Create Port Policy with Pin Groups for UCS Domain in IMM

Contents

Introduction

This document describes the difference between Hard- and Dynamic Pinning, Hard Pinning configuration for a Unified Computing System domain on IMM.

Prerequisites:

Requirements

Cisco recommends you have knowledge of these topics:

- Intersight Managed Mode
- Pin Groups
- Pinning: Dynamic Pinning & Static Pinning
- Fibre Channel
- Disjoint Layer 2

Components Used

The information in this document is based on these software and hardware versions

- Cisco UCS 6454 54-Port Fabric Interconnect in Ethernet and Fibre Channel End Host Mode
- Infrastructure bundle version: 4.2.1m
- Cisco UCS B200 M5 Server
- Server firmware version: 4.2.1a

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. If your network is live, ensure that you understand the potential impact of any command.

Background Information

Pinning is the process that Fabric Interconnect (FI) uses to establish the communication between servers and the network.

Virtual Network Interface Cards (vNICs) establish the connection to an uplink port or port channel available in the Fabric Interconnect. This process is known as Pinning.

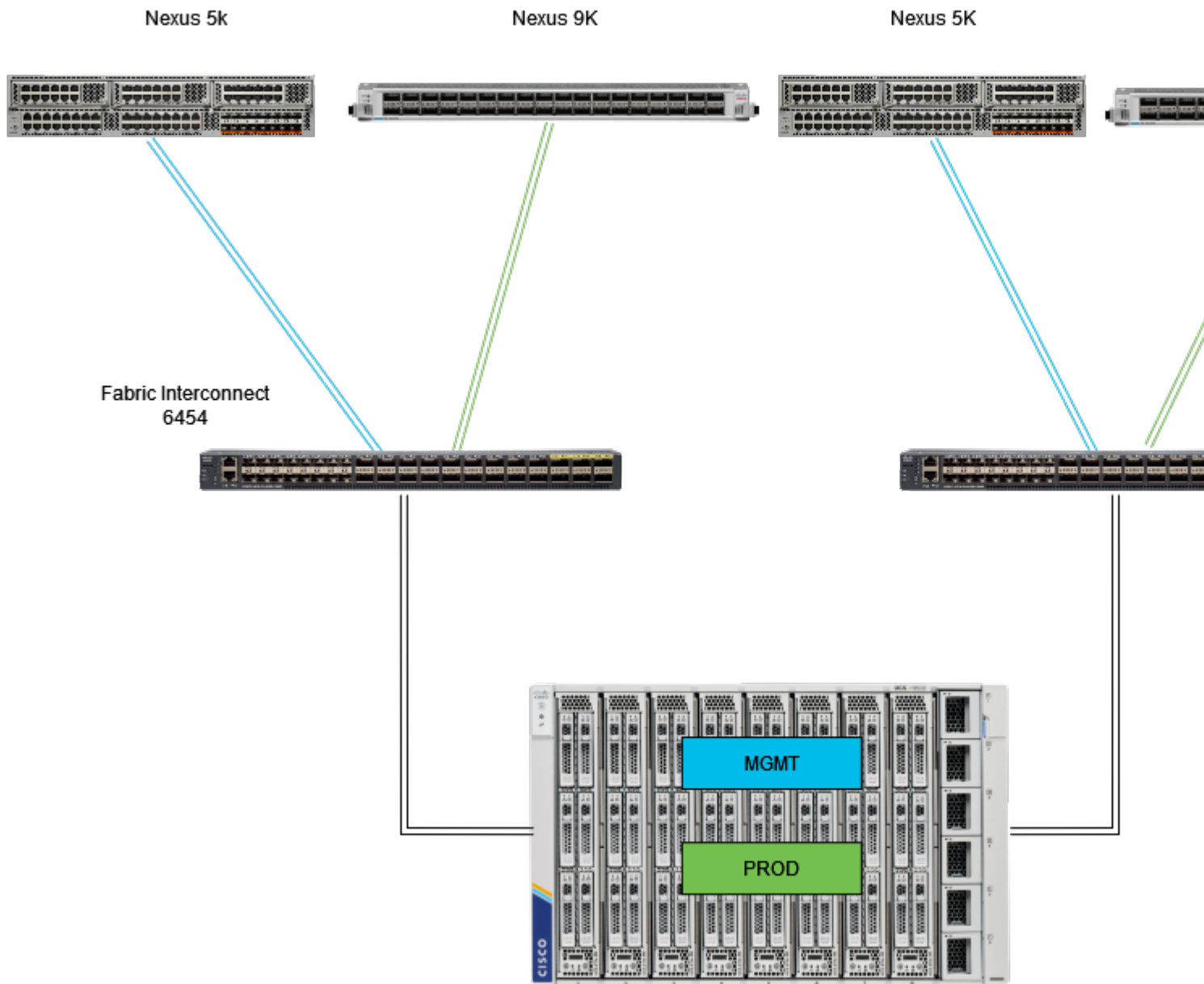**Dynamic Pinning** is the configuration that Fabrics Interconnect has as default.

Fabric Interconnect automatically binds server vNICs to uplink FI ports depending on the number of available uplinks configured.

Static pinning requires the administrator to use manual pin groups to bind vNICs to the uplink ports. FI does not do the configuration automatically.
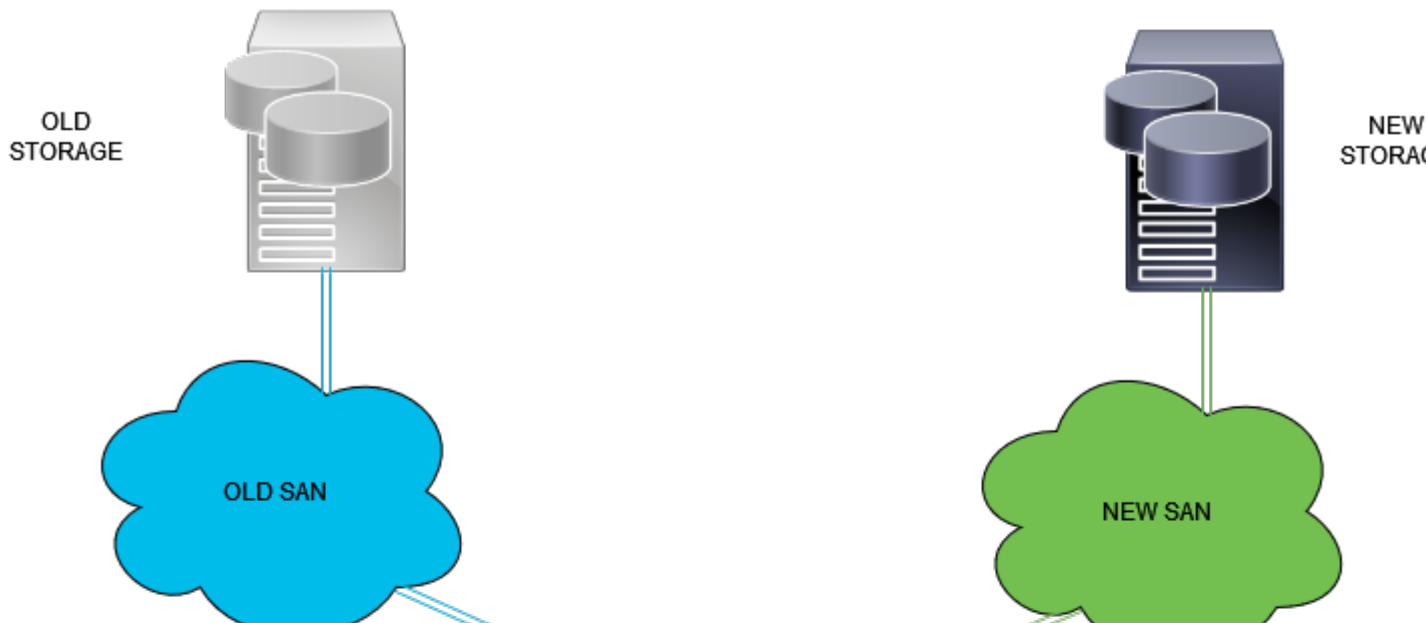

> **Note**: If the purpose is to disjoint the networks (separate VLANs in uplinks) the best approach for this is to configure Disjoint Layer 2, for reference see: [Configure Disjoint Layer 2 in Intersight Managed Mode Domain](#)

Topology

This configuration example in this document is based on the next topologies.

Nexus 5k

Nexus 9K

Nexus 5K

Fabric Interconnect
6454

MGMT

PROD

Eth pinnning topology

OLD
STORAGE

NEW
STORAGE

OLD SAN

NEW SAN

Login to Intersight GUI as an administrator user.

