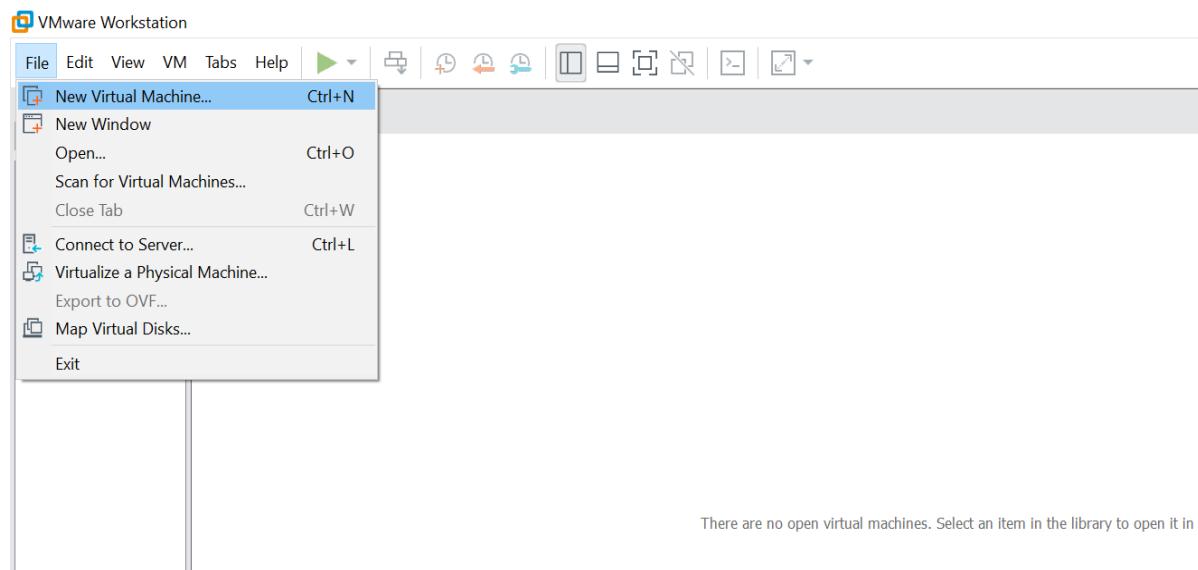
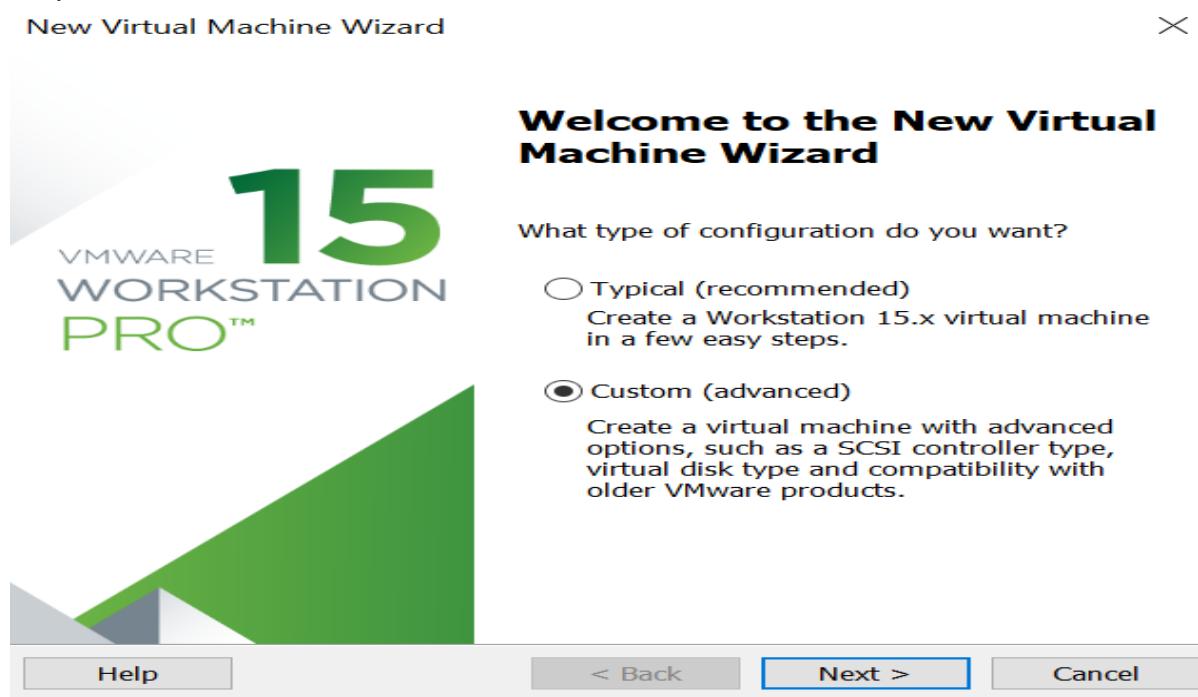


1) Cài đặt vSphere ESXi 6

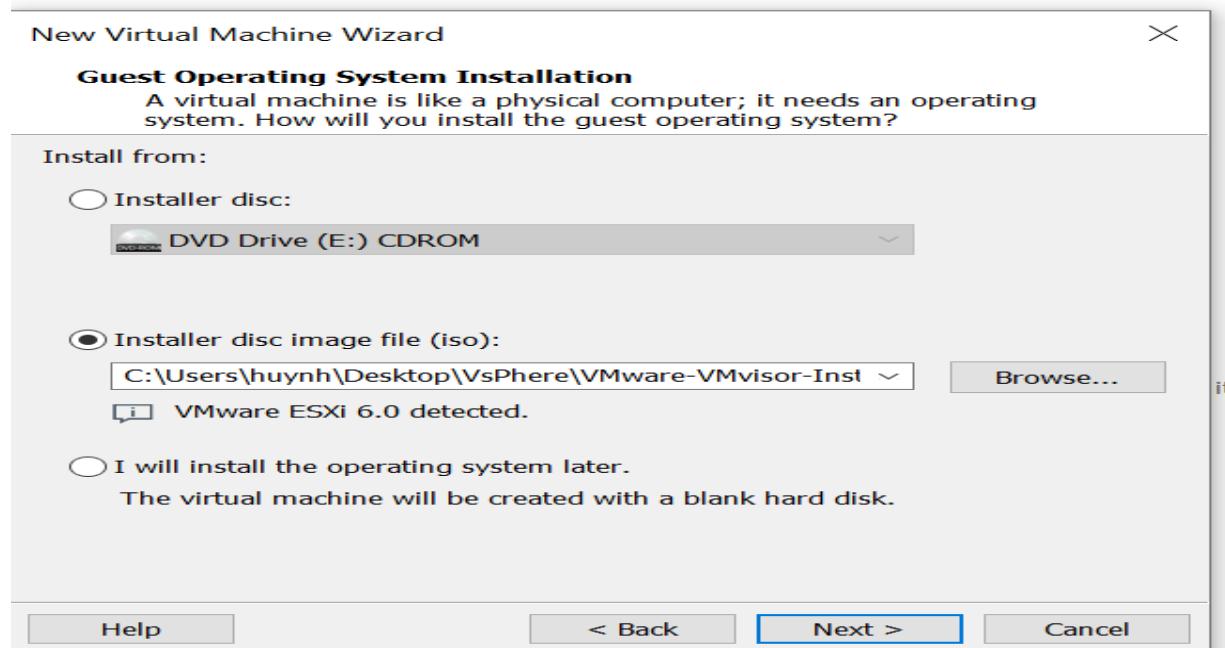
Tiến hành tạo máy ảo: **File** chọn **New Virtual Machine**



