Auto-Provisioning ToR Switches Attached to VXLAN VTEPs

This chapter describes how to configure the Top-of-Rack (ToR) switches and deploy networks in DCNM.

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Overview

From Cisco DCNM 11.3(1), support for the Top-of-Rack (ToR) switches is added in Cisco DCNM. You can add the Layer 2 ToR switches in an external fabric, and they can be connected to the Leaf switches in the Easy Fabric. Typically, the Leaf and ToR devices are connected with back-to-back vPC connection. For more information, see Supported Topologies for ToR Switches.

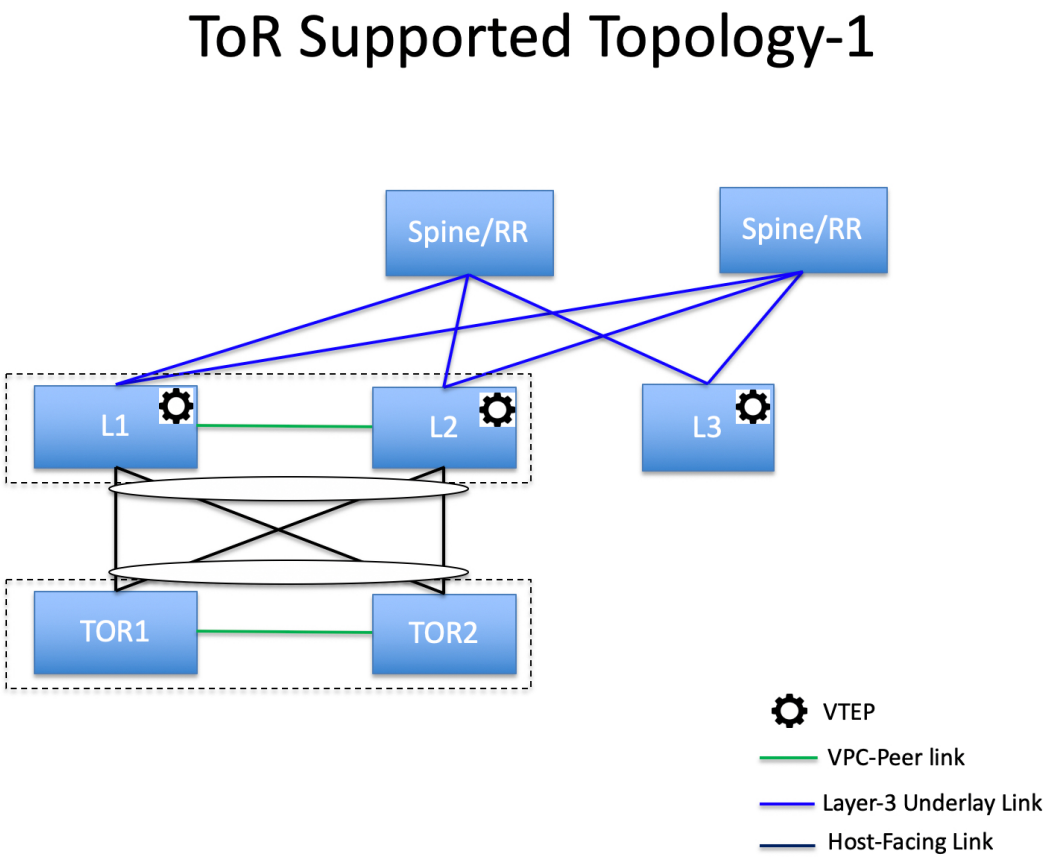
You can also watch the video that shows how to configure the ToR switches and deploy networks on these switches using Cisco DCNM. See Configuring ToR Switches.

Supported Topologies for ToR Switches

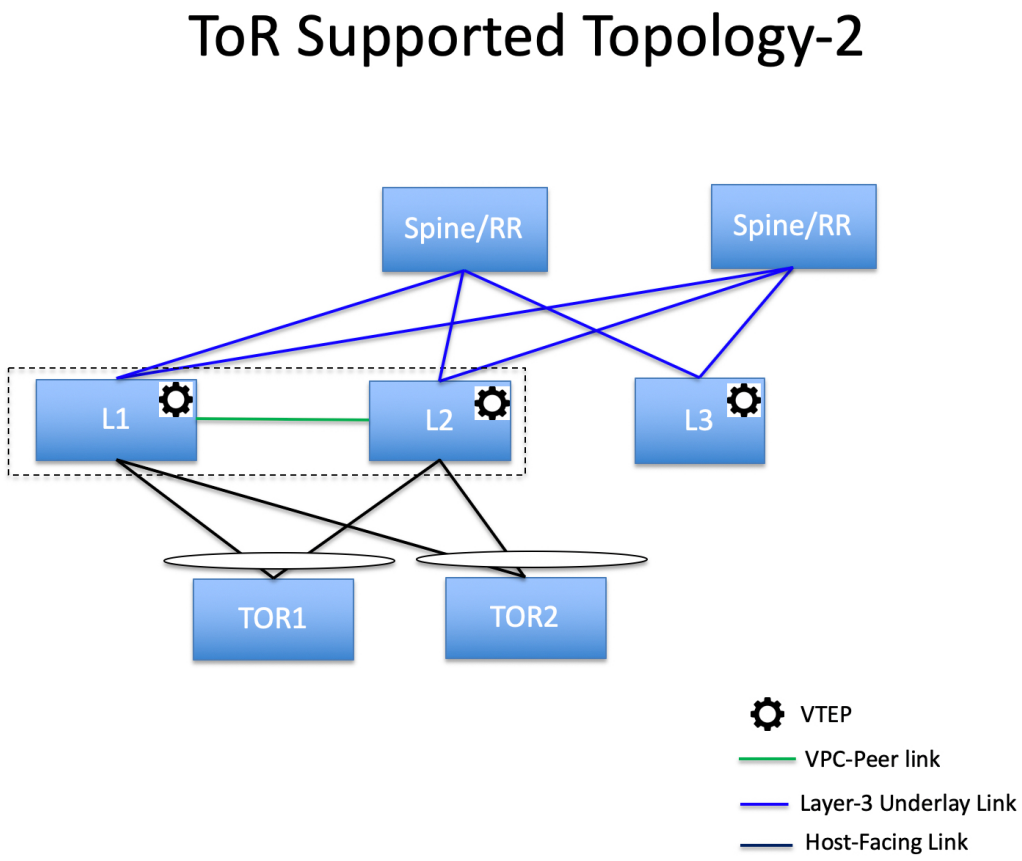
The following topologies with ToR switches are supported in DCNM:

