-2-POAP_INFO: [FDO233002HC-A4:53:0E:3D:D9:A3] - Netmask: 2

2024 Jun 24 13:21:39 switch %$ VDC-1 %$ %POAP-2-POAP_INFO: [FDO233002HC-A4:53:0E:3D:D9:A3] - DNS Server

2024 Jun 24 13:21:39 switch %$ VDC-1 %$ %POAP-2-POAP_INFO: [FDO233002HC-A4:53:0E:3D:D9:A3] - Default Ga

2024 Jun 24 13:21:39 switch %$ VDC-1 %$ %POAP-2-POAP_INFO: [FDO233002HC-A4:53:0E:3D:D9:A3] - Script Ser

2024 Jun 24 13:21:39 switch %$ VDC-1 %$ %POAP-2-POAP_INFO: [FDO233002HC-A4:53:0E:3D:D9:A3] -

Script Name: aci_poap_bootfile.py <<< This script is responsible for performing NXOS to ACI mode convers

2024 Jun 24 13:21:49 switch %$ VDC-1 %$ %POAP-2-POAP_INFO: [FDO233002HC-A4:53:0E:3D:D9:A3] - The POAP S

<<< Downloading script

2024 Jun 24 13:21:49 switch %$ VDC-1 %$ %POAP-2-POAP_INFO: [FDO233002HC-A4:53:0E:3D:D9:A3] - The POAP S

[copy tftp://10.0.0.1/aci_poap_bootfile.py bootflash:scripts/script.sh vrf default]

2024 Jun 24 13:21:50 switch %$ VDC-1 %$ %POAP-2-POAP_SCRIPT_DOWNLOADED: [FDO233002HC-A4:53:0E:3D:D9:A3]

Successfully downloaded POAP script file <<< Script downloaded

2024 Jun 24 13:21:50 switch %$ VDC-1 %$ %POAP-2-POAP_INFO: [FDO233002HC-A4:53:0E:3D:D9:A3] - Script fil

2024 Jun 24 13:21:50 switch %$ VDC-1 %$ %POAP-2-POAP_INFO: [FDO233002HC-A4:53:0E:3D:D9:A3] - MD5 checks

2024 Jun 24 13:21:50 switch %$ VDC-1 %$ %POAP-2-POAP_SCRIPT_STARTED_MD5_VALIDATED: [FDO233002HC-A4:53:0

POAP script execution started(MD5 validated) <<< Validating MD5 Checksum before downloading ACI ima

2024 Jun 24 13:21:52 switch %$ VDC-1 %$ %USER-1-SYSTEM_MSG: -

Starting to download image - /script.sh <<< Starting ACI image download as script is executed in t

2024 Jun 24 13:21:52 switch %$ VDC-1 %$ %USER-1-SYSTEM_MSG: - The command is : terminal dont-ask ; ter

184633.793: 2024 Jun 24 13:25:50 switch %$ VDC-1 %$ %USER-1-SYSTEM_MSG: -

Downloading the image completed - /script.sh <<< ACI image download completed

184633.819: 2024 Jun 24 13:25:50 switch %$ VDC-1 %$ %USER-1-SYSTEM_MSG: - Image file found in bootflas

184635.739: 2024 Jun 24 13:25:52 switch %$ VDC-1 %$ %USER-1-SYSTEM_MSG: - no boot nxos o/p : - /script

184640.147: 2024 Jun 24 13:25:56 switch %$ VDC-1 %$ %USER-1-SYSTEM_MSG: - copy running-config o/p : [#

184642.147: 2024 Jun 24 13:25:58 switch %$ VDC-1 %$ %USER-1-SYSTEM_MSG: - boot aci o/p : Warning: Plea