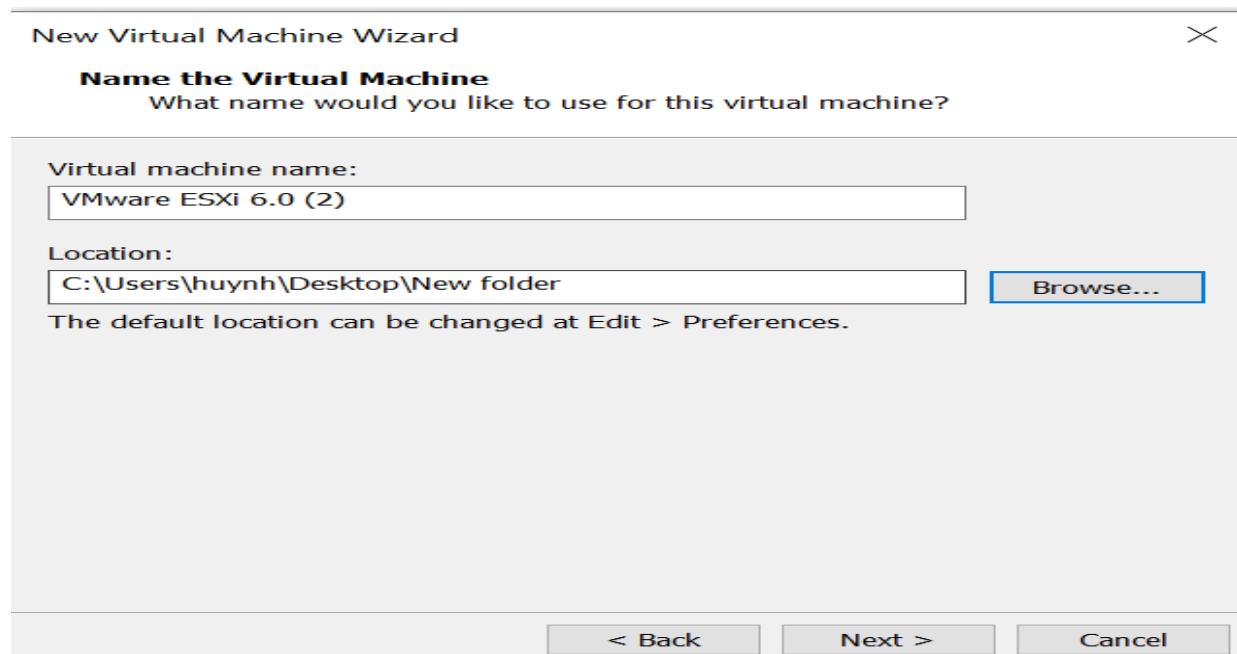
Chọn **Next**



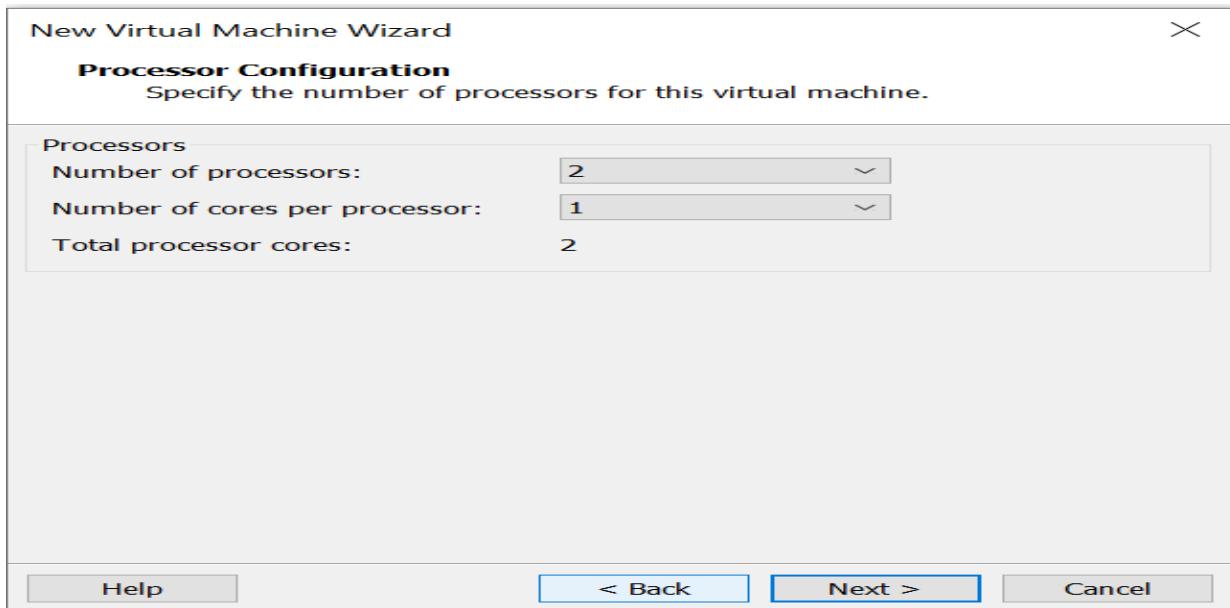
Import file ISO chọn Next



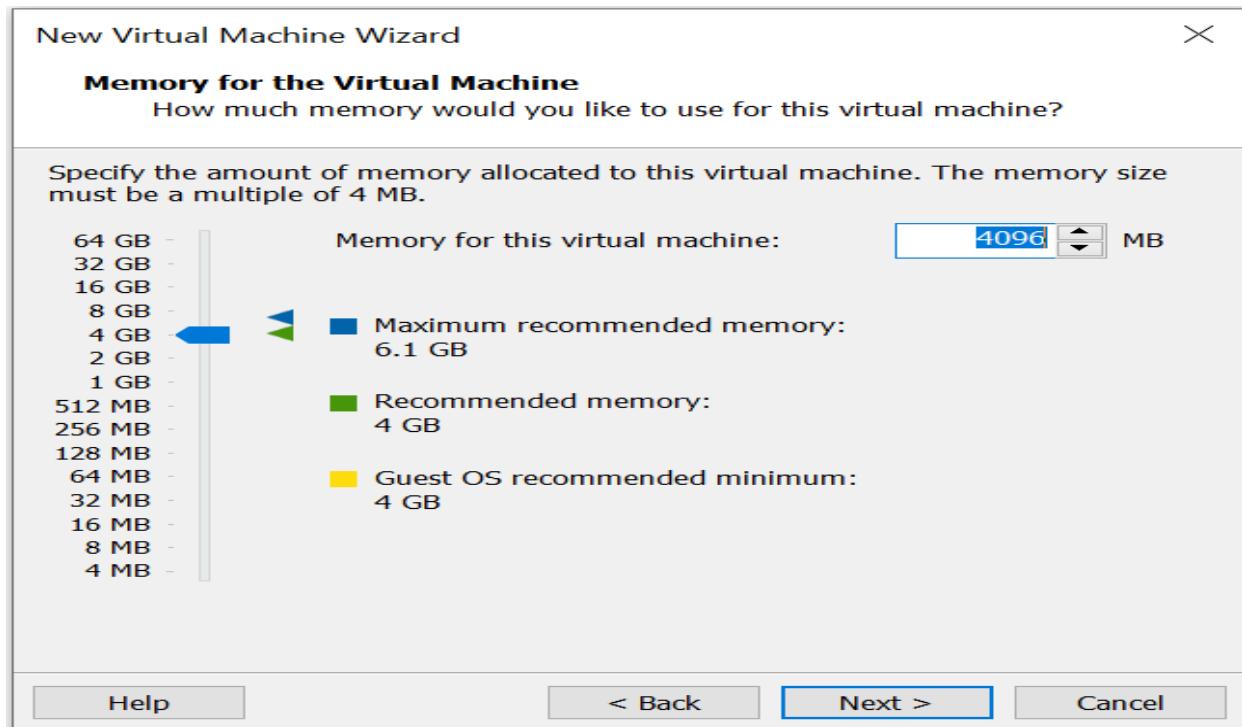
Chọn nơi lưu máy ESXi