Note Cisco Nexus 7000 Series Switches do not support the **ToR** switch role in Cisco DCNM.

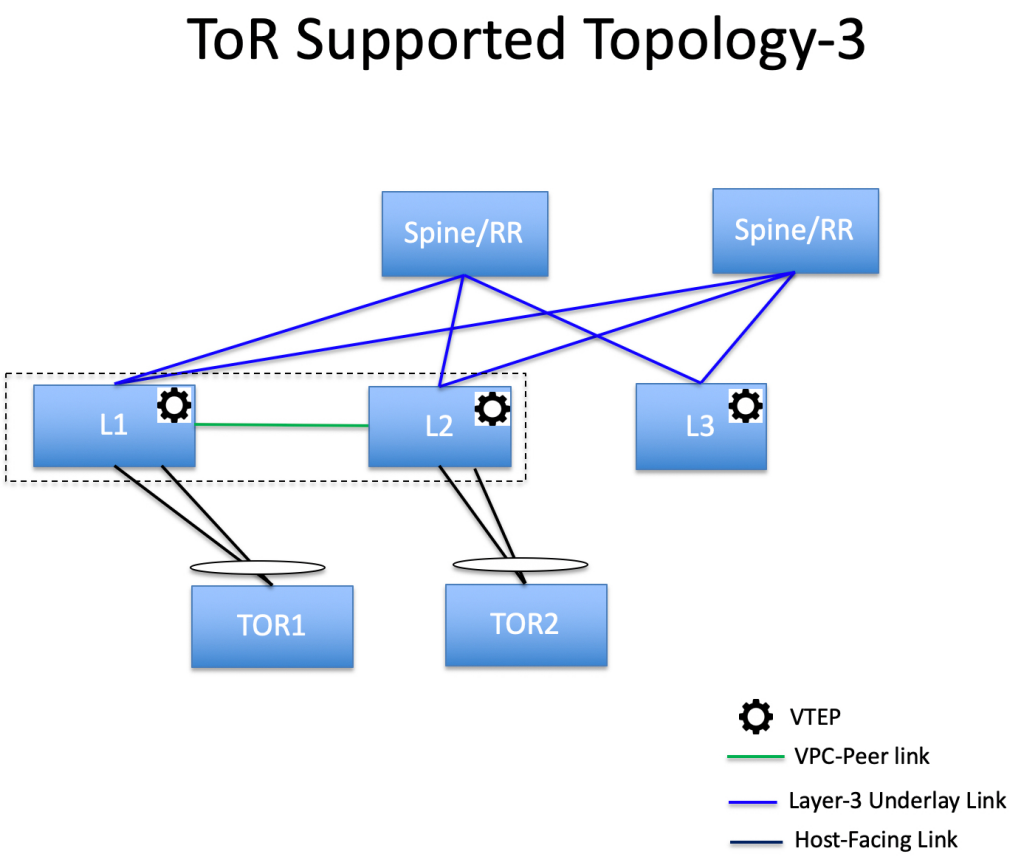
- ToR switches with back to back vPC connection to the leaf switches.



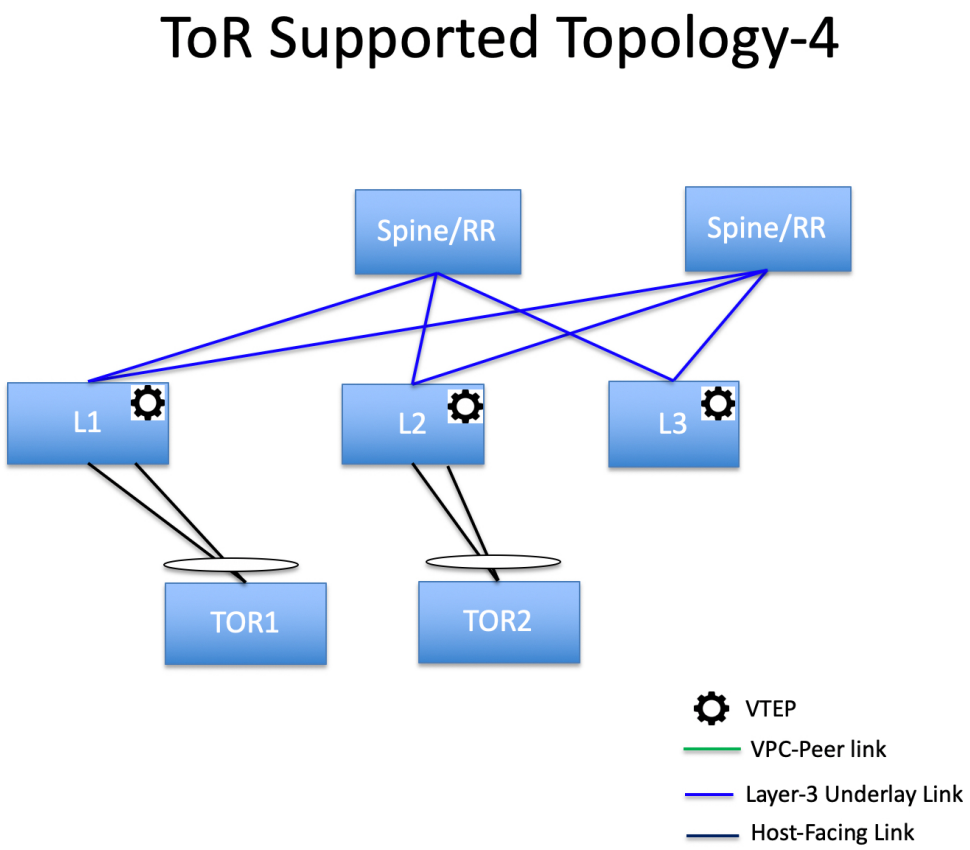
- ToR switches with port channels connected to both the leaf switches. The L1 and L2 switches are connected as a vPC pair.



