CONESTOGA

Connect Life and Learning

Student Name:	Aagam Sanjay Shah
Deliverable:	Assignment
Course Name:	NTWK8171-24F-Sec1-Virtualization and VMware Sphere

Date Assigned:	31/10/2024
Date Due:	15/11/2024
Rules:	• Individual. • Cheating is not allowed. • Plagiarism counts as cheating! • That FAILURE to submit work in the course can result in a grade of 'F' or 'I' for failure to complete the course!

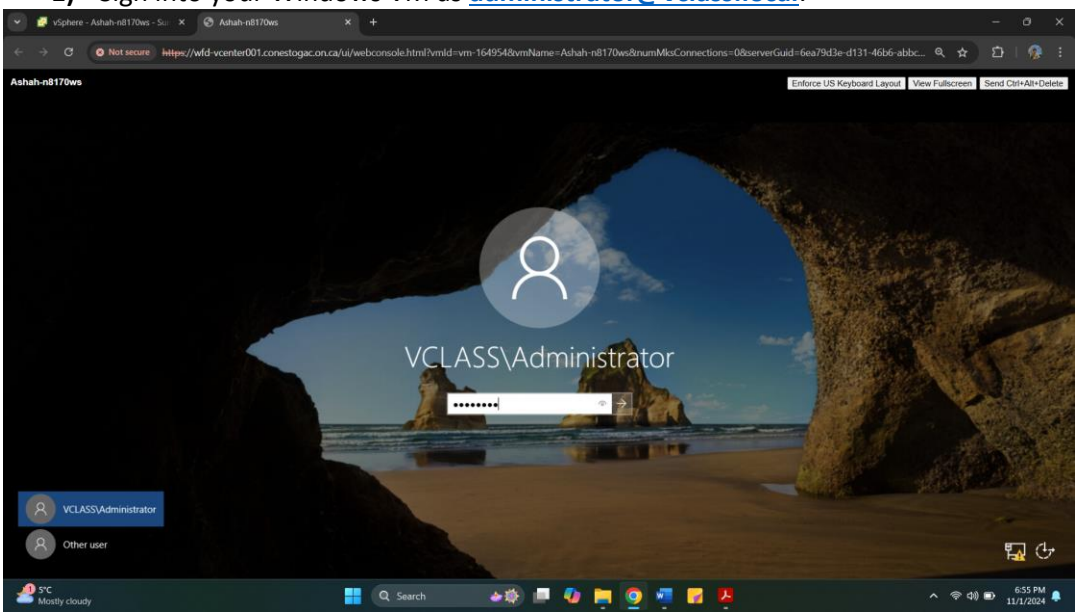
Table of Contents

LAB 9

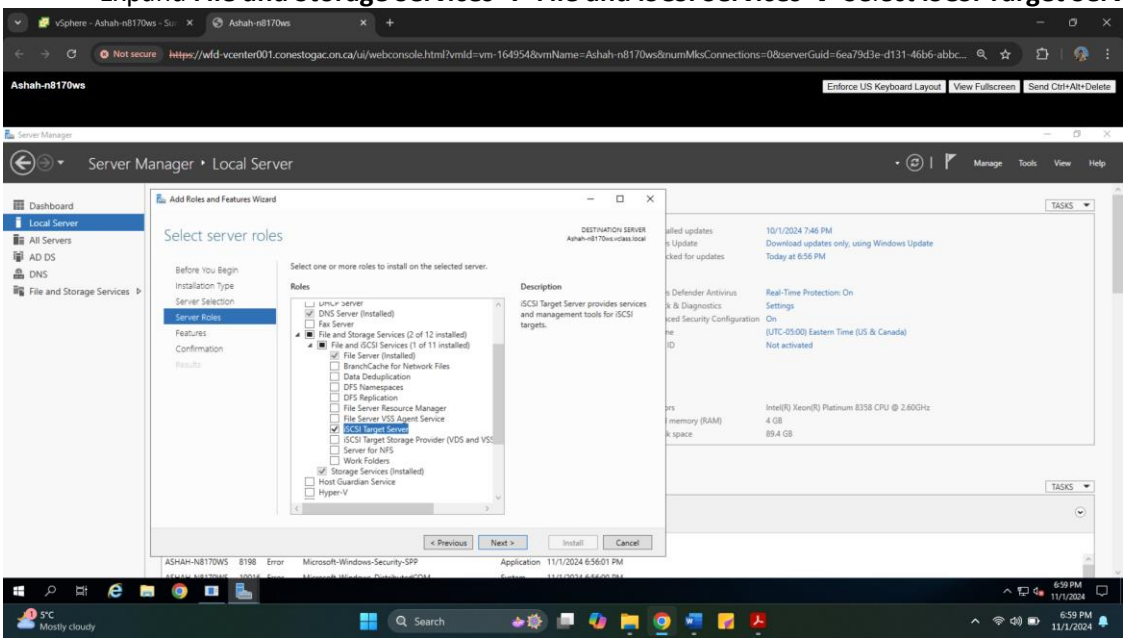
NTWK8170 – Virtualization with VMware vSphere Lab 9: Configuring iSCSI Storage

Section 1: Installing the ISCSI Server Role on the Windows VM

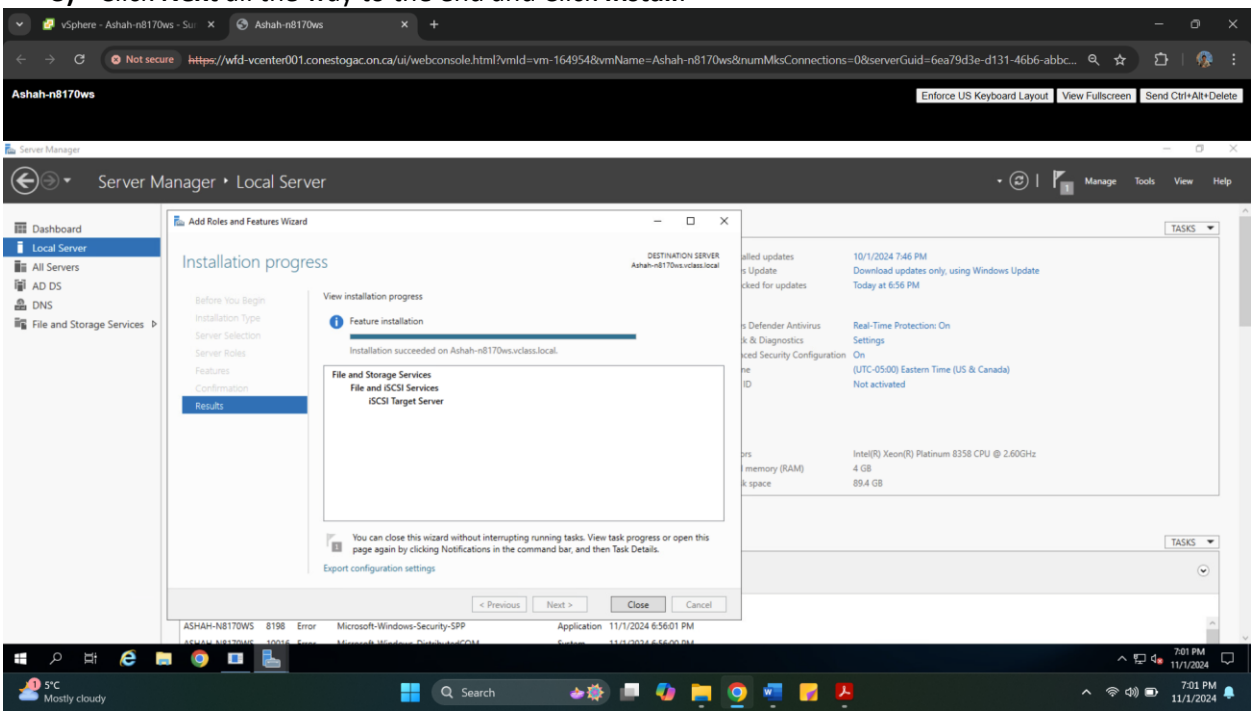
1) Sign into your Windows VM as **administrator@vclass.local**.



2) Open **Server Manager → Manage → Add Roles and Features,** Click **Next** until **Server Roles,** Expand **File and Storage Services → File and iSCSI Services →** Select **iSCSI Target Server**

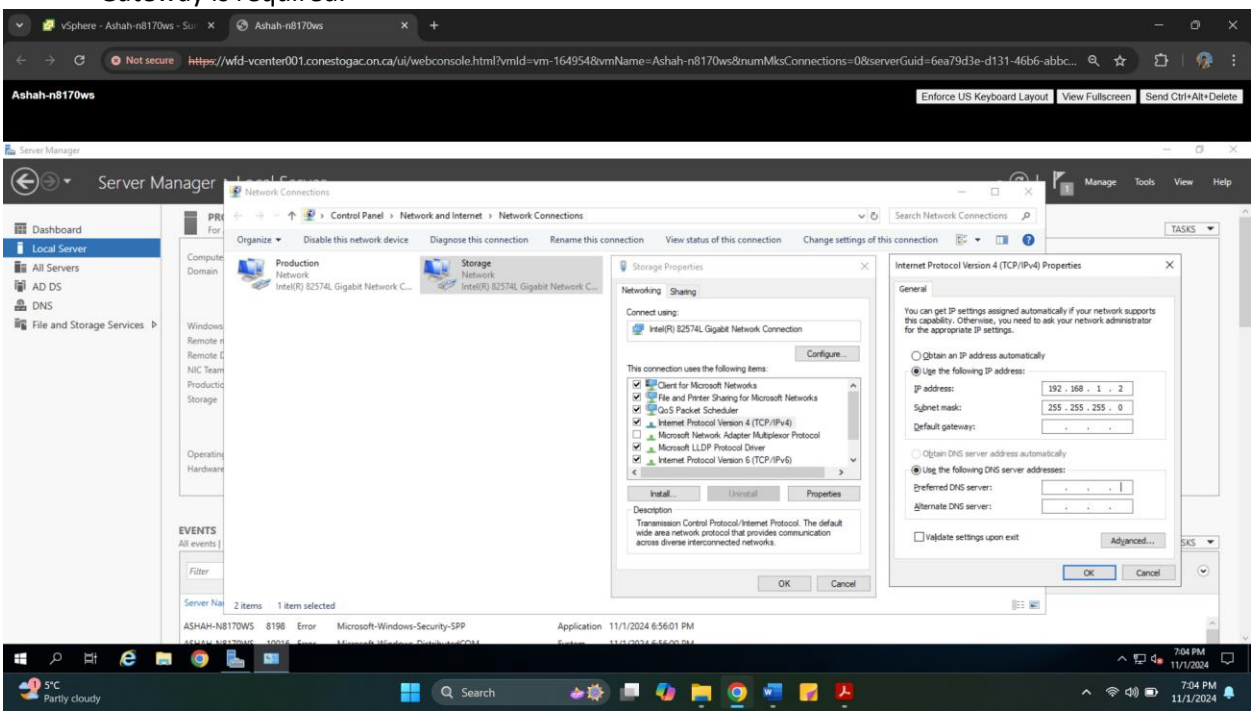


3) Click **Next** all the way to the end and Click **Install**.



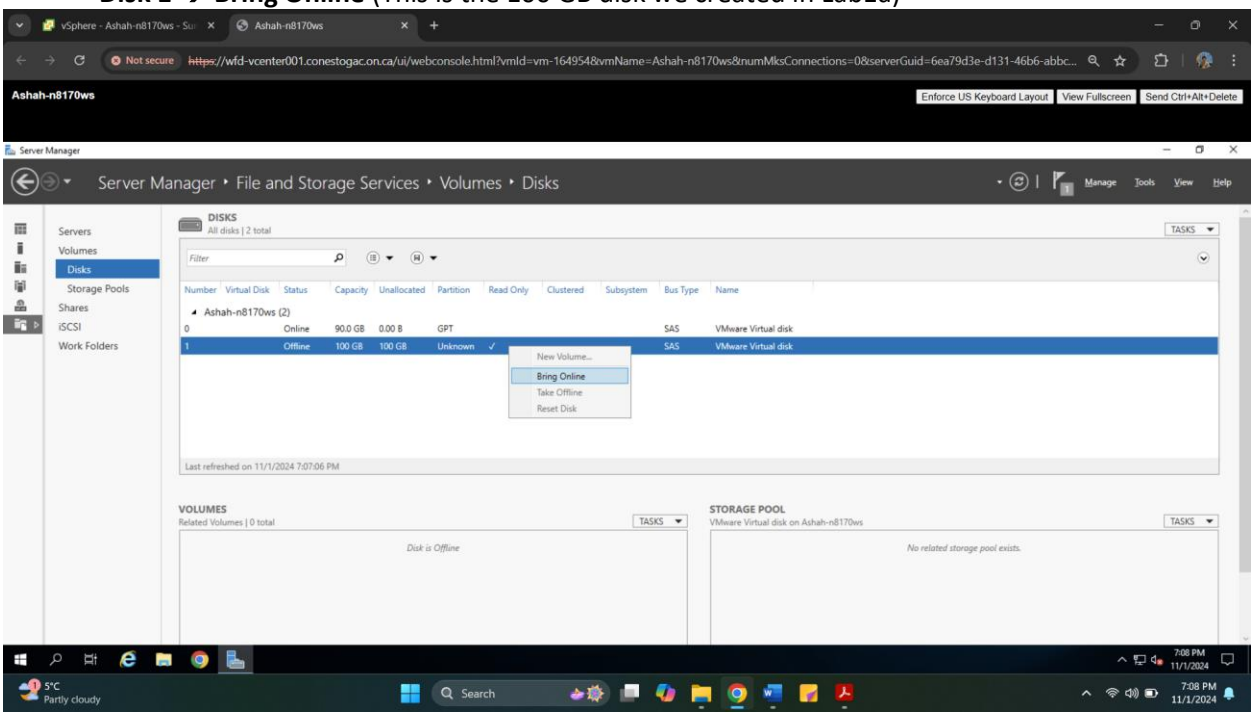
Section 2: Assigning an IP address to the Storage NIC on the Windows VM

1) Assign the IP address of **192.168.1.2/24** to the Storage NIC created in Lab1A. No Default Gateway is required.

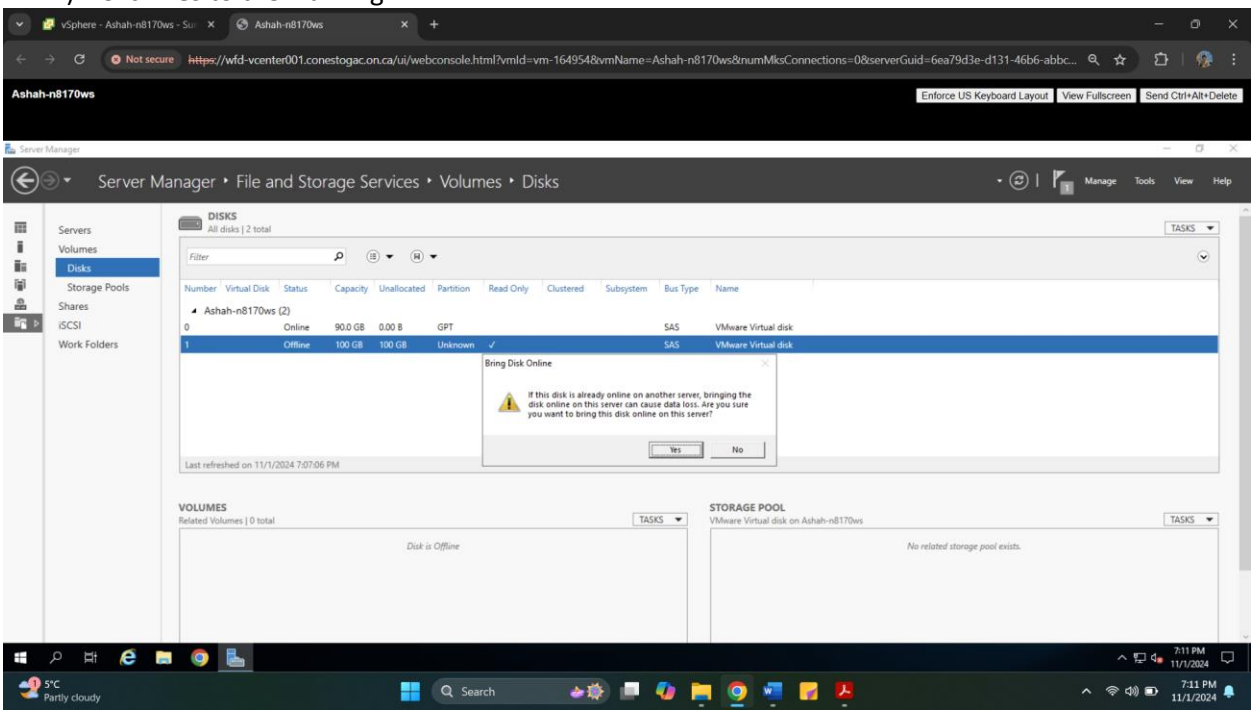


Section 3: iSCSI setup on the Windows VM

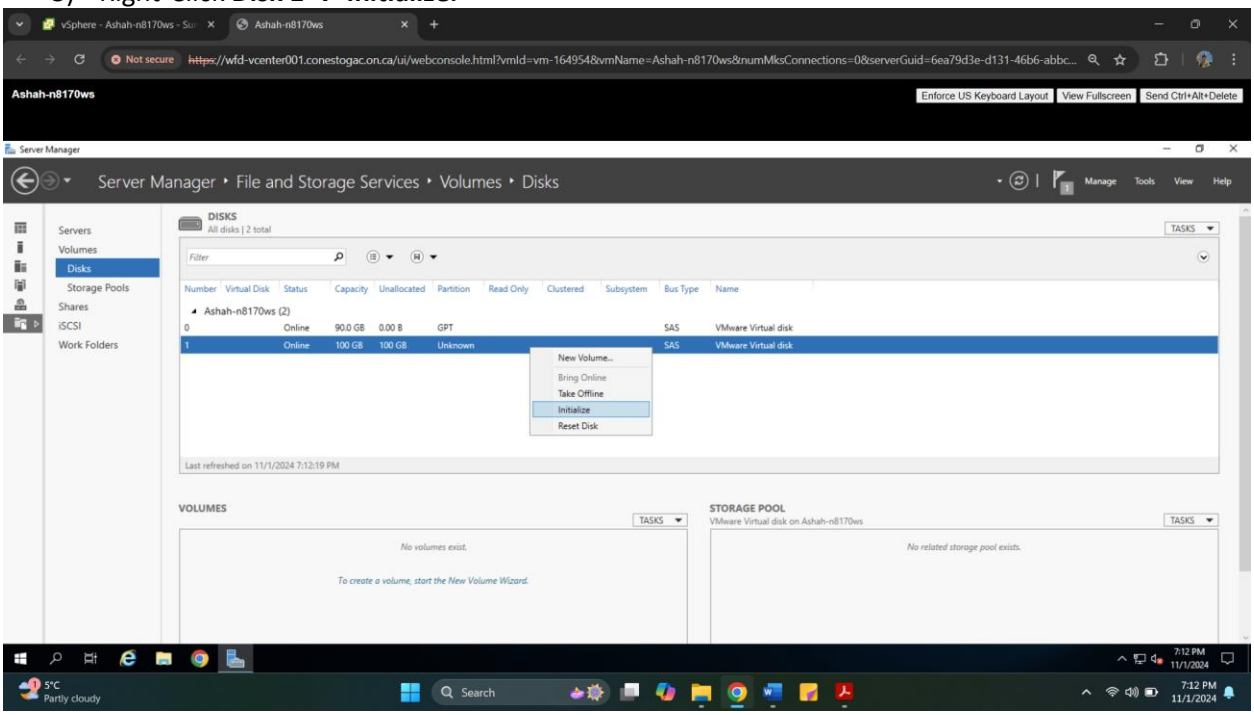
1) Open **Server Manager,** Select **File and Storage Services**, Under **Volumes** Select **Disks**, Right-Click **Disk 1 → Bring Online** (This is the 100 GB disk we created in Lab1a)



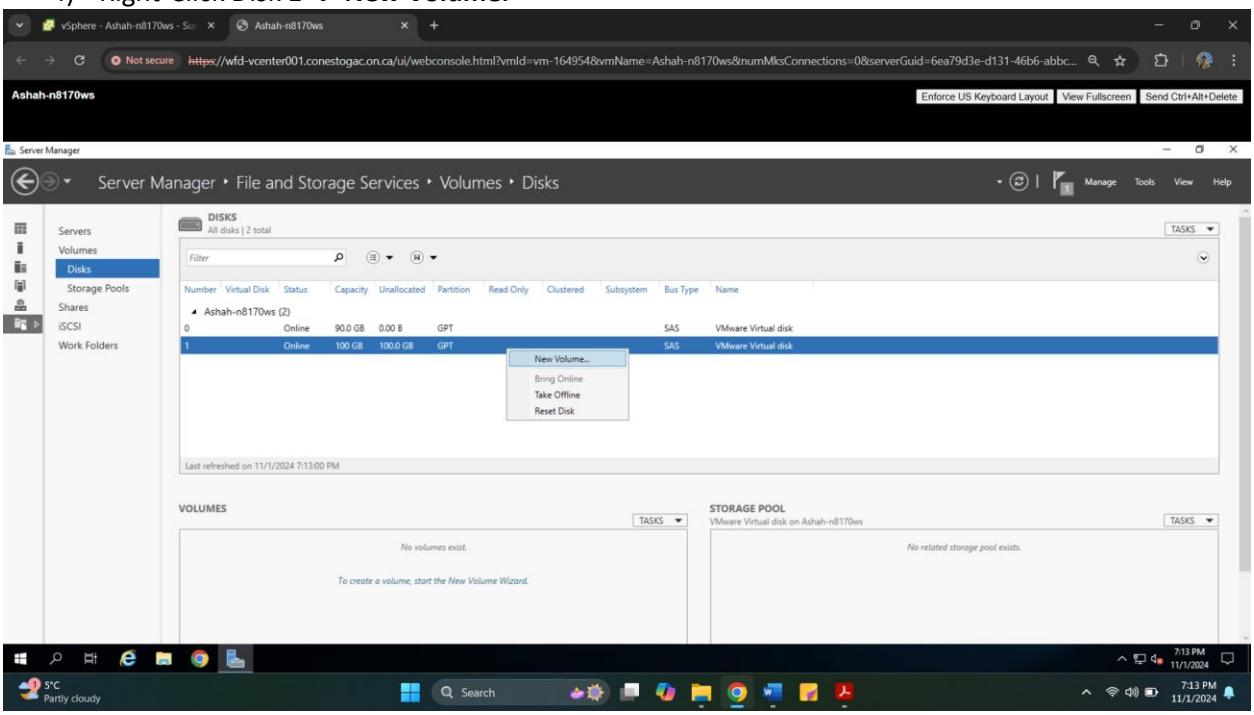
2) Click **Yes** to the warning.



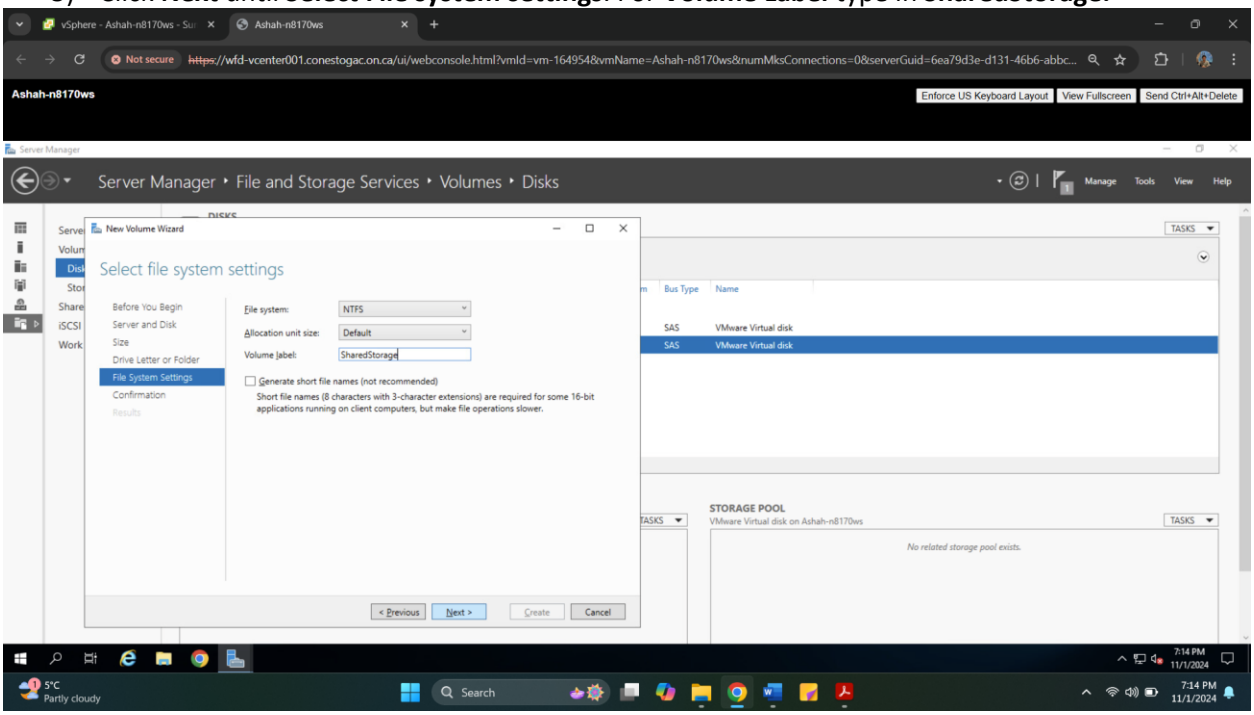
3) Right-Click **Disk 1 → Initialize.**



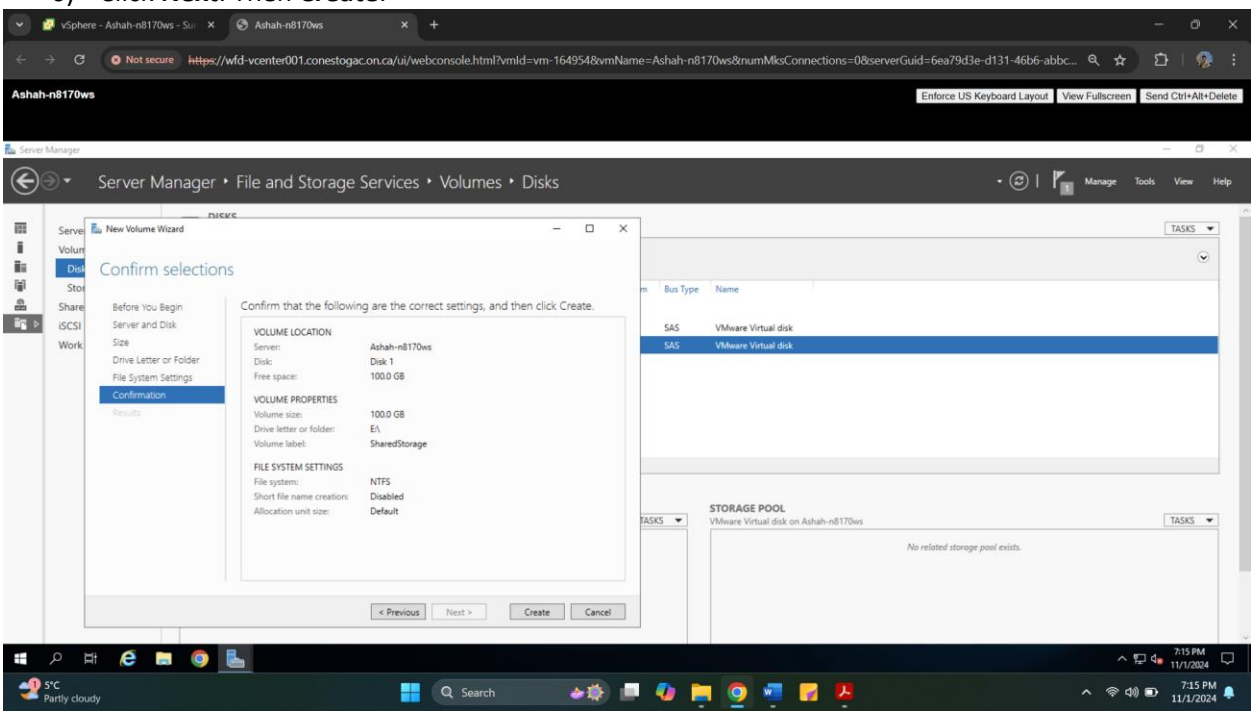
4) Right-Click Disk 1 → **New Volume.**



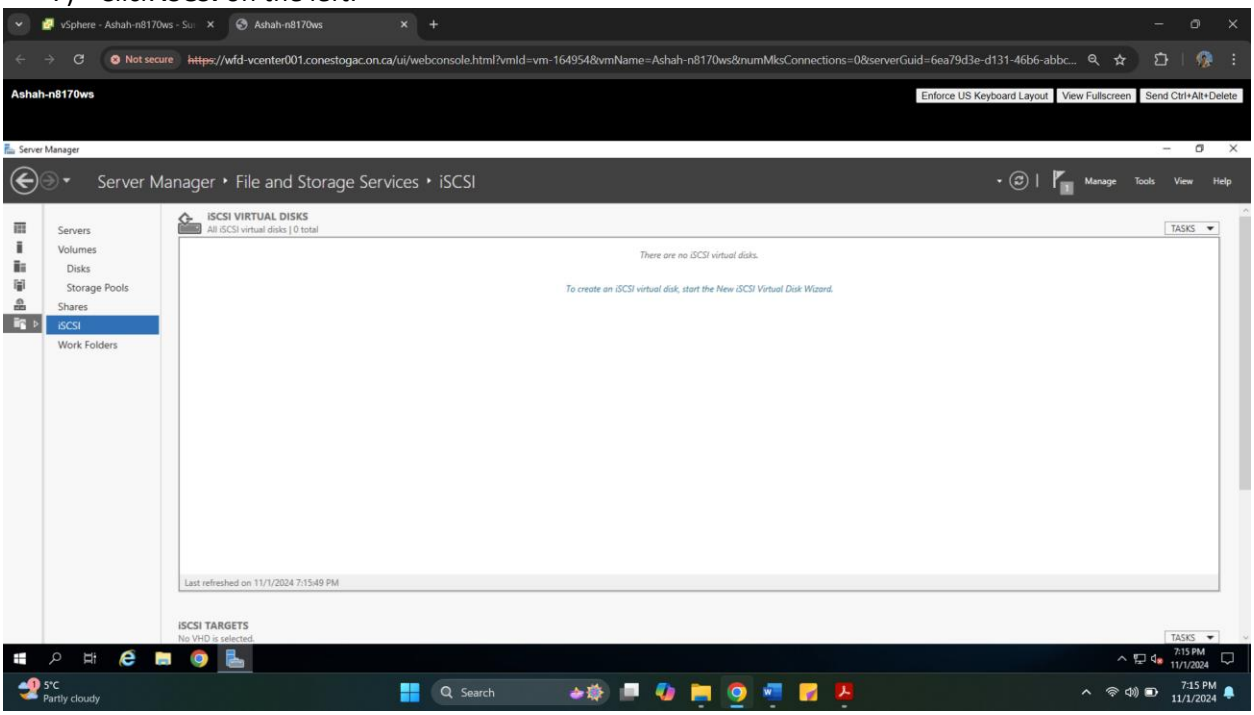
5) Click **Next** until **Select File system settings**. For **Volume Label** type in **SharedStorage.**



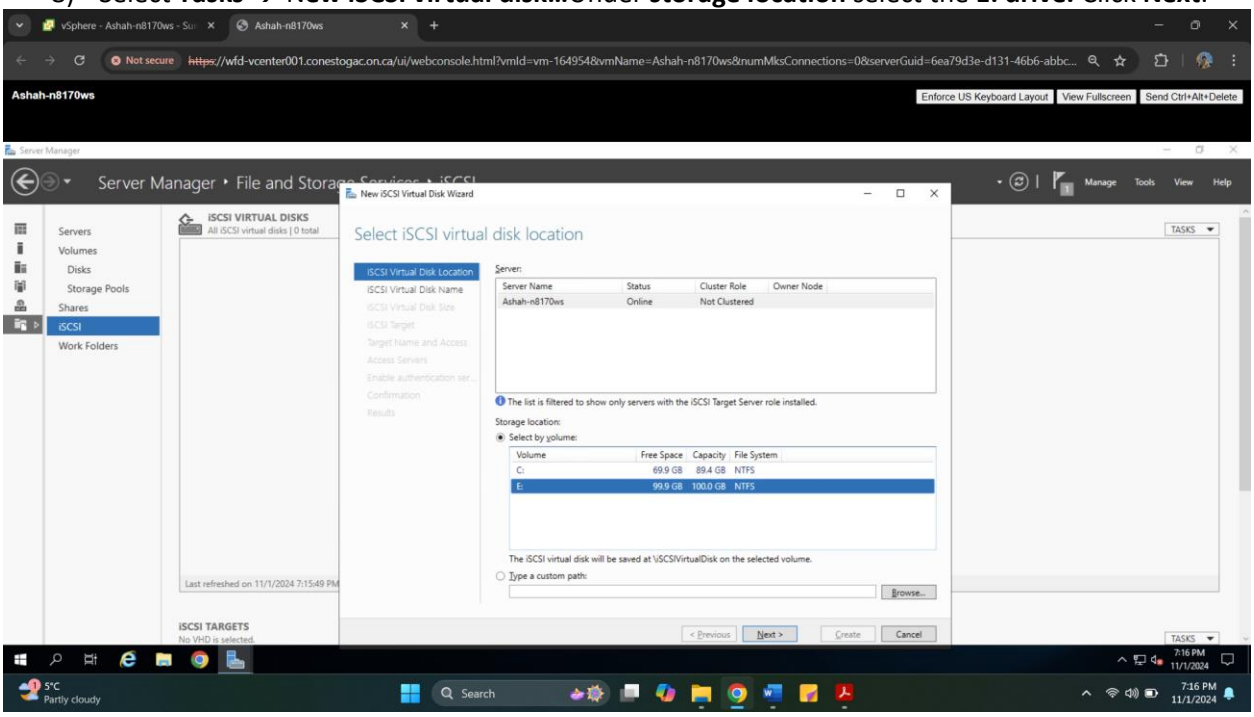
6) Click **Next**. Then **Create**.



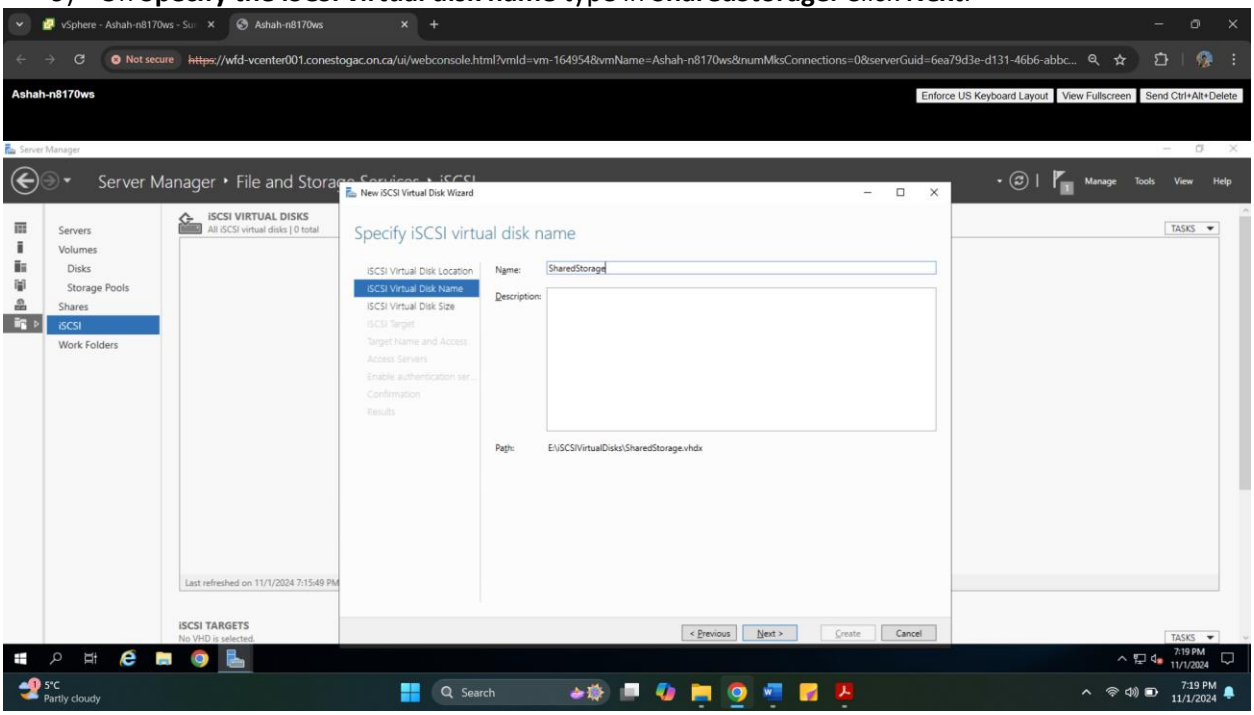
7) Click **iSCSI** on the left.



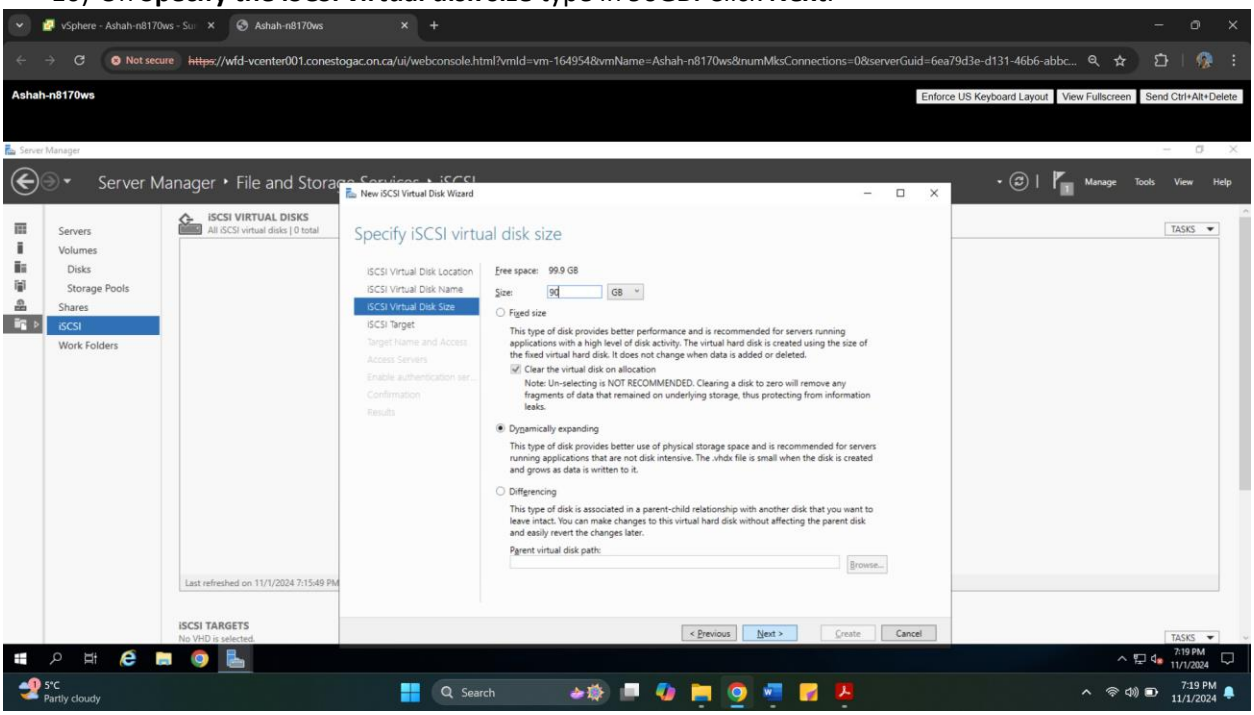
8) Select **Tasks** → N**ew iSCSI virtual disk…**Under **storage location** select the **E: drive.** Click **Next**.



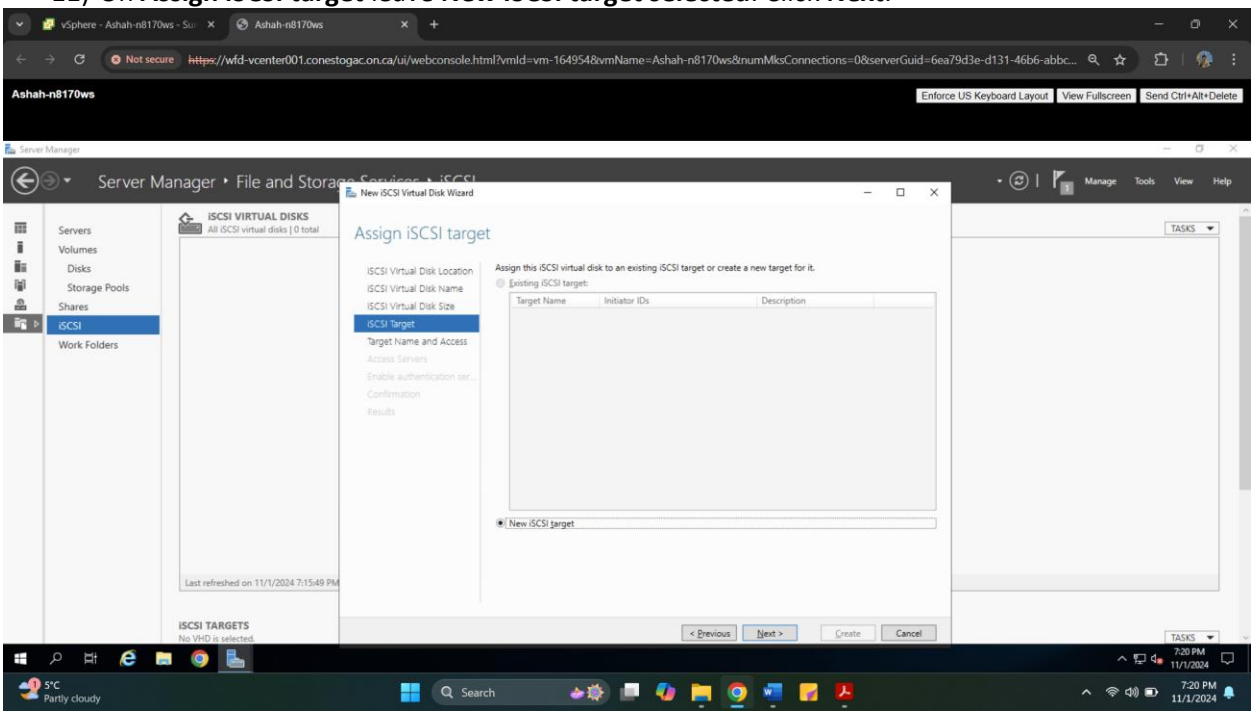
9) On **Specify the iSCSI virtual disk name** type in **SharedStorage.** Click **Next**.



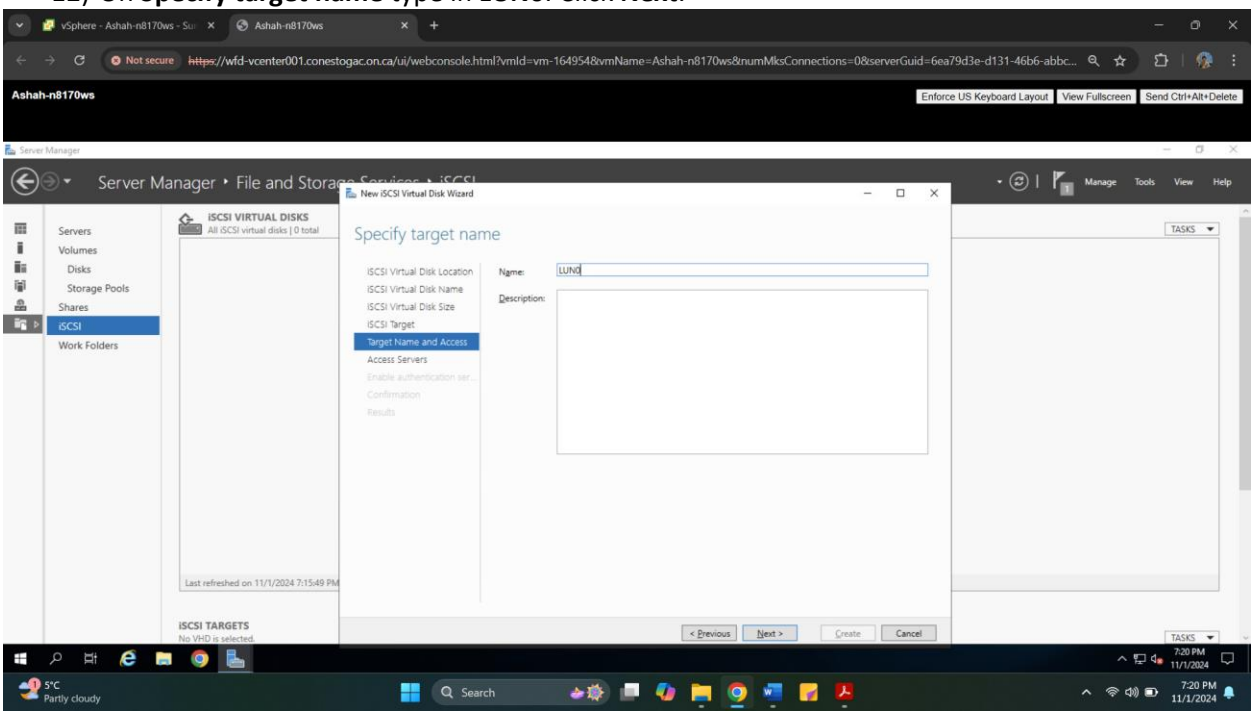
10) On **Specify the iSCSI virtual disk size** type in **90GB.** Click **Next**.



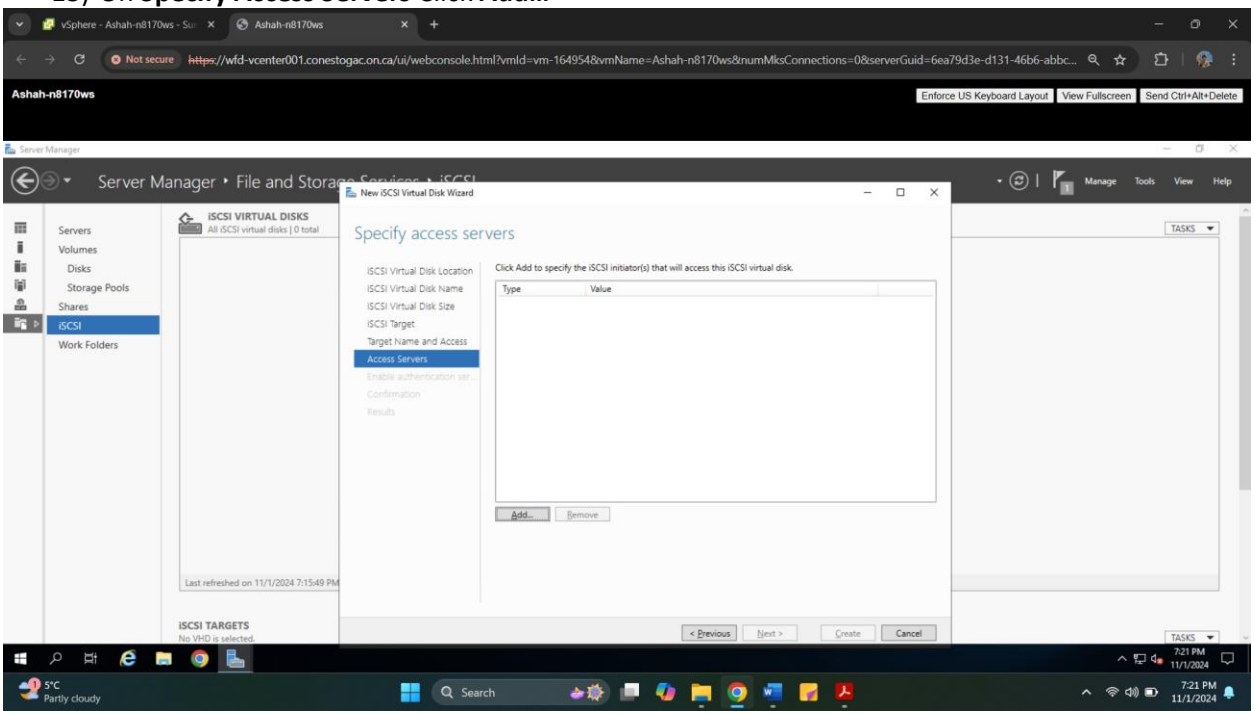
11) On **Assign iSCSI target** leave **New ISCSI target selected**. Click **Next**.



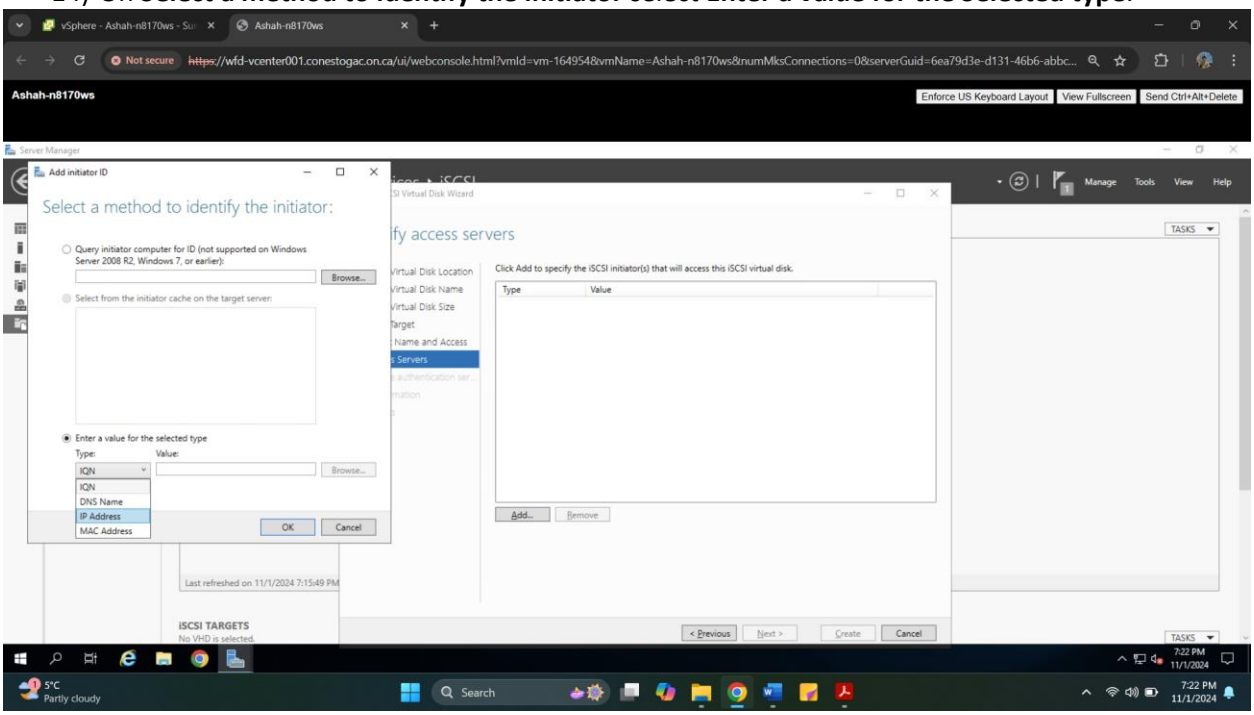
12) On **Specify target name** type in **LUN0**. Click **Next**.



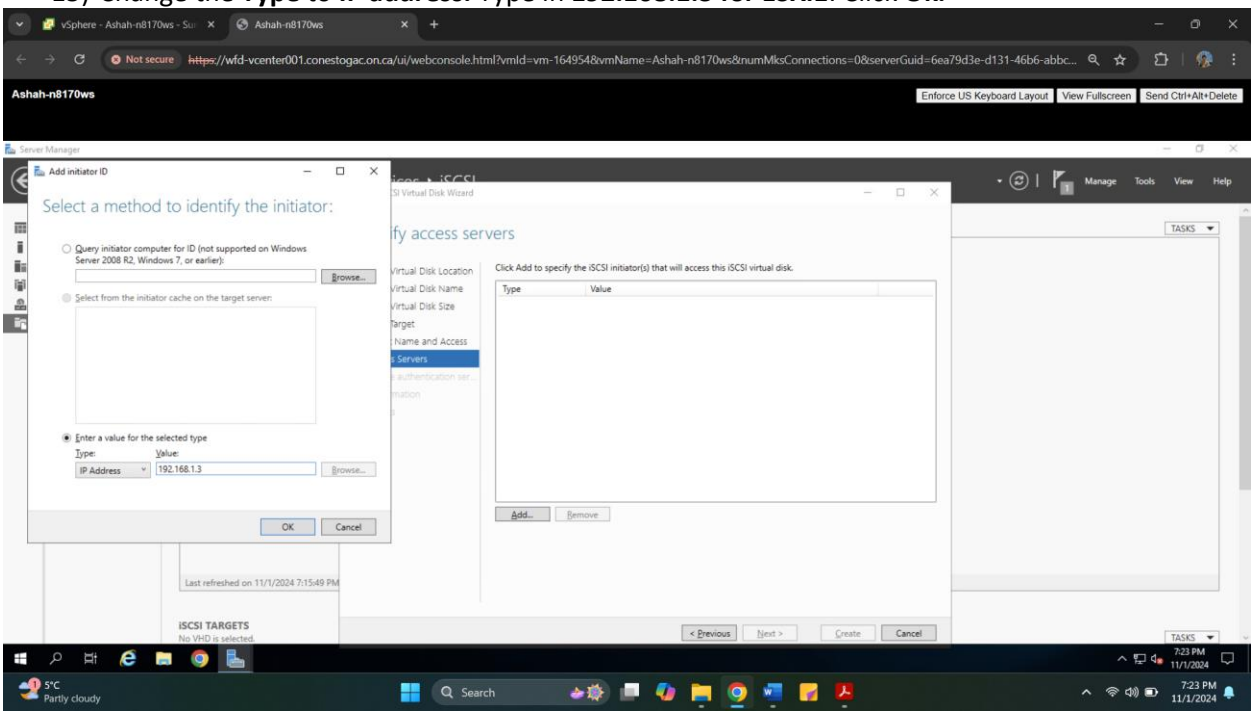
13) On **Specify Access Servers** Click **Add…**



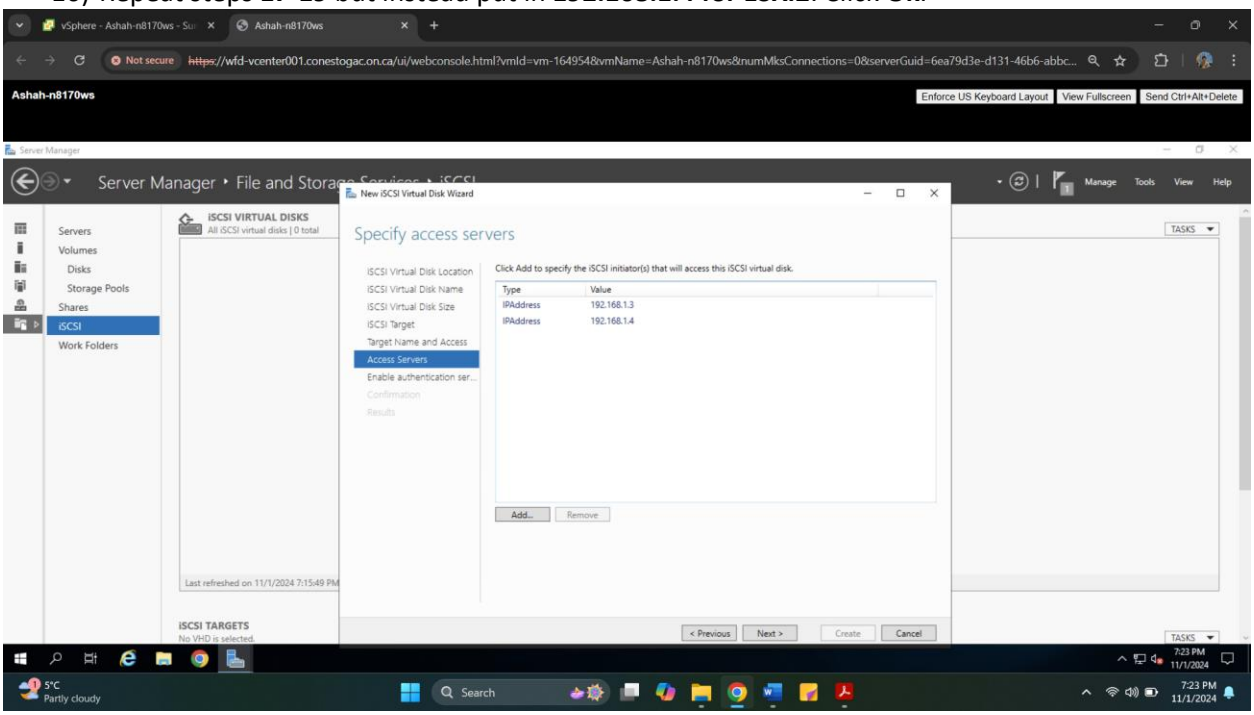
14) On **Select a method to identify the initiator** select **Enter a value for the Selected type**.



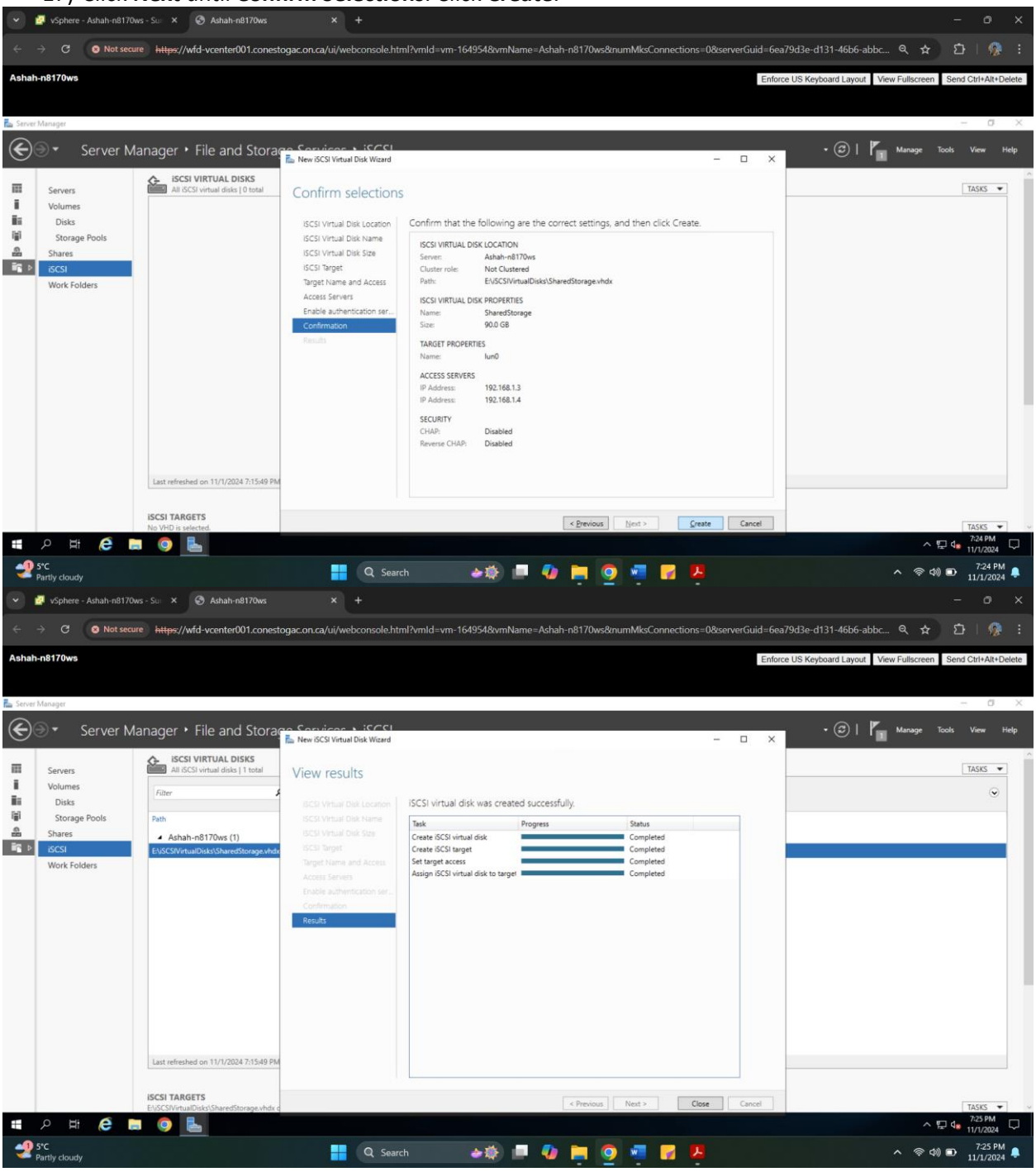
15) Change the **Type** to **IP address.** Type in **192.168.1.3 for ESXi1**. Click **Ok.**



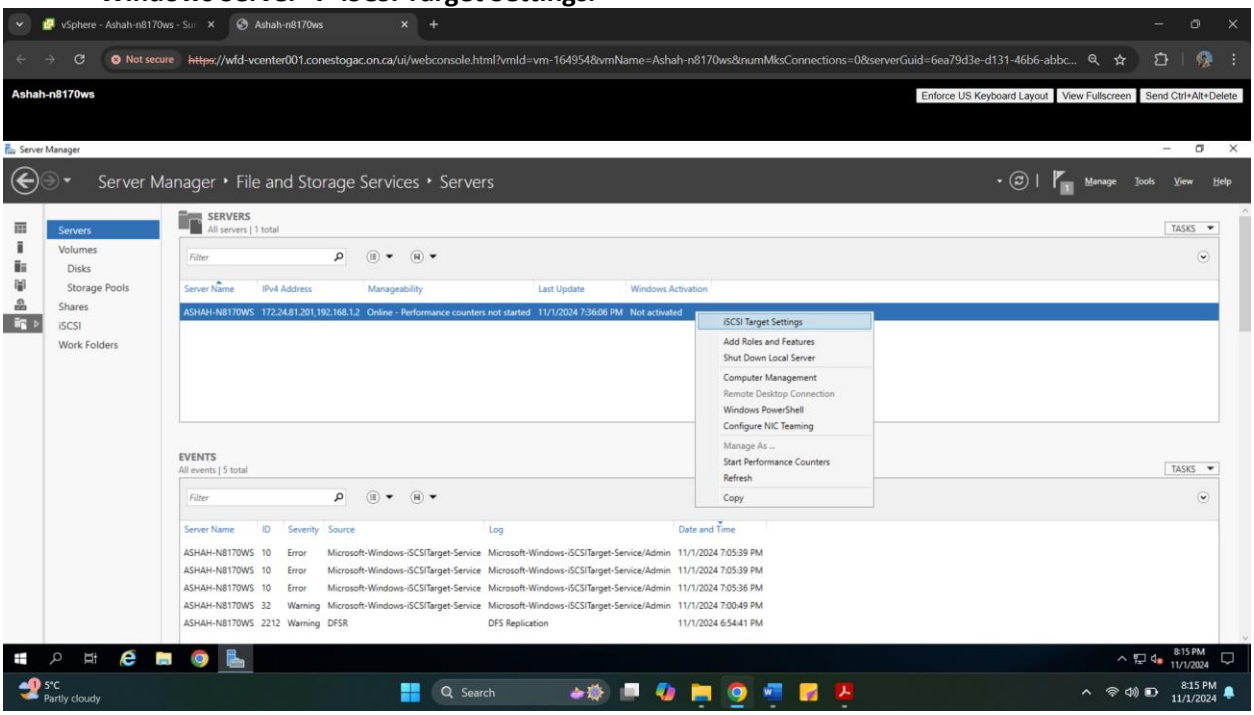
16) Repeat steps **17-19** but instead put in **192.168.1.4 for ESXi2**. Click **Ok**.



