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 vGarethLewis



London VMUG – 13th July 2023

Migrate from VMware NSX-V to NSX-T via the Migration Coordinator



Gareth Lewis
Technical Architect

@LonVMUG
#LonVMUG

About Me

- Technical Architect, Xtravirt, 4yrs
- 10+yrs of VMware NSX
- VMware Certified Implementation Expert (VCIX)
- Blogger at vGarethLewis.com
- Veeam Certified Architect
- vExpert x6 (2018 – 2023)
- VMware Influencer 100 Club



Agenda

1. VMware NSX: A Quick Recap
 2. Migration Modes & Options
 3. An Introduction to the User Defined Topology
 4. User Defined Workflow
 5. The Migration Coordinator in Action
-



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VMware NSX

A Quick Recap

Firstly – How Many Names Does NSX Need?

1. VMware NSX Data Center for vSphere
2. VMware NSX-V
3. VMware NSX-T
4. VMware NSX-T Data Center
5. VMware NSX



A Quick Recap – NSX for vSphere

- NSX for vSphere 6.0
 - Released October 2013
 - Name Changes
 - NSX Data Center for vSphere (2018)
 - Still referred to as NSX-V
 - Introduced/Continued:
 - Distributed Firewalling
 - Software-Defined Logical Routing
 - NAT
 - VPN
 - Load Balancing
 - Etc.



Rest in Peace NSX for vSphere

- NSX for vSphere 6.x
 - End of Life January 2022



Welcome VMware NSX-T

- NSX-V Replaced by VMware NSX-T 1.0
 - Released October 2016
 - Name Changes
 - VMware NSX-T Data Center (2018)
 - VMware NSX (2022)
 - Superior Functionality
 - vSphere Not-Required
 - Hypervisor Agnostic (ESXi, KVM*)
 - Distributed Firewall**
 - Logical Routing*
 - IDS/IPS
 - Multi-Site/Multi-Location *
 - Load Balancing*
 - VPN*
 - Flagship Network and Security offering





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VMware NSX-V to NSX-T

Migration Options

Migration Options

- **In-Parallel – Greenfield**
 - New/Reused Hardware, Deploy New, Skill Up, Migrate at your leisure via vMotion and NSX L2 Bridge or VPN, VMware HCX, etc.
- **In-Place – NSX Migration Coordinator**
 - Standard Migration Modes
 - NSX for vSphere
 - Fixed Topology (Limited to Supported Topologies)
 - User Defined Topology
 - Complete Migration (E2E)
 - Configuration Migration (L&S)
 - Configuration and Edge Migration (L&S)
 - Cross-vCenter to NSX Federation
 - vSphere Networking (VDS 6.5.0 and 6.6.0 to N-VDS)
 - NSX for vSphere with vRealize Automation
 - Advanced Migration Modes
 - Edge Cutover
 - Distributed Firewall
 - Distributed Firewall, Host and Workload

The logo for xtravirt, featuring the word "xtravirt" in a bold, lowercase, blue sans-serif font. The background of the slide is a scenic mountain landscape with rocky peaks and a valley, overlaid with a light blue semi-transparent rectangle.

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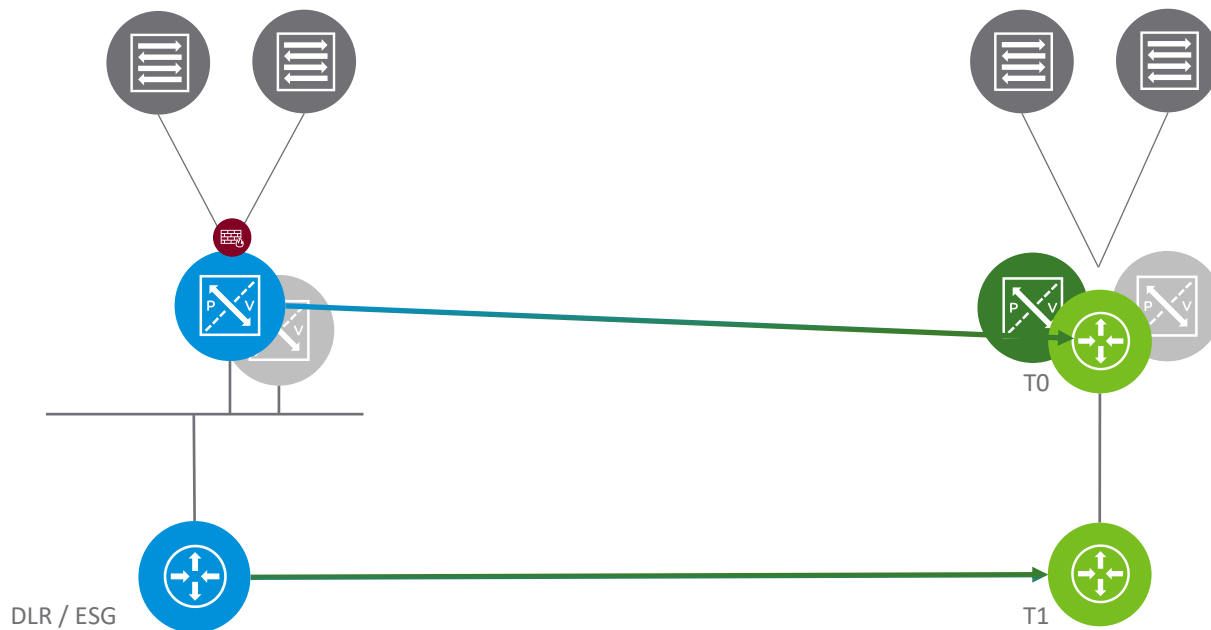
VMware NSX-V to NSX-T

User Defined Complete Migration via the NSX Migration Coordinator

What is moved...

- Logical Networking
 - Security Configurations
 - Edges
 - Hosts
 - Workload VMs
-

What it CAN do...

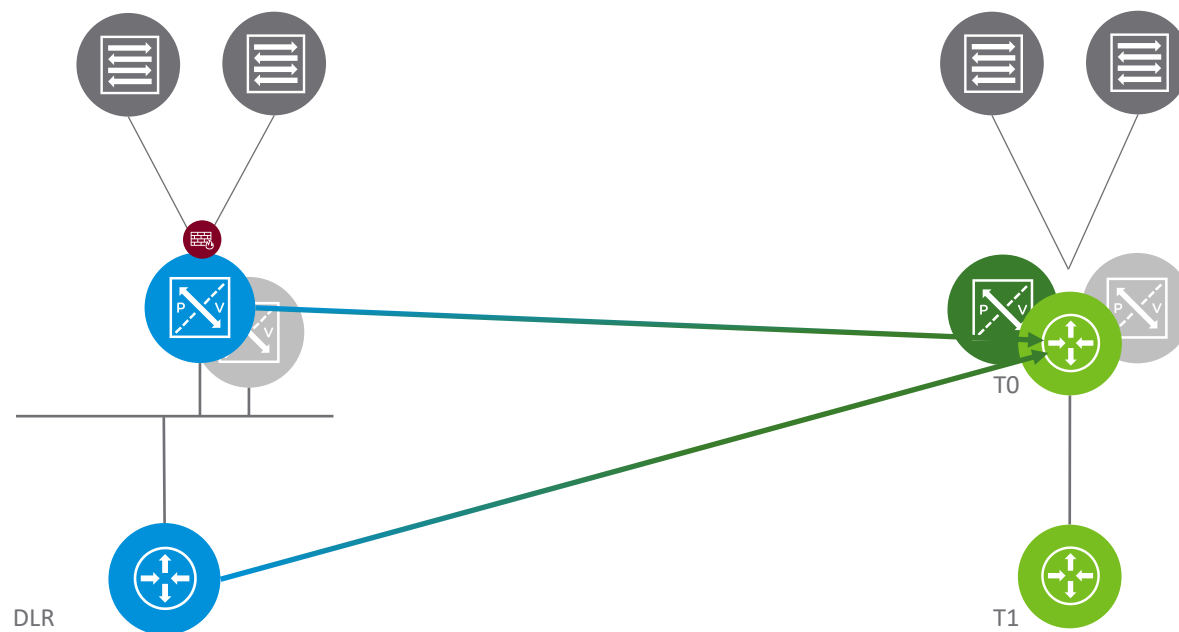


1. Deploy new NSX-T Manager
2. Deploy Edges
3. Configure T0/T1 as needed
4. Provide the mapping during the Migration Coordinator 'User Defined Topology' mode of migration

Existing NSX-V Topology

New User Defined Topology in NSX-T

What it CAN do...

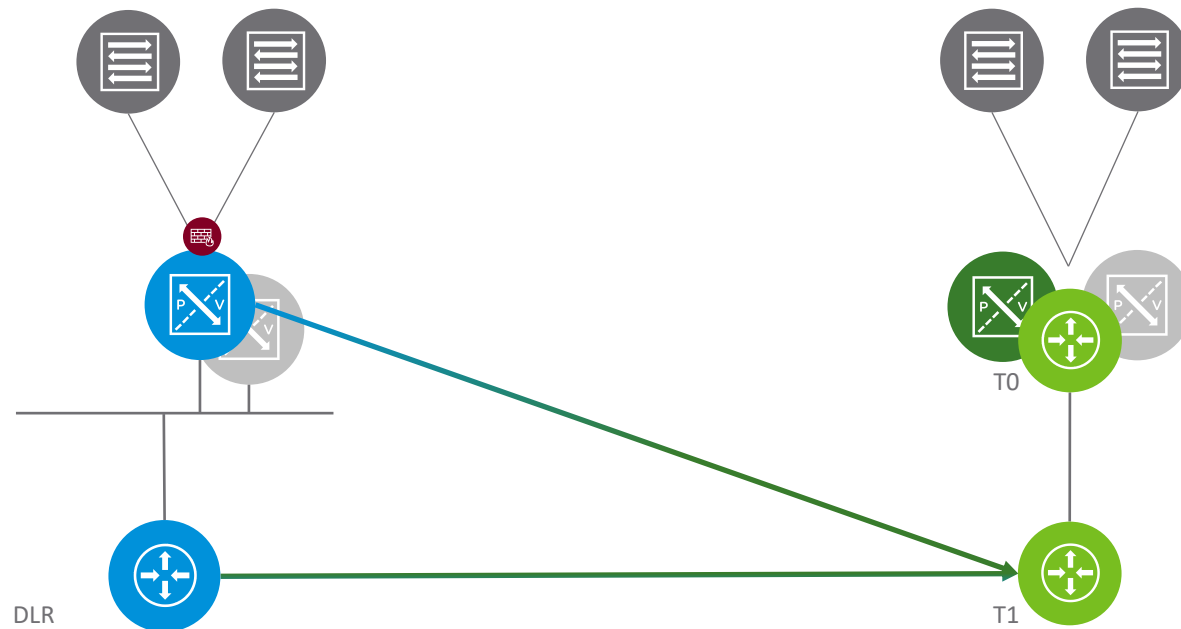


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Existing NSX-V Topology

New User Defined Topology in NSX-T

What it CAN do...