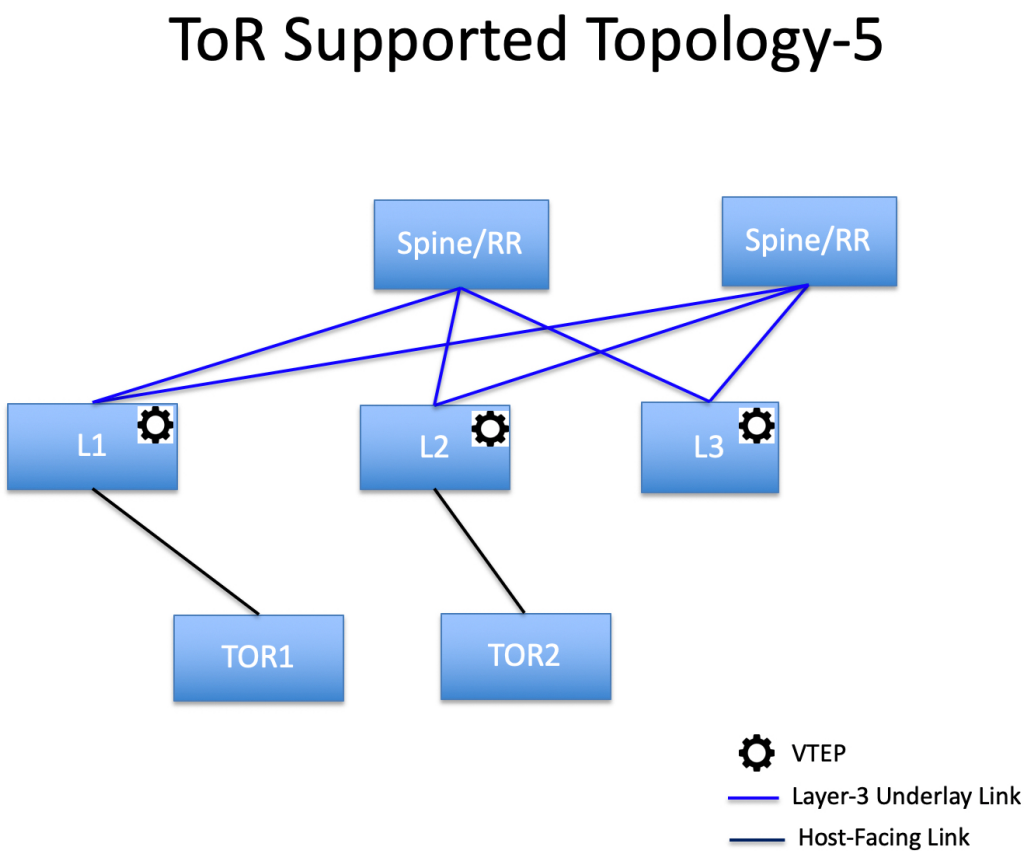
- ToR switches with port channels directly connected to the leaf switches. The L1 and L2 switches are connected as a vPC pair.



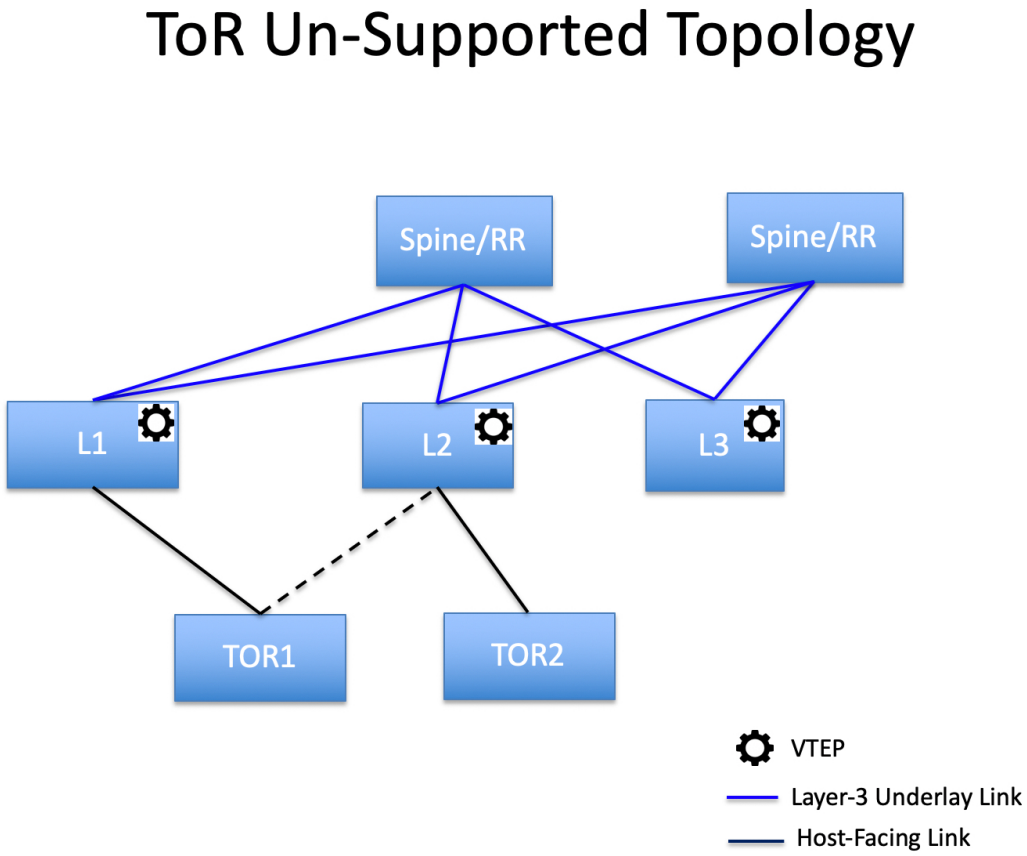
- ToR switches with port channels directly connected to the leaf switches. vPC pairs are not configured for the leaf or ToR switches.



