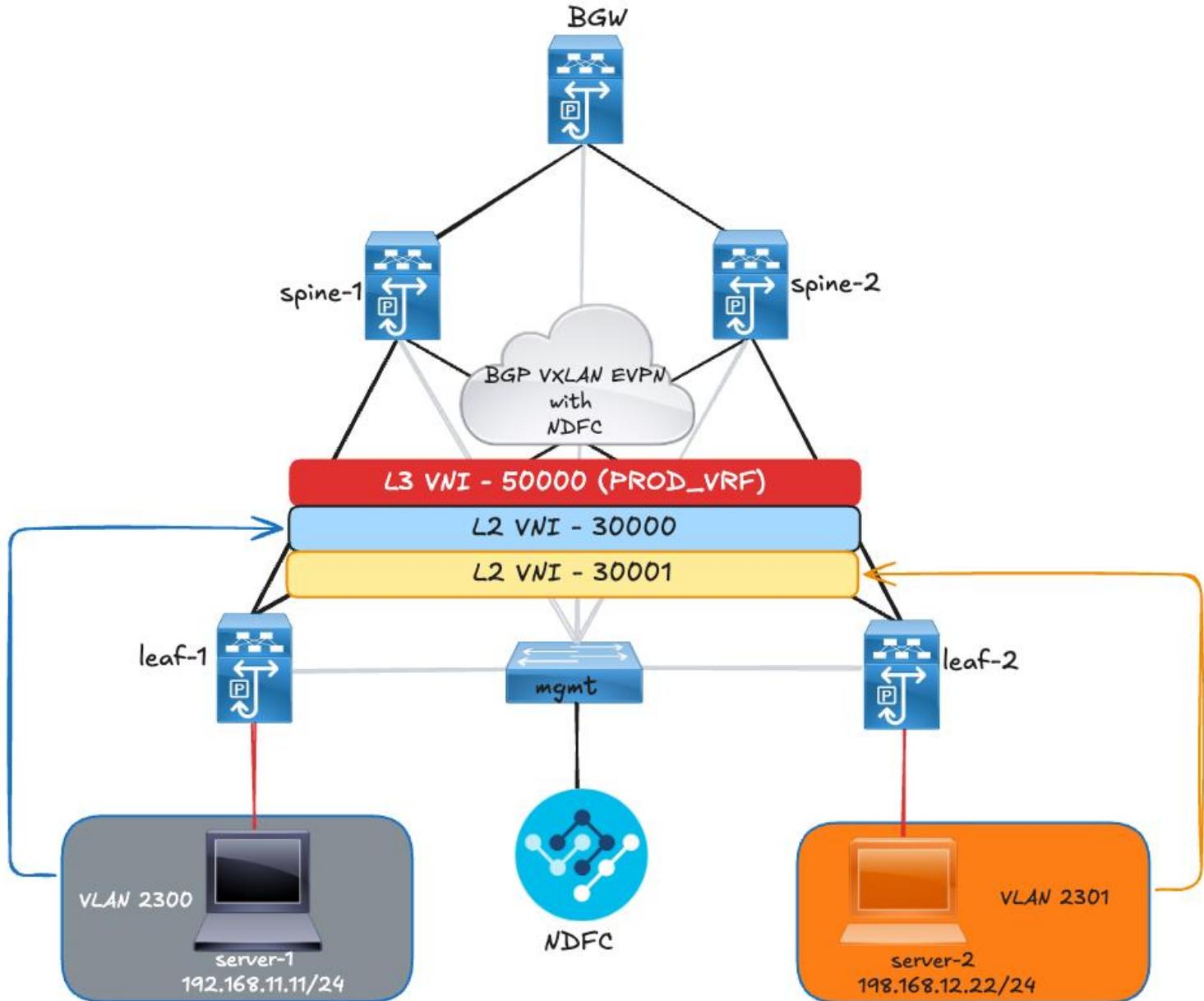




VXLAN BGP EVPN FABRIC BRING UP USING NDFC – SINGLE SITE

(<https://www.linkedin.com/in/titus-majeza/>)



For more labs visit my GitHub repo: <https://github.com/TitusM/Cisco-Data-Center>

Note

This lab was conducted in a controlled environment. Any configurations in a production network should be implemented during a designated maintenance window. Additionally, always refer to official Cisco documentation relevant to your specific hardware and software.



Introduction

This lab demonstrates the process of bringing up a VXLAN BGP EVPN fabric using the Cisco Nexus Dashboard Fabric Controller (NDFC). NDFC is a comprehensive management and automation solution that simplifies and accelerates the deployment of VXLAN fabrics through embedded templates aligned with Cisco's best practices.

In addition, NDFC provides flexibility through its Freeform Configuration feature, allowing users to apply custom configurations beyond the predefined templates.

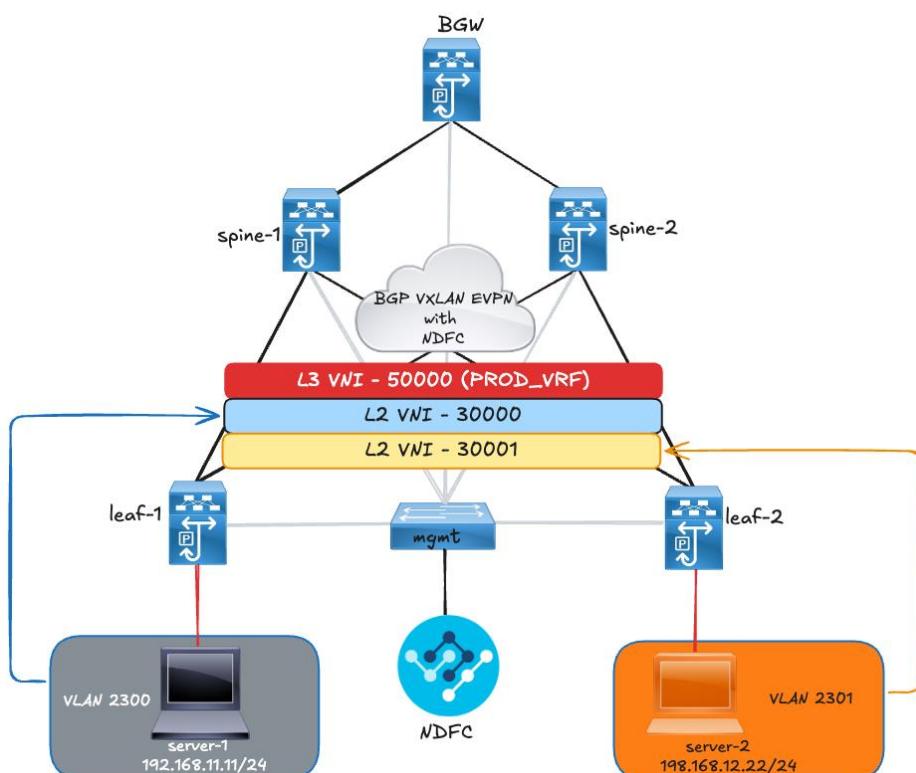
This lab walks through the end-to-end workflow of:

- Creating a VXLAN BGP EVPN fabric
- Onboarding NX-OS switches into the fabric
- Bringing up the underlay and overlay networks
- Creating networks (VNIs, VRFs)
- Attaching server interfaces to enable communication across the VXLAN fabric

Note

This lab does not showcase the initial bring up of the Nexus Dashboard Fabric Controller.

Lab Topology

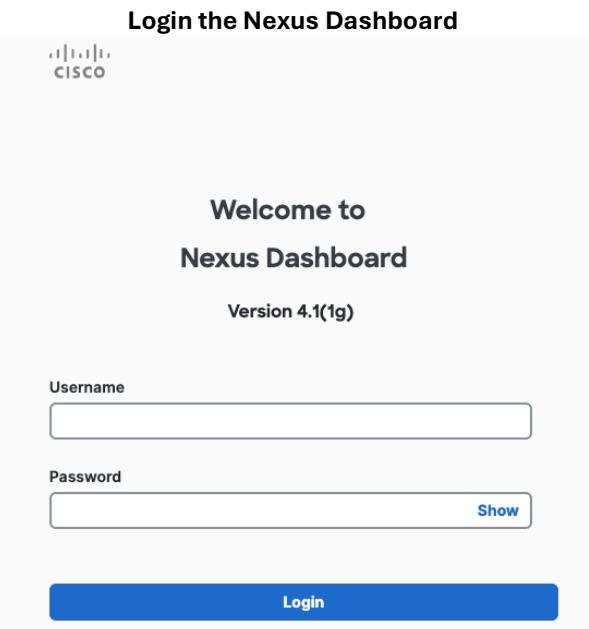


Deploying a VXLAN EVPN Fabric using NDFC

The first part of the deployment is to create the fabric along with required settings like the fabric BGP ASN, the IGP for the underlay, replication mode for multi-destination traffic, VTEP interfaces etc.

"You don't have to be great to start, but you have to start to be great." - Zig Ziglar





Navigate to **Manage >> Fabric >> Create Fabric**

Create new LAN fabric

Create/Onboard Fabric

[What is a fabric?](#)

"You don't have to be great to start, but you have to start to be great." - Zig Ziglar



Select VXLAN >> Data Center VXLAN EVPN

Create/Onboard Fabric

[What is a fabric?](#)

1 Select a category
Create new LAN fabric

2 Select a type
VXLAN

3 Settings
Default

4 Summary

5 Fabric creation

Select a type
Switches in this fabric will be configured automatically based on the option you choose.