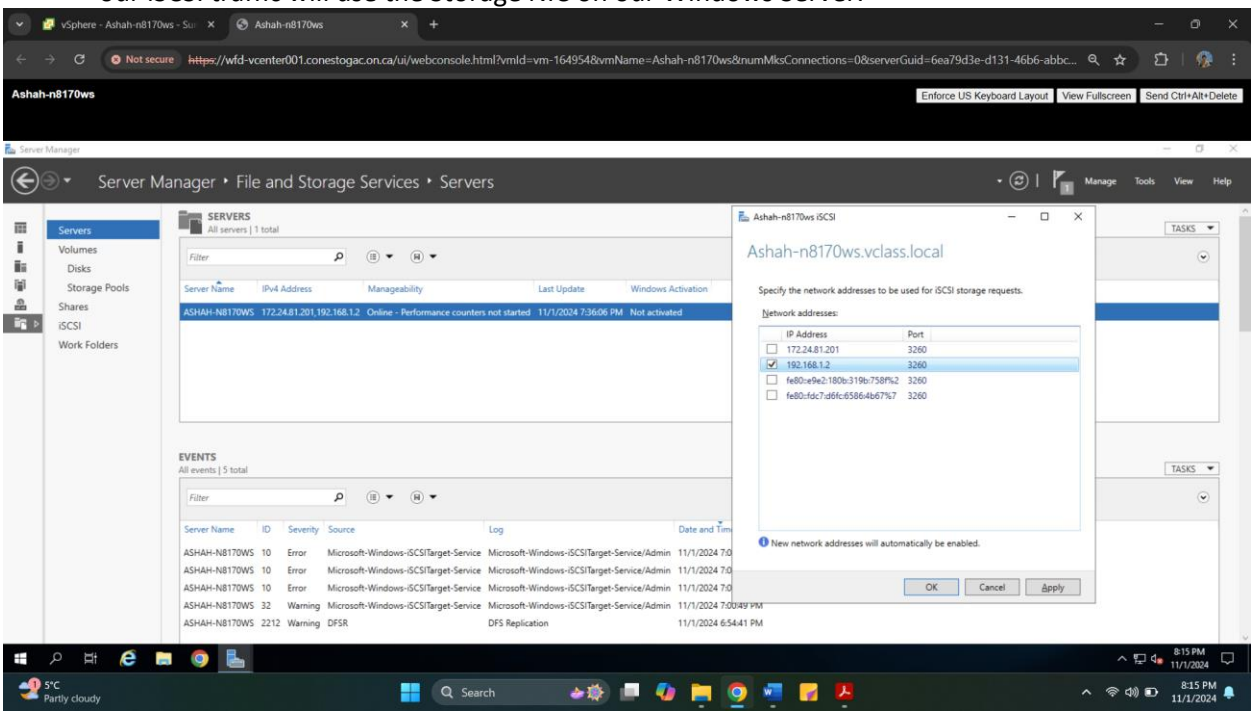
17) Click **Next** until **Confirm Selections**. Click **Create**.



18) In Server Manager → File and Storage Services → Select **Servers** on the left, Right-Click your **Windows Server → iSCSI Target Settings.**

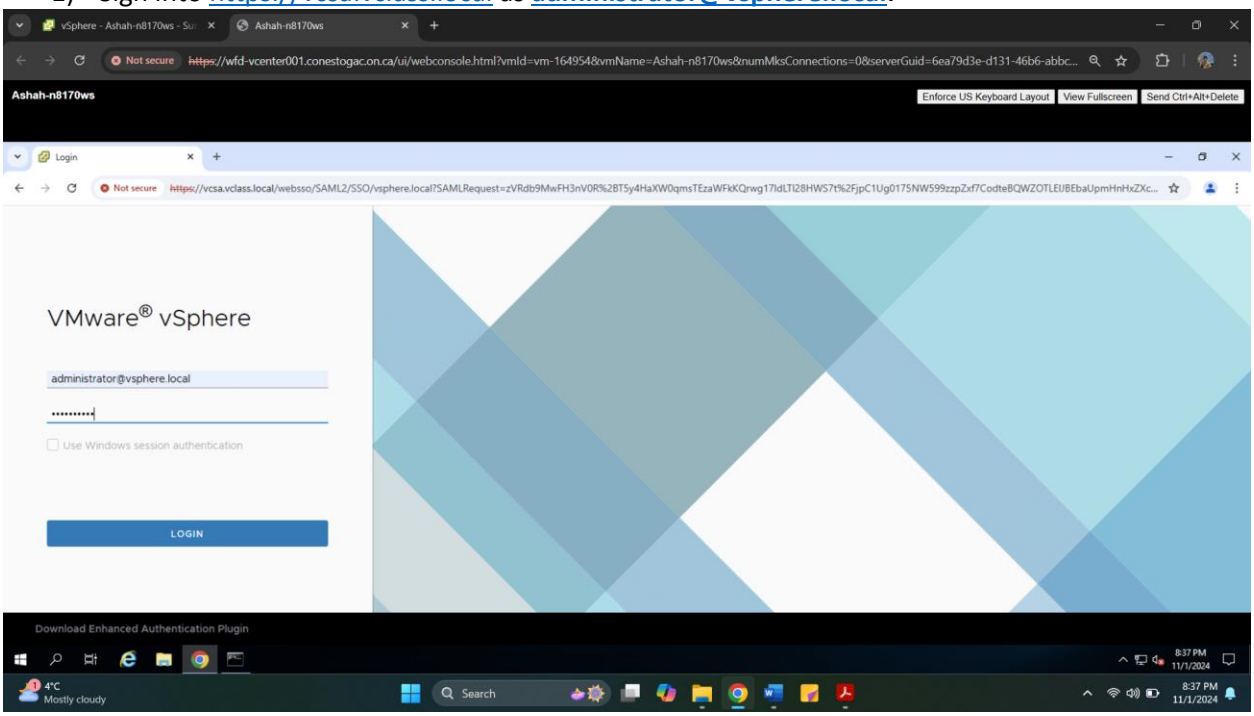


19) Make sure **only 192.168.1.2** is checked. Uncheck any other addresses. Click **Ok**. (This ensures our iSCSI traffic will use the Storage NIC on our Windows Server.

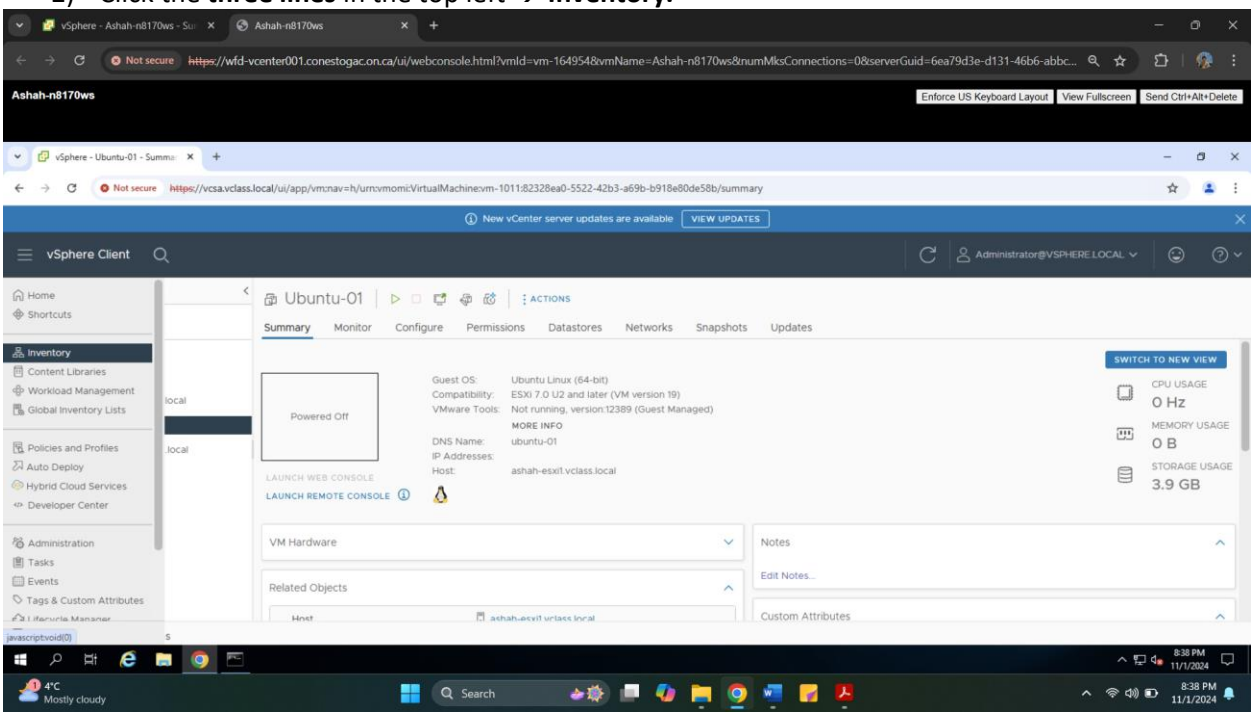


Section 4: VMkernel and virtual switch setup for ISCSi on the ESXi hosts

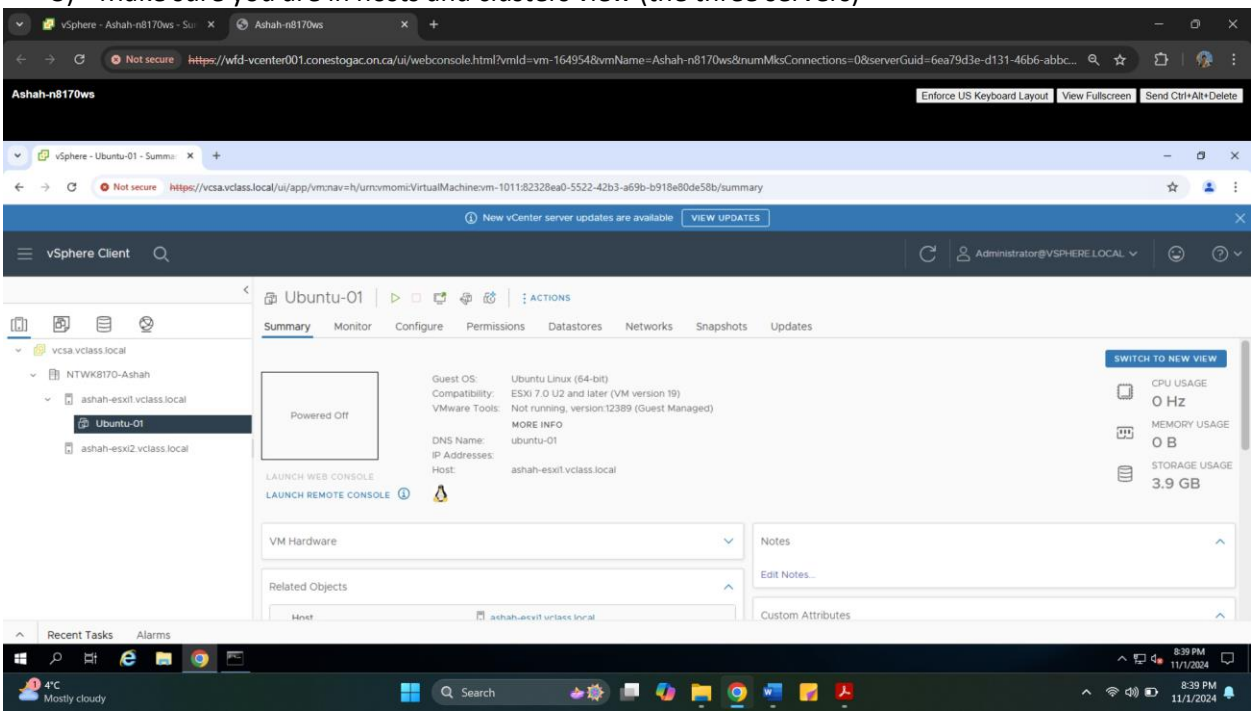
1) Sign into https://vcsa.vclass.local as **administrator@vsphere.local**.



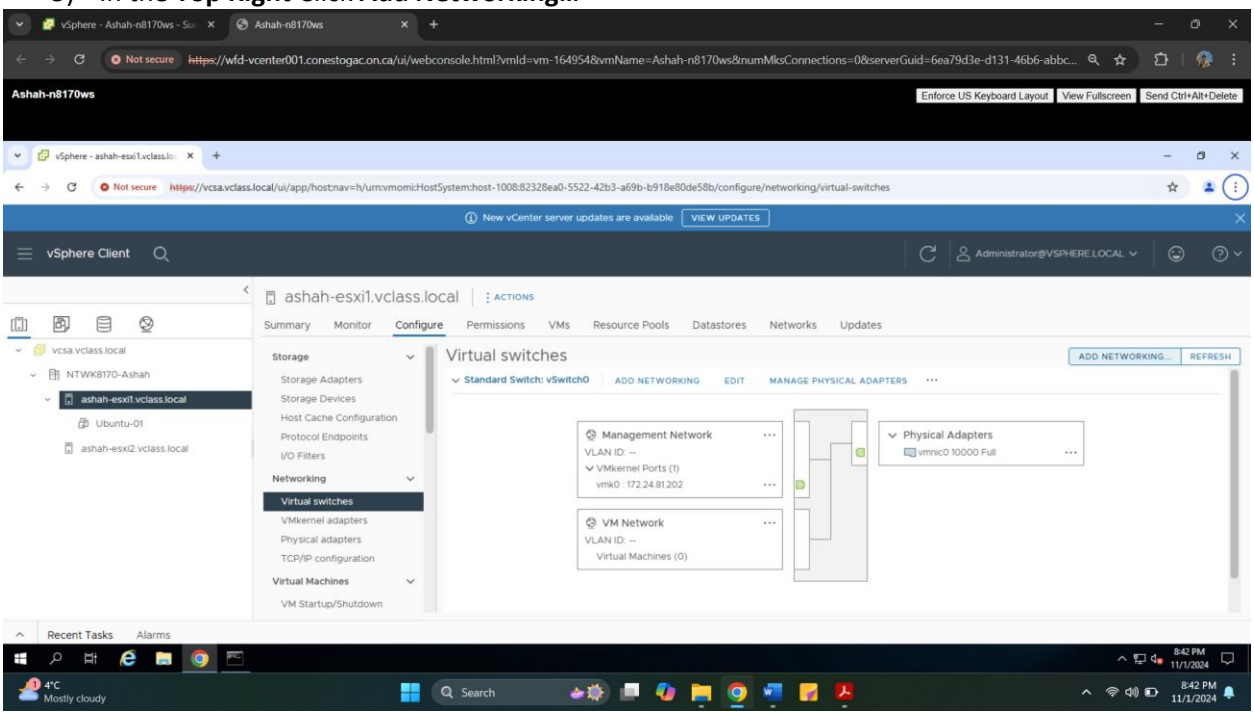
2) Click the **three lines** in the top left → **Inventory.**



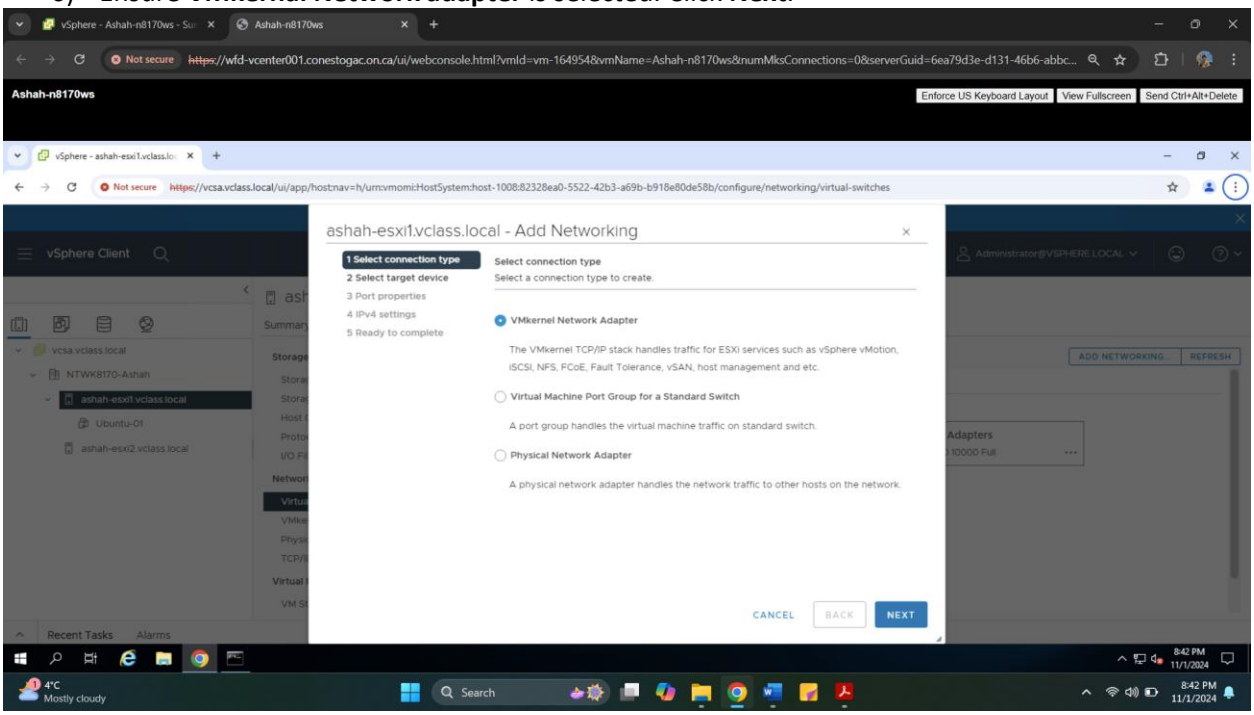
3) Make sure you are in hosts and clusters view (the three servers)



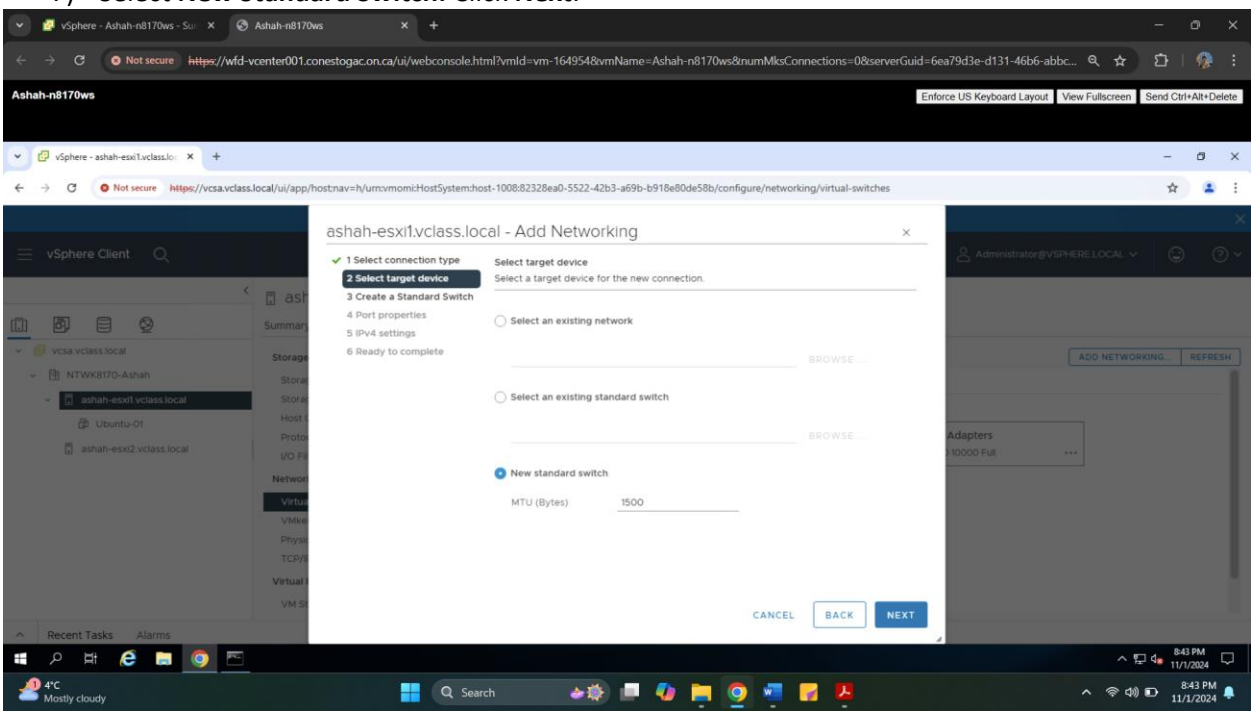
4) Click on **ESXi1 → Configure (In the right pane) → Networking → Virtual Switches.**
5) In the **Top Right** Click **Add Networking…**



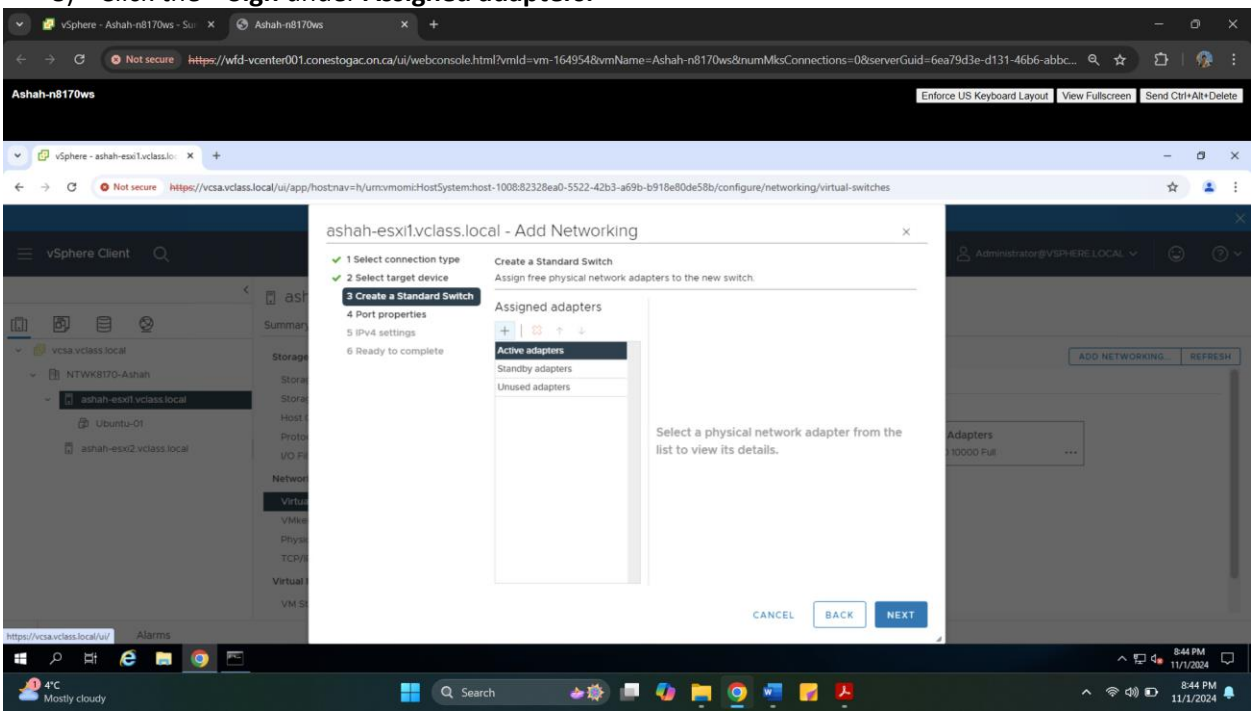
6) Ensure **VMkernal Network adapter** is selected. Click **Next**.



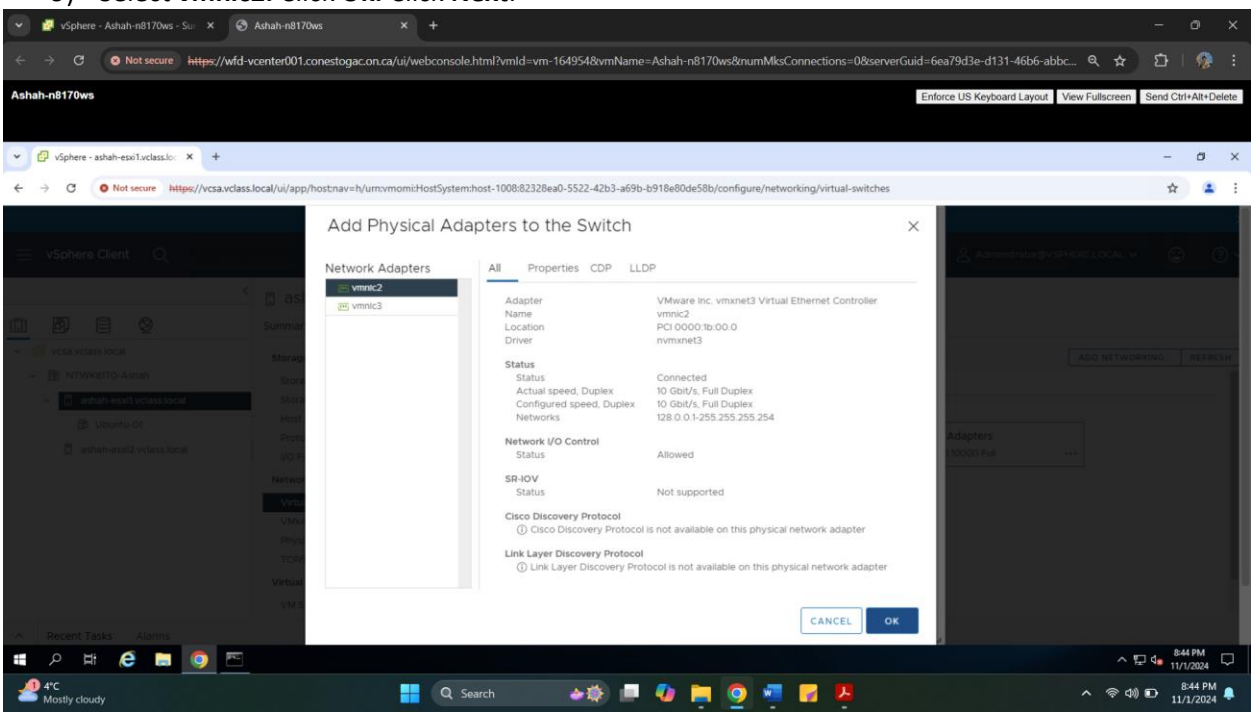
7) Select **New Standard Switch.** Click **Next**.



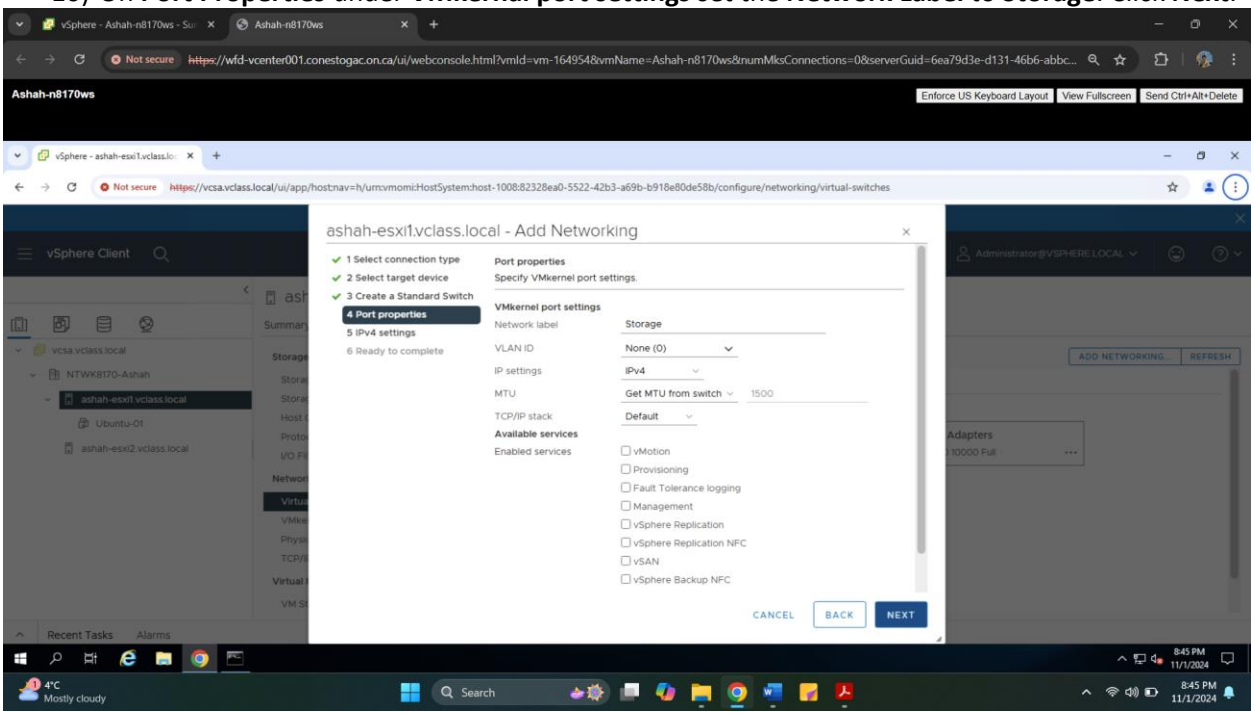
8) Click the **+ Sign** under **Assigned adapters.**



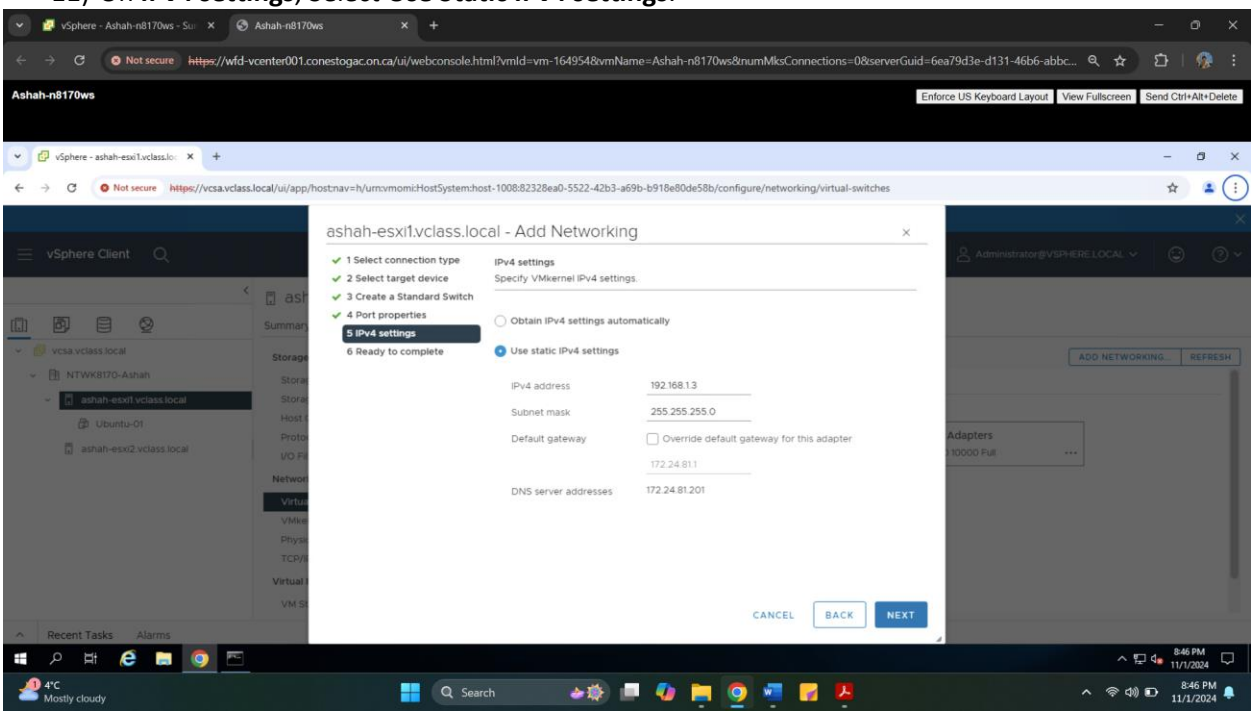
9) Select **vmnic2.** Click O**k.** Click **Next**.



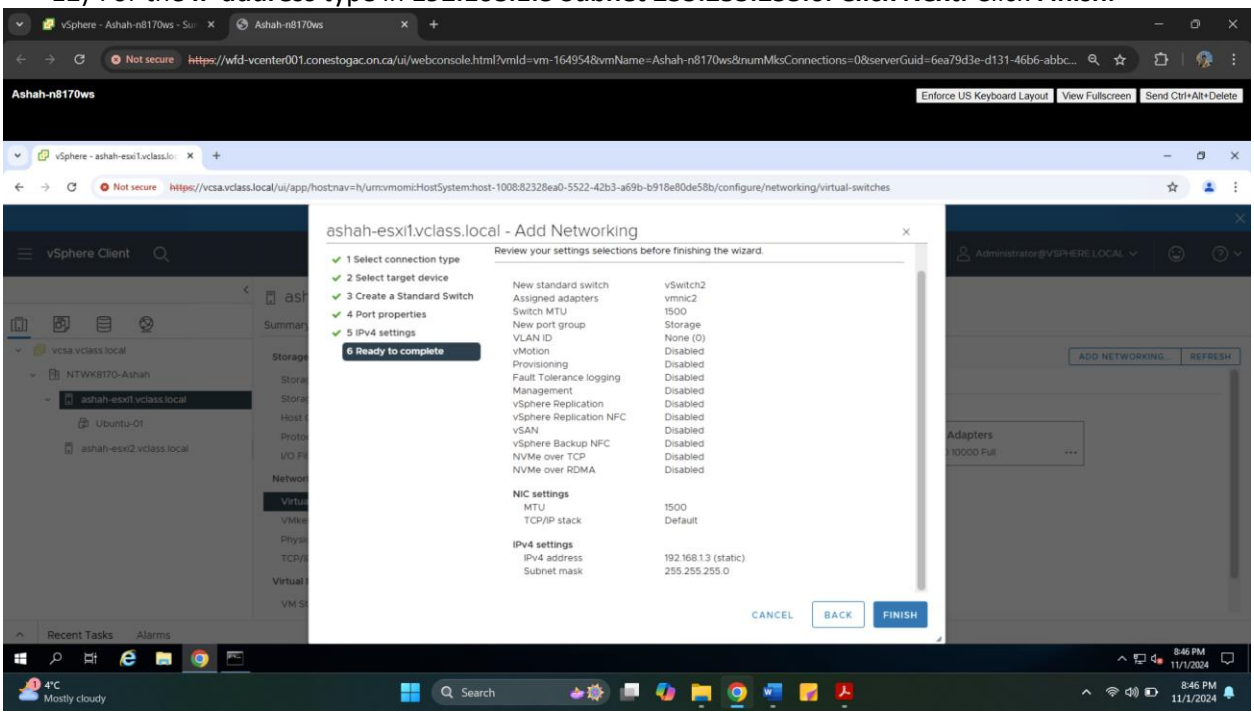
10) On **Port Properties** under **VMkernal port settings** set the **Network Label** to **Storage**. Click **Next**.



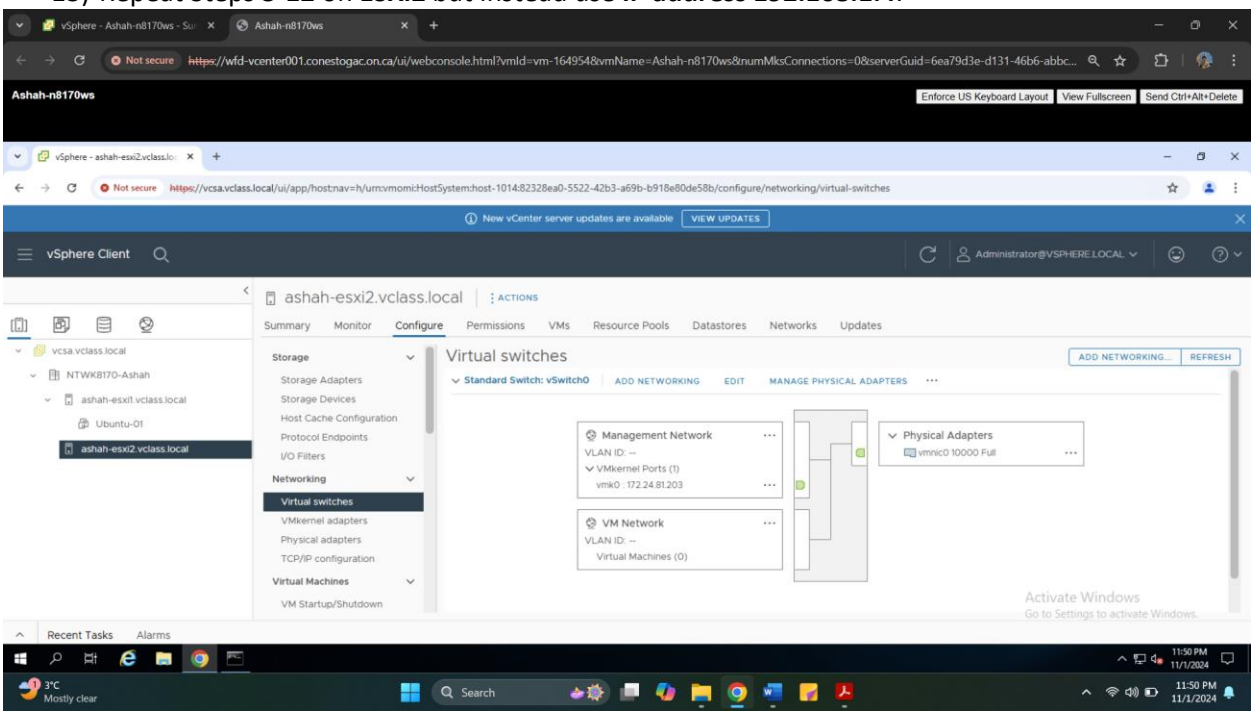
11) On **IPv4 settings**, Select **Use Static IPv4 settings**.

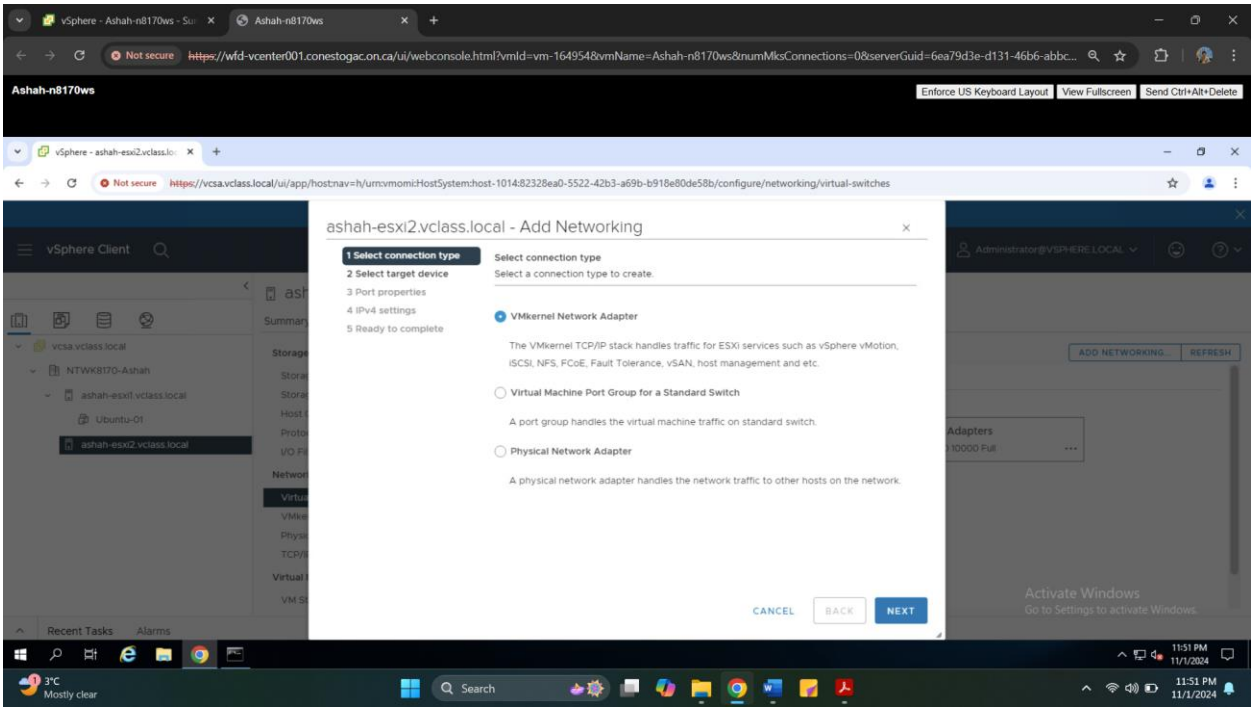


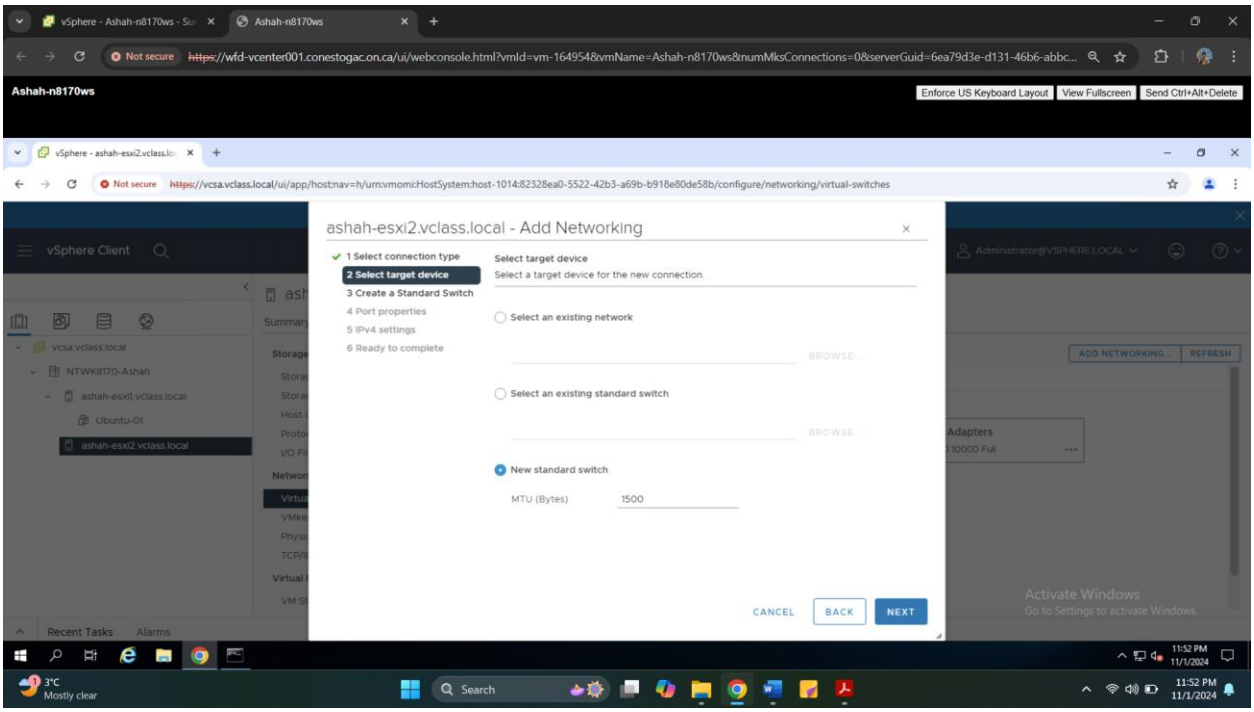
12) For the **IP address** type in **192.168.1.3 Subnet 255.255.255.0. Click Next.** Click **Finish.**

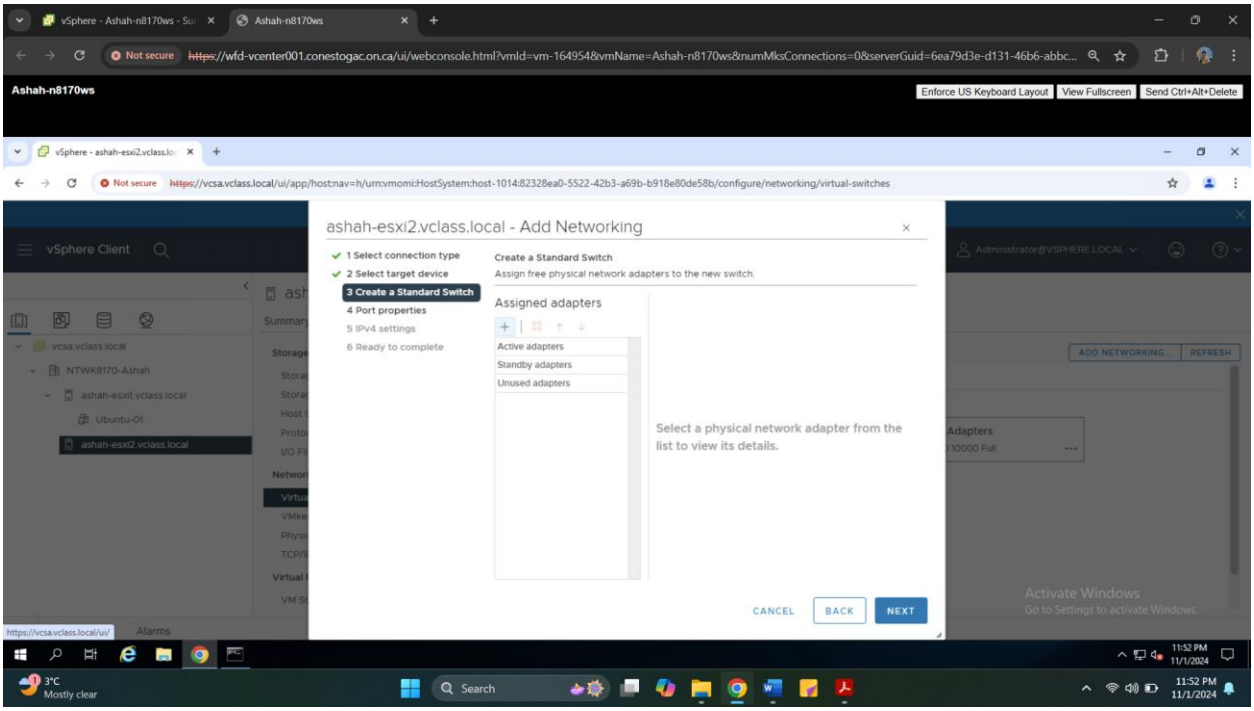


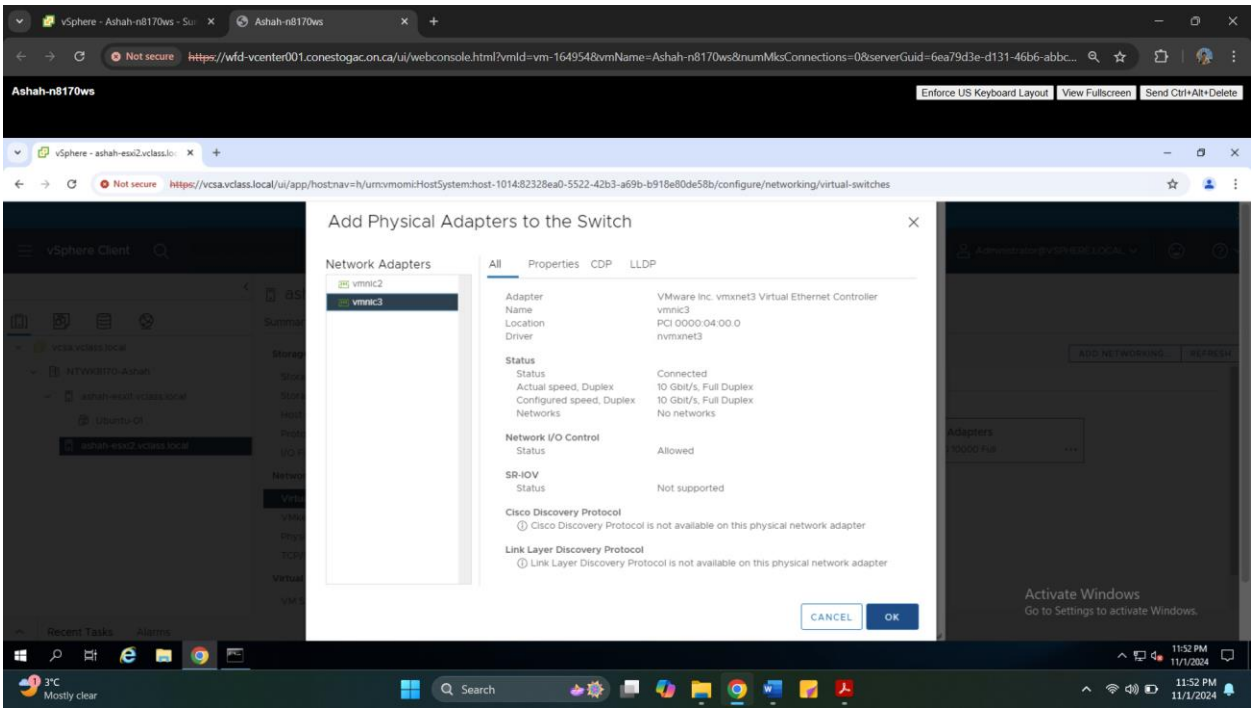
13) Repeat Steps **3-12** on **ESXi2** but instead use **IP address 192.168.1.4**.

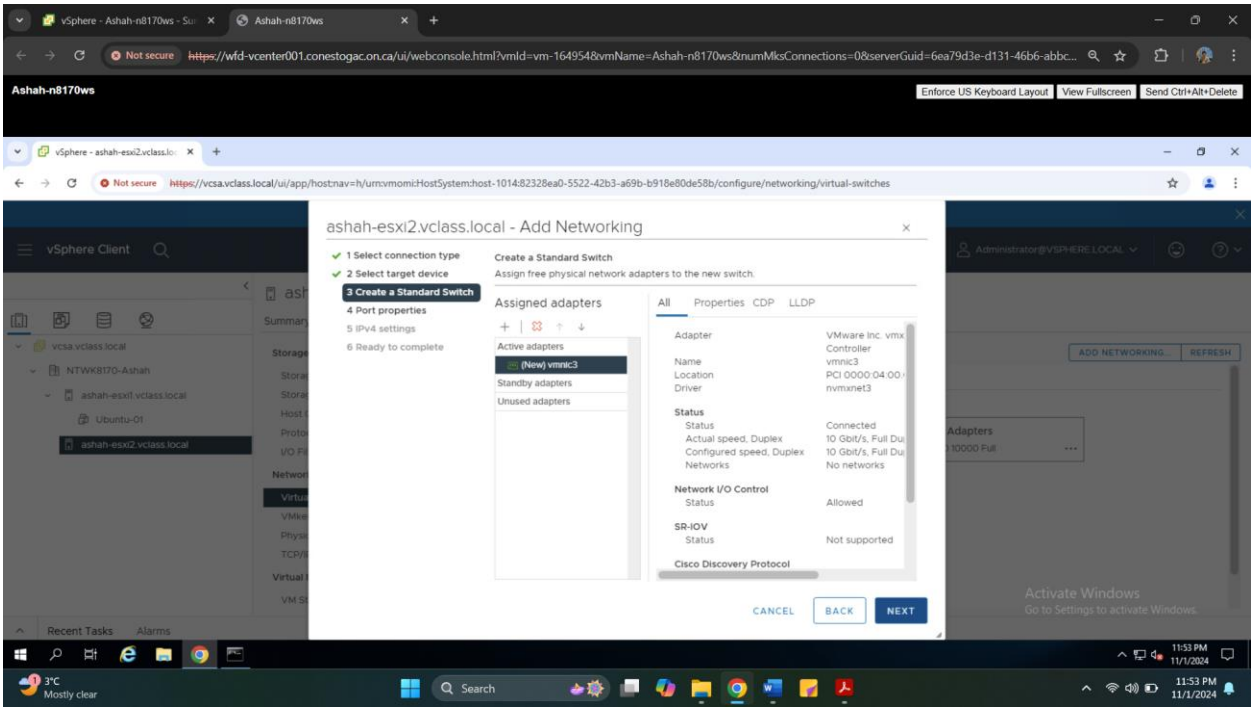


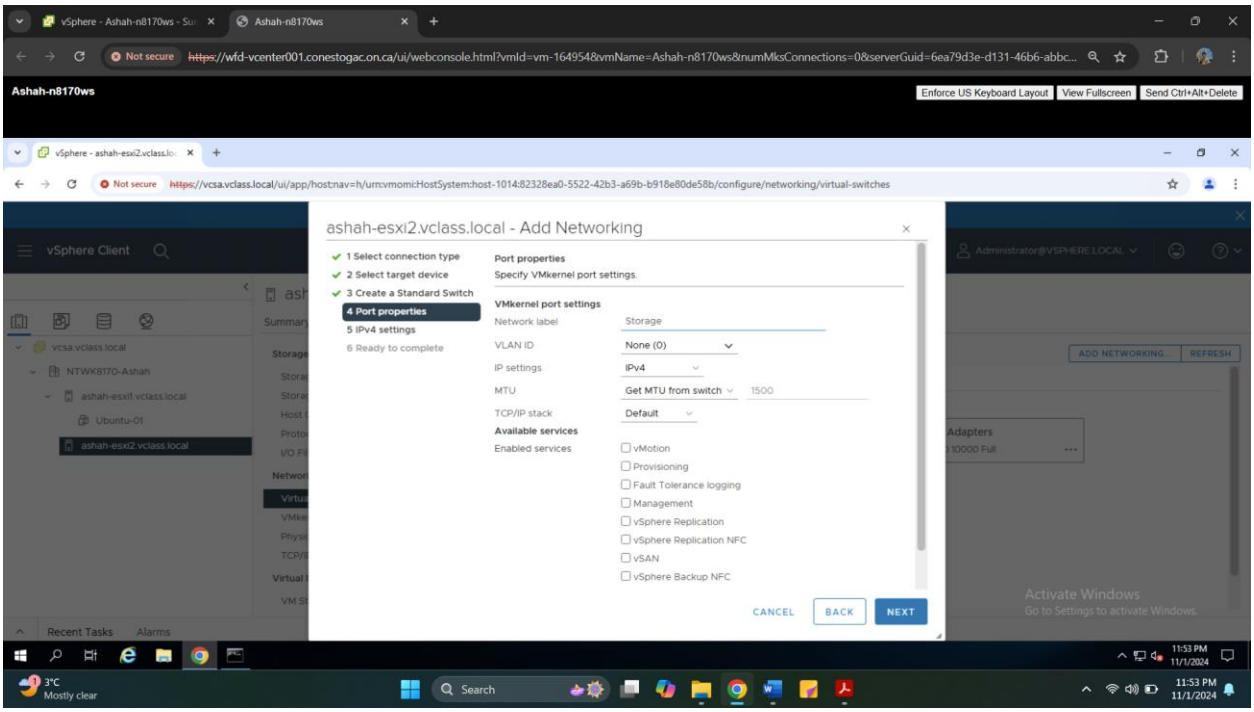

Ashah-n8170ws
Enforce US Keyboard Layout
View Fullscreen
Send Ctrl+Alt+Delete
ashah-esxi2.vclass.local - Add Networking
1 Select connection type
2 Select target device
3 Port properties
4 IPv4 settings
5 Ready to complete
Select connection type
Select a connection type to create.
VMkernel Network Adapter
The VMkernel TCP/IP stack handles traffic for ESXi services such as vSphere vMotion, iSCSI, NFS, FCoE, Fault Tolerance, vSAN, host management and etc.
Virtual Machine Port Group for a Standard Switch
A port group handles the virtual machine traffic on standard switch.
Physical Network Adapter
A physical network adapter handles the network traffic to other hosts on the network.
CANCEL
BACK
NEXT

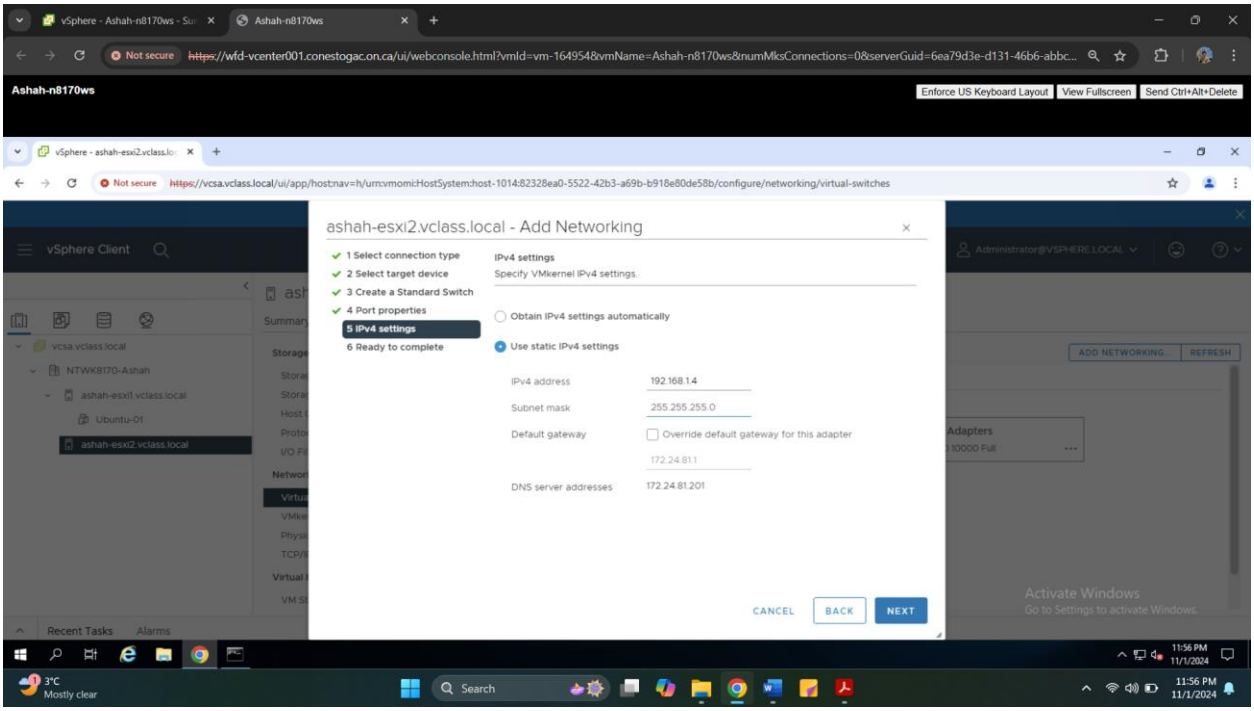

Ashah-n8170ws
Enforce US Keyboard Layout
View Fullscreen
Send Ctrl+Alt+Delete
ashah-esxi2.vclass.local - Add Networking
1 Select connection type
2 Select target device
3 Create a Standard Switch
4 Port properties
5 IPv4 settings
6 Ready to complete
Select target device
Select a target device for the new connection.
Select an existing network
Select an existing standard switch
New standard switch
MTU (Bytes)
1500
CANCEL
BACK
NEXT

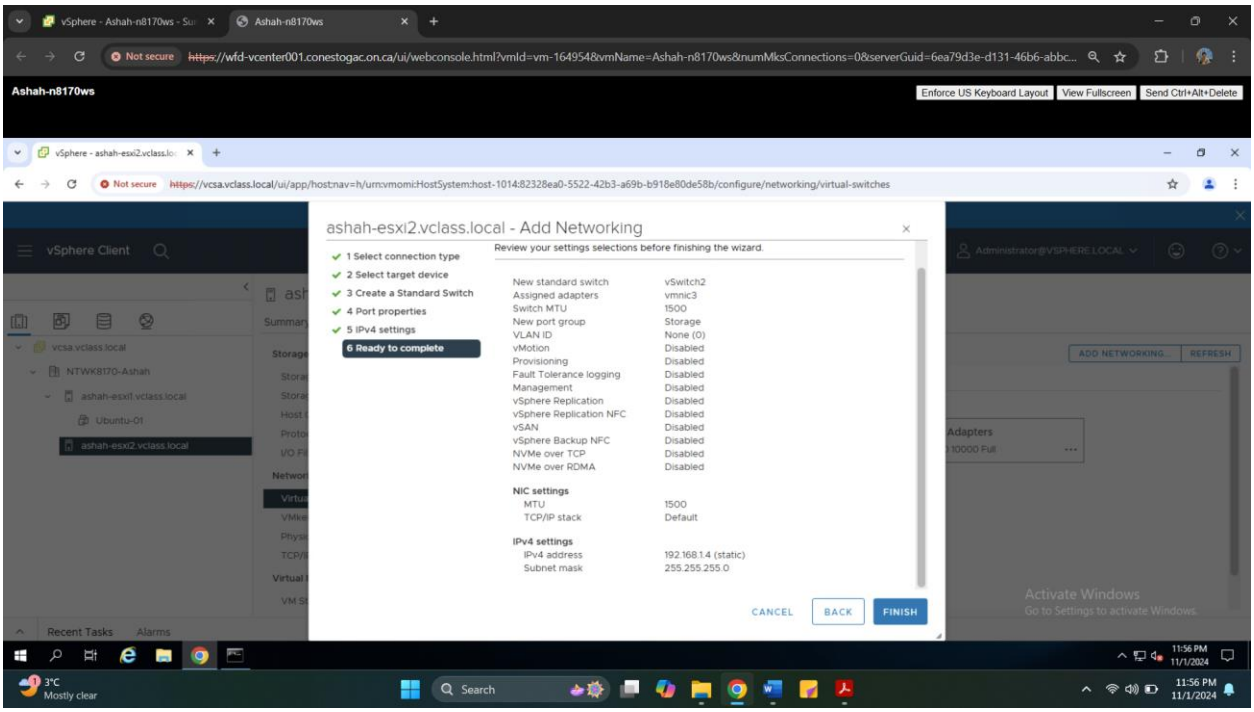

Ashah-n8170ws
Enforce US Keyboard Layout
View Fullscreen
Send Ctrl+Alt+Delete
ashah-esxi2.vclass.local - Add Networking
1 Select connection type
2 Select target device
3 Create a Standard Switch
4 Port properties
5 IPv4 settings
6 Ready to complete
Create a Standard Switch
Assign free physical network adapters to the new switch.
Assigned adapters
Active adapters
Standby adapters
Unused adapters
Select a physical network adapter from the list to view its details.
CANCEL
BACK
NEXT