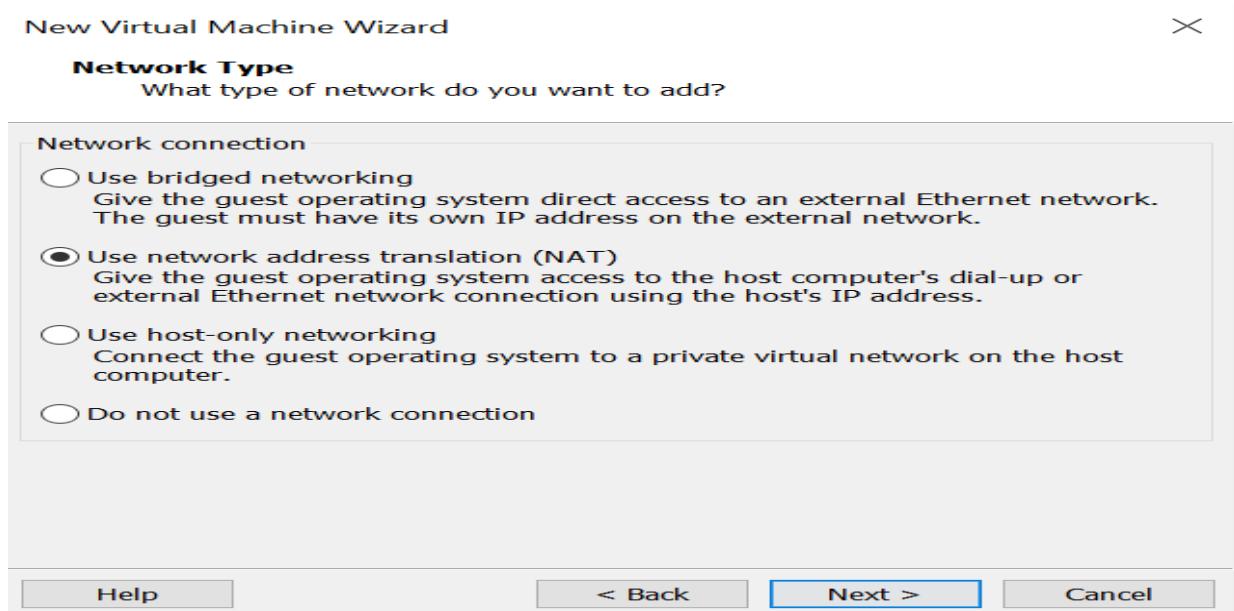
Chọn Next



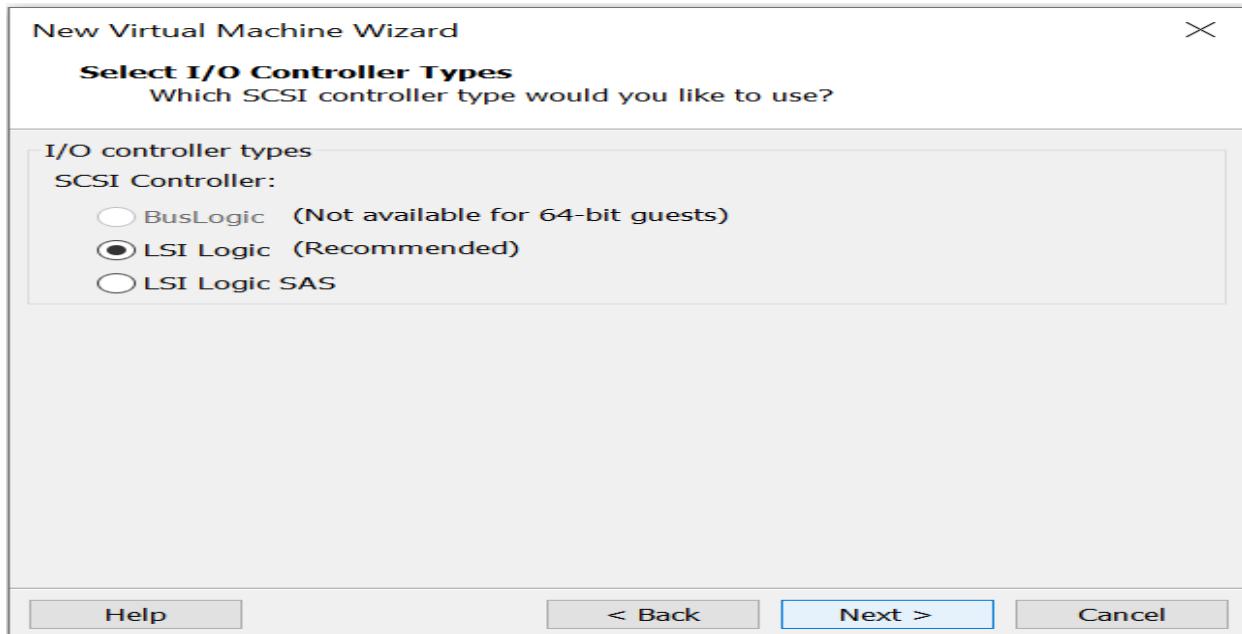
Chỉnh thông số cho RAM và chọn Next



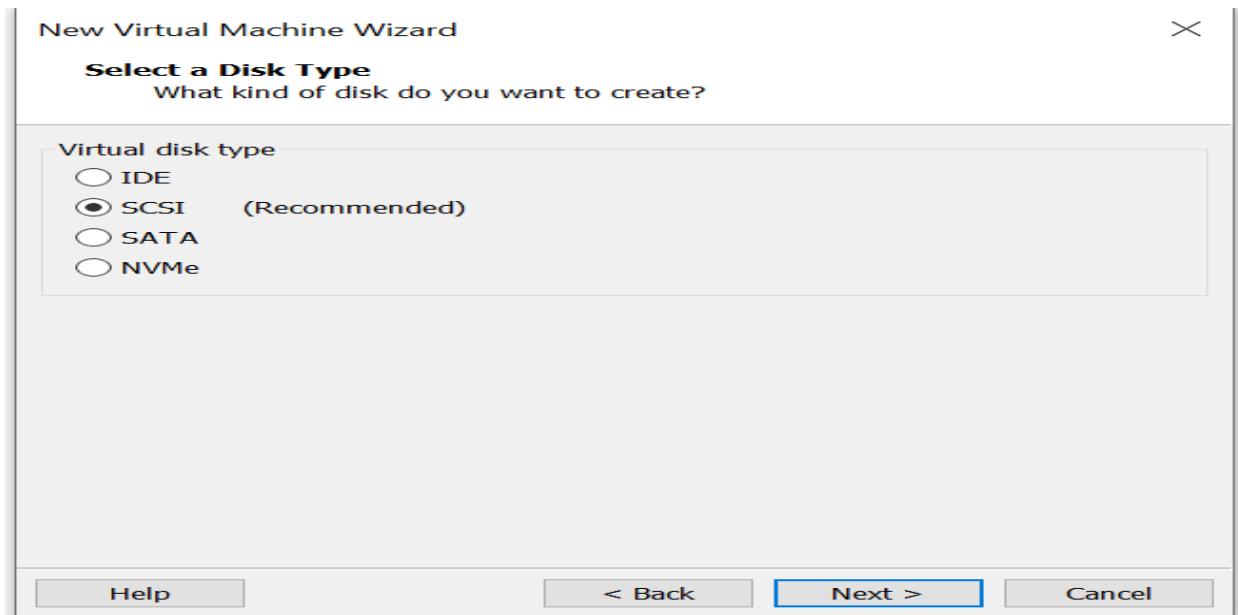
Điều chỉnh loại card mạng và chọn **Next**