VXLAN
Automate a VXLAN BGP EVPN fabric for Cisco Nexus (NX-OS) and/or Catalyst (IOS-XE) switches.

Classic LAN
Automate the provisioning of a 2 or 3-tier Traditional Classical Ethernet Network.

AI
Automate a Nexus (NX-OS) fabric for top performance AI networks using RoCEv2.

Fabric type Data Center VXLAN EVPN - iBGP

Data Center VXLAN EVPN
Fabric for a VXLAN EVPN (iBGP or eBGP) deployment with Nexus 9000 and/or 3000 switches.

Campus VXLAN EVPN
Fabric for a VXLAN EVPN Campus deployment with Catalyst 9000 and/or Nexus 9000 switches as Border Gateways.

On the **Settings** tab, choose the **Advanced tab** to start configuring the VXLAN fabric settings. Define the required parameters according to your environment.

1 Select a category
Create new LAN fabric

2 Select a type
VXLAN

3 Settings
Advanced

4 Advanced settings

5 Summary

6 Fabric creation

Settings
These are the recommended settings for configuring the parameters and capabilities of the new fabric.

Configuration mode Advanced

Name* Site-1

Location* Soweto, ZA

Fabric type Data Center VXLAN EVPN - iBGP

Overlay routing protocol iBGP eBGP

BGP ASN* 65000

1-4294967295 | 1-65535[.0-65535]

License tier for fabric Premier

Enabled features Telemetry

Security domain* all

Cancel **Back** **Next**

"You don't have to be great to start, but you have to start to be great." - Zig Ziglar



The next tab is the **Advanced Settings >> General Parameters** required to define underlay parameters, route-reflectors definition and the anycast gateway.

Advanced settings

The following optional settings will be deployed and/or used when deploying this fabric.

General Parameters Replication vPC Protocols Security Advanced Freeform

Enable IPv6 Underlay
If not enabled, IPv4 underlay is used

Enable IPv6 Link-Local Address
If not enabled, Spine-Leaf interfaces will use global IPv6 addresses

Fabric Interface Numbering*
p2p
Numbered(Point-to-Point) or Unnumbered

Underlay Subnet IP Mask*
31
Mask for Underlay Subnet IP Range

Underlay Subnet IPv6 Mask
Select an Option
Mask for Underlay Subnet IPv6 Range

Underlay Routing Protocol*
ospf
Used for Spine-Leaf Connectivity

Route-Reflectors*
2
Number of spines acting as Route-Reflectors

Anycast Gateway MAC*
2020.0000.00aa
Shared MAC address for all leafs (xxxx.xxxx.xxxx)

Notes:

- For fabric Interface numbering there are 2 options to choose from – p2p or IP unnumbered.

Fabric Interface Numbering*

p2p

Numbered(Point-to-Point) or Unnumbered

p2p
unNumbered

- The underlay subnet IP mask allows for either a /30 or /31.

Underlay Subnet IP Mask*

31
Mask for Underlay Subnet IP Range

30
31

"You don't have to be great to start, but you have to start to be great." - Zig Ziglar



3. OSPF or ISIS are the possible IGPs that can be used for the underlay.

Underlay Routing Protocol*

ospf

isis

4. A maximum of 4 route-reflectors are possible.

Route-Reflectors*

2

4

The next step is to configure the Replication mode and required parameters. In this lab, Multicast is used as the replication mode.

Advanced settings

The following optional settings will be deployed and/or used when deploying this fabric.

General Parameters **Replication** vPC Protocols Security Advanced Freeform Resources

Replication Mode*

Replication Mode for BUM Traffic

Multicast Group Subnet*

Multicast pool prefix between 8 to 30. A multicast group IP from this pool is used for BUM traffic for each overlay network.

IPv6 Multicast Group Subnet

IPv6 Multicast address with prefix 112 to 128

Auto Generate New Multicast Group address

Generate a new multicast group address from the multicast pool using a round-robin approach

Underlay Multicast Group Address Limit

The maximum supported value is 128 for NX-OS version 10.2(1) or earlier and 512 for versions above 10.2(1)

For the replication mode – the 2 options available are multicast or ingress replication.

Replication Mode*

multicast

ingress



Still under the Replication section, select the number of Rendezvous points (options – 2 or 4), choose the RP mode (ASM or BiDir) and the Underlay RP loopback ID.

Rendezvous-Points*
<input type="text" value="2"/>
Number of spines acting as Rendezvous-Point (RP)
RP Mode*
<input type="text" value="asm"/>
Multicast RP Mode. For IPv6 underlay, please use asm only
Underlay RP Loopback Id*
<input type="text" value="251"/>
(Min:0, Max:1023)

Select the **Advanced** tab and Enable the “**Add Switches without Reload**” option.

Add Switches without Reload*
<input type="text" value="enable"/>
Allow switch configuration to be cleared without a reload when Preserve Config is un-checked

Click on the Resources tab and define the subnets required for the underlay loopbacks, VTEP loopback, underlay IP subnet range that will be assigned to interfaces and the Underlay RP loopback IP range.

- Select a category**
Create new LAN fabric
- Select a type**
VXLAN
- Settings**
Advanced
- 4 Advanced settings**
- 5 Summary**
- 6 Fabric creation**

Advanced settings

The following optional settings will be deployed and/or used when deploying this fabric.

ols Security Advanced Freeform Resources Manageability Bootstrap

Manual Underlay IP Address Allocation
Checking this will disable Dynamic Underlay IP Address Allocations

Underlay Routing Loopback IP Range*

Typically Loopback0 IP Address Range

Underlay VTEP Loopback IP Range*

Typically Loopback1 IP Address Range

Underlay RP Loopback IP Range*

Anycast or Phantom RP IP Address Range

Underlay Subnet IP Range*

Address range to assign Numbered and Peer Link SVI IPs

Under the same Resources tab, define the L2 VNI and L3 VNI ranges and change the VRF Lite Deployment mode from manual to back2BackAndToExternal.

“*You don't have to be great to start, but you have to start to be great.*” - Zig Ziglar



Layer 2 VXLAN VNI Range*

30000-49000

Overlay Network Identifier Range (Min:1, Max:16777214)

Layer 3 VXLAN VNI Range*

50000-59000

Overlay VRF Identifier Range (Min:1, Max:16777214)

Network VLAN Range*

2300-2999

Per Switch Overlay Network VLAN Range (Min:2, Max:4094)

VRF VLAN Range*

2000-2299

Per Switch Overlay VRF VLAN Range (Min:2, Max:4094)

Subinterface Dot1q Range*

2-511

Per Border Dot1q Range For VRF Lite Connectivity (Min:2, Max:4093)

VRF Lite Deployment*

back2BackAndToExternal



VRF Lite Inter-Fabric Connection Deployment Options. If 'Back2Back&ToExternal' is selected, VRF Lite IFCs are auto created between border devices of two Easy Fabrics, and between border devices in Easy Fabric and edge routers in External Fabric. The IP address is taken from the 'VRF Lite Subnet IP Range' pool.

You can enable the **Auto Deploy for Peer** option so that Nexus Dashboard can automate the configuration on an external device if it is an NXOS or ASR9k for VRF-Lite extension out of the VXLAN EVPN fabric.

 Auto Deploy for Peer

Whether to auto generate VRF LITE sub-interface and BGP peering configuration on managed neighbor devices. If set, auto created VRF Lite IFC links will have 'Auto Deploy for Peer' enabled.

 Auto Deploy Default VRF

For IPv4 underlay, whether to auto generate BGP peering in Default VRF for VRF Lite IFC auto deployment option. If set, will auto create VRF Lite Inter-Fabric links with 'Auto Deploy Default VRF' knob enabled

 Auto Deploy Default VRF for Peer

Whether to auto generate Default VRF interface and BGP peering configuration on managed neighbor devices. If set, auto created VRF Lite IFC links will have 'Auto Deploy Default VRF for Peer' enabled.

There are a lot more settings but for now this should be enough to get us started.

Click **Next** and Review the **Summary** before clicking on **Submit**.

"You don't have to be great to start, but you have to start to be great." - Zig Ziglar



Select a category
Create new LAN fabric

Select a type
VXLAN

Settings
Advanced

Advanced settings

Summary

Fabric creation

Summary
Review your selections below.