- ToR switches directly connected to the leaf switches. vPC pairs are not configured for the leaf or ToR switches.



The following topology with ToR switches is not supported in DCNM:



Configuring ToR Switches

Before you begin, make sure you have an Easy Fabric or create and deploy a new fabric. For more information, see *Creating a New VXLAN BGP EVPN Fabric* in *Cisco DCNM LAN Fabric Configuration Guide*.

Note DCNM supports the trunk_host policies for the ToR switches. Make sure ToR has vPC policies, port channel, and trunk host. These policies are used to connect the ToR switches in the external fabric to the Leaf switches in the Easy Fabric.

Procedure

Step 1 Create an external fabric and add two ToR switches. For more information, see *Creating an External Fabric* in *Cisco DCNM LAN Fabric Configuration Guide*.

The number of ToR switches can be more than two. This procedure shows how to configure ToR switches as shown in the ToR Topology-1, where ToR switches are connected using vPC. The following are the different scenarios for connecting the ToR switches:

- If vPC is not configured on the ToR switches, then vPC policies need to be applied on ToR facing interfaces if uplinks of these ToR switches are connected to vPC leaf switches.
- If ToR switches are connected to leaf using port-channel, then port-channel policies need to be applied on the ToR interfaces connected to the leaf switches.
- If ToR switches are connected to leaf switches as standalone, the trunk policies need to be applied on the TOR interfaces.

Note
- While creating the external fabric, make sure that the **Fabric Monitor Mode** check box is not selected.
- The two ToR switches must be connected and have same switch role.

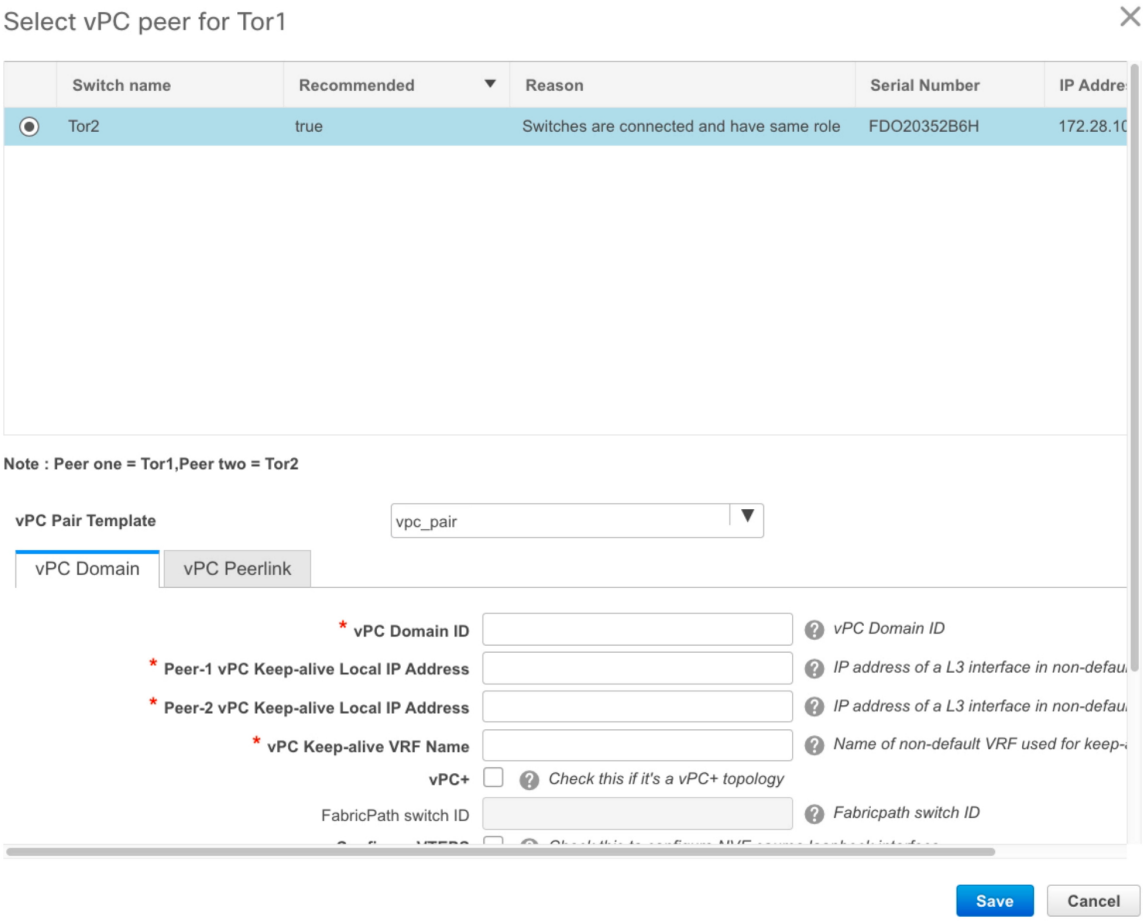
After adding the ToR switches, make sure that the role for the ToR switches is selected as ToR.