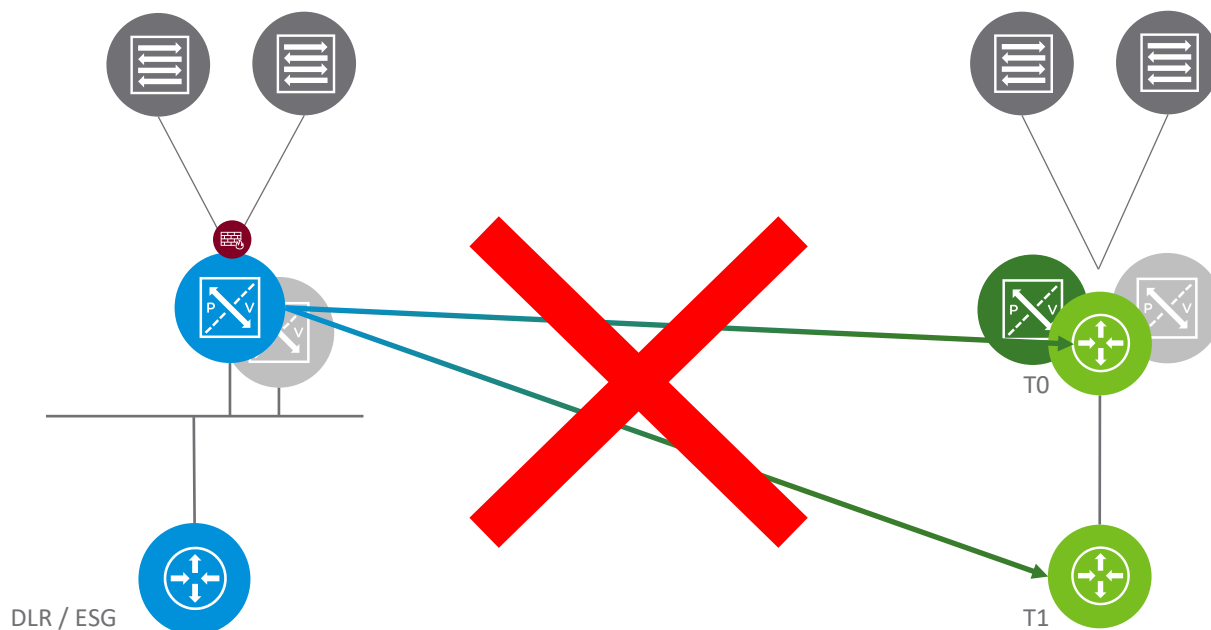


1. Deploy new NSX-T Manager
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4. Provide the mapping during the Migration Coordinator 'User Defined Topology' mode of migration

Existing NSX-V Topology

New User Defined Topology in NSX-T

What it CAN'T do...



Existing NSX-V Topology

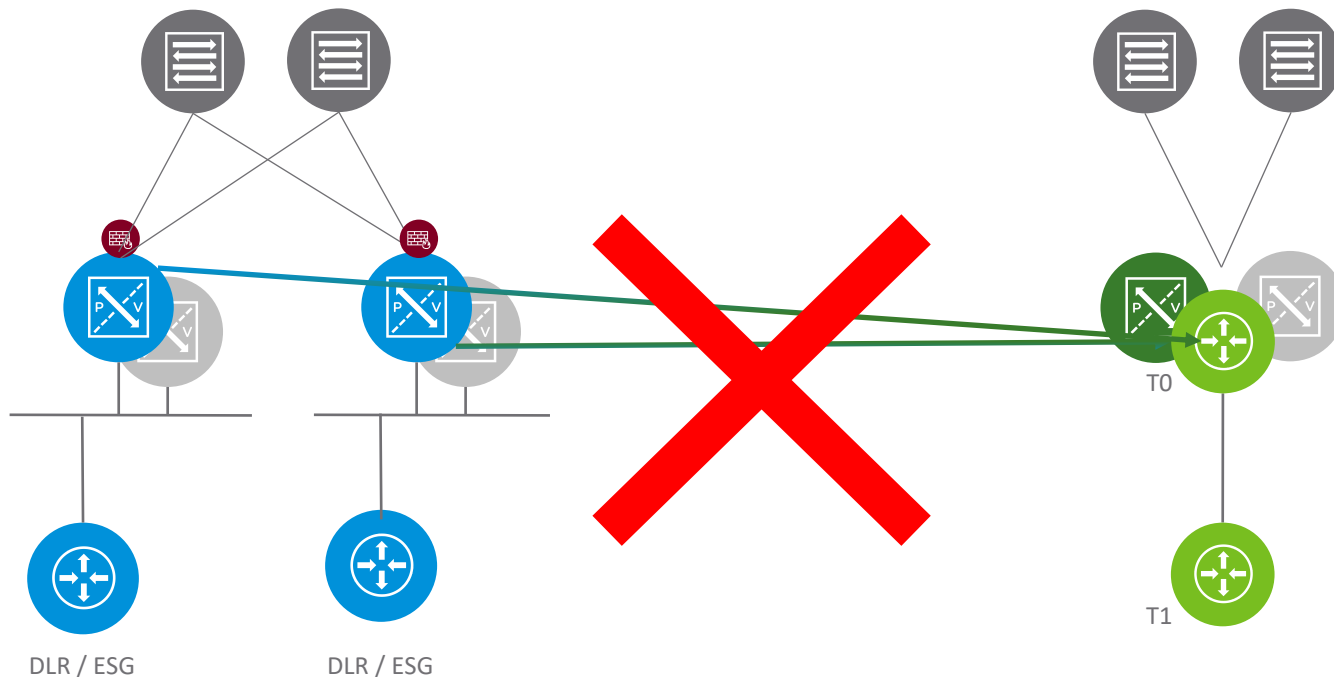
New User Defined Topology in NSX-T

1. Deploy new NSX-T Manager
2. Deploy Edges
3. Configure T0/T1 as needed
4. Provide the mapping during the Migration Coordinator 'User Defined Topology' mode of migration

User Defined Topology will not allow:

1. Separating Functions

What it CAN'T do...



Existing NSX-V Topology

New User Defined Topology in NSX-T

1. Deploy new NSX-T Manager
2. Deploy Edges
3. Configure T0/T1 as needed
4. Provide the mapping during the Migration Coordinator 'User Defined Topology' mode of migration

User Defined Topology will not allow:

1. Separating Functions
2. Consolidating

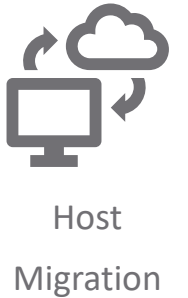
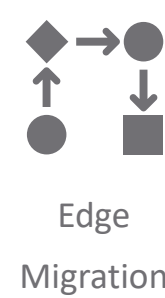
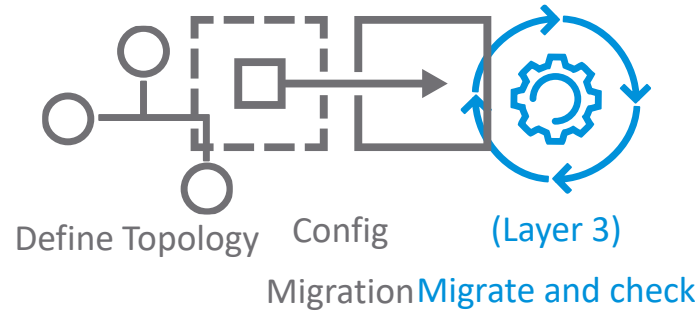
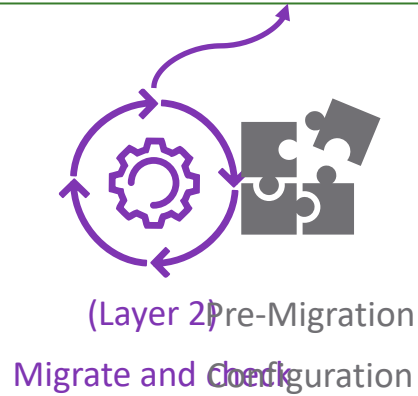
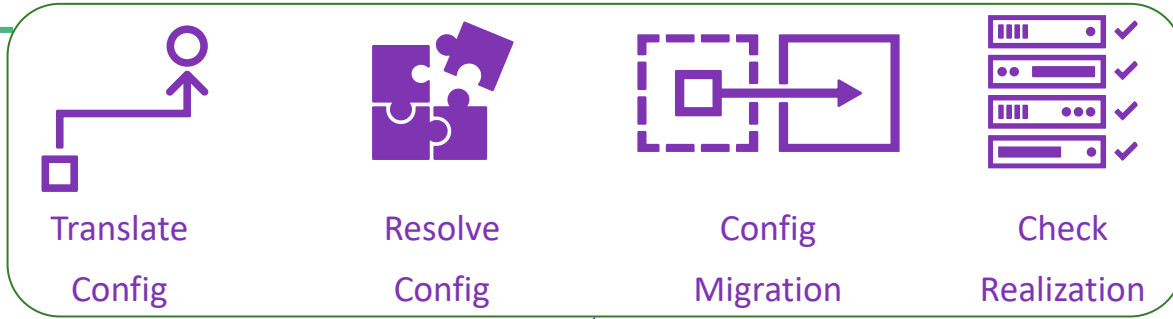