Category	
Fabric category	New LAN fabric

Type	
Fabric type	VXLAN
Fabric sub-type	Data Center VXLAN EVPN - iBGP

Settings	
Name	Site-1
Location	Soweto, ZA
License tier for fabric	Premier
Security domain	all
Overlay routing protocol	iBGP
BGP ASN	65000

Advanced settings

General

Enable IPv6 Underlay	Disabled	Underlay Routing Protocol	ospf
Enable IPv6 Link-Local Address	Disabled	Route-Reflectors	2
Fabric Interface Numbering	p2p	Anycast Gateway MAC	2020.0000.00aa
Underlay Subnet IP Mask	31	Enable Performance Monitoring	Disabled
Underlay Subnet IPv6 Mask	-		

Replication

Replication Mode	multicast	RP Mode	asm
Multicast Group Subnet	239.1.0/25	Underlay RP Loopback Id	251

Resources

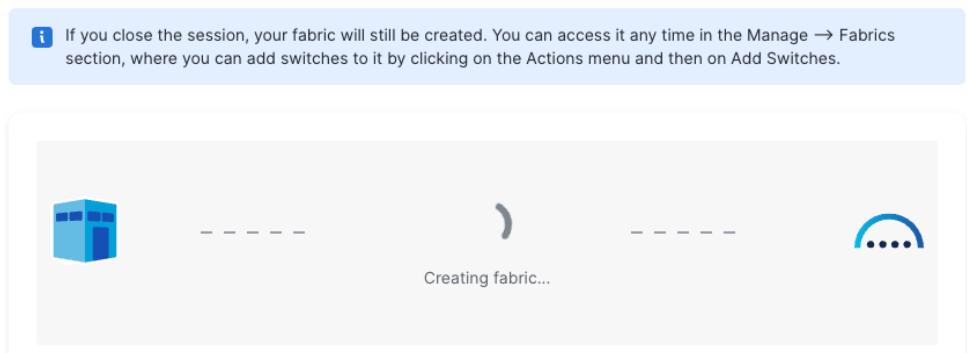
Manual Underlay IP Address Allocation	Disabled	Auto Deploy for Peer VRF	Enabled	Layer 2 VXLAN VNI Range	30000-49000
Underlay Routing Loopback IP Range	10.2.0.0/22	Auto Deploy Default VRF for Peer	Disabled	Layer 3 VXLAN VNI Range	50000-59000
Underlay VTEP Loopback IP Range	10.3.0.0/22	Redistribute BGP Route-map Name	-	Network VLAN Range	2300-2999
Underlay RP Loopback IP Range	10.254.254.0/24	VRF Lite Subnet IP Range	10.33.0.0/16	VRF VLAN Range	2000-2299
Underlay Subnet IP	10.4.0.0/16	VRF Lite Subnet Mask	30	VRF Lite Deployment	back2BackAndToExtern...
		VRF Lite IPv6 Subnet Range	fd00::a33:0/112	Subinterface Dot1q Range	2-511

"You don't have to be great to start, but you have to start to be great." - Zig Ziglar



After Clicking Submit, the Fabric creation process starts:

Fabric creation



The fabric was successfully created:

← Fabrics

Create/Onboard Fabric



All done!

The fabric Site-1, has successfully been created/onboarded to Nexus Dashboard.

You can modify any of these settings from Manage > Fabrics > Actions by clicking 'Edit Fabric Settings'

[View fabric details](#)

[Add switches to fabric](#)

[Create another fabric](#)

Now it's time to add the Switches ☺

Adding Switches to the VXLAN Fabric

After the successful creation of the Fabric, the next step is to onboard the switches in the fabric. The Figure below shows that currently there are no switches onboarded in the VXLAN fabric.

Site-1

Refresh

[View in topology](#)

Actions ▾

Overview [Inventory](#) Connectivity Segmentation and security Configuration policies Anomalies Advisories Integrations History

[Switches](#) VPC pairs Other devices

Filter by attributes

Actions ▾



No data to display

In this lab, the switches are discovered using the mgmt0 IP address. To achieve this, minimal configuration (snippet below) was put in place on the switches.

Example:

```
hostname <hostname>
username admin password 5 <password> role network-admin
!
interface mgmt0
  no cdp enable
  vrf member management
  ip address 198.18.xx.yy/24
```

"You don't have to be great to start, but you have to start to be great." - Zig Ziglar



```
!
vrf context management
 ip route 0.0.0.0/0 198.18.xx.yy
```

Under the Fabric, click on **Actions >> Add Switches**

The screenshot shows the Cisco DNA Center interface. At the top, there's a navigation bar with tabs like Overview, Inventory, Connectivity, Segmentation and security, Configuration policies, Anomalies, Advisories, Integrations, and History. Below the navigation bar, the main content area has a header 'Site-1'. On the right side of the header, there are buttons for Refresh, View in topology, and Actions. The 'Actions' button is expanded, showing options like 'Edit fabric settings' and 'Add switches', with 'Add switches' being the selected option.

The “**Add switches**” window will pop up and all field should be filled in accordingly.

Add switches - Fabric: Site-1

Switch Addition Mechanism*

Discover

Seed Switch Details

Seed IP*

Seed IP

Ex: "2.2.2.20" or "10.10.10.40-60" or "2.2.2.20, 2.2.2.21"

Authentication / Privacy*

MDS

Username*

Password*

Show

Max Hops*

2

Set as individual device write credential

Preserve Config



Unchecking this will clean up the configuration on switch(es)

In this lab the seed IP used is the mgmt0 of Leaf-1. Through the “Max Hops” Leaf 1’s LLDP neighbors are discovered, along with their respective LLDP neighbors as well.

Add switches - Fabric: Site-1

Switch Addition Mechanism*

Discover

Seed Switch Details

Seed IP*

198.18.4.101

Ex: "2.2.2.20" or "10.10.10.40-60" or "2.2.2.20, 2.2.2.21"

Authentication / Privacy*

MDS

Username*

admin

Password*

Show

Max Hops*

2

Set as individual device write credential

Preserve Config



Unchecking this will clean up the configuration on switch(es)

The user is prompted to confirm the controllers intentions to clean and onboard the switch. Any configuration exceeding the minimal required setup will be cleared.

“You don't have to be great to start, but you have to start to be great.” - Zig Ziglar





Warning

All switch configuration other than management, will be removed immediately after import. Do you want to proceed?

[Cancel](#) [Confirm](#)

The switches are successfully discovered by NDFC.

Add switches - Fabric: Site-1

Switch Addition Mechanism*

Discover

Seed Switch Details

Fabric Site-1	Switch 198.18.4.101	Authentication Protocol md5	Username admin
Password	Max Hops 2	Preserve config <input checked="" type="radio"/> Disabled	
<input type="checkbox"/> Set as individual device write credential			

[Back](#)

Discovery Results

Filter by attributes

<input type="checkbox"/> Switch Name	Serial Number	IP Address	Model	Version	Status
<input type="checkbox"/> Site1-L1	9ELOOK25KT1	198.18.4.101	N9K-C9300v	10.6(1)	Manageable
<input type="checkbox"/> Site1-BGW1	95QFH798XXP	198.18.4.106	N9K-C9300v	10.6(1)	Manageable
<input type="checkbox"/> Site1-BL1	9OFF8FA8MUK	198.18.4.103	N9K-C9300v	10.6(1)	Manageable
<input type="checkbox"/> Site1-L2	99EU5FVUYAB	198.18.4.102	N9K-C9300v	10.6(1)	Manageable
<input type="checkbox"/> Site1-S2	9PFMZ2WYJ03	198.18.4.105	N9K-C9300v	10.6(1)	Manageable
<input type="checkbox"/> Ext-Rtr	9IFQPJP0HSZ	198.18.4.111	N9K-C9300v	10.6(1)	Manageable
<input type="checkbox"/> Site1-S1	9WPZ6EK2N4Q	198.18.4.104	N9K-C9300v	10.6(1)	Manageable

Click on the tick box for the specific devices you want to add and click on “Add switches”.

Discovery Results

Filter by attributes

<input checked="" type="checkbox"/> Switch Name	Serial Number	IP Address	Model	Version	Status
<input checked="" type="checkbox"/> Site1-L1	9ELOOK25KT1	198.18.4.101	N9K-C9300v	10.6(1)	Manageable
<input checked="" type="checkbox"/> Site1-BL1	9OFF8FA8MUK	198.18.4.103	N9K-C9300v	10.6(1)	Manageable
<input checked="" type="checkbox"/> Site1-L2	99EU5FVUYAB	198.18.4.102	N9K-C9300v	10.6(1)	Manageable
<input checked="" type="checkbox"/> Site1-S2	9PFMZ2WYJ03	198.18.4.105	N9K-C9300v	10.6(1)	Manageable
<input type="checkbox"/> Ext-Rtr	9IFQPJP0HSZ	198.18.4.111	N9K-C9300v	10.6(1)	Manageable
<input checked="" type="checkbox"/> Site1-S1	9WPZ6EK2N4Q	198.18.4.104	N9K-C9300v	10.6(1)	Manageable

Grab some coffee 😊

“You don't have to be great to start, but you have to start to be great.” - Zig Ziglar



Discovery Results

Filter by attributes

<input type="checkbox"/> Switch Name	Serial Number	IP Address	Model	Version	Status	Progress
<input type="checkbox"/> Site1-L1	9ELOOK25KT1	198.18.4.101	N9K-C9300v	10.6(1)	In Progress	<div style="width: 20%;"></div>
<input type="checkbox"/> Site1-BL1	9OFF8FA8MUK	198.18.4.103	N9K-C9300v	10.6(1)	In Progress	<div style="width: 20%;"></div>
<input type="checkbox"/> Site1-L2	99EU5FVUYAB	198.18.4.102	N9K-C9300v	10.6(1)	In Progress	<div style="width: 20%;"></div>
<input type="checkbox"/> Site1-S2	9PFMZ2WYJ03	198.18.4.105	N9K-C9300v	10.6(1)	In Progress	<div style="width: 20%;"></div>
<input type="checkbox"/> Ext-Rtr	9IFQPJP0HSZ	198.18.4.111	N9K-C9300v	10.6(1)	Manageable	<div style="width: 100%;"></div>
<input type="checkbox"/> Site1-S1	9WPZ6EK2N4Q	198.18.4.104	N9K-C9300v	10.6(1)	In Progress	<div style="width: 20%;"></div>

At this point it is observed that the switches are successfully added to the VXLAN fabric.