Step 2 Right-click a ToR switch and select **vPC Pairing**.

Select the second ToR switch as a vPC Peer.

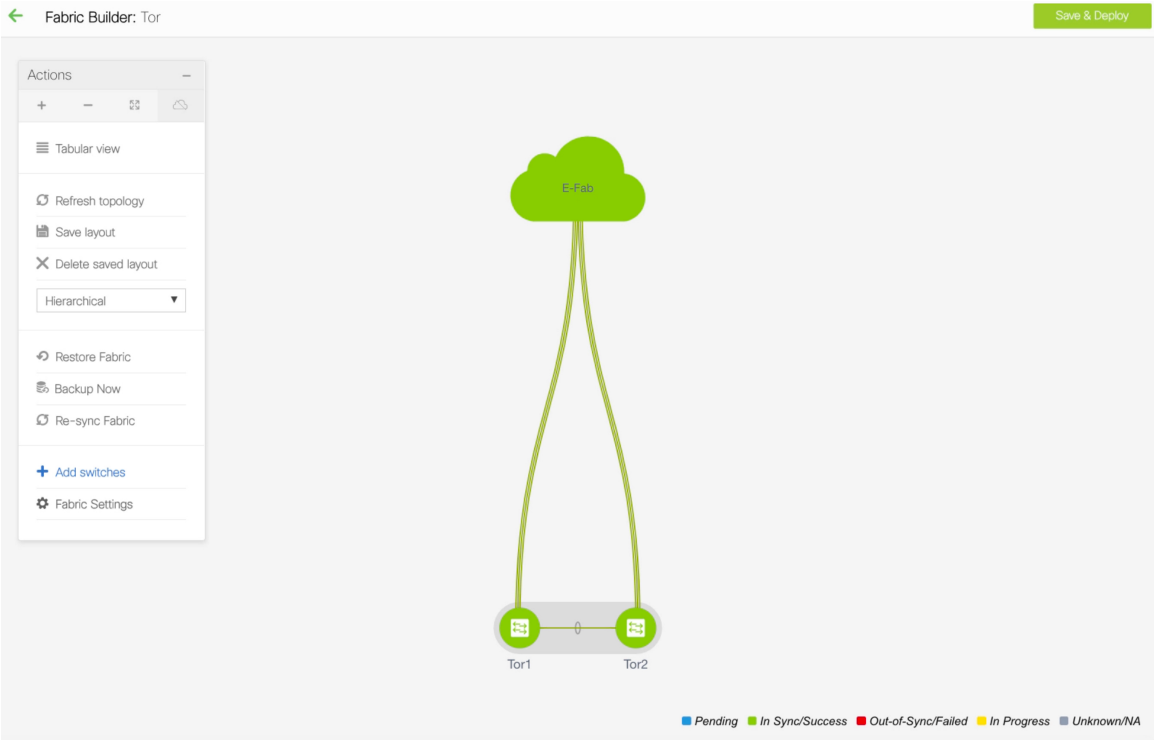
Step 3 Under vPC Pair Template, enter all the relevant details for a vPC connection between both the ToR switches. For more information about fields and their descriptions, see *Creating a vPC Setup in the External Fabric* in *Cisco DCNM LAN Fabric Configuration Guide*.

Note The Step 2 and 3 are required since this example shows the ToR configuration for Topology-1. For Topology 2, 3, 4, and 5, the steps 2 and 3 are not required.



Step 4 Click **Save & Deploy**, and then click **Deploy Config**.

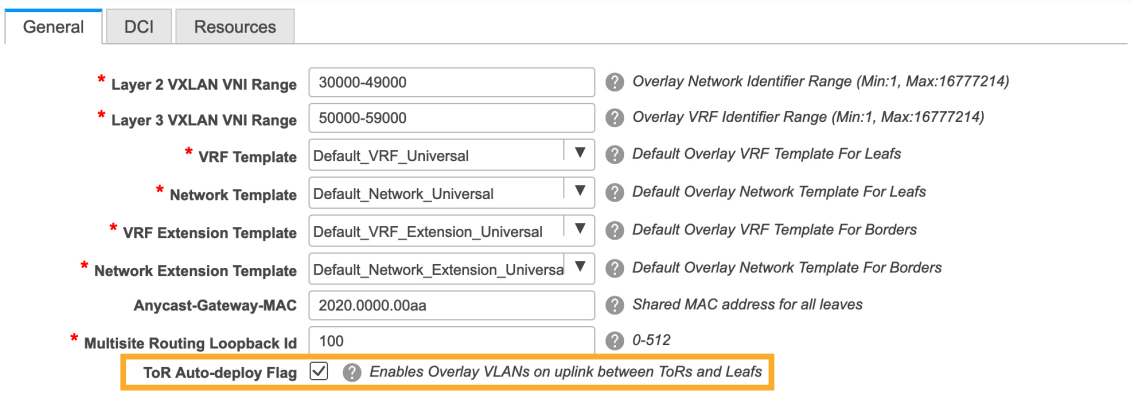
Step 5 After the progress bar shows 100% in the **Config Deployment** window, click **Close**.



Step 6 Create an MSD fabric.