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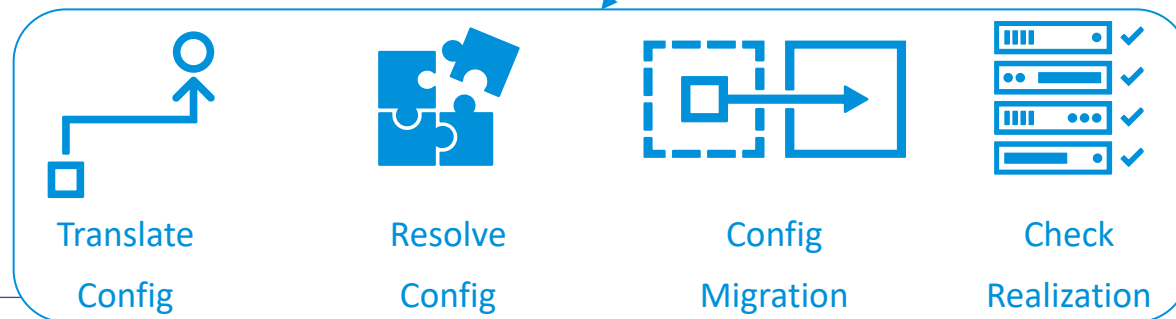
User Defined Topology

Workflow

User Defined Topology
Workflow



Rollback Option via
Migration Coordinator GUI





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User Defined Topology

In Action

Prerequisites



vSphere

- Stable environment
- No pending host reboots
- NSX-T compatible (7.0+)
- VDS 7.0 or higher
- Ability to put hosts into maintenance mode



NSX for vSphere

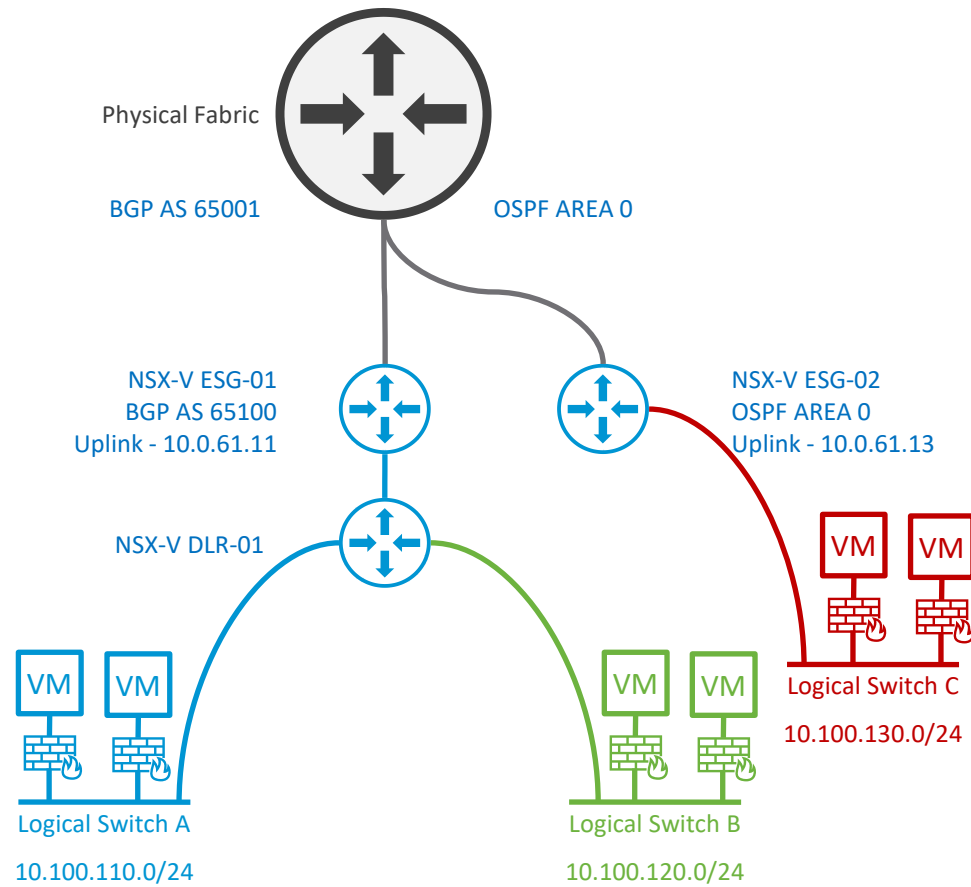
- Stable environment
- Healthy backups
- NSX-V latest
- No DFW unpublished changes



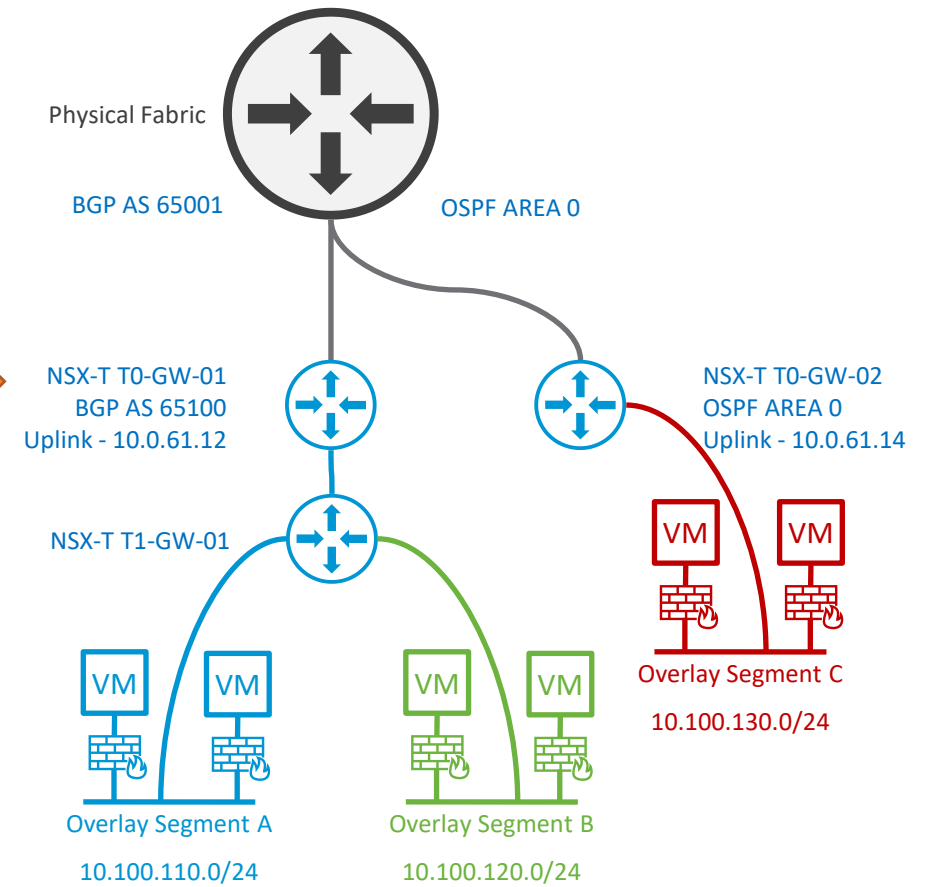
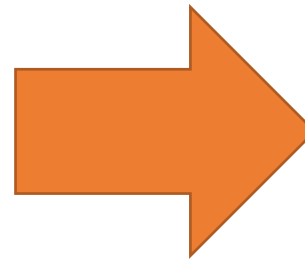
NSX-T

- NSX-T 3.2 or higher
- NSX Management Cluster and Edge nodes deployed to vSphere
- No user-defined DFW rules
- Edge TEP IP Pool
- N/S configured (T0 and/or T1 topology) and T0 configured with dynamic routing

User Defined Topology Topology



Existing NSX-V Topology



New User Defined Topology in NSX-T

Get Started

The screenshot shows the VMware NSX-T System configuration page. The top navigation bar includes Home, Networking, Security, Inventory, Plan & Troubleshoot, and System. The left sidebar contains a navigation menu with categories like System Overview, Configuration, and Lifecycle Management. The main content area is titled 'Migrate' and features three migration mode cards: 'NSX for vSphere', 'vSphere Networking', and 'vRealize Automation'. Each card has a 'GET STARTED' button. A dropdown menu is open over the 'NSX for vSphere' card, showing 'Fixed Topology' and 'User Defined Topology' options. The 'vSphere Networking' card includes a 'Migration Summary' section with a vertical flowchart of steps: Import configuration, Resolve Configuration, Migrate Configuration, Traffic Migration, and Migrate Hosts.

vmw NSX-T

Home Networking Security Inventory Plan & Troubleshoot System

Migrate

STANDARD MIGRATION MODES

NSX for vSphere

GET STARTED ▾

What will get migrated?
NSX: vSphere
(Registered to vCenter Server: vgi-ii-v-vcsa-01.vgarethlewis.com)

Fixed Topology
User Defined Topology

Migration Summary
Step-by-step migration workflow status will appear here once you select the mode and start this migration

vSphere Networking

GET STARTED

What will get migrated?
In this migration, Virtual Switches from vCenter server will be migrated.

Migration Summary

Management Plane Migration

- Import configuration
- Resolve Configuration
- Migrate Configuration

Traffic Migration

- Migrate Hosts

vRealize Automation

GET STARTED ▾

What will get migrated?
In this migration, NSX for vSphere will be migrated while maintaining integration with vRealize Automation.