Discovery Results

Filter by attributes

<input type="checkbox"/> Switch Name	Serial Number	IP Address	Model	Version	Status	Progress
<input type="checkbox"/> Site1-L1	9ELOOK25KT1	198.18.4.101	N9K-C9300v	10.6(1)	Switch Added	<div style="width: 100%;"></div>
<input type="checkbox"/> Site1-BGW1	95QFH798XXP	198.18.4.106	N9K-C9300v	10.6(1)	Switch Added	<div style="width: 100%;"></div>
<input type="checkbox"/> Site1-BL1	9OFF8FA8MUK	198.18.4.103	N9K-C9300v	10.6(1)	Switch Added	<div style="width: 100%;"></div>
<input type="checkbox"/> Site1-L2	99EU5FVUYAB	198.18.4.102	N9K-C9300v	10.6(1)	Switch Added	<div style="width: 100%;"></div>
<input type="checkbox"/> Site1-S2	9PFMZ2WYJ03	198.18.4.105	N9K-C9300v	10.6(1)	Switch Added	<div style="width: 100%;"></div>
<input type="checkbox"/> Ext-Rtr	9IFQPJP0HSZ	198.18.4.111	N9K-C9300v	10.6(1)	Manageable	<div style="width: 100%;"></div>
<input type="checkbox"/> Site1-S1	9WPZ6EK2N4Q	198.18.4.104	N9K-C9300v	10.6(1)	Switch Added	<div style="width: 100%;"></div>

Under the Fabric, navigate to the **Inventory** tab and verify that all switches are present.

Site-1

Overview **Inventory** Connectivity Segmentation and security Configuration policies Anomalies Advisories

Switches VPC pairs Other devices

Filter by attributes

<input type="checkbox"/> Name	Anomaly level	IP address	Model	Configuration sync status	Role	Serial number	Discovery status
<input type="checkbox"/> Site1-BGW1	⚠ Minor	198.18.4.106	N9K-C9300v	NA	Leaf	95QFH798XXP	Ok
<input type="checkbox"/> Site1-BL1	⚠ Minor	198.18.4.103	N9K-C9300v	NA	Leaf	9OFF8FA8MUK	Ok
<input type="checkbox"/> Site1-L1	⚠ Minor	198.18.4.101	N9K-C9300v	NA	Leaf	9ELOOK25KT1	Ok
<input type="checkbox"/> Site1-L2	⚠ Minor	198.18.4.102	N9K-C9300v	NA	Leaf	99EU5FVUYAB	Ok
<input type="checkbox"/> Site1-S1	⚠ Minor	198.18.4.104	N9K-C9300v	NA	Leaf	9WPZ6EK2N4Q	Ok
<input type="checkbox"/> Site1-S2	⚠ Minor	198.18.4.105	N9K-C9300v	NA	Leaf	9PFMZ2WYJ03	Ok

"You don't have to be great to start, but you have to start to be great." - Zig Ziglar



The next step is to configure each switch with the correct role that is required for it to operate in the fabric. For each switch role, there is a specific deployment/configuration template for it in NDFC.

Select the tick box of a switch >> Actions >> Set role.

Name	Anomaly level	IP address	Model	Configuration sync status	Role	Serial number	Actions
<input checked="" type="checkbox"/> Site1-BGW1	⚠ Minor	198.18.4.106	N9K-C9300v	● NA	Leaf	95QFH798XXP	Add switches Configuration Discovery Set role

Select Role from the options below.

Select Role



Search Role

Spine

Leaf (current)

Border

Border Spine

Border Gateway

Border Gateway Spine

Super Spine

Select

Press Ok.



Warning

Please perform "Recalculate and deploy" in the fabric to complete this change prior to "Deploy"

Ok

Repeat the same procedure for the Spine, Leaf and Border Leaf.

Name	Anomaly level	IP address	Model	Configuration sync status	Role	Serial number	Actions
<input type="checkbox"/> Site1-BGW1	⚠ Minor	198.18.4.106	N9K-C9300v	● NA	Border Gateway	95QFH798XXP	Add switches Configuration Discovery Set role VPC pairing ToR pairing
<input checked="" type="checkbox"/> Site1-BL1	⚠ Minor	198.18.4.103	N9K-C9300v	● NA	Leaf	90FF8FA8MUK	Add switches Configuration Discovery Set role VPC pairing ToR pairing

"You don't have to be great to start, but you have to start to be great." - Zig Ziglar



Select Role

Select Role

Leaf (current)

Border

Border Spine

Spine

Leaf (current)

Border

The next step is to define VPC pairing on leaf switches. In this lab Site1-L1 and Site1-L2 will be configured as vPC peers. Select one Leaf that forms part of the vPC domain >> **Actions** >> **VPC pairing**.

[Switches](#) [VPC pairs](#) [Other devices](#)

Filter by attributes									Actions ^
<input type="checkbox"/> Name	Anomaly level	IP address	Model	Configuration sync status	Role	Serial number	Discovery status	Advisory level	
<input type="checkbox"/> Site1-BGW1	⚠ Minor	198.18.4.106	N9K-C9300v	NA	Border Gateway	95QFH798XXP	Ok	Not Applicable	Add switches
<input type="checkbox"/> Site1-BL1	⚠ Minor	198.18.4.103	N9K-C9300v	NA	Border	9OFF8FA8MUK	Ok	Not Applicable	Configuration >
<input checked="" type="checkbox"/> Site1-L1	⚠ Minor	198.18.4.101	N9K-C9300v	NA	Leaf	9ELOOK25KT1	Ok	Not Applicable	Discovery >
									Set role
									VPC pairing
									ToR pairing
									VPC overview
									Maintenance >

A new configuration window will show the switches that are eligible to pair with the selected switch. In this case Site1-L2 is the eligible pair so it is selected to be part of the vPC domain.

VPC pairing

Select VPC peer for Site1-L1

Filter by attributes		
Device	Recommended	Reason
<input checked="" type="radio"/> Site1-L2	True	Switches are connected and have same role
<input type="radio"/> Site1-BGW1	False	Switches have different roles
<input type="radio"/> Site1-S1	False	Switches have different roles
<input type="radio"/> Site1-S2	False	Switches have different roles
<input type="radio"/> Site1-BL1	False	Switches have different roles



Success

Please perform "Recalculate and deploy" in the fabric to complete this change prior to "Deploy"

Ok

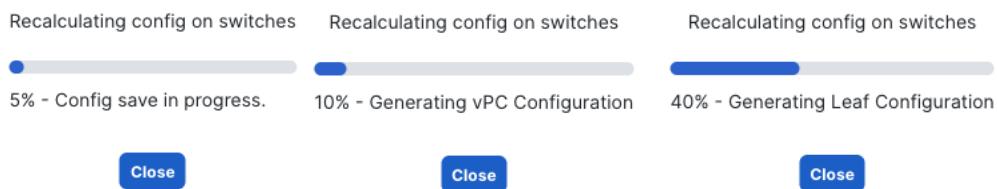
Now it is time to deploy all configurations that are embedded in the templates to all devices. Select all devices in the **Inventory** >> **Actions** >> **Recalculate and Deploy**.

"You don't have to be great to start, but you have to start to be great." - Zig Ziglar



Site-1									Refresh	View in topology	Actions
Overview	Inventory	Connectivity	Segmentation and security	Configuration policies	Anomalies	Advisories	Integrations		Edit fabric settings		
Switches	VPC pairs	Other devices							Add switches		
Filter by attributes											
<input checked="" type="checkbox"/>	Name	Anomaly level	IP address	Model	Configuration sync status	Role	Serial number	Discovery status	Advisory	Maintenance	
<input checked="" type="checkbox"/>	Site1-BGW1	⚠ Minor	198.18.4.106	N9K-C9300v	● NA	Border Gateway	95QFH798XXP	● Ok	● Not Applicable		
<input checked="" type="checkbox"/>	Site1-BL1	⚠ Minor	198.18.4.103	N9K-C9300v	● NA	Border	9OFF8FA8MUK	● Ok	● Not Applicable		
<input checked="" type="checkbox"/>	Site1-L1	⚠ Minor	198.18.4.101	N9K-C9300v	● Pending	Leaf	9ELO0K25KT1	● Ok	● Not Applicable		
<input checked="" type="checkbox"/>	Site1-L2	⚠ Minor	198.18.4.102	N9K-C9300v	● Pending	Leaf	99EU5FVUYAB	● Ok	● Not Applicable		
<input checked="" type="checkbox"/>	Site1-S1	⚠ Minor	198.18.4.104	N9K-C9300v	● NA	Spine	9WPZ6EK2N4Q	● Ok	● Not Applicable		
<input checked="" type="checkbox"/>	Site1-S2	⚠ Minor	198.18.4.105	N9K-C9300v	● NA	Spine	9PFMZ2WYJ03	● Ok	● Not Applicable		

NDFC will perform a recalculation process to determine the configuration lines that will be added to each switch.



The image below displays the “Pending Config” for each device. If you want to see the configuration that will be pushed, you can click on either Lines in the Pending Config column and a new window with the specific configuration(dry run) will show.