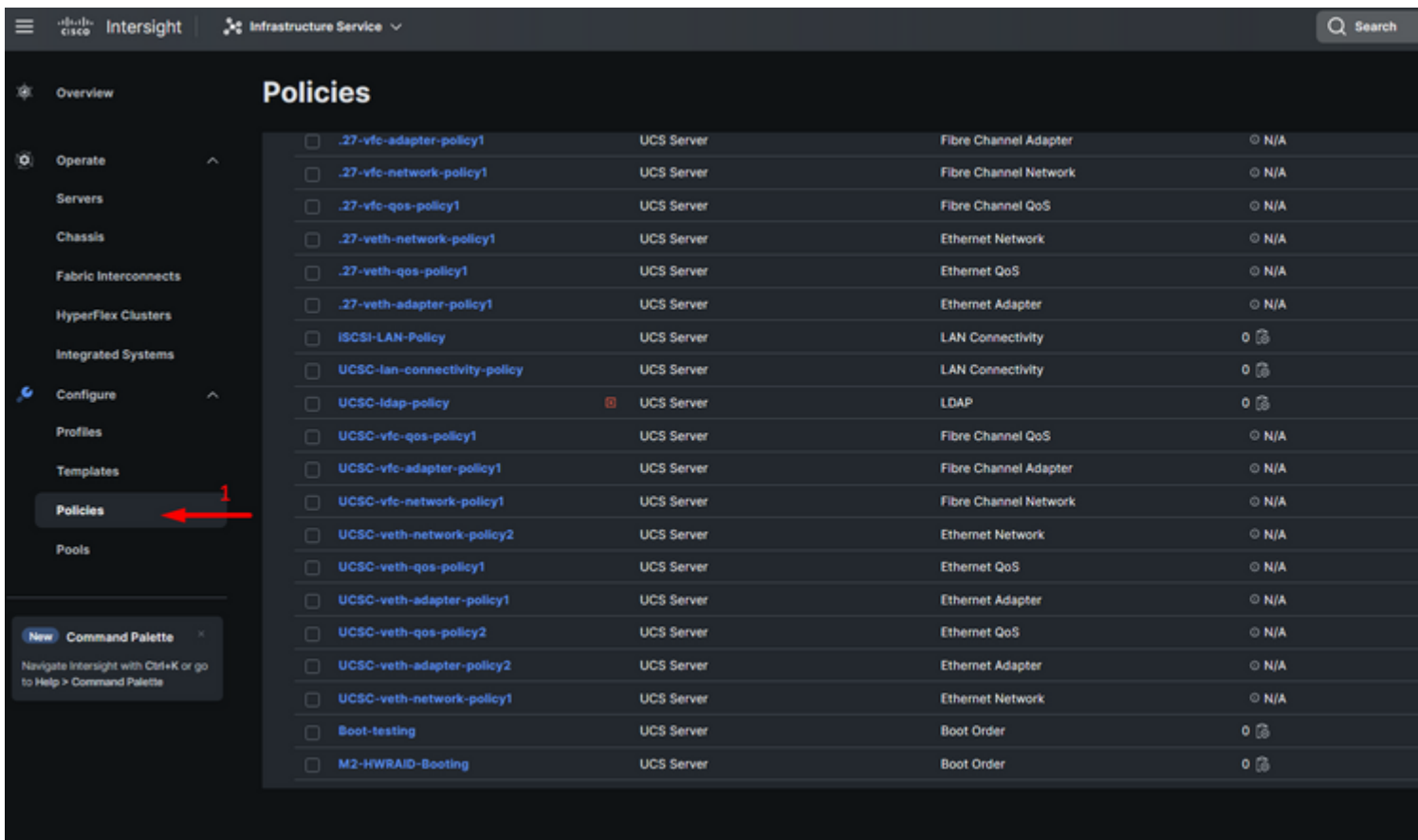## Create Port Policy for UCS Domain

Configuration of Ethernet ports

Step 1. Locate on the Infrastructure Service tab. In the navigation plane, click on Configure Tab.

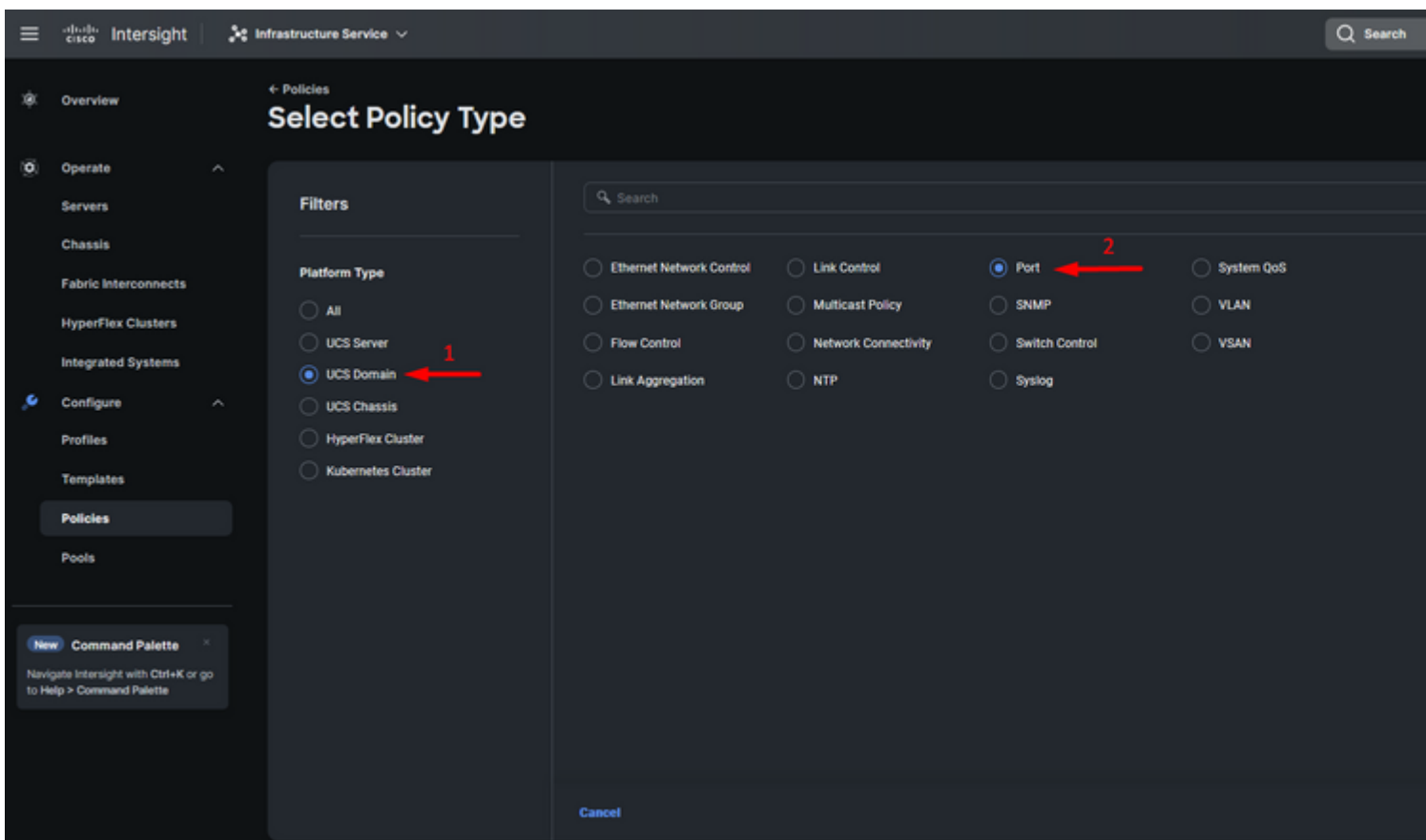**Step 2.** On the Configure Tab, expand Configure > Policies.

Step 3. Click on Policies.

Step 4. Navigate to Create Policy and click on the button.

Create Policy

Step 5. On Platform Type, click on the **UCS Domain** option to filter policies and to find the Port policy easier. Select **Port** and click on **Start**.

*Port Policy*

Step 6. Fill in the information required such as **Organization, Name, and Switch Model.** Those are mandatory.

Configure unified ports to the number of Fibre Channel ports. For this sample configuration, the number of FC ports would be 4. Verify the number of FC and Ethernet ports. Click **Next**.