Migration Summary
Step-by-step migration workflow status will appear here once you select the mode and start this migration

Prepare for Migration

Migrate NSX for vSphere

Import Configuration > Translate Configuration Layer 2 > Resolve Configuration Layer 2 > Migrate Configuration Layer 2 > Check Realization Layer 2 > Define Topology >>

1. Prepare for Migration



Before you begin migration

You must prepare both the NSX-T and NSX-V environments before you start migrating a user-defined topology. Click the Next button after you complete all the required steps for preparation.

[LEARN ABOUT PREPARING FOR MIGRATION](#)

NEXT

2. Select Migration Mode

3. Authentication

4. Import Configuration

BACK TO OVERVIEW CONTINUE

Select Migration Mode

Migrate NSX for vSphere

Import Configuration > Translate Configuration Layer 2 > Resolve Configuration Layer 2 > Migrate Configuration Layer 2 > Check Realization Layer 2 > Define Topology >>

- > Prepare for Migration
- ▼ 2. Select Migration Mode
 - Migration Mode**
 - Complete migration
Migrate everything including configurations, edges, hosts and workloads. Migrate your environment in place without the need for additional hosts. This mode migrates the NSX-V Load Balancer configuration to NSX-T Load Balancer.
 - Configuration migration
Migrate configurations only from the NSX-V environment to a new NSX-T environment. Workload VMs are not migrated. This allows you to move the workload to the lift-and-shift model. This mode will migrate the NSX-V Load Balancer configuration to NSX-T Advanced Load Balancer.
- 3. Authentication
- 4. Import Configuration

NEXT

Select NSX for vSphere and vSphere

Select NSX for vSphere

vCenter Server Credentials

vCenter Server ▼

User Name [ADD NEW](#)

Password 👁

Port

NSX for vSphere Credentials

Domain Name/IP Address

User Name

Password 👁

Migrate NSX for vSphere

Import Configuration > Translate Configuration Layer 2 > Resolve Configuration Layer 2 > Migrate Configuration Layer 2 > Check Realization Layer 2 > Define Topology >>

- > Prepare for Migration
- > Select Migration Mode
- 3. Authentication
 - Select the NSX for vSphere, associated vCenter Server and provide required credentials
 - Migration Scope: NSX for vSphere: vgl-l1-v-nsxm-01.vgarethlewis.com | vCenter Server: vgl-l1-v-vcasa-01.vgarethlewis.com
 - vCenter Server: vgl-l1-v-vcasa-01.vgarethlewis.com Version: 7.0.3
 -
- 4. Import Configuration

Import Configuration

Migrate NSX for vSphere

Import Configuration > Translate Configuration Layer 2 > Resolve Configuration Layer 2 > Migrate Configuration Layer 2 > Check Realization Layer 2 > Define Topology >>

- > Prepare for Migration
- > Select Migration Mode
- > Authentication
- 4. Import Configuration

If identity firewall is configured you must manually configure AD domain, LDAP server and event log server (if used) and complete an AD sync before you start the migration. LB

Import configurations from NSX for vSphere

1. Check prerequisites
2. Import configuration of vCenter
3. Import configuration of NSX for vSphere

[VIEW IMPORTED TOPOLOGY](#)

Import Configuration - Successful

The screenshot displays the 'Migrate NSX for vSphere' workflow. At the top, a breadcrumb trail shows the current step: **Import Configuration** > Translate Configuration Layer 2 > Resolve Configuration Layer 2 > Migrate Configuration Layer 2 > Check Realization Layer 2 > Define Topology > Translate Configuration L3, L4-L7 services. A green notification bar at the top states: 'Configuration imported successfully. To proceed further, click on 'continue' button to next step.' Below this, a progress list shows steps 1 through 4, all marked with green checkmarks: 1. Prepare for Migration, 2. Select Migration Mode, 3. Authentication, and 4. Import Configuration. A blue warning box below the list reads: 'If identity firewall is configured you must manually configure AD domain, LDAP server and event log server (if used) and complete an AD sync before you start the migration. LEARN MORE'. Underneath, a section titled 'Import configurations from NSX for vSphere' contains 'START' and 'ROLLBACK' buttons. A progress table shows three steps, all completed successfully:

Step	Progress	Status
1. Check prerequisites	100%	Successful
2. Import configuration of vCenter	100%	Successful
3. Import configuration of NSX for vSphere	100%	Successful

At the bottom left, there is a link for 'VIEW IMPORTED TOPOLOGY'. At the bottom right, there are two buttons: 'BACK TO OVERVIEW' and 'CONTINUE'.

Translate Configuration – Layer 2

Migrate NSX for vSphere ?

Import Configuration > **Translate Configuration Layer 2** > Resolve Configuration Layer 2 > Migrate Configuration Layer 2 > Check Realization Layer 2 > Define Topology > Translate Configuration L3, L4-L7 services >> ?

Migration Scope: NSX for vSphere: vgl-l1-v-nxsm-01.vgarethlewis.com | vCenter Server: vgl-l1-v-vcsa-01.vgarethlewis.com

This step will translate the imported L2 configurations from NSX for vSphere, and prepare for the next step where you can review and resolve configuration issues before continuing with the migration. Note that no configurations will be created in NSX-T in this step.

Overall Progress

Status Not Started 0% START

Resolve Configuration – Layer 2

Migrate NSX for vSphere

Import Configuration > Translate Configuration Layer 2 > **Resolve Configuration Layer 2** > Migrate Configuration Layer 2 > Check Realization Layer 2 > Define Topology > Translate Configuration L3, L4-L7 services >>

⚠ Your input(s) has not been submitted. Click 'SUBMIT' to proceed. SUBMIT DISCARD

Migration Scope: NSX for vSphere: vgl-I1-v-nxsm-01.vgarethlewis.com | vCenter Server: vgl-I1-v-vcsa-01.vgarethlewis.com ⚠ 0 Warnings

Provide inputs to the following issues. ⓘ

List of Inputs Total: 5 Resolved: 0

Category

- L2 >
- Maintenance Mode Options

L2

ACCEPT RECOMMENDATIONS ⓘ View: All

<input type="checkbox"/>	Resolve Status	Message	Instances
<input type="checkbox"/>	ⓘ	Please provide Edge TN ips used to create Edge cluster or Edge cluster uuids (separate with ',')	edge_management_ip
<input type="checkbox"/>	ⓘ	Migrate or skip VLAN DVPGs missing segments.	MigrateOrSkipVlanDvpgMissingSegment
<input type="checkbox"/>	ⓘ	Choose deleting all NSX-V transport-zones post migration.	CurrentSite
<input type="checkbox"/>	ⓘ	TEP VLAN Id for NSX-T Edge TransportNodes	NSXT_EdgeVtepVlanId

Modified Inputs

1 - 2 of 2 Categories

1 - 4 of 4 Inputs

BACK TO OVERVIEW PREVIOUS CONTINUE

Resolve Configuration – Layer 2

Migrate NSX for vSphere

Import Configuration > Translate Configuration Layer 2 > **Resolve Configuration Layer 2** > Migrate Configuration Layer 2 > Check Realization Layer 2 > Define Topology > Translate Configuration L3, L4-L7 services >>

Migration Scope: NSX for vSphere: vgl-l1-v-nxsm-01.vgarethlewis.com | vCenter Server: vgl-l1-v-vcsa-01.vgarethlewis.com 0 Warnings

Provide inputs to the following issues. 0

List of Inputs Total: 12 Resolved: 12

- Edge
- L2
- Maintenance Mode Options

Edge

ACCEPT RECOMMENDATIONS 0 View: All

<input type="checkbox"/>	Resolve Status	Message	Instances
<input type="checkbox"/>	✓	Please allocate network interfaces for the N-VDS used by Edge transport node	nvds.VDS-01
<input type="checkbox"/>	✓	Please provide IP Pool ID for Edge transport node TEP IP assignment	nvds.VDS-01

Modified Inputs

BACK TO OVERVIEW PREVIOUS CONTINUE

Migrate Configuration – Layer 2

Migrate NSX for vSphere


Import Configuration > Translate Configuration Layer 2 > Resolve Configuration Layer 2 > **Migrate Configuration Layer 2** > Check Realization Layer 2 > Define Topology > Translate Configuration L3, L4-L7 services >>

While the migration is in progress, do not delete migrated objects in NSX-T unless you need to fix a rollback failure, and do not change configurations in NSX for vSphere or in NSX-T unless you need to resolve blocking migration issues.

Migration Scope: NSX for vSphere: vgl-l1-v-nxsm-01.vgarethlewis.com | vCenter Server: vgl-l1-v-vcsa-01.vgarethlewis.com

Overall Progress
Status Not Started 0% START

Migration Status

vSphere Object Type	Mapped Object Type in NSX-T	Category	Mapped Object Count/Source Object Count
			

BACK TO OVERVIEW PREVIOUS CONTINUE

Migrate Configuration – Layer 2

Migrate NSX for vSphere

Import Configuration > Translate Configuration Layer 2 > Resolve Configuration Layer 2 > **Migrate Configuration Layer 2** > Check Realization Layer 2 > Define Topology > Translate Configuration L3, L4-L7 services >>

While the migration is in progress, do not delete migrated objects in NSX-T unless you need to fix a rollback failure, and do not change configurations in NSX for vSphere or in NSX-T unless you need to resolve blocking migration issues.

