

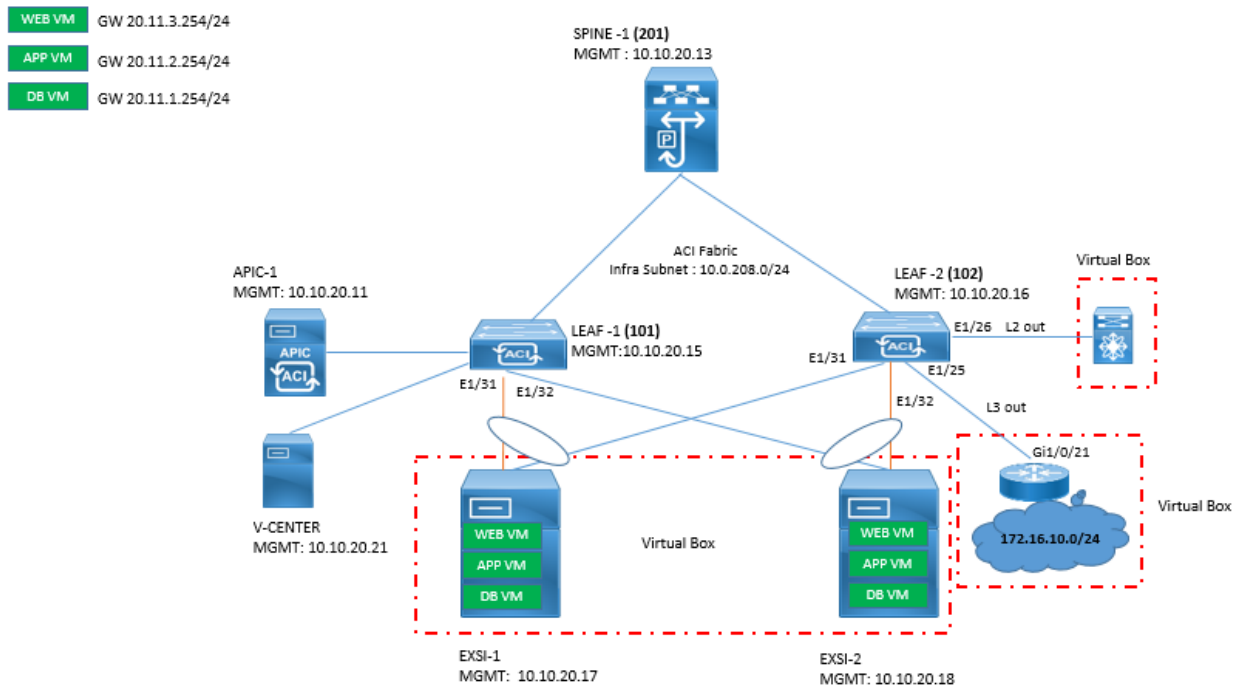
Building basic Network Constructs

Platform: <https://racks.uninets.com>

Lab Name: Nexus ACI

Topology

Building basic Network Constructs



Task

- The Following task will be completed.
- Building a Tenant
- Building a Private Layer 3 Network
- Building a Bridge Domain

Virtual Lab Topology

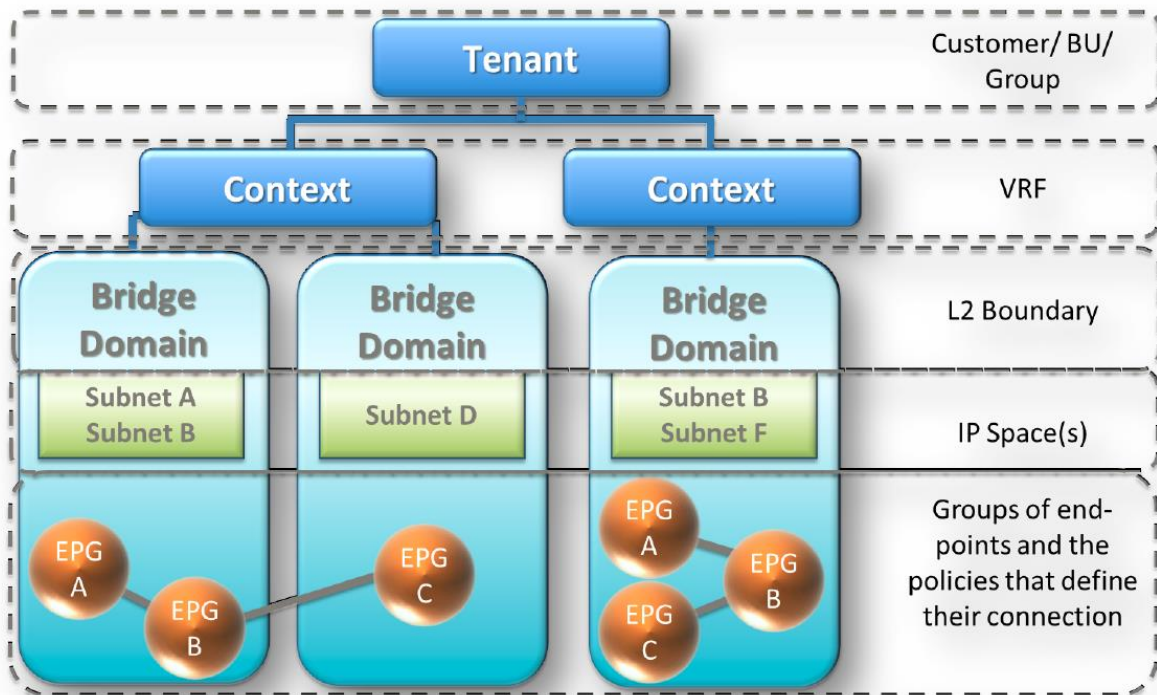
Following is the virtual Lab topology, which contains which consists of the following virtual machines:

- vCenter Server (also use as the RDP jump box)
- ACI Simulator – release version 1.0.1e

- APIC-1
- SLeaf1 and Leaf2
- Spine-1

- ESXi-1
- ESXi-2
- Linux

In this lab we explore the tenancy capabilities of the ACI system. ACI is designed to scale from smaller commercial environments, which may use a single tenant to large cloud providers with support for 64,000 tenants and above.



Building a Tenant:

1. If you are currently not logged into the APIC GUI please follow the steps to do so from Lab 1 "System Login" before proceeding. We will use the wizard to create the Tenant. Follow the figure below to add a tenant.

From the top-menu, select "TENANTS"

2. On the sub-menu, click on "ADD TENANT" that is shown in the orange box
3. A pop-up window will appear to go through the process of adding a tenant.



- In the “Name” window, type in Uninets.
- In the “VRF Name” field, type in Uninets_VRF, which will create the VRF when finished
- Leave the check box to default “Take me to the tenant when I click finish”
- Click on “SUBMIT” to continue

Create Tenant

Specify tenant details

Name:

Alias:

Description:

Tags:
enter tags separated by comma

GUID:

Provider	GUID	Account Name
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Monitoring Policy:

Security Domains:

Name	Description
------	-------------

VRF Name:

Take me to this tenant when I click finish

Building a Private Layer 3 Network


Next window will appear to add a network. This is where we will create a bridge domain and private layer 3 Network.

The screenshot shows the Cisco APIC interface. At the top, there are navigation tabs for System, Tenants (selected), Fabric, VM Networking, L4-L7 Services, Admin, Operations, and Apps. Below the tabs is a search bar for tenants. The main content area is split into two panes. The left pane, titled 'Tenant Uninets', contains a tree view with categories like Application Profiles, Networking (selected), Bridge Domains, VRFs, External Bridged Networks, External Routed Networks, Protocol Policies, Dot1Q Tunnels, L4-L7 Service Parameters, DNS Server Groups (Beta), Security Policies, Monitoring Policies, Troubleshoot Policies, L4-L7 Services, and NetFlow. The right pane, titled 'Networks', displays a row of icons for VRF, Bridge, L2, L3, Common VRF, and Common BD. Below this row, a single 'Uninets_VRF' icon is shown in the workspace.

Building a Bridge Domain

The next window will create the Bridge Domain for this private L3 network.



- Drag and drop the  icon over the Uninets_VRF icon in order to add a bridge domain to the VRF. The following window will appear
- In the “Name” window, type in Uninets_Web_BD
- Set the “Forwarding” to Optimize
- Leave the other options blank

Create Bridge Domain



Specify Bridge Domain for the VRF

Main

L3 Configurations

Advanced/Troubleshooting

Name:

Alias:

Description:

Type:

Forwarding:
▼

End Point Retention Policy:
▼
This policy only applies to local L2 L3 and remote L3 entries

IGMP Snoop Policy:
▼

- Click on menu option at the top of the window for L3 Configurations and the following window will appear
- In the “Subnets:” section, click on the “+” to add a gateway and mask and the following window will appear
- Please type in for the “Gateway IP” as 20.11.3.254/24 and leave everything else as default in that row.
- Click on the “OK” button.
- Once the “OK” button has been clicked, the “OK” button on the previous screen will become active. Please click on the “OK” button that is now active on that screen.