Deploy Configuration - Site-1

Config Preview		Deploy Progress						
Filter by attributes								Re
Switch Name	IP Address	Role	Serial Number	Fabric Status	Pending Config	Status Description	Progress	Resync Switch
Site1-L2	198.18.4.102	Leaf	99EU5FVUYAB	Out-Of-Sync	608 Lines	Out-of-Sync	<div style="width: 100%;"><div style="width: 100%;"> </div></div>	Resync
Site1-BL1	198.18.4.103	Border	9OFF8FA8MUK	Out-Of-Sync	417 Lines	Out-of-Sync	<div style="width: 100%;"><div style="width: 100%;"> </div></div>	Resync
Site1-S2	198.18.4.105	Spine	9PFMZ2WYJ03	Out-Of-Sync	409 Lines	Out-of-Sync	<div style="width: 100%;"><div style="width: 100%;"> </div></div>	Resync
Site1-S1	198.18.4.104	Spine	9WPZ6EK2N4Q	Out-Of-Sync	409 Lines	Out-of-Sync	<div style="width: 100%;"><div style="width: 100%;"> </div></div>	Resync
Site1-L1	198.18.4.101	Leaf	9ELOOK25KT1	Out-Of-Sync	608 Lines	Out-of-Sync	<div style="width: 100%;"><div style="width: 100%;"> </div></div>	Resync
Site1-BGW1	198.18.4.106	Border Gateway	95QFH798XXP	Out-Of-Sync	397 Lines	Out-of-Sync	<div style="width: 100%;"><div style="width: 100%;"> </div></div>	Resync

The deployment process will start.



“You don't have to be great to start, but you have to start to be great.” - Zig Ziglar

Deploy Configuration - Site-1



Filter by attributes

Switch Name	IP address	Status	Status description	Progress
Site1-L2	198.18.4.102	STARTED	Deployment in progress.	Executed 0 / 608
Site1-BL1	198.18.4.103	STARTED	Deployment in progress.	Executed 0 / 417
Site1-S2	198.18.4.105	STARTED	Deployment in progress.	Executed 0 / 409
Site1-S1	198.18.4.104	STARTED	Deployment in progress.	Executed 0 / 409
Site1-L1	198.18.4.101	STARTED	Deployment in progress.	Executed 0 / 608
Site1-BGW1	198.18.4.106	STARTED	Deployment in progress.	Executed 0 / 397

Deployment completed successfully.

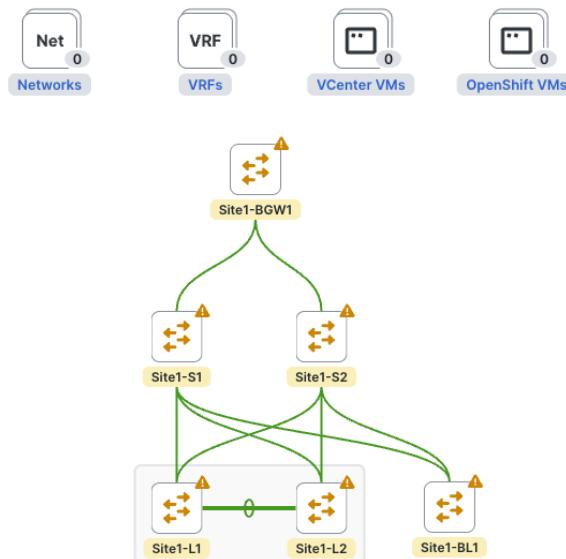
Switch Name	IP address	Status	Status description	Progress
Site1-L2	198.18.4.102	SUCCESS	Deployment completed.	Executed 608 / 608
Site1-BL1	198.18.4.103	SUCCESS	Deployment completed.	Executed 417 / 417
Site1-S2	198.18.4.105	SUCCESS	Deployment completed.	Executed 409 / 409
Site1-S1	198.18.4.104	SUCCESS	Deployment completed.	Executed 409 / 409
Site1-L1	198.18.4.101	SUCCESS	Deployment completed.	Executed 608 / 608
Site1-BGW1	198.18.4.106	SUCCESS	Deployment completed.	Executed 397 / 397

From this point, we can perform verifications as the VXLAN fabric is now up and running.
Under the Fabric, click on “View in topology” to view the fabric’s topology.

Site-1

Refresh [View in topology](#)

[Overview](#) [Inventory](#) [Connectivity](#) [Segmentation and security](#) [Configuration policies](#) [Anomalies](#) [Advisories](#) [Integrations](#) [History](#)



Navigate back to the Fabric’s Overview page. This page gives details regarding the fabric’s health, anomalies summary etc. This show cases NDFC’s capability for Day-2 Operations. Having visibility to your network is not a luxury, it is a necessity.

“You don’t have to be great to start, but you have to start to be great.” - Zig Ziglar



The image below shows a high count of anomalies in the fabric. Let's drill down to see what these anomalies are.

Site-1

Overview Inventory Connectivity Segmentation and security Configuration policies Anomalies Advisories Integrations History

Refresh View in topology Actions ×

This dashboard provides a high-level overview of Site-1's network status. It includes sections for Anomaly level (346 Minor), Advisory level, Recent activity, Inventory, and Interfaces. A large central area displays detailed network configuration and status for VXLAN, including fabric name, type, deployment status, and interface statistics.

General	Type
Fabric name Site-1	Data Center VXLAN EVPN - iBGP
License tier Premier	BGP ASN 65000
Security domain all	Fabric group N/A
Config-sync status In-Sync	Deployment status Enabled
Telemetry status N/A	Telemetry Disabled
Security group status Disabled	Fabric bugs
Switches software version 10.6(1)	

Recent activity:

- Configuration deployment completed successfully for fabric Site-1 by admin 2 minutes ago
- Configuration save action executed successfully for fabric: Site-1 by admin 7 minutes ago
- vPC pairing completed for Site1-L1 (9ELOOK25KT1) , Site1-L2 (99EUS5FVUYAB) by admin 9 minutes ago

Inventory:

- 6 Switches
- 1 VPC pairs
- 0 Other devices

Interfaces: 414 total

Up (64) Down (346) Admin down (4) NA (0)

Click on the **Anomalies** tab. This tab shows that the anomalies being flagged are related to “interface status”. Click on the “Connectivity Interface Status”.

Site-1

Overview Inventory Connectivity Segmentation and security Configuration policies **Anomalies** Advisories Integrations History

The Anomalies tab displays a summary of 346 Minor anomalies, all categorized under Connectivity. A detailed table lists these anomalies, showing their specific nature (Interface state issues) and detection time.

Anomaly level	Category	
Minor 346	Connectivity 346	
Anomaly type	Level	Category
Connectivity Interface Status	Minor	Connectivity

The reason for the anomalies is due to the interfaces that are administratively enabled however there is nothing connected to those ports.

Connectivity Interface Status

What's wrong	Level	Detection time	⋮
Interface ethernet1/22 in undesired state up:down:Link not connected	Minor	Oct 18 2025 02:31:30 PM	...
Interface ethernet1/16 in undesired state up:down:Link not connected	Minor	Oct 18 2025 02:31:30 PM	...
Interface ethernet1/63 in undesired state up:down:Link not connected	Minor	Oct 18 2025 02:31:30 PM	...
Interface ethernet1/32 in undesired state up:down:Link not connected	Minor	Oct 18 2025 02:31:30 PM	...

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Navigate to Connectivity, select the interfaces with the undesired state and disable them

Overview Inventory **Connectivity** Segmentation and security Configuration policies Anomalies Advisories Integrations History

Interfaces Interface groups Links Routing policies Inter-fabric L3 neighbors Endpoints Routes Flows Virtual Infrastructure

Operational status == Down								Edit	Clear All	Actions ▾
Interface	Switch	Admin status	Operational status	Reason	Policies	Overlay network	Sync status			
Ethernet1/4	Site1-BL1	Up	Down	Link not connected	int_routed_host	NA	In-Sync	Minor		
Ethernet1/5	Site1-BL1	Up	Down	Link not connected	int_routed_host	NA	In-Sync	Minor		
Ethernet1/6	Site1-BL1	Up	Down	Link not connected	int_routed_host	NA	In-Sync	Minor		
Ethernet1/7	Site1-BL1	Up	Down	Link not connected	int_routed_host	NA	In-Sync	Minor		
Ethernet1/8	Site1-BGW1	Up	Down	Link not connected	int_routed_host	NA	In-Sync	Minor		
Ethernet1/8	Site1-BL1	Up	Down	Link not connected	int_routed_host	NA	In-Sync	Minor		
Ethernet1/8	Site1-L1	Up	Down	Link not connected	int_trunk_host	NA	In-Sync	Minor		
Ethernet1/8	Site1-L2	Up	Down	Link not connected	int_trunk_host	NA	In-Sync	Minor		
Ethernet1/8	Site1-S1	Up	Down	Link not connected	int_routed_host	NA	In-Sync	Minor		
Ethernet1/8	Site1-S2	Up	Down	Link not connected	int_routed_host	NA	In-Sync	Minor		
Ethernet1/9	Site1-BGW1	Up	Down	Link not connected	int_routed_host	NA	In-Sync	Minor		
Ethernet1/9	Site1-BL1	Up	Down	Link not connected	int_routed_host	NA	In-Sync	Minor		
Ethernet1/9	Site1-L1	Up	Down	Link not connected	int_trunk_host	NA	In-Sync	Minor		
Ethernet1/9	Site1-L2	Up	Down	Link not connected	int_trunk_host	NA	In-Sync	Minor		

Disable Interfaces

Do you want to Shutdown the following interfaces ?