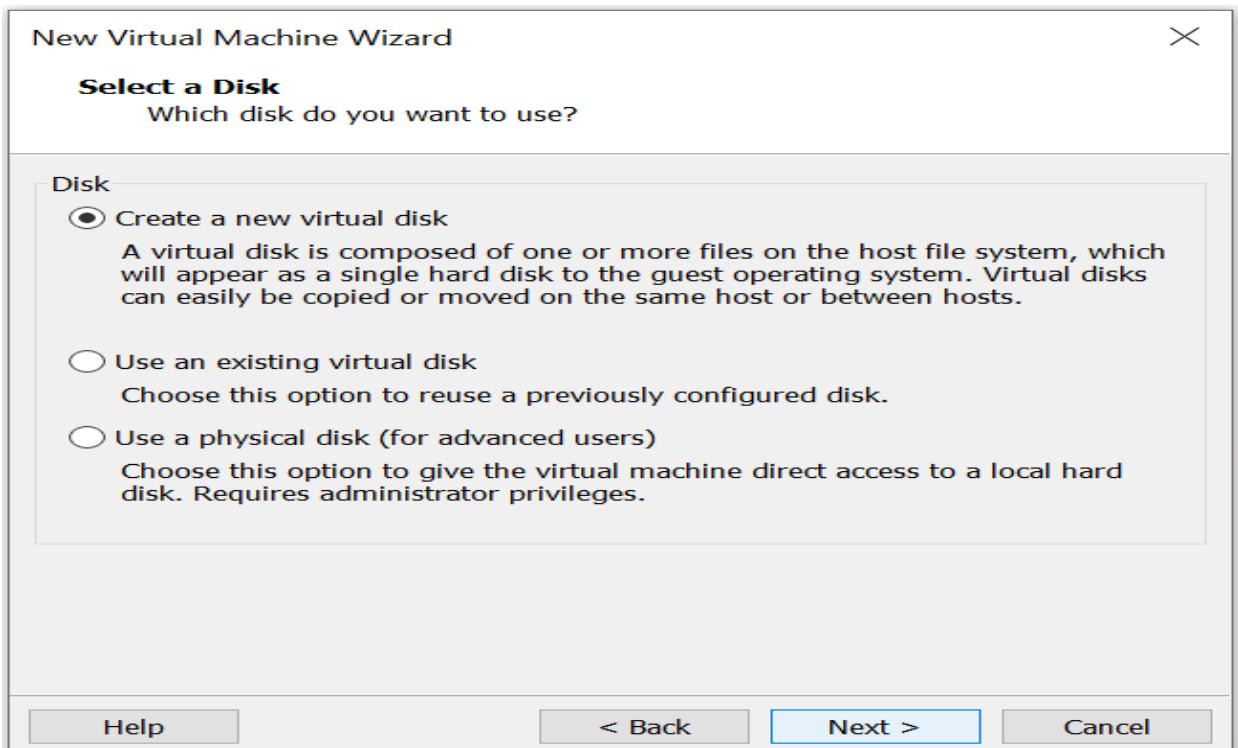
Chọn **Next**



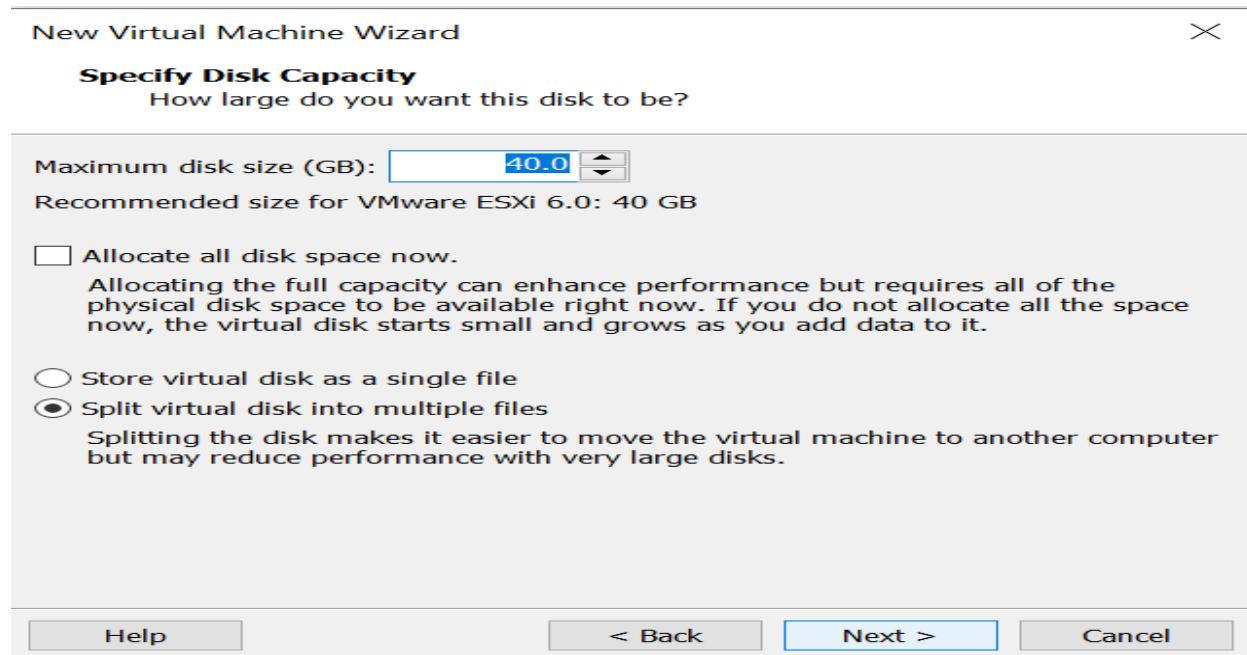
Chọn Next



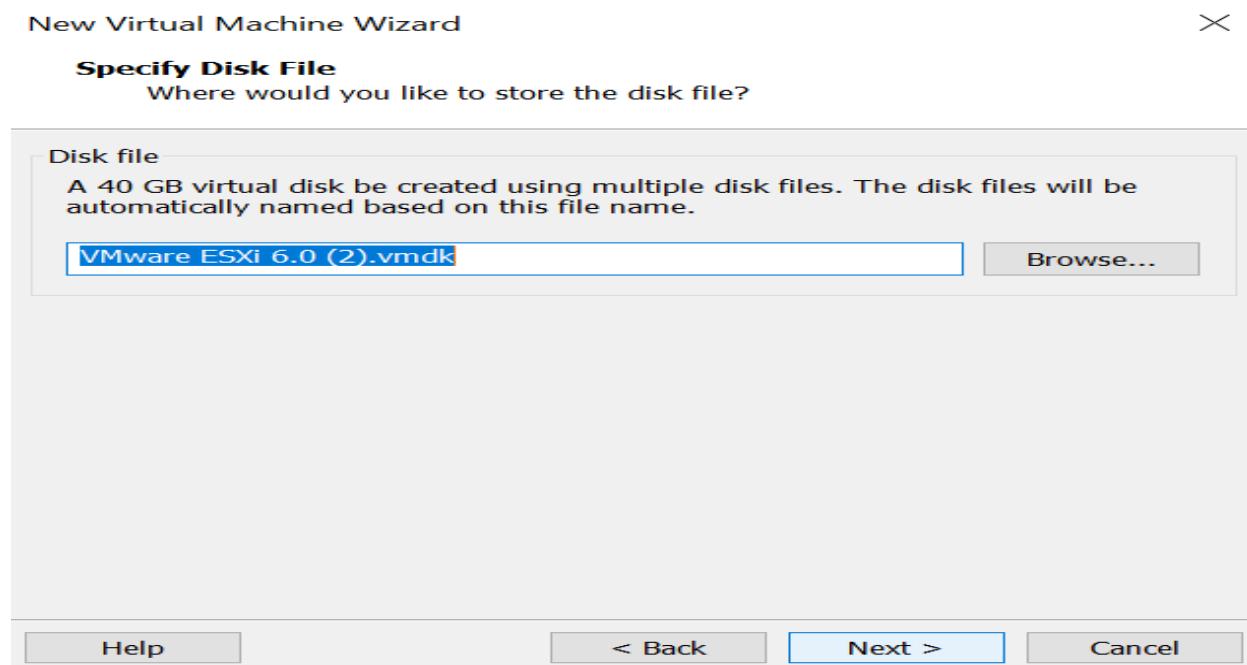
Chọn Next



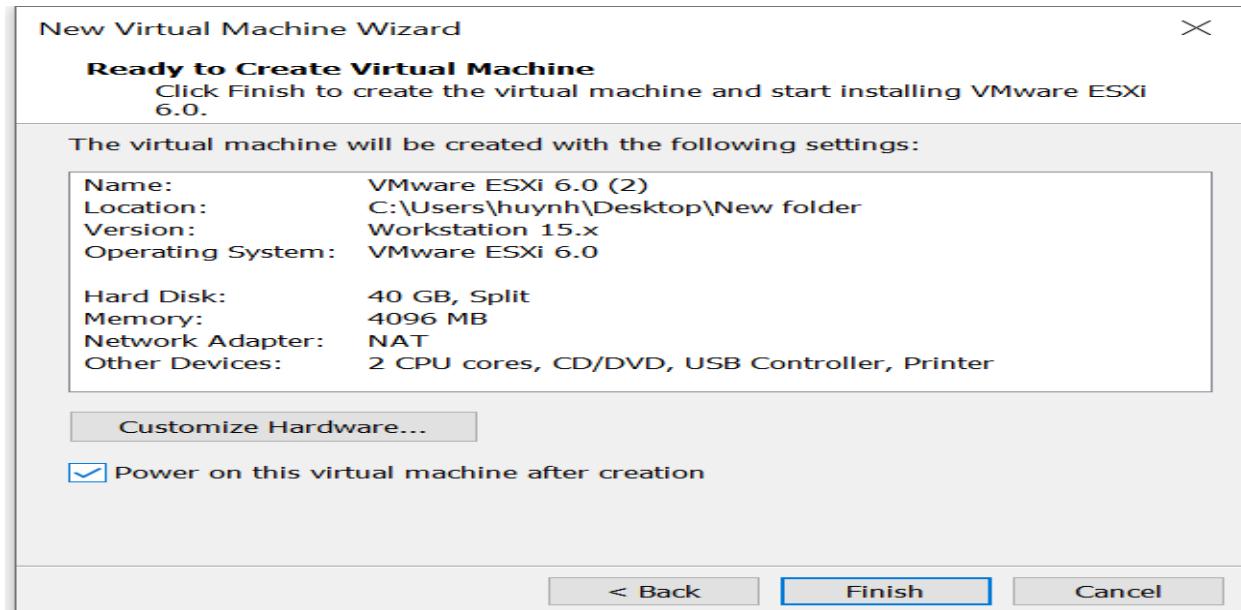
Chọn kích thước của ổ cứng và chọn **Next**