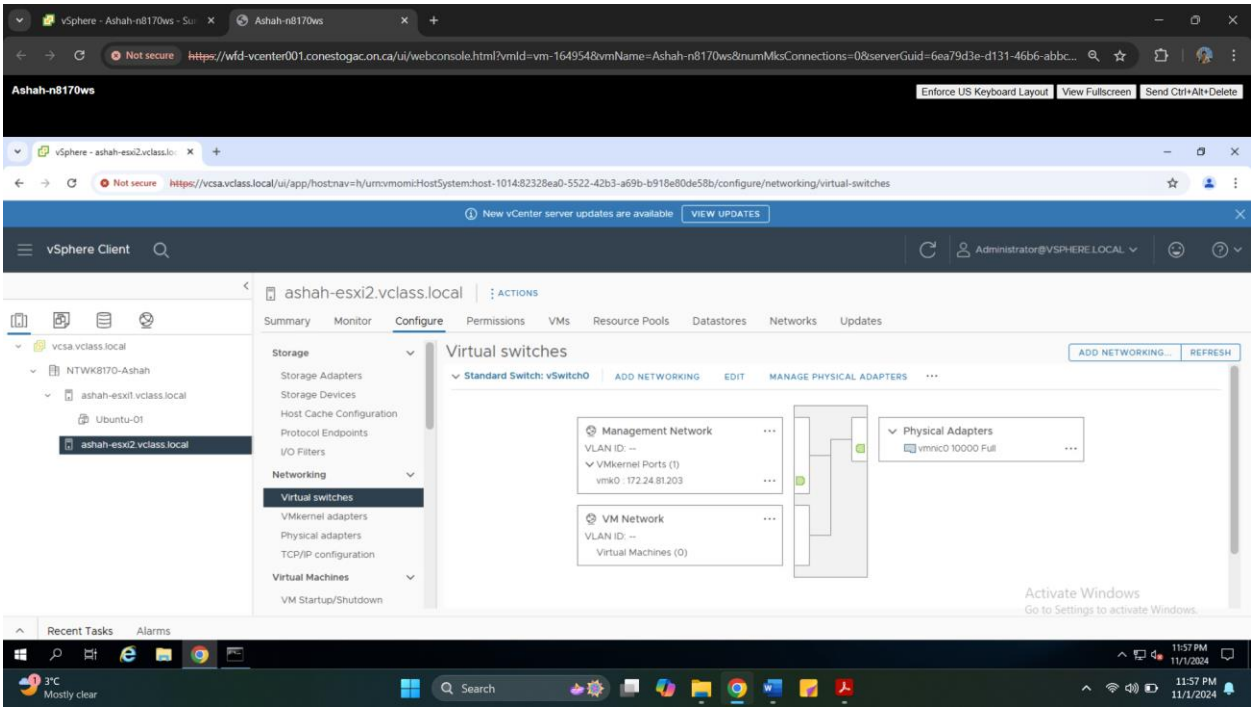

Ashah-n8170ws
Enforce US Keyboard Layout
View Fullscreen
Send Ctrl+Alt+Delete
Add Physical Adapters to the Switch
Network Adapters
vmnic2
vmnic3
All
Properties
CDP
LLDP
Adapter
VMware Inc. vmxnet3 Virtual Ethernet Controller
Name
vmnic3
Location
PCI 0000:04:00.0
Driver
nvmxnet3
Status
Status
Connected
Actual speed, Duplex
10 Gbit/s, Full Duplex
Configured speed, Duplex
10 Gbit/s, Full Duplex
Networks
No networks
Network I/O Control
Status
Allowed
SR-IOV
Status
Not supported
Cisco Discovery Protocol
Cisco Discovery Protocol is not available on this physical network adapter
Link Layer Discovery Protocol
Link Layer Discovery Protocol is not available on this physical network adapter
CANCEL
OK


Ashah-n8170ws
Enforce US Keyboard Layout
View Fullscreen
Send Ctrl+Alt+Delete
ashah-esxi2.vclass.local - Add Networking
1 Select connection type
2 Select target device
3 Create a Standard Switch
4 Port properties
5 IPv4 settings
6 Ready to complete
Create a Standard Switch
Assign free physical network adapters to the new switch.
Assigned adapters
All
Properties
CDP
LLDP
Active adapters
(New) vmnic3
Standby adapters
Unused adapters
Adapter
VMware Inc. vmx Controller
Name
vmnic3
Location
PCI 0000:04:00.
Driver
nvmxnet3
Status
Status
Connected
Actual speed, Duplex
10 Gbit/s, Full Du
Configured speed, Duplex
10 Gbit/s, Full Du
Networks
No networks
Network I/O Control
Status
Allowed
SR-IOV
Status
Not supported
Cisco Discovery Protocol
CANCEL
BACK
NEXT


Ashah-n8170ws
Enforce US Keyboard Layout
View Fullscreen
Send Ctrl+Alt+Delete
ashah-esxi2.vclass.local - Add Networking
1 Select connection type
2 Select target device
3 Create a Standard Switch
4 Port properties
5 IPv4 settings
6 Ready to complete
Port properties
Specify VMkernel port settings.
VMkernel port settings
Network label
Storage
VLAN ID
None (0)
IP settings
IPv4
MTU
Get MTU from switch
1500
TCP/IP stack
Default
Available services
Enabled services
vMotion
Provisioning
Fault Tolerance logging
Management
vSphere Replication
vSphere Replication NFC
vSAN
vSphere Backup NFC
CANCEL
BACK
NEXT

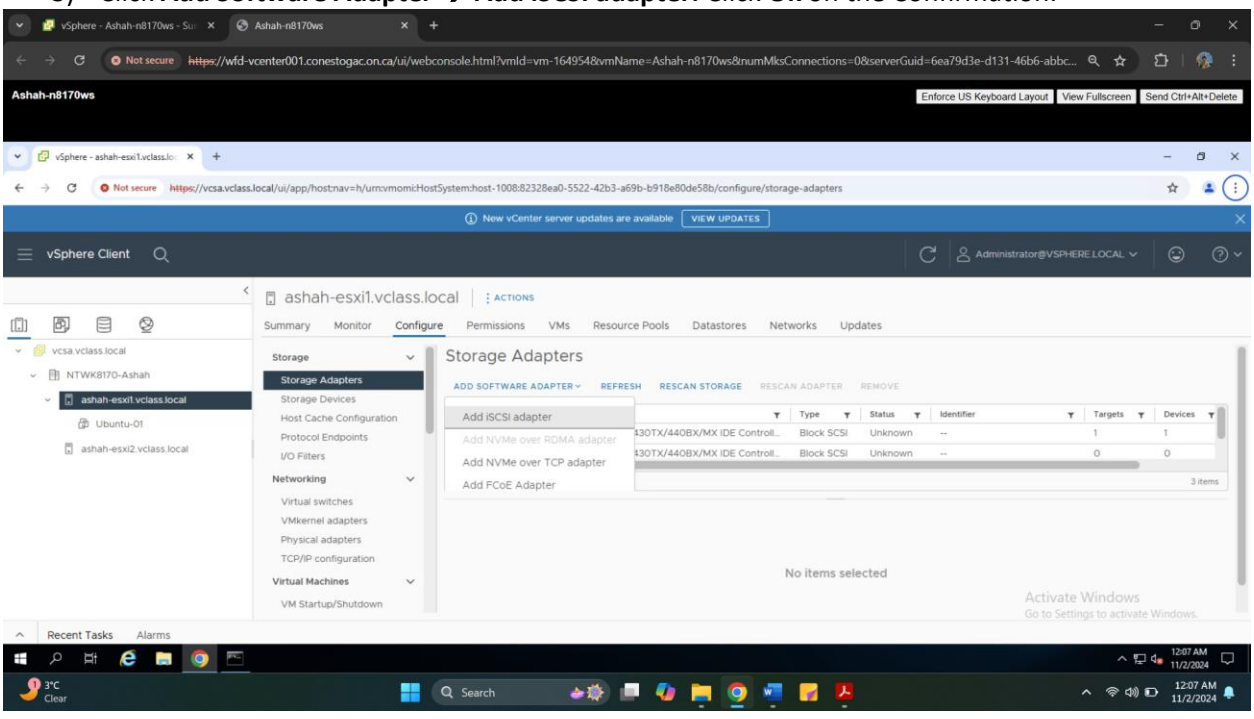

Ashah-n8170ws
Enforce US Keyboard Layout
View Fullscreen
Send Ctrl+Alt+Delete
ashah-esxi2.vclass.local - Add Networking
1 Select connection type
2 Select target device
3 Create a Standard Switch
4 Port properties
5 IPv4 settings
6 Ready to complete
IPv4 settings
Specify VMkernel IPv4 settings.
Obtain IPv4 settings automatically
Use static IPv4 settings
IPv4 address 192.168.1.4
Subnet mask 255.255.255.0
Default gateway
Override default gateway for this adapter
172.24.81.1
DNS server addresses 172.24.81.201
CANCEL
BACK
NEXT

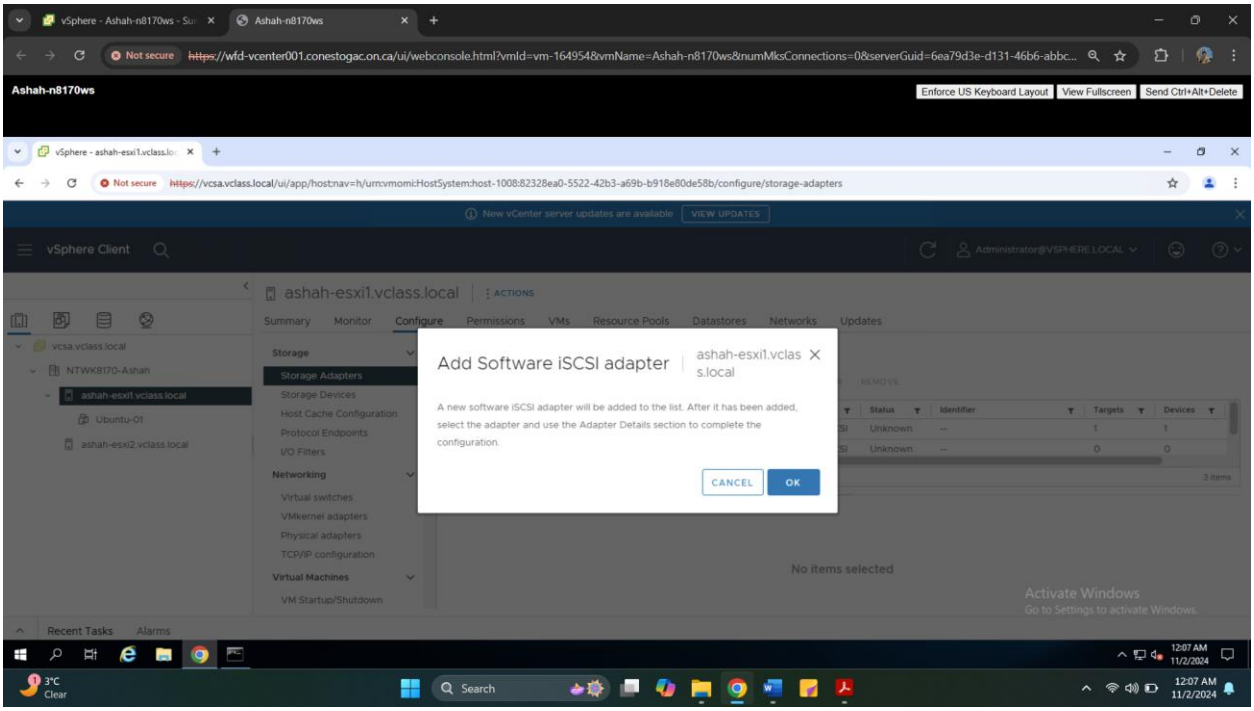

Ashah-n8170ws
Enforce US Keyboard Layout
View Fullscreen
Send Ctrl+Alt+Delete
ashah-esxi2.vclass.local - Add Networking
1 Select connection type
2 Select target device
3 Create a Standard Switch
4 Port properties
5 IPv4 settings
6 Ready to complete
Review your settings selections before finishing the wizard.
New standard switch vSwitch2
Assigned adapters vmnic3
Switch MTU 1500
New port group Storage
VLAN ID None (0)
vMotion Disabled
Provisioning Disabled
Fault Tolerance logging Disabled
Management Disabled
vSphere Replication Disabled
vSphere Replication NFC Disabled
vSAN Disabled
vSphere Backup NFC Disabled
NVMe over TCP Disabled
NVMe over RDMA Disabled
NIC settings
MTU 1500
TCP/IP stack Default
IPv4 settings
IPv4 address 192.168.1.4 (static)
Subnet mask 255.255.255.0
CANCEL
BACK
FINISH



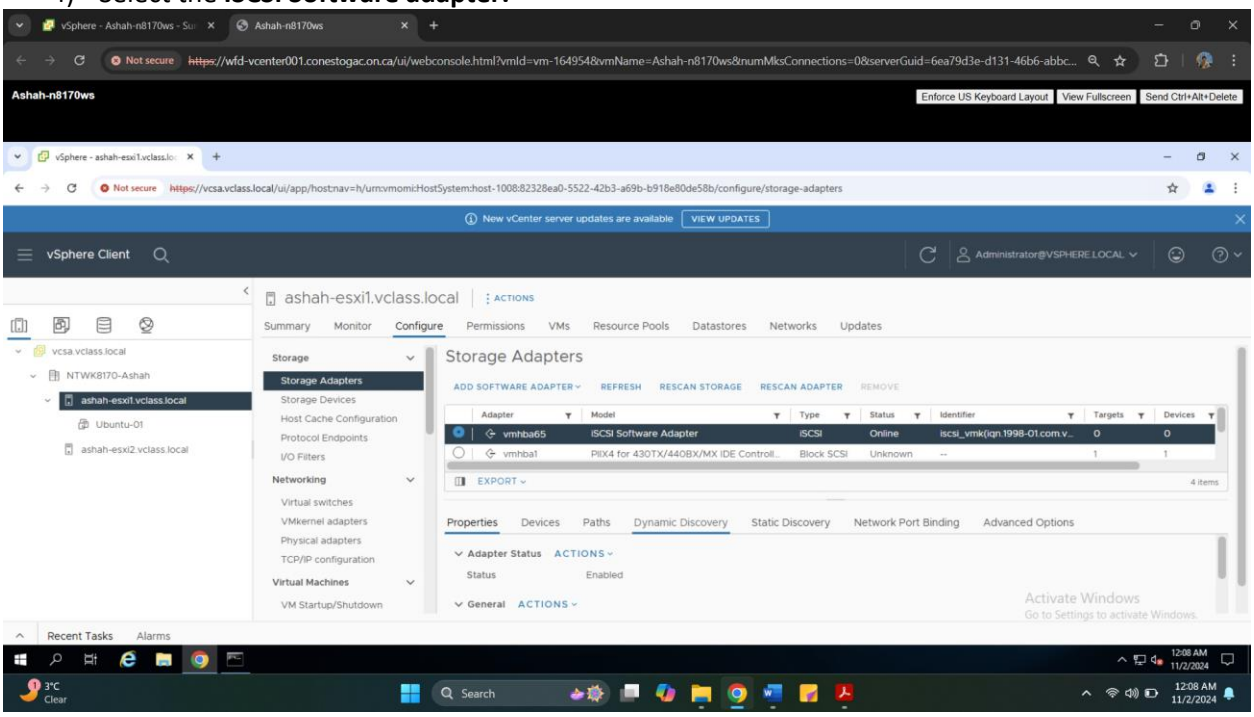
Section 5: Adding the ISCSi Software Adapter and connecting to the iSCSI target on both ESXi hosts

1) Select **ESXi1** on the left.
2) Navigate to **Configuration → Storage → Storage Adapters.**
3) Click **Add Software Adapter → Add iSCSI adapter.** Click **Ok** on the Confirmation.

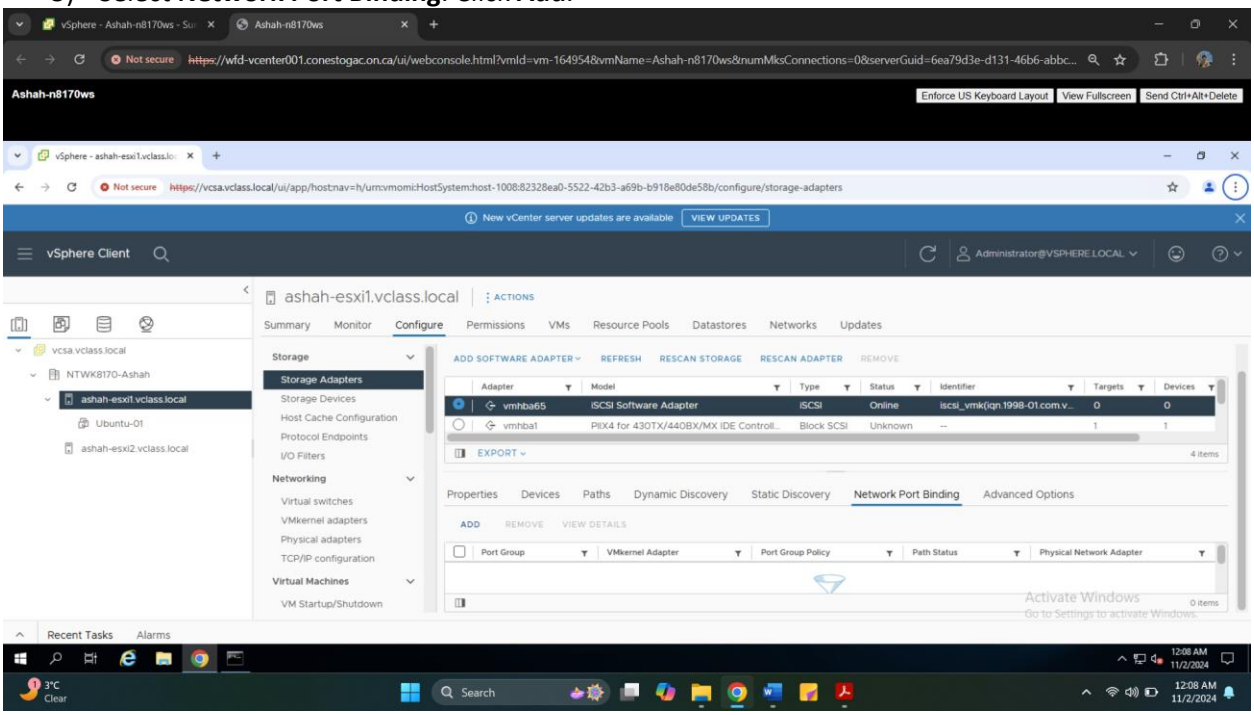




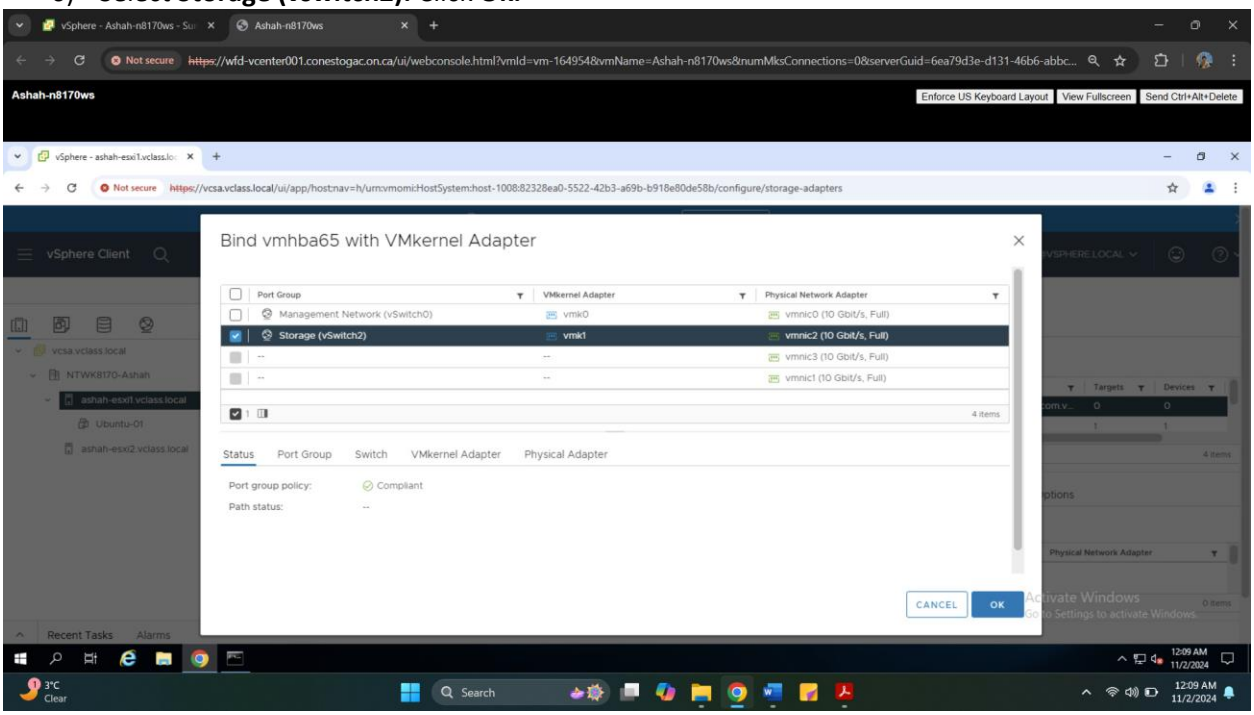
4) Select the **ISCSi Software adapter.**



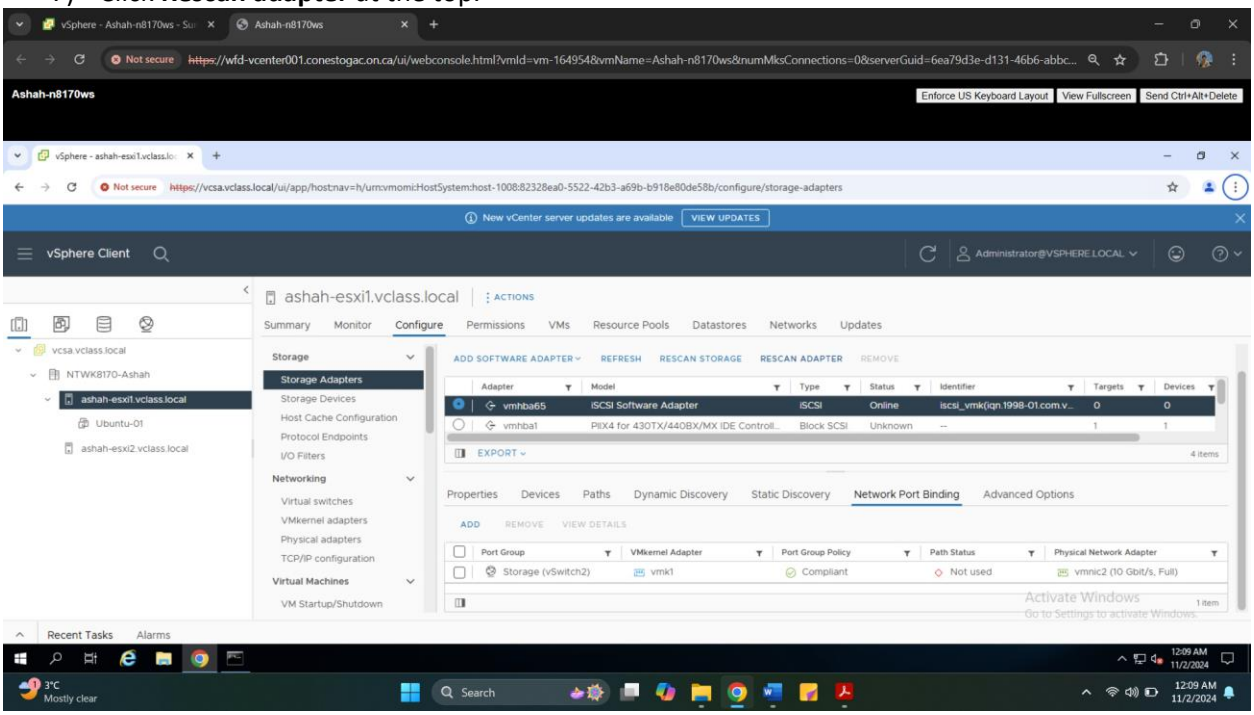
5) Select **Network Port Binding**. Click **Add**.



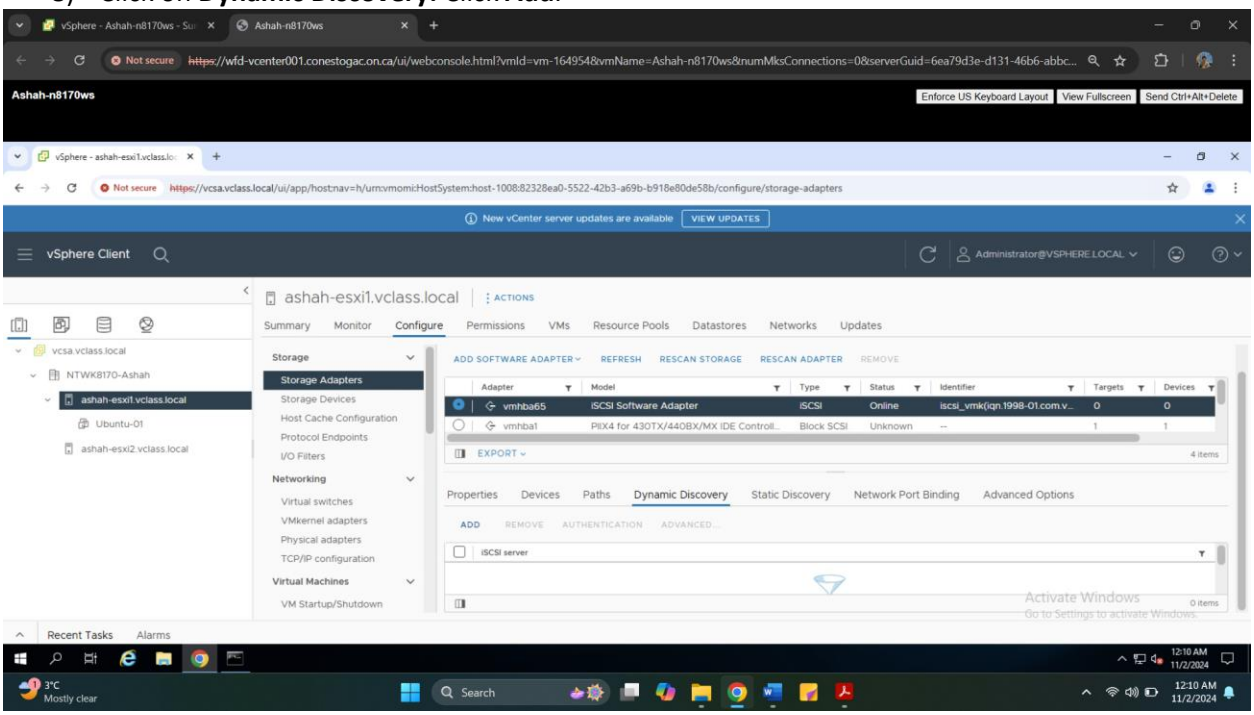
6) Select **Storage (vswitch2).** Click **Ok.**



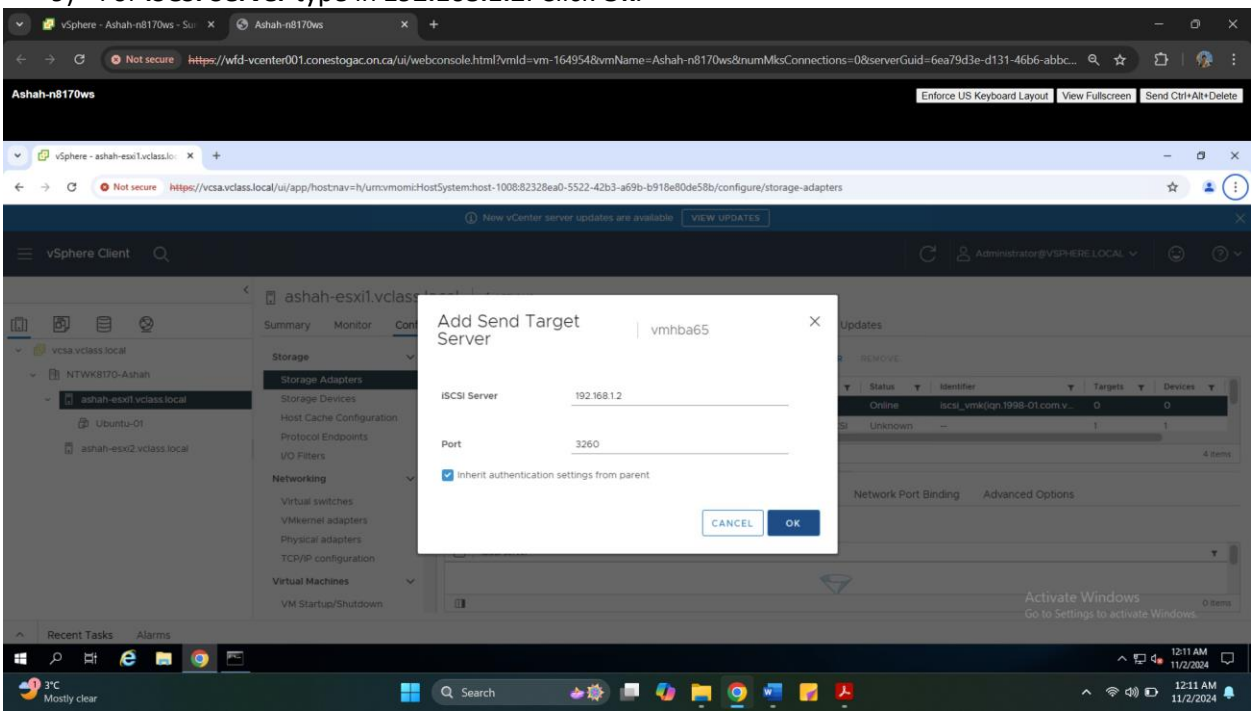
7) Click **Rescan adapter** at the top.



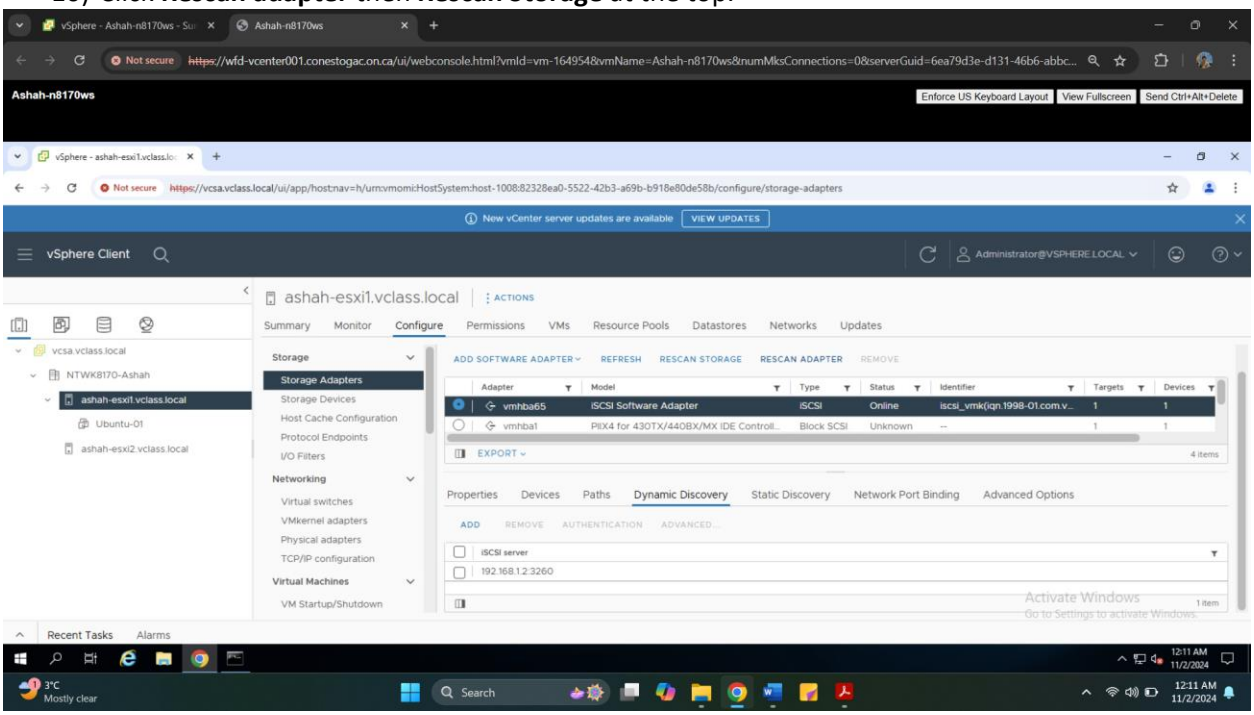
8) Click on **Dynamic Discovery.** Click **Add**.



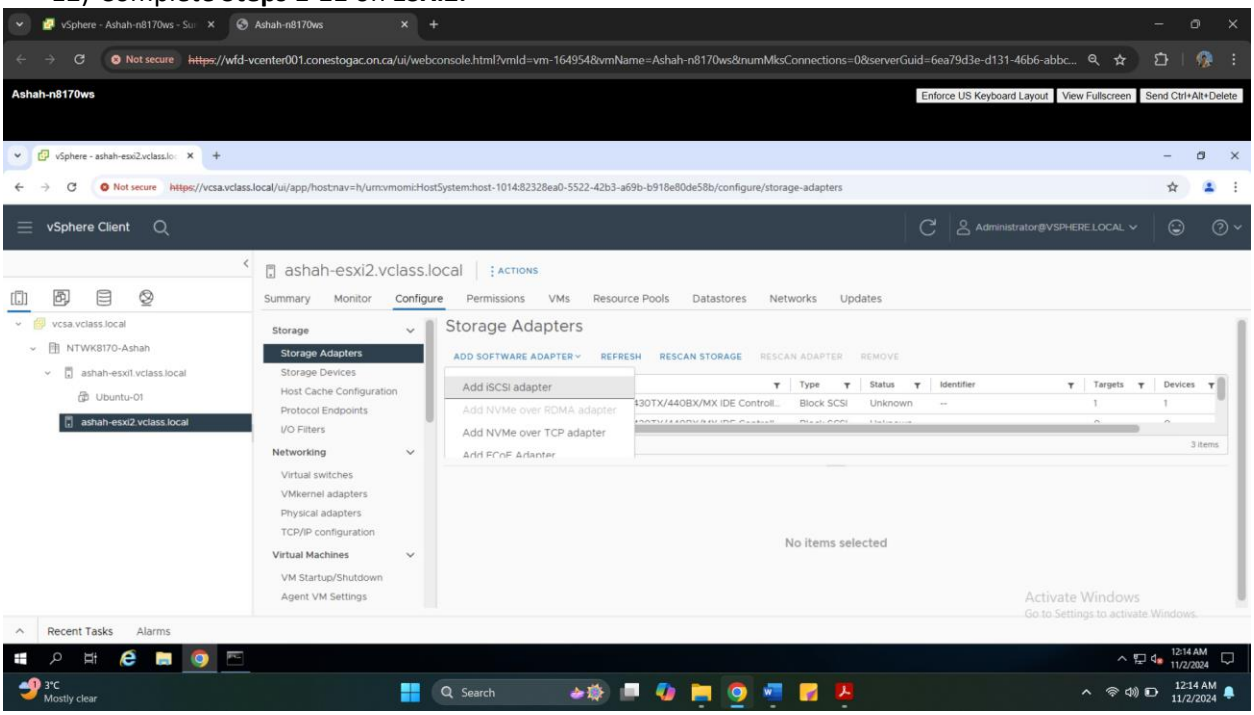
9) For **iSCSI Server** type in **192.168.1.2**. Click **Ok**.

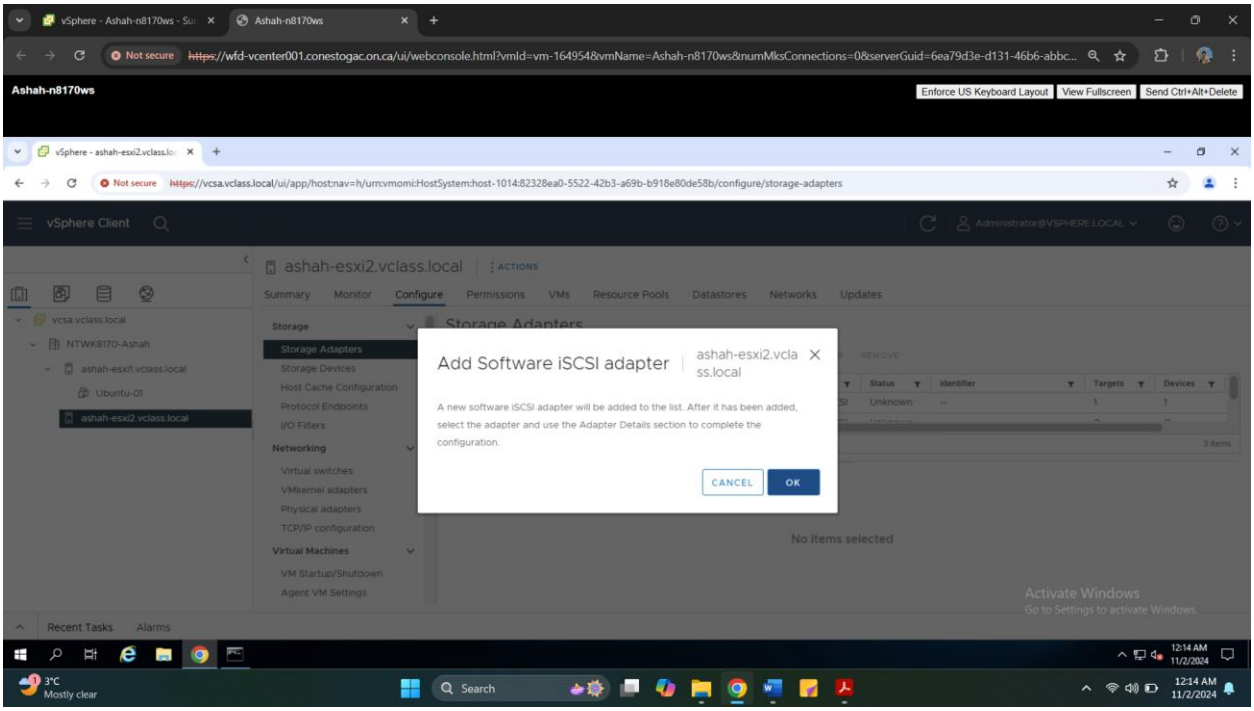


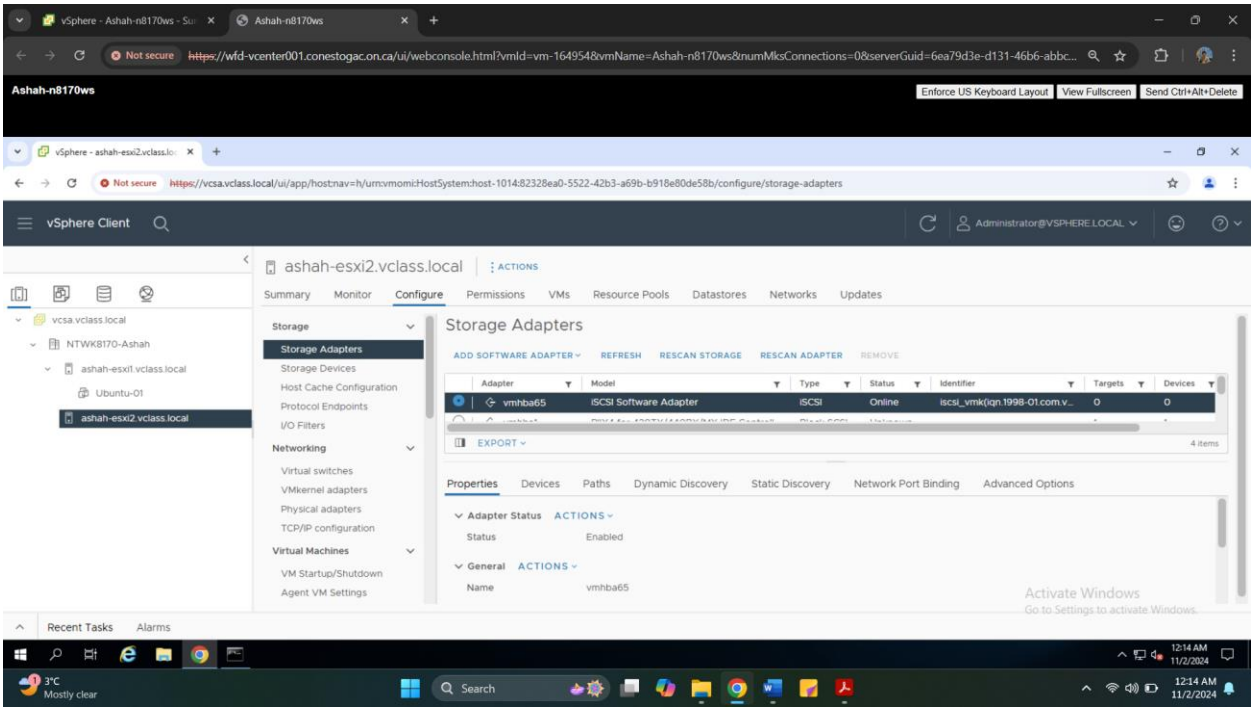
10) Click **Rescan adapter** then **Rescan Storage** at the top.

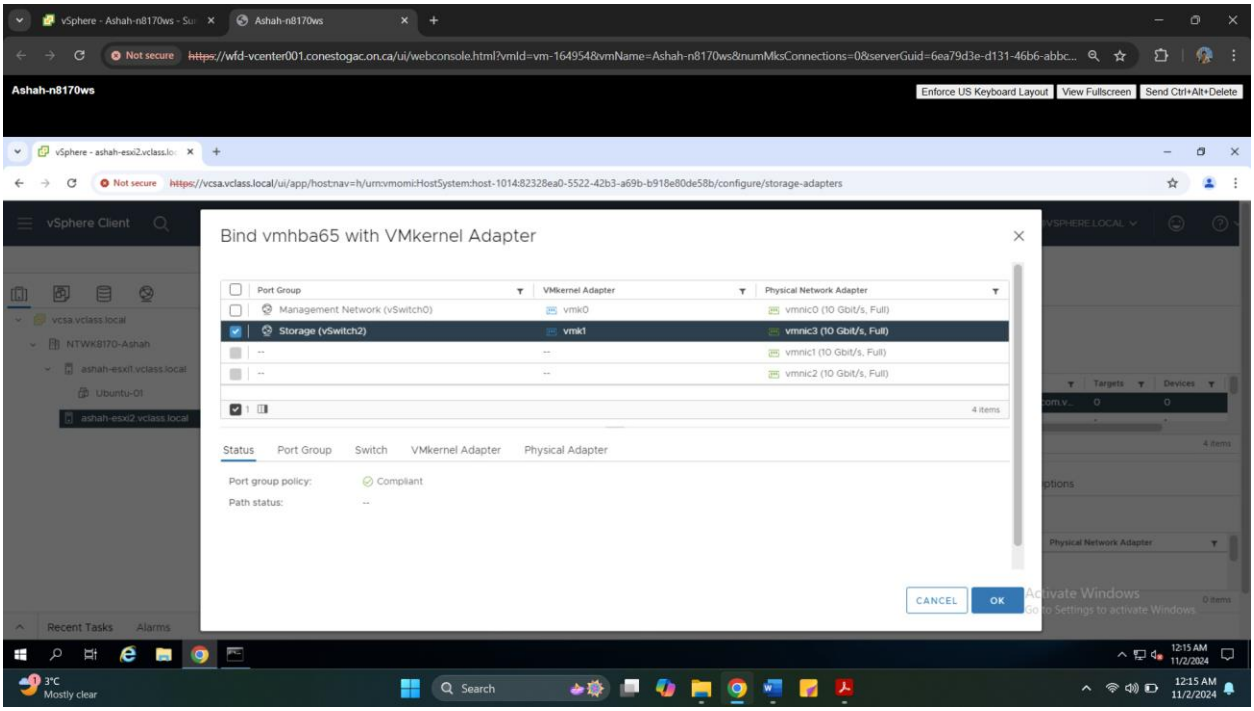


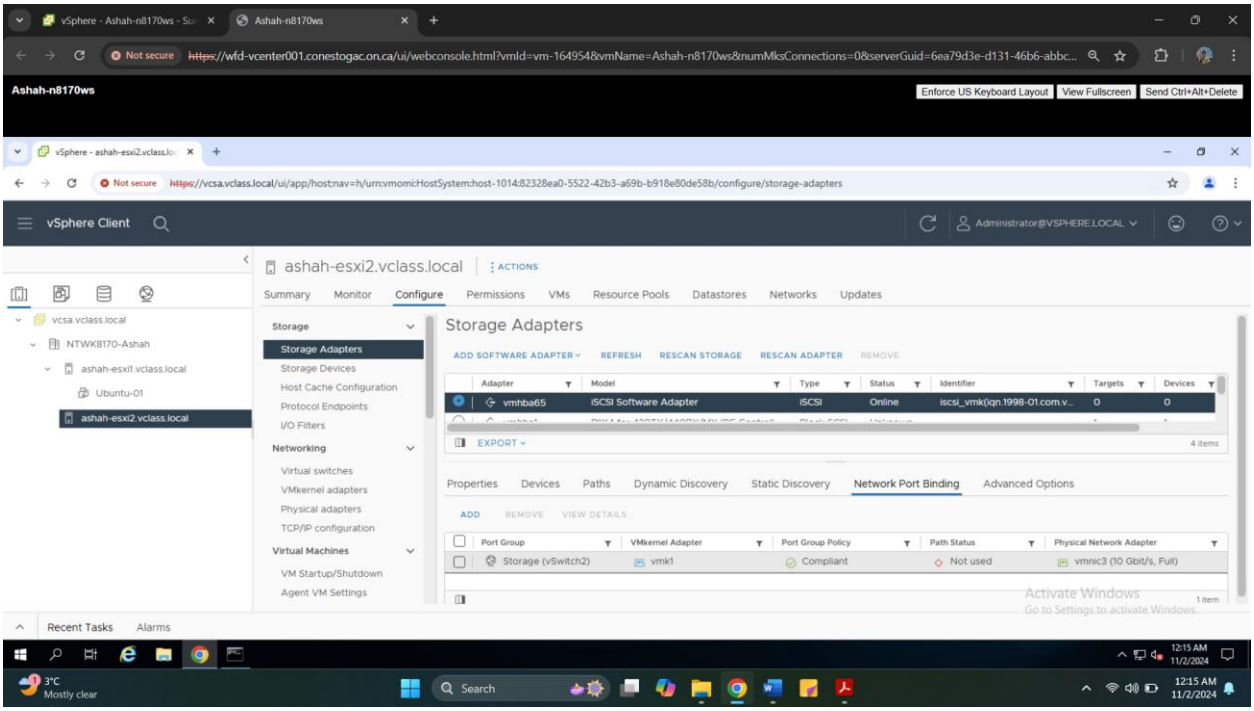
11) Select Devices. The Drive should be there. If it's not there restart your Windows Server VM.
12) Complete **Steps 1-11** on **ESXi2.**

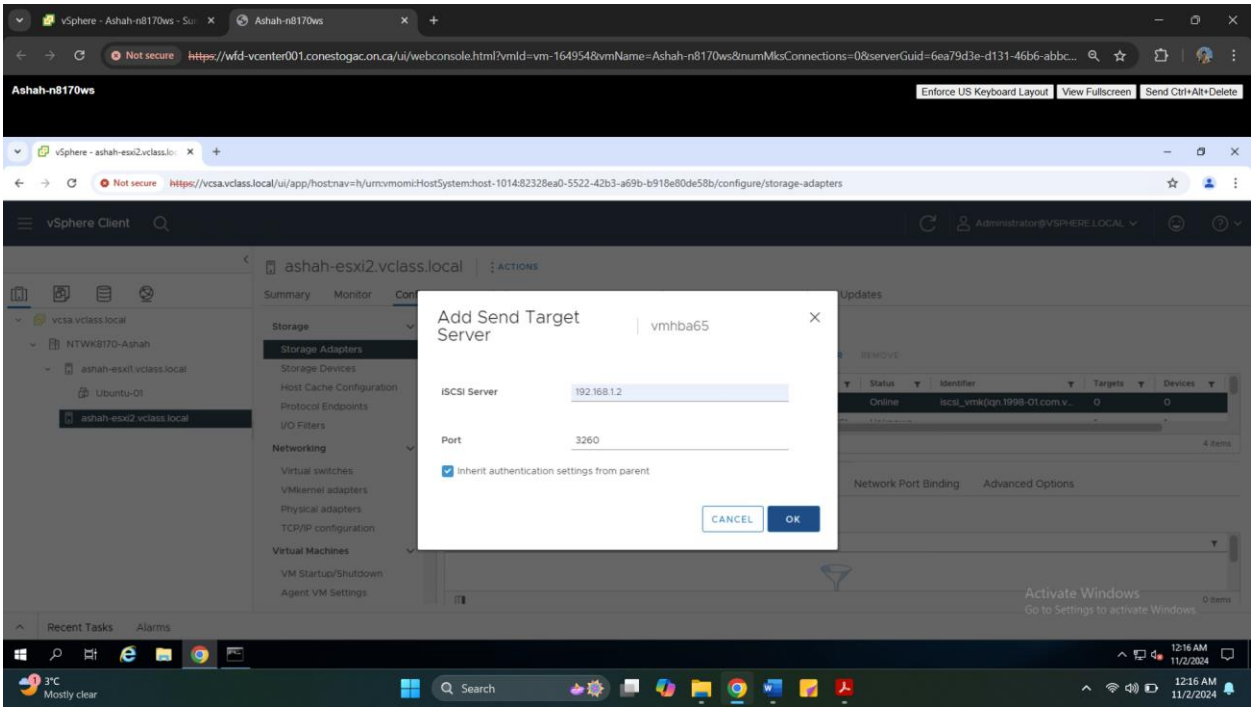


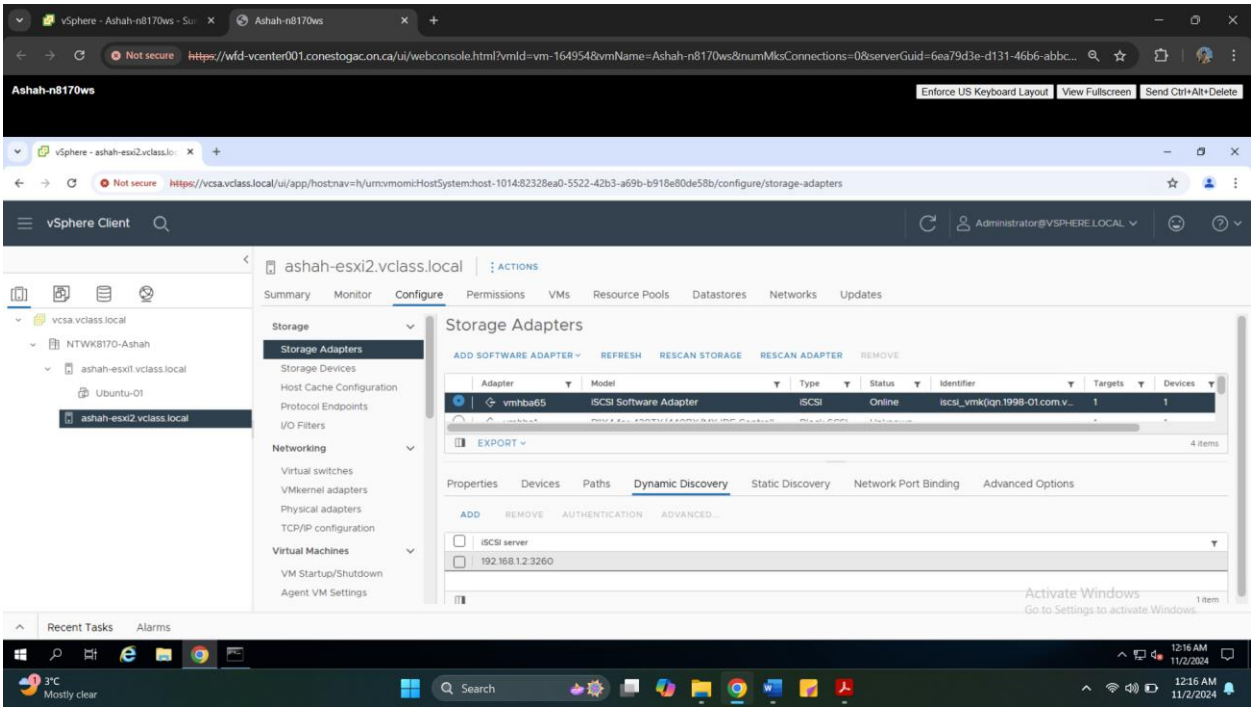



Ashah-n8170ws
Enforce US Keyboard Layout
View Fullscreen
Send Ctrl+Alt+Delete
vSphere Client
ashah-esxi2.vclass.local
Summary
Monitor
Configure
Permissions
VMs
Resource Pools
Datastores
Networks
Updates
Storage Adapters
ADD SOFTWARE ADAPTER
REFRESH
RESCAN STORAGE
RESCAN ADAPTER
vmhba65
iSCSI Software Adapter
Properties
Devices
Paths
Dynamic Discovery
Static Discovery
Network Port Binding
Advanced Options
Recent Tasks
Alarms


Ashah-n8170ws
Enforce US Keyboard Layout
View Fullscreen
Send Ctrl+Alt+Delete
vSphere Client
Bind vmhba65 with VMkernel Adapter
Port Group
VMkernel Adapter
Physical Network Adapter
Management Network (vSwitch0)
vmk0
vmnic0 (10 Gbit/s, Full)
Storage (vSwitch2)
vmk1
vmnic3 (10 Gbit/s, Full)
vmnic1 (10 Gbit/s, Full)
vmnic2 (10 Gbit/s, Full)
Status
Port Group
Switch
VMkernel Adapter
Physical Adapter
Port group policy:
Compliant
Path status:
CANCEL
OK
Recent Tasks
Alarms

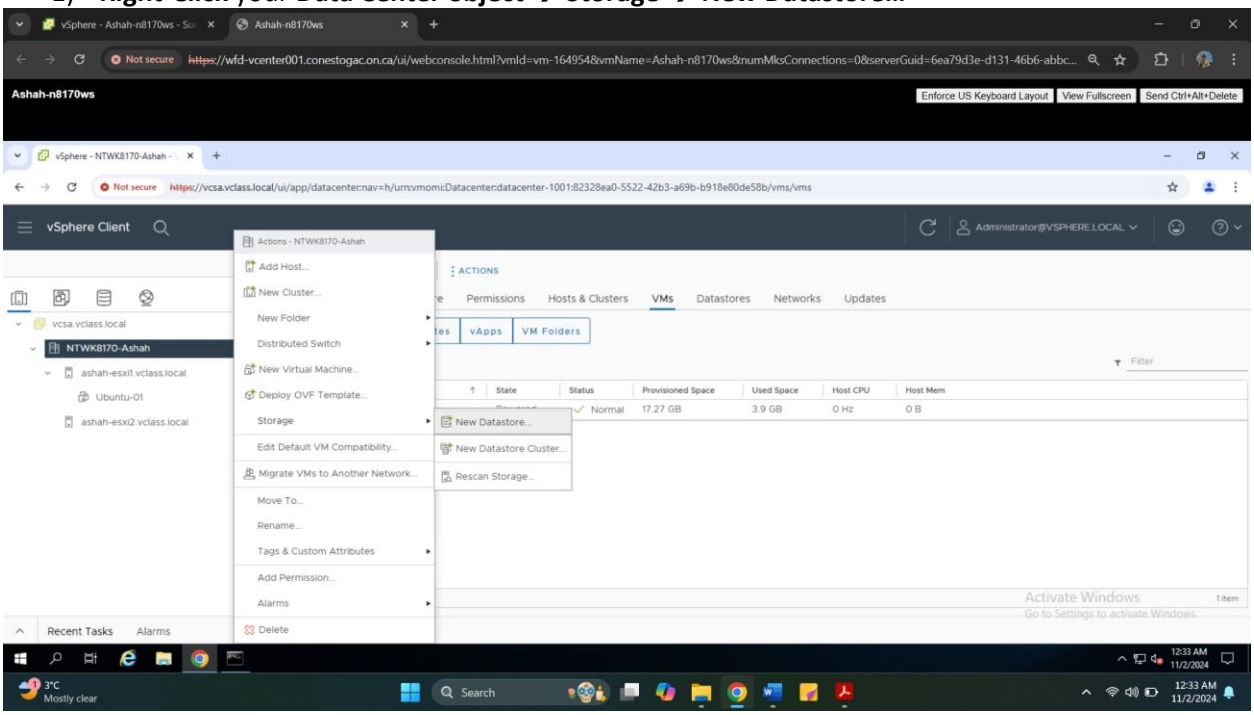

Ashah-n8170ws
Enforce US Keyboard Layout
View Fullscreen
Send Ctrl+Alt+Delete
vSphere Client
ashah-esxi2.vclass.local
Summary
Monitor
Configure
Permissions
VMs
Resource Pools
Datastores
Networks
Updates
Storage Adapters
ADD SOFTWARE ADAPTER
REFRESH
RESCAN STORAGE
RESCAN ADAPTER
vmhba65
iSCSI Software Adapter
Properties
Devices
Paths
Dynamic Discovery
Static Discovery
Network Port Binding
Advanced Options
Recent Tasks
Alarms


Ashah-n8170ws
Enforce US Keyboard Layout
View Fullscreen
Send Ctrl+Alt+Delete
Add Send Target Server
vmhba65
iSCSI Server
192.168.1.2
Port
3260
Inherit authentication settings from parent
CANCEL
OK

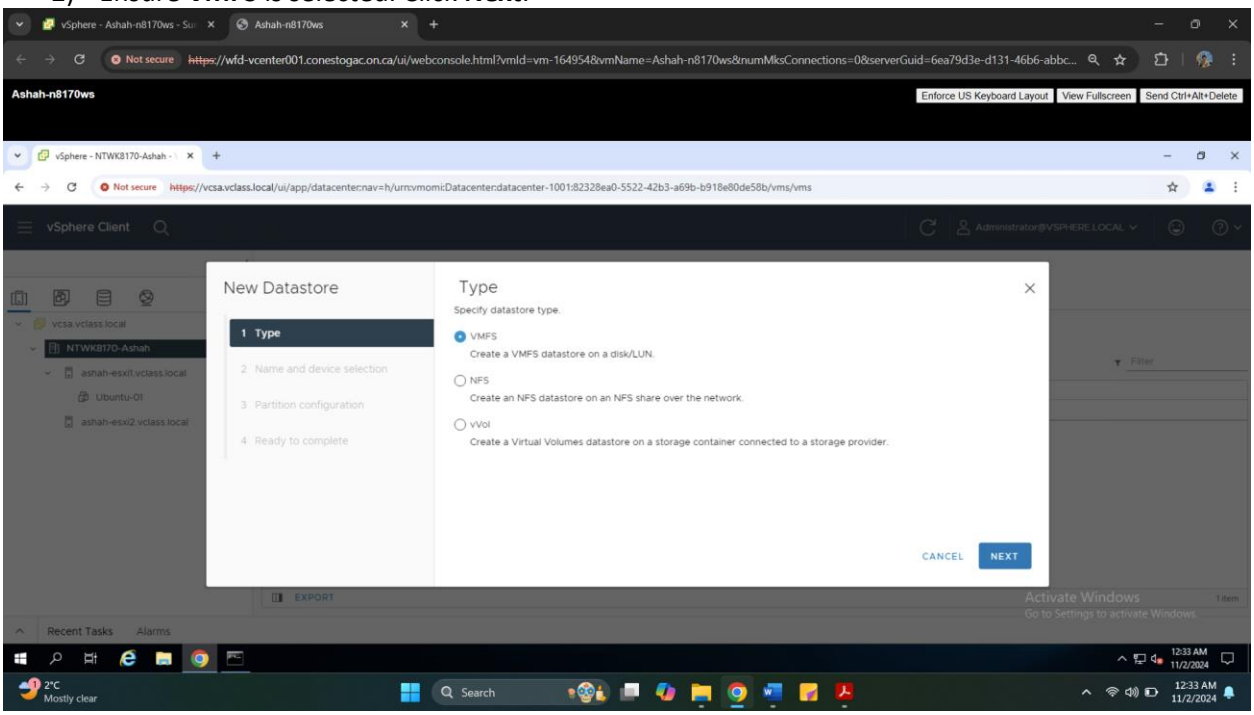


Section 6: Creating the ISCSi shared datastore

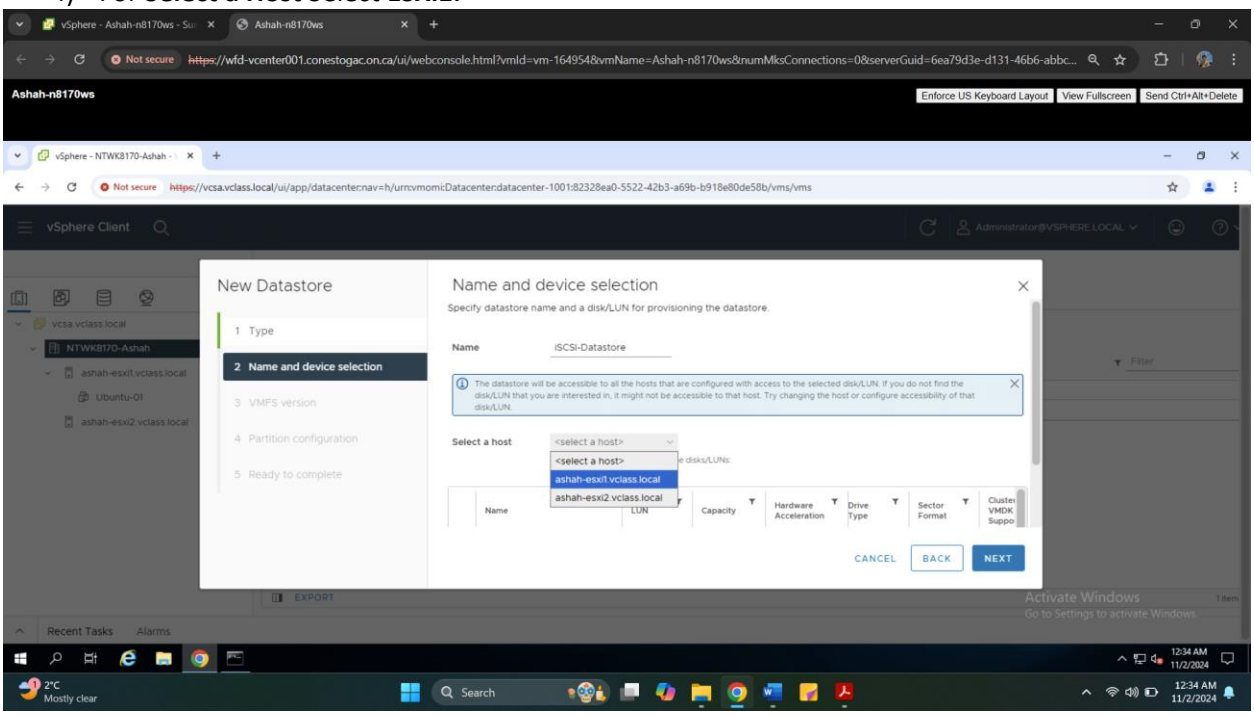
1) **Right-Click** your **Data Center object → Storage → New Datastore…**



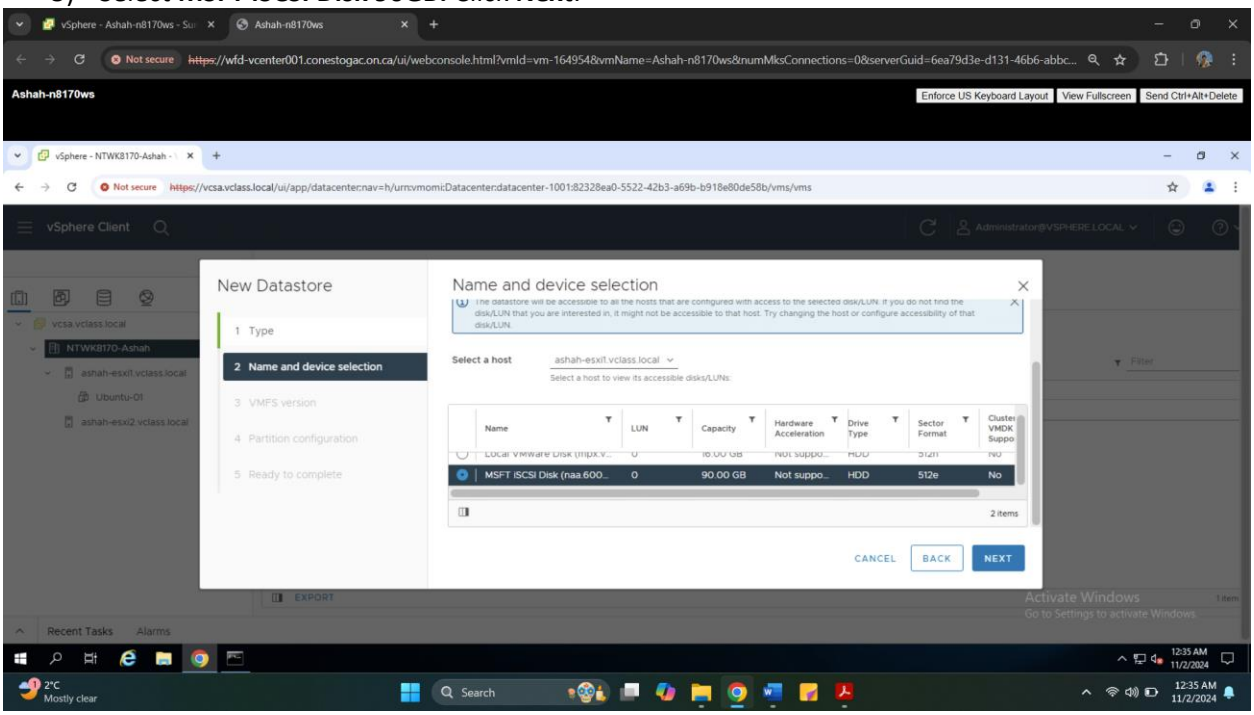
2) Ensure **VMFS** is selected. Click **Next**.