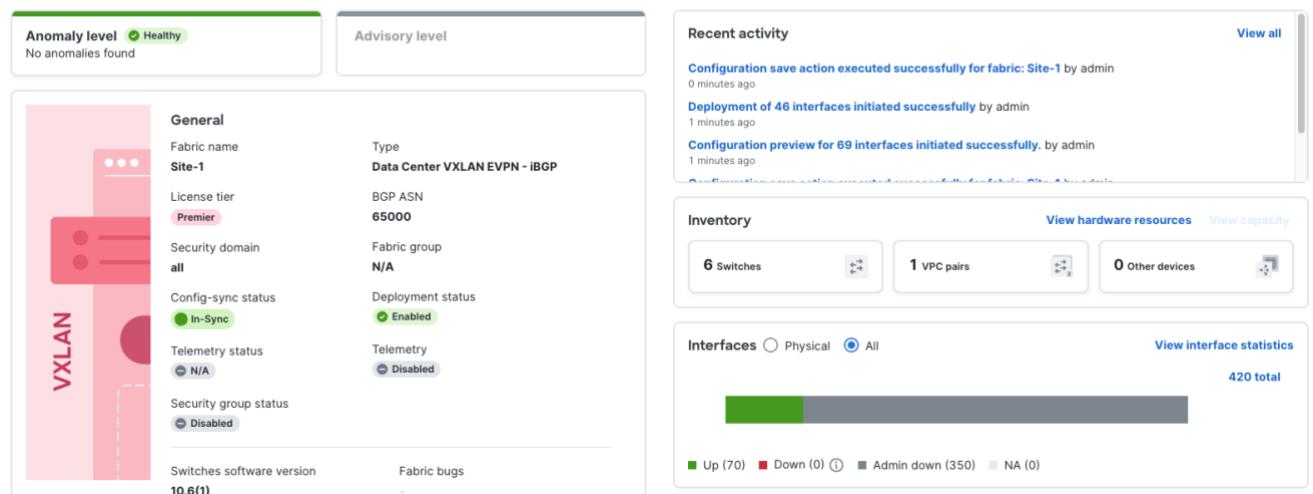
Save and Deploy the configuration to shutdown the interfaces.

After the intervention, the fabric is fully Healthy without an anomaly.

Site-1

Refresh View in topology Actions ▾

Overview Inventory Connectivity Segmentation and security Configuration policies Anomalies Advisories Integrations History



Note

This was just an example to show how NDFC plays a role for Day-2 operations and enabling network operations to quickly spot any issue and resolve with ease.

"You don't have to be great to start, but you have to start to be great." - Zig Ziglar



Now let's move on to further fabric verifications (underlay, overlay etc.)

To verify the switches in a vPC domain, navigate to **Inventory > VPC pairs** as shown below.

Site-1

Overview	<u>Inventory</u>	Connectivity	Segmentation and security	Configuration policies	Anomalies	Advisories	Integrations	History
Switches	<u>VPC pairs</u>	Other devices						
Filter by attributes								
Peer one name	Peer one ID	Peer one role	Peer two name	Peer two ID	Peer two role	Intended peer name	VPC domain ID	
Site1-L1	9ELOOK25KT1	Secondary	Site1-L2	99EU5FVUYAB	Primary		1	

Before proceeding with the configurations, it is a good idea to perform verifications based on the configuration that has been pushed by NDFC.

Verify OSPF routing adjacency (underlay).

Site1-L1					Site1-L2				
Site1-L1# show ip ospf neig OSPF Process ID UNDERLAY VRF default Total number of neighbors: 3					Site1-L2# show ip ospf neig OSPF Process ID UNDERLAY VRF default Total number of neighbors: 3				

Note: VLAN 3600 is the VPC-Peer-Link SVI.

Verify PIM neighborship.

Site1-L1# show ip pim neig PIM Neighbor Status for VRF "default"							
Neighbor	Interface	Uptime	Expires	DR	Bidir- Capable	BFD State	ECMP Redirect Capable
10.4.0.17	Ethernet1/1	1w6d	00:01:40	1	yes	n/a	no
10.4.0.3	Ethernet1/2	1w6d	00:01:20	1	yes	n/a	no
10.4.0.1	Vlan3600	1w6d	00:01:31	1	yes	n/a	no

Site1-L2# show ip pim neig PIM Neighbor Status for VRF "default"							
Neighbor	Interface	Uptime	Expires	DR	Bidir- Capable	BFD State	ECMP Redirect Capable
10.4.0.11	Ethernet1/1	1w6d	00:01:41	1	yes	n/a	no
10.4.0.15	Ethernet1/2	1w6d	00:01:24	1	yes	n/a	no
10.4.0.0	Vlan3600	1w6d	00:01:42	1	yes	n/a	no

Verify the BGP overlay (do this on all devices).

Site1-L1

Site1-L1# show bgp l2vpn evpn summary BGP summary information for VRF default, address family L2VPN EVPN BGP router identifier 10.2.0.6, local AS number 65000 BGP table version is 158, L2VPN EVPN config peers 2, capable peers 2								
Neighbor	V	AS	MsgRcvd	MsgSent	TblVer	InQ	OutQ	Up/Down State/PfxRcd
10.2.0.3	4	65000	20225	20141	158	0	0	1w6d 0
10.2.0.5	4	65000	20225	20141	158	0	0	1w6d 0

After all the configuration verifications are completed, the next step is to define the Network(s) and VRF(s), which will enable the user to achieve multi-tenant configuration.

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Network & VRF Configuration

This section will showcase how a tenant VRF, Layer-3 Virtual Network Identifier (VNI) and Network is configured. A tenant VRF separates routing domains between tenant overlays. The L3VNI is required for inter-VXLAN routing, and it is associated to a tenant VRF. Under Networks is where the L2VNIs along with their associated VLANs are created.

From the Fabric Overview, navigate to **Segmentation and Security >> VRFs >> Actions and Create:**

Site-1

Refresh View in topology Actions ▾

Overview Inventory Connectivity Segmentation and security Configuration policies Anomalies Advisories Integrations History

Networks VRFs Security groups Security contracts Security associations Protocol definitions L4-L7 Services

Filter by attributes Actions ▾

VRF name	Config status	VRF ID	Actions
			Create Edit

Create VRF

VRF name* PROD_VRF

VRF ID* 50000

VLAN ID 2000 Propose VLAN

VRF Template* Default_VRF_Universal >

VRF Extension Template* Default_VRF_Extension_Universal >

General Parameters Advanced TRM Route Target VRF Lite

VRF VLAN Name PROD_VRF

If > 32 chars, enable 'system vlan long-name' for NX-OS, disable VTPv1 and VTPv2 or switch to VTPv3 for IOS XE. Not applicable to L3VNI w/o VLAN config

VRF Interface Description PROD_VRF

Not applicable to L3VNI w/o VLAN config

VRF Description PROD_VRF

The Advanced options are left as defaults.

General Parameters Advanced TRM Route Target VRF Lite

VRF Interface MTU 9216
68-9216. Not applicable to L3VNI w/o VLAN config. NX-OS Specific

Loopback Routing Tag 12345
0-4294967295. NX-OS Specific

Redistribute Direct Route Map FABRIC-RMAP-REDIST-SUBNET

IPv6 Redistribute Direct Route Map FABRIC-RMAP-REDIST-SUBNET
If not set, 'Redistribute Direct Route Map' will be used

Max BGP Paths 1
1-64 for NX-OS, 1-32 for IOS XE

The configuration will show on the dashboard and the VRF's settings can be edited if required.



"You don't have to be great to start, but you have to start to be great." - Zig Ziglar

Filter by attributes

<input type="checkbox"/> VRF name	Config status	VRF ID
<input type="checkbox"/> PROD_VRF	NA	50000

Now let's create the desired networks: PROD_1_NET & PROD_2_NET. Both these networks will be associated to the previously configured PROD_VRF.

From the **Fabric Overview**, navigate to **Segmentation and Security >> Networks >> Actions and Create:**

Site-1

Refresh View in topology Actions ▾

Overview Inventory Connectivity Segmentation and security Configuration policies Anomalies Advisories Integrations History

Networks VRFs Security groups Security contracts Security associations Protocol definitions L4-L7 Services

Filter by attributes

<input type="checkbox"/> Network name	Network ID	VRF name	IPv4 gateway/prefix	IPv6 gateway/prefix	Network status	VLAN ID	VLAN name	Actions
<input type="checkbox"/> PROD_1_NET	30000	PROD_VRF			Up	2300	PROD_1_NET	Create

Create Network

Network name*	General Parameters Advanced
PROD_1_NET	IPv4 Gateway/NetMask
<input type="checkbox"/> Layer 2 only	192.168.11.1/24
	example 192.0.2.1/24
VRF name*	IPv6 Gateway/Prefix List
PROD_VRF	
	example 2001:db8::1/64,2001:db9::1/64
Network ID*	VLAN Name
30000	PROD_1_NET
VLAN ID	If > 32 chars, enable 'system vlan long-name' for NX-OS, disable VTPv1
2300	Interface Description
Network template*	PROD_1_NET
Default_Network_Universal >	MTU for L3 interface
Network extension template*	9216
Default_Network_Extension_Universal >	68-9216. NX-OS Specific

The second network is created below.