Note: The maximum number is FC ports for Fabric Interconnect 6454 is 16.
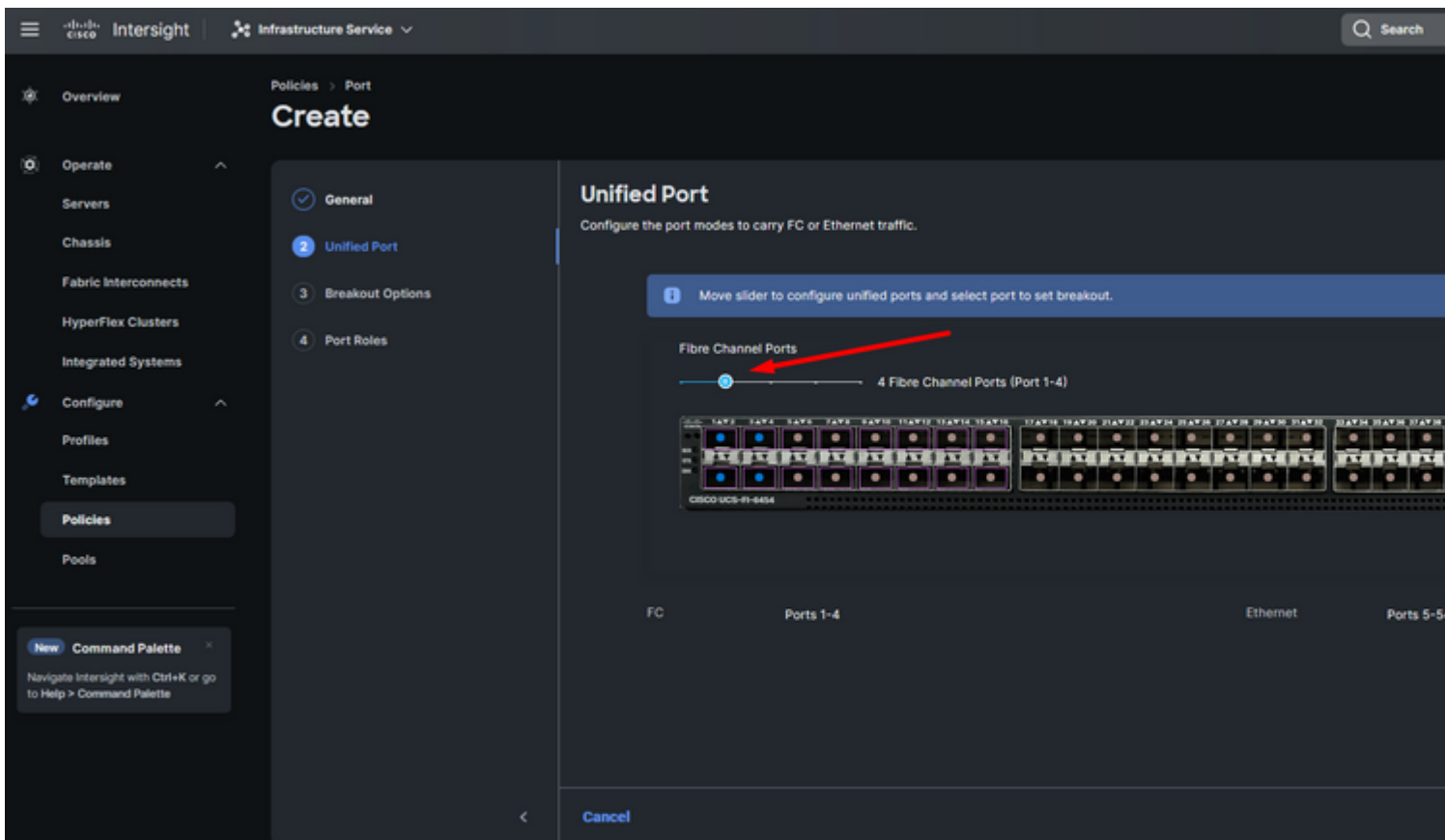
Unified port

For this sample configuration, Breakout ports are not required. If needed, on **Breakout Options** set the number of ports and modify the speed as desired.

Step 9. On port roles, complete the next actions to configure server ports:

- Select ports and click on **Configure**. It takes you to a new window where you display a menu to select the desired type of role for the selected ports have.

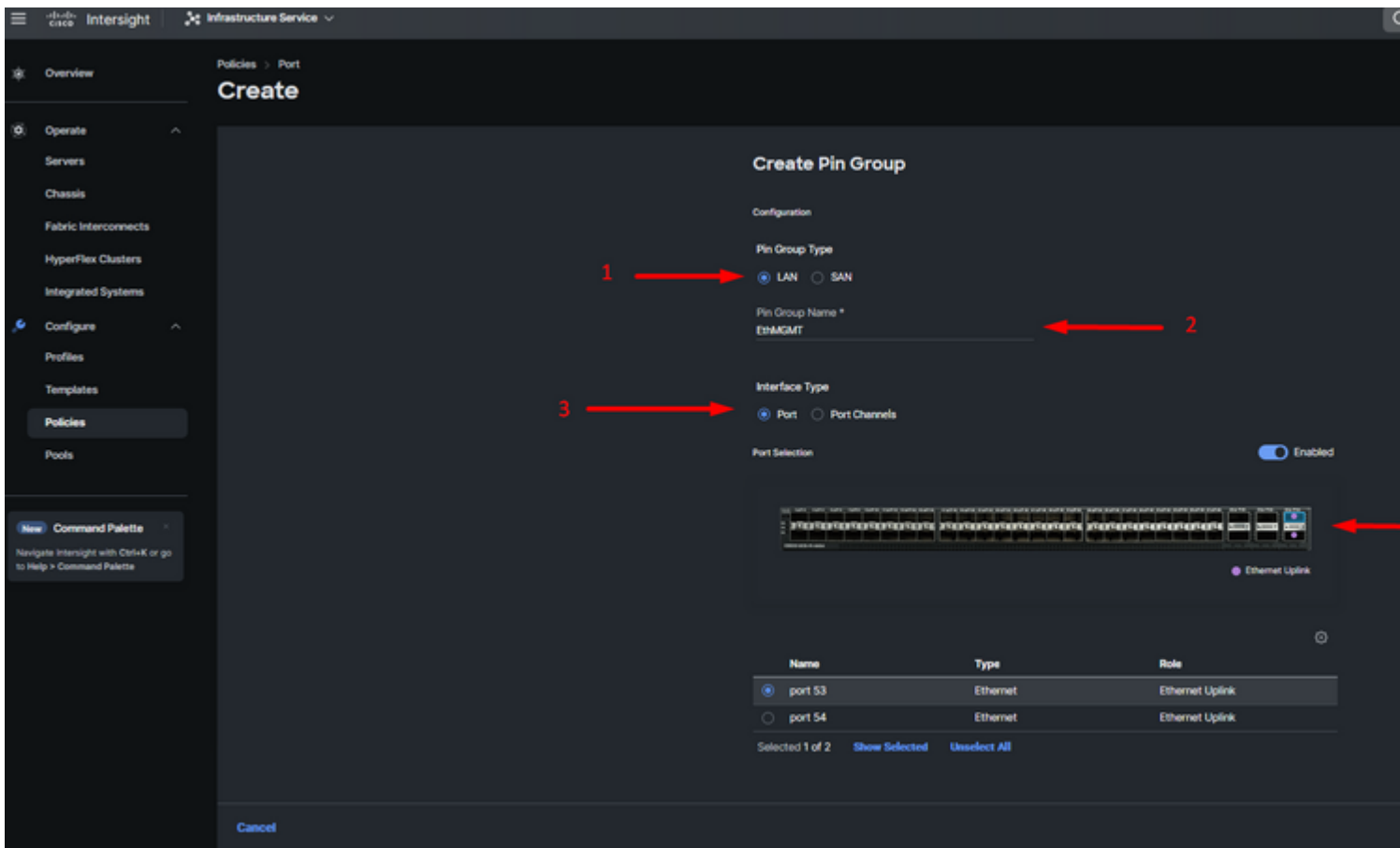For this sample configuration, port 33 is used as a server port.

Tip: This configuration example only shows the Ethernet Uplink configuration and FC Uplinks configuration. Other port roles can be configured in this step as well.
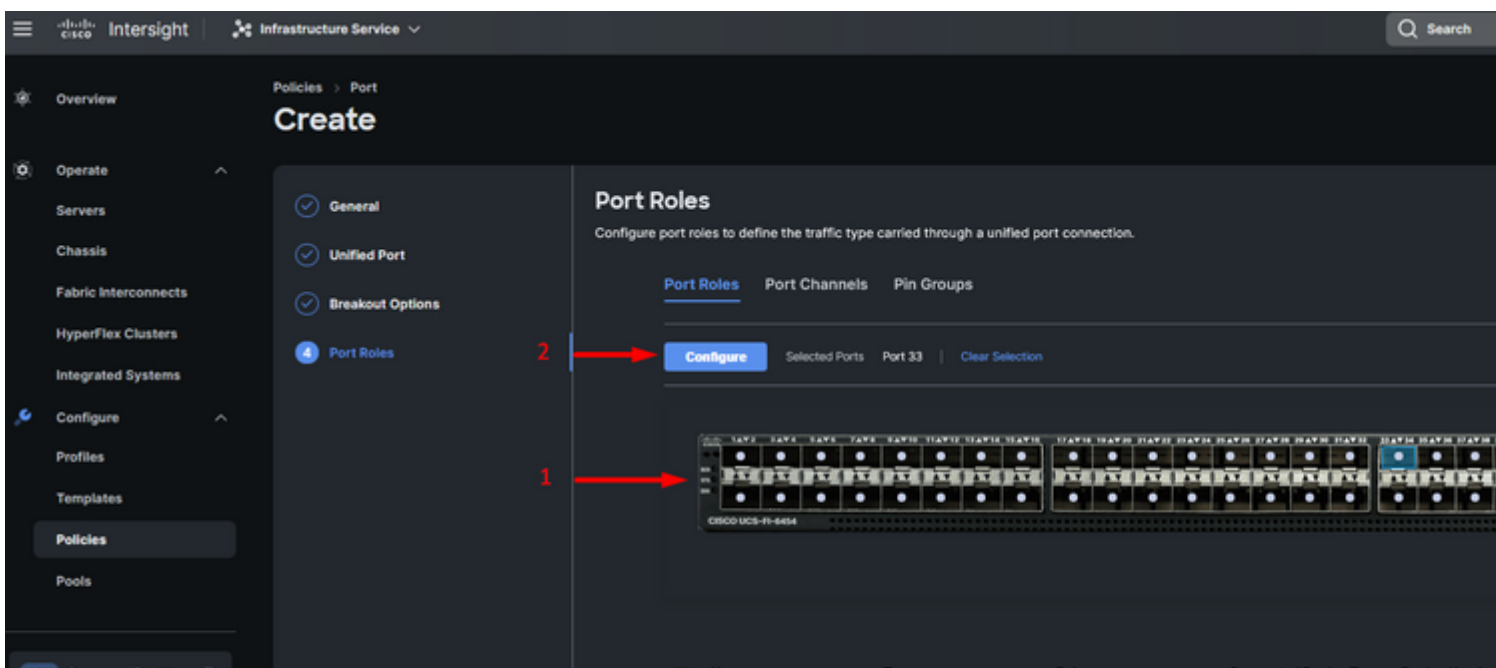
For this sample configuration, it is set as Port. Use Port Channel if your environment requires it.
- Select the desired ethernet uplink for this Pin Group.