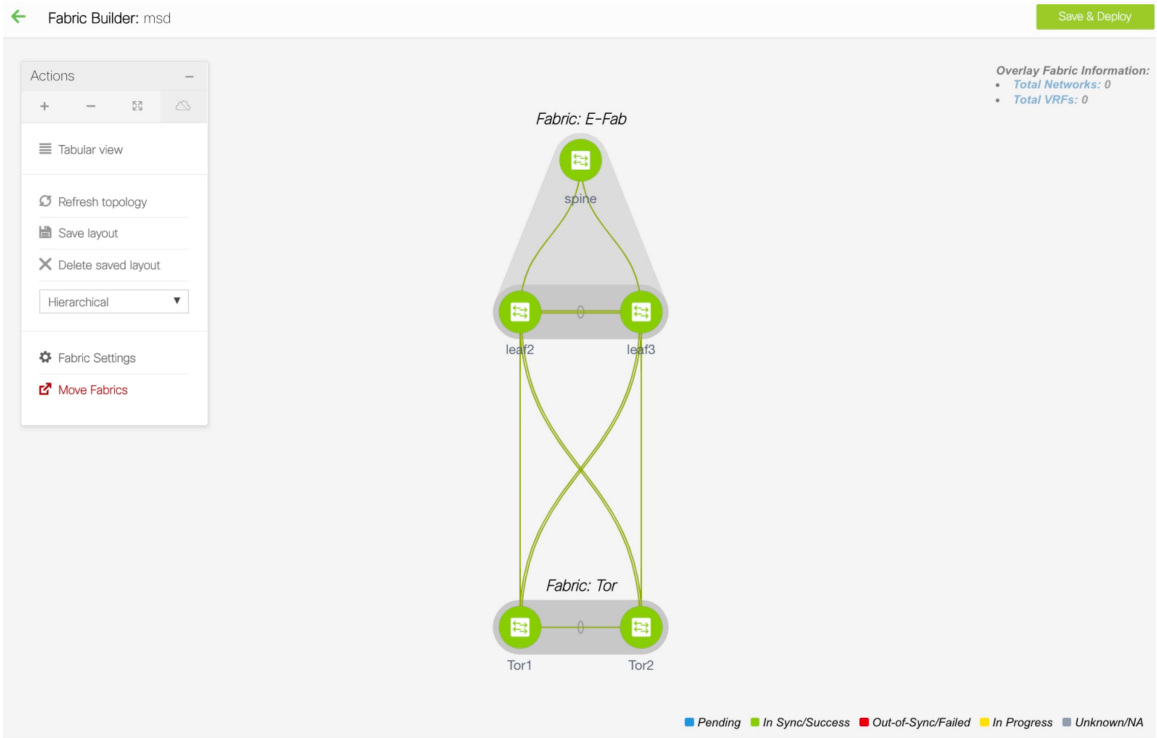
While creating the MSD fabric, under the General tab, select the ToR Auto-deploy Flag check box. This action enables automatic deployment of the networks and VRFs in the Easy Fabric to the ToR switches in the External Fabric when you click Save & Deploy in the MSD fabric. For more information, see Deploying Networks on ToR Switches.

For information about the remaining tabs and fields, see *Creating an MSD Fabric* in *Cisco DCNM LAN Fabric Configuration Guide*.



Step 7 Click **Move Fabric** in the **Action** panel. In the **Move Fabric** window, select the Easy Fabric and click **Add**.

Similarly, move the external fabric that contains the ToR switches to the MSD fabric.

