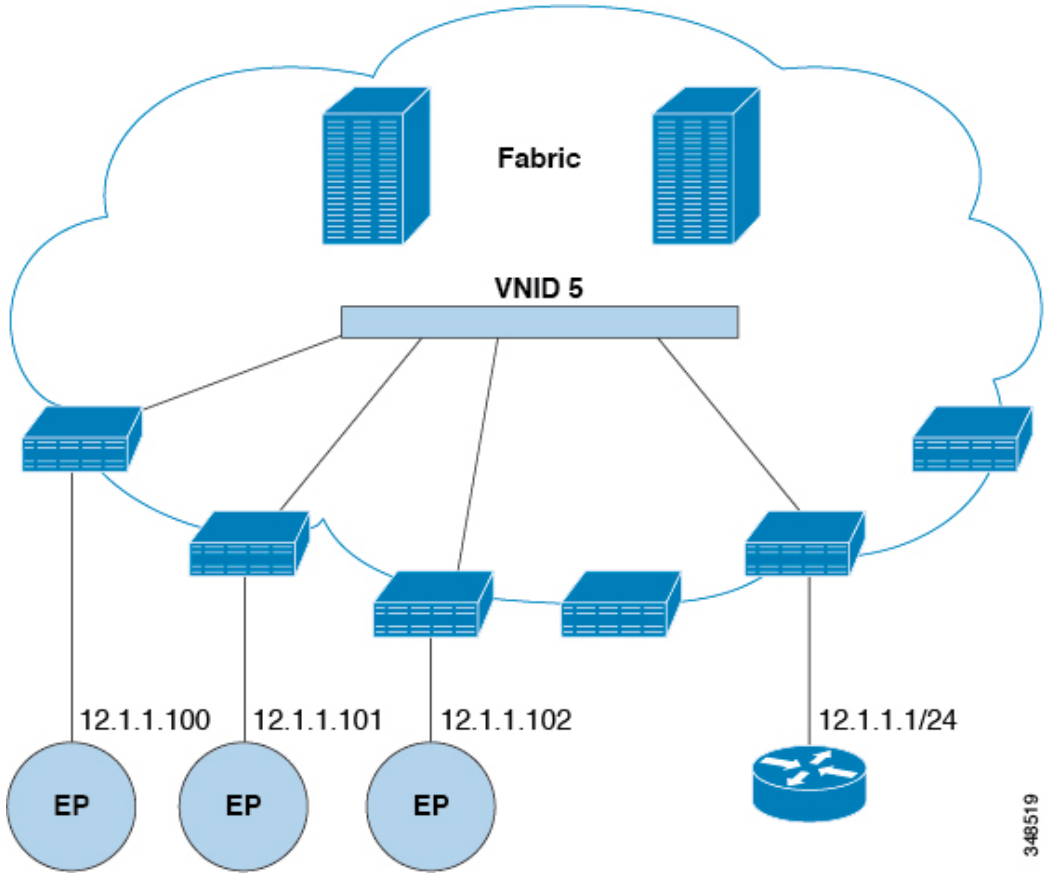
Bridging

This chapter contains the following sections:

Bridged Interface to an External Router

As shown in the figure below, when the leaf switch interface is configured as a bridged interface, the default gateway for the tenant VNID is the external router.

Figure 1: Bridged External Router



The ACI fabric is unaware of the presence of the external router and the APIC statically assigns the leaf switch interface to its EPG.

About Bridge Domains and Subnets

While a VRF (also known as a context) defines a unique IP address space, that address space can consist of multiple subnets. Those subnets are defined in one or more bridge domains that reference the corresponding context. Subnets can span multiple EPGs. Each bridge domain must be linked to a VRF and have at least one subnet.

Creating a Tenant, VRF, and Bridge Domain Using the Basic GUI

Procedure

Step 1 Log in to the **Basic Mode** in the APIC GUI, and on the menu bar, click **TENANT** > **Add Tenant**.