Pin Group for Management

- Repeat the procedure for the uplink. For this sample configuration, the second uplink is named **EthPROD.**
- Click **Save**.

Create Pin Group

Configuration

Pin Group Type

◉ LAN ○ SAN

Pin Group Name *
EthPROD

Interface Type

◉ Port ○ Port Channels

Port Selection   ◯ Enabled

● Ethernet Uplink

Name	Type	Role
○ port 53	Ethernet	Ethernet Uplink
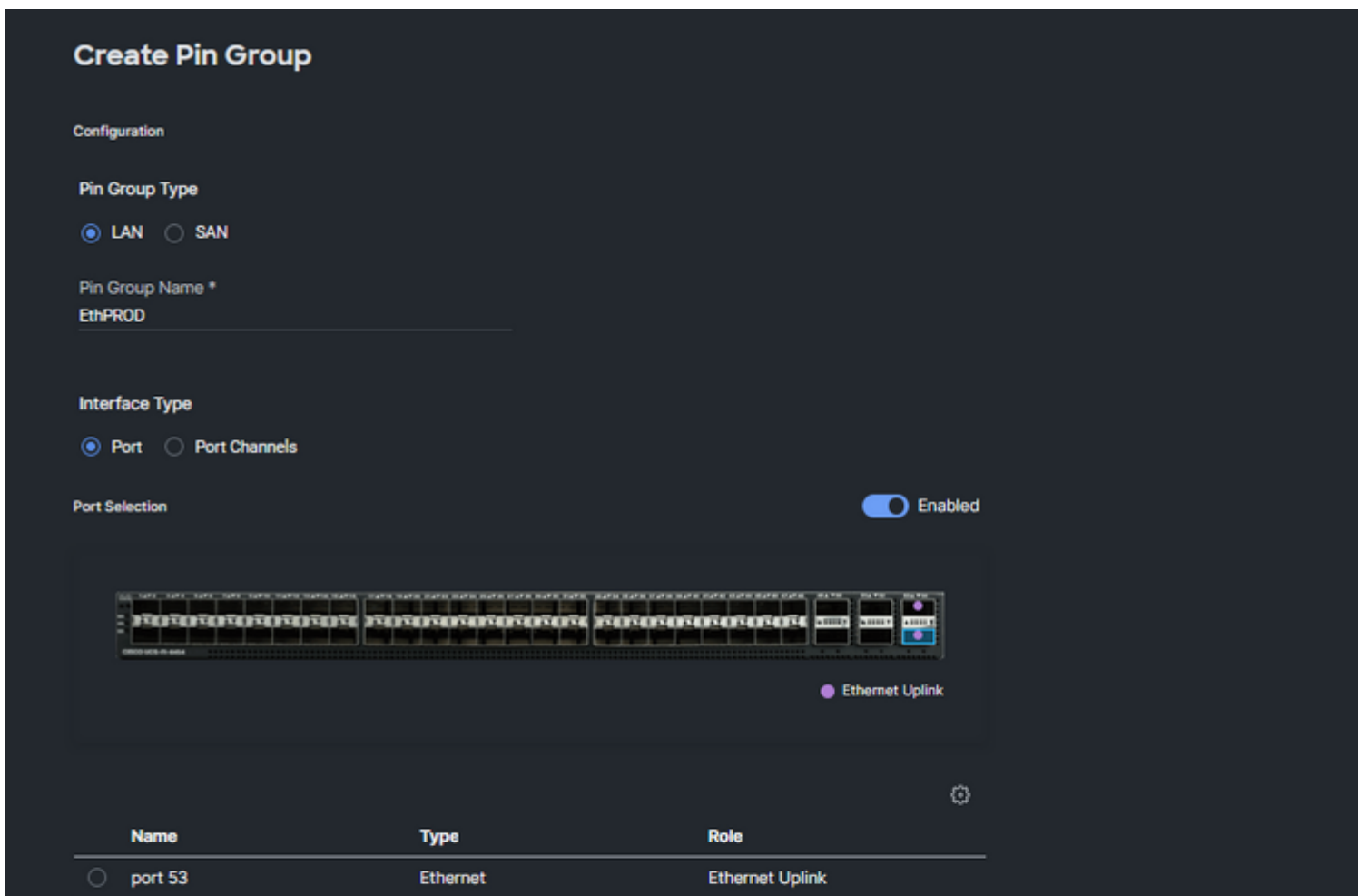
Configuration of Fibre Channel ports

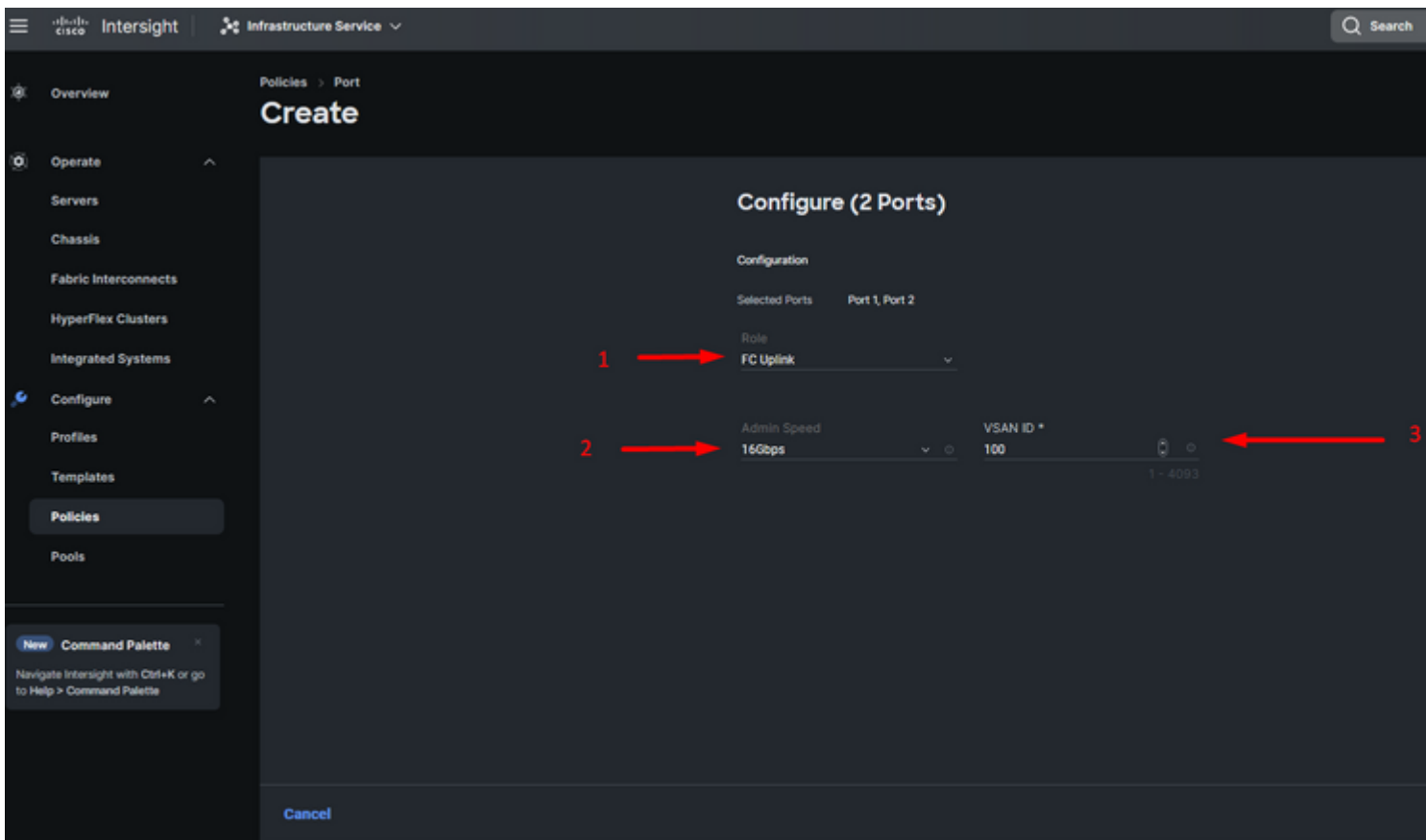**Step 1.** Complete the next actions to configure Fibre Channel ports.

- Navigate to the **Port Roles** tab. Select the desired FC ports to use, and right-click **Configure**.

- Select a role for this FC port, set the speed, and type the **VSANID** that is associated with these ports.
- Click on **Save**.

Fiber channel uplink configuration

Step 2. Create Pin Group for FC uplinks. The procedure is similar to the configuration of Ethernet ports.