"You don't have to be great to start, but you have to start to be great." - Zig Ziglar



Create Network

<p>Network name*</p> <input type="text" value="PROD_2_NET"/> <p>Layer 2 only</p> <input type="checkbox"/> <p>VRF name*</p> <input type="text" value="PROD_VRF"/> X ▾ Create VRF <p>Network ID*</p> <input type="text" value="30001"/> <p>VLAN ID</p> <input type="text" value="2301"/> Propose VLAN <p>Network template*</p> <p style="color: #0070C0;">Default_Network_Universal ></p> <p>Network extension template*</p> <p style="color: #0070C0;">Default_Network_Extension_Universal ></p>	<p>General Parameters Advanced</p> <hr/> <p>IPv4 Gateway/NetMask</p> <input type="text" value="192.168.12.1/24"/> <p>example 192.0.2.1/24</p> <p>IPv6 Gateway/Prefix List</p> <input type="text"/> <p>example 2001:db8::1/64,2001:db9::1/64</p> <p>VLAN Name</p> <input type="text" value="PROD_2_NET"/> <p>If > 32 chars, enable 'system vlan long-name' for NX-OS, disable VTPv1 ;</p> <p>Interface Description</p> <input type="text" value="PROD_2_NET"/> <p>MTU for L3 interface</p> <input type="text" value="9216"/> <p>68-9216, NX-OS Specific</p>
---	---

The Advanced Settings for both networks are left as default.

<p>General Parameters Advanced</p> <hr/> <p><input type="checkbox"/> ARP Suppression ARP suppression is only supported if SVI is present when Layer-2-Only is not enabled. NX-OS Specific</p> <p><input type="checkbox"/> Ingress Replication Read-only per network, Fabric-wide setting</p> <p><input type="checkbox"/> Enable Xconnect Enable XConnect to establish Layer 2 tunnels for reliable connectivity in VXLAN and eBGP fabrics.</p> <p>Multicast Group Address</p> <input type="text" value="239.1.1.0"/> <p>DHCP Relay Server Information (Max 16)</p>
--

The configuration will show on the dashboard and each network's settings can be edited if required

[Networks](#) [VRFs](#) [Security groups](#) [Security contracts](#) [Security associations](#) [Protocol definitions](#) [L4-L7 Services](#)

Filter by attributes

<input type="checkbox"/>	Network name	Network ID	VRF name	IPv4 gateway/prefix	IPv6 gateway/prefix	Network status	VLAN ID	VLAN name
<input type="checkbox"/>	PROD_1_NET	30000	PROD_VRF	192.168.11.1/24		NA	2300	PROD_1_NET
<input type="checkbox"/>	PROD_2_NET	30001	PROD_VRF	192.168.12.1/24		NA	2301	PROD_2_NET

Endpoint Attachment

In a VXLAN fabric, endpoints can connect to the fabric in different attachment modes, depending on redundancy and load-balancing needs. The different modes of connectivity are highlighted in the Table below.

"You don't have to be great to start, but you have to start to be great." - Zig Ziglar



Attachment Type	Description	VTEP Role	Redundancy	Load Balancing
Single-Homed	Connected to one leaf	Unique VTEP	None	No
Multi-Homed (vPC)	Connected via vPC to two leafs	Shared Anycast VTEP	Active-Active	Yes
Active/Standby	Dual-attached, one link will be active at a time.	Individual VTEPs	Active-Standby	No

In this lab single-homed server attachment configurations will be put in place. The interfaces required to attach servers will be configured as access ports.

To achieve this configuration, navigate to **Connectivity > Interfaces > Edit Configuration**. Change the Interface policy from “**int_trunk_host**” to “**int_access_host**”. The rest of the configuration can be left as default or modified according to the user’s requirements

Overview Inventory Connectivity Segmentation and security Configuration policies Anomalies Advisories Integrations History

Interfaces Interface groups Links Routing policies Inter-fabric L3 neighbors Endpoints Routes Flows Virtual Infrastructure

Interface == Ethernet1/5							Edit	Clear All	Actions ^
Interface	Switch	Admin status	Operational status	Reason	Policies	Actions			
Ethernet1/5	Site1-L1	Up	Up	ok	int_trunk_host	Create interface			
Ethernet1/5	Site1-L2	Up	Up	ok	int_trunk_host	Edit configuration			
						Configuration	>		
						Interface group	>		

Edit interface(s)

Edit interface(s)

1 of 2 Selected Interface(s) :

Interface
Site1-L1 : Ethernet1/5

Policy*

int_access_host >

Policy Options

General Parameters Storm Control

Enable BPDU Guard*

true

Enable spanning-tree bpduguard: true='enable', false='disable', no='return to default settings'

Configure BPDU Filter

no

Configure spanning-tree bpdufilter, no='return to default settings'

Spanning-tree Link-type

auto

Specify a link type for spanning tree protocol use, default is auto

Enable Port Type Fast

Enable spanning-tree edge port behavior

MTU*

jumbo

MTU for the interface

SPEED*

Auto

Interface Speed

Access Vlan

VLAN for this access port

Interface Description

Server-1

Add description to the interface (Max Size 254)

2 of 2 Selected Interface(s) :

Interface
Site1-L2 : Ethernet1/5

Policy*

int_access_host >

Policy Options

General Parameters Storm Control

Enable BPDU Guard*

true

Enable spanning-tree bpduguard: true='enable', false='disable', no='return to default settings'

Configure BPDU Filter

no

Configure spanning-tree bpdufilter, no='return to default settings'

Spanning-tree Link-type

auto

Specify a link type for spanning tree protocol use, default is auto

Enable Port Type Fast

Enable spanning-tree edge port behavior

MTU*

jumbo

MTU for the interface

SPEED*

Auto

Interface Speed

Access Vlan

VLAN for this access port

Interface Description

Server-2

Add description to the interface (Max Size 254)

Note: No VLAN is specified for the interface at this point.

“You don’t have to be great to start, but you have to start to be great.” - Zig Ziglar



After the interfaces' desired configuration has been defined, Click **Deploy**. At this point you can review the configuration that will be pushed to each switch.

Deploy interfaces configuration

Fabric name	Device name	Interface	Admin status	Operation Status	Pending config
Site-1	Site1-L1	Ethernet1/5	Up	Up	13 Lines
Site-1	Site1-L2	Ethernet1/5	Up	Up	13 Lines

Review the “**Pending config**” and verify the changes that will be deployed. The Side-by-side comparison shows that the interface(s) will be changed from trunk to access.

Pending config - Site-1 - Ethernet1/5 - Site1-L1

Pending config Side-by-side comparison

Running config	Expected config
<pre>interface Ethernet1/5 switchport mode trunk switchport trunk allowed vlan none spanning-tree port type edge trunk mtu 9216</pre>	<pre>interface Ethernet1/5 mtu 9216 switchport switchport mode access spanning-tree bpduguard enable spanning-tree port type edge description Server-1 no shutdown</pre>

After deploying the configuration, the next step is to attach these interfaces to the network.

Select the interface of choice >> **Actions** >> **Edit Configuration** >> **Attachments**
[Edit interface\(s\)](#)

Interface
Site1-L1 : Ethernet1/5

Policy*
[int_access_host >](#)

Attachments*
[No Network Attached >](#)

Select the **Network** under which the selected interface belongs to.

“You don't have to be great to start, but you have to start to be great.” - Zig Ziglar



Select Network(s)

Interface(s)

9ELOOK25KT1:Ethernet1/5

Note: PVLAN networks are not shown here.

Filter by attributes

Network Name	Network ID	VRF name	IPv4 Gateway/Prefix	IPv6 Gateway/Prefix	Switch Status	Port Status	VLAN ID
<input checked="" type="radio"/> PROD_1_NET	30000	PROD_VRF	192.168.11.1/24		<input type="radio"/> NA		2300
<input type="radio"/> PROD_2_NET	30001	PROD_VRF	192.168.12.1/24		<input type="radio"/> NA		2301

Click on **Actions > Interface Attach**

Interface(s)

9ELOOK25KT1:Ethernet1/5

Note: PVLAN networks are not shown here.

Filter by attributes

Actions ▾

Network Name	Network ID	VRF name	IPv4 Gateway/Prefix	IPv6 Gateway/Prefix	Switch Status	Port Status	
<input checked="" type="radio"/> PROD_1_NET	30000	PROD_VRF	192.168.11.1/24		<input type="radio"/> NA		Create Interface Attach Interface Detach Preview

After the interface has been attached, the configuration can be deployed.

Click on **Actions > Preview** to see the configurations that will be deployed.

Interface(s)

9ELOOK25KT1:Ethernet1/5

Note: PVLAN networks are not shown here.

Filter by attributes

Actions ▾

Network Name	Network ID	VRF name	IPv4 Gateway/Prefix	IPv6 Gateway/Prefix	Switch Status	Port Status	
<input checked="" type="radio"/> PROD_1_NET	30000	PROD_VRF	192.168.11.1/24		● OUT-OF-SYNC	Attached	Create Interface Attach Interface Detach Preview

Click on **Actions > Deploy** for NDFC to push the configuration to the switches and monitor the progress until the deployment has been completed successfully.

Deploy Configuration - Site-1

Filter by attributes

Actions ▾

Network name	Fabric name	Switch name	Serial number	IP address	Role	Network status	Status description	Progress
PROD_1_NET	Site-1	Site1-L1	9ELOOK25KT1	198.18.4.101	leaf	● Completed	Config compliance sync completed	<div style="width: 100%; background-color: #2e7131;"></div>
PROD_1_NET	Site-1	Site1-L2	99EU5FVUYAB	198.18.4.102	leaf	● Completed	Config compliance sync completed	<div style="width: 100%; background-color: #2e7131;"></div>

Perform the same steps for the second interface on Leaf-2.