Chọn **Next**

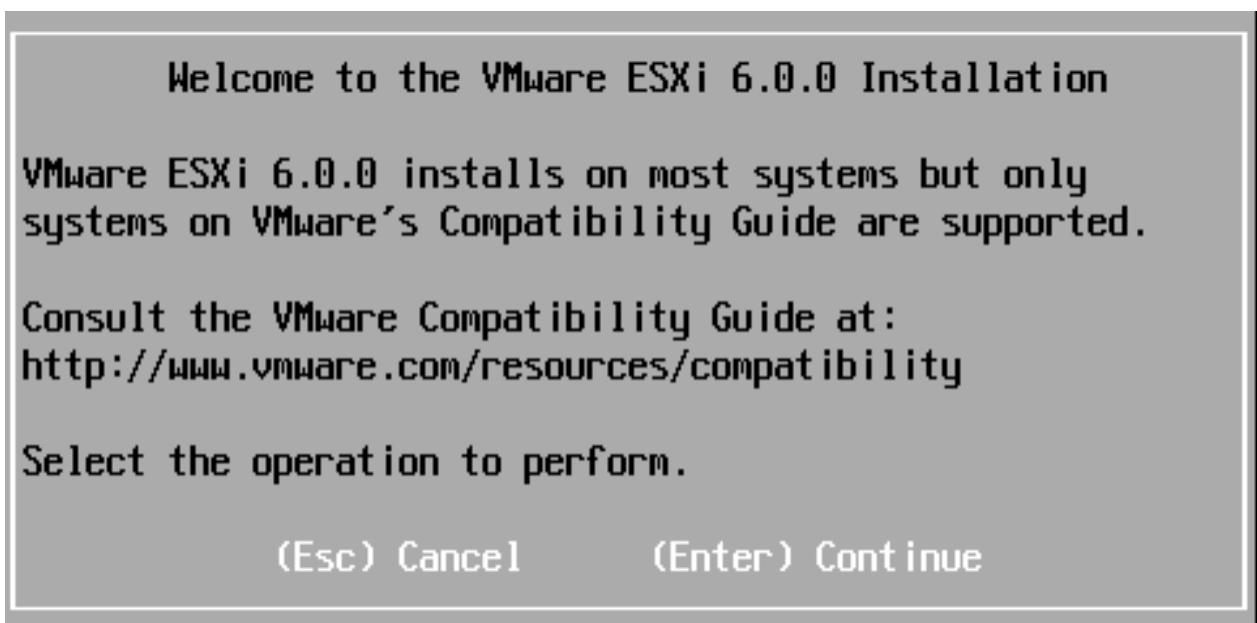


Chọn Finish

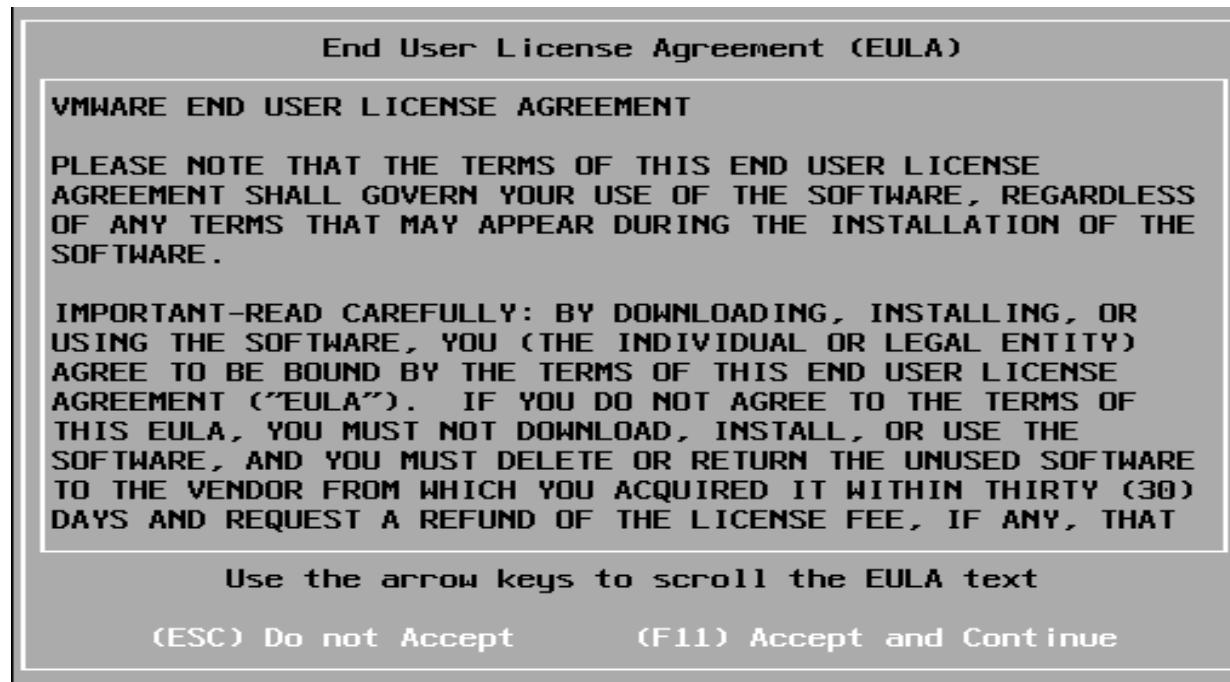


Tiến hành cài ESXi

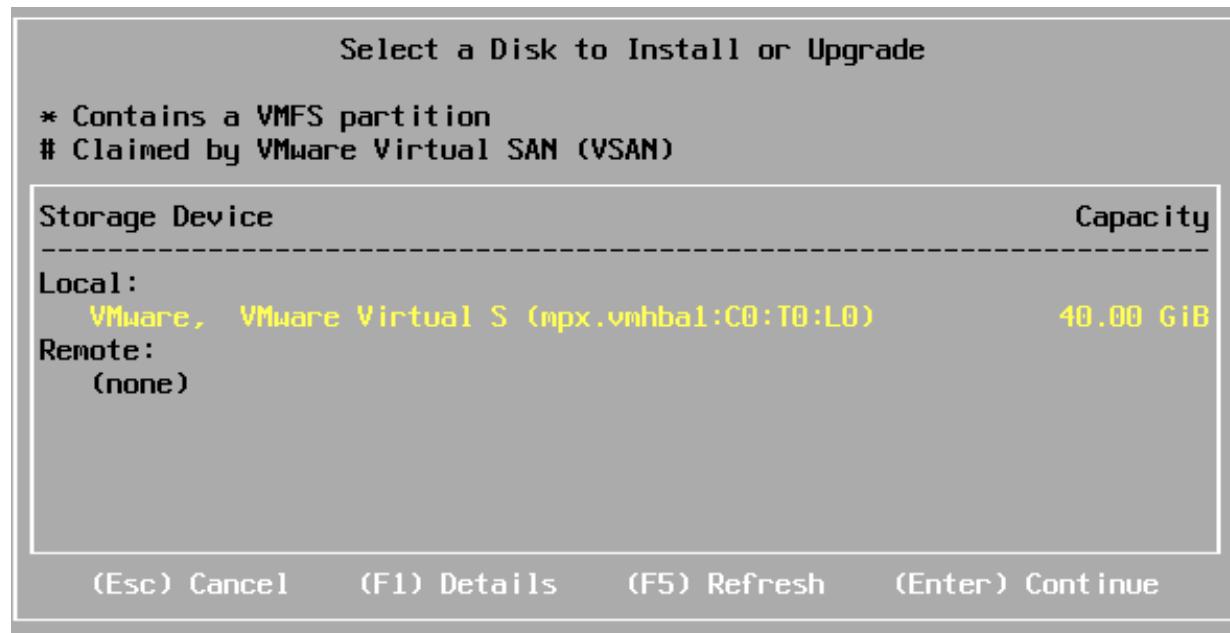
Nhấn phím Enter



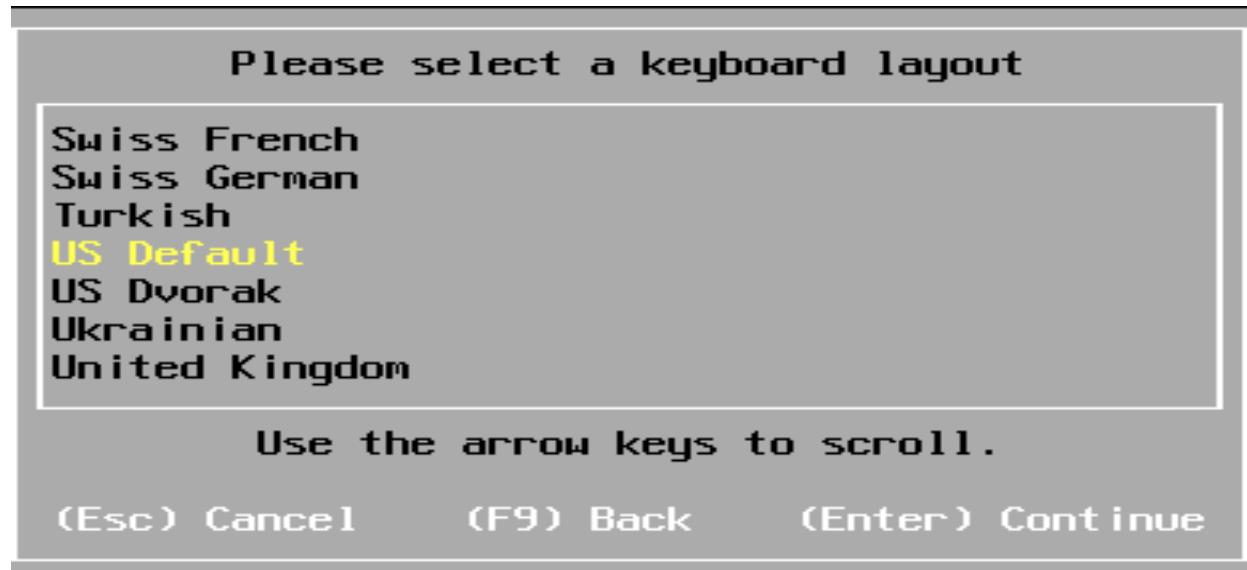
Nhấn phím **F11**



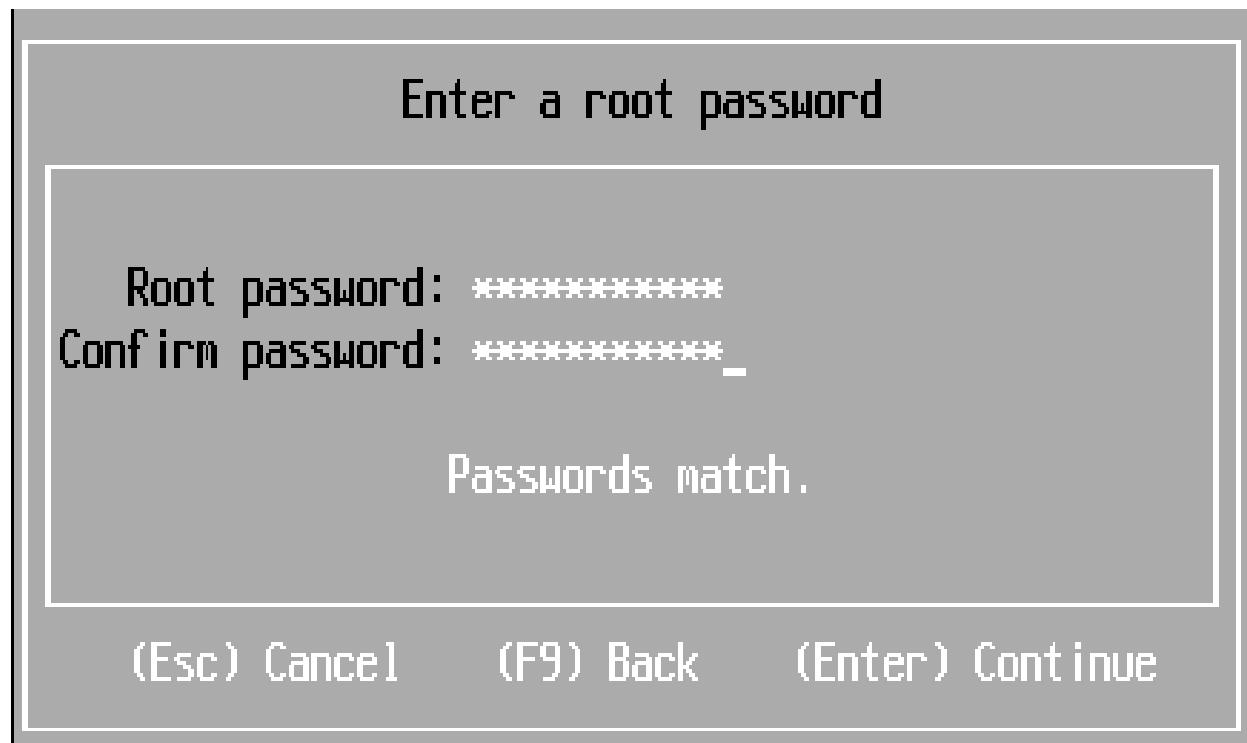
Nhấn phím **Enter**



Nhấn phím **Enter**



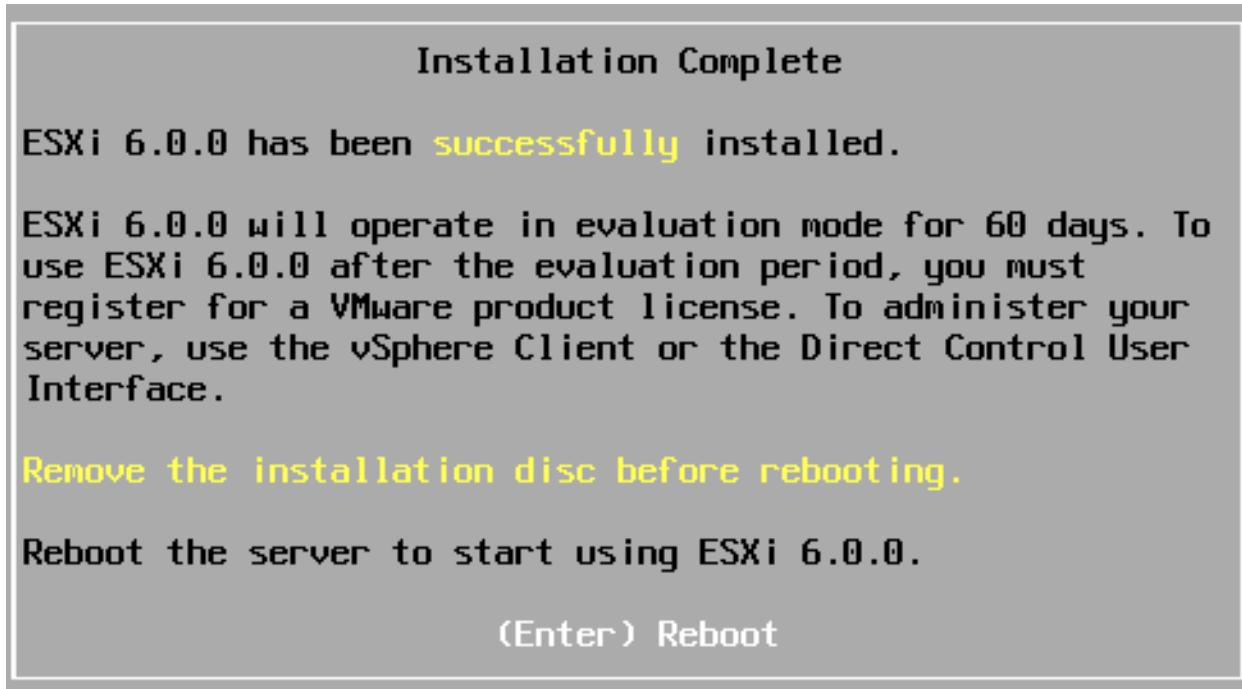
Nhập mật khẩu và nhấn phím **Enter**



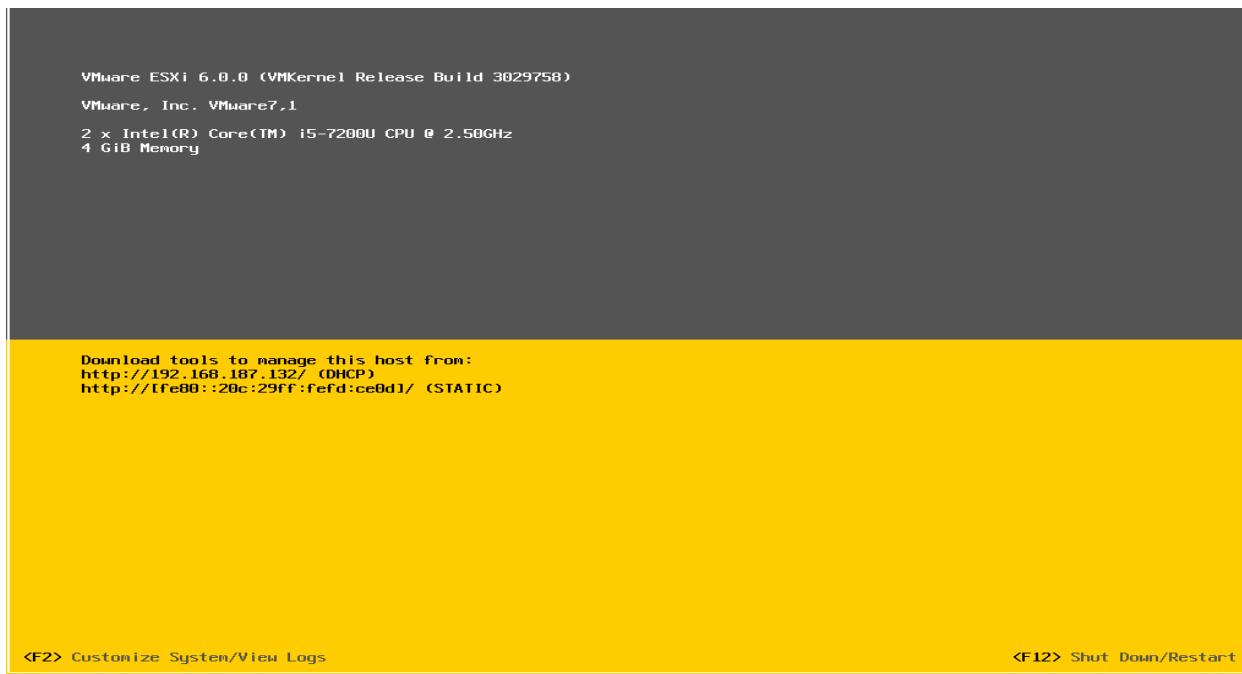
Nhấn phím **F11** để cài đặt



Nhấn phím **Enter** để reboot



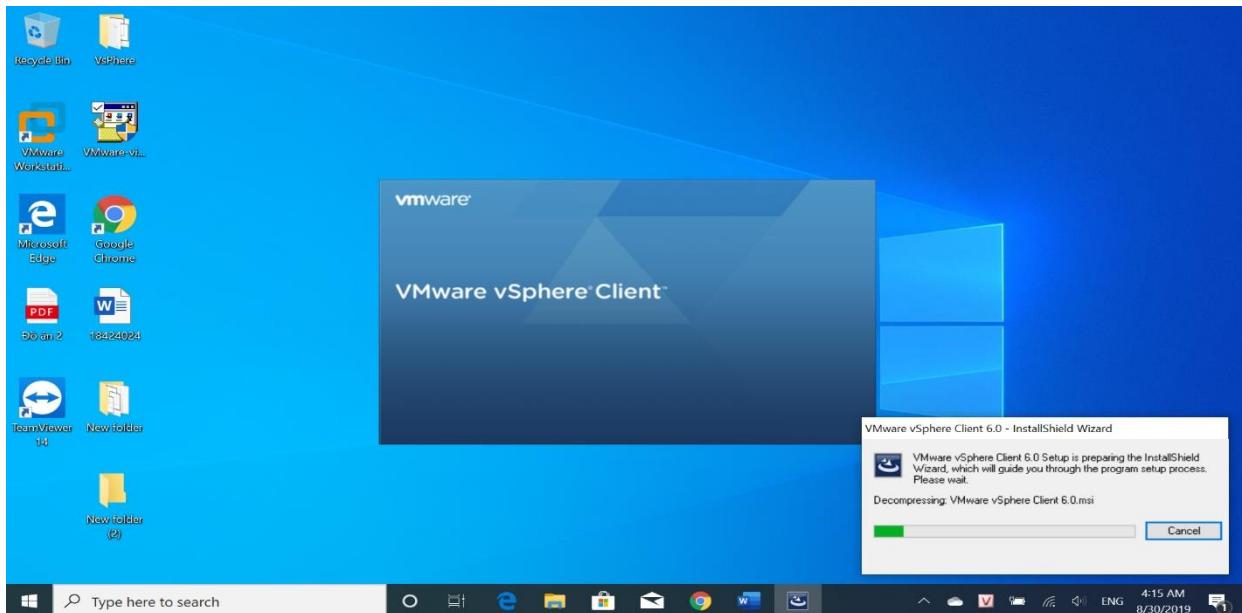
Đã cài đặt thành công



Nhấn phím **F2** và tiến hành đăng nhập vào



2) Cài đặt vSphere Client



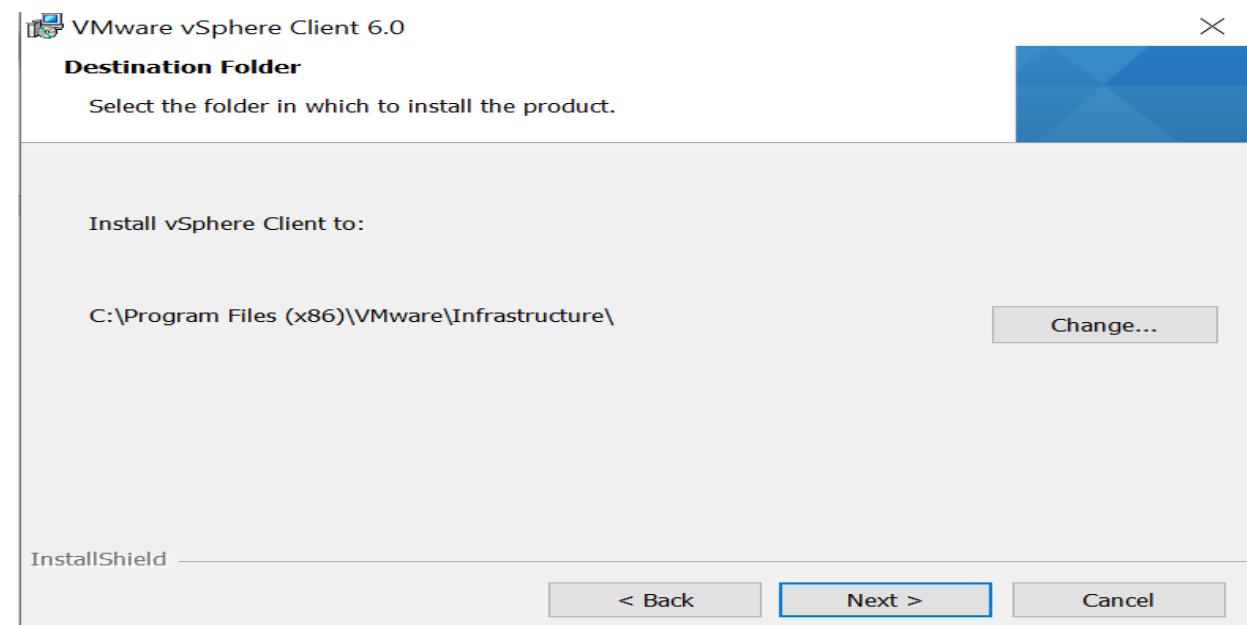
Chọn Next



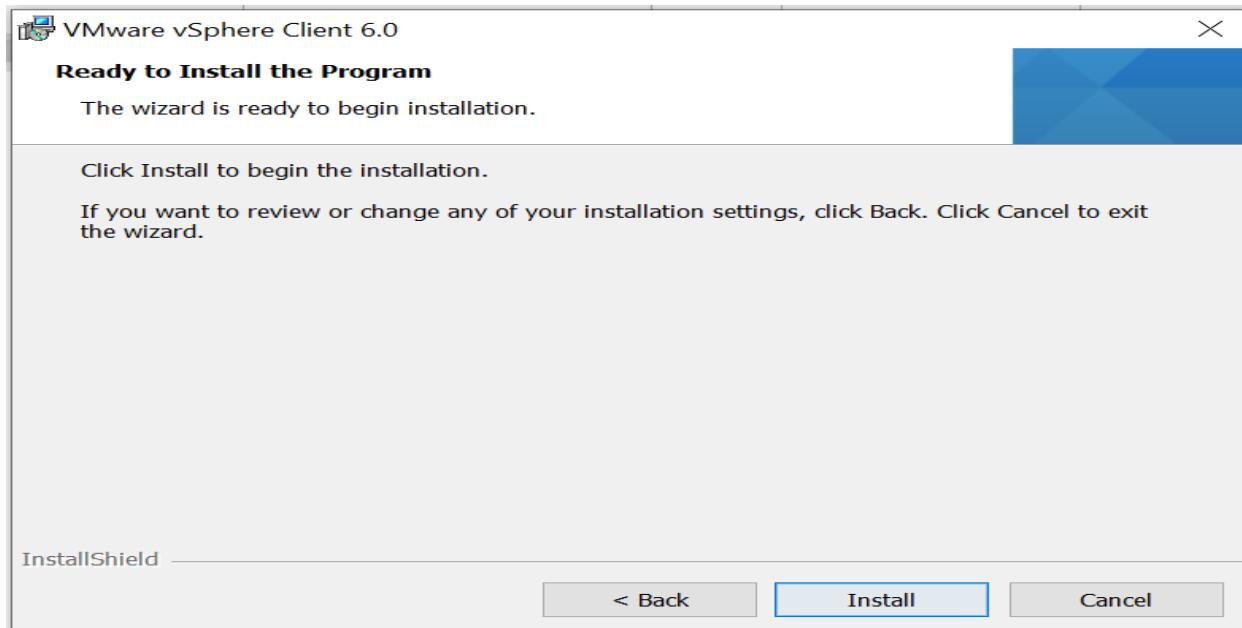
Chọn **I accept ...** và chọn **Next**



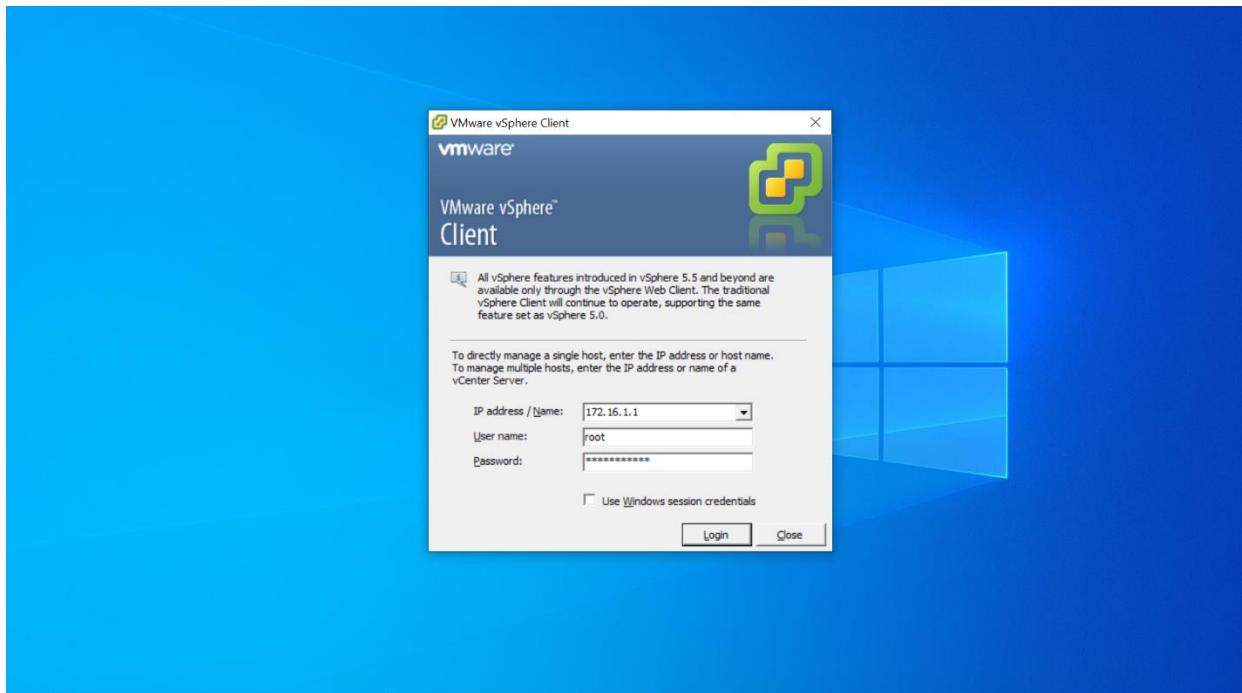
Chọn **Next**



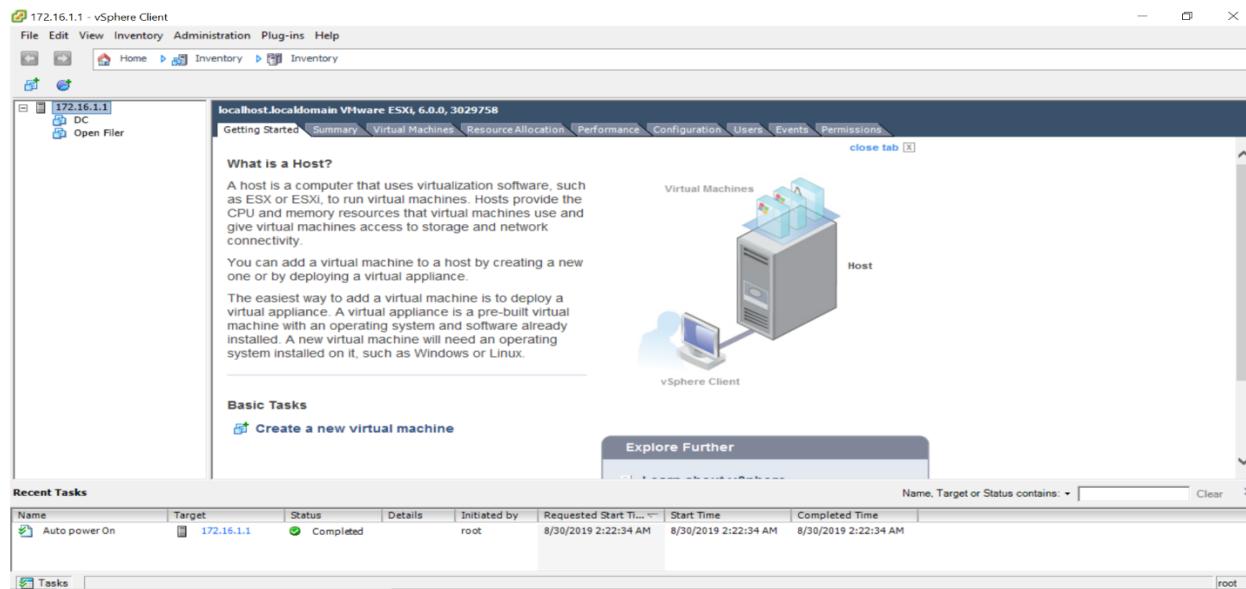
Chọn Install



Dùng Vmware vShere Client đăng nhập



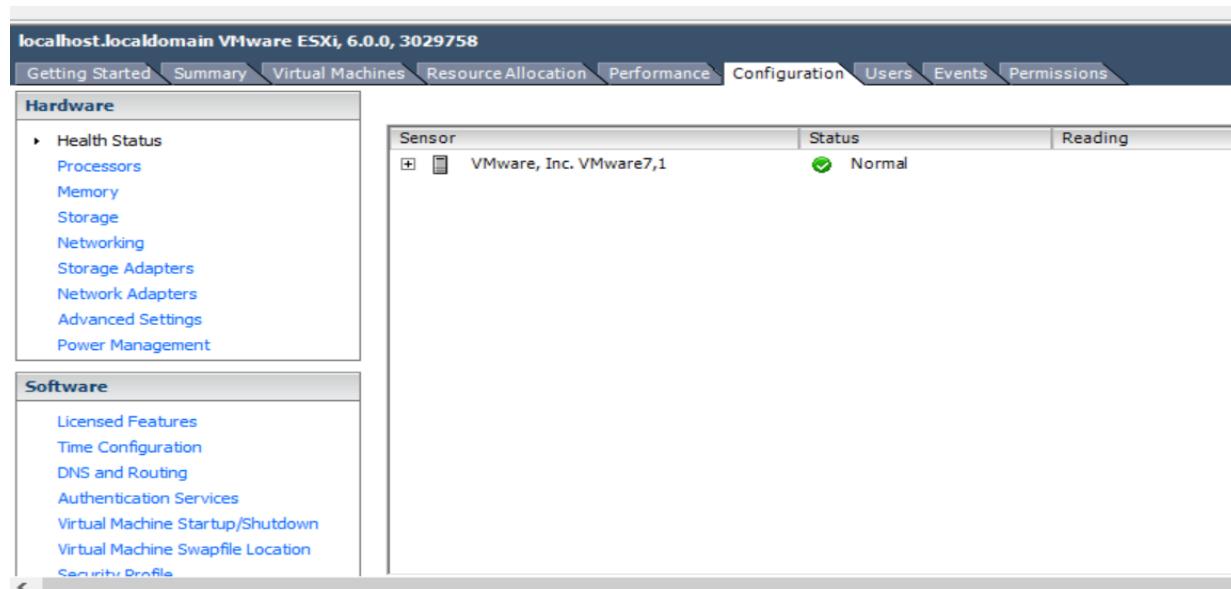
Đăng nhập thành công



3) Khám phá các thông tin cấu hình phần cứng máy ESXi:

Cột Hardware: hiển thị thông tin của các phần cứng

Cột Health Status: hiển thị trạng thái của máy ESXI