ALL TENANTS | Add Tenant | Tenant Search: Enter name, alias, d

Main | L3 Configurations | Advanced/Troubleshooting

Tenant Uninets

- Quick Start
- Tenant Uninets
 - Application Profiles
 - Networking**
 - Bridge Domains
 - VRFs
 - External Bridged Networks
 - External Routed Networks
 - Protocol Policies
 - Dot1Q Tunnels
 - L4-L7 Service Parameters
 - DNS Server Groups (Beta)
 - Security Policies
 - Monitoring Policies
 - Troubleshoot Policies
 - L4-L7 Services
 - NetFlow

Unicast Routing: Enabled
ARP Flooding: Enabled
Config BD MAC Address:
MAC Address: 00:22:BD:F8:19:FF

Subnets:

Gateway Address	Scope	Primary IP Address	Subnet Control
	Scope		DHCP Option Policy

Create Subnet

Specify the Subnet Identity

Gateway IP:
address/mask

Treat as virtual IP address:
Make this IP address primary:

Scope: Private to VRF
 Advertised Externally
 Shared between VRFs

Description:

Subnet Control:
 No Default SVI Gateway
 Querier IP

L3 Out for Route Profile:
Route Profile:
ND RA Prefix policy:

Cancel OK

Last Login Time: 2019-06

CISCO APIC System **Tenants** Fabric VM Networking L4-L7 Services Admin Operations Apps

ALL TENANTS | Add Tenant | Tenant Search: Enter name, alias, descr | Uninets | common | djon | infra | mgmt

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Networks

- V VRF
- B Bridge
- L2 L2
- L3 L3
- cV Common VRF
- cB Common BD

Uninets_VRF

Uninets_Web_BD

Building a Second Bridge Domain

Following the same steps above to create a second bridge domain with the follow information:

- “Name” = Uninets_APP_BD
- “Subnet” / “Gateway” = 20.11.2.254/24

You will see the following when complete.

Create Bridge Domain ? ✕

Specify Bridge Domain for the VRF

[Main](#) [L3 Configurations](#) [Advanced/Troubleshooting](#)

Name:

Alias:

Description:

Type:

Forwarding: ▼

End Point Retention Policy: ▼
This policy only applies to local L2 L3 and remote L3 entries

IGMP Snoop Policy: ▼

UninetsL

Create Bridge Domain

Specify Bridge Domain for the VRF

Main

L3 Configurations

Advanced/Troubleshooting

Create Subnet

Specify the Subnet Identity

Gateway IP:
address/mask

Treat as virtual IP address:

Make this IP address primary:

Scope: Private to VRF

Advertised Externally

Shared between VRFs

Description:

Subnet Control:

No Default SVI Gateway

Querier IP

L3 Out for Route Profile:

Route Profile:

ND RA Prefix policy:

Cancel

OK

L3 Out for Route Profile:

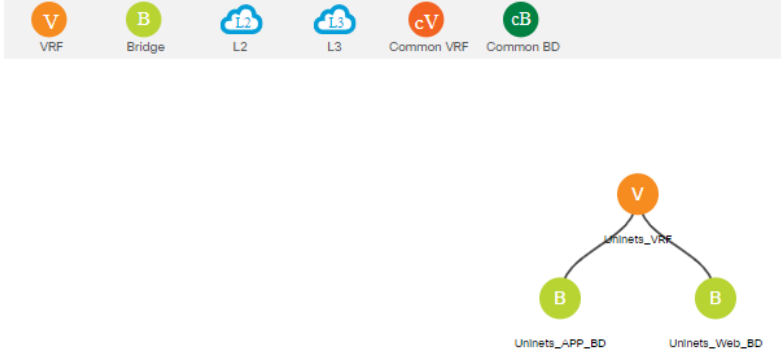
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Tenant Uninets

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 - L4-L7 Services
 - NetFlow

Networks



Building a Third Bridge Domain

Following the same steps above to create a second bridge domain with the follow information:

- “Name” = Uninets_DB_BD
- “Subnet” / “Gateway” = 20.11.1.254/24

You will see the following when complete

Create Bridge Domain

Specify Bridge Domain for the VRF



Name:

Alias:

Description:

Type:

Forwarding:

End Point Retention Policy:

This policy only applies to local L2 L3 and remote L3 entries

IGMP Snoop Policy:

Create Subnet

Specify the Subnet Identity

Gateway IP:
address/mask

Treat as virtual IP address:

Make this IP address primary:

Scope: Private to VRF

Advertised Externally

Shared between VRFs

Description:

Subnet Control:

No Default SVI Gateway

Querier IP

L3 Out for Route Profile:

Route Profile:

ND RA Prefix policy:

Cancel

OK

CISCO APIC

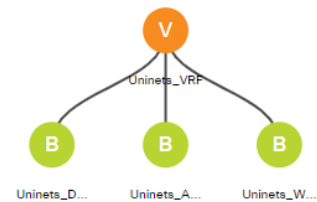
System **Tenants** Fabric VM Networking L4-L7 Services Admin Operations Apps

ALL TENANTS | Add Tenant | Tenant Search: | Uninets | common | djon | infra | mgmt

Tenant Uninets

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Networks



You now have successfully created a tenant with a basic network VRF and a couple of bridge domains. The ACI system provides full configurability for multiple tenants. Depending on the chosen deployment model this will allow users to segregate out management, administration, troubleshooting and the underlying network infrastructure