184649.973: 2024 Jun 24 13:26:06 switch %$ VDC-1 %$ %USER-1-SYSTEM_MSG: -

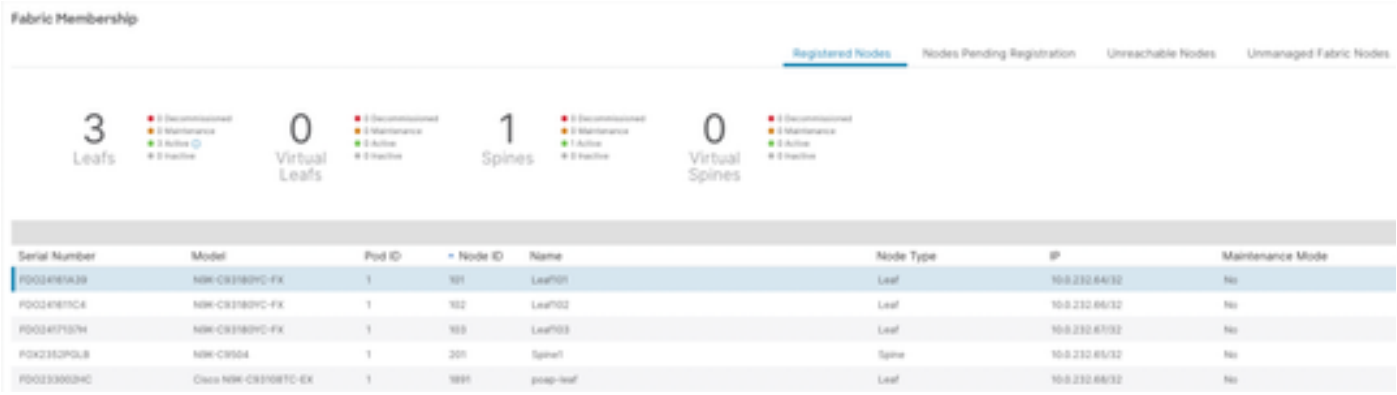
md5sum o/p : e9065f12d6eac79d15091f0c595ed9e5 - /script.sh <<< Post download MD5 checksum validati

184657.960: 2024 Jun 24 13:26:14 switch %$ VDC-1 %$ %VMAN-2-ACTIVATION_STATE: Successfully deactivated

184701.033: 2024 Jun 24 13:26:17 switch %$ VDC-1 %$ %PLATFORM-2-PFM_SYSTEM_RESET:

Manual system restart from Command Line Interface <<< Rebooting the device to perform the conversion