Step 2 In the **Create Tenant** dialog box, perform the following tasks:

a) In the **Name** field, enter a name.
b) Click the **Security Domains +** icon to open the **Create Security Domain** dialog box.
c) In the **Name** field, enter a name for the security domain. Click **Submit**.
d) In the **Create Tenant** dialog box, check the check box for the security domain that you created, and click **Submit**.

Step 3 In the **Navigation** pane, expand **Tenant-name** > **Networking**, drag the **VRF** icon to the canvas to open the **Create VRF** dialog box, and perform the following tasks:

a) In the **Name** field, enter a name.
b) Click **Submit** to complete the VRF configuration.

Step 4 In the **Networking** pane, drag the **BD** icon to the canvas while connecting it to the **VRF** icon. In the **Create Bridge Domain** dialog box that displays, perform the following tasks:

a) In the **Name** field, enter a name.
b) Expand **Subnets** to open the **Create Subnet** dialog box, enter the subnet mask in the **Gateway IP** field and click **OK**.
c) Click **Submit** to complete bridge domain configuration.

Step 5 In the **Networking** pane, drag the **L3** icon down to the canvas while connecting it to the **VRF** icon. In the **Create Routed Outside** dialog box that displays, perform the following tasks:

a) In the **Node ID** field, enter a node ID.
b) In the **Router ID** field, enter the router ID.
c) Expand **Static Routes** and enter the IPv4 or IPv6 addresses in the **IP Address** and the **Next Hop IP** fields and click **Update**.

Note The gateway IPv6 address must be a global unicast IPv6 address.

d) Click the **Protocols** box and select BGP, OSPF, and EIGRP for configuration as desired.
e) Click **OK** and then click **Submit** to complete Layer 3 configuration.

To confirm L3 configuration, in the **Navigation** pane, expand **VRFs** > **VRF name** > **Deployed VRFs**.

Creating a Tenant, VRF, and Bridge Domain Using the GUI

If you have a public subnet when you configure the routed outside, you must associate the bridge domain with the outside configuration.

Procedure

Step 1 On the menu bar, click **TENANT** > **Add Tenant**.

Step 2 In the **Create Tenant** dialog box, perform the following tasks:

a) In the **Name** field, enter a name.
b) Click the **Security Domains +** icon to open the **Create Security Domain** dialog box.
c) In the **Name** field, enter a name for the security domain. Click **Submit**.
d) In the **Create Tenant** dialog box, check the check box for the security domain that you created, and click **Submit**.

Step 3 In the **Navigation** pane, expand **Tenant-name** > **Networking**, and in the **Work** pane, drag the **VRF** icon to the canvas to open the **Create VRF** dialog box, and perform the following tasks:

a) In the **Name** field, enter a name.
b) Click **Submit** to complete the VRF configuration.

Step 4 In the **Networking** pane, drag the **BD** icon to the canvas while connecting it to the **VRF** icon. In the **Create Bridge Domain** dialog box that displays, perform the following tasks:

a) In the **Name** field, enter a name.
b) Click the **L3 Configurations** tab.
c) Expand **Subnets** to open the **Create Subnet** dialog box, enter the subnet mask in the **Gateway IP** field and click **OK**.
d) Click **Submit** to complete bridge domain configuration.

Step 5 In the **Networks** pane, drag the **L3** icon down to the canvas while connecting it to the **VRF** icon. In the **Create Routed Outside** dialog box that displays, perform the following tasks:

a) In the **Name** field, enter a name.
b) Expand **Nodes And Interfaces Protocol Profiles** to open the **Create Node Profile** dialog box.
c) In the **Name** field, enter a name.
d) Expand **Nodes** to open the **Select Node** dialog box.
e) In the **Node ID** field, choose a node from the drop-down list.
f) In the **Router ID** field, enter the router ID.
g) Expand **Static Routes** to open the **Create Static Route** dialog box.
h) In the **Prefix** field, enter the IPv4 or IPv6 address.
i) Expand **Next Hop Addresses** and in the **Next Hop IP** field, enter the IPv4 or IPv6 address.
j) In the **Preference** field, enter a number, then click **UPDATE** and then **OK**.
k) In the **Select Node** dialog box, click **OK**.
l) In the **Create Node Profile** dialog box, click **OK**.
m) Check the **BGP**, **OSPF**, or **EIGRP** check boxes if desired, and click **NEXT**. Click **OK** to complete the Layer 3 configuration.