- Select SAN as Pin Group Type. Name the Pin Group with a reference for its use. **OldStorage** exemplifies what it is used for.
- Interface Type depends on the needs of the environment.
- Select the desired FC uplink for this Pin Group.
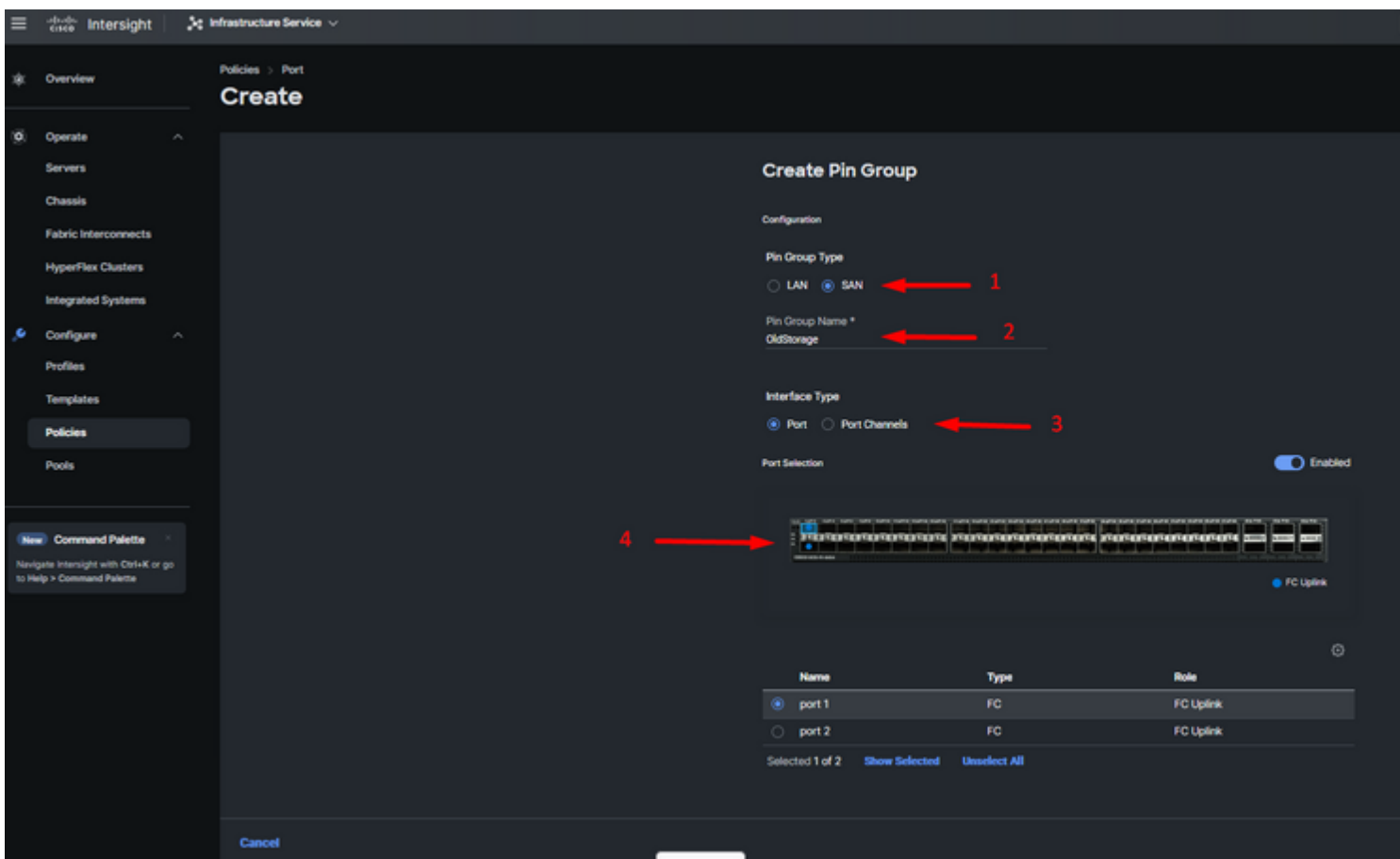
. Select Organization, name your policy, and choose the target platform for which the server profile is applicable. Click **Next.**
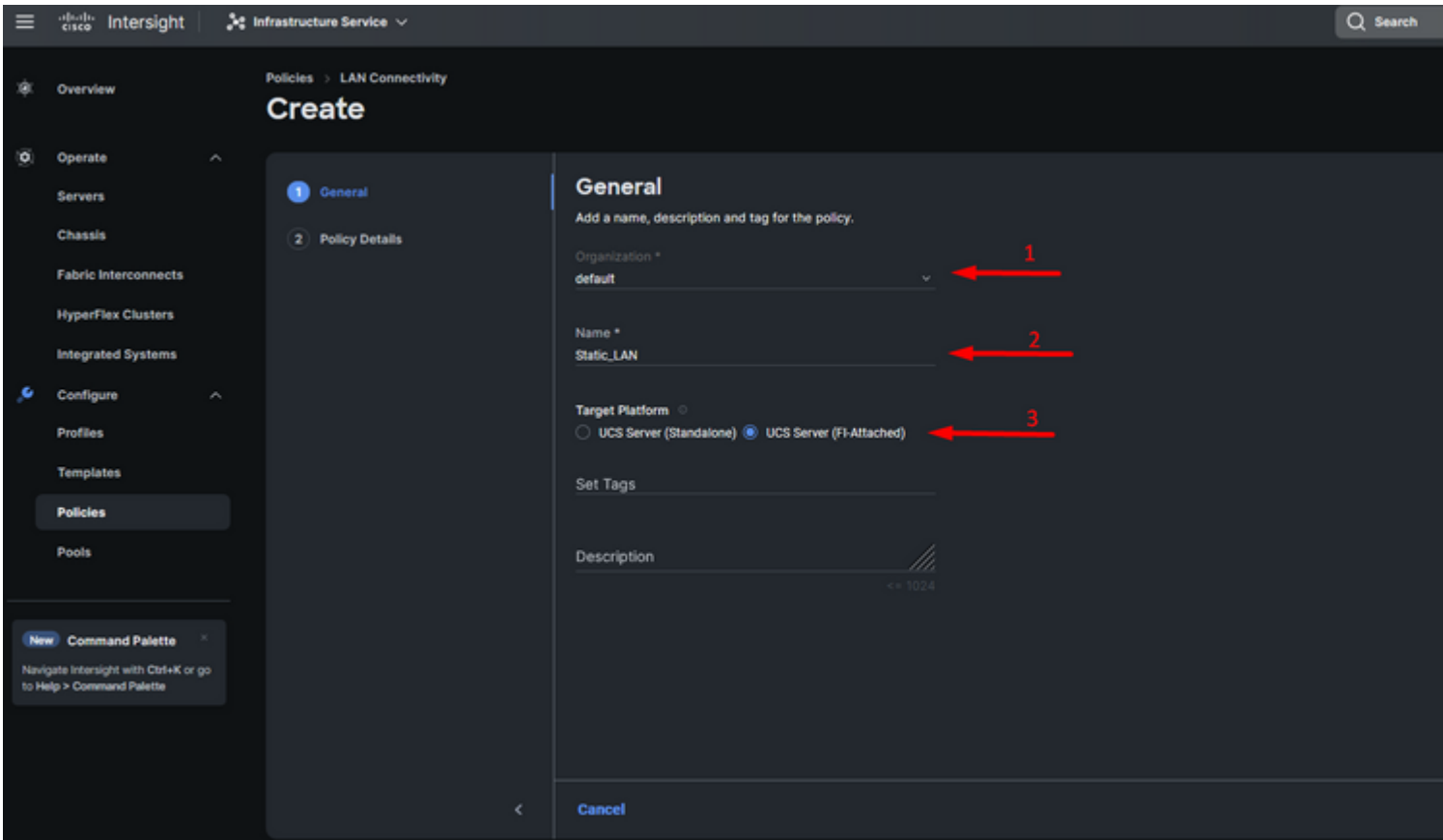
General information for LAN policy

Step 3. Navigate to **vNIC Configuration** and click on **Add vNIC** button.

Step 4. Name your vNIC and select the Pin Group name associated with this vNIC for static pinning.

Step 5. Select or create a **Pool Policy** for Mac addresses about to utilize. You can choose the Static option if you need a specific one.

Step 6. Select carefully the switch ID this vNIC is going to belong to.