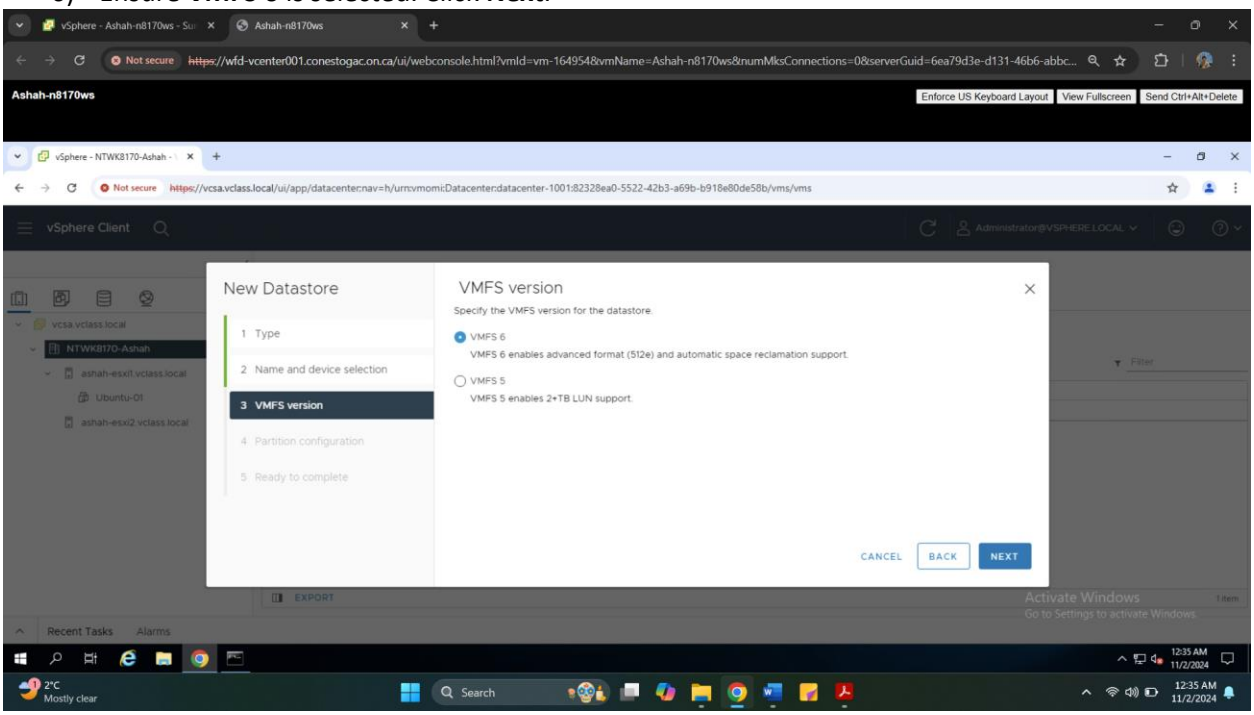
3) On **Name and Device selection** for **Name** type in **iSCSI-Datastore**
4) For **Select a Host** Select **ESXi1.**



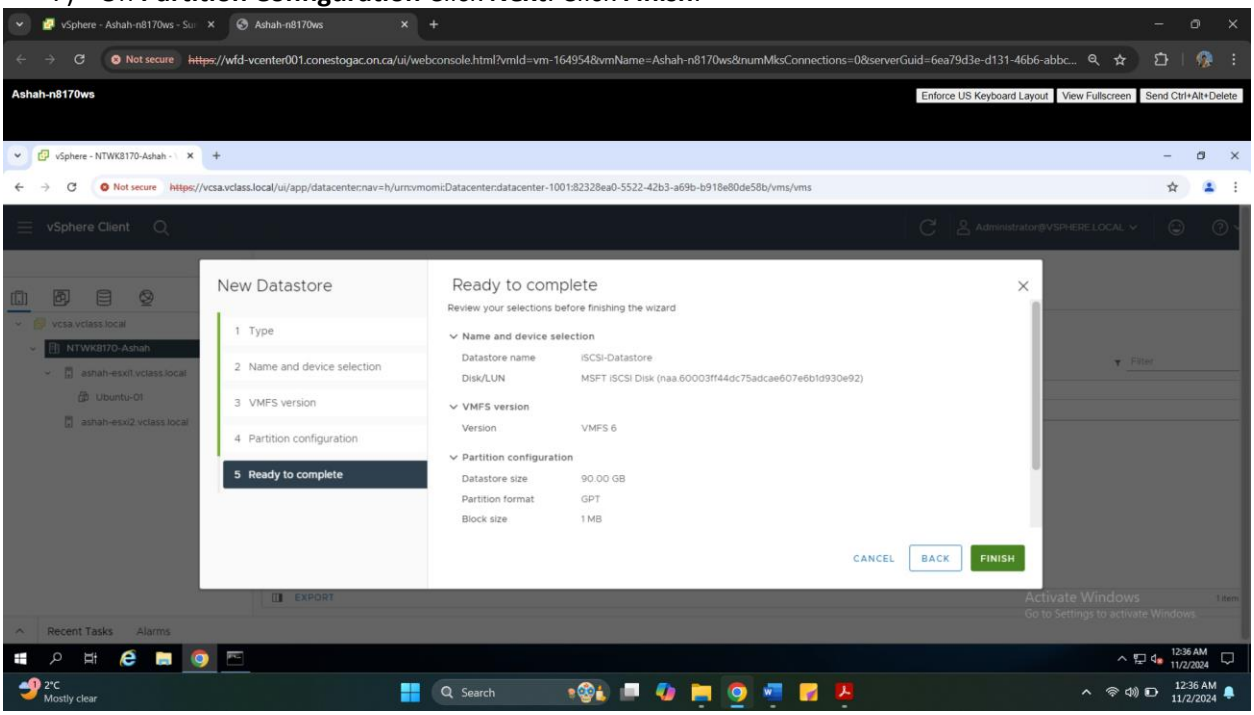
5) Select **MSFT iSCSI Disk 90GB.** Click **Next**.



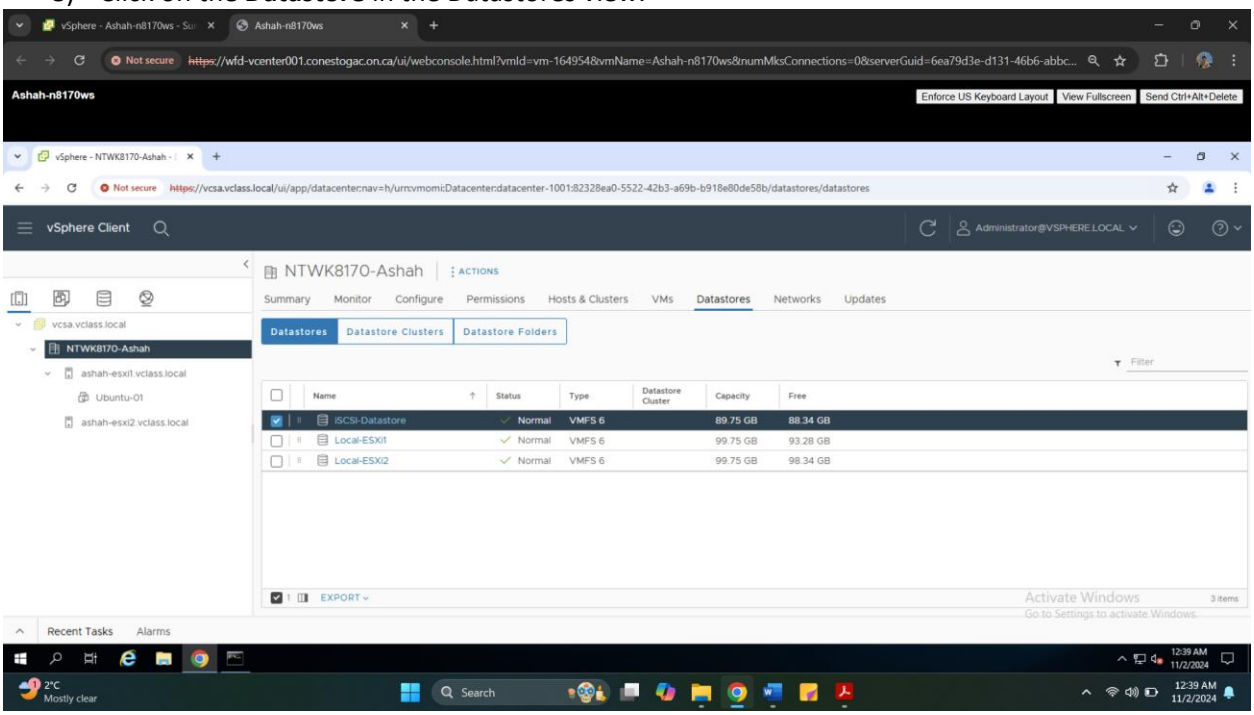
6) Ensure **VMFS 6** is selected. Click **Next**.



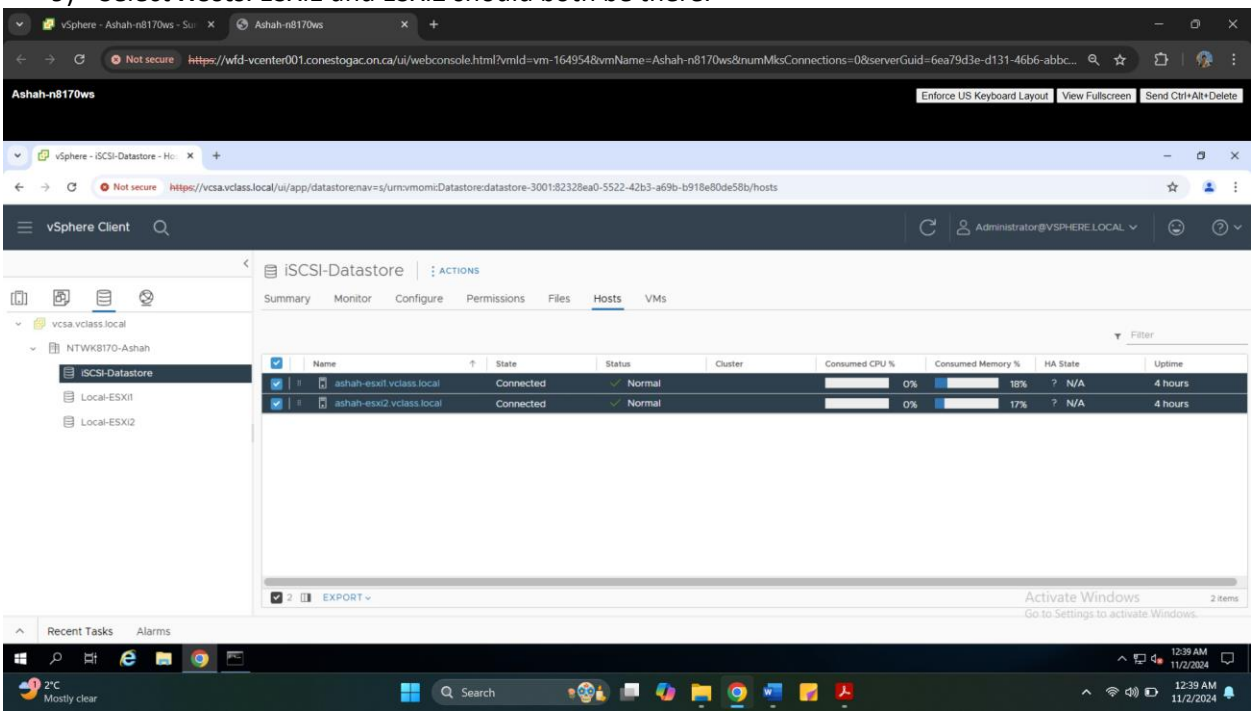
7) On **Partition Configuration** Click **Next**. Click **Finish**.



8) Click on the **Datastore** in the Datastores view.

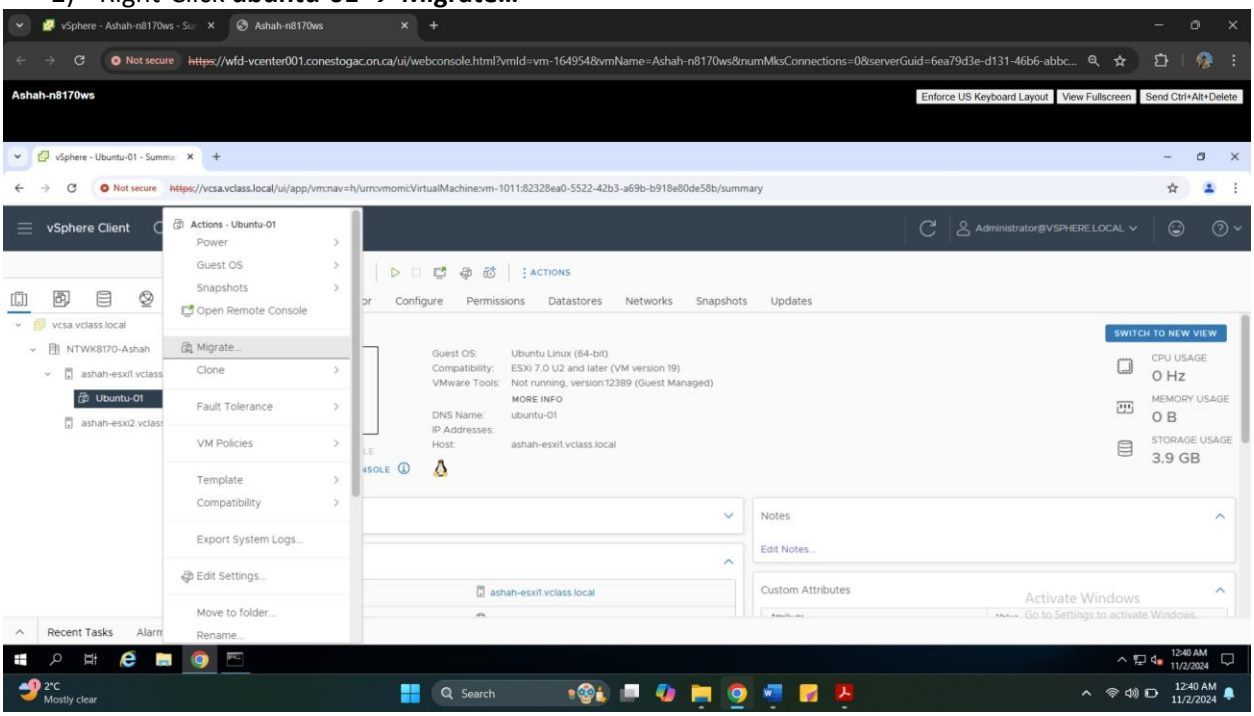


9) Select **Hosts**. ESXi1 and ESXi2 should both be there.

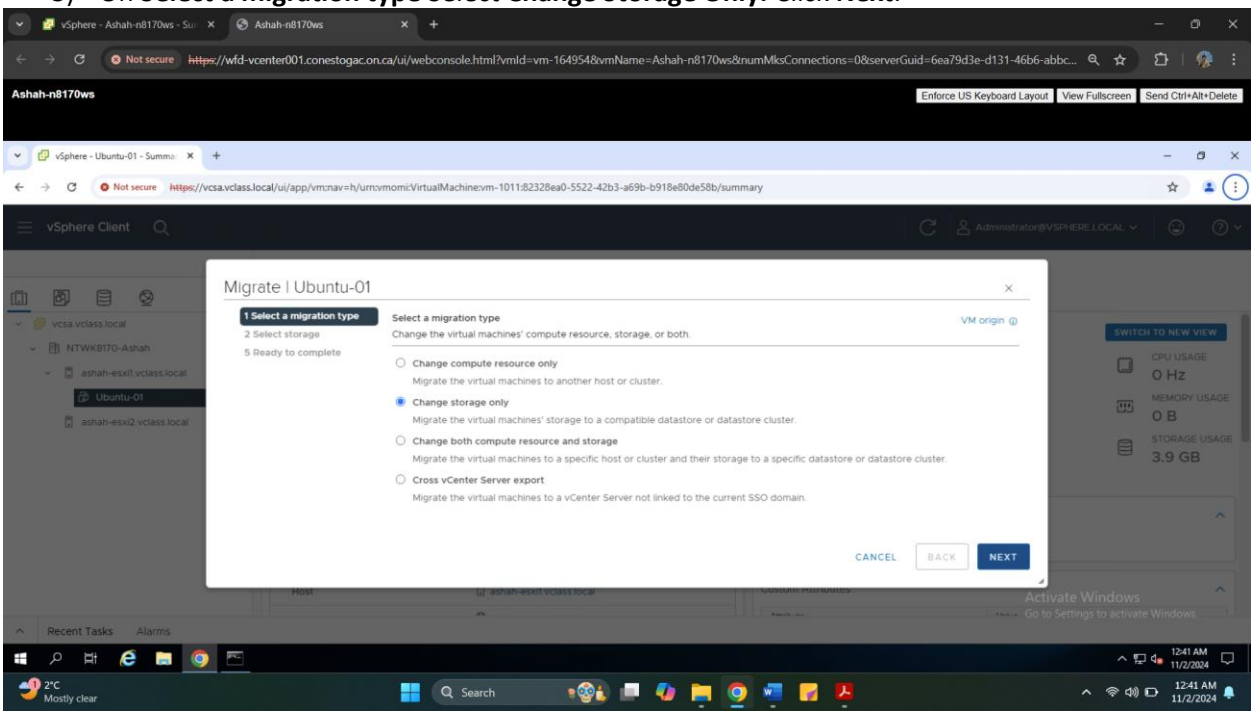


Section 7: Migrating ubuntu-01 to the iSCSI Datastore

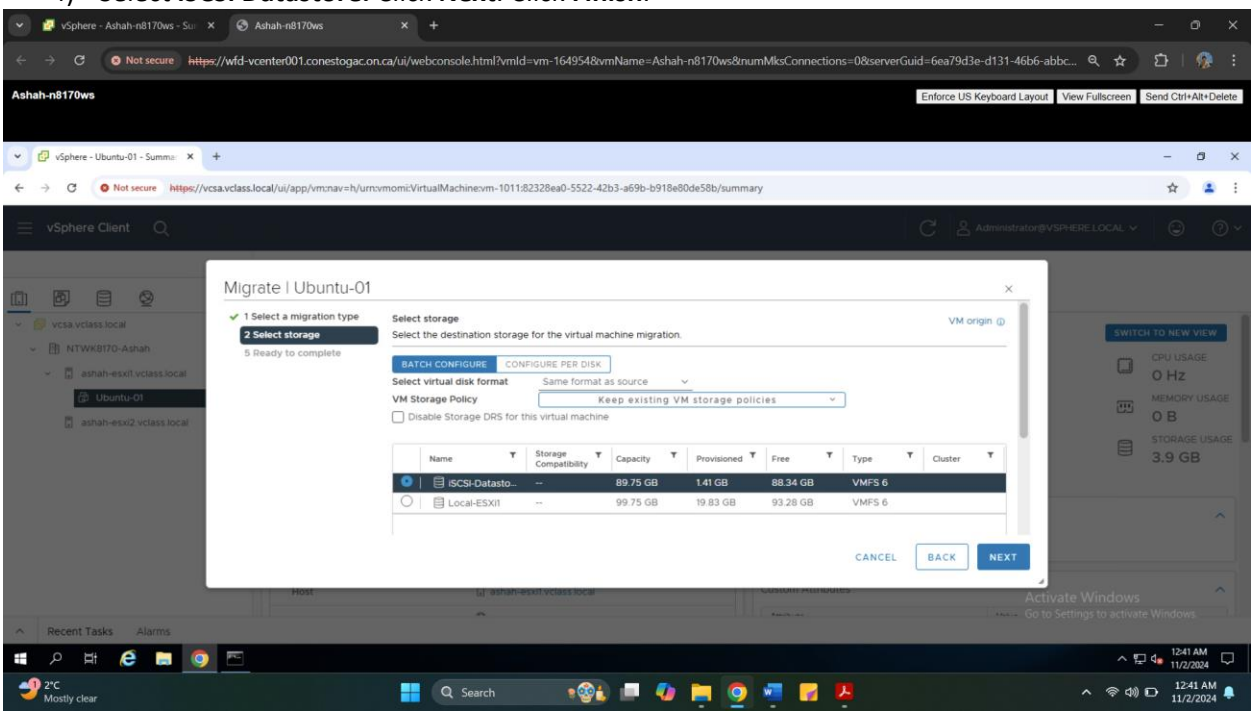
1) Make sure that your ubuntu-01 VM is powered off.
2) Right-Click **ubuntu-01 → Migrate…**

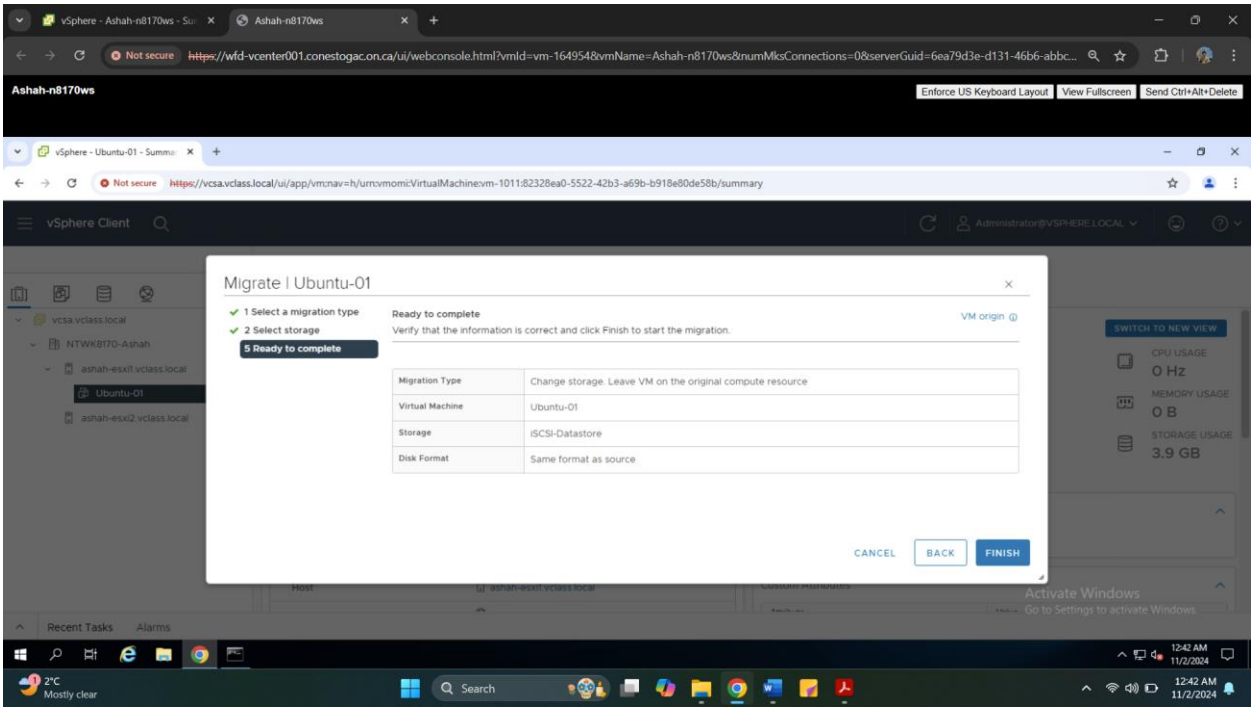


3) On **Select a migration type** Select **Change Storage Only.** Click **Next**.



4) Select **iSCSi Datastore.** Click **Next**. Click **Finish**.



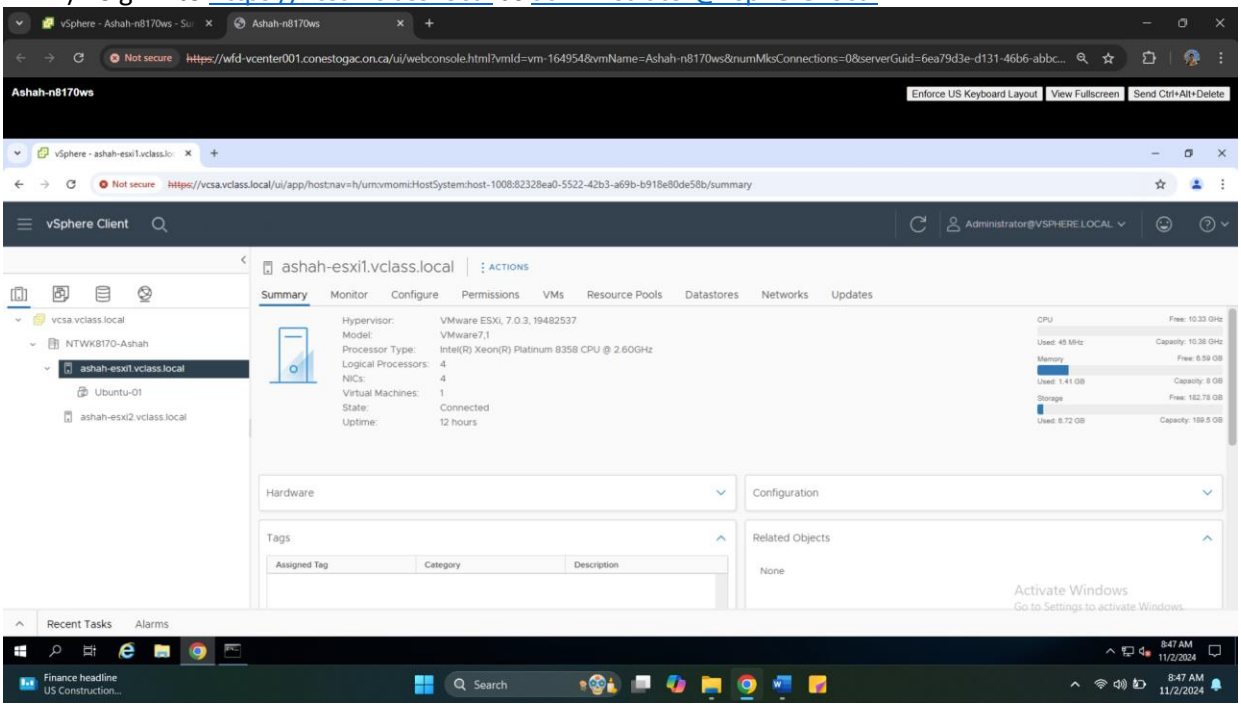


LAB 10

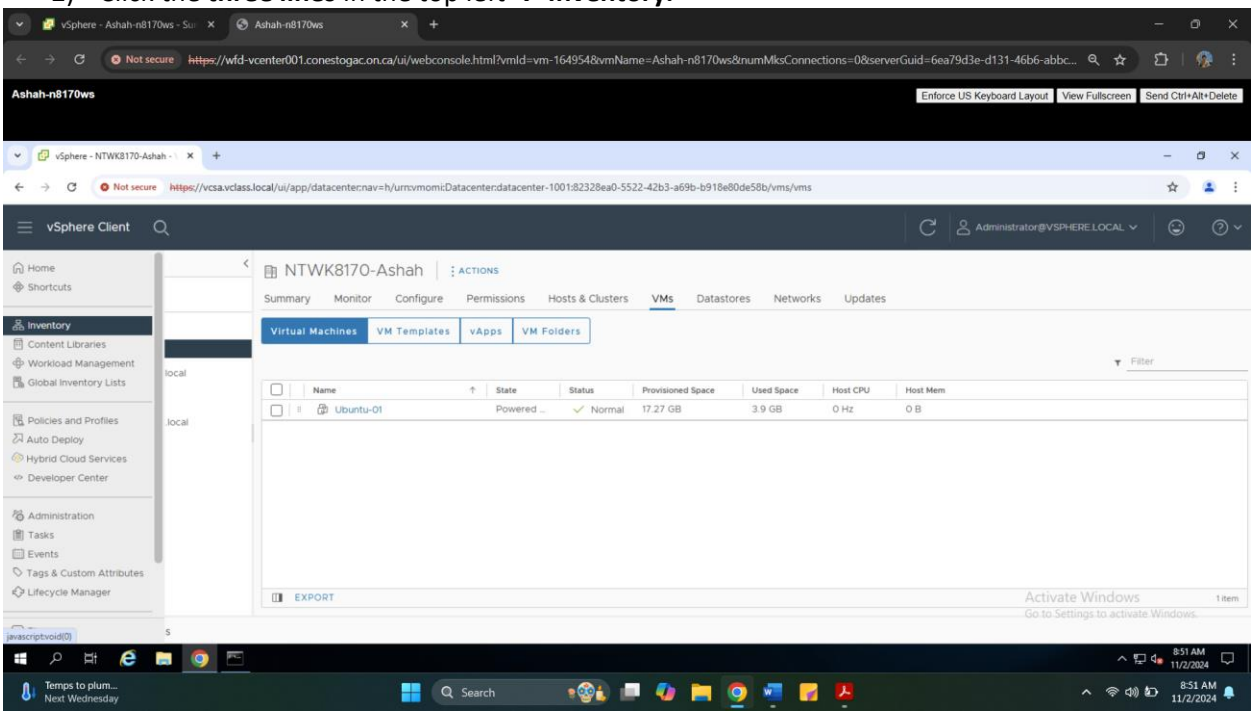
NTWK8170 – Virtualization with VMware vSphere Lab 10: Managing Virtual Machines

Section 1: Creating Folders and moving VMs

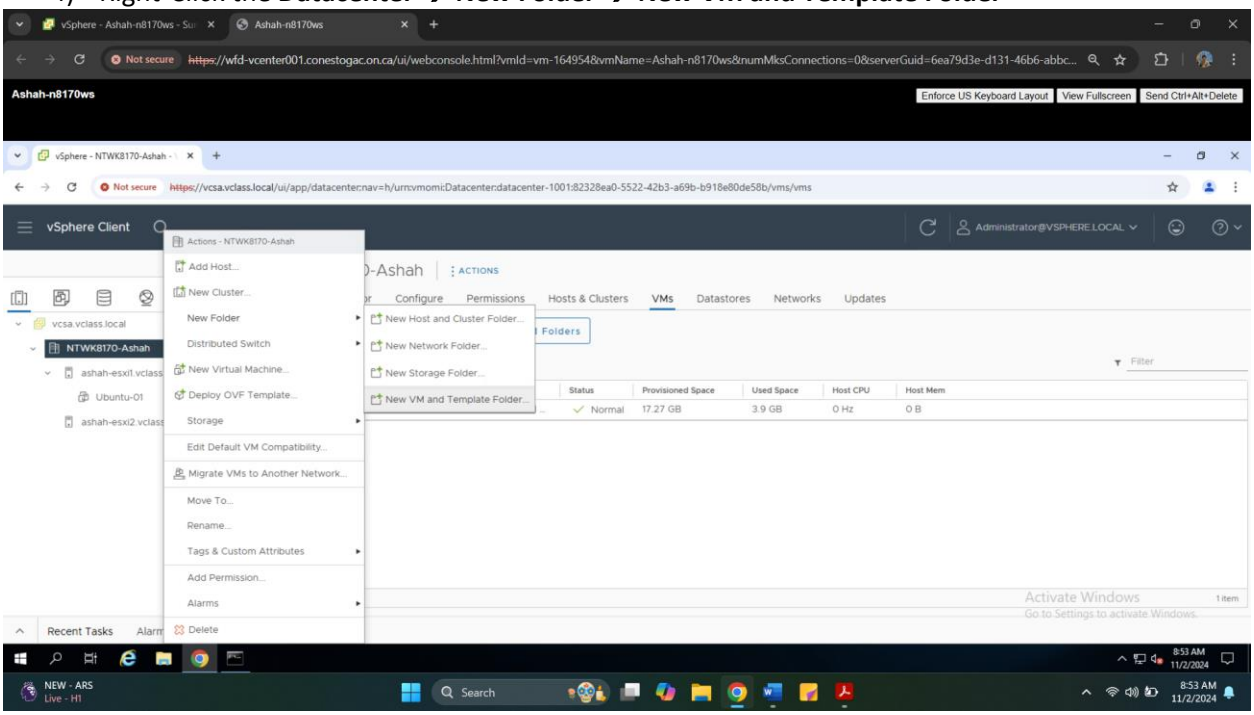
1) Sign into https://vcsa.vclass.local as administrator@vsphere.local



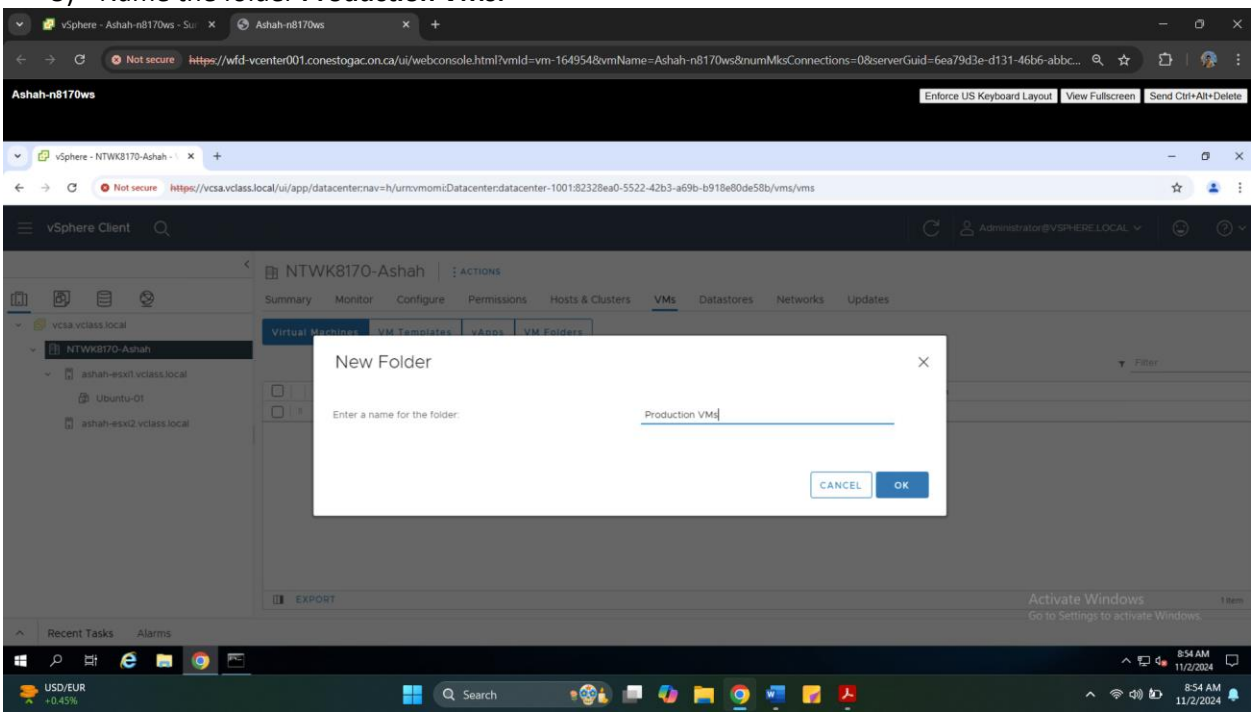
2) Click the **three lines** in the top left → **Inventory.**



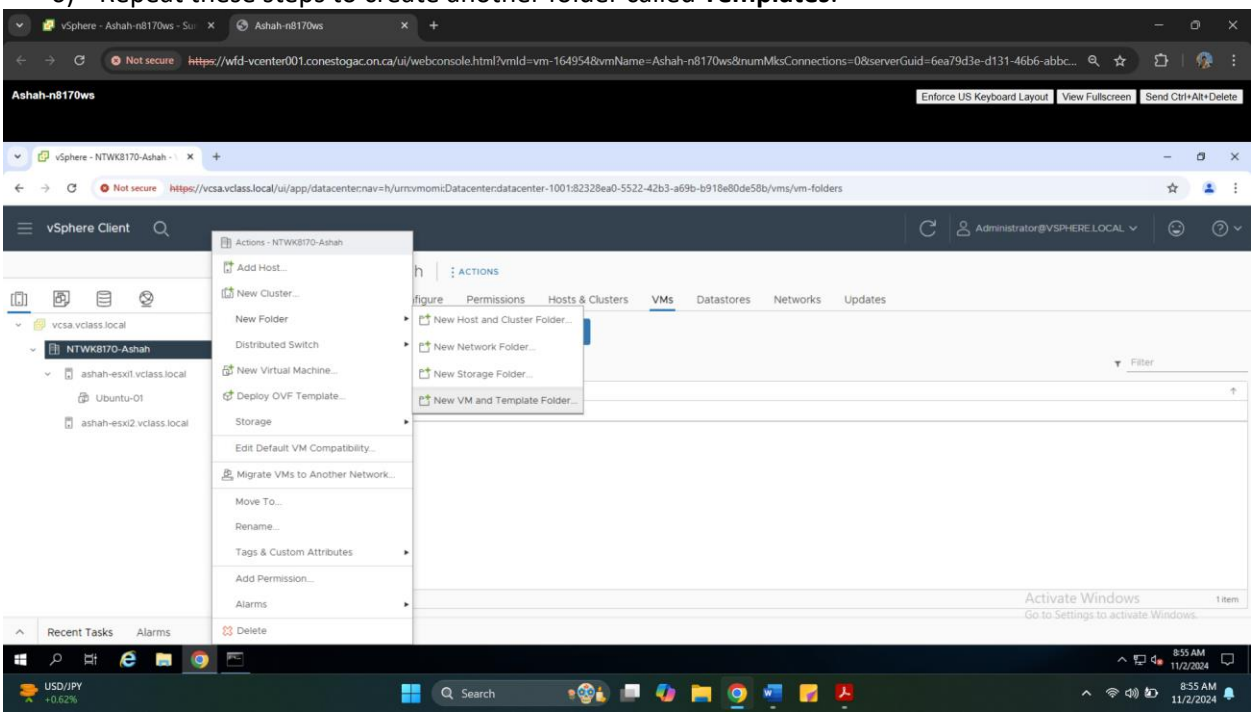
3) Select the **VMs** next to the **three servers**.
4) Right-Click the **Datacenter → New Folder → New VM and Template Folder**

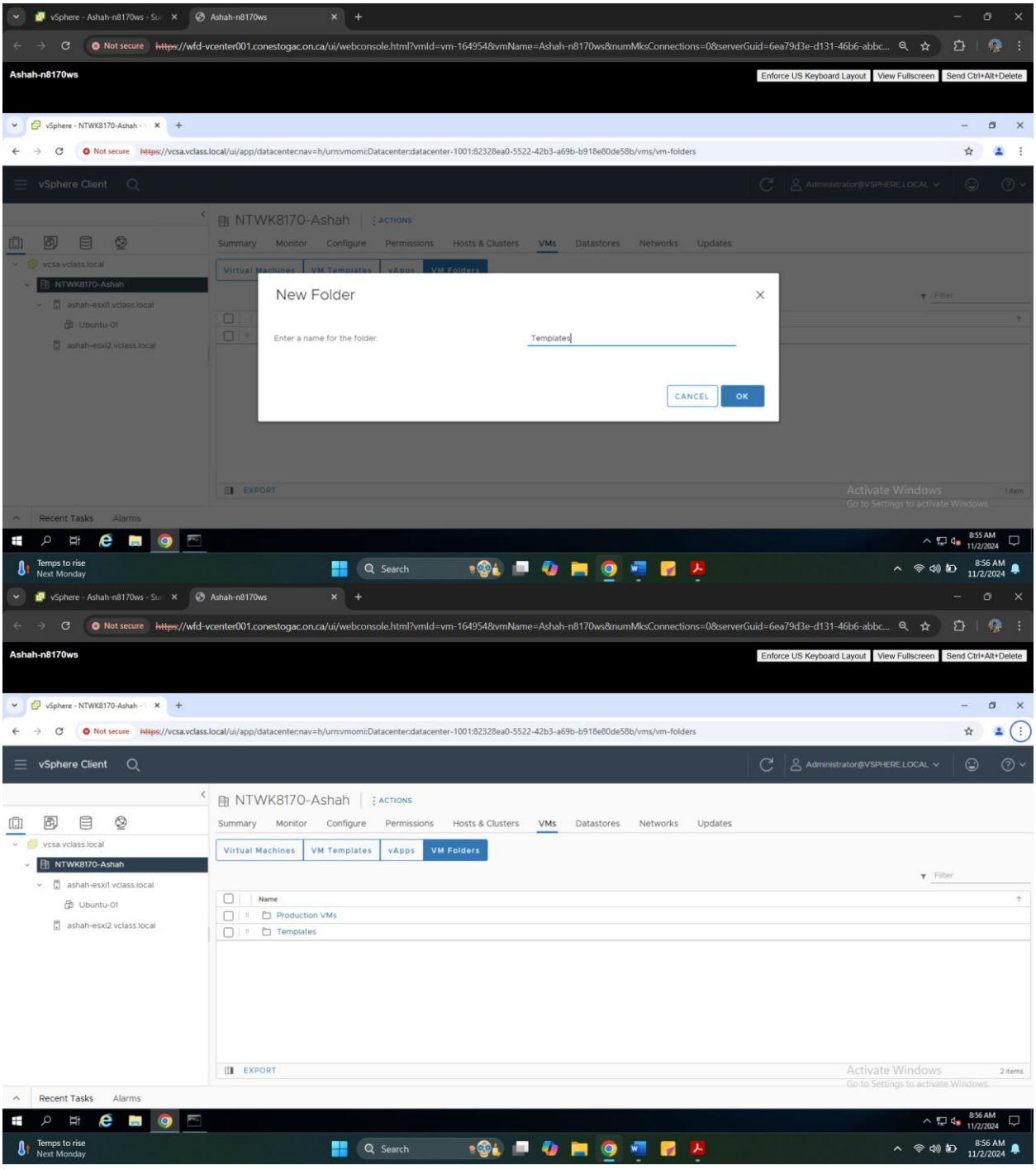


5) Name the folder **Production VMs.**

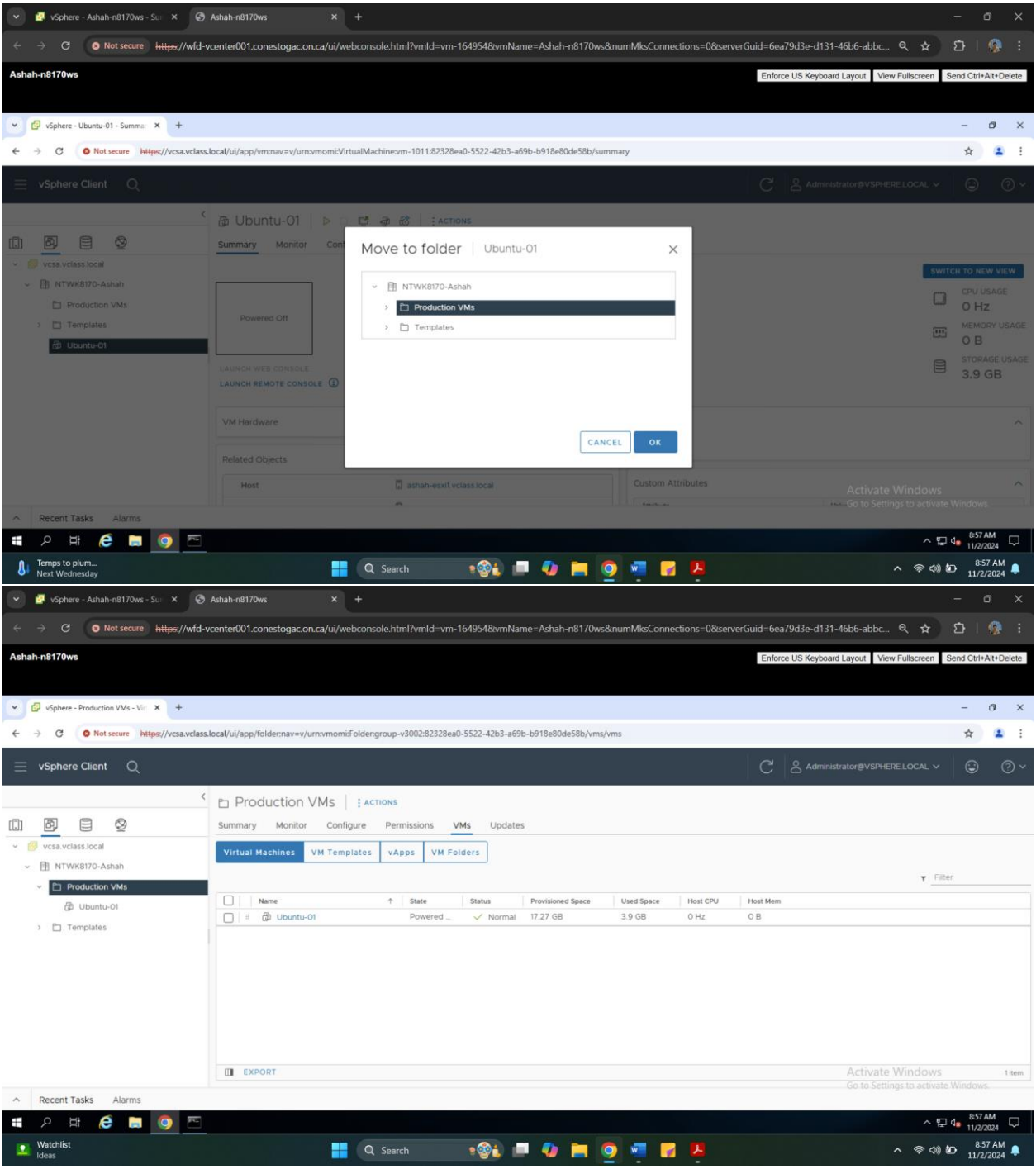


6) Repeat these steps to create another folder called **Templates**.



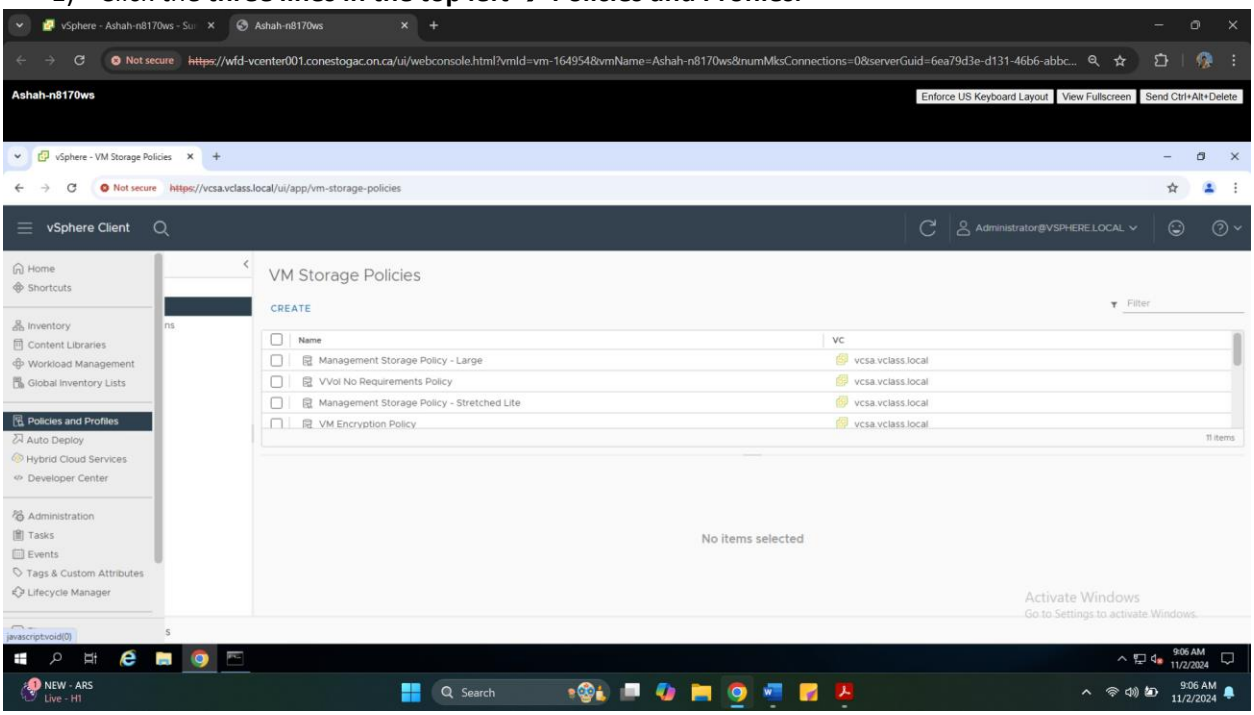

Ashah-n8170ws
Enforce US Keyboard Layout
View Fullscreen
Send Ctrl+Alt+Delete
vSphere Client
NTWK8170-Ashah
ACTIONS
Summary
Monitor
Configure
Permissions
Hosts & Clusters
VMs
Datastores
Networks
Updates
Virtual Machines
VM Templates
vApps
VM Folders
New Folder
Enter a name for the folder:
Templates
CANCEL
OK
Name
Production VMs
Templates
EXPORT
Recent Tasks
Alarms
Activate Windows
Go to Settings to activate Windows.
Search
Temps to rise
Next Monday
8:55 AM
11/2/2024
8:56 AM
11/2/2024

7) Click and drag **Ubuntu-01** over to the Production VMs folder. You can also Right-Click → **Move**.. and select the **folder**.

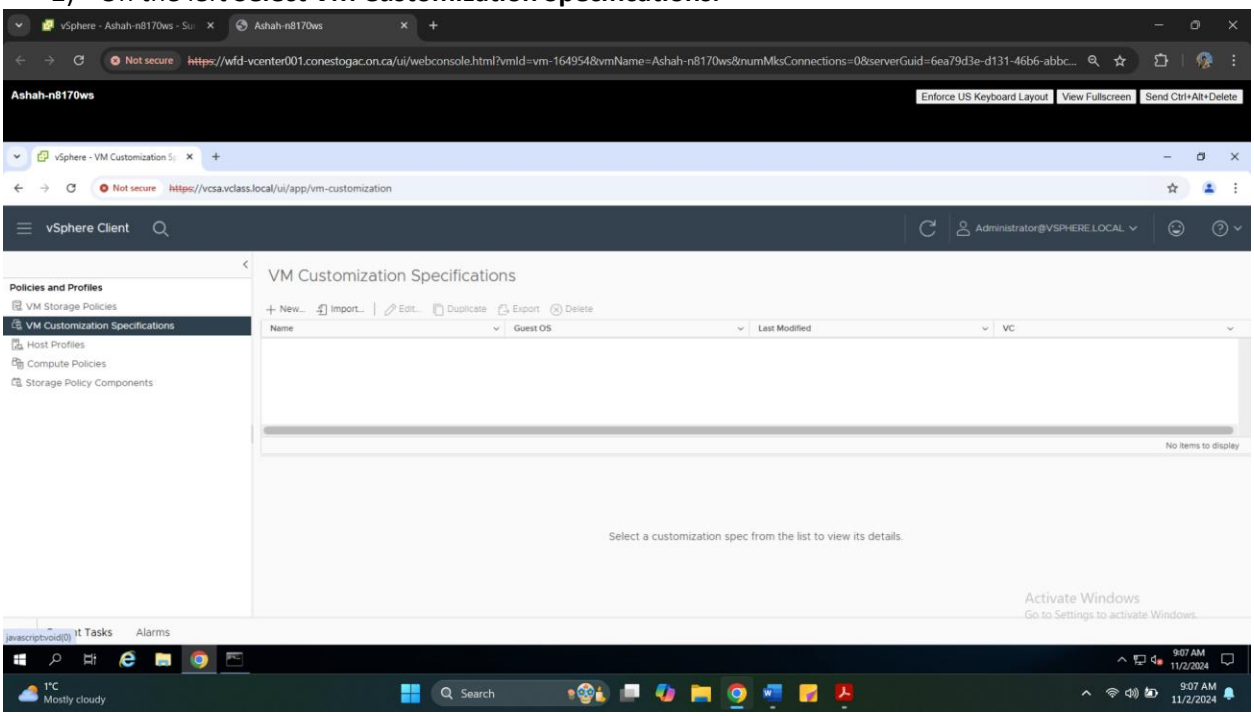


Section 2: Creating a Guest-OS Customization

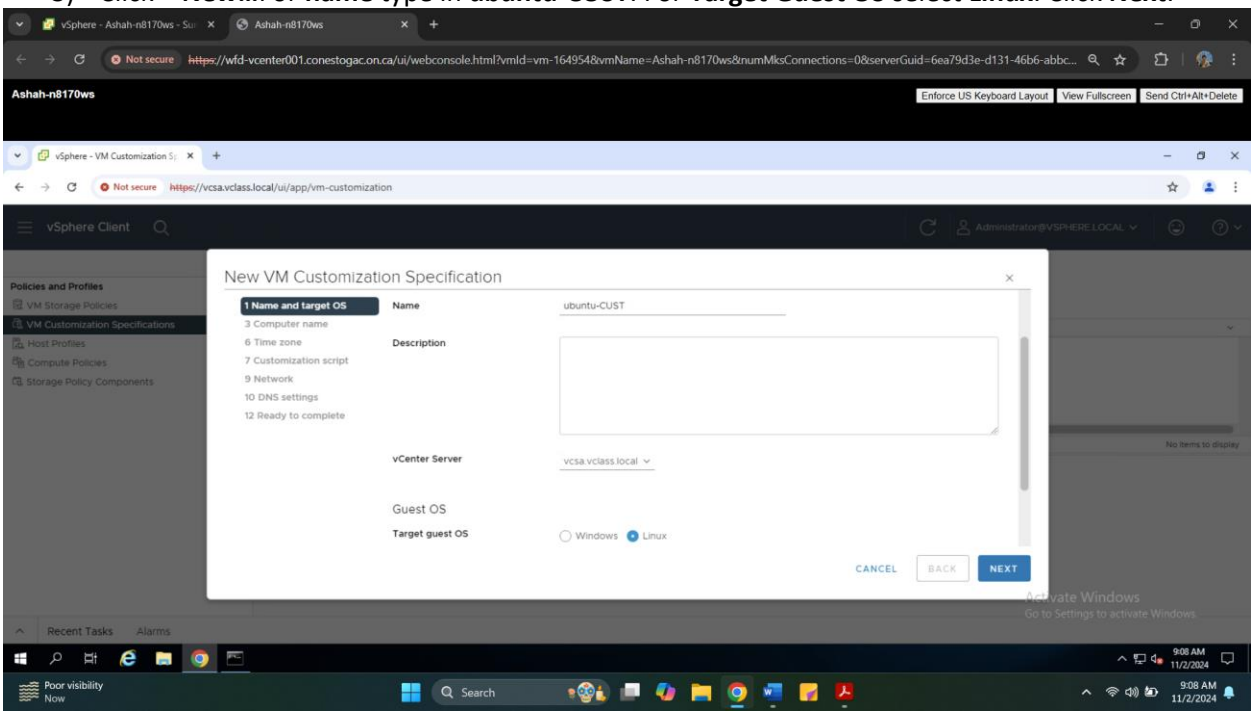
1) Click the **three lines in the top left → Policies and Profiles.**



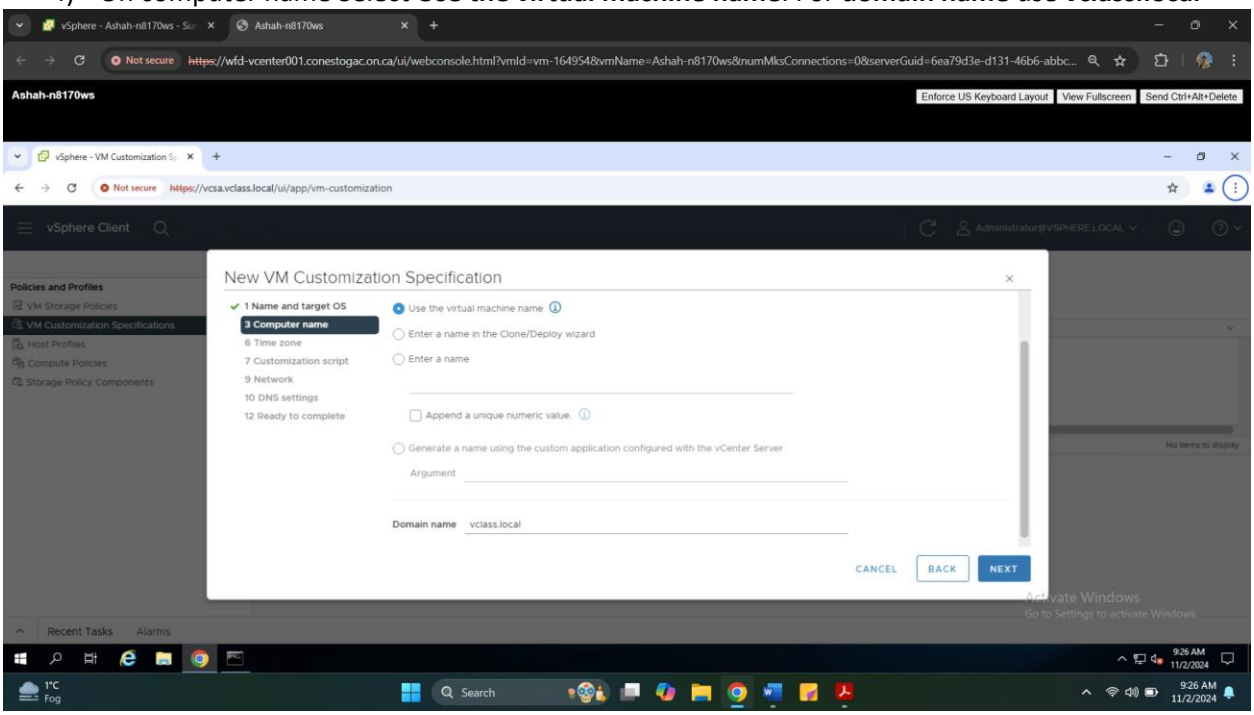
2) On the left **Select VM Customization Specifications.**



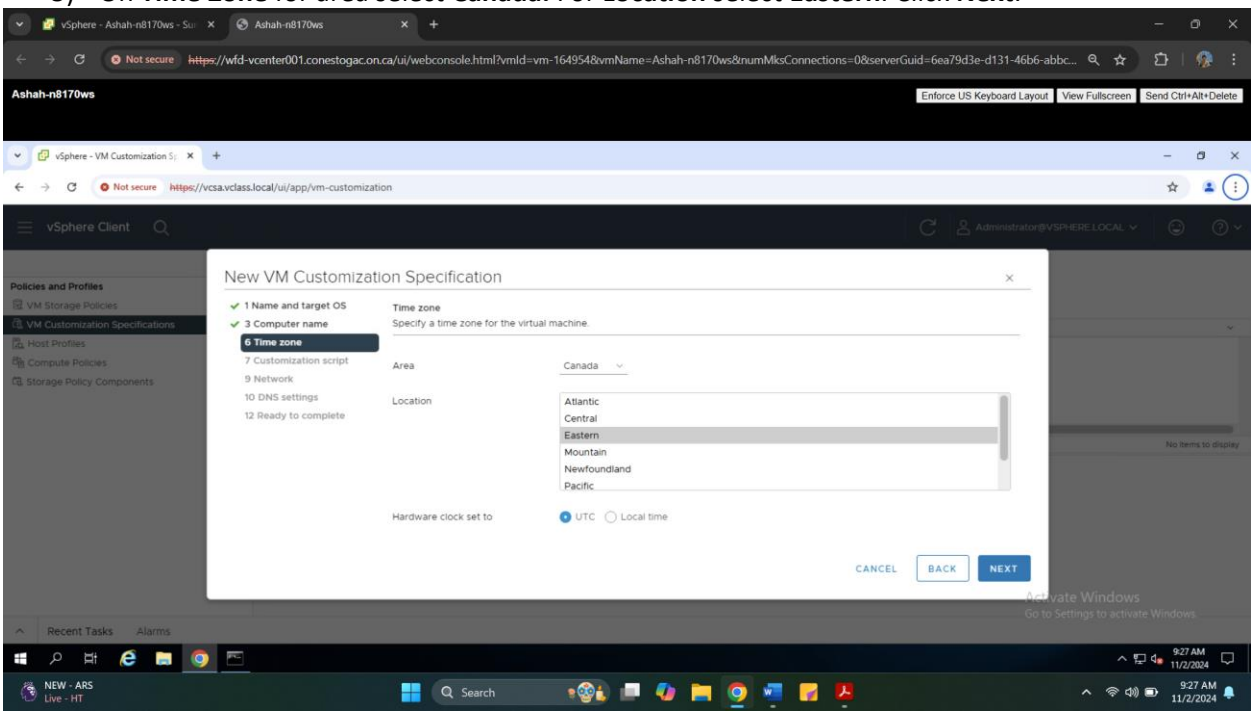
3) Click + **New…**For **name** type in **ubuntu-CUST**. For **Target Guest OS** select **Linux**. Click **Next**.