Hiển thị thông tin của Processors gồm các thông tin Model, tốc độ của Processor

The screenshot shows the 'Processor' section of the host information interface. On the left, there's a navigation sidebar under 'Hardware' and 'Software'. The 'Processor' section contains the following details:

General	
Model	Intel(R) Core(TM) i5-7200U CPU @ 2.50GHz
Processor Speed	2.7 GHz
Processor Sockets	2
Processor Cores per Socket	1
Logical Processors	2
Hyperthreading	N/A

Below this is the 'System' section with the following details:

System	
Manufacturer	VMware, Inc.
Model	VMware7.1
BIOS Version	VMW71.00V.12343141.B64.1902160724
Release Date	2/16/2019 12:00:00 AM
Asset Tag	No Asset Tag
Service Tag	VMware-56 4d be 6d 50 fc 3c fb-86 63 d3 37 92 3c c6 93

Hiển thị dung lượng RAM

The screenshot shows the 'Memory' section of the host information interface. On the left, there's a navigation sidebar under 'Hardware'. The 'Memory' section contains the following details:

Physical	
Total	4094.9 MB
System	17.9 MB
Virtual Machines	4077.0 MB

Cho biết thông tin về ổ cứng của máy ESXI, dung lượng còn trống, dung lượng đã dùng,...