For this sample configuration, **MGMT_A** belongs to the **EthMGMT** pin group and it points to Fabric Interconnect A.
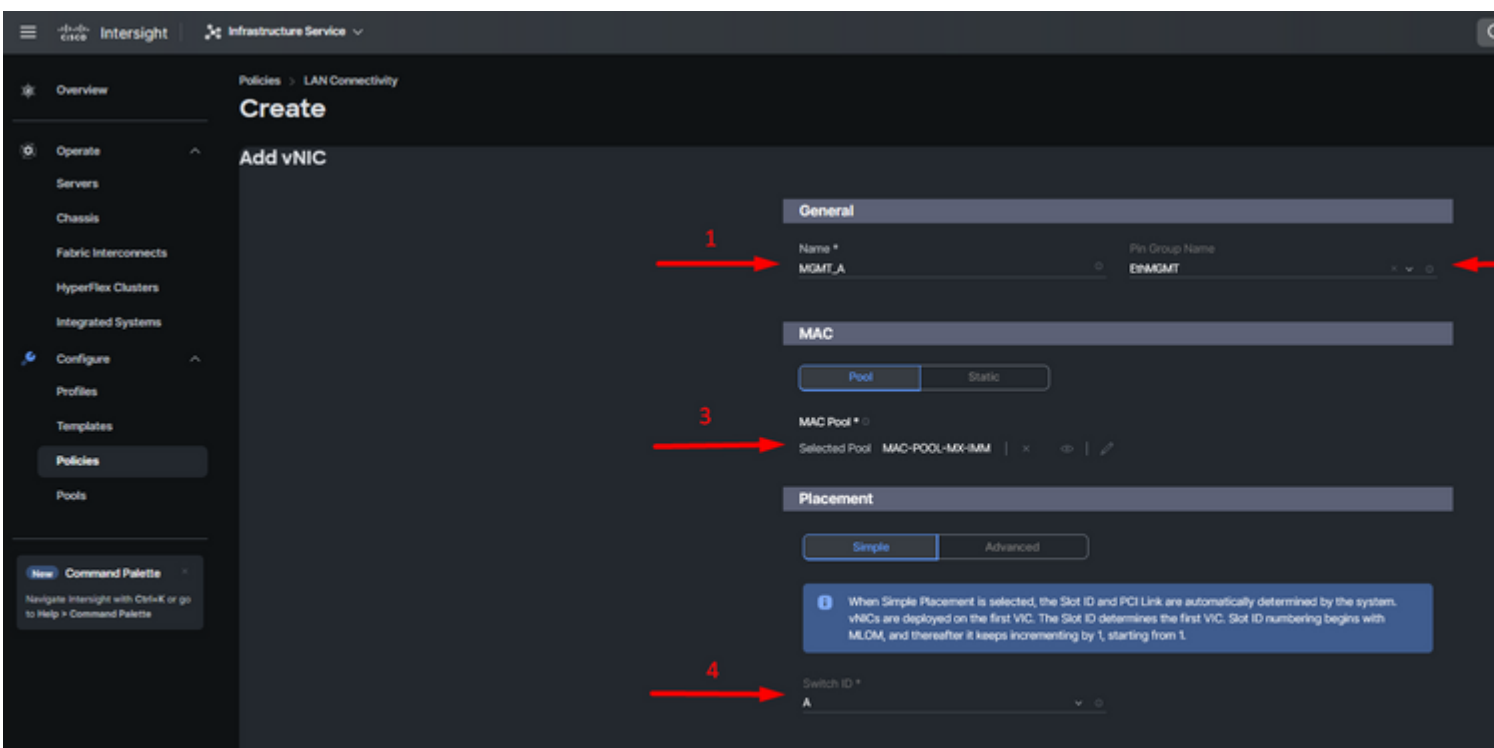
and select a policy for each marked (*) policy. Four of them need one policy selected to be able to Add your vNIC.

Step 8. Click **Add** once completed.
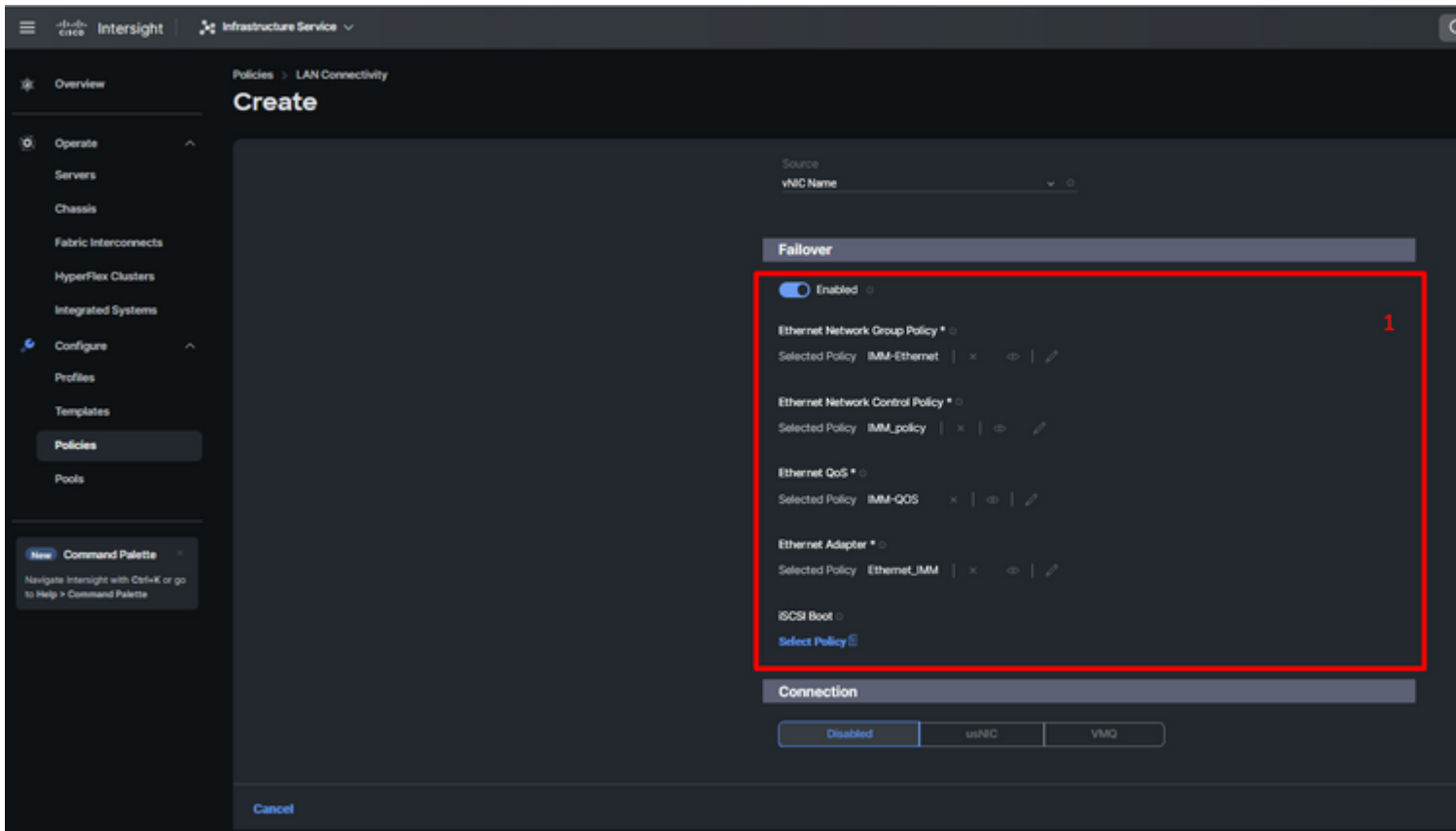
Fialover and policies for vNIC configuration

Step 9. Repeat the procedure since step 3 for the other vNICs. Then Verify all are properly configured.

Step 10. Click on **Create.**
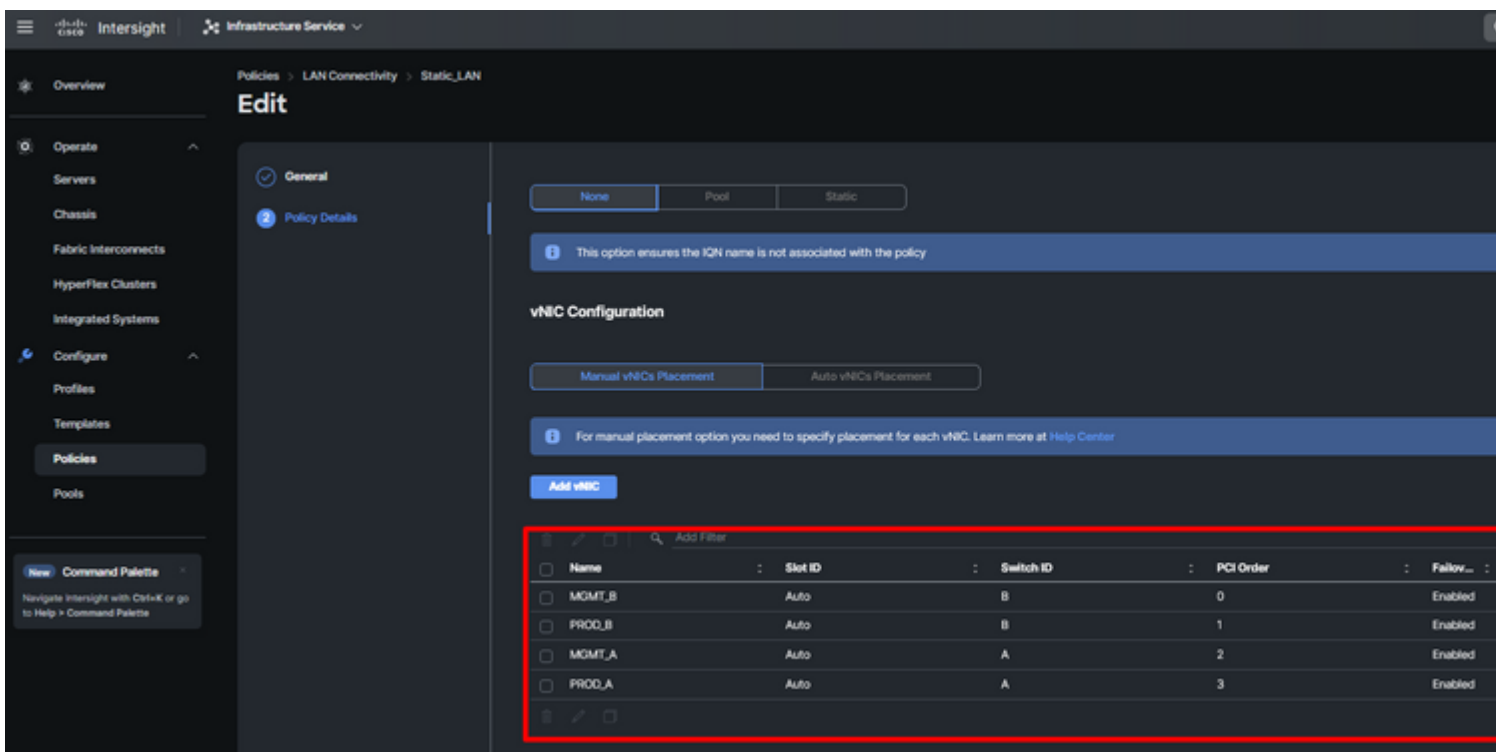
LAN policy Verification

Create SAN Connectivity Policy for UCS Server.