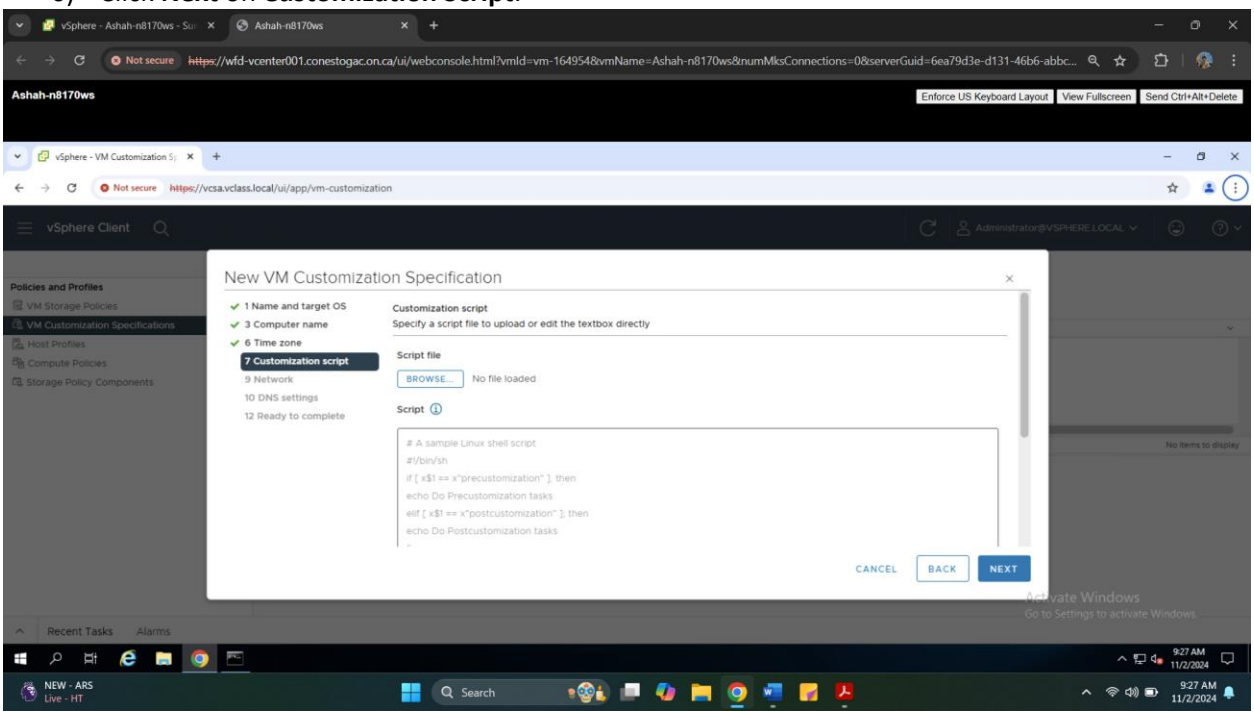
4) On computer name Select **Use the virtual machine name**. For **domain name** use **vclass.local**



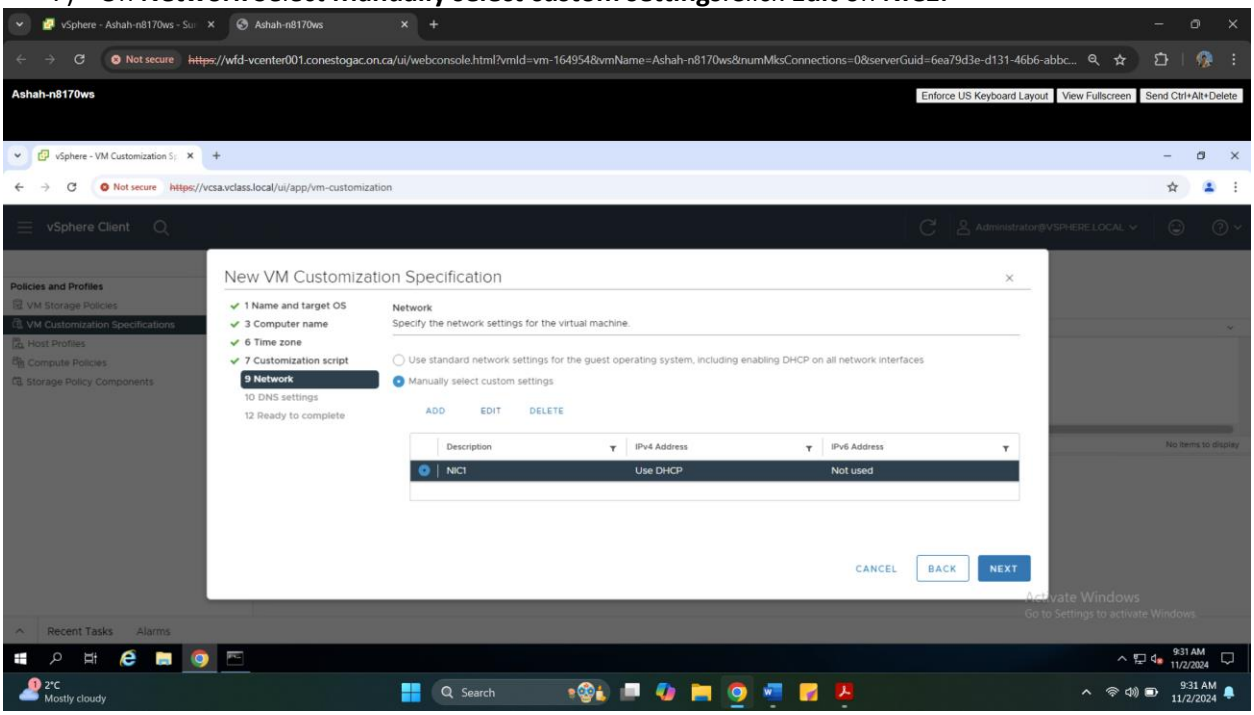
5) On **Time Zone** for area select **Canada.** For **Location** select **Eastern**. Click **Next**.



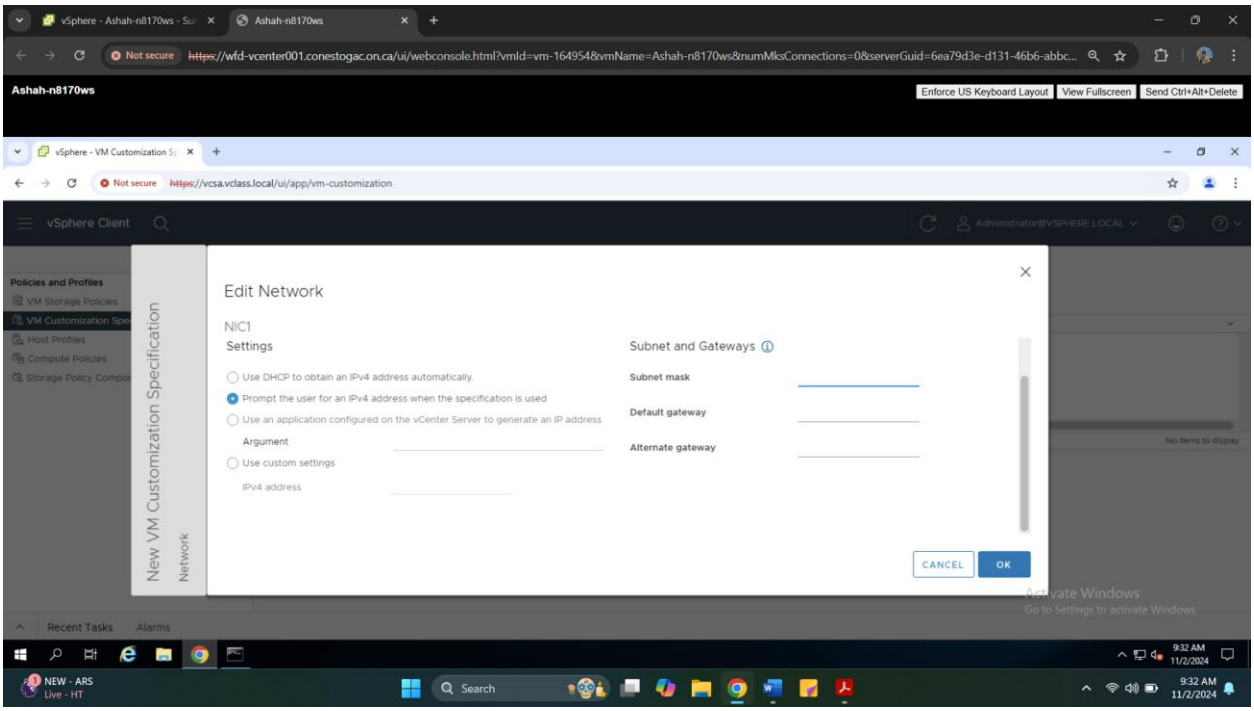
6) Click **Next** on **Customization Script**.

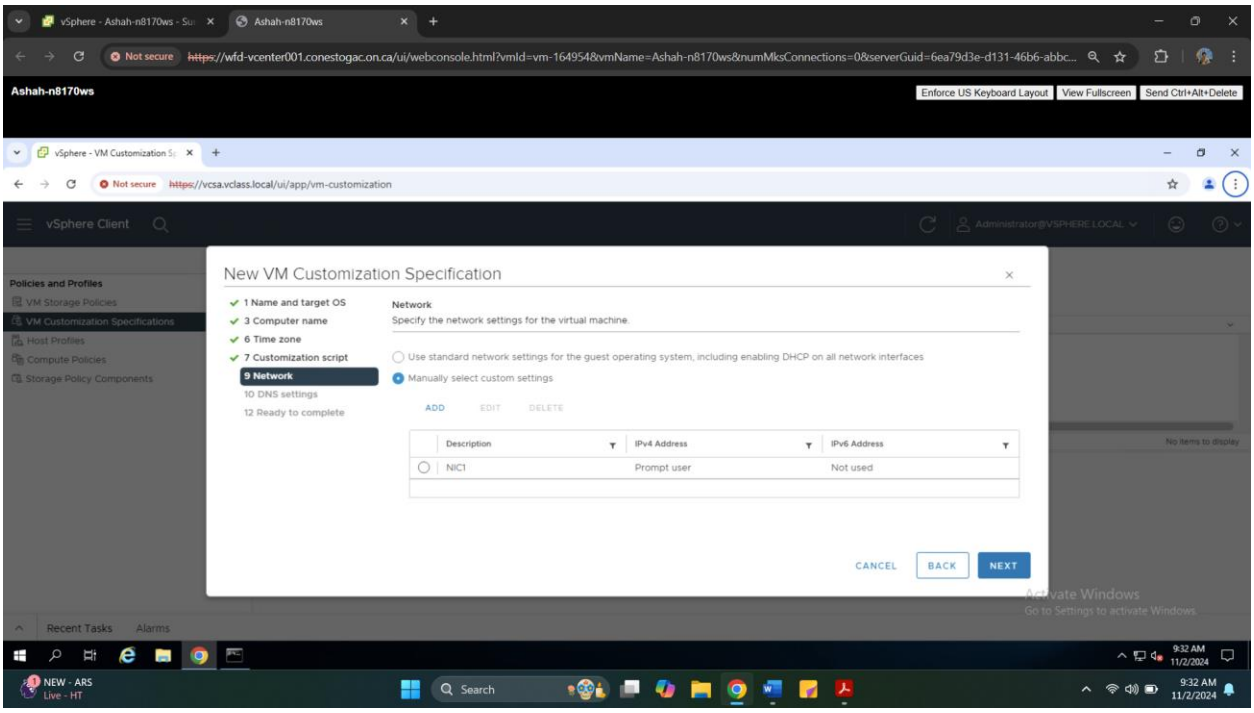


7) On **Network** Select **Manually select custom settings**.Click **Edit** on **NIC1.**

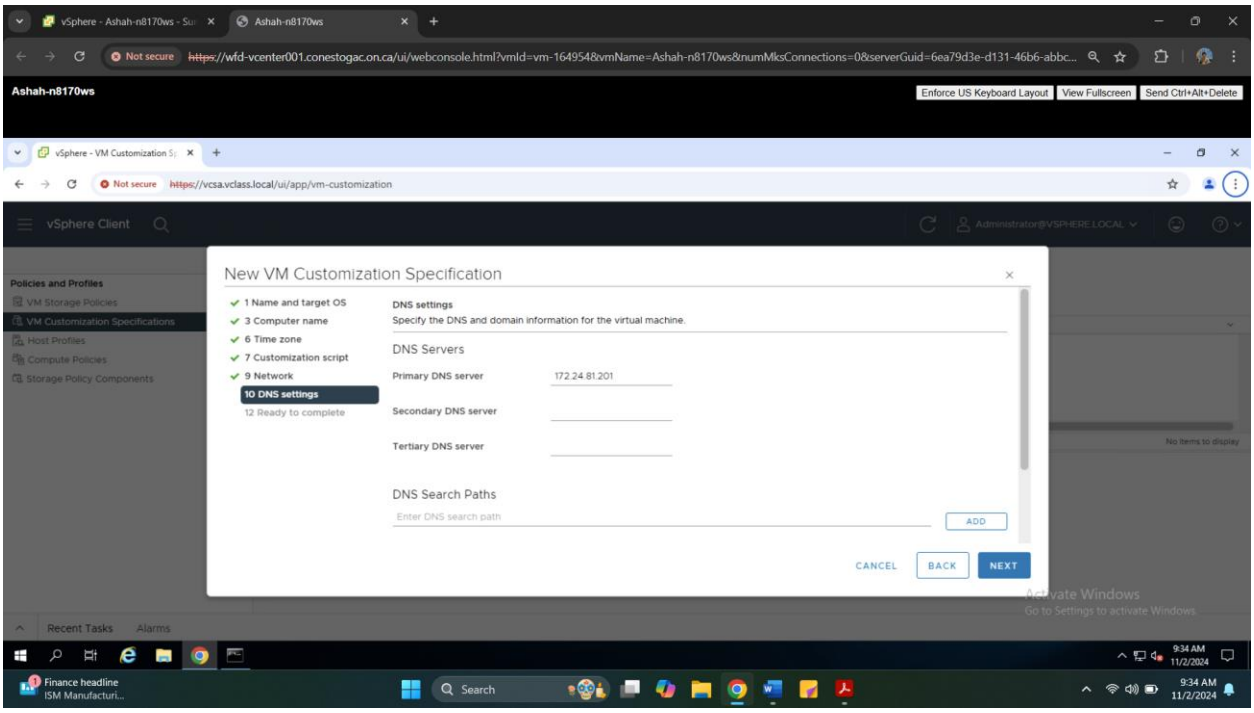


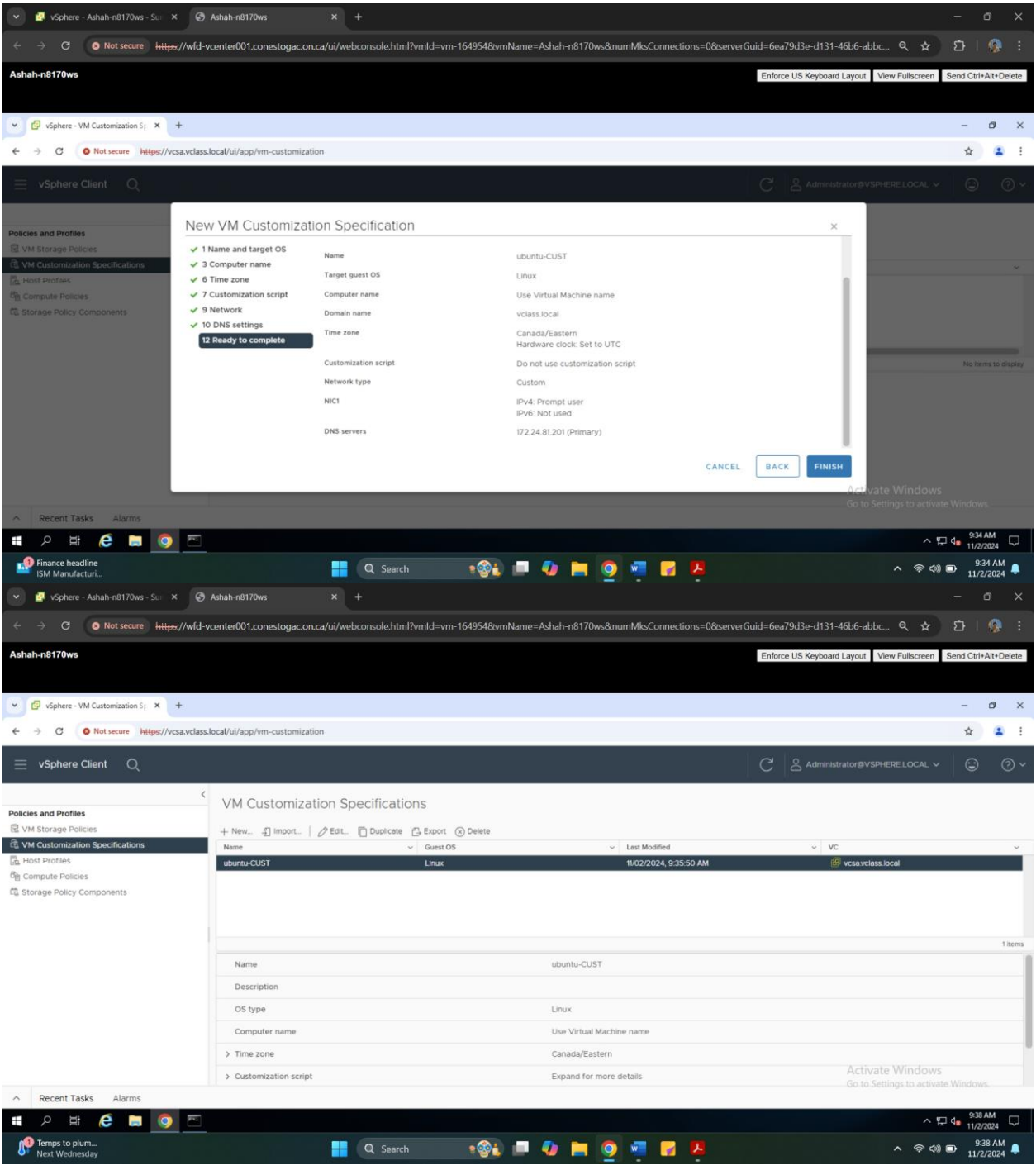
8) In **Edit Network** Select **Prompt the user for the IPv4 address when the specification is used.** Click **Ok**.Click **Next**.





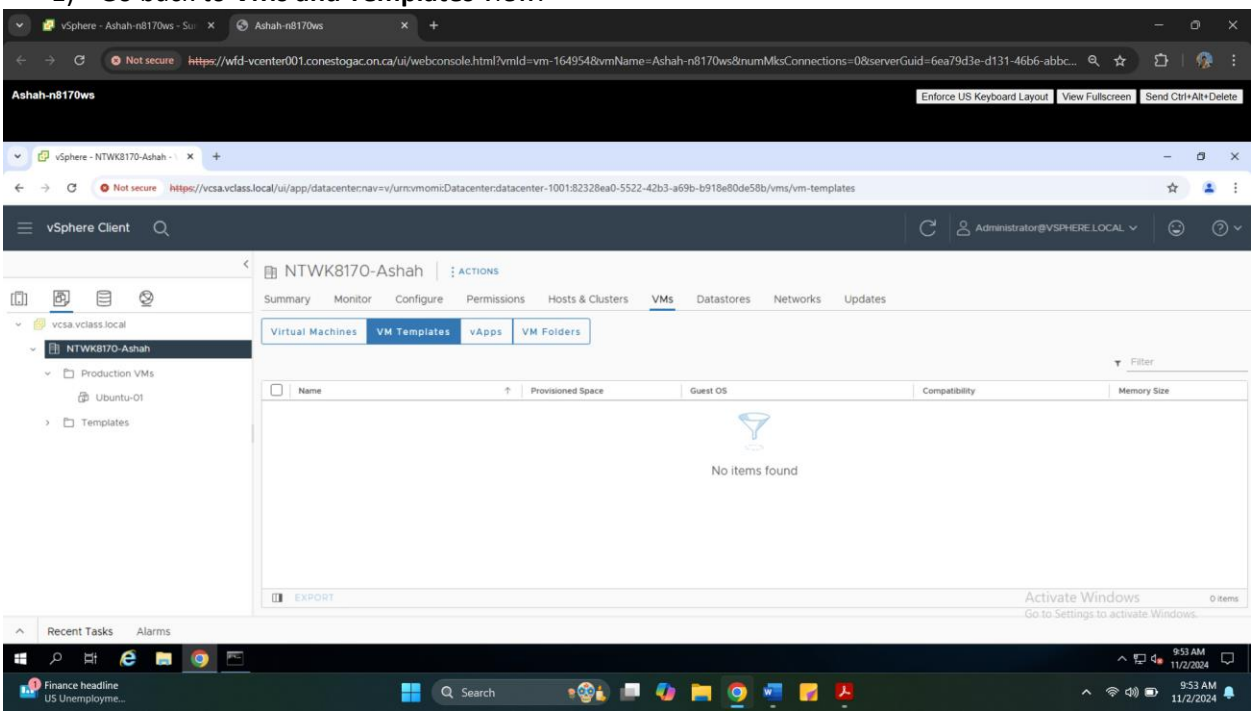
9) On **DNS settings** for **Primary DNS server** type in your Windows VM IP address. Click **Next** then **Finish**.



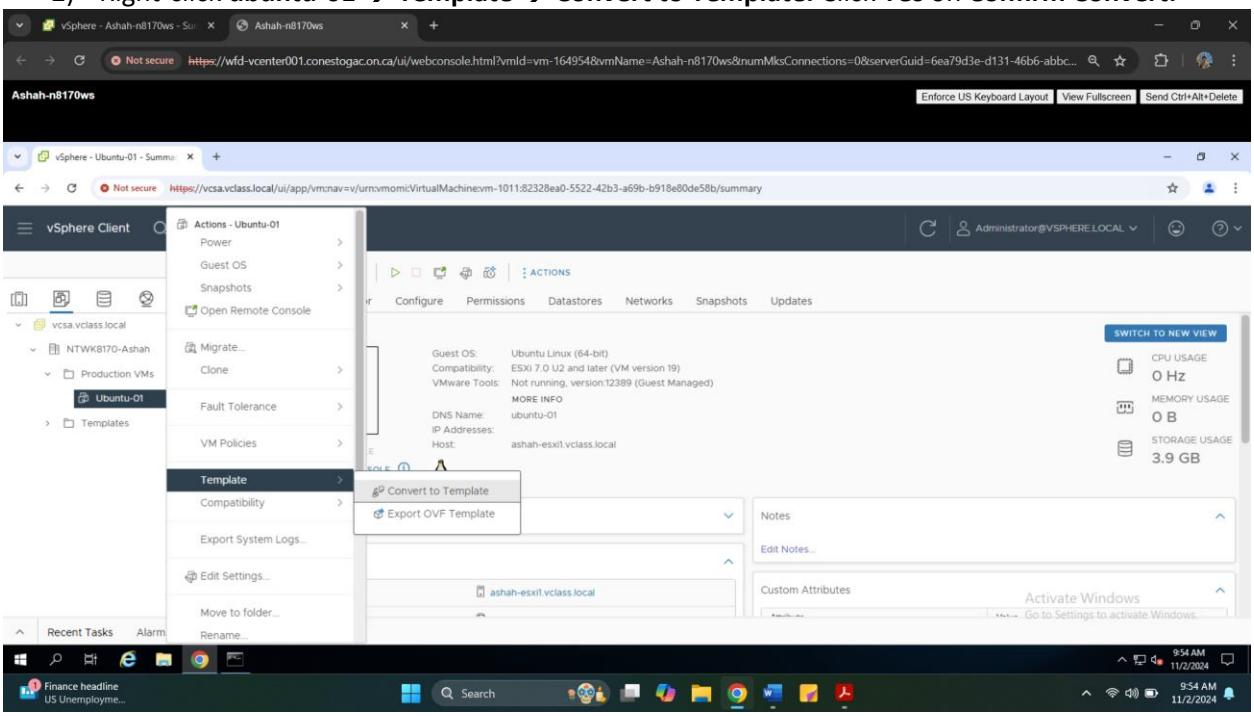

Ashah-n8170ws
Enforce US Keyboard Layout
View Fullscreen
Send Ctrl+Alt+Delete
vSphere Client
New VM Customization Specification
1 Name and target OS
3 Computer name
6 Time zone
7 Customization script
9 Network
10 DNS settings
12 Ready to complete
Name
ubuntu-CUST
Target guest OS
Linux
Computer name
Use Virtual Machine name
Domain name
vclass.local
Time zone
Canada/Eastern
Hardware clock: Set to UTC
Customization script
Do not use customization script
Network type
Custom
NIC1
IPv4: Prompt user
IPv6: Not used
DNS servers
172.24.81.201 (Primary)
CANCEL
BACK
FINISH
Activate Windows
Go to Settings to activate Windows.
Recent Tasks
Alarms
Search
VM Customization Specifications
New...
Import...
Edit...
Duplicate
Export
Delete
Name
Guest OS
Last Modified
VC
ubuntu-CUST
Linux
11/02/2024, 9:35:50 AM
vcsa.vclass.local
1 items
Description
OS type
Linux
Computer name
Use Virtual Machine name
Time zone
Canada/Eastern
Customization script
Expand for more details

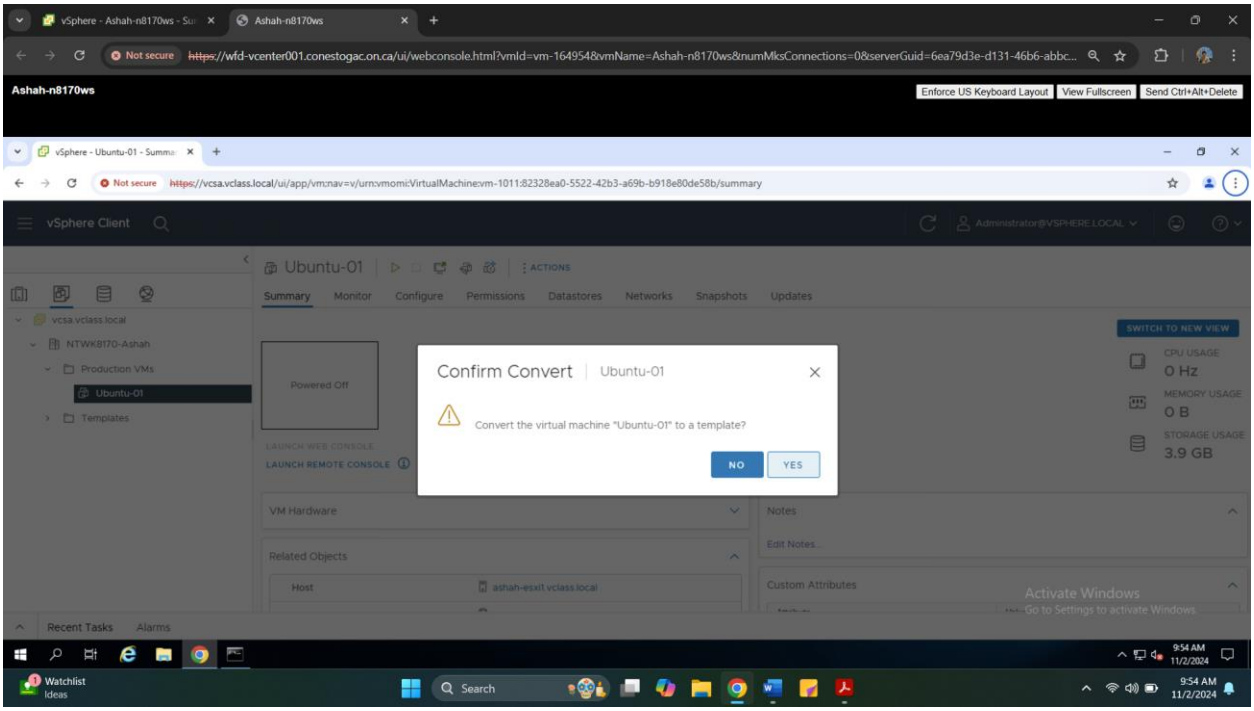
Section 3: Creating VM templates

1) Go back to **VMs and Templates** view.

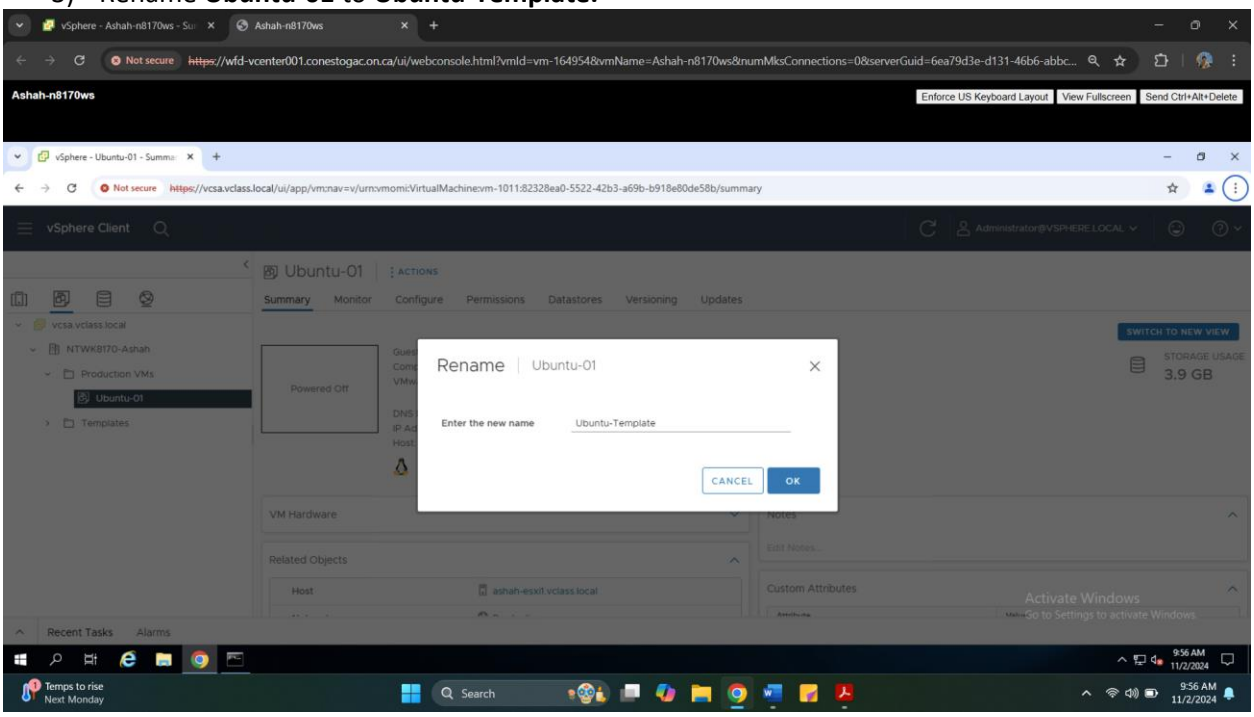


2) Right-click **ubuntu-01 → Template → Convert to Template.** Click **Yes** on **Confirm Convert.**

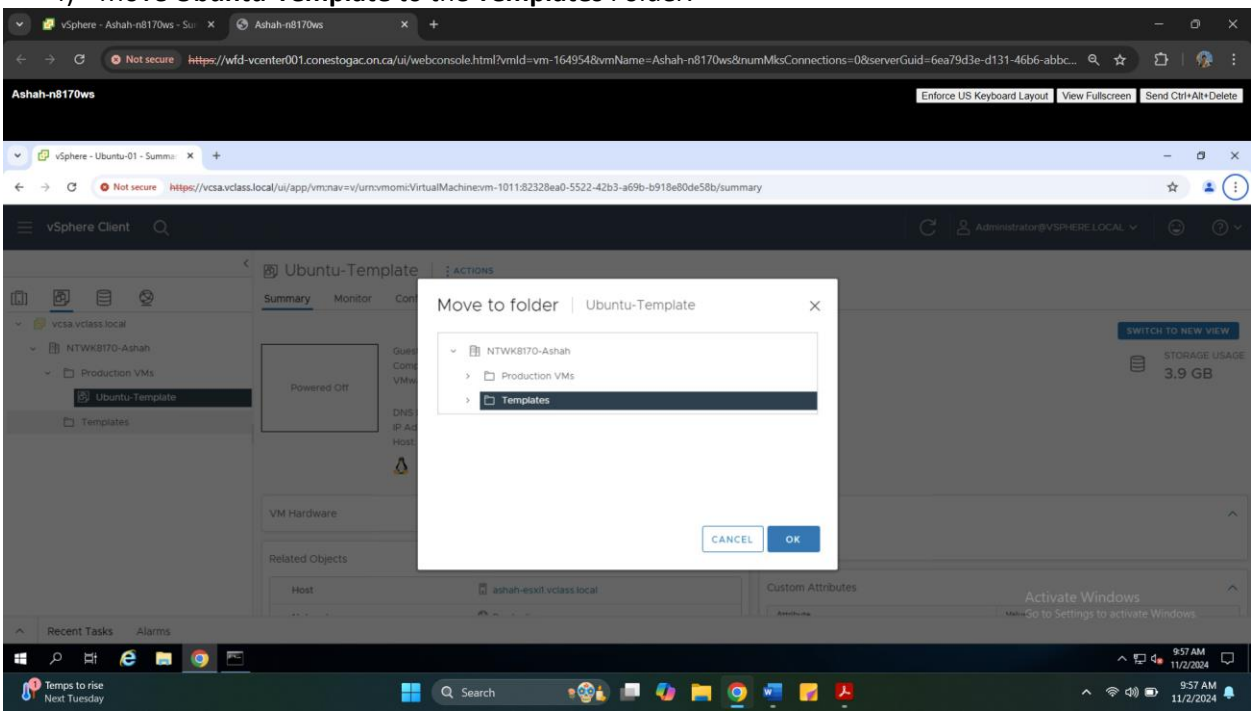


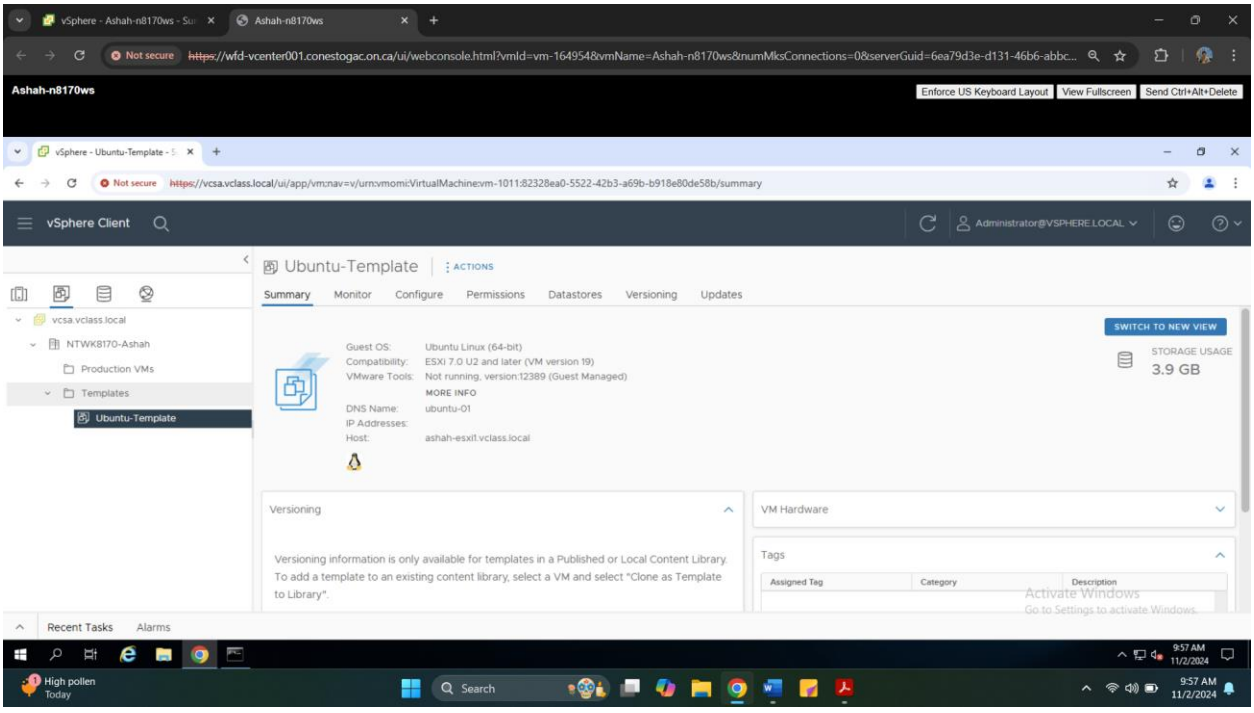


3) Rename **Ubuntu-01** to **Ubuntu-Template.**



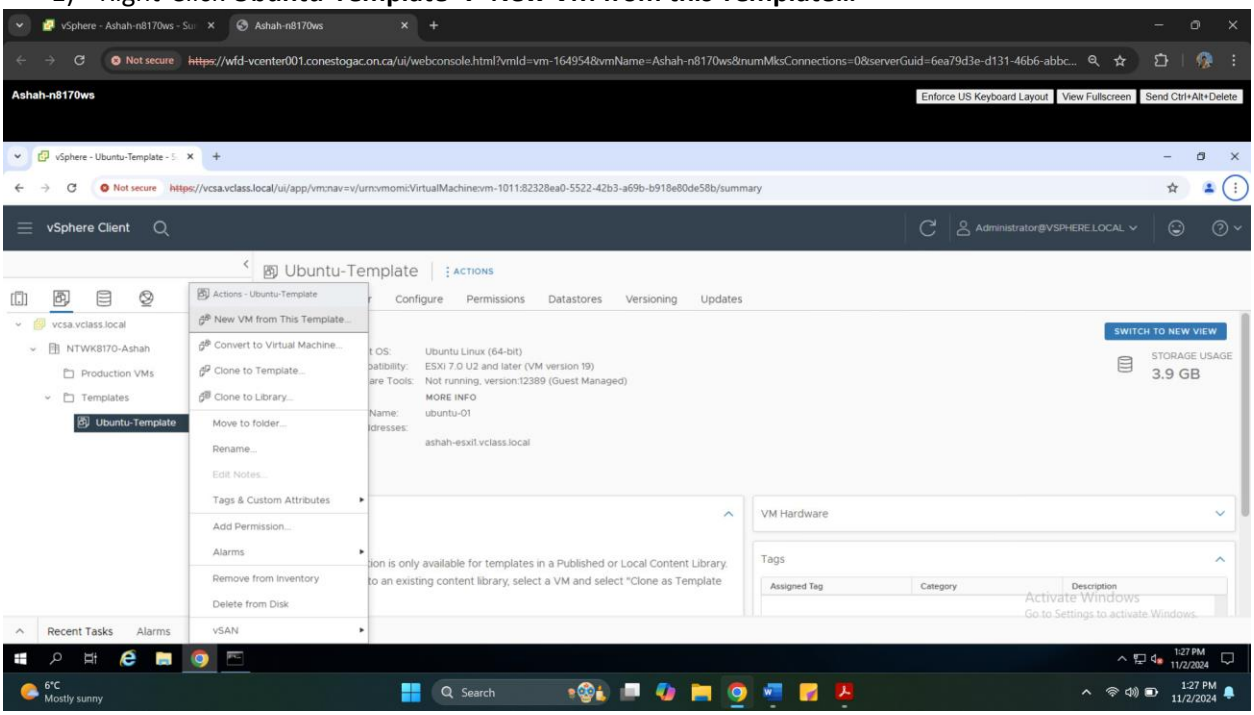
4) Move **Ubuntu-Template** to the **Templates** Folder.



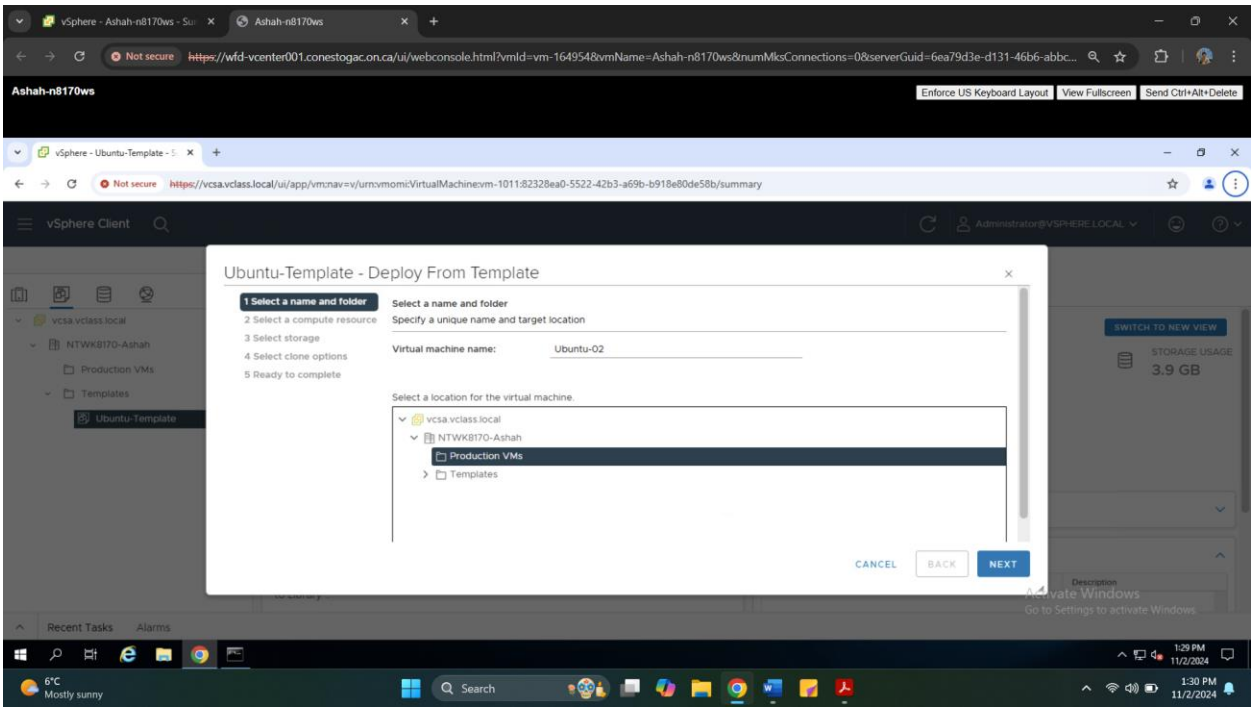


Section 4: Deploying VMs from a template

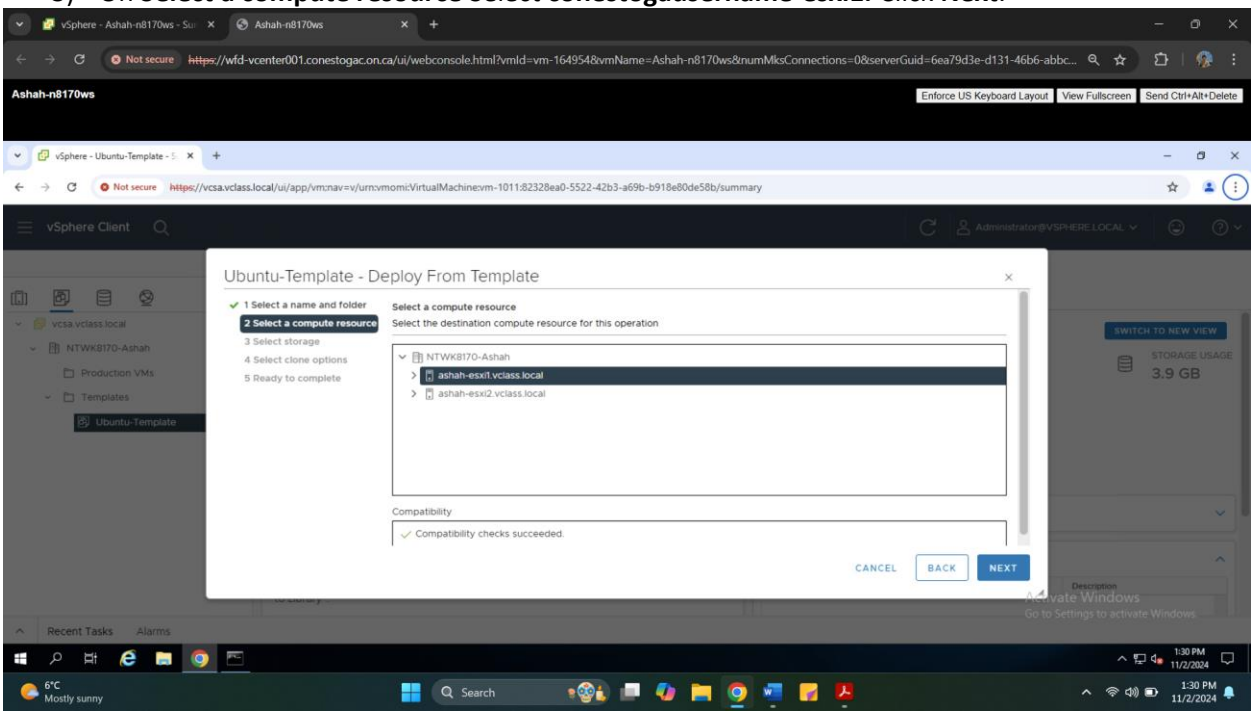
1) Right-Click **Ubuntu-Template → New VM from this Template…**



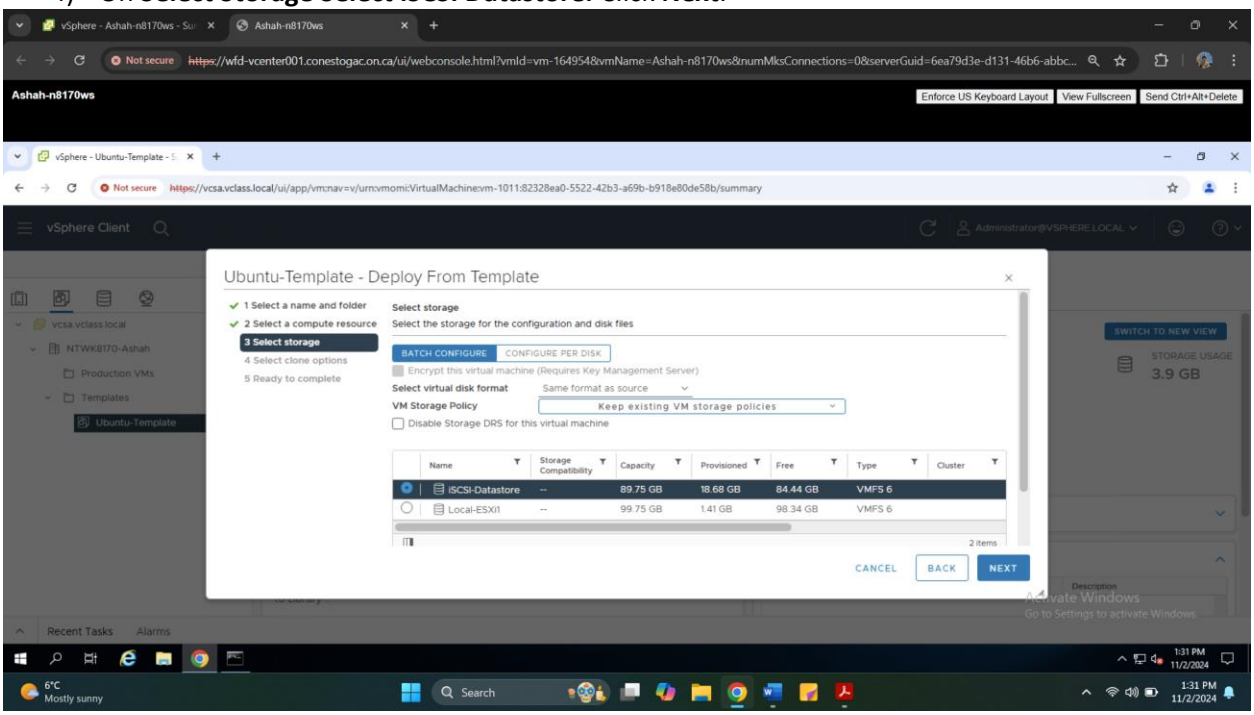
2) For **virtual machine name** type in **Ubuntu-02**. For location select the **Production VMs folder.** Click **Next**.



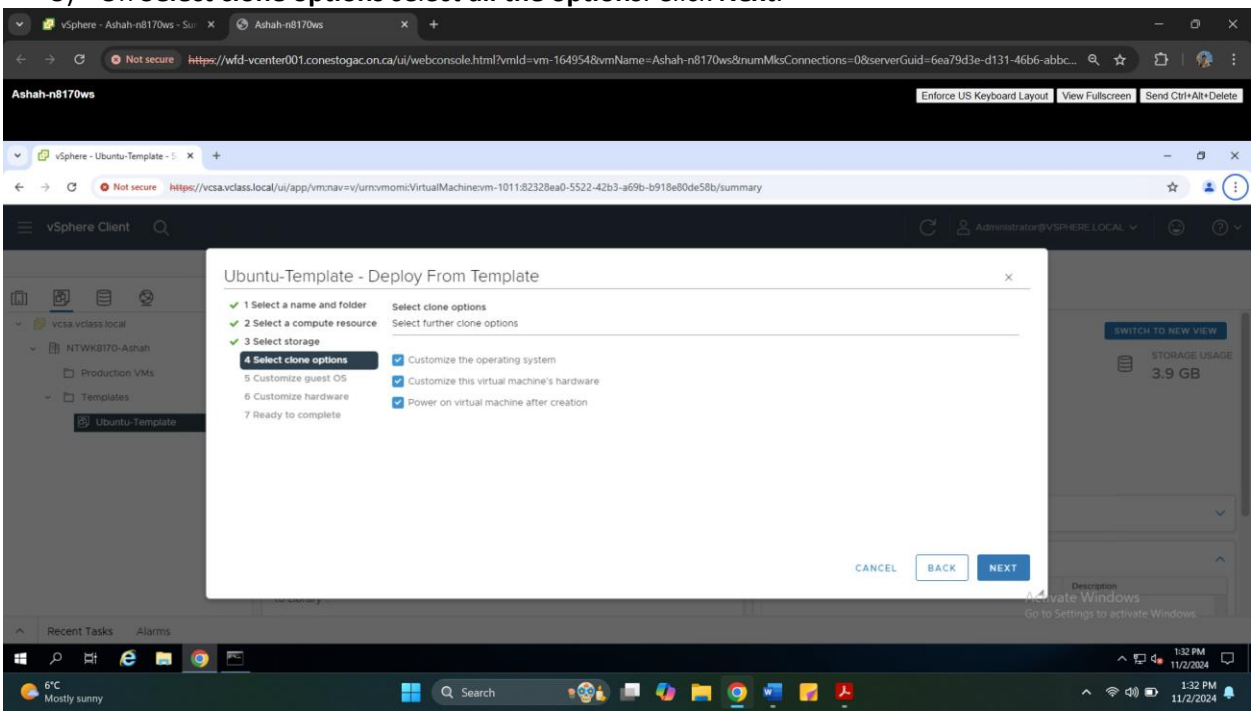
3) On **Select a compute resource** Select **conestogausername-esxi1.** Click **Next**.



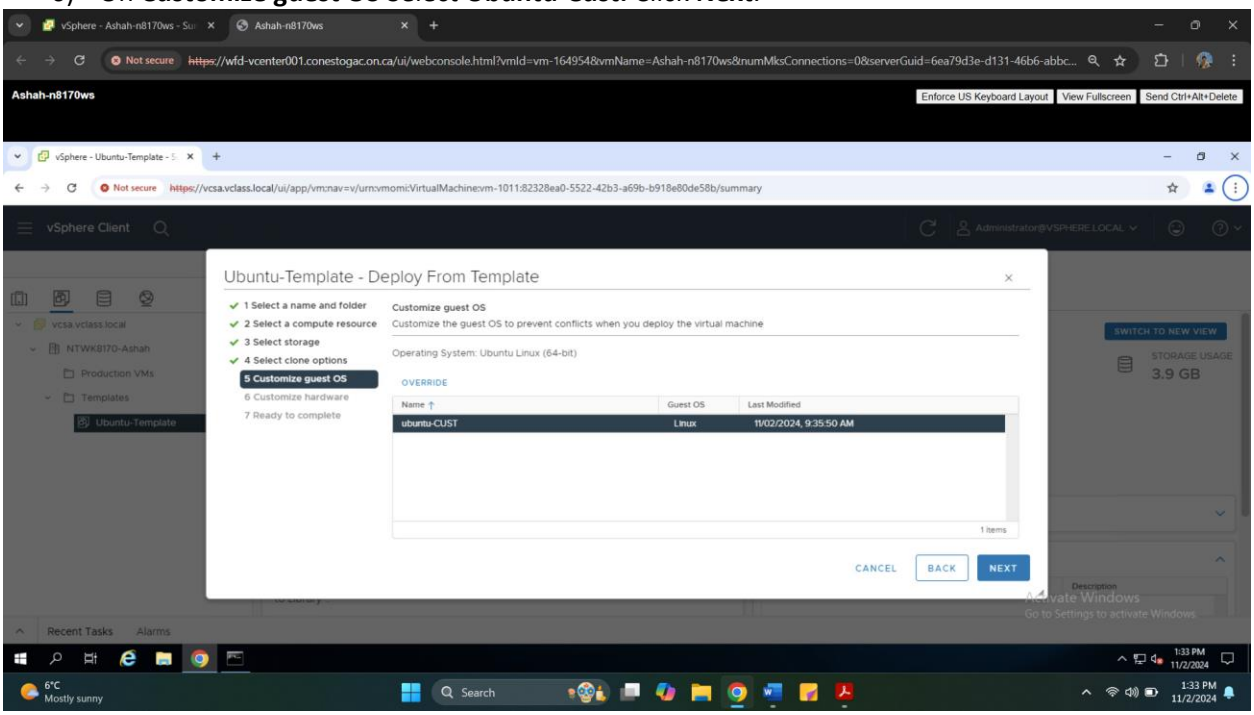
4) On **Select Storage Select iSCSI Datastore.** Click **Next**.



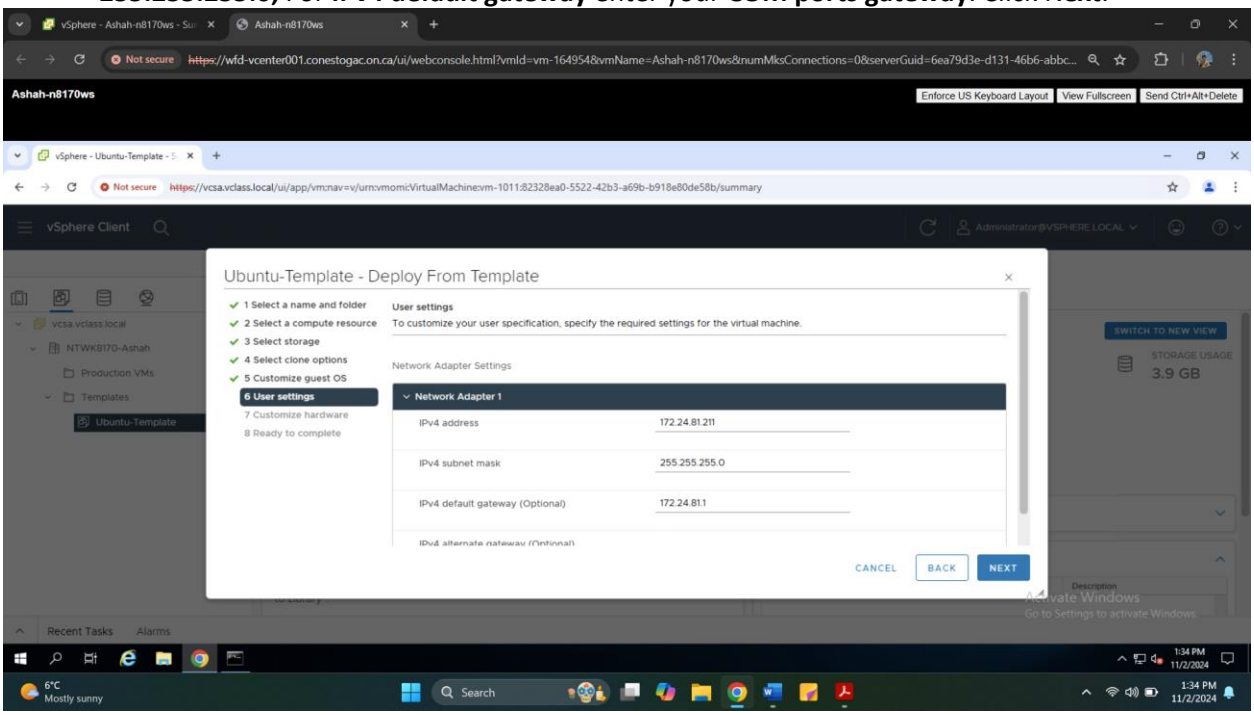
5) On **Select clone options** select **all the options**. Click **Next**.



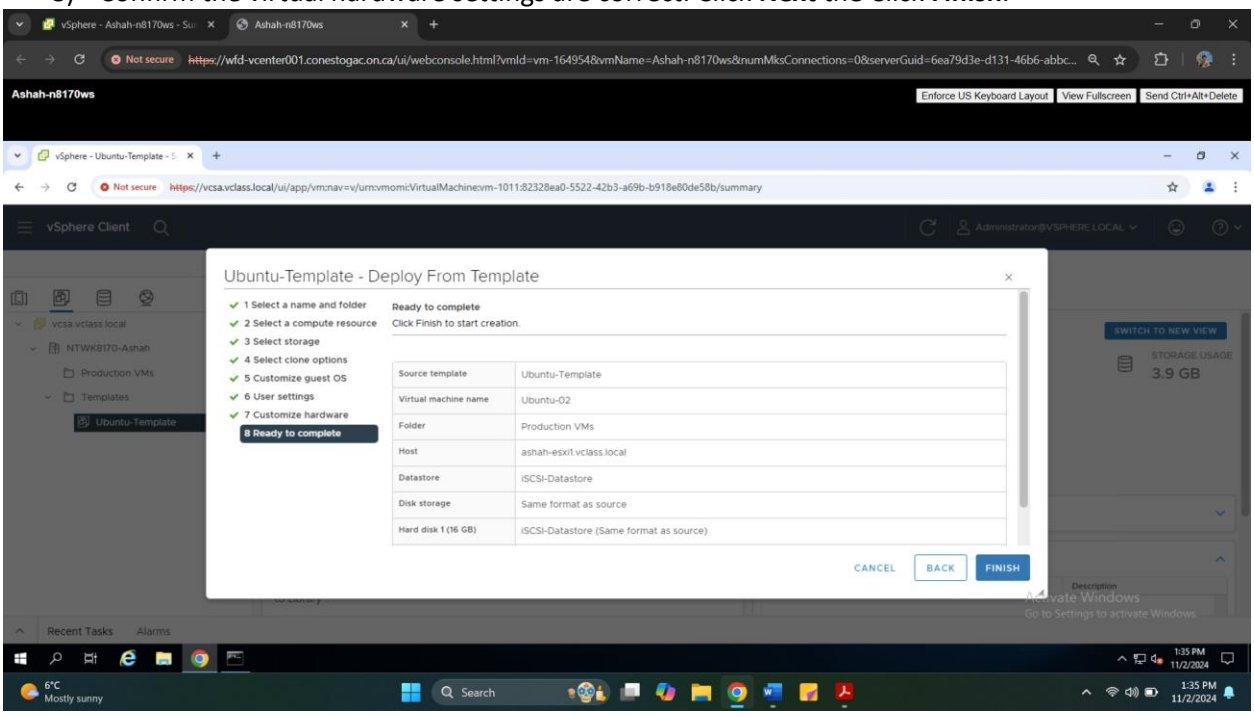
6) On **Customize guest OS** Select **Ubuntu-Cust.** Click **Next**.



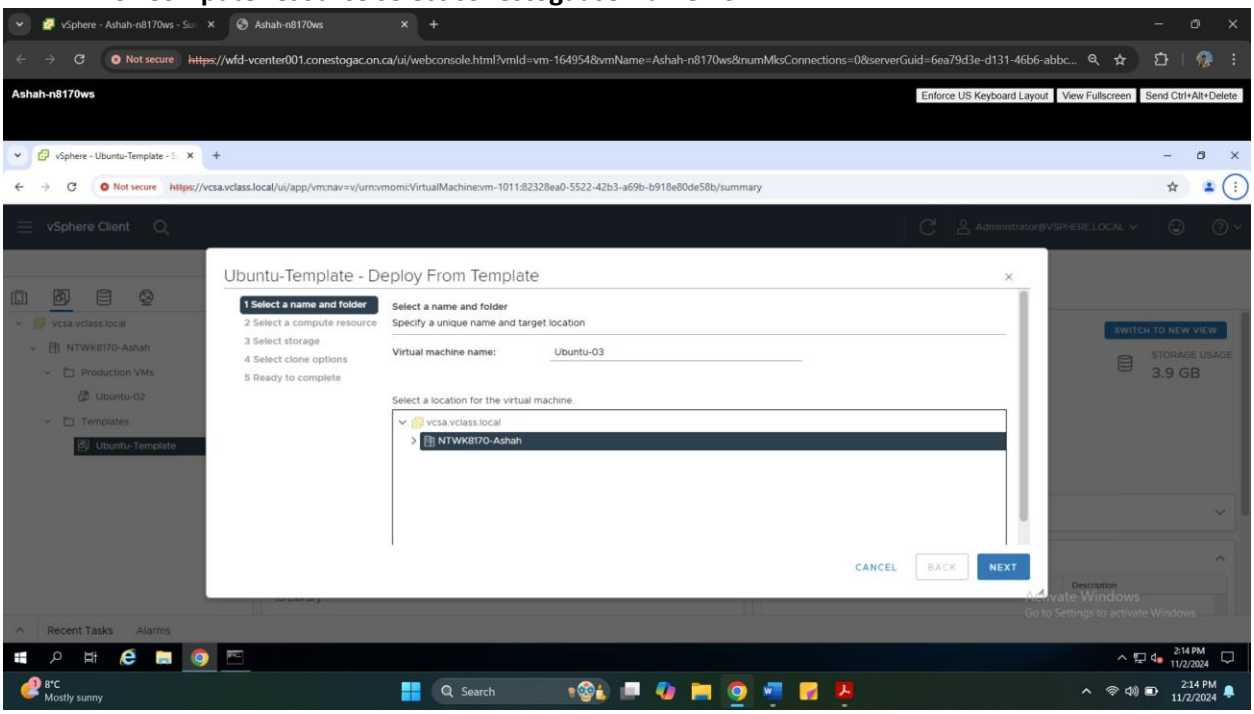
7) For **IP address** enter one in your **COM port range**. **Ex. 172.x.x.211,** For **Subnet mask** type in **255.255.255.0,** For **IPv4 default gateway** enter your **COM ports gateway**. Click N**ext**.

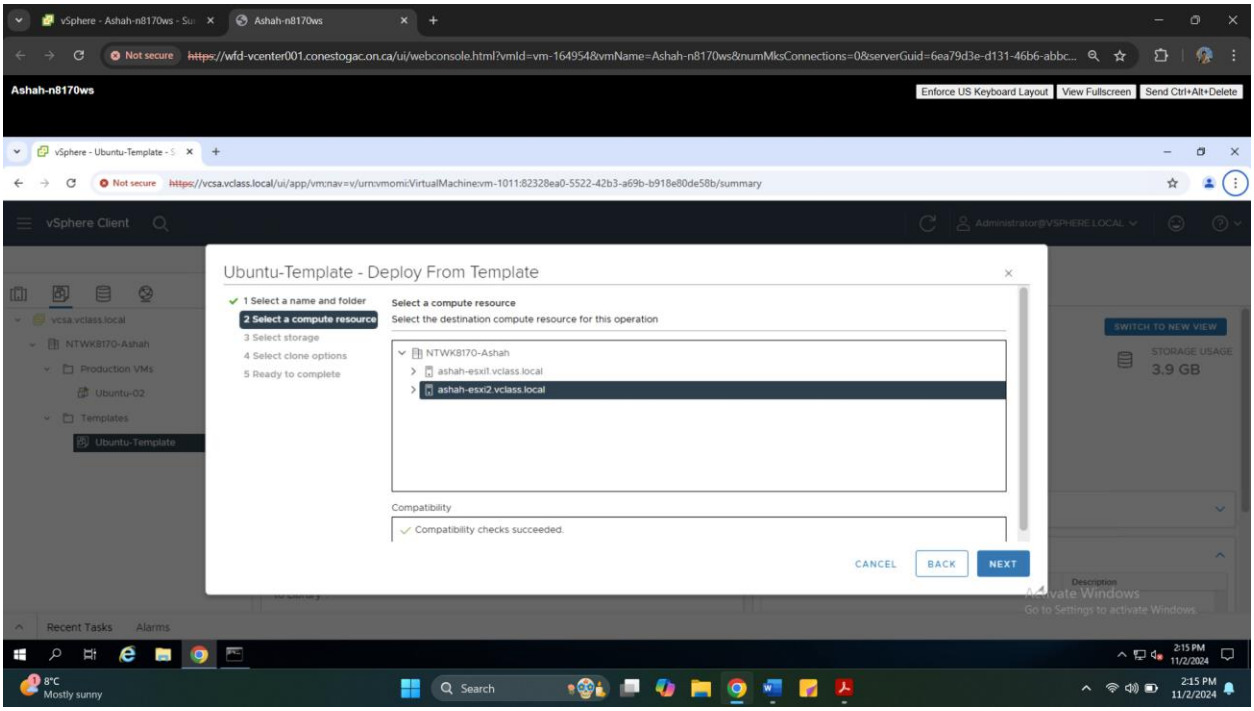


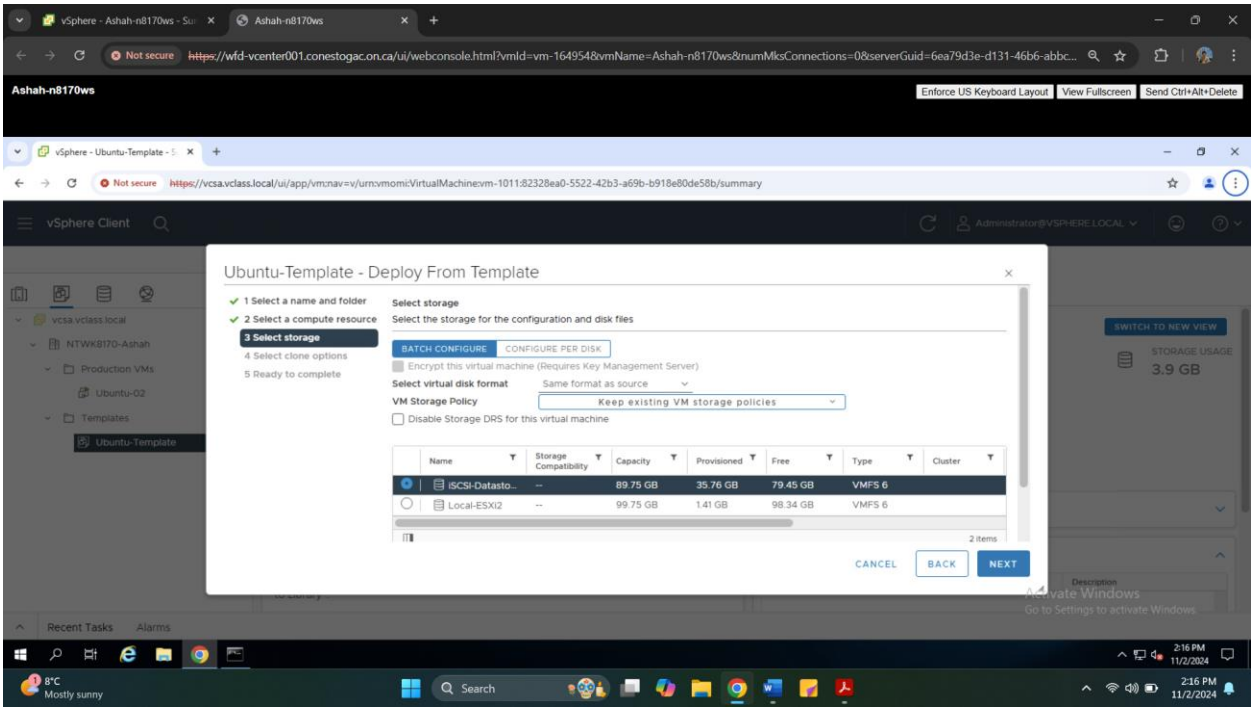
8) Confirm the virtual hardware settings are correct. Click **Next** the Click **Finish**.