Migration Scope: NSX for vSphere: vgl-I1-v-nxsm-01.vgarethlewis.com | vCenter Server: vgl-I1-v-vcsa-01.vgarethlewis.com

Overall Progress
Status ✔ Successful 100% START ROLLBACK

Migration Status

vSphere Object Type	Mapped Object Type in NSX-T	Category	Mapped Object Count/Source Object Count
Transport Zone	Transport Zone	L2	2/2
Enforcement Point	Enforcement Point	L2	1/1
MAC Management	MAC Discovery Profile	Switching Profiles	1/1
Traffic Shaping Policy	QOS Profile	Switching Profiles	1/1
Security Profile	Segment Security Profile	Switching Profiles	1/1
Spoof Guard Configuration	Spoof Guard Profile	Switching Profiles	1/1
IP Discovery	IP Discovery Profile	Switching Profiles	1/1
Virtual Wire	Segment Path	L2	2/2
Switching Profiles	Discovery Profile Binding Maps	L2	2/2
Switching Profiles	Security Profile Binding Maps	L2	2/2
Switching Profiles	QOS Profile Binding Maps	L2	2/2
DV Switch	Uplink Host Switch Profile	Host Switch	1/1
DV Switch	Uplink Host Switch Profile VXLAN	Host Switch	1/1
DV Switch	Uplink Host Switch Profile	Edge	1/1
Default Edge	Edge Cluster	Edge	1/1

[BACK TO OVERVIEW](#) [PREVIOUS](#) [CONTINUE](#)

Check Realization – Layer 2

Migrate NSX for vSphere

Import Configuration > Translate Configuration Layer 2 > Resolve Configuration Layer 2 > Migrate Configuration Layer 2 > **Check Realization Layer 2** > Define Topology > Translate Configuration L3, L4-L7 services >>

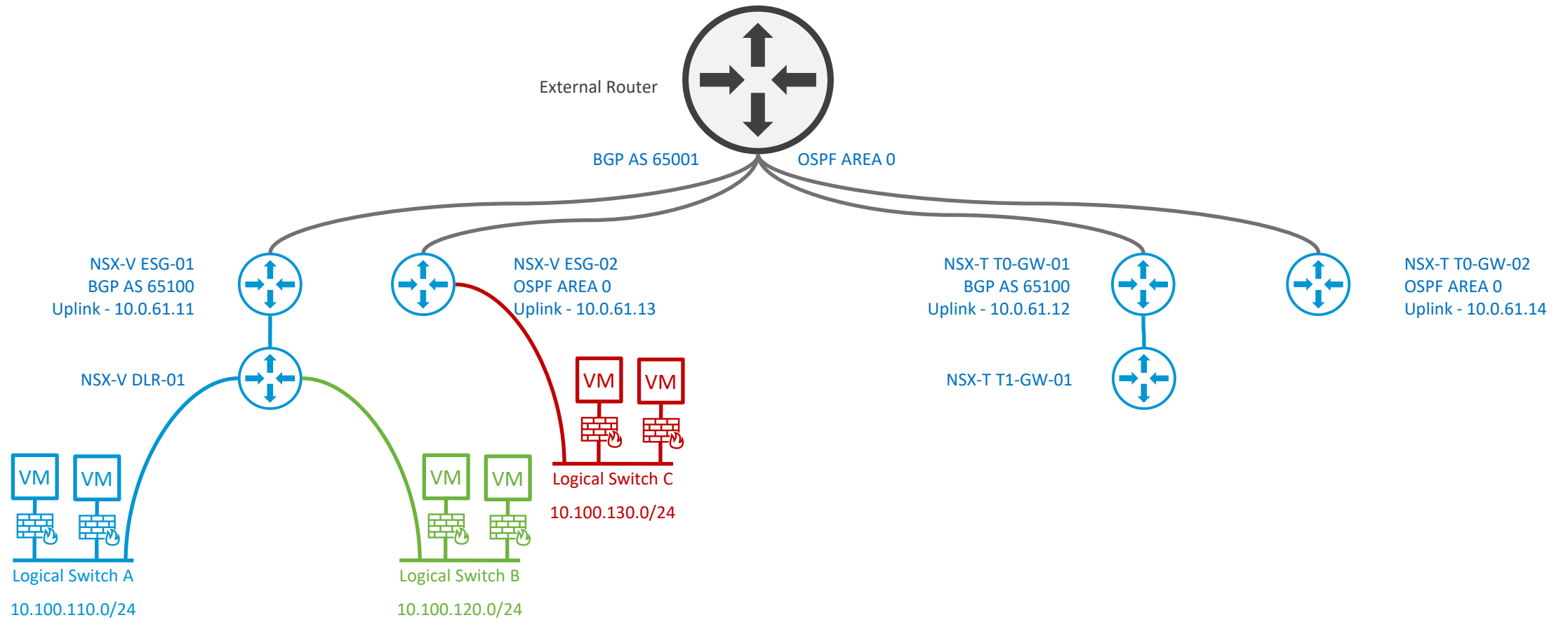
Migration Scope: NSX for vSphere: vgl-l1-v-nxsm-01.vgarethlewis.com | vCenter Server: vgl-l1-v-vcsa-01.vgarethlewis.com

This step will check the realization of the migrated L2 configurations from NSX for vSphere. This step may take a few minutes. At this point the objects should appear in your NSX-T environment and their status should be Successful. If that is not the case, please rollback.

Overall Progress

Status Successful 100%

Configure Edges and Gateways



Existing NSX-V Topology

New User Defined Topology in NSX-T

Dynamic Routing

BGP
NSX-V .11
NSX-T .12

OSPF
NSX-V .13
NSX-T .14



```
vyos@vgl-in-a-tor-01:~$ sho ip ospf neighbor
```

Neighbor ID	Pri	State	Dead Time	Address	Interface	RXmtL	RqstL	DBsmL
10.0.61.13	128	Full/DR	37.085s	10.0.61.13	eth1.61:10.0.61.1	0	0	0
10.0.61.14	0	Full/DROther	37.921s	10.0.61.14	eth1.61:10.0.61.1	3	0	0

```
vyos@vgl-in-a-tor-01:~$ sho bgp summ
```

IPv4 Unicast Summary:
BGP router identifier 172.16.10.11, local AS number 65001 vrf-id 0
BGP table version 61
RIB entries 31, using 5952 bytes of memory
Peers 8, using 170 KiB of memory

Neighbor	V	AS	MsgRcvd	MsgSent	TblVer	InQ	OutQ	Up/Down	State/PfxRcd	PfxSnt
10.0.61.11	4	65100	207	192	0	0	0	02:56:23	5	16
10.0.61.12	4	65100	0	0	0	0	0	never	Active	0
10.0.61.13	4	65100	0	0	0	0	0	never	Active	0
10.0.61.31	4	65300	0	0	0	0	0	never	Active	0
10.0.61.32	4	65300	0	0	0	0	0	never	Active	0
10.0.61.41	4	65400	0	0	0	0	0	never	Active	0
10.0.61.42	4	65400	0	0	0	0	0	never	Active	0
172.16.10.1	4	65000	243	252	0	0	0	03:45:32	1	17

Total number of neighbors 8
vyos@vgl-in-a-tor-01:~\$ sho bgp summ

IPv4 Unicast Summary:
BGP router identifier 172.16.10.11, local AS number 65001 vrf-id 0
BGP table version 61
RIB entries 31, using 5952 bytes of memory
Peers 8, using 170 KiB of memory

Neighbor	V	AS	MsgRcvd	MsgSent	TblVer	InQ	OutQ	Up/Down	State/PfxRcd	PfxSnt
10.0.61.11	4	65100	211	196	0	0	0	03:00:01	5	16
10.0.61.12	4	65100	4	17	0	0	0	00:01:22	0	16
10.0.61.13	4	65100	0	0	0	0	0	never	Active	0
10.0.61.31	4	65300	0	0	0	0	0	never	Active	0
10.0.61.32	4	65300	0	0	0	0	0	never	Active	0
10.0.61.41	4	65400	0	0	0	0	0	never	Active	0
10.0.61.42	4	65400	0	0	0	0	0	never	Active	0
172.16.10.1	4	65000	247	256	0	0	0	03:49:10	1	17

Total number of neighbors 8
vyos@vgl-in-a-tor-01:~\$

Define Topology

Migrate NSX for vSphere

Import Configuration > Translate Configuration Layer 2 > Resolve Configuration Layer 2 > Migrate Configuration Layer 2 > Check Realization Layer 2 > **Define Topology** > Translate Configuration L3, L4-L7 services >>

✔ Mappings saved successfully. ✕

Migration Scope: NSX for vSphere: vgl-l1-v-nxm-01.vgarethlewis.com | vCenter Server: vgl-l1-v-vcsa-01.vgarethlewis.com

Choose how you would like to specify the mapping

- Do not migrate L3-L7 entities and services
- Upload mapping file (*.json) ⓘ
- Select a Tier-0/Tier-1 Gateway for each entity that needs to be migrated

ⓘ Edge Services Gateways (ESGs) which are in ECMP path should not be mapped below. An ESG and its connected Distributed Logical Router (DLR) may be mapped to the same NSX-T Gateway. It is recommended that no ESG is mapped to the same NSX-T Gateway as Universal DLR. [LEARN MORE](#) ✕

To create a new Gateway, visit the [Tier-0 Gateways](#) or [Tier-1 Gateways](#) page. You can view the [Imported Topology](#) or the current [NSX-T Network Topology](#) at any time.

CLEAR ALL **3 of 3 mapped** Filter by Name, Path and more

Name	ID	Type	Connected To	Map To (Tier-0/Tier-1 Gateway)
VGL-L1-V-NSX-ESG-01	edge-1	Edge Services Gateway	VGL-L1-V-NSX-DLR-01 (Distributed Logical Router)	t0-gw-01
VGL-L1-V-NSX-ESG-02	edge-4	Edge Services Gateway	VGL-L1-V-NSX-ESG-01 (Edge Services Gateway)	t0-gw-02
VGL-L1-V-NSX-DLR-01	edge-5	Distributed Logical Router	VGL-L1-V-NSX-ESG-01 (Edge Services Gateway)	t1-gw-01

BACK TO OVERVIEW PREVIOUS CONTINUE

Translate Configuration – L3, L4-L7 Services


Migrate NSX for vSphere

Import Configuration > Translate Configuration Layer 2 > Resolve Configuration Layer 2 > Migrate Configuration Layer 2 > Check Realization Layer 2 > Define Topology > Translate Configuration L3, L4-L7 services >>

Migration Scope: NSX for vSphere: `vgl-l1-v-nxsm-01.vgarethlewis.com` | vCenter Server: `vgl-l1-v-vcsa-01.vgarethlewis.com`

This step will translate the imported L3 and L4-L7 services' configurations from NSX for vSphere, and prepare for the next step where you can review and resolve configuration issues before continuing with the migration. Note that no configurations will be created in NSX-T in this step.