Step 1. Navigate to **Create Policy** and click on the button. On Platform Type, click on the **UCS Server** option to filter policies and to find the **SAN Connectivity** policy easier. Select it and click on **Start.**

. Select Organization, name your policy, and choose the target platform for which the server profile is applicable. Click **Next.**
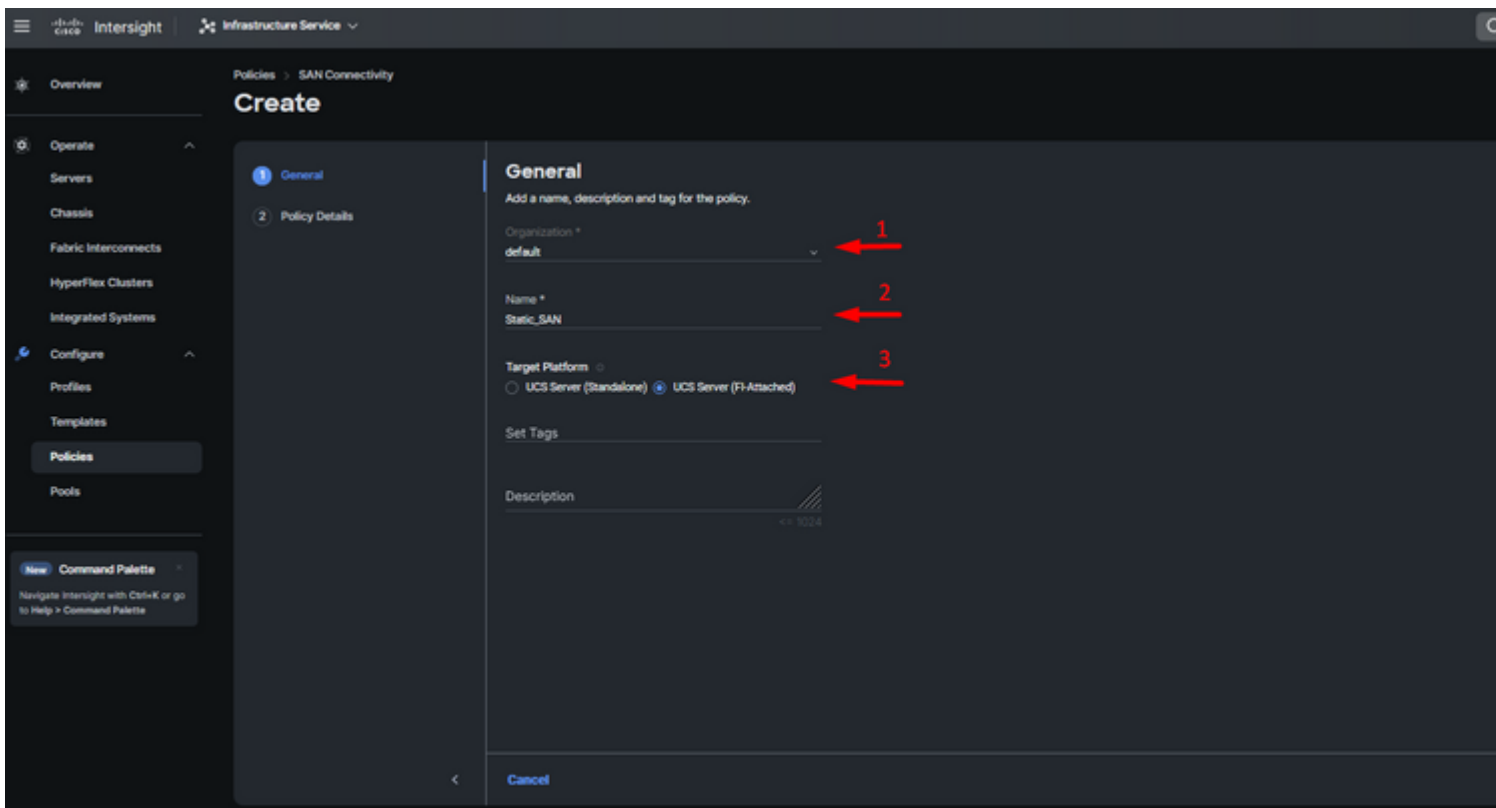
General Information SAN policy

Step 3. Select Manual vHBAs Placement.

Step 4. Navigate to **WWNN** and select or create WWNN Pool.

Step 5. Click on **Add vHBA** button.
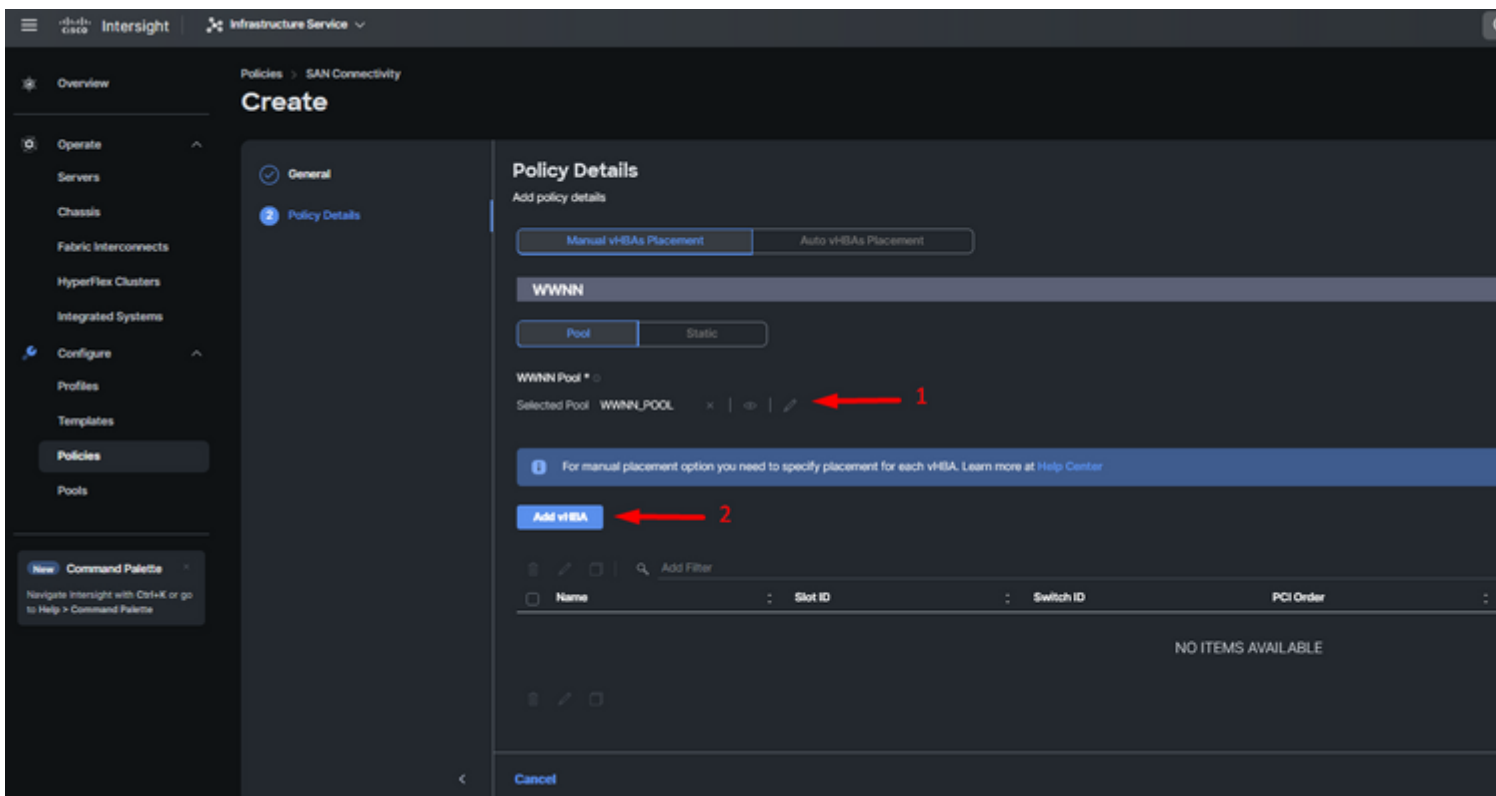
SAN policy

Step 6.
Name your vHBA and select the Pin Group name associated with this vHBA for static pinning. Choose
fc-initiator as vHBA Type.

. Select a policy for each marked (*) policy. Three of them need one policy selected to be able to Add your vHBA.