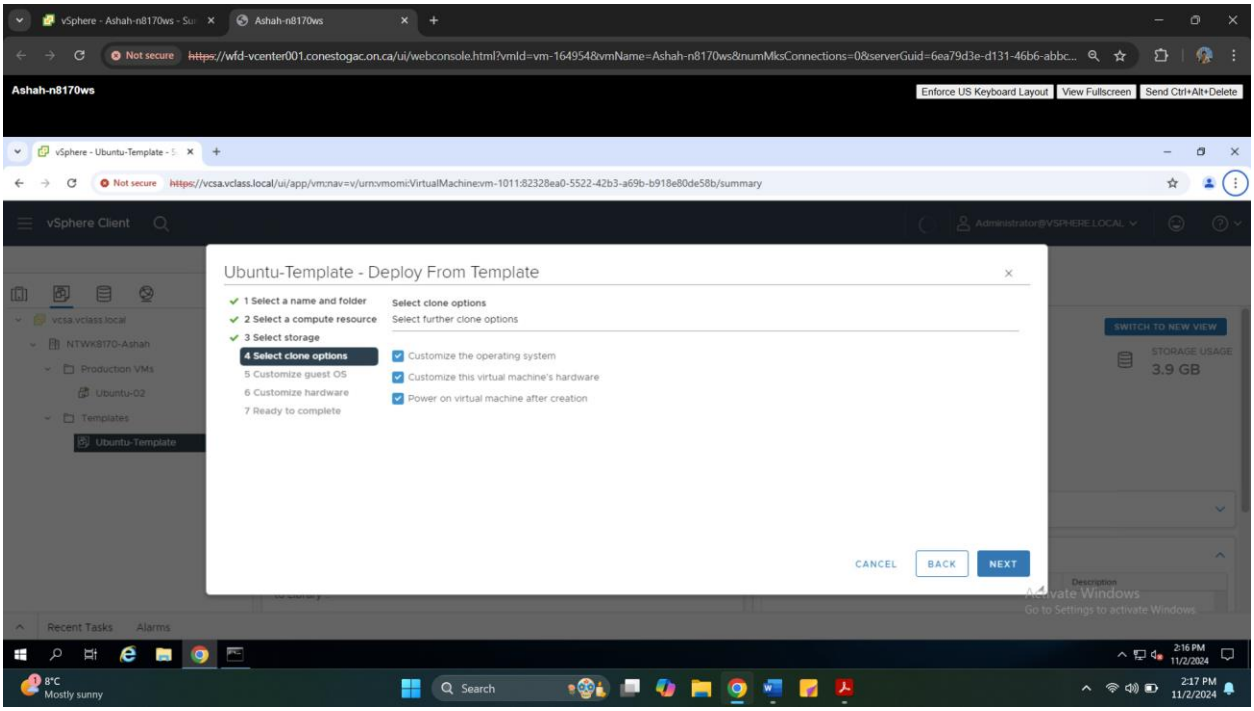


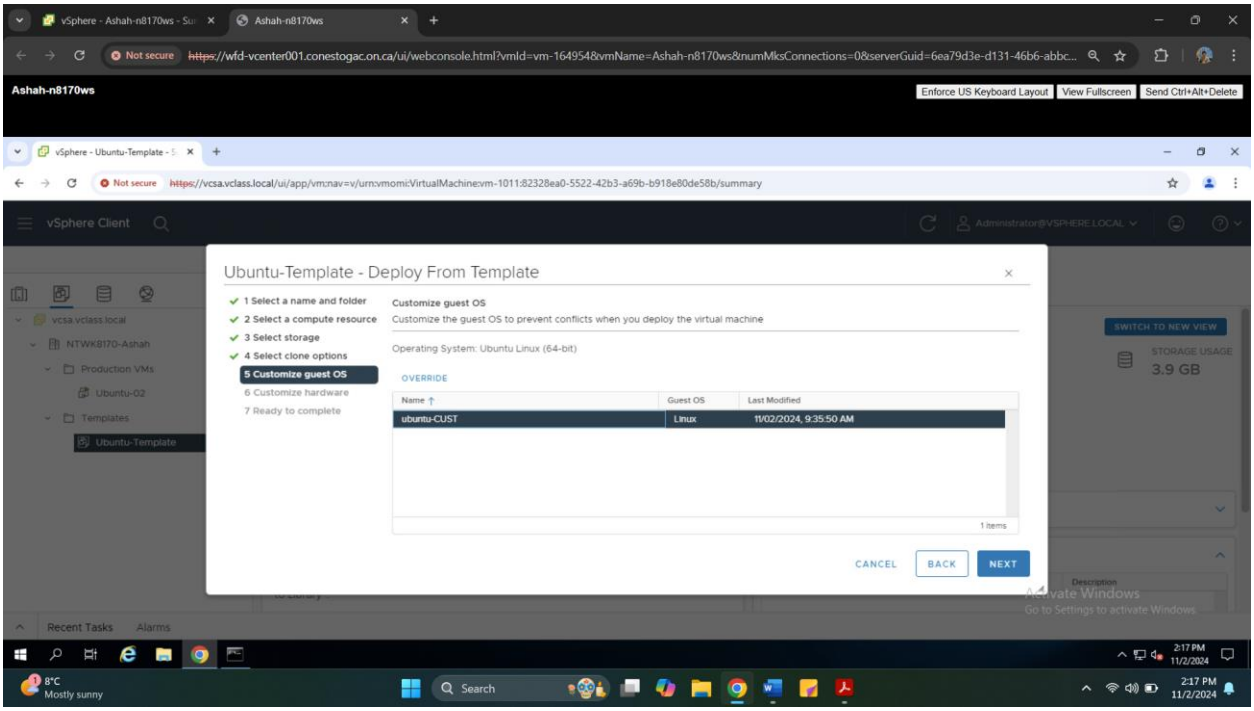
9) Wait around 5 minutes then confirm the IP address has changed to the one set during the cloning process.
10) Deploy another VM called **Ubuntu-03. Set a different IP address Ex. 172.x.x.212. iSCSI Storage. For Compute resource select conestogausername-ESXi2.**

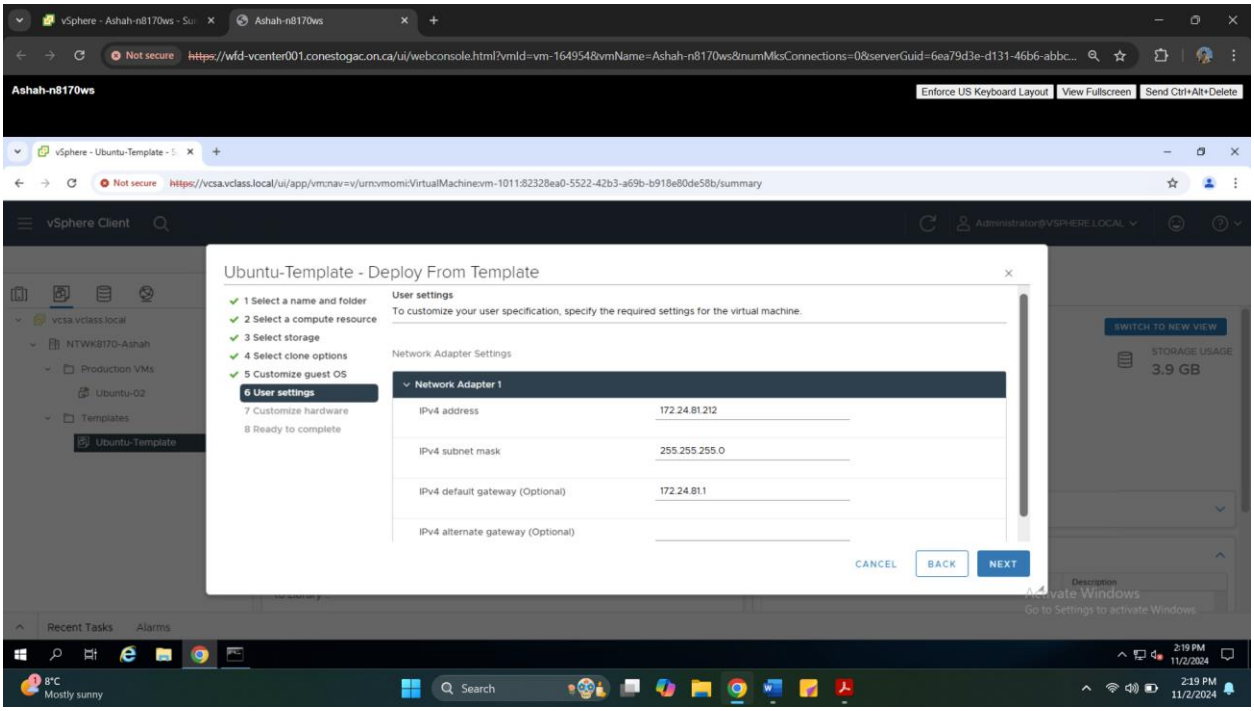


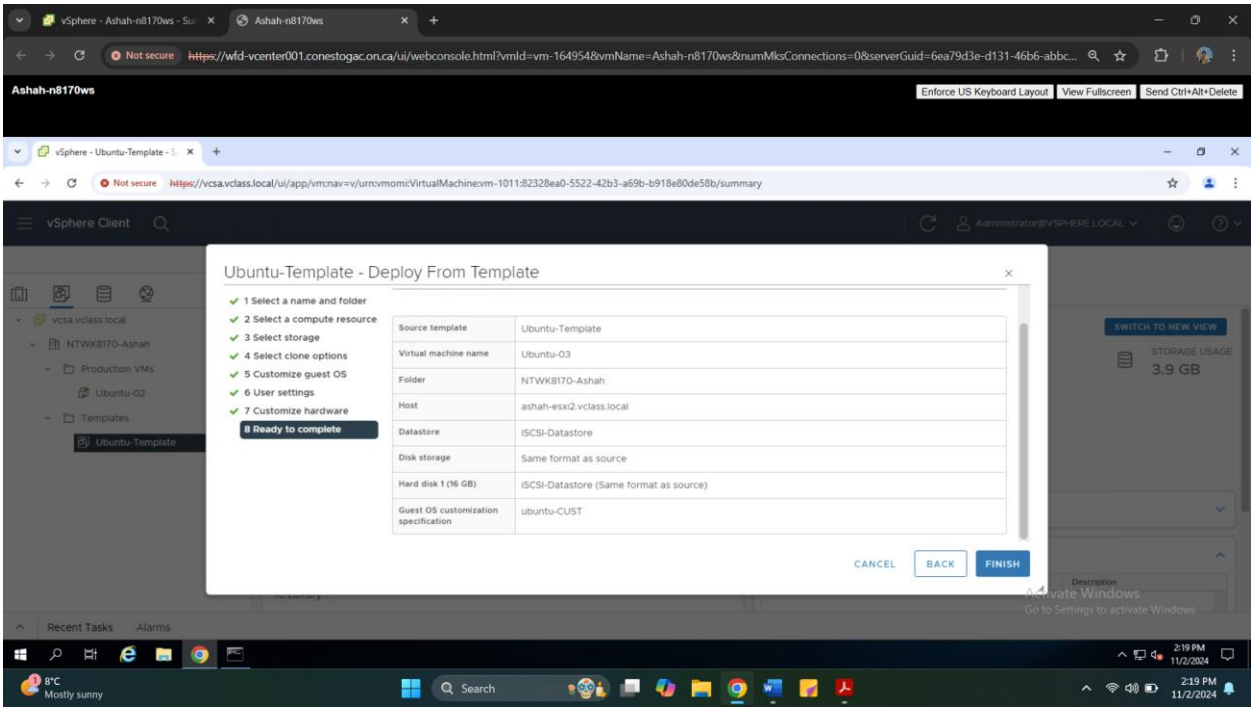



Ashah-n8170ws
Enforce US Keyboard Layout
View Fullscreen
Send Ctrl+Alt+Delete
Not secure
https://wfd-vcenter001.conestogac.on.ca/ui/webconsole.html?vmId=vm-1649548&vmName=Ashah-n8170ws&numMksConnections=0&serverGuid=6ea79d3e-d131-46b6-abbc...
Not secure
https://vcsa.vclass.local/ui/app/vm;nav=v/urn:vmomi:VirtualMachine:vm-1011:82328ea0-5522-42b3-a69b-b918e80de58b/summary
vSphere Client
Ubuntu-Template - Deploy From Template
1 Select a name and folder
2 Select a compute resource
3 Select storage
4 Select clone options
5 Ready to complete
Select storage
Select the storage for the configuration and disk files
BATCH CONFIGURE
CONFIGURE PER DISK
Encrypt this virtual machine (Requires Key Management Server)
Select virtual disk format
Same format as source
VM Storage Policy
Keep existing VM storage policies
Disable Storage DRS for this virtual machine
Name
Storage Compatibility
Capacity
Provisioned
Free
Type
Cluster
iSCSI-Datasto...
89.75 GB
35.76 GB
79.45 GB
VMFS 6
Local-ESXi2
99.75 GB
1.41 GB
98.34 GB
VMFS 6
2 items
CANCEL
BACK
NEXT
Recent Tasks
Alarms
8°C
Mostly sunny
Search
2:16 PM
11/2/2024

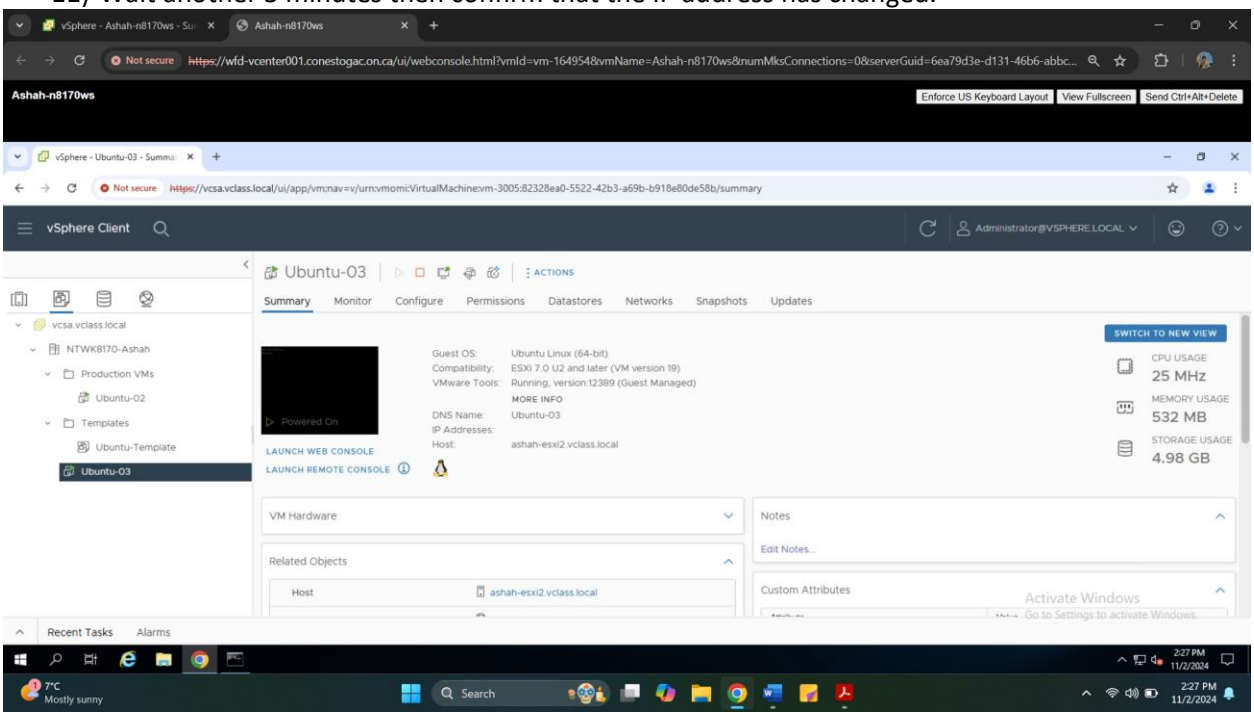

Ashah-n8170ws
Enforce US Keyboard Layout
View Fullscreen
Send Ctrl+Alt+Delete
Not secure
https://wfd-vcenter001.conestogac.on.ca/ui/webconsole.html?vmId=vm-1649548&vmName=Ashah-n8170ws&numMksConnections=0&serverGuid=6ea79d3e-d131-46b6-abbc...
Not secure
https://vcsa.vclass.local/ui/app/vm;nav=v/urn:vmomi:VirtualMachine:vm-1011:82328ea0-5522-42b3-a69b-b918e80de58b/summary
vSphere Client
Ubuntu-Template - Deploy From Template
1 Select a name and folder
2 Select a compute resource
3 Select storage
4 Select clone options
5 Customize guest OS
6 Customize hardware
7 Ready to complete
Select clone options
Select further clone options
Customize the operating system
Customize this virtual machine's hardware
Power on virtual machine after creation
CANCEL
BACK
NEXT
Recent Tasks
Alarms
8°C
Mostly sunny
Search
2:16 PM
11/2/2024
2:17 PM
11/2/2024


Ashah-n8170ws
Enforce US Keyboard Layout
View Fullscreen
Send Ctrl+Alt+Delete
vSphere Client
Ubuntu-Template - Deploy From Template
1 Select a name and folder
2 Select a compute resource
3 Select storage
4 Select clone options
5 Customize guest OS
6 Customize hardware
7 Ready to complete
Customize guest OS
Customize the guest OS to prevent conflicts when you deploy the virtual machine
Operating System: Ubuntu Linux (64-bit)
OVERRIDE
Name
Guest OS
Last Modified
ubuntu-CUST
Linux
11/02/2024, 9:35:50 AM
1 items
CANCEL
BACK
NEXT
Recent Tasks
Alarms
Search
Mostly sunny


Ashah-n8170ws
Enforce US Keyboard Layout
View Fullscreen
Send Ctrl+Alt+Delete
vSphere Client
Ubuntu-Template - Deploy From Template
1 Select a name and folder
2 Select a compute resource
3 Select storage
4 Select clone options
5 Customize guest OS
6 User settings
7 Customize hardware
8 Ready to complete
User settings
To customize your user specification, specify the required settings for the virtual machine.
Network Adapter Settings
Network Adapter 1
IPv4 address
172.24.81.212
IPv4 subnet mask
255.255.255.0
IPv4 default gateway (Optional)
172.24.81.1
IPv4 alternate gateway (Optional)
CANCEL
BACK
NEXT
Recent Tasks
Alarms
Search
Mostly sunny

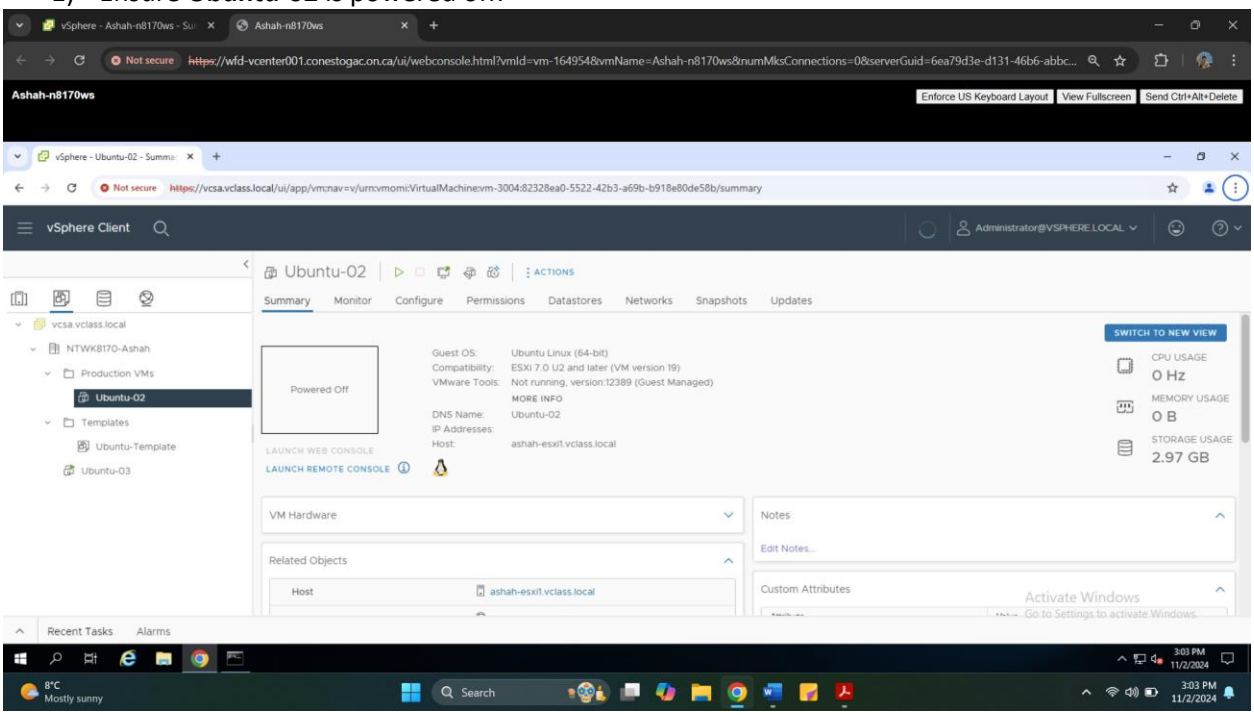


11) Wait another 5 minutes then confirm that the IP address has changed.

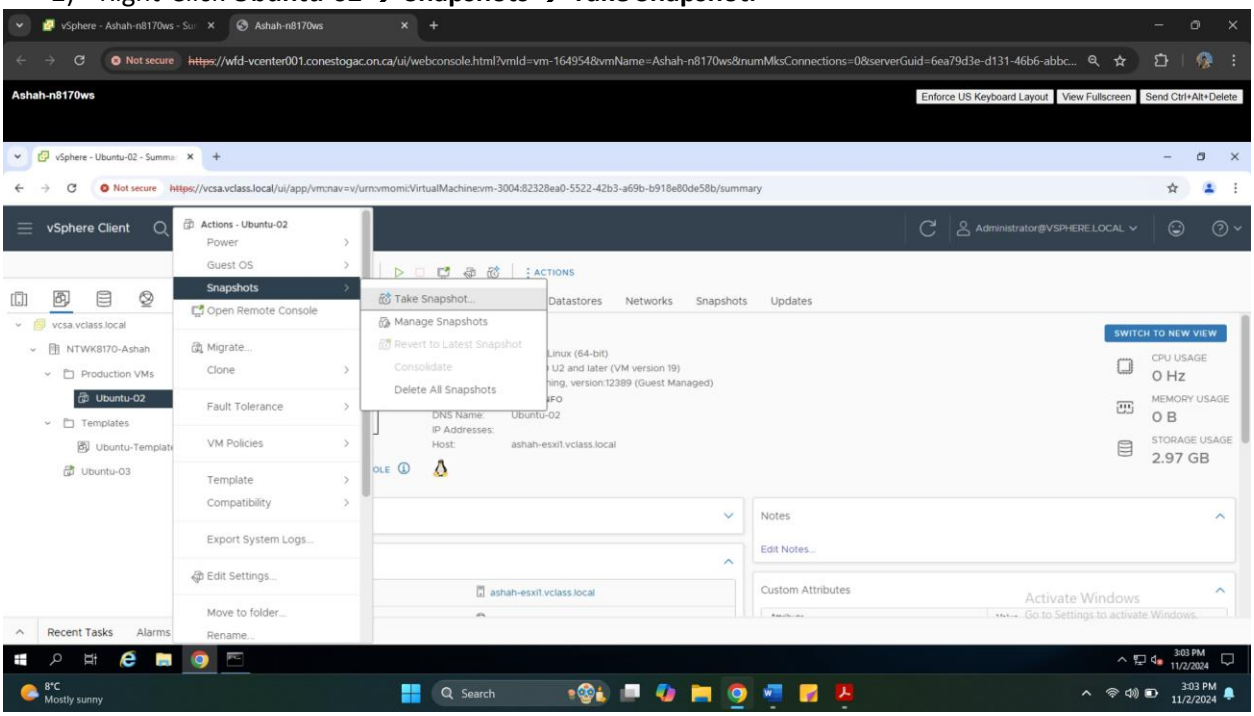


Section 5: Taking and reverting a snapshot

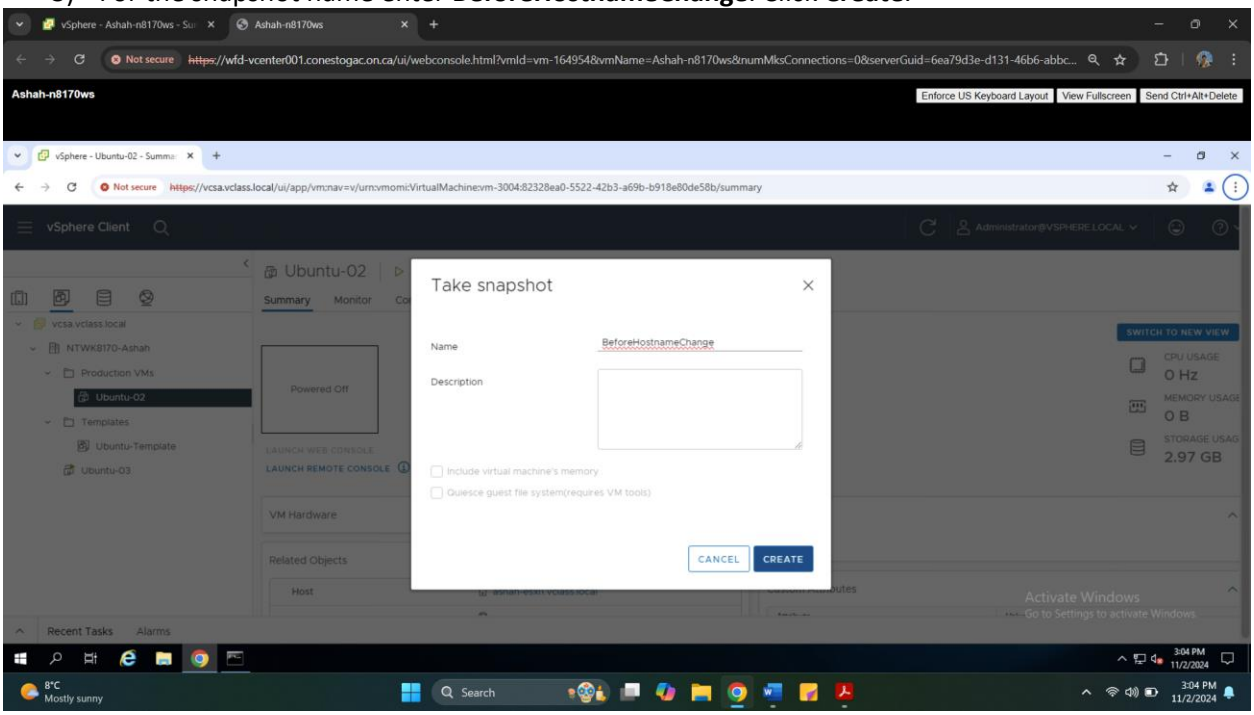
1) Ensure **Ubuntu-02** is powered off.



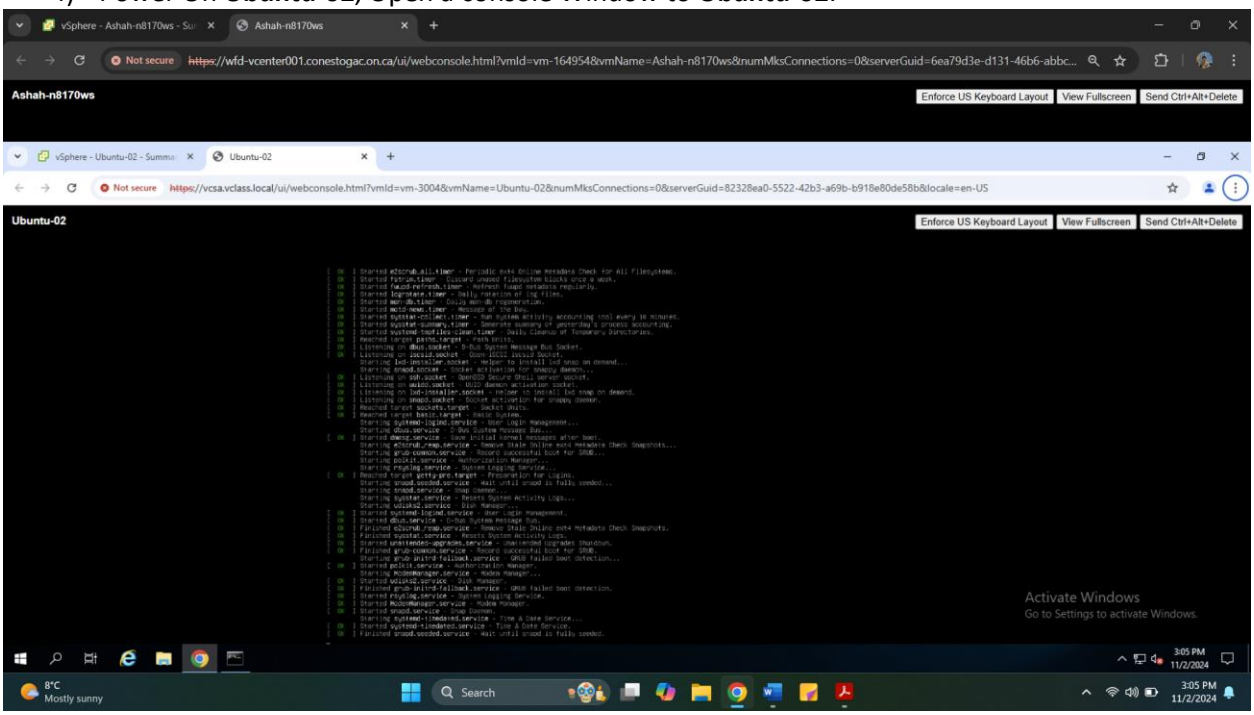
2) Right-Click **Ubuntu-02 → Snapshots → Take Snapshot.**



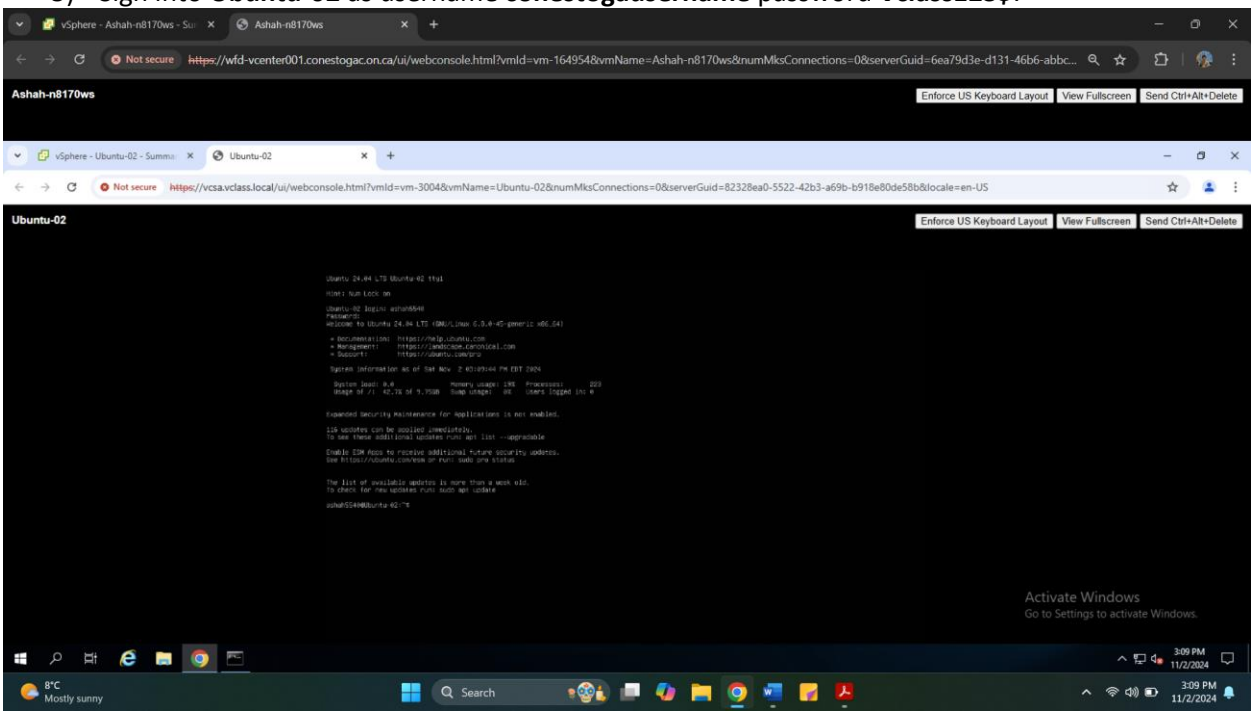
3) For the snapshot name enter **BeforeHostnameChange**. Click **Create**.



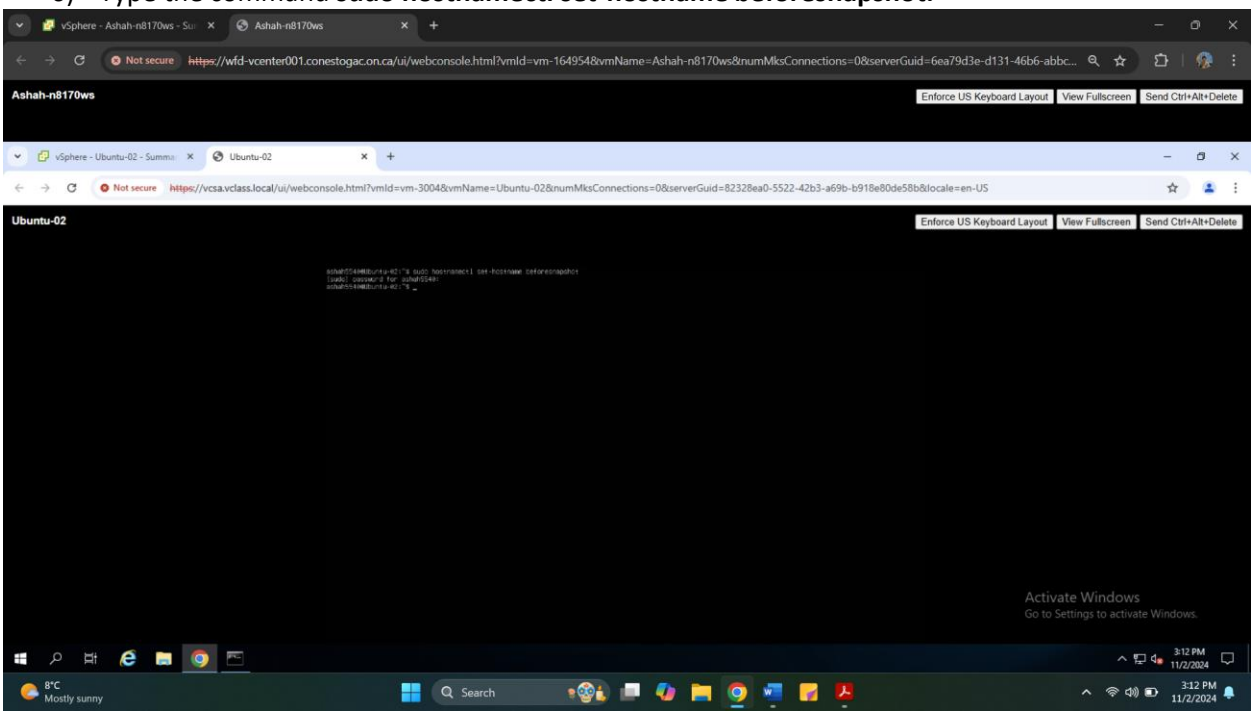
4) Power On **Ubuntu-02**, Open a console Window to **Ubuntu-02**.



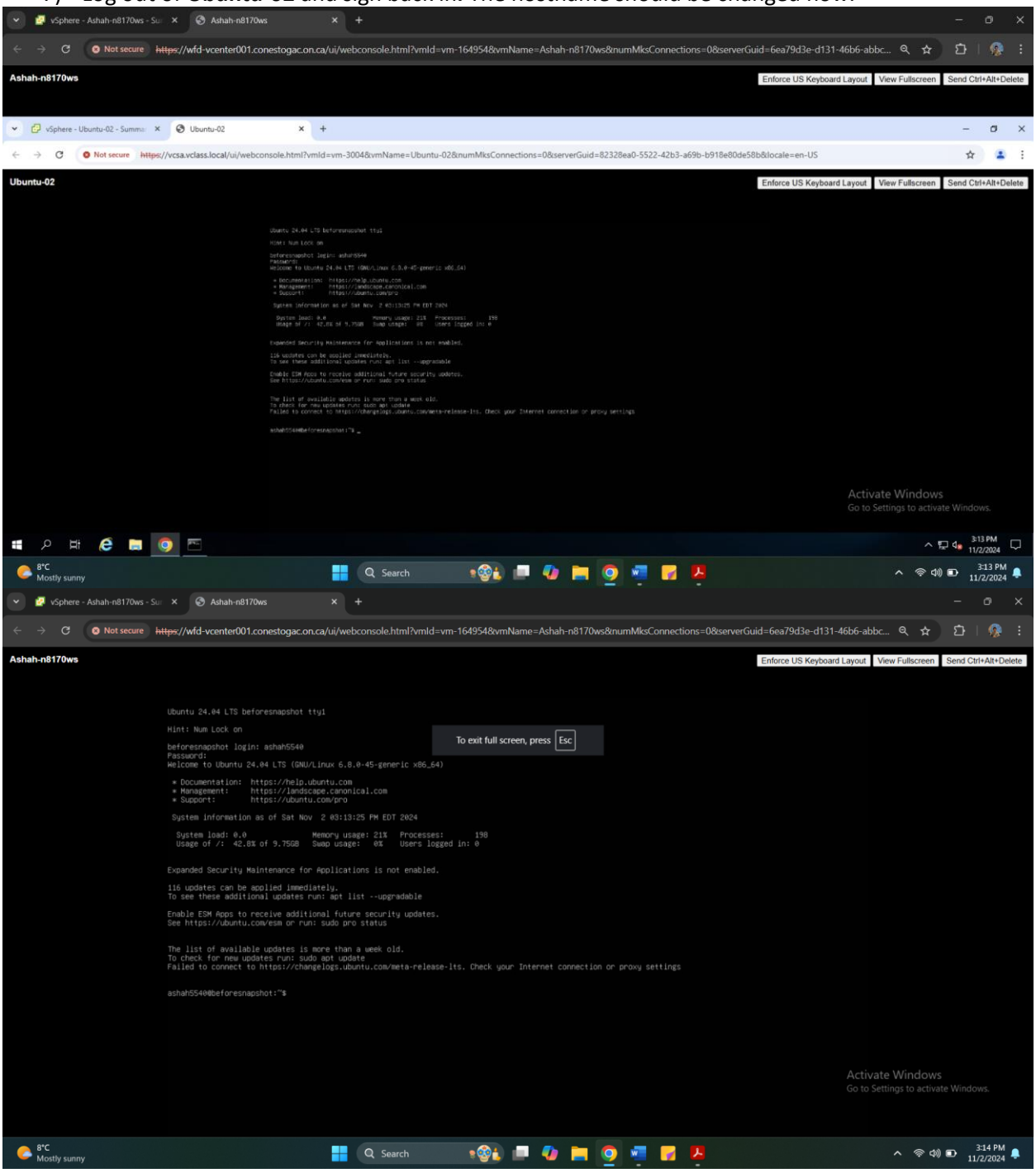
5) Sign into **Ubuntu-02** as username **conestogausername** password **Vclass123$**.



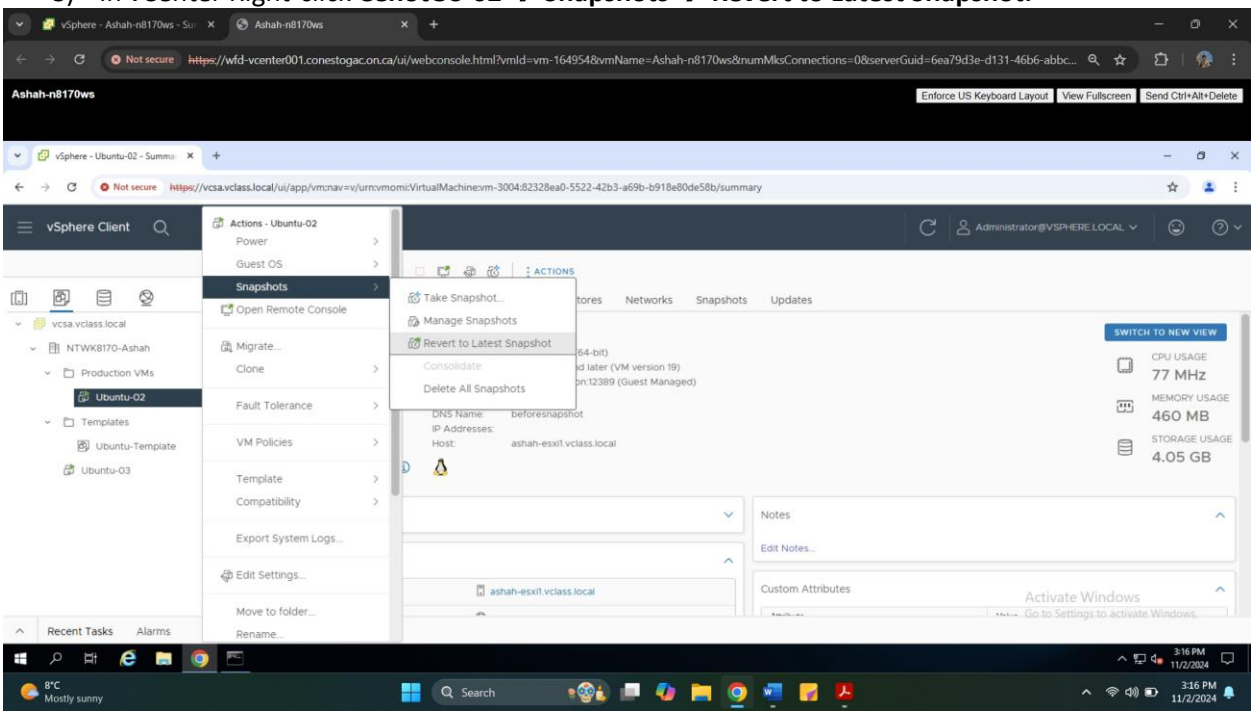
6) Type the command **sudo hostnamectl set-hostname beforesnapshot.**



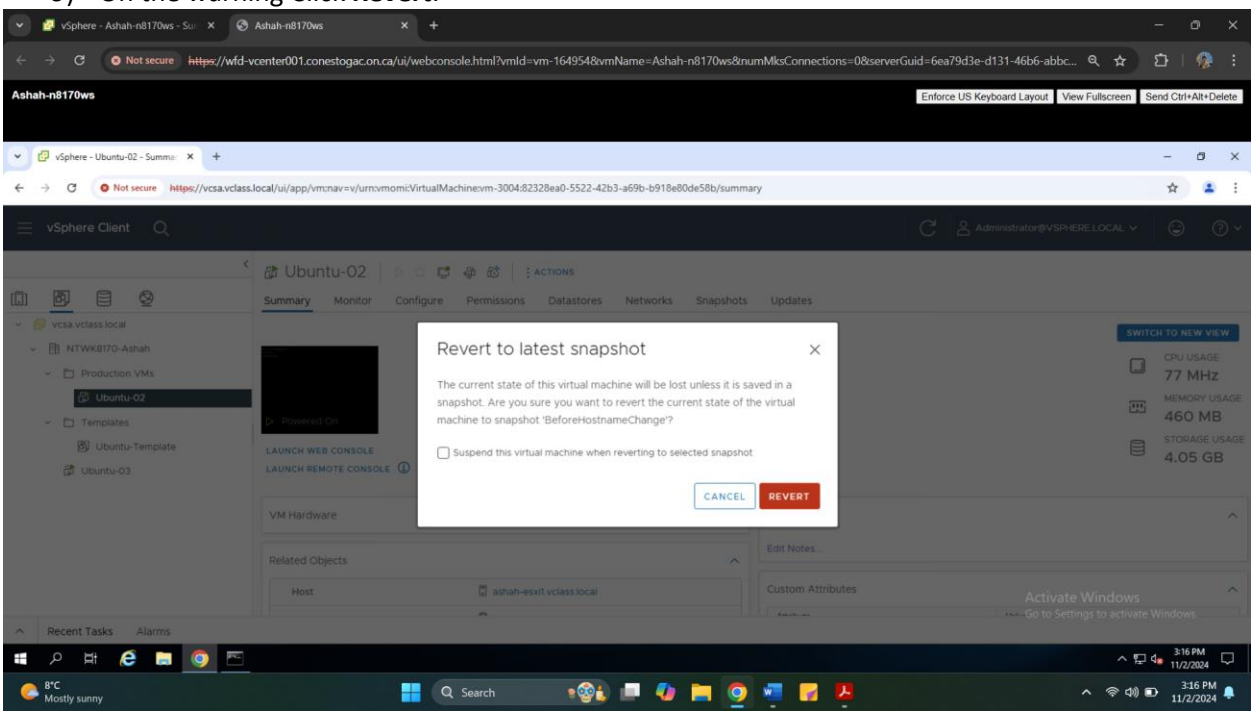
7) Log out of **Ubuntu-02** and sign back in**.** The hostname should be changed now.



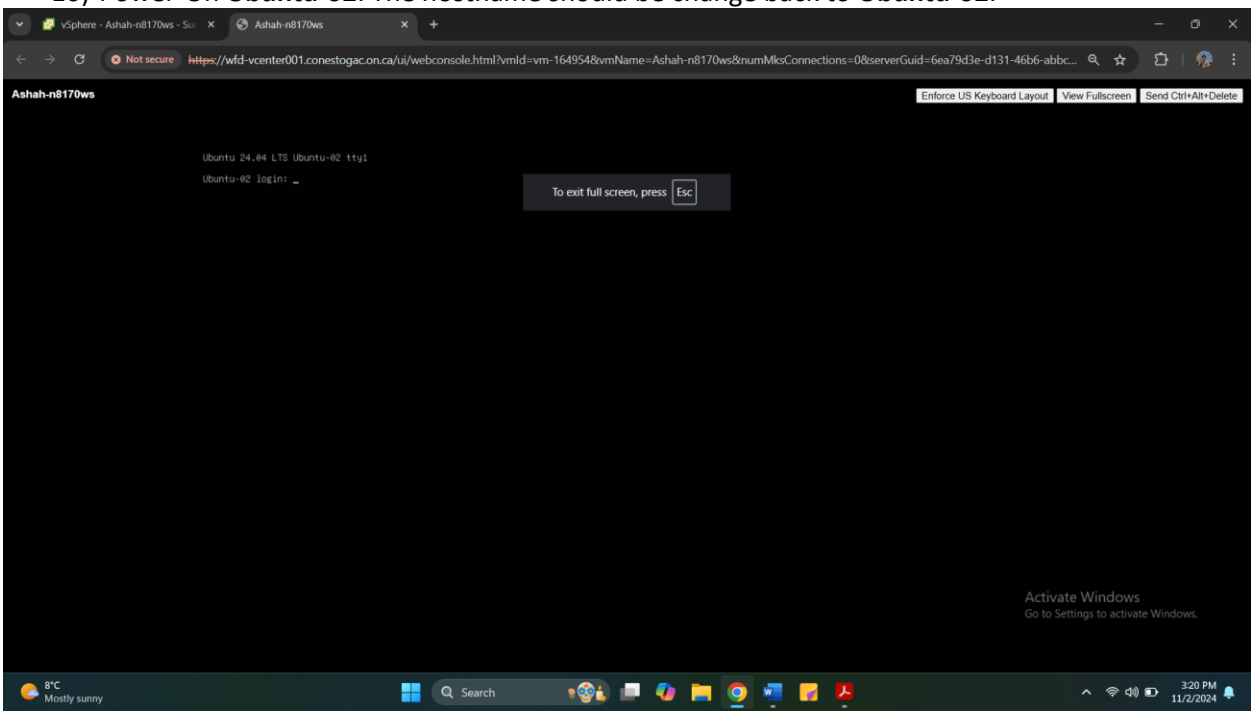
8) In vCenter Right-click **CenotOS-02 → Snapshots → Revert to Latest Snapshot.**



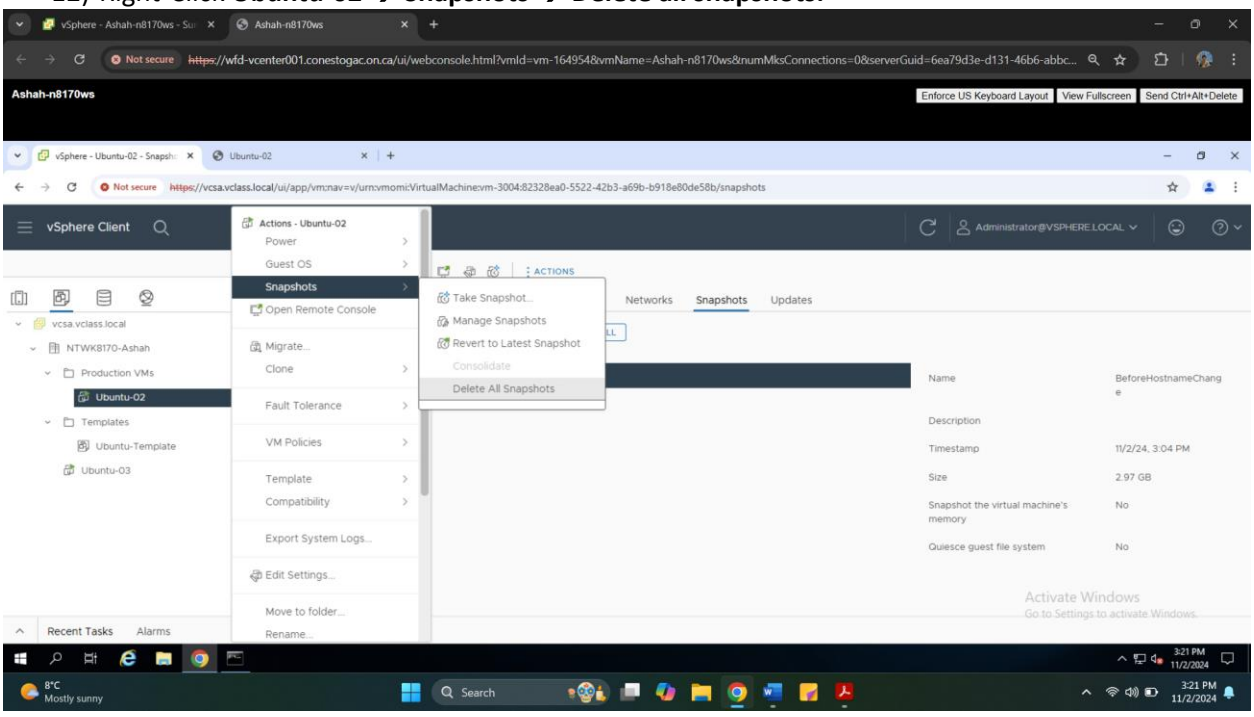
9) On the warning Click **Revert**.



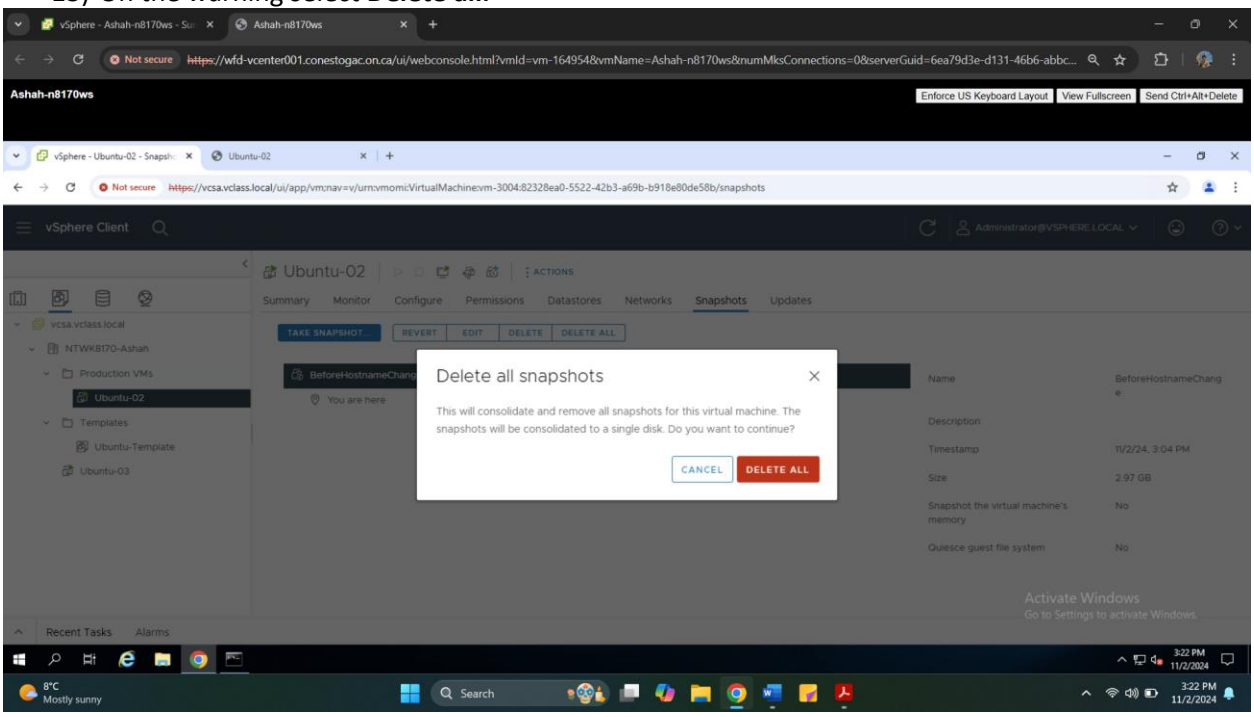
10) Power-On **Ubuntu-02**. The hostname should be change back to **Ubuntu-02**.

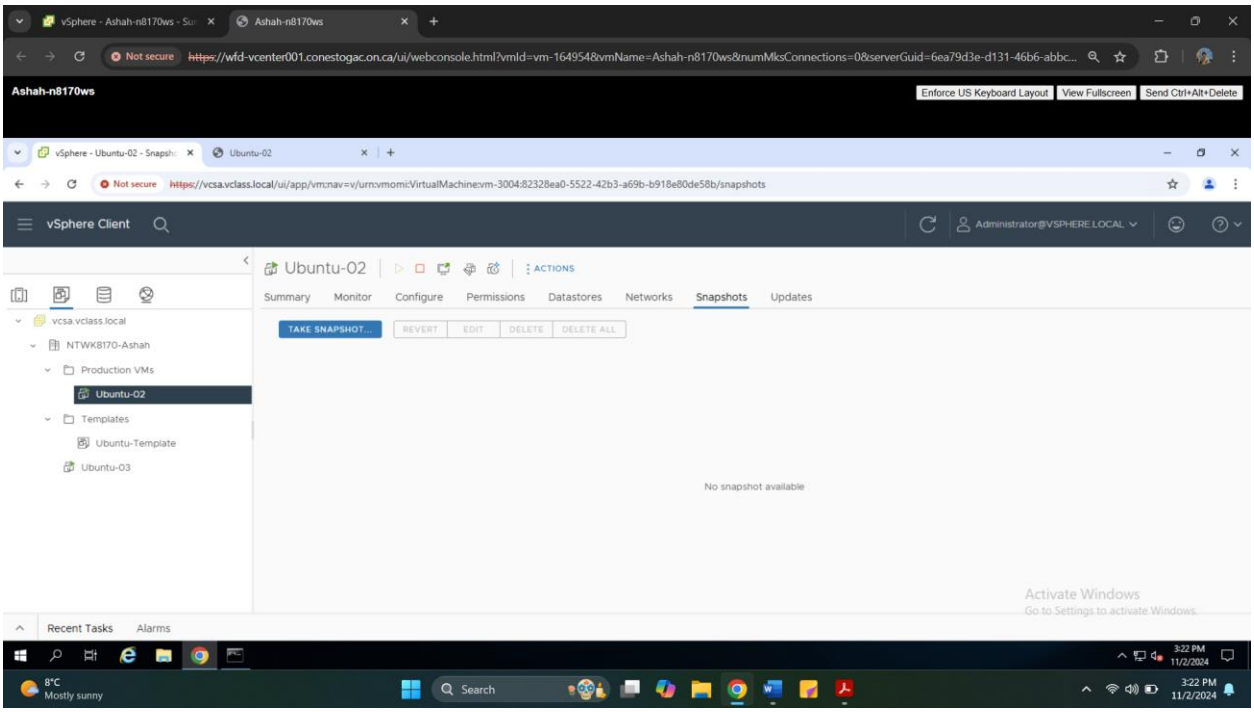


11) Snapshots increase in size over time. We will delete the one we just created.
12) Right-Click **Ubuntu-02 → Snapshots → Delete all snapshots.**



13) On the warning select **Delete all.**



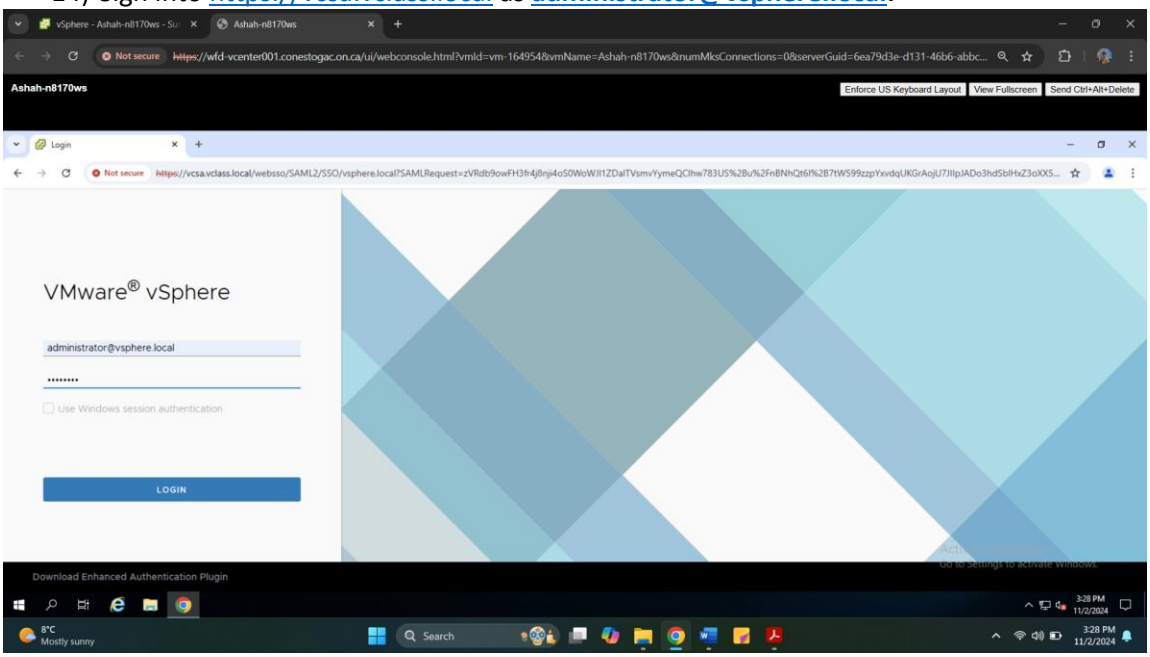


LAB11

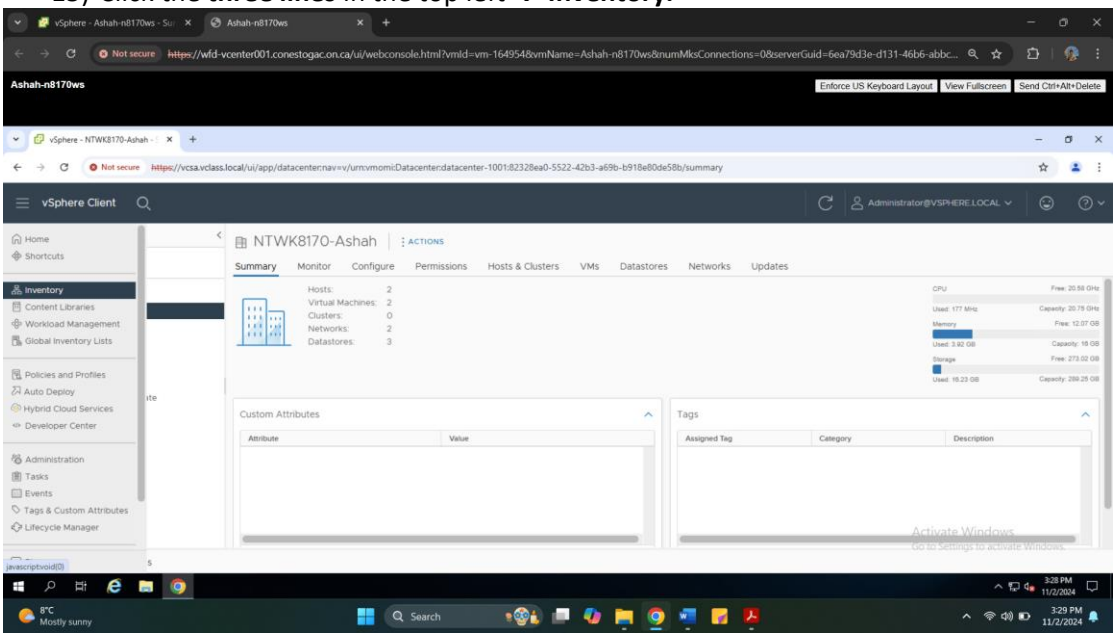
NTWK8170 – Virtualization with VMware vSphere Lab 10: VMware vMotion

Section 1: VMkernal and virtual switch setup for vMotion on the ESXi hosts

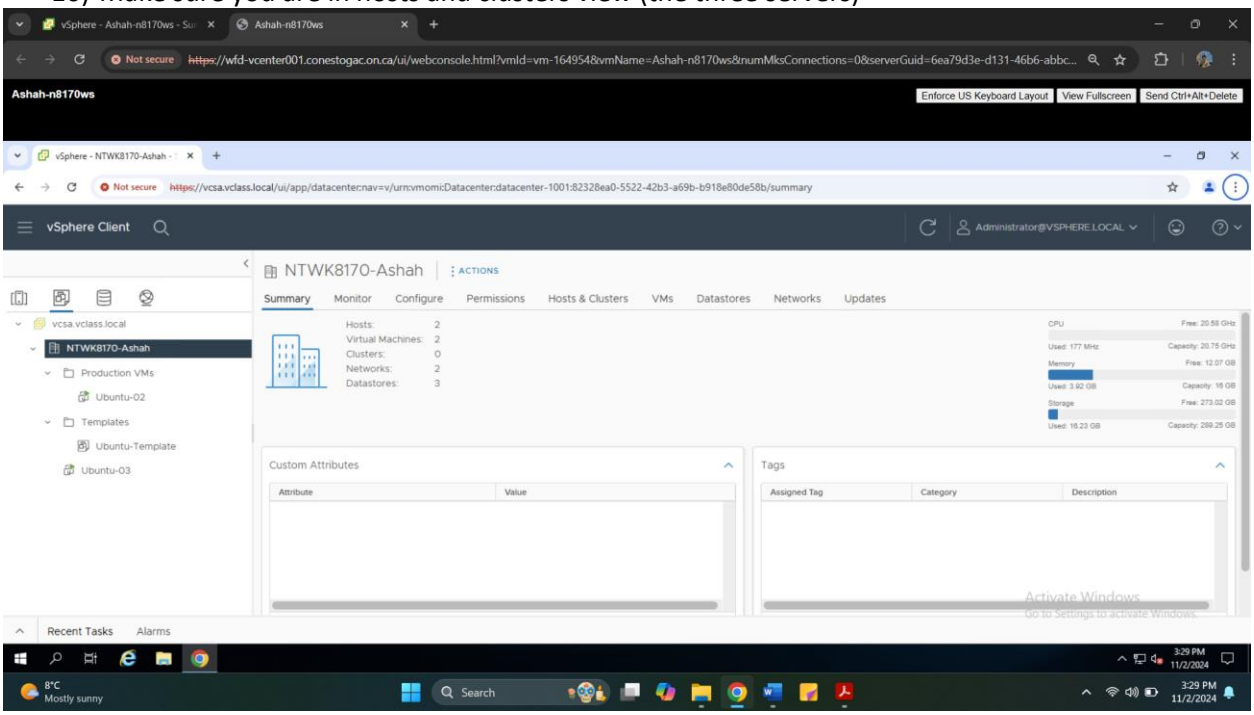
14) Sign into https://vcsa.vclass.local as **administrator@vsphere.local**.