To confirm L3 configuration, in the **Navigation** pane, expand **Networking** > **VRFs**.

Creating a Tenant, VRF, and Bridge Domain Using the NX-OS Style CLI

This section provides information on how to create tenants, VRFs, and bridge domains.

Note Before creating the tenant configuration, you must create a VLAN domain using the **vlan-domain** command and assign the ports to it.

Procedure

Step 1 Create a VLAN domain (which contains a set of VLANs that are allowable in a set of ports) and allocate VLAN inputs, as follows:

Example:

In the following example ("exampleCorp"), note that VLANs 50 - 500 are allocated.

```
apic1# configure
apic1(config)# vlan-domain dom_exampleCorp
apic1(config-vlan)# vlan 50-500
apic1(config-vlan)# exit
```

Step 2 Once the VLANs have been allocated, specify the leaf (switch) and interface for which these VLANs can be used. Then, enter "vlan-domain member" and then the name of the domain you just created.

Example:

In the following example, these VLANs (50 - 500) have been enabled on leaf 101 on interface ethernet 1/2-4 (three ports including 1/2, 1/3, and 1/4). This means that if you are using this interface, you can use VLANS 50-500 on this port for any application that the VLAN can be used for.

```
apic1(config-vlan)# leaf 101
apic1(config-vlan)# interface ethernet 1/2-4
apic1(config-leaf-if)# vlan-domain member dom_exampleCorp
apic1(config-leaf-if)# exit
apic1(config-leaf)# exit
```

Step 3 Create a tenant in global configuration mode, as shown in the following example:

Example:

```
apic1(config)# tenant exampleCorp
```

Step 4 Create a private network (also called VRF) in tenant configuration mode as shown in the following example:

Example:

```
apic1(config)# tenant exampleCorp
apic1(config-tenant)# vrf context exampleCorp_v1
apic1(config-tenant-vrf)# exit
```

Step 5 Create a bridge domain (BD) under the tenant, as shown in the following example:

Example:

```
apic1(config-tenant)# bridge-domain exampleCorp_b1
apic1(config-tenant-bd)# vrf member exampleCorp_v1
apic1(config-tenant-bd)# exit
```

Note In this case, the VRF is "exampleCorp_v1".

Step 6 Allocate IP addresses for the BD (ip and ipv6), as shown in the following example.

Example:

```
apic1(config-tenant)# interface bridge-domain exampleCorp_b1
apic1(config-tenant-interface)# ip address 172.1.1.1/24
```

```
apic1(config-tenant-interface)# ipv6 address 2001:1:1::1/64
apic1(config-tenant-interface)# exit
```

What to do next

The next section describes how to add an application profile, create an application endpoint group (EPG), and associate the EPG to the bridge domain.

Related Topics

Configuring a VLAN Domain Using the NX-OS Style CLI

Creating a Tenant, VRF, and Bridge Domain Using the REST API

Procedure

Step 1 Create a tenant.

Example:

```
 POST https://apic-ip-address/api/mo/uni.xml
<fvTenant name="ExampleCorp"/>
```

When the POST succeeds, you see the object that you created in the output.

Step 2 Create a VRF and bridge domain.

Note The Gateway Address can be an IPv4 or an IPv6 address. For more about details IPv6 gateway address, see the related KB article, *KB: Creating a Tenant, VRF, and Bridge Domain with IPv6 Neighbor Discovery* .

Example:

```
 URL for POST: https://apic-ip-address/api/mo/uni/tn-ExampleCorp.xml

<fvTenant name="ExampleCorp">
   <fvCtx name="pvn1"/>
   <fvBD name="bd1">
      <fvRsCtx tnFvCtxName="pvn1"/>
      <fvSubnet ip="10.10.100.1/24"/>
   </fvBD>
</fvTenant>
```

Note If you have a public subnet when you configure the routed outside, you must associate the bridge domain with the outside configuration.