Overall Progress

Status Not Started  0% [START](#)

Translate Configuration – L3, L4-L7 Services

The screenshot displays the 'Migrate NSX for vSphere' workflow. The breadcrumb trail at the top includes: Import Configuration > Translate Configuration (Layer 2) > Resolve Configuration (Layer 2) > Migrate Configuration (Layer 2) > Check Realization (Layer 2) > Define Topology > Translate Configuration (L3, L4-L7 services). A green notification bar states: 'Configuration imported successfully. To proceed further, click on 'continue' button to next step.' Below this, the migration scope is defined as 'NSX for vSphere: vgl-l1-v-nxm-01.vgarethlewis.com | vCenter Server: vgl-l1-v-vcasa-01.vgarethlewis.com'. A descriptive paragraph explains that this step translates L3 and L4-L7 services' configurations from NSX for vSphere and prepares for the next step where configuration issues can be reviewed. An 'Overall Progress' section shows a 'Successful' status with a 100% progress bar and 'START' and 'ROLLBACK' buttons. At the bottom right, there are buttons for 'BACK TO OVERVIEW', 'PREVIOUS', and 'CONTINUE'.

Resolve Configuration – L3, L4-L7 Services

Migrate NSX for vSphere

Resolve Configuration (L3, L4-L7 services) | Migrate Configuration (L3, L4-L7 services) | Check Realization (L3, L4-L7 services) | Migrate Edges | Migrate Hosts

Migration Scope: NSX for vSphere: vgl-11-v-nxsm-01.vgarethlewis.com | vCenter Server: vgl-11-v-vcsa-01.vgarethlewis.com 0 Warnings

Provide inputs to the following issues.

List of Inputs Total: 12 Resolved: 0

Category
Edge
Appliance Management
NS Service
RBAC

Edge

ACCEPT RECOMMENDATIONS

Resolve Status	Message	Instances
<input type="checkbox"/>	Static/default routes are configured on ESG. Provide feedback to migrate them.	edge-1-static-route

Modified Inputs

BACK TO OVERVIEW PREVIOUS CONTINUE

Resolve Configuration – L3, L4-L7 Services

Migrate NSX for vSphere

Resolve Configuration > Migrate Configuration > Check Realization > Migrate Edges > Migrate Hosts

Migration Scope: NSX for vSphere: vgl-l1-v-nxsm-01.vgarethlewis.com | vCenter Server: vgl-l1-v-vcsa-01.vgarethlewis.com

0 Warnings

Provide inputs to the following issues.

List of Inputs Total: 12 Resolved: 12

Category
Edge
Appliance Management
NS Service
RBAC

RBAC

ACCEPT RECOMMENDATIONS

Resolve Status	Message	Instances
<input checked="" type="checkbox"/>	For user role migration, vIDM is required if you are using vCenter users with NSX roles assigned in NSX-V. ...	VIDM

Modified Inputs

BACK TO OVERVIEW PREVIOUS CONTINUE

Migrate Configuration – L3, L4-L7 Services

Migrate NSX for vSphere

Navigation: << Resolve Configuration (L3, L4-L7 services) > **Migrate Configuration (L3, L4-L7 services)** > Check Realization (L3, L4-L7 services) > Migrate Edges > Migrate Hosts

While the migration is in progress, do not delete migrated objects in NSX-T unless you need to fix a rollback failure, and do not change configurations in NSX for vSphere or in NSX-T unless you need to resolve blocking migration issues. [X]

Migration Scope: NSX for vSphere: vgl-l1-v-nxm-01.vgarethlewis.com | vCenter Server: vgl-l1-v-vcsa-01.vgarethlewis.com

Overall Progress
Status: Not Started [Progress Bar] 0% [START]

Migration Status

vSphere Object Type	Mapped Object Type in NSX-T	Category	Mapped Object Count/Source Object Count
---------------------	-----------------------------	----------	---

Migration Configuration – L3, L4-L7 Services

Migrate NSX for vSphere

Resolve Configuration
L3, L4-L7 services
Migrate Configuration
L3, L4-L7 services
Check Realization
L3, L4-L7 services
Migrate Edges
Migrate Hosts

While the migration is in progress, do not delete migrated objects in NSX-T unless you need to fix a rollback failure, and do not change configurations in NSX for vSphere or in NSX-T unless you need to resolve blocking migration issues.

Migration Scope: NSX for vSphere: vgl-It-v-nxm-01.vgarethlewis.com | vCenter Server: vgl-It-v-vcasa-01.vgarethlewis.com

Overall Progress
 Status ✔ Successful 100% START ROLLBACK

Migration Status

vSphere Object Type	Mapped Object Type in NSX-T	Category	Mapped Object Count/Source Object Count
Transport Zone	Transport Zone	L2	0/2
Enforcement Point	Enforcement Point	L2	0/1
MAC Management	MAC Discovery Profile	Switching Profiles	0/1
Traffic Shaping Policy	QOS Profile	Switching Profiles	0/1
Security Profile	Segment Security Profile	Switching Profiles	0/1
Spoof Guard Configuration	Spoof Guard Profile	Switching Profiles	0/1
IP Discovery	IP Discovery Profile	Switching Profiles	0/1
Virtual Wire	Segment Path	L2	0/2
Switching Profiles	Discovery Profile Binding Maps	L2	0/2
Switching Profiles	Security Profile Binding Maps	L2	0/2
Switching Profiles	QOS Profile Binding Maps	L2	0/2
DV Switch	Uplink Host Switch Profile	Host Switch	0/1
DV Switch	Uplink Host Switch Profile VXLAN	Host Switch	0/1
DV Switch	Uplink Host Switch Profile	Edge	0/1
IPAM Address Pool	IP Pool	Host	0/2

BACK TO OVERVIEW
PREVIOUS
CONTINUE

Check Realization – L3, L4-L7 Services

Migrate NSX for vSphere

◀ Resolve Configuration L3, L4-L7 services > Migrate Configuration L3, L4-L7 services > **Check Realization L3, L4-L7 services** > Migrate Edges > Migrate Hosts ▶

Migration Scope: NSX for vSphere: vgl-l1-v-nxsm-01.vgarethlewis.com | vCenter Server: vgl-l1-v-vcsa-01.vgarethlewis.com

This step will check the realization of the migrated L3 and L4-L7 services' configurations from NSX for vSphere. This step may take a few minutes. At this point the objects should appear in your NSX-T environment and their status should be Successful. If that is not the case, please rollback.

Overall Progress

Status Not Started 0% START

Check Realization – L3, L4-L7 Services

Migrate NSX for vSphere

Resolve Configuration L3, L4-L7 services > Migrate Configuration L3, L4-L7 services > **Check Realization L3, L4-L7 services** > Migrate Edges > Migrate Hosts

✔ Check Realization successful.

Migration Scope: NSX for vSphere: vgl-l1-v-nxm-01.vgarethlewis.com | vCenter Server: vgl-l1-v-vcsa-01.vgarethlewis.com

This step will check the realization of the migrated L3 and L4-L7 services' configurations from NSX for vSphere. This step may take a few minutes. At this point the objects should appear in your NSX-T environment and their status should be Successful. If that is not the case, please rollback.

Overall Progress

Status ✔ Successful 100% START ROLLBACK

BACK TO OVERVIEW PREVIOUS CONTINUE

Migrate Edges – Outage Window

Migrate NSX for vSphere

Navigation: << Resolve Configuration (L3, L4-L7 services) > Migrate Configuration (L3, L4-L7 services) > Check Realization (L3, L4-L7 services) > **Migrate Edges** > Migrate Hosts

Migrating Edges will disrupt the traffic. Recommend to perform edge & host migration in one maintenance window.

Migration Scope: NSX for vSphere: vgl-l1-v-nxsm-01.vgarethlewis.com | vCenter Server: vgl-l1-v-vcsa-01.vgarethlewis.com