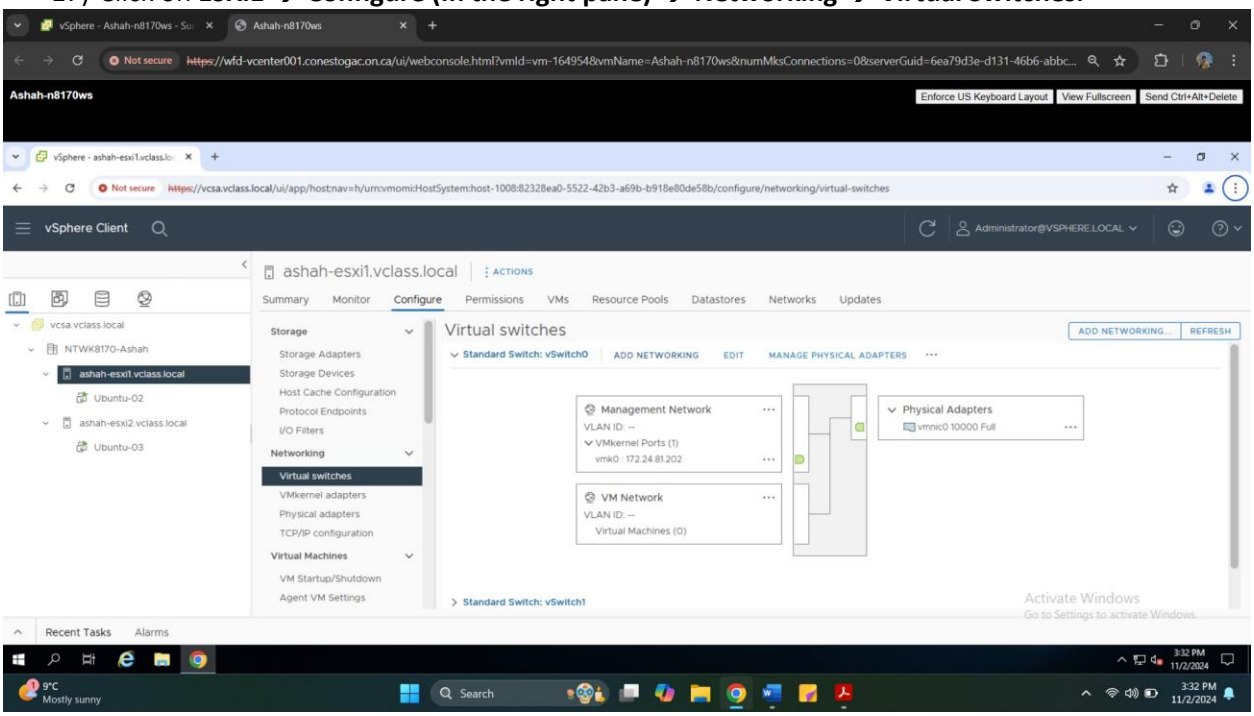
15) Click the **three lines** in the top left → **Inventory.**



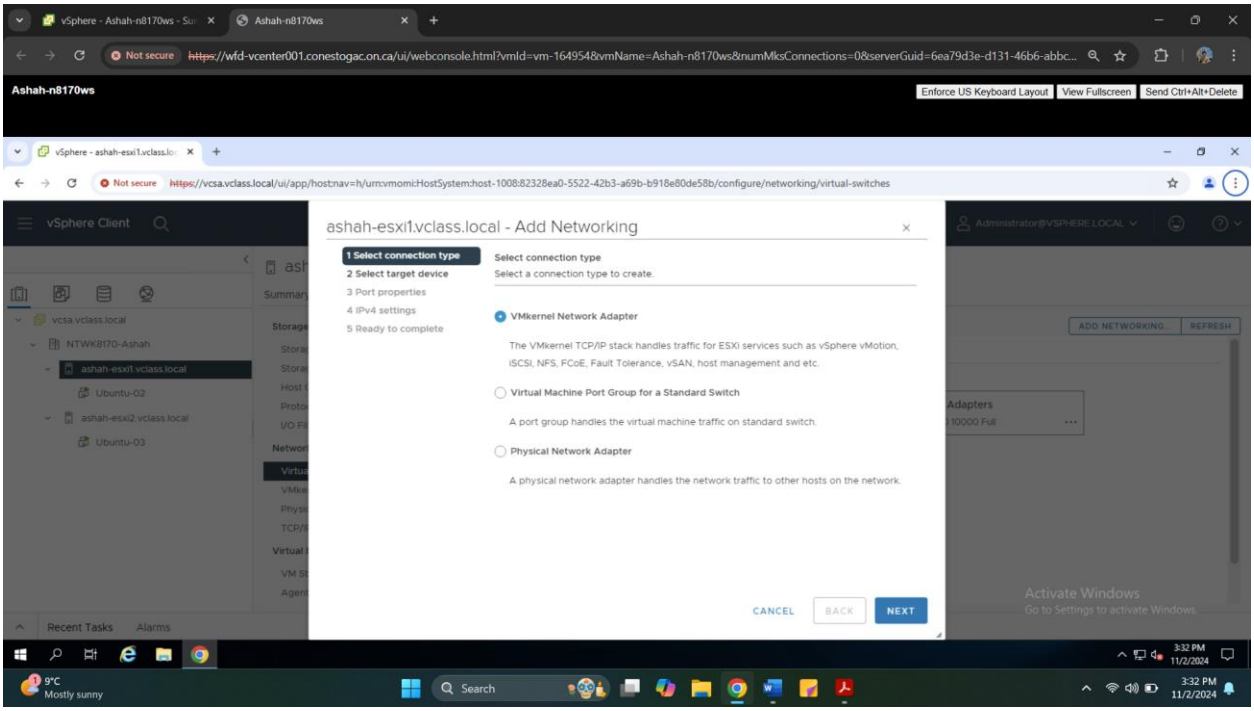
16) Make sure you are in hosts and clusters view (the three servers)



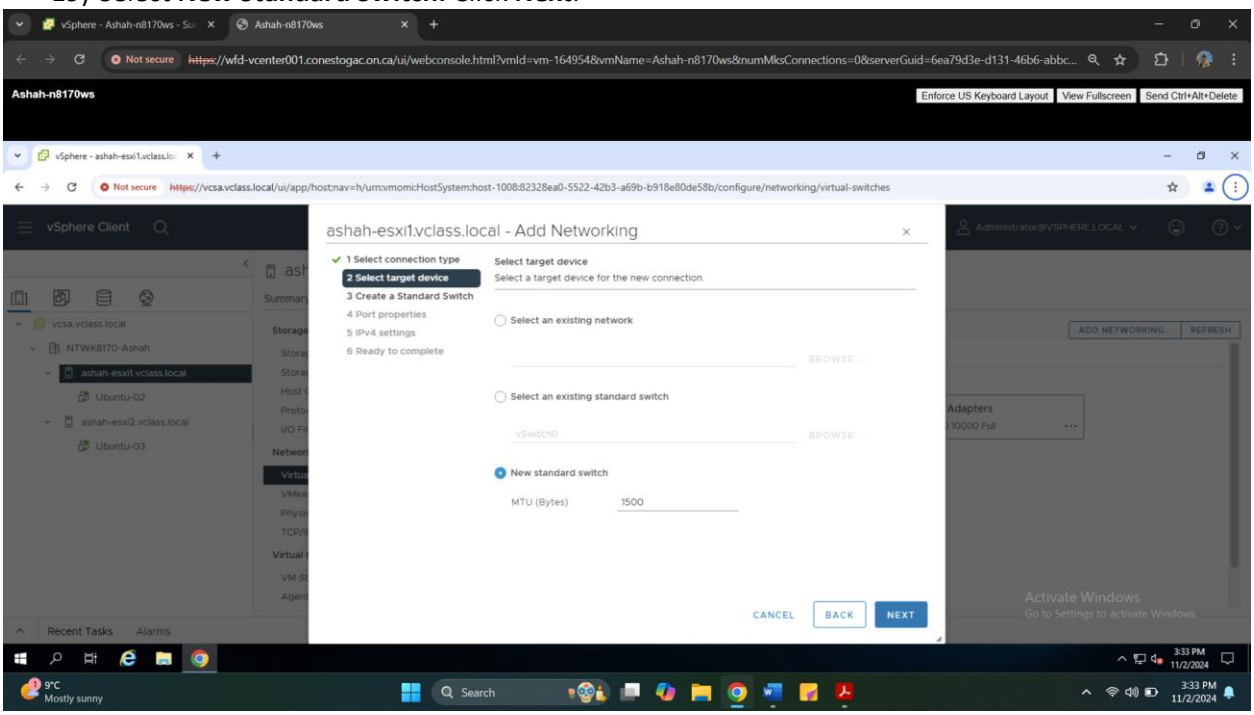
17) Click on **ESXi1 → Configure (In the right pane) → Networking → Virtual Switches.**



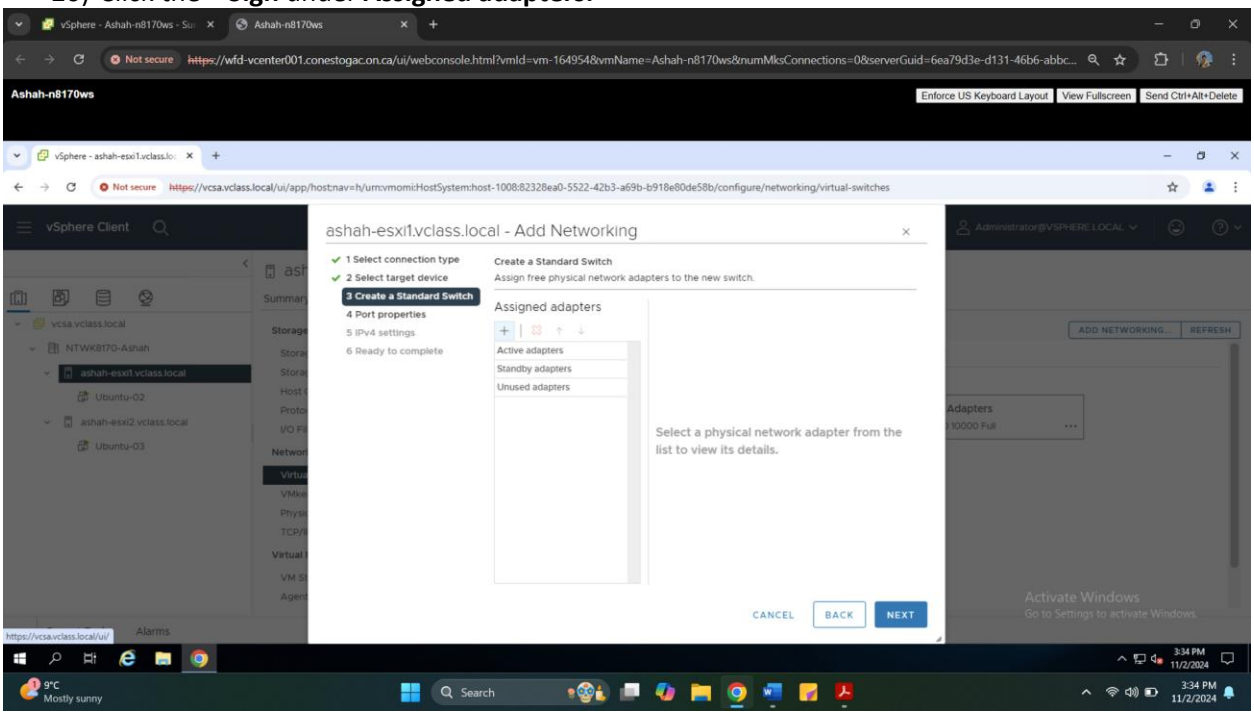
18) In the **Top Right** Click **Add Networking…**Ensure **VMkernal Network adapter** is selected. Click **Next**.



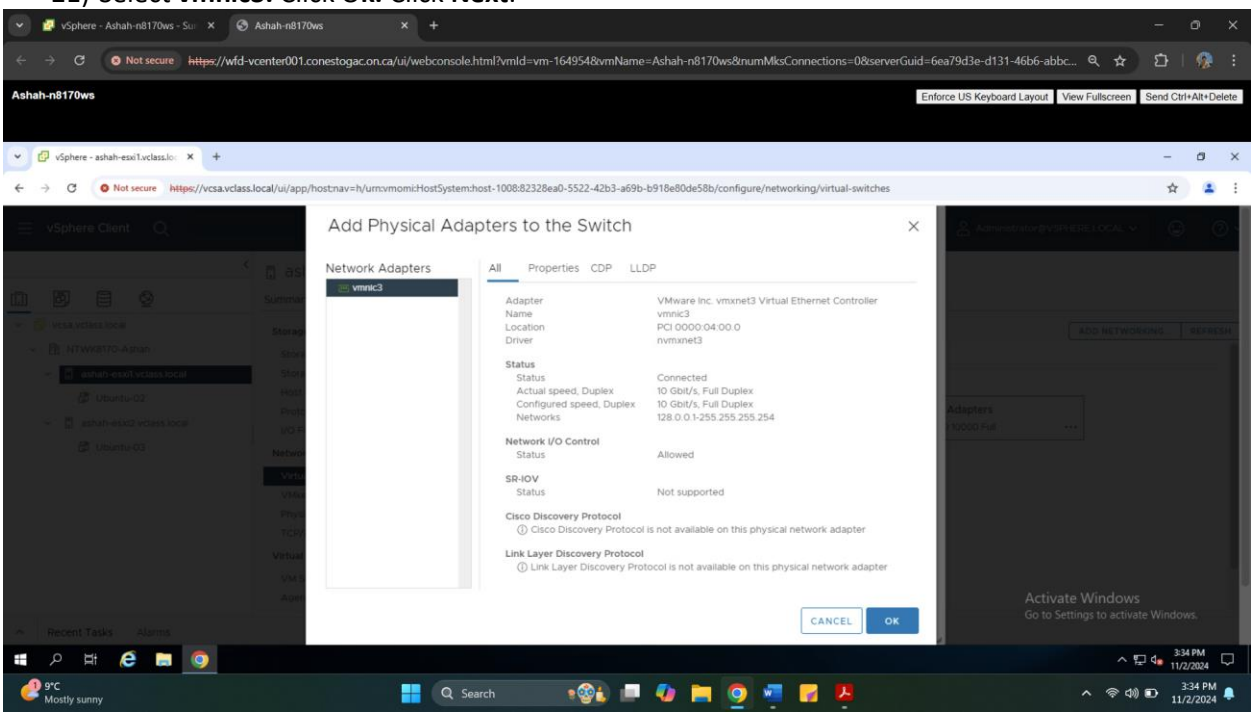
19) Select **New Standard Switch.** Click **Next**.

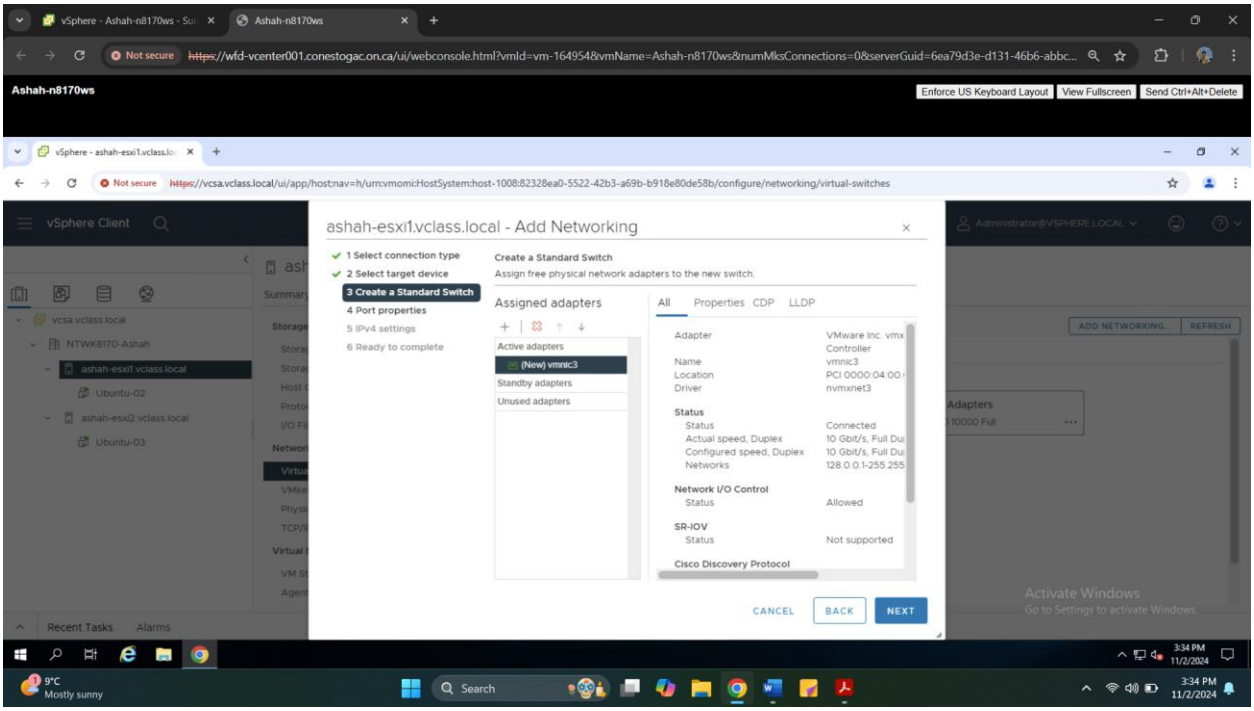


20) Click the **+ Sign** under **Assigned adapters.**

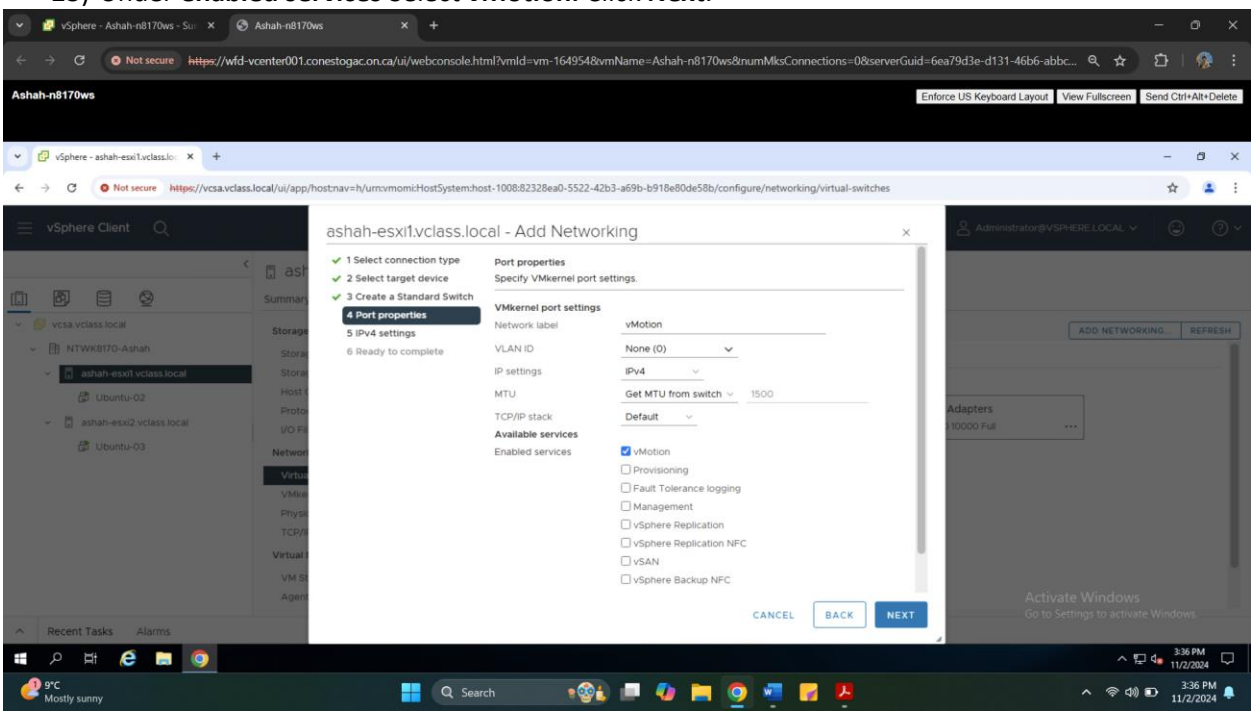


21) Select **vmnic3.** Click O**k.** Click **Next**.

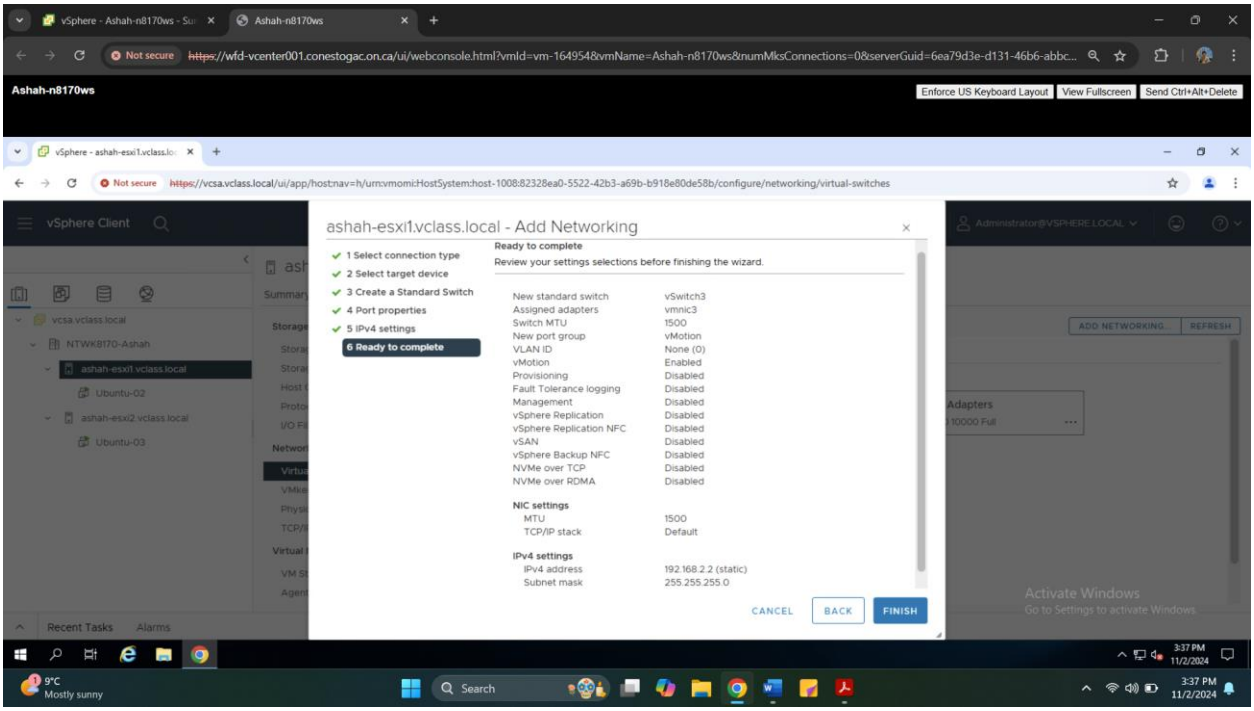


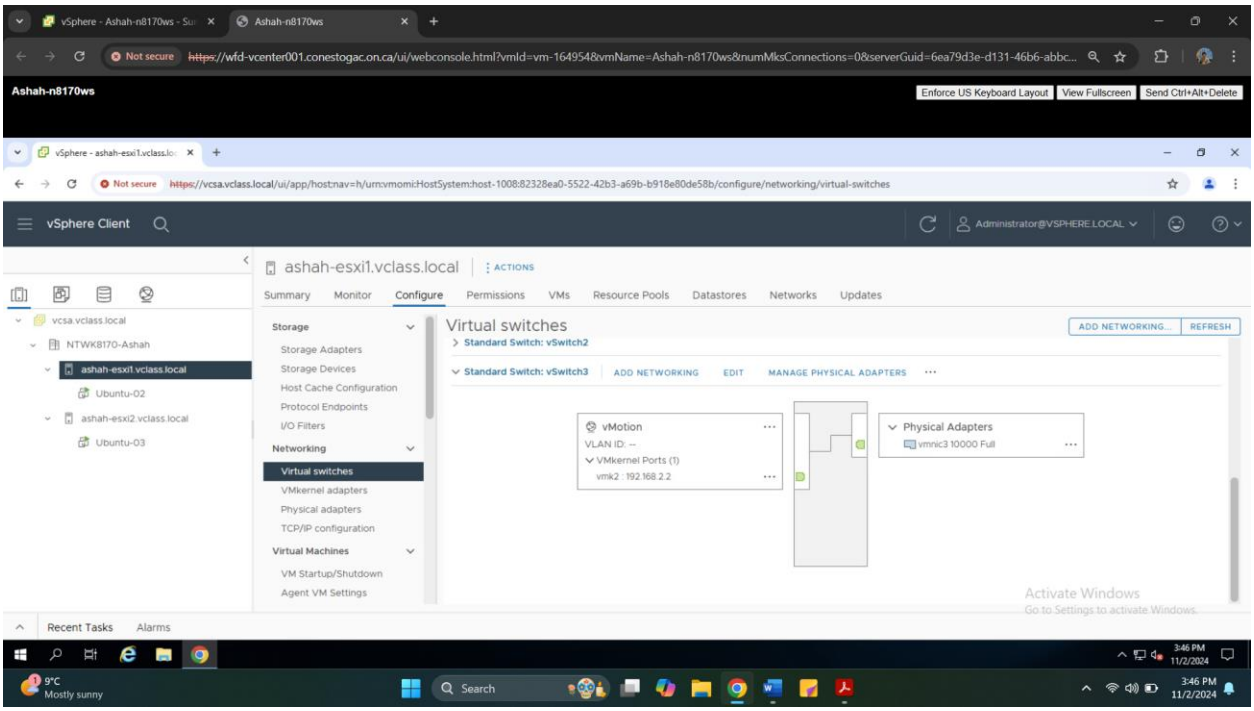


22) On **Port Properties** under **VMkernal port settings** set the **Network Label** to **vMotion**.
23) Under **enabled services** Select **vMotion.** Click **Next**.

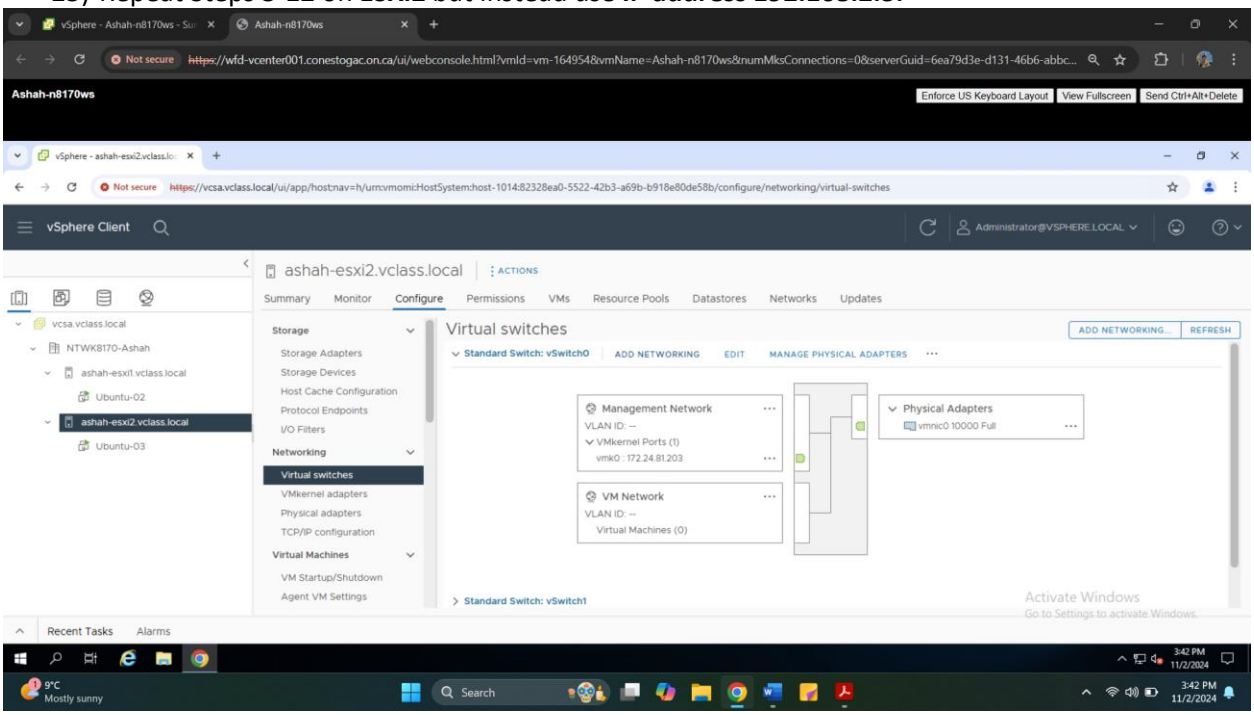


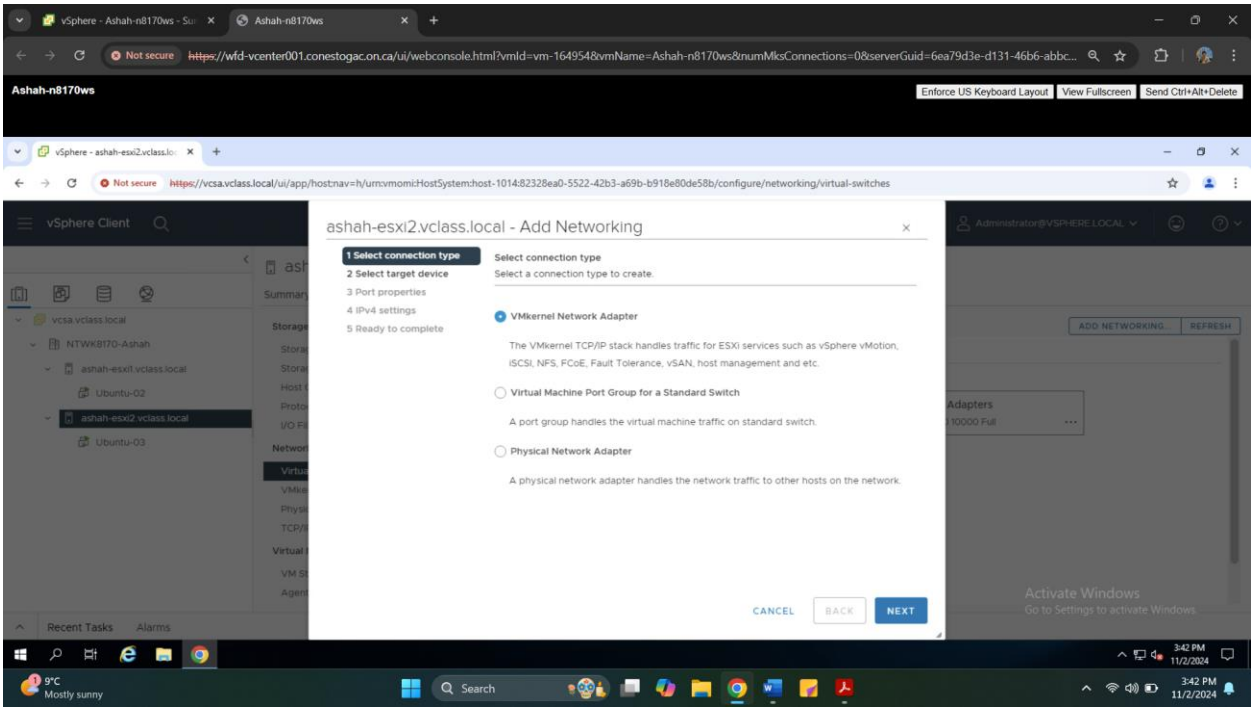
24) On **IPv4 settings** Select **Use static IPv4 settings**. For **IPv4 address** enter **192.168.2.2 Subnet 255.255.255.0.** Click **Finish**.

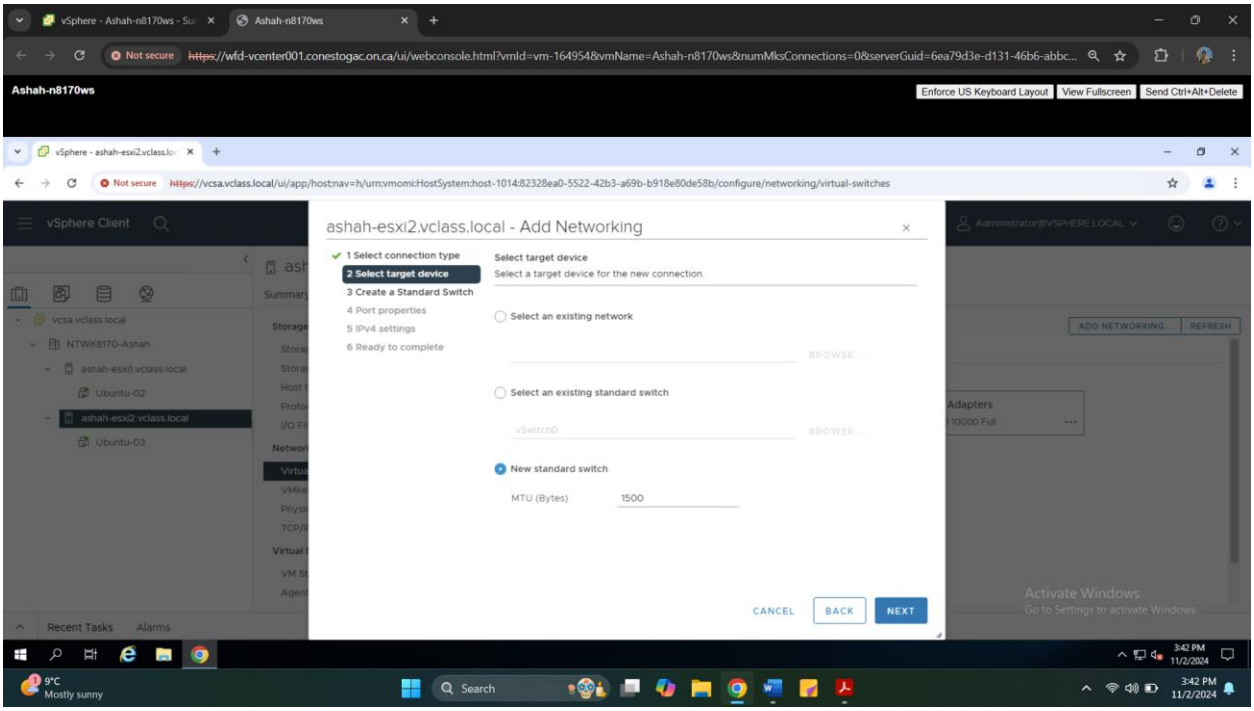


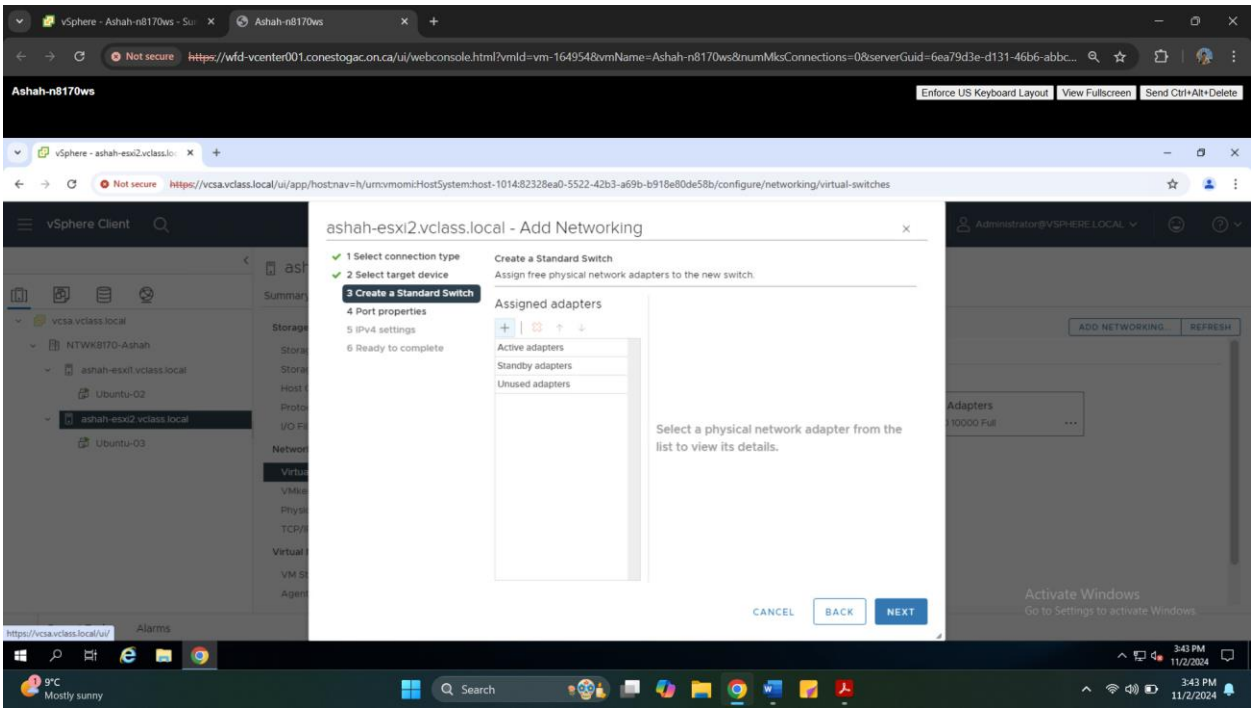


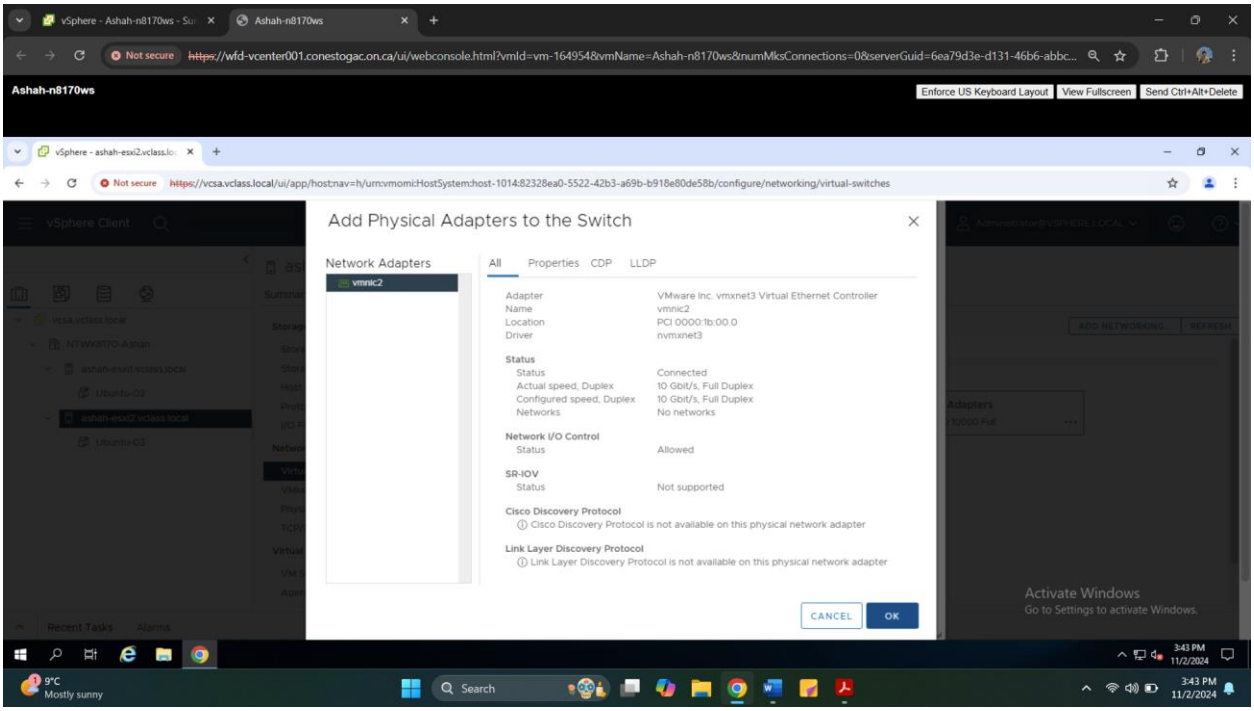
25) Repeat Steps **3-12** on **ESXi2** but instead use **IP address 192.168.2.3.**

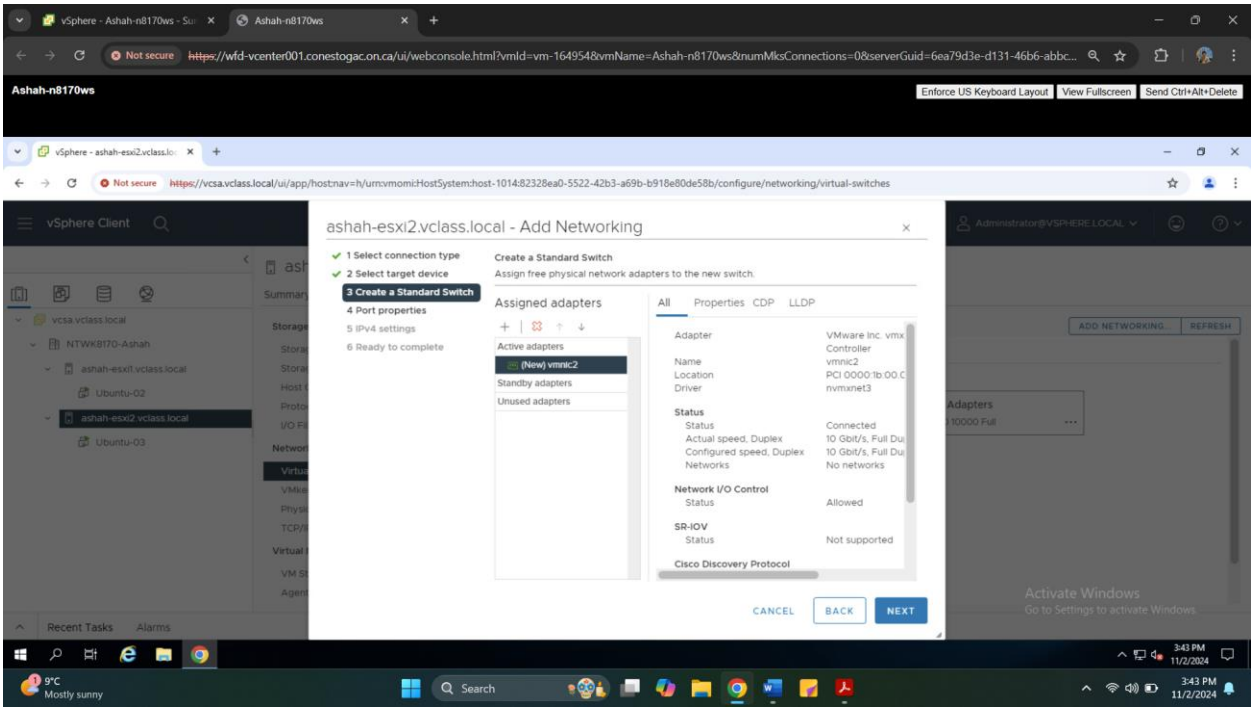


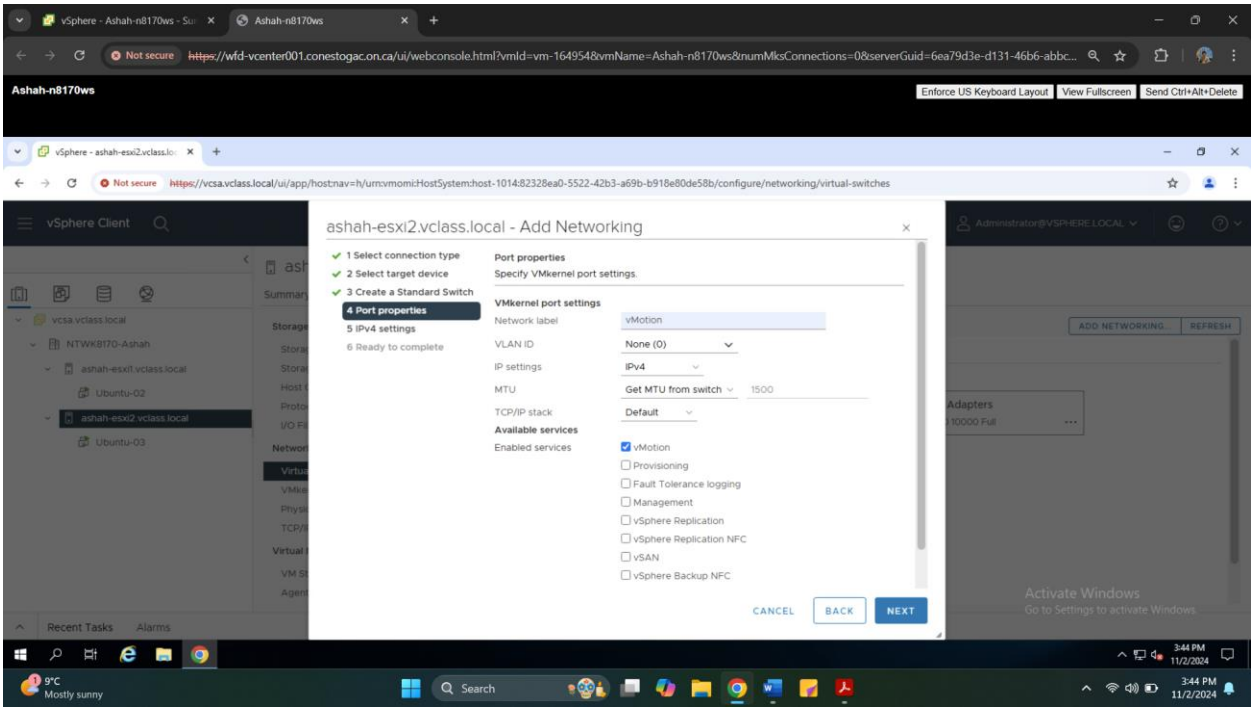


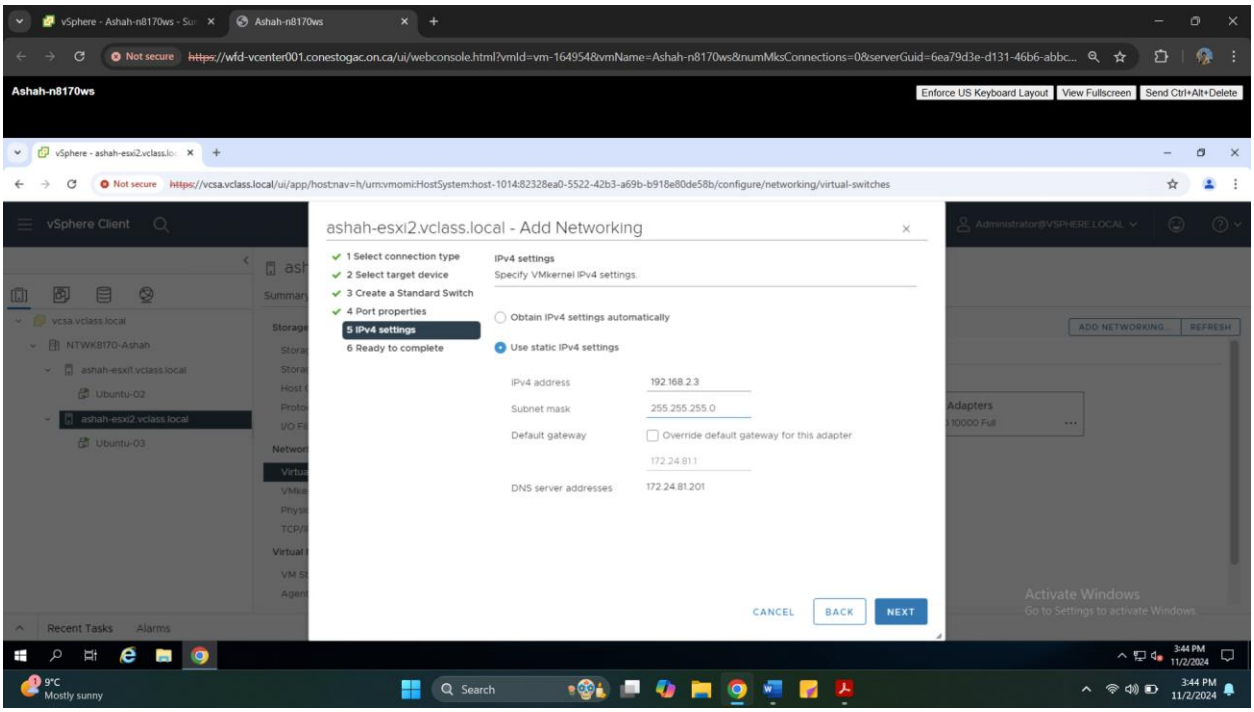

Ashah-n8170ws
Enforce US Keyboard Layout
View Fullscreen
Send Ctrl+Alt+Delete
ashah-esxi2.vclass.local - Add Networking
1 Select connection type
2 Select target device
3 Create a Standard Switch
4 Port properties
5 IPv4 settings
6 Ready to complete
Select target device
Select a target device for the new connection.
Select an existing network
Select an existing standard switch
New standard switch
MTU (Bytes)
1500
CANCEL
BACK
NEXT

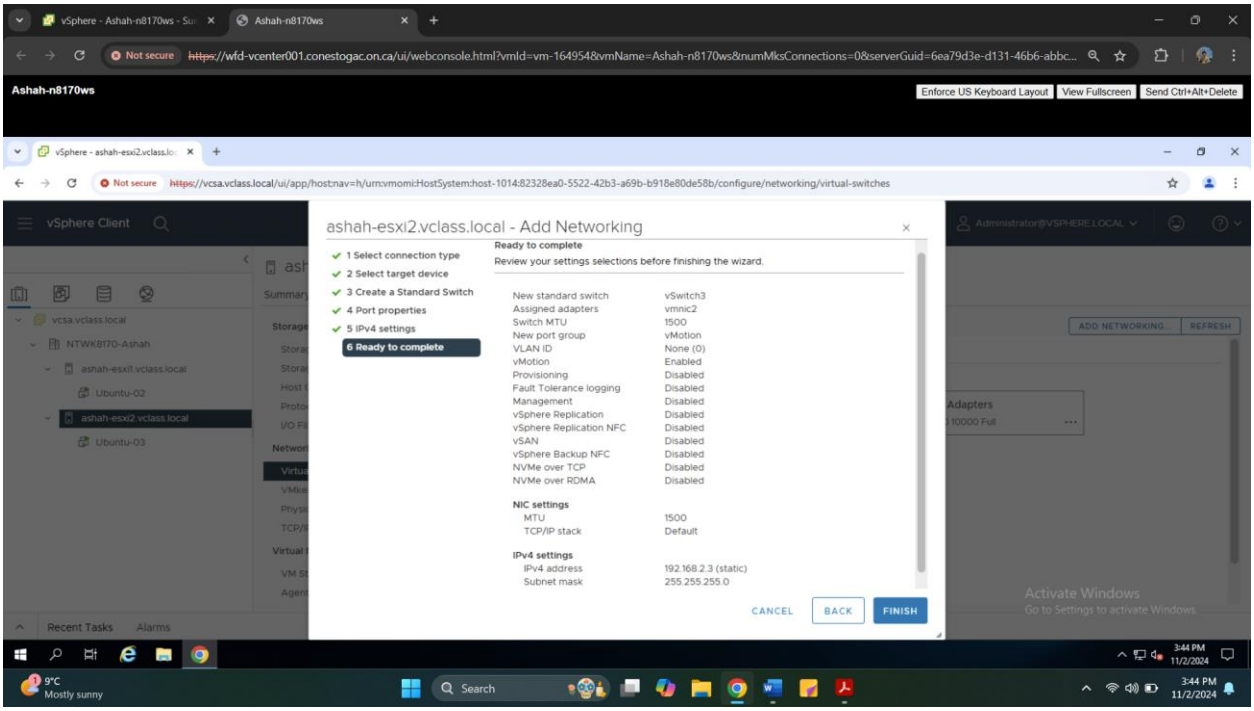

Ashah-n8170ws
Enforce US Keyboard Layout
View Fullscreen
Send Ctrl+Alt+Delete
ashah-esxi2.vclass.local - Add Networking
1 Select connection type
2 Select target device
3 Create a Standard Switch
4 Port properties
5 IPv4 settings
6 Ready to complete
Create a Standard Switch
Assign free physical network adapters to the new switch.
Assigned adapters
Active adapters
Standby adapters
Unused adapters
Select a physical network adapter from the list to view its details.
CANCEL
BACK
NEXT

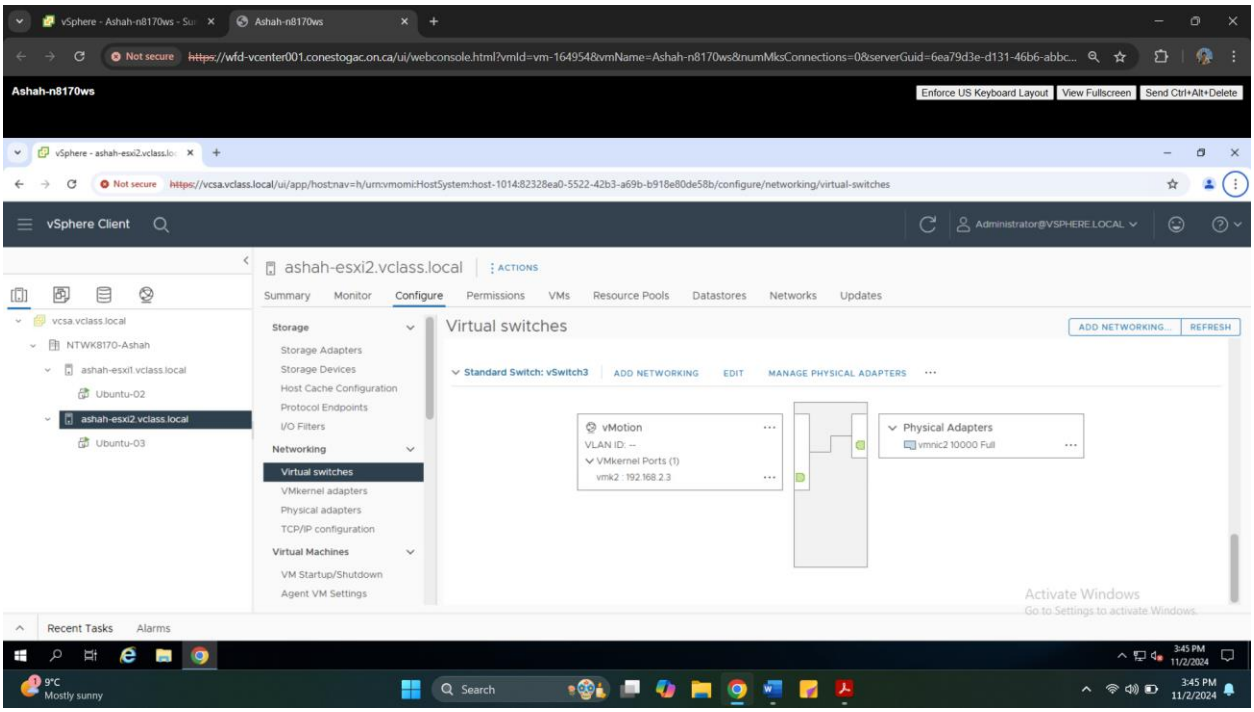

Ashah-n8170ws
Enforce US Keyboard Layout
View Fullscreen
Send Ctrl+Alt+Delete
Not secure
https://wfd-vcenter001.conestogac.on.ca/ui/webconsole.html?vmId=vm-164954&vmName=Ashah-n8170ws&numMksConnections=0&serverGuid=6ea79d3e-d131-46b6-abbc...
Not secure
https://vcsa.vclass.local/ui/app/host;nav=h/urn:vmomi:HostSystem:host-1014:82328ea0-5522-42b3-a69b-b918e80de58b/configure/networking/virtual-switches
vSphere Client
Add Physical Adapters to the Switch
Network Adapters
vmnic2
All
Properties
CDP
LLDP
Adapter
VMware Inc. vmxnet3 Virtual Ethernet Controller
Name
vmnic2
Location
PCI 0000:1b:00.0
Driver
nvmxnet3
Status
Status
Connected
Actual speed, Duplex
10 Gbit/s, Full Duplex
Configured speed, Duplex
10 Gbit/s, Full Duplex
Networks
No networks
Network I/O Control
Status
Allowed
SR-IOV
Status
Not supported
Cisco Discovery Protocol
Cisco Discovery Protocol is not available on this physical network adapter
Link Layer Discovery Protocol
Link Layer Discovery Protocol is not available on this physical network adapter
CANCEL
OK
Activate Windows
Go to Settings to activate Windows.
Recent Tasks
Alarms
9°C
Mostly sunny
Search
3:43 PM
11/2/2024


Ashah-n8170ws
Enforce US Keyboard Layout
View Fullscreen
Send Ctrl+Alt+Delete
Not secure
https://wfd-vcenter001.conestogac.on.ca/ui/webconsole.html?vmId=vm-164954&vmName=Ashah-n8170ws&numMksConnections=0&serverGuid=6ea79d3e-d131-46b6-abbc...
Not secure
https://vcsa.vclass.local/ui/app/host;nav=h/urn:vmomi:HostSystem:host-1014:82328ea0-5522-42b3-a69b-b918e80de58b/configure/networking/virtual-switches
vSphere Client
ashah-esxi2.vclass.local - Add Networking
1 Select connection type
2 Select target device
3 Create a Standard Switch
4 Port properties
5 IPv4 settings
6 Ready to complete
Create a Standard Switch
Assign free physical network adapters to the new switch.
Assigned adapters
Active adapters
(New) vmnic2
Standby adapters
Unused adapters
All
Properties
CDP
LLDP
Adapter
VMware Inc. vmx
Controller
Name
vmnic2
Location
PCI 0000:1b:00.0
Driver
nvmxnet3
Status
Status
Connected
Actual speed, Duplex
10 Gbit/s, Full Du
Configured speed, Duplex
10 Gbit/s, Full Du
Networks
No networks
Network I/O Control
Status
Allowed
SR-IOV
Status
Not supported
Cisco Discovery Protocol
CANCEL
BACK
NEXT
Activate Windows
Go to Settings to activate Windows.
Recent Tasks
Alarms
9°C
Mostly sunny
Search
3:43 PM
11/2/2024


Ashah-n8170ws
Enforce US Keyboard Layout
View Fullscreen
Send Ctrl+Alt+Delete
Not secure
https://wfd-vcenter001.conestogac.on.ca/ui/webconsole.html?vmId=vm-164954&vmName=Ashah-n8170ws&numMksConnections=0&serverGuid=6ea79d3e-d131-46b6-abbc...
Not secure
https://vcsa.vclass.local/ui/app/host;nav=h/urn:vmomi:HostSystem:host-1014:82328ea0-5522-42b3-a69b-b918e80de58b/configure/networking/virtual-switches
vSphere Client
ashah-esxi2.vclass.local - Add Networking
1 Select connection type
2 Select target device
3 Create a Standard Switch
4 Port properties
5 IPv4 settings
6 Ready to complete
Port properties
Specify VMkernel port settings.
VMkernel port settings
Network label
vMotion
VLAN ID
None (0)
IP settings
IPv4
MTU
Get MTU from switch
1500
TCP/IP stack
Default
Available services
Enabled services
vMotion
Provisioning
Fault Tolerance logging
Management
vSphere Replication
vSphere Replication NFC
vSAN
vSphere Backup NFC
CANCEL
BACK
NEXT
Recent Tasks
Alarms
ADD NETWORKING...
REFRESH
Adapters
Activate Windows
Go to Settings to activate Windows.
9°C
Mostly sunny
Search
3:44 PM
11/2/2024

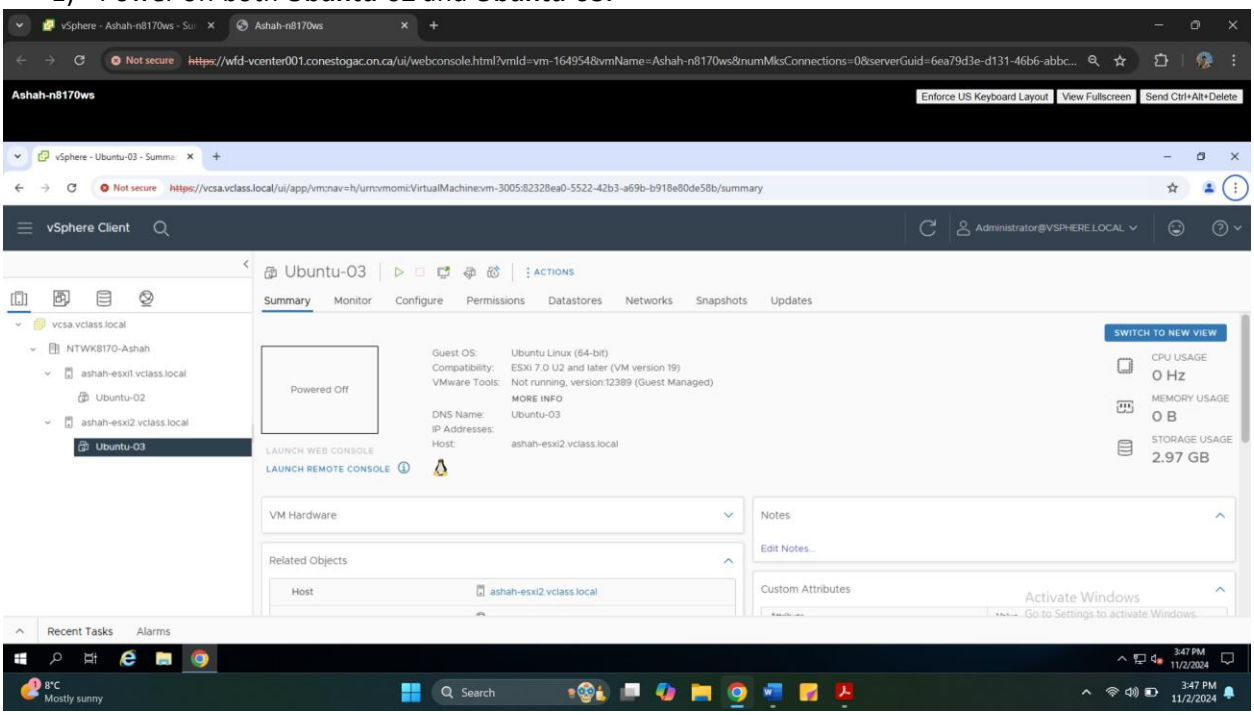

Ashah-n8170ws
Enforce US Keyboard Layout
View Fullscreen
Send Ctrl+Alt+Delete
Not secure
https://wfd-vcenter001.conestogac.on.ca/ui/webconsole.html?vmId=vm-164954&vmName=Ashah-n8170ws&numMksConnections=0&serverGuid=6ea79d3e-d131-46b6-abbc...
Not secure
https://vcsa.vclass.local/ui/app/host;nav=h/urn:vmomi:HostSystem:host-1014:82328ea0-5522-42b3-a69b-b918e80de58b/configure/networking/virtual-switches
vSphere Client
ashah-esxi2.vclass.local - Add Networking
1 Select connection type
2 Select target device
3 Create a Standard Switch
4 Port properties
5 IPv4 settings
6 Ready to complete
IPv4 settings
Specify VMkernel IPv4 settings.
Obtain IPv4 settings automatically
Use static IPv4 settings
IPv4 address
192.168.2.3
Subnet mask
255.255.255.0
Default gateway
Override default gateway for this adapter
172.24.81.1
DNS server addresses
172.24.81.201
CANCEL
BACK
NEXT
Recent Tasks
Alarms
ADD NETWORKING...
REFRESH
Adapters
Activate Windows
Go to Settings to activate Windows.
9°C
Mostly sunny
Search
3:44 PM
11/2/2024