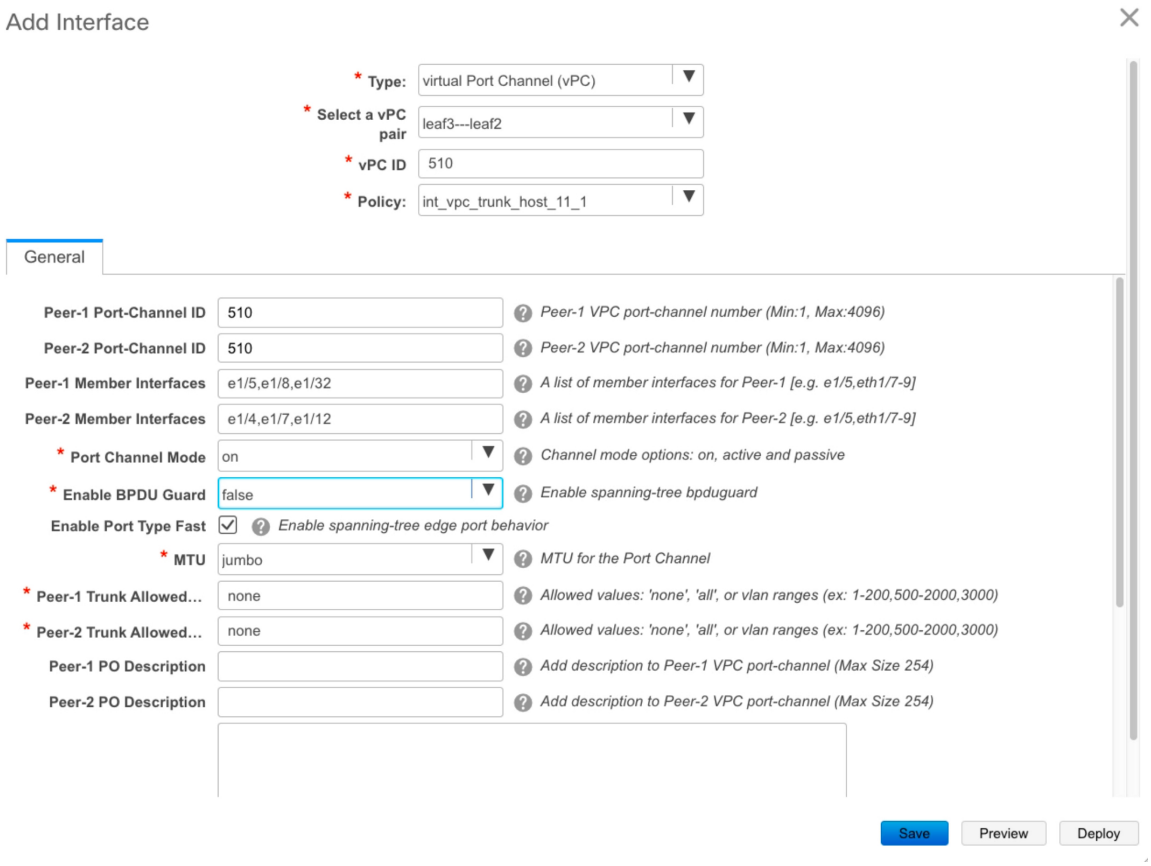


Step 8 Click the **Back** icon and click the Easy fabric containing the leaf switches.

Step 9 You need to create a vPC between the leaf and ToR switches. Right-click a leaf switch and select **Manage Interfaces**.

Step 10 In the **Manage Interfaces** window, click the **Add** icon to create a vPC.

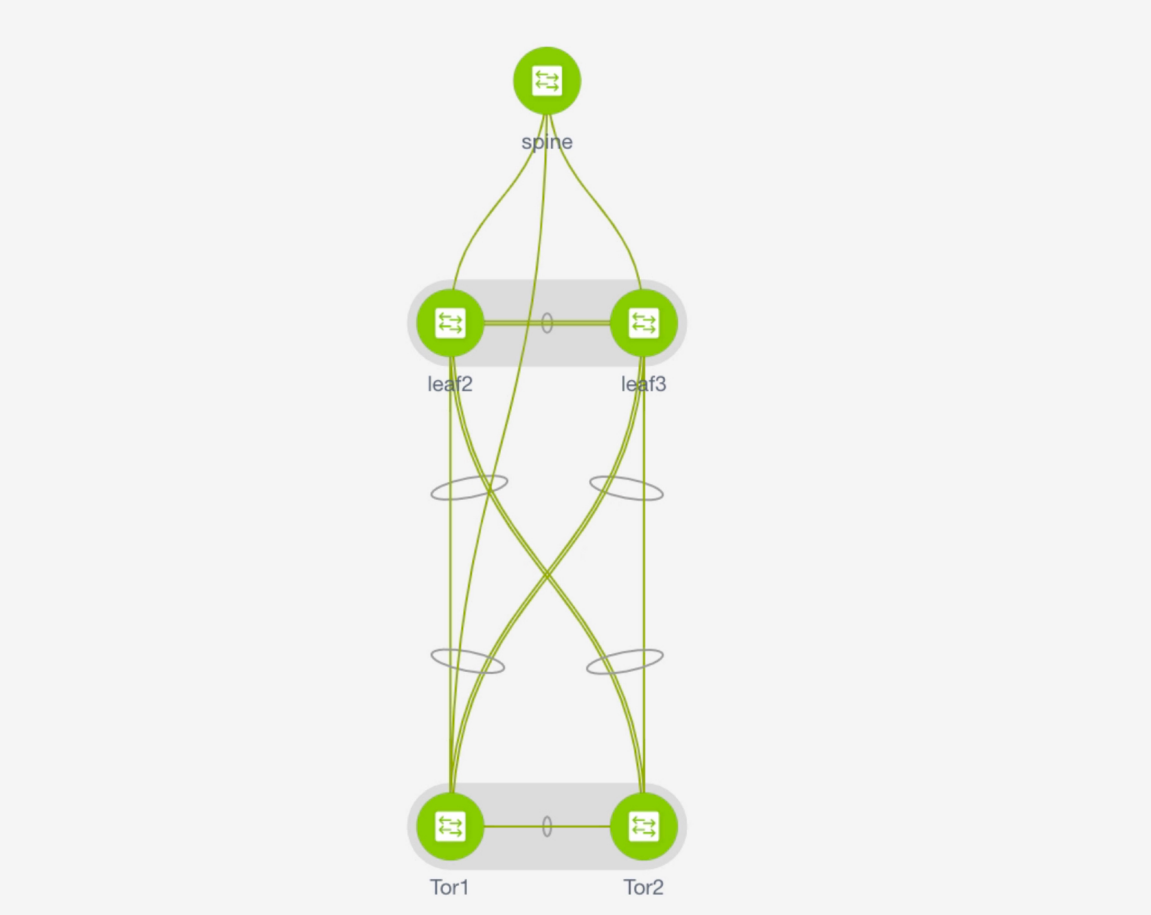
Enter all the relevant details in the **Add Interface** window and click **Save**.



For more information about the fields in this window, see Adding Interfaces.

After saving all the information, click **Deploy**.

Similarly, follow the Steps 9 and 10 to create a vPC in the ToR switch as well.



Deploying Networks on ToR Switches

To deploy networks on ToR switches in the external fabrics, you need to deploy them on the switches in the Easy Fabric through MSD. These switches should be connected to the ToR switches.