Overall Progress

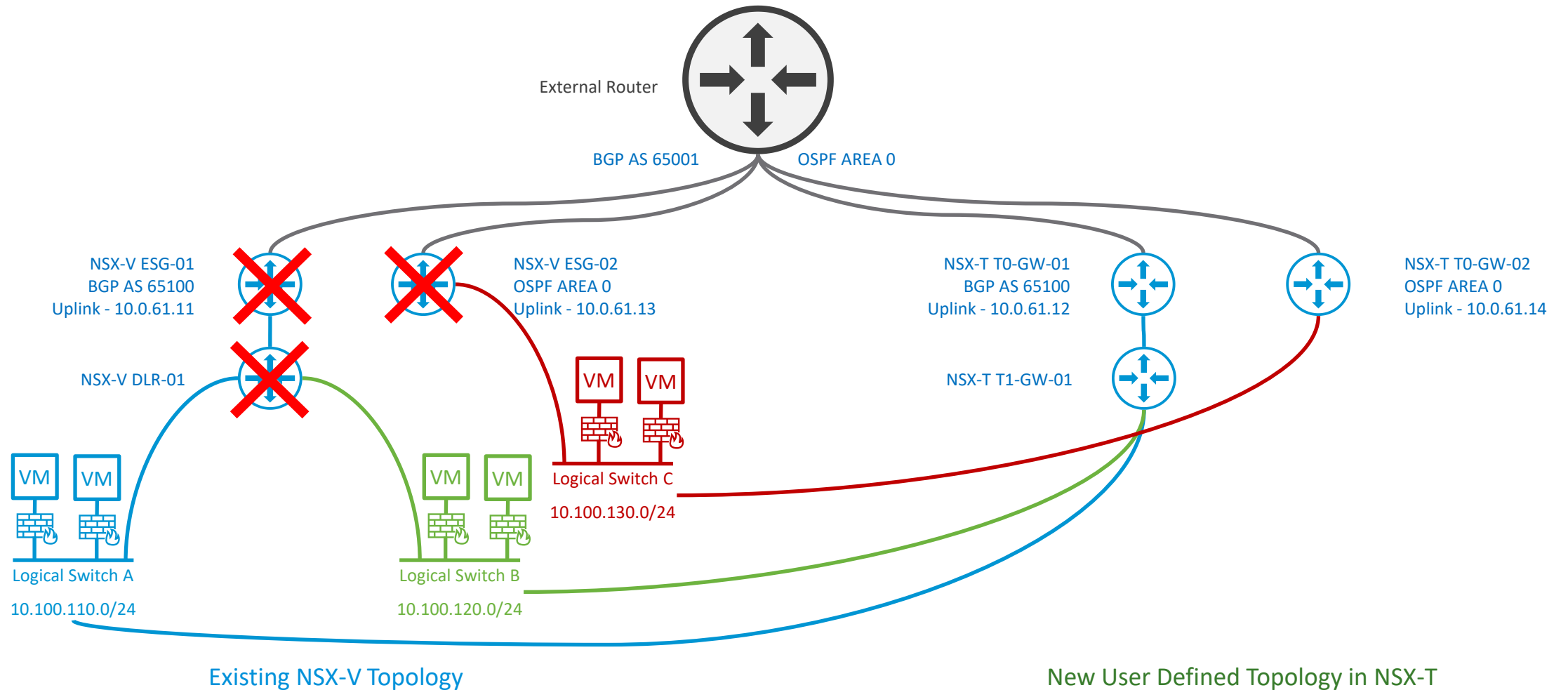
Status: Not Started 0% START

Migrate Edges

All Edge appliances and Edge services are disabled on NSX for vSphere. Edge nodes and Edge services are enabled on NSX-T. This will cause traffic disruption. Do you want to continue?

CANCEL MIGRATE

Migrate Edges – Outage Window



Migrate Edges – Monitor Workload Connectivity

Migrate NSX for vSphere

← Resolve Configuration L3, L4-L7 services
→ Migrate Configuration L3, L4-L7 services
→ Check Realization L3, L4-L7 services
Migrate Edges
→ Migrate Hosts

✔ Edge migration successful.

Migrating Edges will disrupt the traffic. Recommend to perform edge & host migration in one maintenance window.

Migration Scope: NSX for vSphere: vgl-It-v-nxsm-01.vgarethlewis.com
vCenter Server: vgl-It-v-vcsa-01.vgarethlewis.com

Overall Progress

Status ✔ Successful 100%

START
ROLLBACK

Administrator: Command Prompt
— □ ×

```

Reply from 10.100.110.11: bytes=32 time=6ms TTL=60
Reply from 10.100.110.11: bytes=32 time=5ms TTL=60
Reply from 10.100.110.11: bytes=32 time=6ms TTL=60
Reply from 10.100.110.11: bytes=32 time=9ms TTL=60
Reply from 10.100.110.11: bytes=32 time=4ms TTL=60
Reply from 10.100.110.11: bytes=32 time=5ms TTL=60
Reply from 10.100.110.11: bytes=32 time=6ms TTL=60
Reply from 10.100.110.11: bytes=32 time=3ms TTL=60
Reply from 10.100.110.11: bytes=32 time=20ms TTL=60
Reply from 10.100.110.11: bytes=32 time=4ms TTL=60
Reply from 10.100.110.11: bytes=32 time=5ms TTL=60
Request timed out.
Request timed out.
Request timed out.
Request timed out.
Reply from 10.0.61.11: Destination net unreachable.
Reply from 10.0.61.11: Destination net unreachable.
Reply from 10.0.61.11: Destination net unreachable.
Reply from 10.0.61.11: Destination net unreachable.
Reply from 10.100.110.11: bytes=32 time=10ms TTL=61
Reply from 10.100.110.11: bytes=32 time=5ms TTL=61
Reply from 10.100.110.11: bytes=32 time=4ms TTL=61
Reply from 10.100.110.11: bytes=32 time=6ms TTL=61
Reply from 10.100.110.11: bytes=32 time=8ms TTL=61
Reply from 10.100.110.11: bytes=32 time=6ms TTL=61
Reply from 10.100.110.11: bytes=32 time=8ms TTL=61
Reply from 10.100.110.11: bytes=32 time=4ms TTL=61
Reply from 10.100.110.11: bytes=32 time=5ms TTL=61
Reply from 10.100.110.11: bytes=32 time=7ms TTL=61
Reply from 10.100.110.11: bytes=32 time=5ms TTL=61
                    
```

BACK TO OVERVIEW
PREVIOUS
CONTINUE

Migrate Edges – Monitor Dynamic Routing

BGP
NSX-V BGP becomes Idle

OSPF
NSX-V OSPF drops

```

vyos@vgl-in-a-tor-01:~$ sho bgp summary
IPv4 Unicast Summary:
BGP router identifier 172.16.10.11, local AS number 65001 vrf-id 0
BGP table version 77
RIB entries 33, using 6336 bytes of memory
Peers 7, using 149 KiB of memory

Neighbor      V      AS    MsgRcvd  MsgSent  TblVer  InQ  OutQ  Up/Down  State/PfxRcd  PfxSnt
10.0.61.11    4      65100   345      365      0     0     0 03:44:26      5         17
10.0.61.12    4      65100   124      168      0     0     0 00:11:43      1         17
10.0.61.31    4      65300     0         0      0     0     0 never        Active      0
10.0.61.32    4      65300     0         0      0     0     0 never        Active      0
10.0.61.41    4      65400     0         0      0     0     0 never        Active      0
10.0.61.42    4      65400     0         0      0     0     0 never        Active      0
172.16.10.1   4      65000   427      438      0     0     0 06:25:45      1         18

Total number of neighbors 7
vyos@vgl-in-a-tor-01:~$ sho ip ospf neighbor

Neighbor ID    Pri  State           Dead Time Address           Interface           RXmtL  RqstL  DBsmL
10.0.61.13     128 Full/DR          37.497s 10.0.61.13        eth1.61:10.0.61.1  0      0      0
10.0.61.14     0   Full/DROther    34.766s 10.0.61.14        eth1.61:10.0.61.1  0      0      0

vyos@vgl-in-a-tor-01:~$ sho bgp summary
IPv4 Unicast Summary:
BGP router identifier 172.16.10.11, local AS number 65001 vrf-id 0
BGP table version 85
RIB entries 29, using 5568 bytes of memory
Peers 7, using 149 KiB of memory

Neighbor      V      AS    MsgRcvd  MsgSent  TblVer  InQ  OutQ  Up/Down  State/PfxRcd  PfxSnt
10.0.61.11    4      65100   350      378      0     0     0 00:00:01      Idle        0
10.0.61.12    4      65100   134      182      0     0     0 00:19:17      3         15
10.0.61.31    4      65300     0         0      0     0     0 never        Active      0
10.0.61.32    4      65300     0         0      0     0     0 never        Active      0
10.0.61.41    4      65400     0         0      0     0     0 never        Active      0
10.0.61.42    4      65400     0         0      0     0     0 never        Active      0
172.16.10.1   4      65000   437      452      0     0     0 06:33:19      1         16

Total number of neighbors 7
vyos@vgl-in-a-tor-01:~$ sho ip ospf neighbor

Neighbor ID    Pri  State           Dead Time Address           Interface           RXmtL  RqstL  DBsmL
10.0.61.14     0   Full/DROther    39.812s 10.0.61.14        eth1.61:10.0.61.1  0      0      0

vyos@vgl-in-a-tor-01:~$

```

Migrate Edges – Monitor Dynamic Routing

Note, routing to a workload VM is now via the new Tier-0 Gateways.

```
Administrator: Command Prompt
C:\Windows\System32>tracert -d 10.100.110.11
Tracing route to 10.100.110.11 over a maximum of 30 hops
  1  <1 ms  <1 ms  <1 ms  192.168.178.1
  2  <1 ms  <1 ms  <1 ms  192.168.178.250
  3  1 ms   <1 ms  <1 ms  172.16.10.12
  4  2 ms   1 ms   1 ms   10.0.61.11
  5  1 ms   1 ms   1 ms   200.200.200.11
  6  4 ms   2 ms   1 ms   10.100.110.11
Trace complete.
C:\Windows\System32>tracert -d 10.100.110.11
Tracing route to 10.100.110.11 over a maximum of 30 hops
  1  <1 ms  <1 ms  <1 ms  192.168.178.1
  2  1 ms   <1 ms  <1 ms  192.168.178.250
  3  1 ms   <1 ms  <1 ms  172.16.10.11
  4  6 ms   1 ms   1 ms   10.0.61.12
  5  13 ms  3 ms   2 ms   10.100.110.11
Trace complete.
C:\Windows\System32>
```

Migrate Hosts

Migrate NSX for vSphere

Resolve Configuration L3, L4-L7 services > Migrate Configuration L3, L4-L7 services > Check Realization L3, L4-L7 services > Migrate Edges > **Migrate Hosts**

Migrating Hosts will disrupt the traffic. Recommend to perform edge & host migration in one maintenance window.

Migration Scope: NSX for vSphere: vgl-l1-v-nxsm-01.vgarethlewis.com | vCenter Server: vgl-l1-v-vcsa-01.vgarethlewis.com

Summary		Overall Progress	
Discovered Hosts	2	Status	Not Started
Migrated Hosts	Not Available		0% START

Host Migration Plan [SETTINGS](#)

↑ UP ↓ DOWN ⚙️ ACTIONS

<input type="checkbox"/>	Group ⓘ	ID
<input type="checkbox"/>	Group for VGL-CL-NSX-V	58df1e64-dce5-4714-86d2-0e066f4b56a

Migrate Hosts

⚠️ On each enabled host, the following steps will occur:

- All VDS 7.0 or higher used by the host will be NSX enabled.
- VM workloads are migrated from Distributed PortGroups to Segments.