第10步：名為Poap-Leaf的新交換機節點開始在註冊節點中顯示。

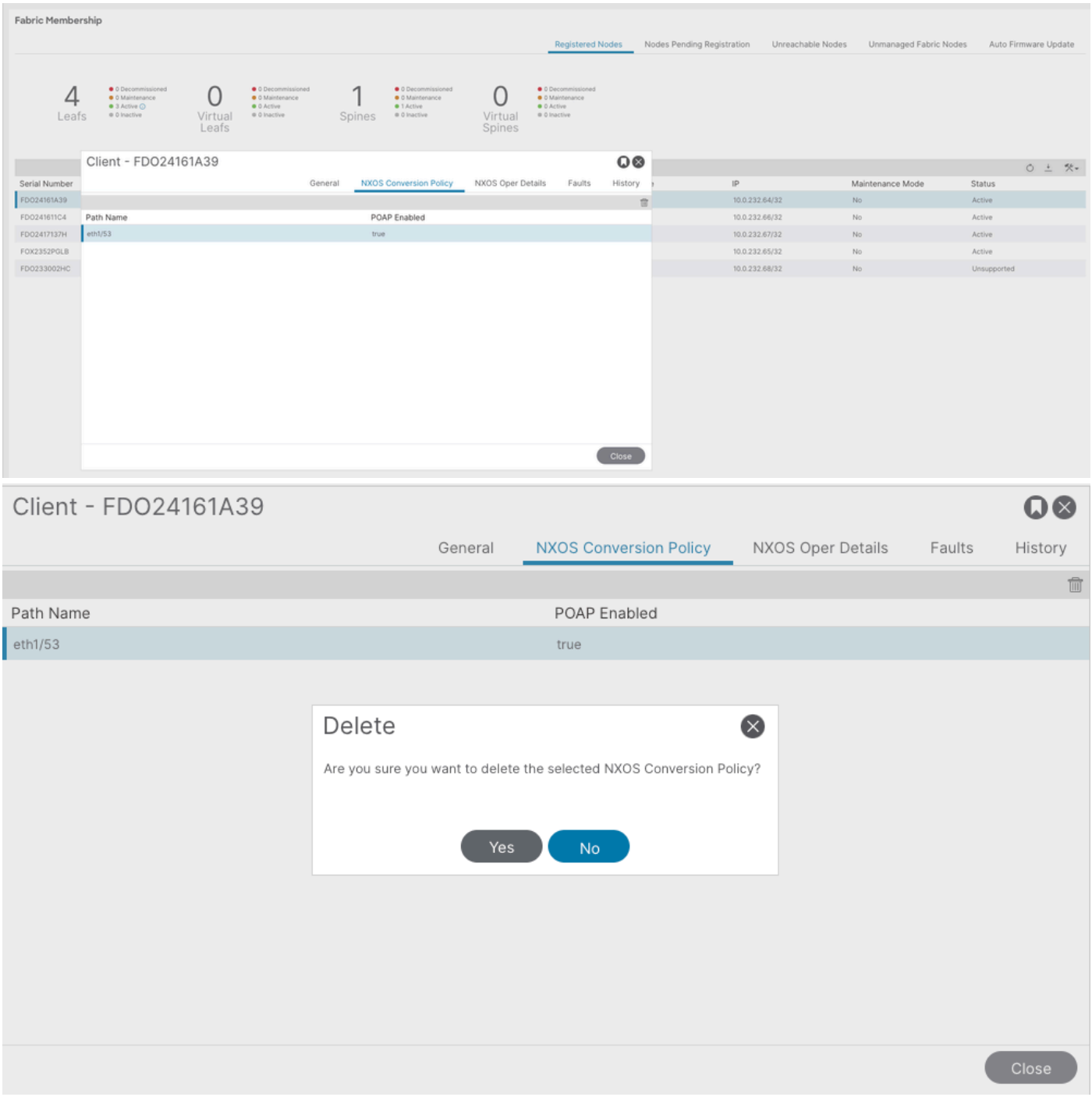


第11步：從新交換機節點的CLI驗證其已轉換為ACI模式。

```
<#root>

User Access Verification

(none) login: admin

*******************************************************************************

     Fabric discovery in progress, show commands are not fully functional

     Logout and Login after discovery to continue to use show commands.

     Run show discoveryissues for more details.

*******************************************************************************

(none)#

<<< Device is in ACI discovey mode now
```

第12步：現在將新交換機節點正確連線到ACI交換矩陣。

第13步：刪除poap成功轉換後的NXOS轉換策略。



++ You also encounter an Fault F427 when you configure POAP, please ensure that fault is cleared post s
This fault is an reminder that you have configured an port on ACI Leaf switch for POAP usage

APIC上的POAP dhcp日誌

要檢視APIC上的DHCP日誌，請參閱給定的位置和日誌檔案。

<#root>

```
apic1# cd /var/log/dme/log/
apic1# less dhcpd.bin.log | grep ISC | grep a4:53:0e:3d:d9:a3
```

30167||2024-06-24T13:12:04.170069236+00:00||dhcp||INFO||||ISC

dhcpd: DHCPDISCOVER from a4:53:0e:3d:d9:a3 via 10.0.232.64

||../svc/dhcpd/src/gen/ifc/beh/imp/./DhcpdSvc.cc||68

<<< DHCP Discovered recieved from Leaf101 Infra Loopback IP , Leaf 101 is acting as DHCP Relay

30167||2024-06-24T13:12:04.170129519+00:00||dhcp||INFO||||ISC

dhcpd: DHCPOFFER on 10.0.232.68 to a4:53:0e:3d:d9:a3 via 10.0.232.64

||../svc/dhcpd/src/gen/ifc/beh/imp/./DhcpdSvc.cc||68

<<< DHCP Offer forwarded from APIC

30167||2024-06-24T13:12:07.219176308+00:00||dhcp||INFO||||ISC

dhcpd: Received host decl = FDO233002HC

{

uid "FDO233002HC"; dynamic; option host-name "poap-leaf"; fixed-address 10.0.232.68; option cisco.node-r

} ||../svc/dhcpd/src/gen/ifc/beh/imp/./DhcpdSvc.cc||68 bico 04.421.

<<< DHCP Server provides IP, DHS and TFTP server IP address to download python script and ACI image

30167||2024-06-24T13:12:07.220213143+00:00||dhcp||INFO||||ISC dhcpd: Received host decl = FDO233002HC {

30167||2024-06-24T13:12:10.167297645+00:00||dhcp||DBG4||||ISC dhcpd: Before updateUid 12:||../svc/dhcpd/

30167||2024-06-24T13:12:10.167454624+00:00||dhcp||DBG4||||ISC dhcpd: not our server id ours 0.0.0.0 rec

30167||2024-06-24T13:12:10.167588015+00:00||dhcp||DBG4||||ISC dhcpd: Before updateUid 12:||../svc/dhcpd/

30167||2024-06-24T13:12:10.167639084+00:00||dhcp||INFO||||ISC dhcpd: DHCPREQUEST for 10.0.232.68 (10.0.

30167||2024-06-24T13:12:10.167706966+00:00||dhcp||INFO||||ISC dhcpd: DHCPACK on 10.0.232.68 to a4:53:0e

30167||2024-06-24T13:12:10.167806426+00:00||dhcp||DBG4||||ISC dhcpd: updateUid 11:FDO233002HC, ../commo

30167||2024-06-24T13:12:12.221336321+00:00||dhcp||INFO||||ISC dhcpd: Received host decl = FDO233002HC {

關於此翻譯

思科已使用電腦和人工技術翻譯本文件，讓全世界的使用者能夠以自己的語言理解支援內容。請注意，即使是最佳機器翻譯，也不如專業譯者翻譯的內容準確。Cisco Systems, Inc. 對這些翻譯的準確度概不負責，並建議一律查看原始英文文件（提供連結）。