Ashah-n8170ws
Enforce US Keyboard Layout
View Fullscreen
Send Ctrl+Alt+Delete
vSphere Client
ashah-esxi2.vclass.local - Add Networking
Ready to complete
Review your settings selections before finishing the wizard.
1 Select connection type
2 Select target device
3 Create a Standard Switch
4 Port properties
5 IPv4 settings
6 Ready to complete
New standard switch vSwitch3
Assigned adapters vmnic2
Switch MTU 1500
New port group vMotion
VLAN ID None (0)
vMotion Enabled
Provisioning Disabled
Fault Tolerance logging Disabled
Management Disabled
vSphere Replication Disabled
vSphere Replication NFC Disabled
vSAN Disabled
vSphere Backup NFC Disabled
NVMe over TCP Disabled
NVMe over RDMA Disabled
NIC settings
MTU 1500
TCP/IP stack Default
IPv4 settings
IPv4 address 192.168.2.3 (static)
Subnet mask 255.255.255.0
CANCEL
BACK
FINISH
Recent Tasks
Alarms


Ashah-n8170ws
Enforce US Keyboard Layout
View Fullscreen
Send Ctrl+Alt+Delete
vSphere Client
ashah-esxi2.vclass.local
ACTIONS
Summary
Monitor
Configure
Permissions
VMs
Resource Pools
Datastores
Networks
Updates
Storage
Storage Adapters
Storage Devices
Host Cache Configuration
Protocol Endpoints
I/O Filters
Networking
Virtual switches
VMkernel adapters
Physical adapters
TCP/IP configuration
Virtual Machines
VM Startup/Shutdown
Agent VM Settings
Virtual switches
ADD NETWORKING...
REFRESH
Standard Switch: vSwitch3
ADD NETWORKING
EDIT
MANAGE PHYSICAL ADAPTERS
vMotion
VLAN ID: --
VMkernel Ports (1)
vmk2 : 192.168.2.3
Physical Adapters
vmnic2 10000 Full
Recent Tasks
Alarms

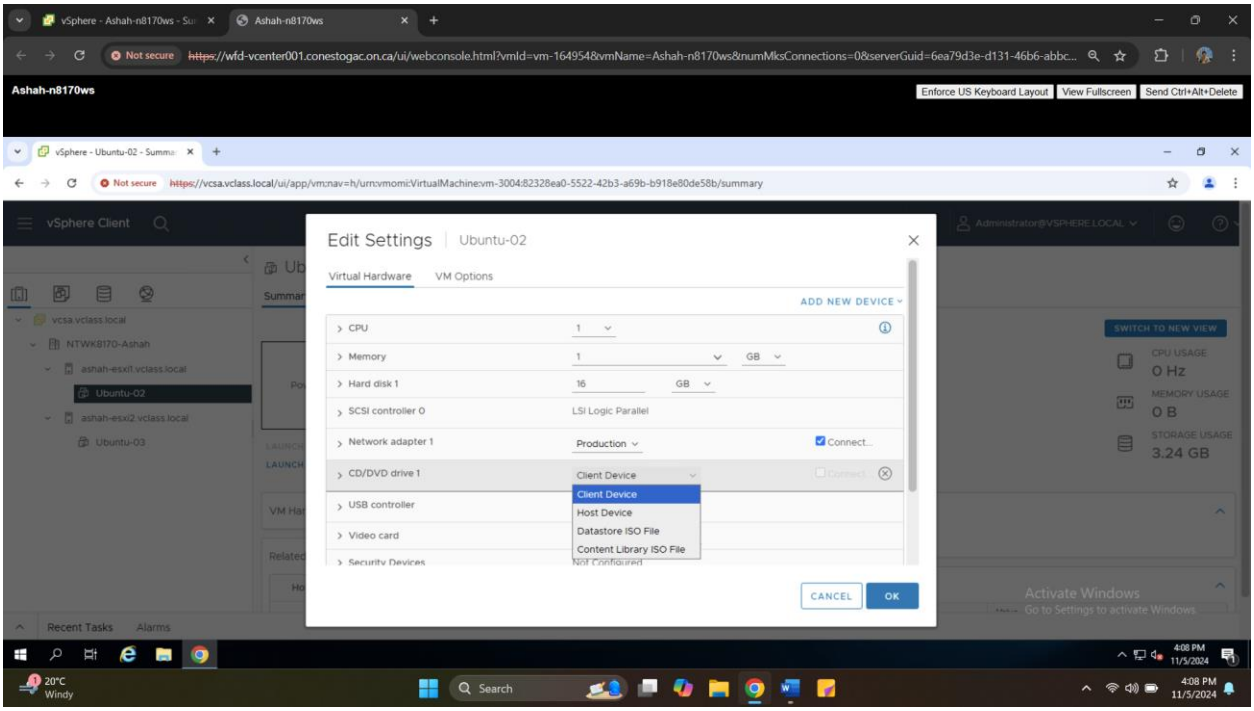
Section 2: Performing vMotion Migrations

1) Power off both **Ubuntu-02** and **Ubuntu-03.**

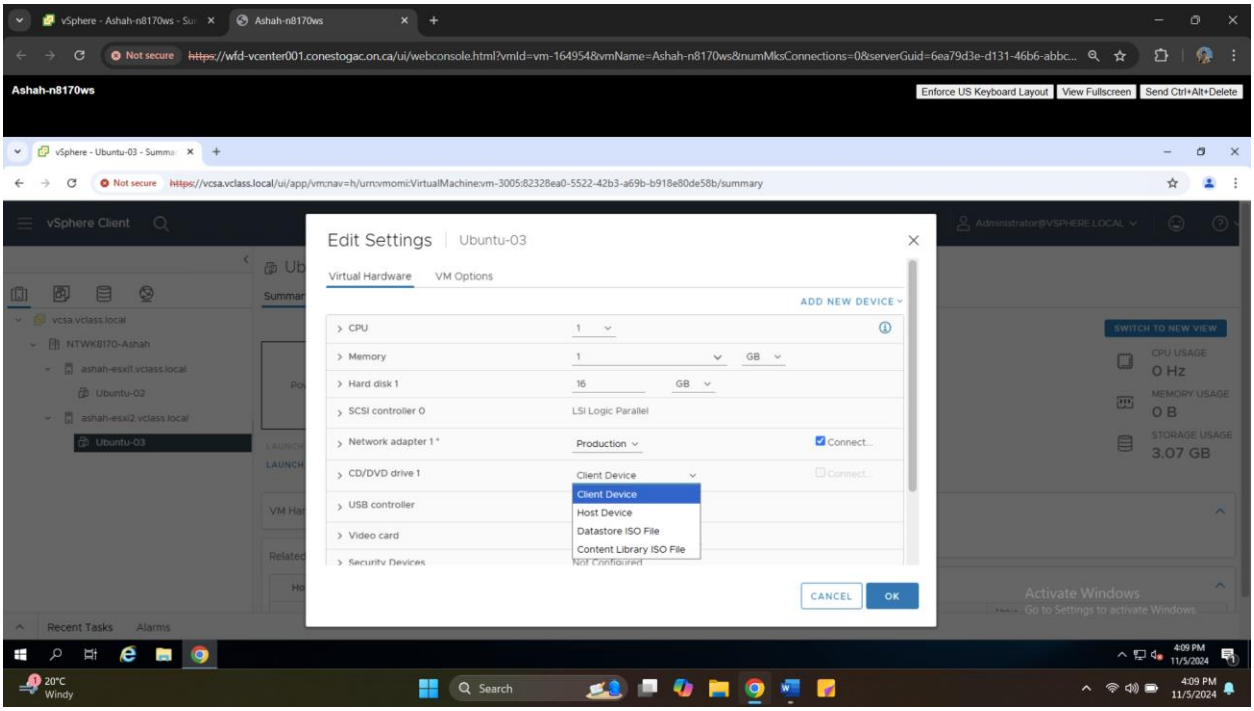


2) On both **Ubuntu-02** and **Ubuntu-03** change the **CD/DVD drive 1** to **Client Device** from *host device*.

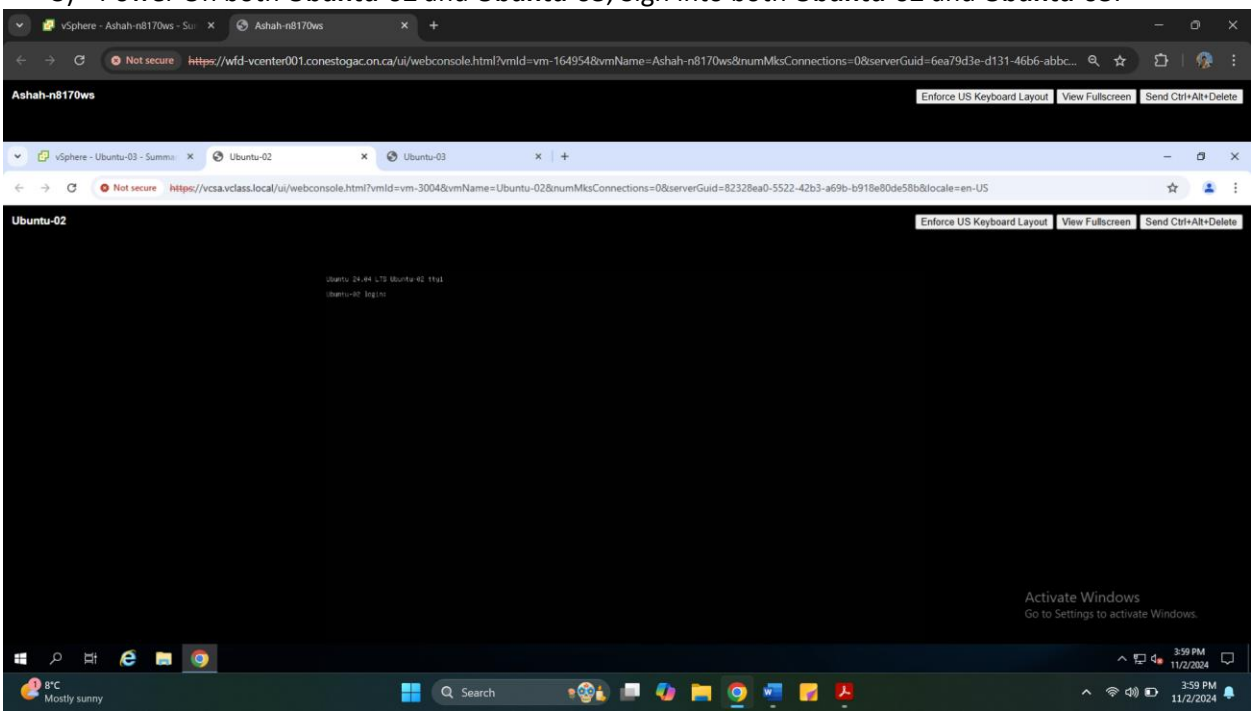
Ubuntu-02

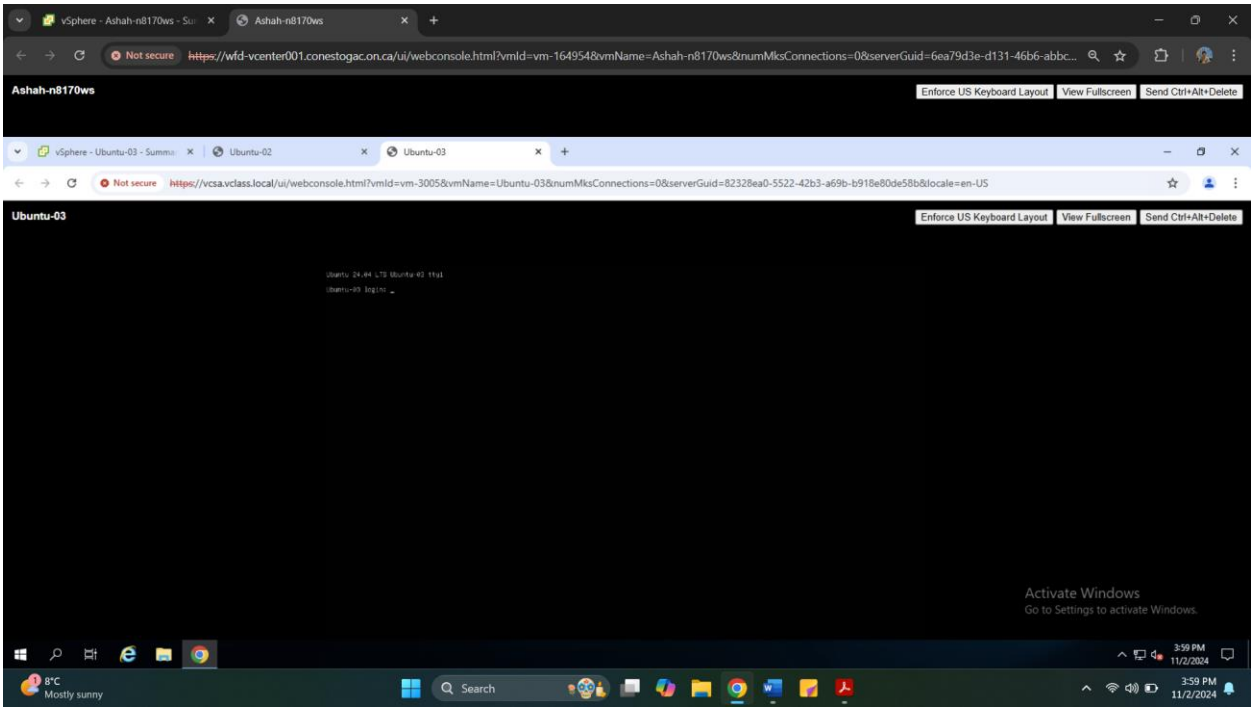


Ubuntu-03



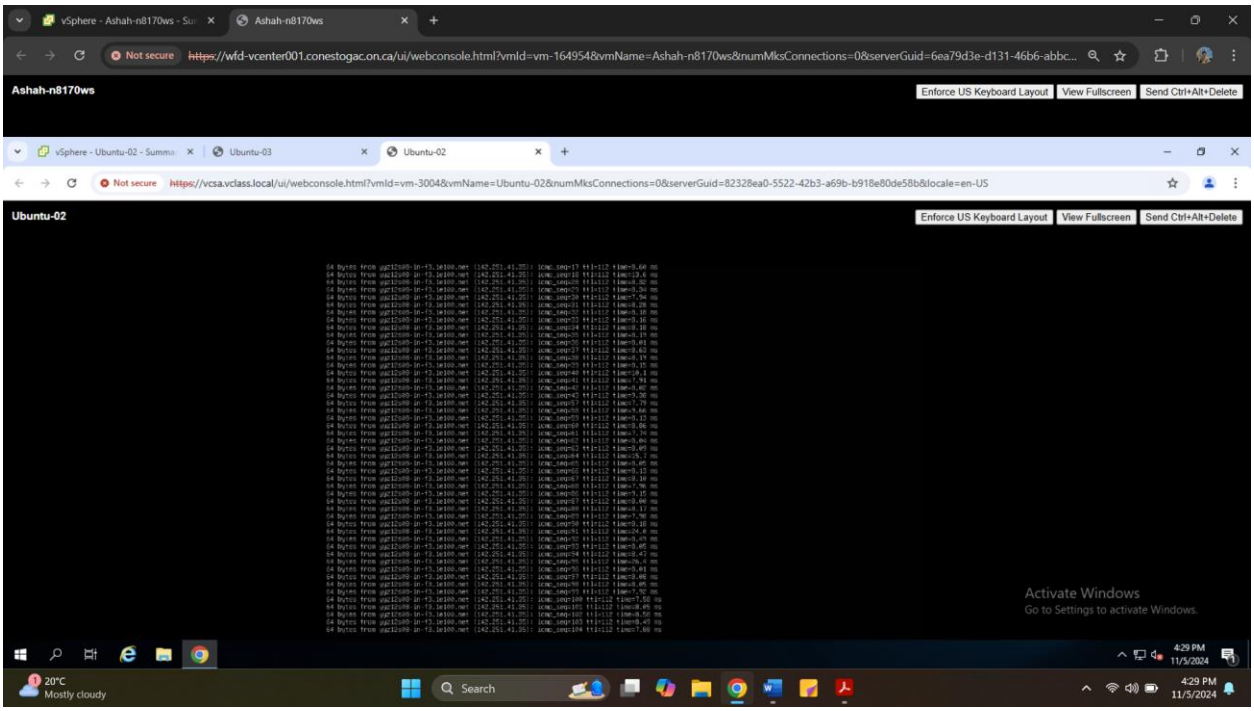
3) Power On both **Ubuntu-02** and **Ubuntu-03**, Sign into both **Ubuntu-02** and **Ubuntu-03**.



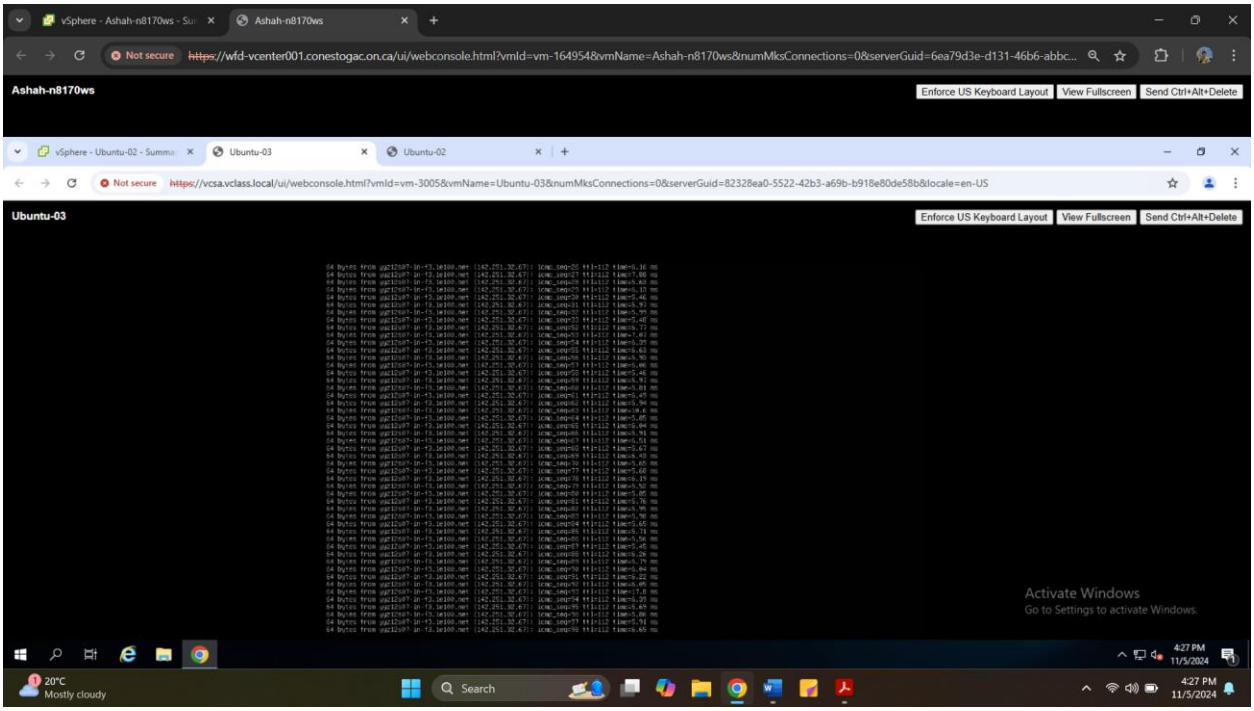


4) Type in the command ping **www.google.ca** (This will run a continuous ping to show that traffic does not drop when the compute resource/host is changed during vMotion)

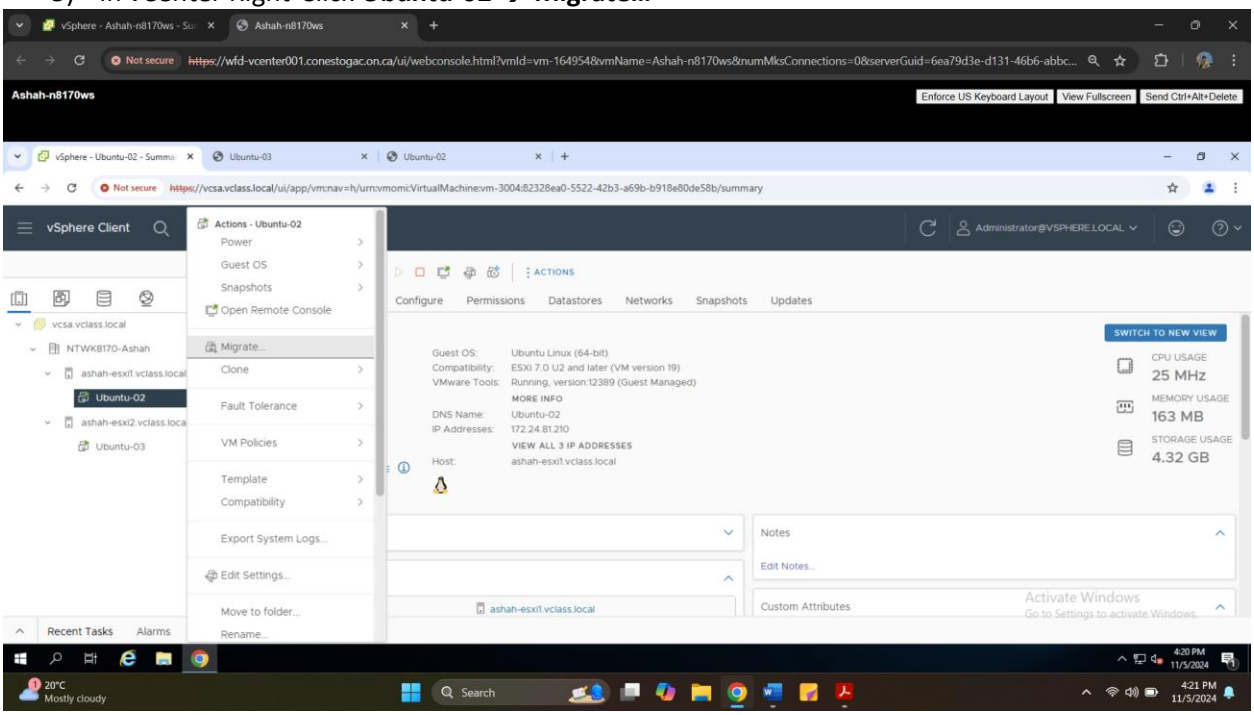
Ubuntu-02



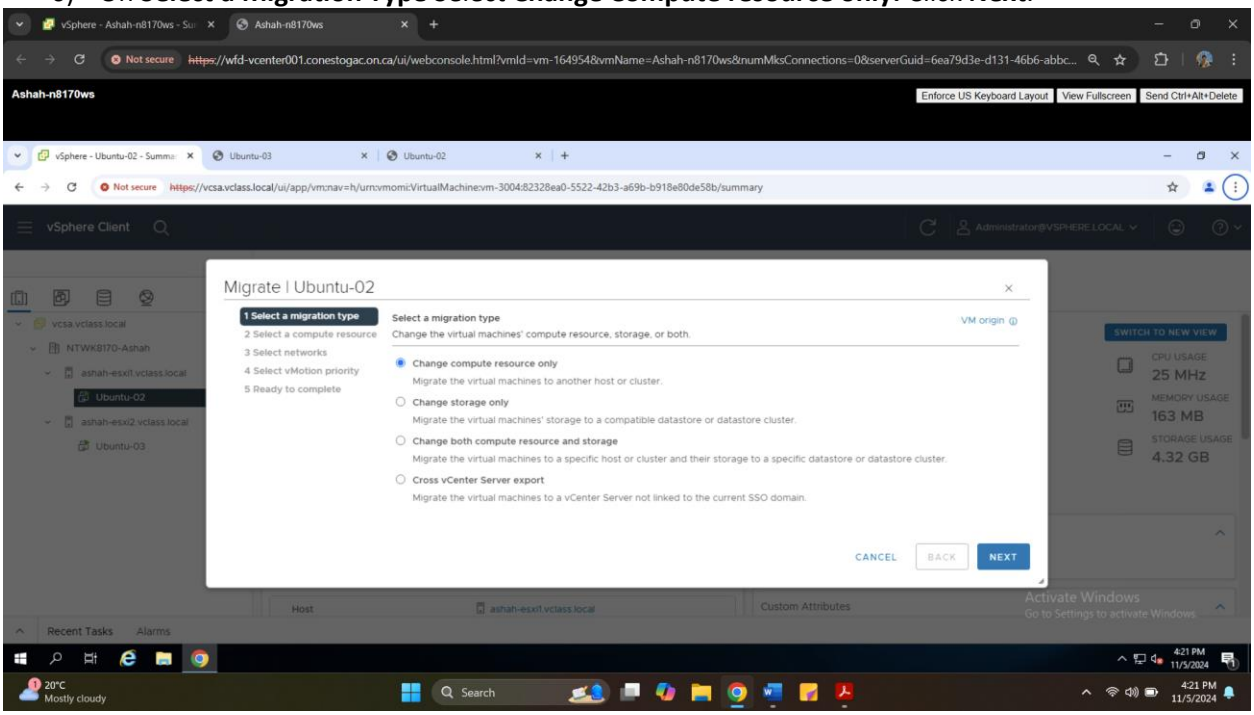
Ubuntu-03



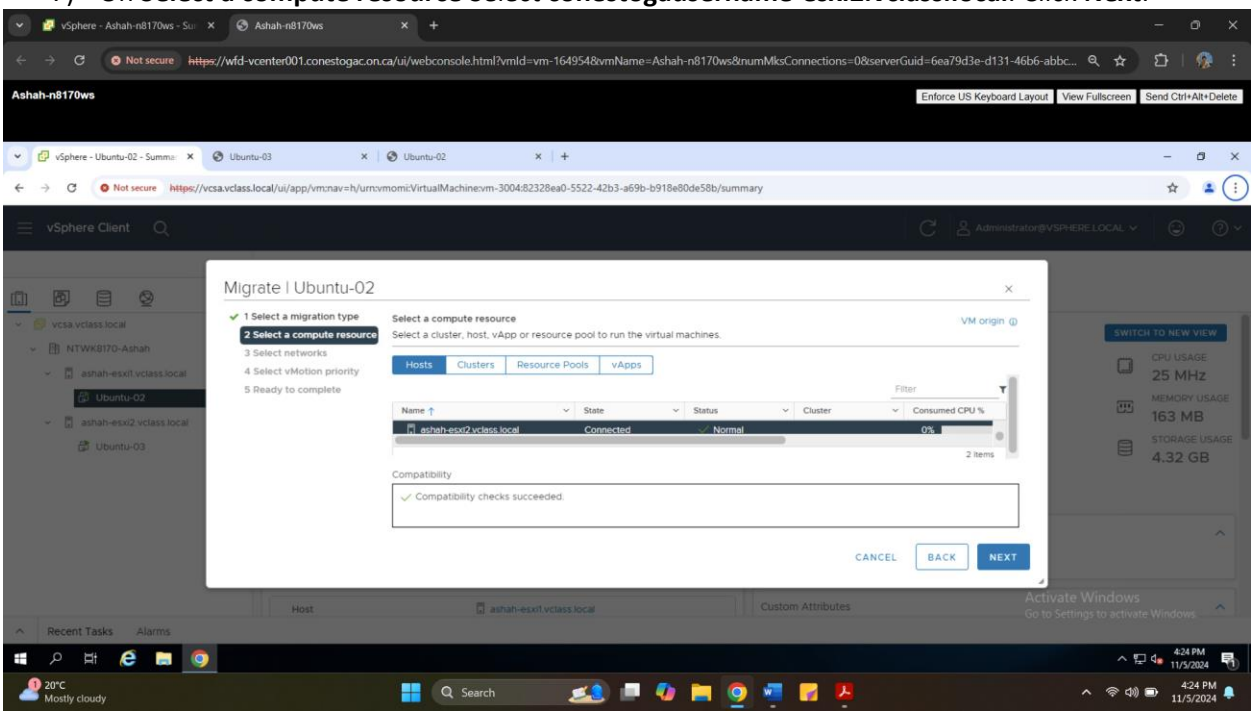
5) In vCenter Right-Click **Ubuntu-02 → Migrate…**



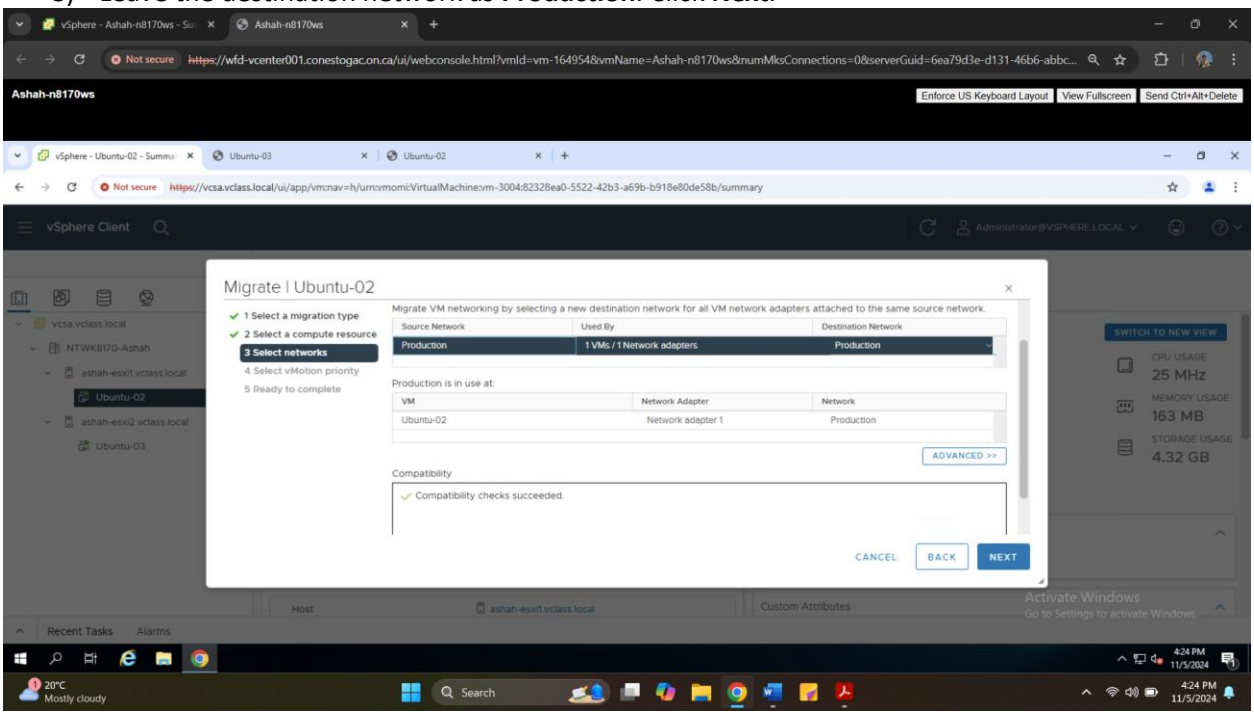
6) On **Select a Migration Type** Select **Change Compute resource only.** Click **Next**.



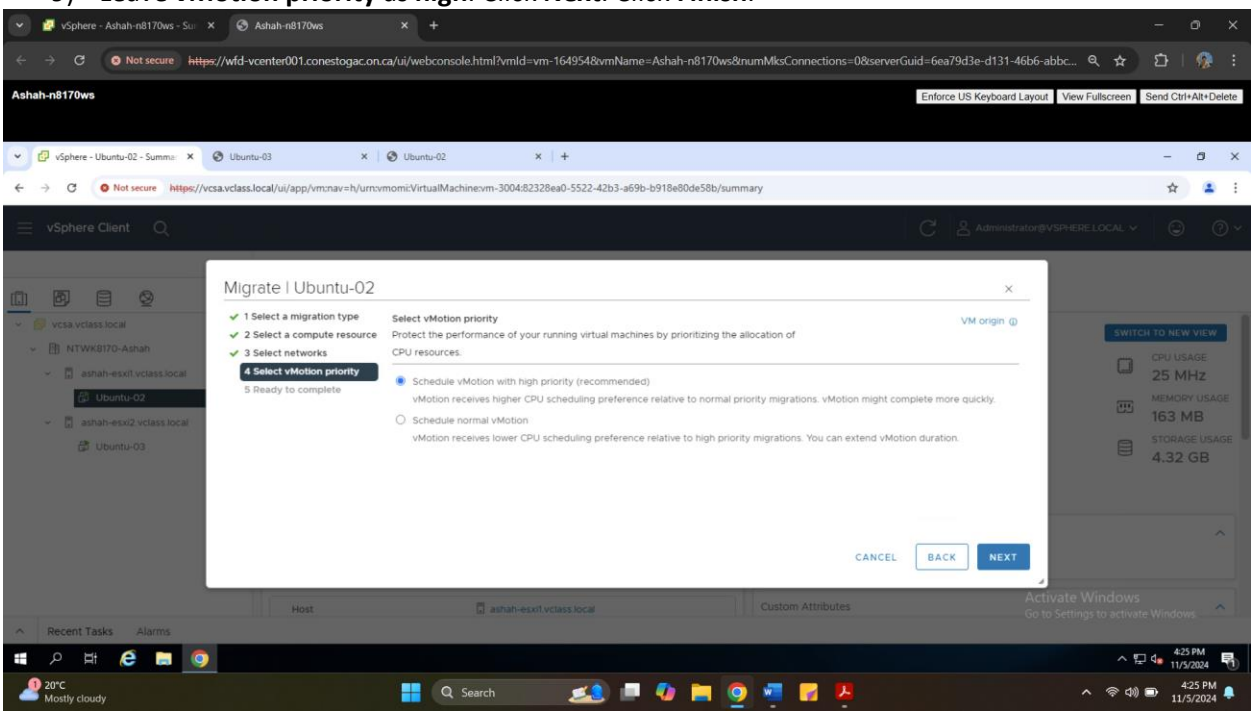
7) On **Select a compute resource** Select **conestogausername-esxi2.vclass.local**. Click **Next**.

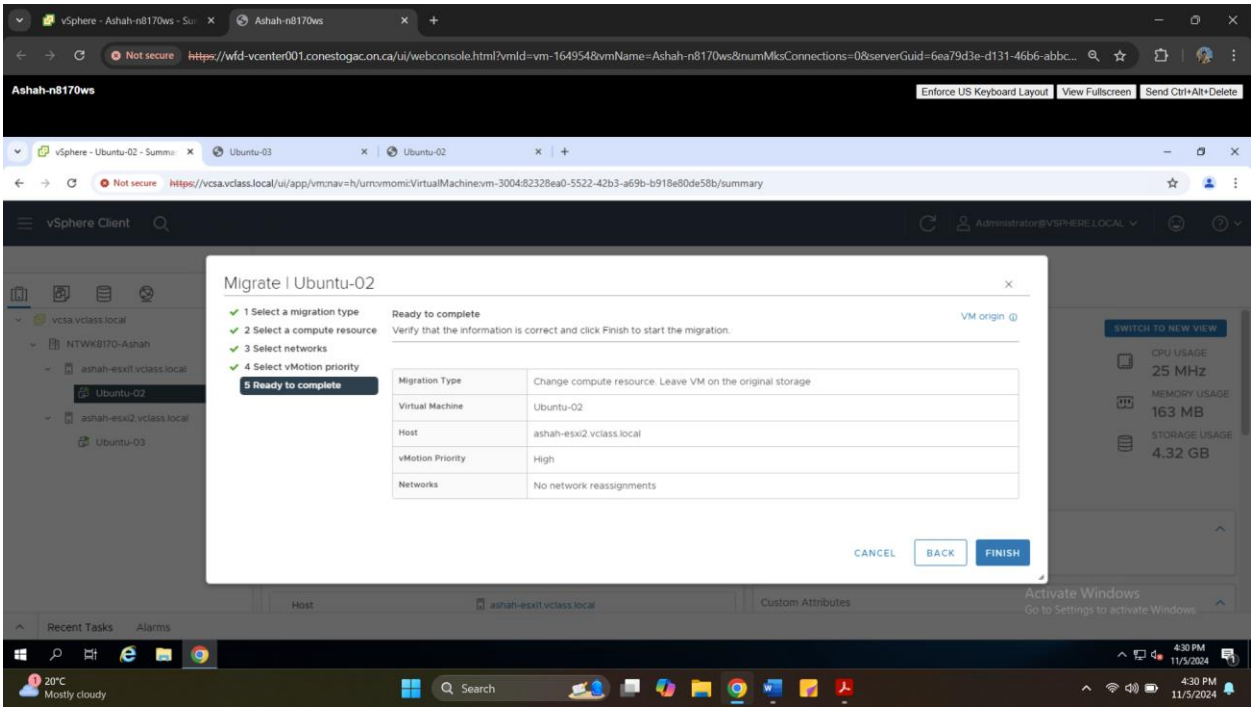


8) Leave the destination network as **Production**. Click **Next**.

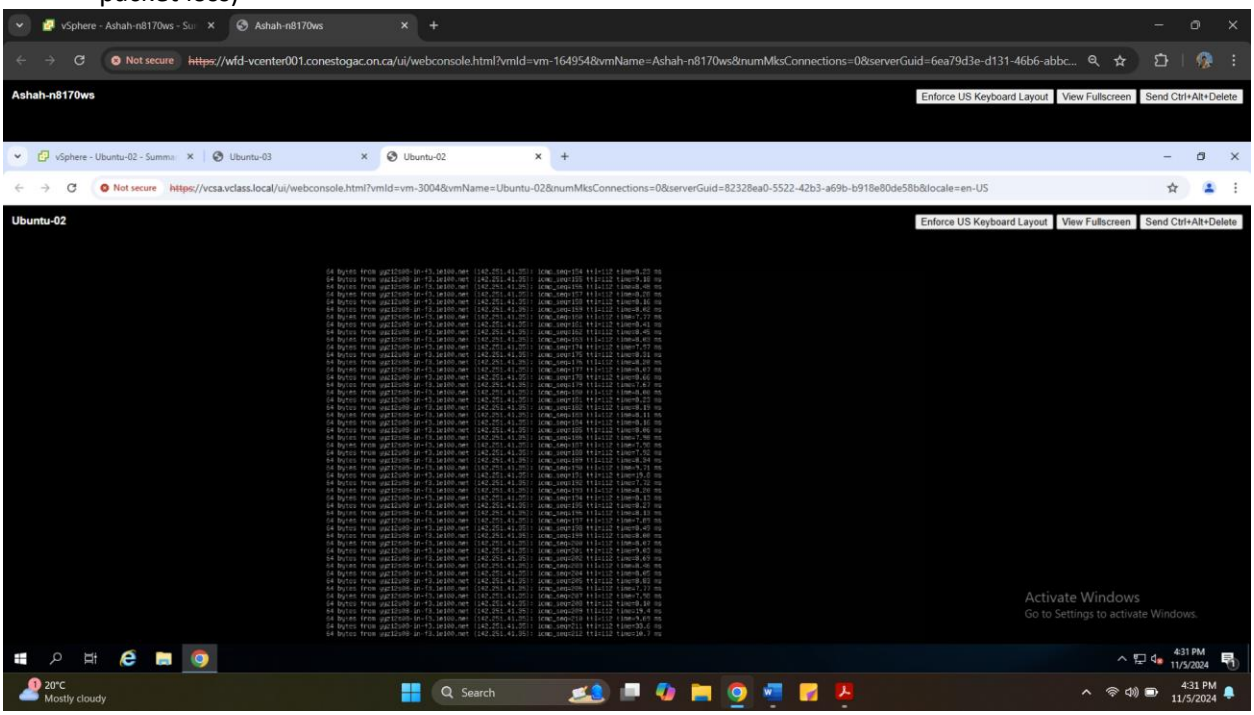


9) Leave **vMotion priority** as **high**. Click **Next**. Click **Finish**.

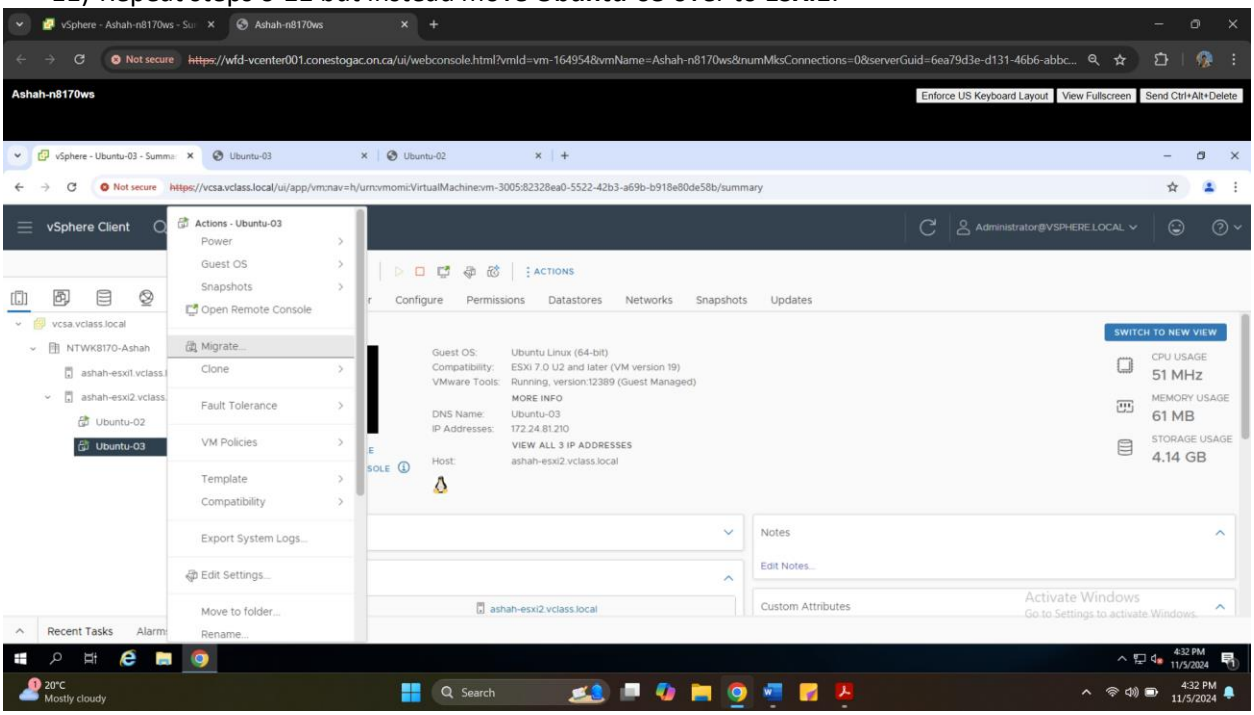


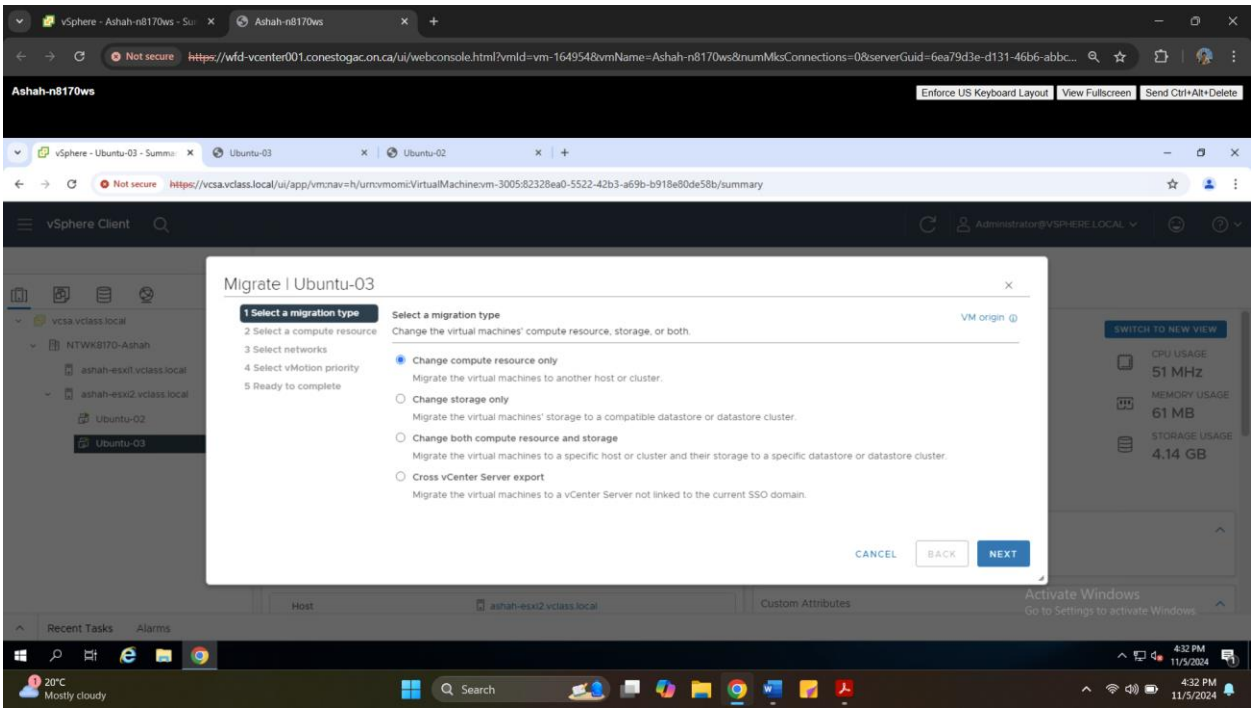


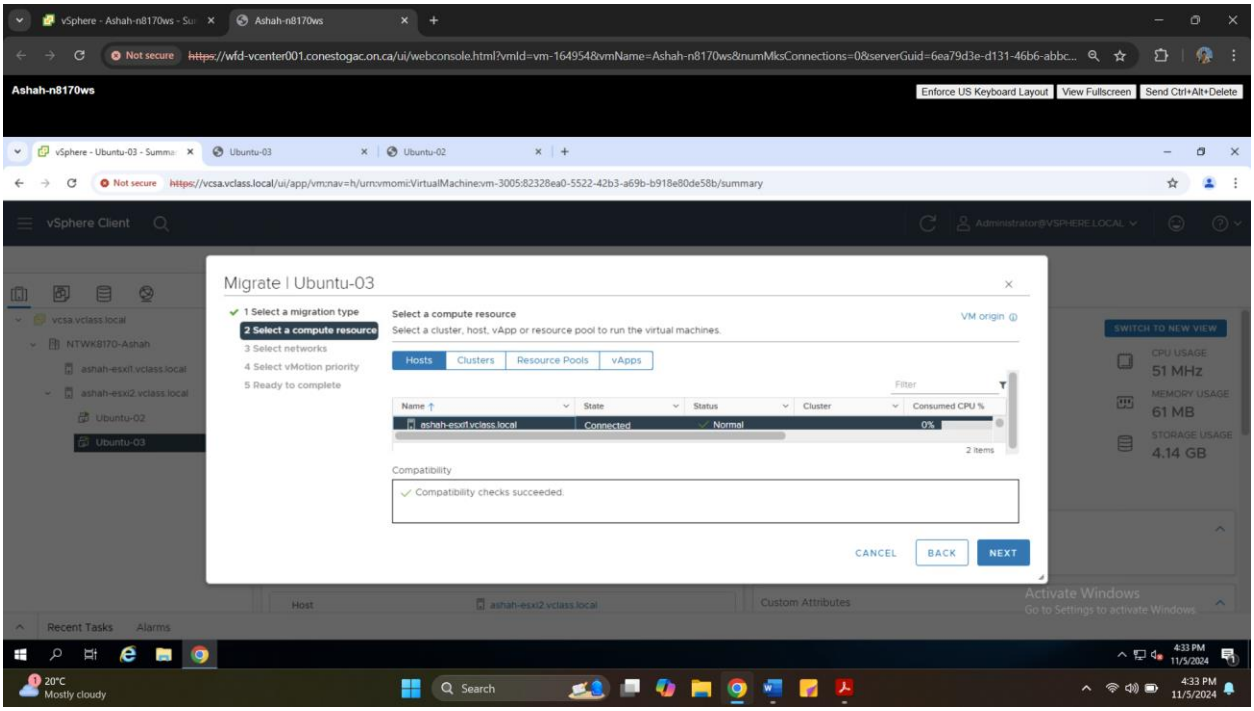
10) Go back to the console of **Ubuntu-02** and cancel the ping with **CTRL-C**. (There should be no packet loss)

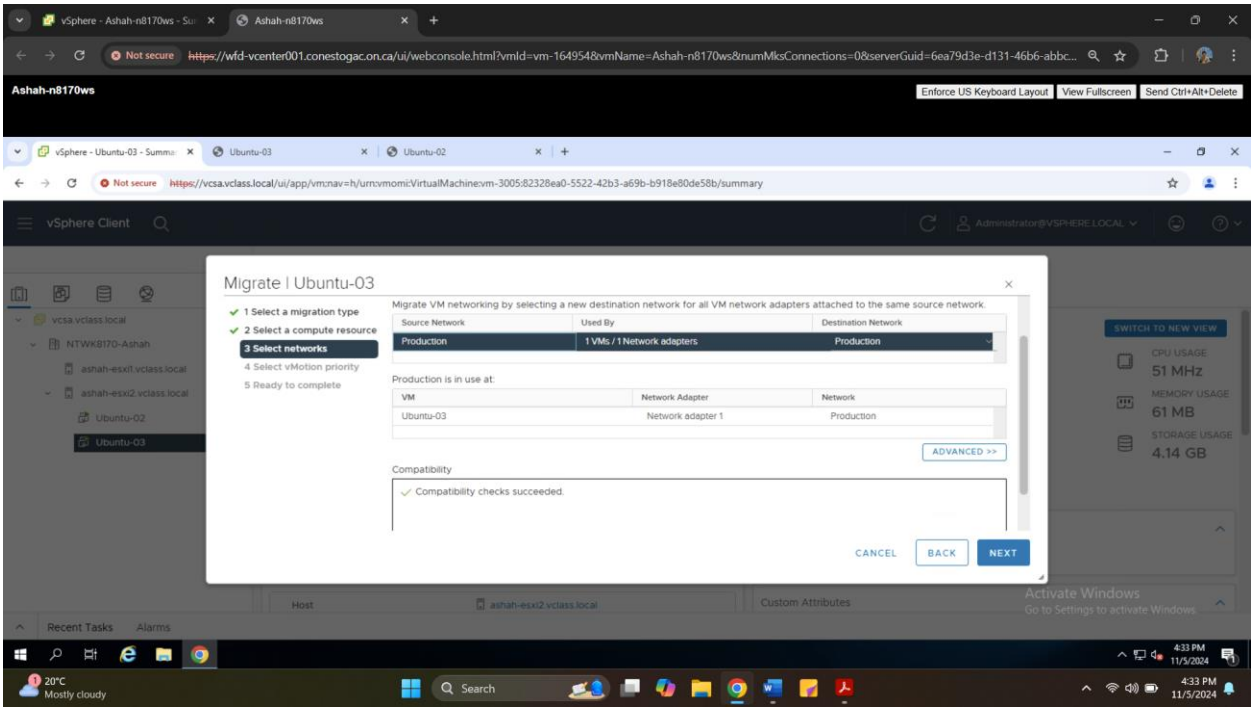


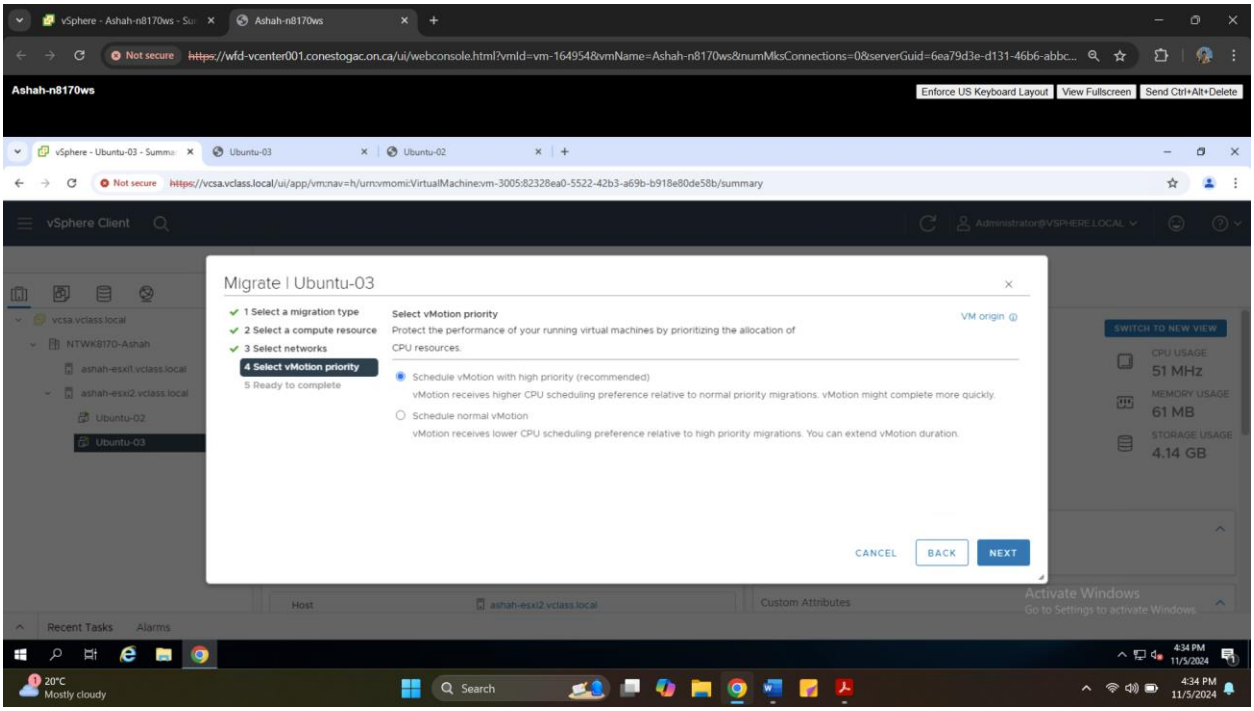
11) Repeat steps **6-11** but instead move **Ubuntu-03** over to **ESXi1**.

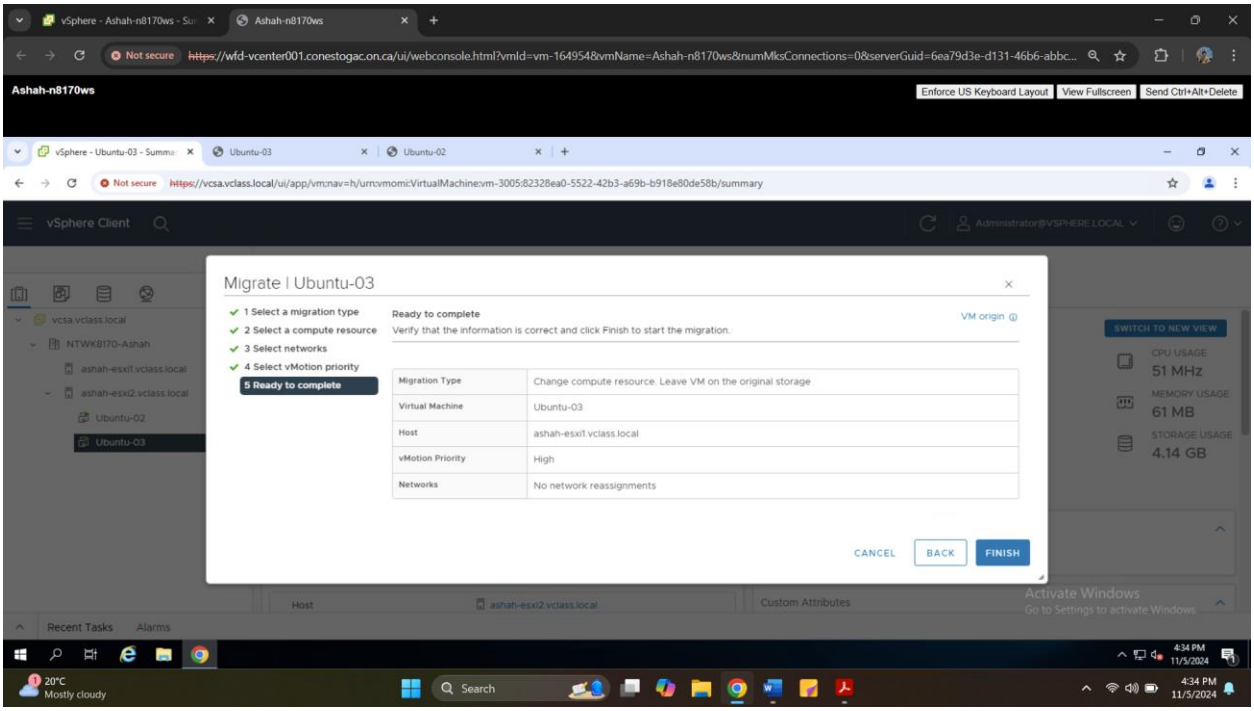


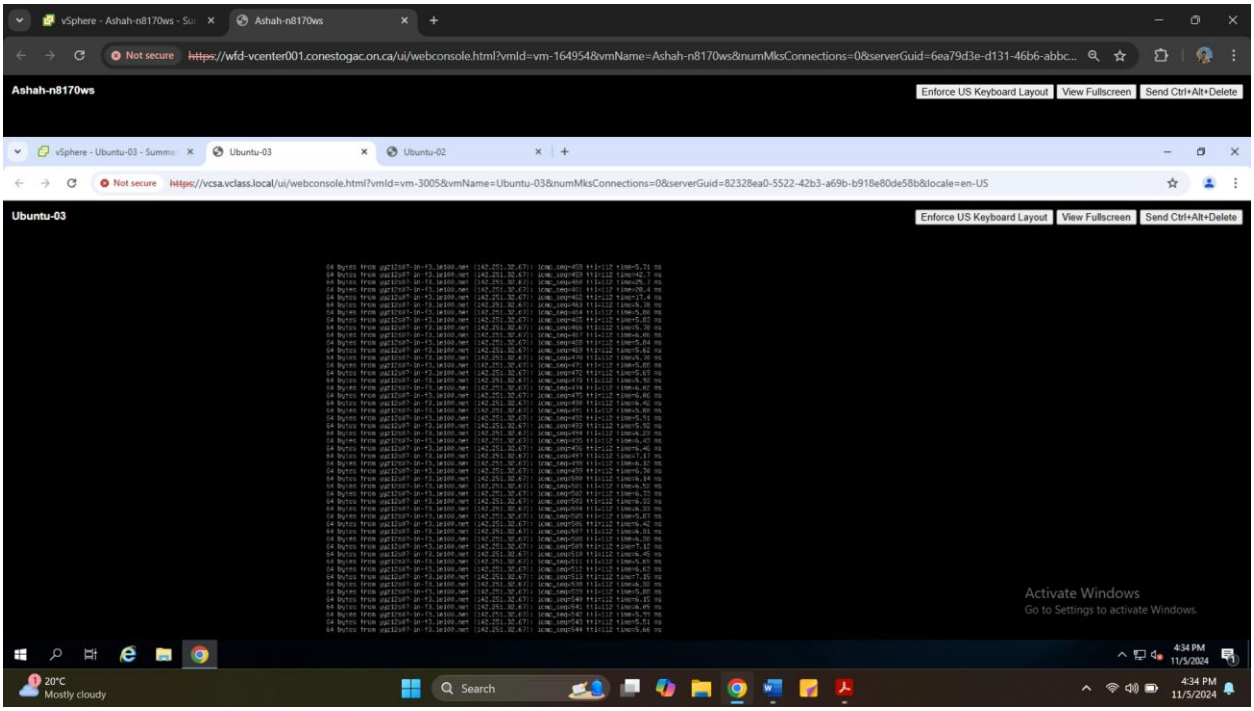



Ashah-n8170ws
Enforce US Keyboard Layout
View Fullscreen
Send Ctrl+Alt+Delete
Migrate | Ubuntu-03
1 Select a migration type
2 Select a compute resource
3 Select networks
4 Select vMotion priority
5 Ready to complete
Select a compute resource
Select a cluster, host, vApp or resource pool to run the virtual machines.
VM origin
Hosts
Clusters
Resource Pools
vApps
Filter
Name
State
Status
Cluster
Consumed CPU %
ashah-esxi1.vclass.local
Connected
Normal
0%
2 items
Compatibility
Compatibility checks succeeded.
CANCEL
BACK
NEXT


Ashah-n8170ws
Enforce US Keyboard Layout
View Fullscreen
Send Ctrl+Alt+Delete
Migrate | Ubuntu-03
1 Select a migration type
2 Select a compute resource
3 Select networks
4 Select vMotion priority
5 Ready to complete
Migrate VM networking by selecting a new destination network for all VM network adapters attached to the same source network.
Source Network
Used By
Destination Network
Production
1 VMs / 1 Network adapters
Production
Production is in use at:
VM
Network Adapter
Network
Ubuntu-03
Network adapter 1
Production
ADVANCED >>
Compatibility
Compatibility checks succeeded.
CANCEL
BACK
NEXT


Ashah-n8170ws
Enforce US Keyboard Layout
View Fullscreen
Send Ctrl+Alt+Delete
Migrate | Ubuntu-03
1 Select a migration type
2 Select a compute resource
3 Select networks
4 Select vMotion priority
5 Ready to complete
Select vMotion priority
Protect the performance of your running virtual machines by prioritizing the allocation of CPU resources.
VM origin
Schedule vMotion with high priority (recommended)
vMotion receives higher CPU scheduling preference relative to normal priority migrations. vMotion might complete more quickly.
Schedule normal vMotion
vMotion receives lower CPU scheduling preference relative to high priority migrations. You can extend vMotion duration.
CANCEL
BACK
NEXT


Ashah-n8170ws
Enforce US Keyboard Layout
View Fullscreen
Send Ctrl+Alt+Delete
Migrate | Ubuntu-03
1 Select a migration type
2 Select a compute resource
3 Select networks
4 Select vMotion priority
5 Ready to complete
Ready to complete
Verify that the information is correct and click Finish to start the migration.
VM origin
Migration Type
Change compute resource. Leave VM on the original storage
Virtual Machine
Ubuntu-03
Host
ashah-esxi1.vclass.local
vMotion Priority
High
Networks
No network reassignments
CANCEL
BACK
FINISH



Ubuntu-03 is moved to ashah-ESXi1 and Ubuntu-02 is moved to ashah-ESXi2