Step 10. Click **Add** once completed.
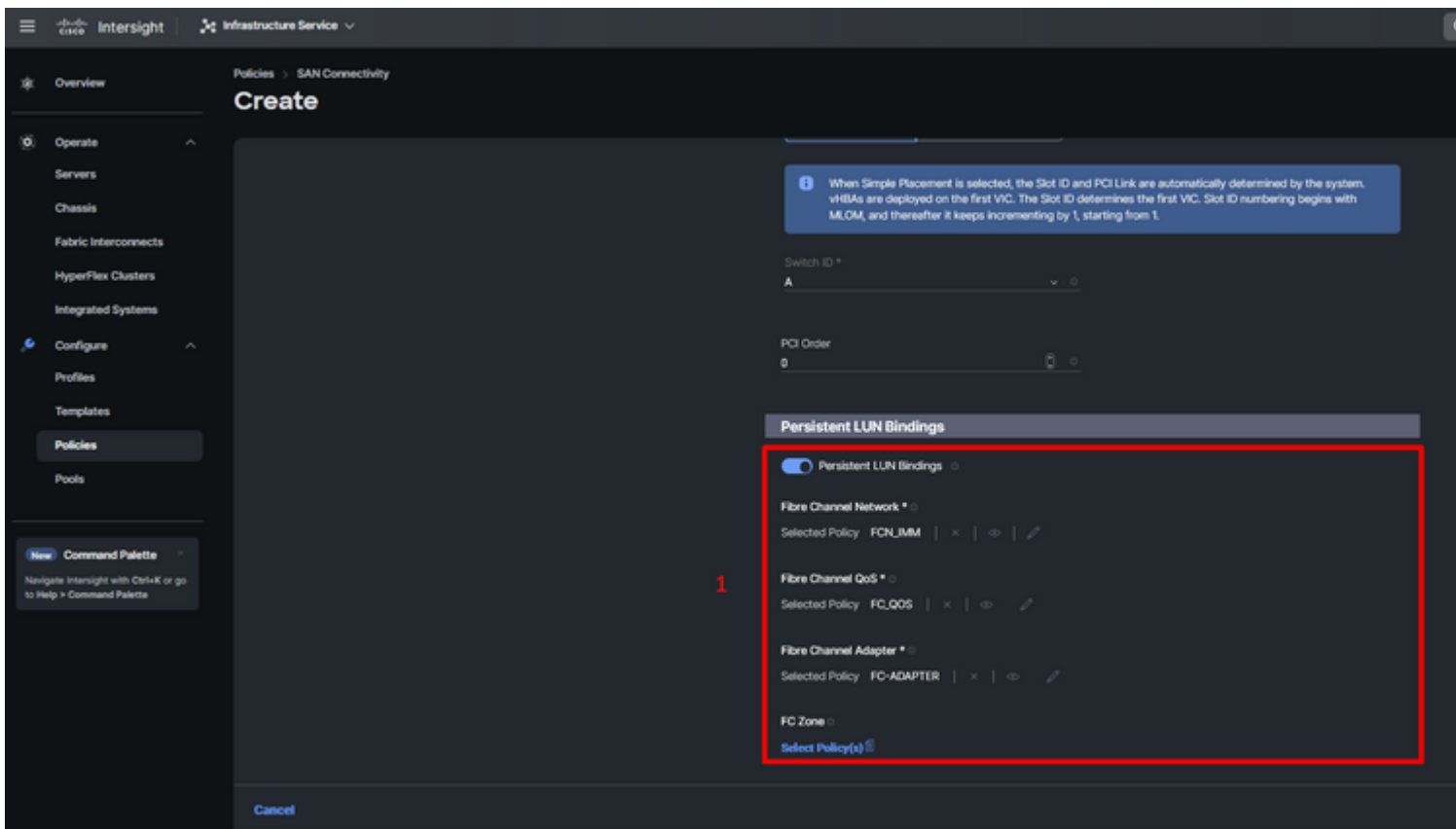
vHBA configuration policy

Step 11. Repeat the procedure from step 3 for the other vNICs. Then Verify all are properly configured.

Step 12. Click **Create.**
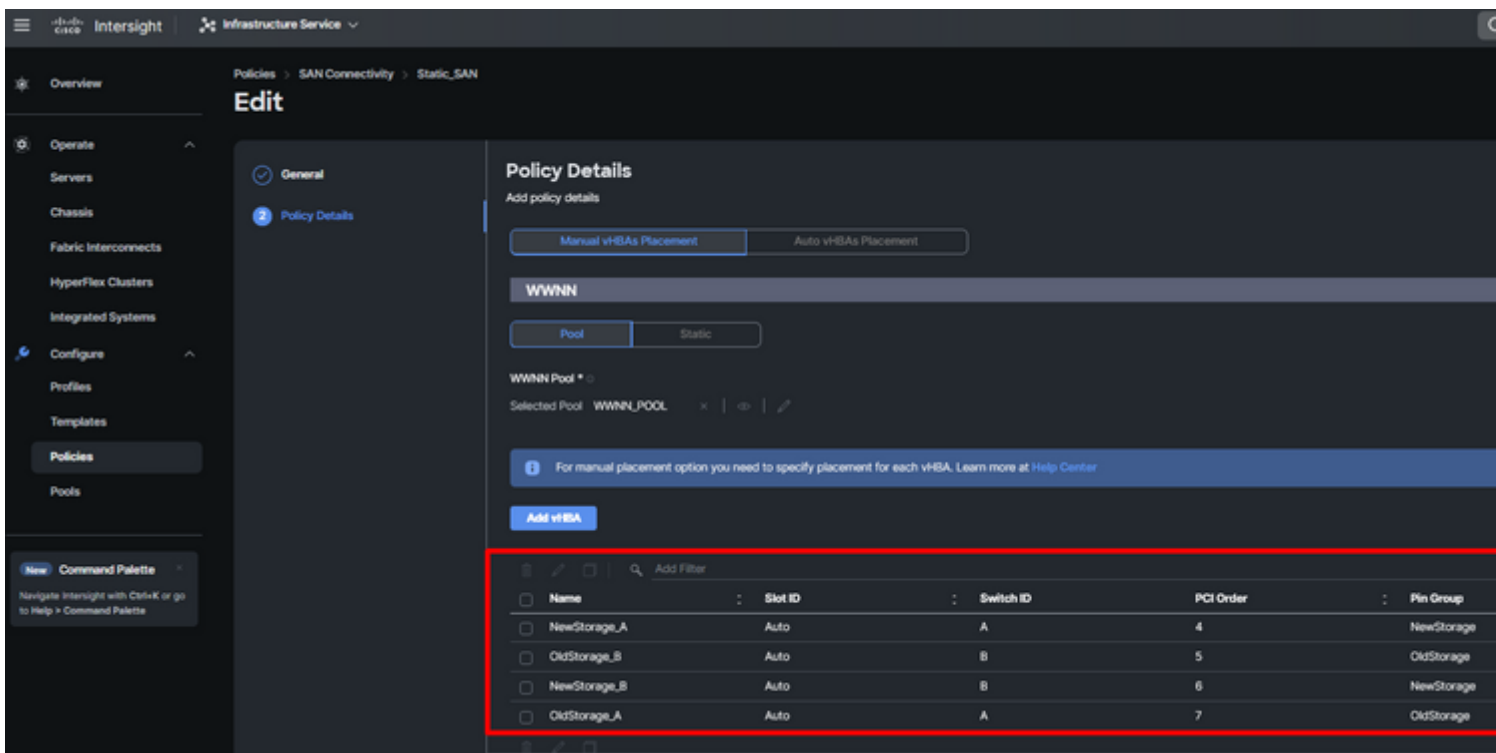
Verification SAN policy

Caution

: Verify numbers on the PCI Order are not repeated. The adapter cannot have the same PCI order for vNICs or vHBAs.

Verify

Associate the Port policy to your UCS Domain and then LAN & SAN policies to your Service Profile.

To verify the configuration with the command **show pinning server-interfaces** from the command line if your Fabric Interconnect.

```
UCS-TS-MXC-P25-6454-IMM-A(nx-os)# show pinning server-interfaces

--------------+--------------------+----------------------+---------
SIF Interface   Sticky               Pinned Border Interface  Pinned Du:
--------------+--------------------+----------------------+---------
Vlan1           No                   -                         -
sup-eth0        No                   -                         -
sup-eth1        No                   Eth1/45                   0:37:39
Po1025          No                   -                         -
Po1287          No                   -                         -
Po1302          No                   -                         -
Po1303          No                   -                         -
Eth1/9          No                   -                         -
Eth1/10         No                   -                         -
Eth1/13         No                   -                         -
Eth1/28         No                   -                         -
Eth1/33         No                   -                         -
Veth801         Yes(hard-pinned)     -                         -
Veth811         Yes(hard-pinned)     -                         -
Veth814         Yes(hard-pinned)     -                         -
Veth815         Yes(hard-pinned)     -                         -
Veth817         No                   -                         -
Veth820         No                   -                         -
Veth32768       No                   -                         -
Eth1/1/1        No                   -                         -
Eth1/1/2        No                   -                         -
Eth1/1/3        No                   -                         -
Eth1/1/4        No                   -                         -
Eth1/1/5        No                   -                         -
Eth1/1/6        No                   -                         -
Eth1/1/7        No                   -                         -
Eth1/1/8        No                   -                         -
Eth1/1/9        No                   -                         -
Eth1/1/10       No                   -                         -
Eth1/1/11       No                   -                         -
Eth1/1/12       No                   -                         -
Eth1/1/13       No                   -                         -
Eth1/1/14       No                   -                         -
Eth1/1/15       No                   -                         -
```

Hard pinning

There is no command that explicitly shows hard pinning is enabled as Ethernet does.

However, you can type **show npv traffic-map** command to verify the uplink configured o your policy.

This command works when the Fabric Interconnect is in End Host Mode. Otherwise, the command is not available.

```
UCS-TS-MXC-P25-6454-IMM-A(nx-os)# show npv traffic-ma

NPV Traffic Map Information:
-------------------------------------------
```