Procedure

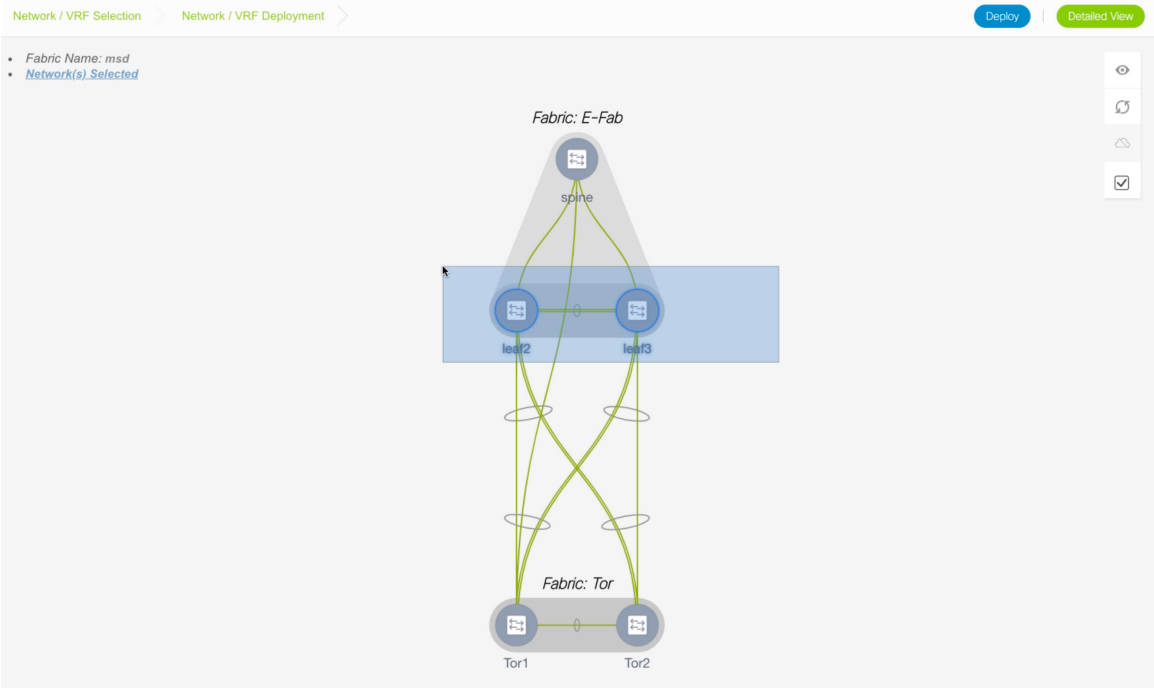
Step 1 Navigate to **Control** > **Networks**.

Step 2 In the **Networks** window, from the **SCOPE** drop-down list, select the MSD fabric.

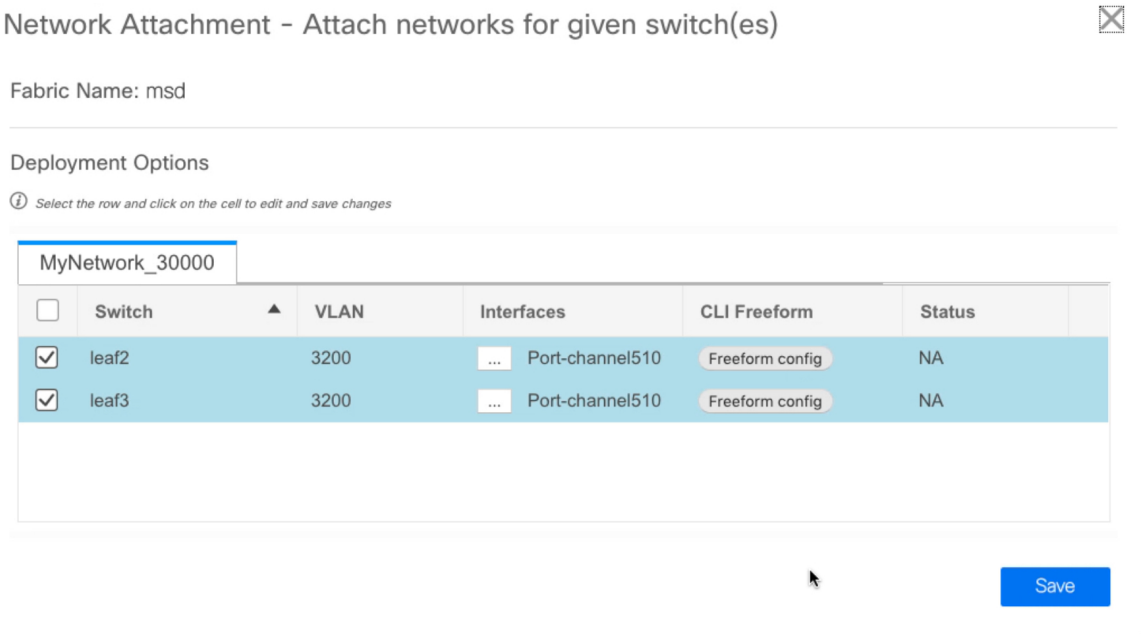
Step 3 Select the networks that you want to deploy or create a new network. For information about creating a network, see *Creating Networks for the Standalone Fabric* in the *Cisco DCNM LAN Fabric Configuration Guide*.

Click **Continue**.

Step 4 In the **Network Deployment** window, select the **Multi-select** check box and drag the cursor over the leaf switches in the Easy Fabric.



Step 5 In the **Network Attachment** window, click **...** in the **Interfaces** column.



The **Interfaces** window lists interfaces or port channels. You can select interfaces/port channels to associate them with the selected network. These port channels connect the leaf switches to the ToR switches. The networks will be deployed on these port channels.

Click **Save** and close this window.

Step 6 Click **Deploy**.

Now the VLANs are deployed on the leaf switches.

Step 7 Navigate to **Control > Fabric Builder**.

Step 8 Click the MSD fabric and click **Save & Deploy**.

The networks created and deployed on the leaf switches in the Easy Fabric are also deployed on the ToR switches in the external fabric. This step allows the same VLANs to be configured on the ToR switches that are deployed on the leaf switches in the Step 6.

Note If VLANs are created on the ToR switches manually using the freeform configs, they are not modified.