"You don't have to be great to start, but you have to start to be great." - Zig Ziglar



Select the interface.

Overview Inventory **Connectivity** Segmentation and security Configuration policies Anomalies Advisories Integrations History

Interfaces Interface groups Links Routing policies Inter-fabric L3 neighbors Endpoints Routes Flows Virtual Infrastructure

Interface == Ethernet1/5								Edit	Clear All	Actions ▾
Interface	Switch	Admin status	Operational status	Reason	Policies	Overlay network	Sync status			
Ethernet1/5	Site1-L2	Up	Up	ok	int_access_host	NA	In-Sync	Create interface	Edit configuration	Configuration

Select the network to attach the interface to.

Select Network(s)

Interface(s)

99EU5FVUYAB:Ethernet1/5

Note: PVLAN networks are not shown here.

Filter by attributes

Network Name	Network ID	VRF name	IPv4 Gateway/Prefix	IPv6 Gateway/Prefix	Switch Status	Port Status	VLAN ID
PROD_1_NET	30000	PROD_VRF	192.168.11.1/24		DEPLOYED		2300
PROD_2_NET	30001	PROD_VRF	192.168.12.1/24		NA		2301

Create interface

Edit configuration

Configuration

Deploy

Interface(s)

99EU5FVUYAB:Ethernet1/5

Note: PVLAN networks are not shown here.

Filter by attributes

Network Name	Network ID	VRF name	IPv4 Gateway/Prefix	IPv6 Gateway/Prefix	Switch Status	Port Status	VLAN ID
PROD_1_NET	30000	PROD_VRF	192.168.11.1/24		DEPLOYED		2300
PROD_2_NET	30001	PROD_VRF	192.168.12.1/24		PENDING	Attached	2301

Create

Interface Attach

Interface Detach

Preview

Deploy

Data

Deployment Completed.

Deploy Configuration - Site-1

Filter by attributes

Network name	Fabric name	Switch name	Serial number	IP address	Role	Network status	Status description	Progress
PROD_2_NET	Site-1	Site1-L2	99EU5FVUYAB	198.18.4.102	leaf	Completed	Config compliance sync completed	<div style="width: 100%; background-color: #2e6b2e;"></div>
PROD_2_NET	Site-1	Site1-L1	9ELOOK25KT1	198.18.4.101	leaf	Completed	Config compliance sync completed	<div style="width: 100%; background-color: #2e6b2e;"></div>

Config compliance sync completed

Config compliance sync completed

Verify that the interfaces on the leaf switches have been configured correctly, each with the correct interface mode and access VLAN ID.

Site1-L1

Site1-L1# show run int eth1/5

Site1-L2

Site1-L2# show run int eth1/5

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```

!Command: show running-config interface Ethernet1/5
interface Ethernet1/5
  description Server-1
  switchport access vlan 2300
  spanning-tree port type edge
  spanning-tree bpduguard enable
  mtu 9216

```

```

!Command: show running-config interface Ethernet1/5
interface Ethernet1/5
  description Server-2
  switchport access vlan 2301
  spanning-tree port type edge
  spanning-tree bpduguard enable
  mtu 9216

```

Due to attaching an interface to a Network (which was already configured with a VLAN ID), the interface will be assigned to this respective VLAN ID.

Verify the nve interface status.

Site1-L1

```

Sitel-L1# show interface nve 1
nve1 is up
admin state is up, Hardware: NVE
  MTU 9216 bytes
  Encapsulation VXLAN
  Auto-mdix is turned off
RX
  ucast: 0 pkts, 0 bytes - mcast: 0 pkts, 0 bytes
TX
  ucast: 0 pkts, 0 bytes - mcast: 0 pkts, 0 bytes

```

Site1-L2

```

Sitel-L2# show interface nve 1
nve1 is up
admin state is up, Hardware: NVE
  MTU 9216 bytes
  Encapsulation VXLAN
  Auto-mdix is turned off
RX
  ucast: 0 pkts, 0 bytes - mcast: 0 pkts, 0 bytes
TX
  ucast: 0 pkts, 0 bytes - mcast: 0 pkts, 0 bytes

```

Verify the VLAN to vn-segment mapping

Site1-L1

Codes: CP - Control Plane DP - Data Plane						
Codes: UC - Unconfigured		Codes: SA - Suppress ARP				
Codes: S-ND - Suppress ND						
Codes: SU - Suppress Unknown Unicast						
Codes: Xconn - Crossconnect						
Codes: MS-IR - Multisite Ingress Replication						
Codes: HYB - Hybrid IRB mode						
Interface VNI Multicast-group State Mode Type [BD/VRF]						
Flags						
nve1	30000	239.1.1.0	Up	CP	L2	[2300]
nve1	30001	239.1.1.0	Up	CP	L2	[2301]
nve1	50000	n/a	Up	CP	L3	[prod_vrf]

Site1-L2

Codes: CP - Control Plane DP - Data Plane						
Codes: UC - Unconfigured		Codes: SA - Suppress ARP				
Codes: S-ND - Suppress ND						
Codes: SU - Suppress Unknown Unicast						
Codes: Xconn - Crossconnect						
Codes: MS-IR - Multisite Ingress Replication						
Codes: HYB - Hybrid IRB mode						
Interface VNI Multicast-group State Mode Type [BD/VRF]						
Flags						
nve1	30000	239.1.1.0	Up	CP	L2	[2300]
nve1	30001	239.1.1.0	Up	CP	L2	[2301]
nve1	50000	n/a	Up	CP	L3	[prod_vrf]

Connectivity Verification

Verify that each server can ping its respective default gateway.

Server-1

Server-2

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```
cisco@Server1:~$ ping 192.168.11.1
PING 192.168.11.1 (192.168.11.1): 56 data bytes
64 bytes from 192.168.11.1: seq=1 ttl=255 time=3.113 ms
64 bytes from 192.168.11.1: seq=2 ttl=255 time=3.368 ms
64 bytes from 192.168.11.1: seq=3 ttl=255 time=3.905 ms
64 bytes from 192.168.11.1: seq=4 ttl=255 time=2.492 ms
64 bytes from 192.168.11.1: seq=5 ttl=255 time=3.164 ms
64 bytes from 192.168.11.1: seq=6 ttl=255 time=3.661 ms
64 bytes from 192.168.11.1: seq=7 ttl=255 time=3.444 ms
64 bytes from 192.168.11.1: seq=8 ttl=255 time=2.481 ms
^C
--- 192.168.11.1 ping statistics ---
9 packets transmitted, 8 packets received, 11% packet loss
round-trip min/avg/max = 2.481/3.203/3.905 ms
```

```
cisco@Server2:~$ ping 192.168.12.1
PING 192.168.12.1 (192.168.12.1): 56 data bytes
64 bytes from 192.168.12.1: seq=1 ttl=255 time=1.769 ms
64 bytes from 192.168.12.1: seq=2 ttl=255 time=2.228 ms
64 bytes from 192.168.12.1: seq=3 ttl=255 time=2.112 ms
64 bytes from 192.168.12.1: seq=4 ttl=255 time=2.129 ms
64 bytes from 192.168.12.1: seq=5 ttl=255 time=1.858 ms
64 bytes from 192.168.12.1: seq=6 ttl=255 time=2.469 ms
64 bytes from 192.168.12.1: seq=7 ttl=255 time=1.912 ms
64 bytes from 192.168.12.1: seq=8 ttl=255 time=1.922 ms
^C
--- 192.168.12.1 ping statistics ---
9 packets transmitted, 8 packets received, 11% packet loss
round-trip min/avg/max = 1.769/2.049/2.469 ms
```

Verify that the servers can communicate with each other.

Server-1

```
cisco@Server1:~$ ping 192.168.12.22
PING 192.168.12.22 (192.168.12.22): 56 data bytes
64 bytes from 192.168.12.22: seq=0 ttl=63 time=8.153 ms
64 bytes from 192.168.12.22: seq=1 ttl=63 time=6.253 ms
64 bytes from 192.168.12.22: seq=2 ttl=63 time=24.655 ms
64 bytes from 192.168.12.22: seq=3 ttl=63 time=6.420 ms
64 bytes from 192.168.12.22: seq=4 ttl=63 time=6.355 ms
^C
--- 192.168.12.22 ping statistics ---
5 packets transmitted, 5 packets received, 0% packet loss
round-trip min/avg/max = 6.253/10.367/24.655 ms
```

Server-2

```
cisco@Server2:~$ ping 192.168.11.11
PING 192.168.11.11 (192.168.11.11): 56 data bytes
64 bytes from 192.168.11.11: seq=0 ttl=63 time=5.642 ms
64 bytes from 192.168.11.11: seq=1 ttl=63 time=6.396 ms
64 bytes from 192.168.11.11: seq=2 ttl=63 time=7.653 ms
64 bytes from 192.168.11.11: seq=3 ttl=63 time=5.910 ms
64 bytes from 192.168.11.11: seq=4 ttl=63 time=6.573 ms
^C
--- 192.168.11.11 ping statistics ---
5 packets transmitted, 5 packets received, 0% packet loss
round-trip min/avg/max = 5.642/6.434/7.653 ms
```

For more labs visit my GitHub repo: <https://github.com/TitusM/Cisco-Data-Center>

References

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