This will cause some traffic disruption. This step cannot be rolled back. Do you want to continue?

CANCEL MIGRATE

Migrate Hosts – Monitor Progress

Migrate NSX for vSphere

Import Configuration > Resolve Configuration > Migrate Configuration > Migrate Edges > **Migrate Hosts**

Migrating Hosts will disrupt the traffic. Recommend to perform edge & host migration in one maintenance window.

Migration Scope: NSX for vSphere: vgl-l1-v-nsxm-01.vgarethlewis.com | vCenter Server: vgl-l1-v-vcsa-01.vgarethlewis.com

Summary

Discovered Hosts: 2
Migrated Hosts: 0

Overall Progress

Status: In Progress 4% START
Details: Ran pre-tn stage on host vgl-l1-v-esx-01

Host Migration Plan

SETTINGS

- Group
- Group for VGL-CL-NSX-V**

Group for VGL-CL-NSX-V (State: Enabled Migration Order Within Group: Serial)

↑ UP ↓ DOWN

<input type="checkbox"/>	Host Name	ID	IP Address	Details	Migration Status	Progress
<input type="checkbox"/>	vgl-l1-v-esx-01	3e53e602-5fe2-4dfd-b840-796e7576d609:host-17	10.0.10.116	7.0.3	In Progress	<div style="width: 15%;"><div style="width: 15%;"></div></div> 15%
<input type="checkbox"/>	vgl-l1-v-esx-02	3e53e602-5fe2-4dfd-b840-796e7576d609:host-14	10.0.10.117	7.0.3	Not Started	<div style="width: 0%;"><div style="width: 0%;"></div></div> 0%

Migrate Hosts – Monitor Progress in NSX-T

The screenshot displays the NSX-T management interface. The top navigation bar includes 'vmw NSX-T' and user 'admin'. The main menu has tabs for Home, Networking, Security, Inventory, Plan & Troubleshoot, and System. The left sidebar contains sections for System Overview, Configuration, and Nodes. The main content area is titled 'Host Transport Nodes' and shows a table of nodes managed by 'vgl-l1-v-vcasa-01.vgarethlewis'. One node is in the process of installing NSX, with a progress dialog open.

Node	ID	IP Addresses	OS Type	NSX Configuration
VGL-CL-NSX-V (2)	MoRef ID:...			
vgl-l1-v-esx-01.vgarethlewis.com	4e96...04...	10.0.10.116, 10...	ESXi 7.0.3	Success
vgl-l1-v-esx-02.vgarethlewis.com	c416...85f7	10.0.10.117, 10...	ESXi	18% Installing NSX

Installation Progress

- ✓ Preparing Installation
- ✓ Uploading NSX
- ⚙️ **Installing NSX**
 - Registering Host
 - Waiting for connection to Managers
 - Applying NSX switch configuration
 - Enabling host status in controller
 - Updating host status
 - Configuration complete

View	All
TEP IP Addresses	Node Status
10.0.40.116	1 Host Degraded
label	Not Available

Migrate Hosts – Monitor Progress in NSX-V

vSphere Client Administrator@VSPHERE.LOCAL

Installation and Upgrade

Management **Host Preparation** Logical Network Settings Service Deployment Upgrade

NSX Manager: 10.0.10.119 | Standalone EAM Status: Up

Clusters: All

VGL-CL-NSX-V ACTIONS

NSX Version: 6.4.13.19307994

Firewall: ✔ Enabled

VXLAN: ! Error [View Configuration](#)

Detection Type: [View Details](#)

Communication Channel Health: ● DOWN

Hosts ALL (2) Search

Name / IP	NSX Installation	Firewall	Communication Channels	vmkNIC
vgl-l1-v-esx-...	✔ 6.4.13.19307994	✔ Enabled	● DOWN	VIEW DETAILS
vgl-l1-v-esx-...	✔ 6.4.13.19307994	✔ Enabled	● UP	VIEW DETAILS

Migrate Hosts – Success

Migrate NSX for vSphere

Migrating Hosts will disrupt the traffic. Recommend to perform edge & host migration in one maintenance window.

Migration Scope: NSX for vSphere: vgl-l1-v-nxsm-01.vgarethlewis.com | vCenter Server: vgl-l1-v-vcsa-01.vgarethlewis.com

Summary
Discovered Hosts: 2
Migrated Hosts: 2

Host Migration Plan SETTINGS

Overall Progress
Status: Successful 100% START

Group for VGL-CL-NSX-V (State: Enabled Migration Order Within Group: Serial)

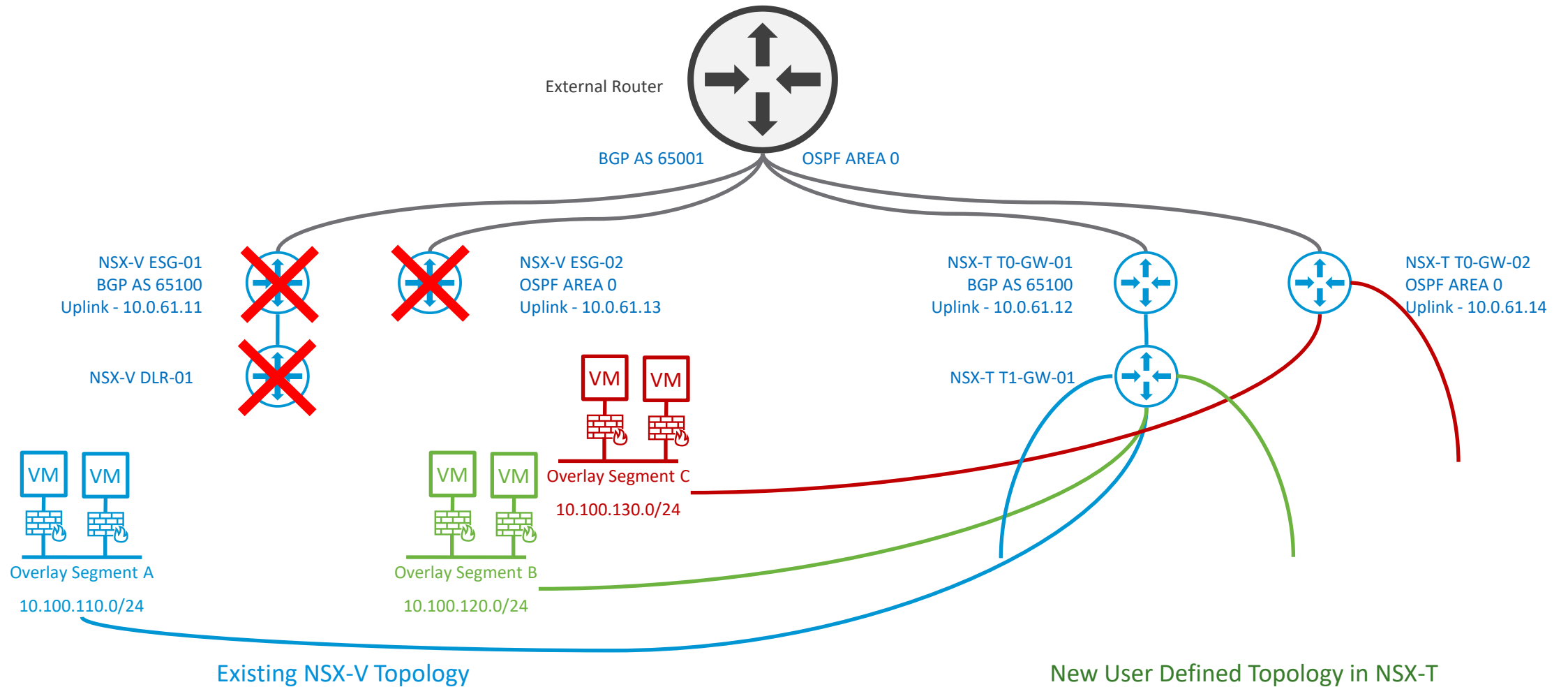
Host Name	ID	IP Address	Details	Migration Status	Progress
vgl-l1-v-esx-01	58df1e64-dce5-4714-86d2-0e066f4b56a8:host-17	10.0.10.116	7.0.3	Successful	100%
vgl-l1-v-esx-02	58df1e64-dce5-4714-86d2-0e066f4b56a8:host-14	10.0.10.117	7.0.3	Successful	100%

1 Clusters

1 - 2 of 2 Hosts

BACK TO OVERVIEW PREVIOUS FINISH

Host Migration - Overview





xtravirt

User Defined Topology

In Summary

In Summary

1. Prerequisites
2. Physical Fabric and Dynamic Routing
3. Migrate Edges and Hosts in a single Maintenance Window
 1. Edge cutover (and workload connectivity is dependent on BGP convergence)
 2. Hosts are simply placed in Maintenance Mode. They aren't restarted
4. Run the Migration Coordinator up to Migrate Edges at any time...and multiple times.

Don't forget your post-migration tasks...

1. Backups
 2. Uninstall NSX-V
-



xtravirt

London VMUG – 13th July 2023

Next Steps

Learn More

- VMware NSX for vSphere to NSX-T Migration - End-to-End User Defined Topology - <https://bit.ly/NSXV2TUserDefined>



- VMware NSX for vSphere to NSX-T Migration - End-to-End Fixed Topology - <https://bit.ly/NSXV2TFixedTopology>
-

Reach Out

- Email - gareth.lewis@xtravirt.com or gareth@vgarethlewis.com
- Blog - www.vgarethlewis.com
- Twitter - [@vGarethLewis](https://twitter.com/vGarethLewis)
- LinkedIn - www.linkedin.com/in/vGarethLewis
- Xtravirt - www.Xtravirt.com

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Thank you

Any questions?



Gareth Lewis

Technical Architect

gareth.lewis@xtravirt.com or gareth@vgarethlewis.com