The screenshot shows the 'Configuration' tab selected in the top navigation bar. On the left, the 'Hardware' menu is open, with 'Storage' selected. In the main pane, the 'Datastores' tab is selected under 'View'. A table lists one datastore: LocalStore, which is a Local VMware Disk, SSD type, with a capacity of 32.50 GB, free space of 9.63 GB, and last updated on 8/26/2019 at 11:25:11 PM. Buttons for Refresh, Delete, Add Storage..., and Rescan All... are visible.

Hiển thị thông tin Virtual Switch: dùng cho việc các máy ảo kết nối với nhau và kết nối ra bên ngoài

The screenshot shows the 'Configuration' tab selected. The 'Networking' section is highlighted. It displays a 'Standard Switch: vSwitch0' with two port groups: 'VM Network' and 'Management Network'. The 'VM Network' port group is connected to a 'Physical Adapter' labeled 'vmnic0' with a speed of 1000 Mbps and status 'Full'. The 'Management Network' port group has an IP address of '172.16.1.1' and MAC address 'fe80::20c:29ff:fe3:c693'. Buttons for Remove... and Properties... are shown.

Hiển thị thông tin Storage Adapters: Máy chủ dùng Storage Adapters để truy cập các thiết bị lưu trữ khác nhau

The screenshot shows the 'Configuration' tab selected. The 'Network Adapters' section is highlighted. It lists a single adapter: 'Intel Corporation 82545EM Gigabit Ethernet Controller (Copper)'. The adapter is labeled 'vmnic0', has a speed of 1000 Mbps, is in 'Full' duplex mode, and is connected to 'vSwitch0'. Its MAC address is '00:0c:29:3c:c6:93' and it has no observed IP ranges. The 'Wake on LAN' option is set to 'No'. The 'Network Adapters' table has columns for Device, Speed, Configured, Switch, MACAddress, Observed IP Ranges, and Wake on LAN Support.

Hiển thị thông tin của card mạng như tên, tốc độ, thuộc vSwitch nào, địa chỉ MAC, ...

localhost.localdomain VMware ESXi, 6.0.0, 3029758

The screenshot shows the 'Configuration' tab selected in the top navigation bar. On the left, the 'Hardware' sidebar lists 'Health Status', 'Processors', 'Memory', 'Storage', 'Networking', 'Storage Adapters' (which is expanded), 'Network Adapters', 'Advanced Settings', and 'Power Management'. The main panel is titled 'Storage Adapters' and displays a table with three rows:

Device	Type	WWN
PIIX4 for 430TX/440BX/MX IDE Controller		
vmhba0	Block SCSI	
vmhba32	Block SCSI	
53c1030 PCI-X Fusion-MPT Dual Ultra320 SCSI		
vmhba1	SCSI	

a) Cấu hình thông tin DNS và Routing Information cho máy ESXI:

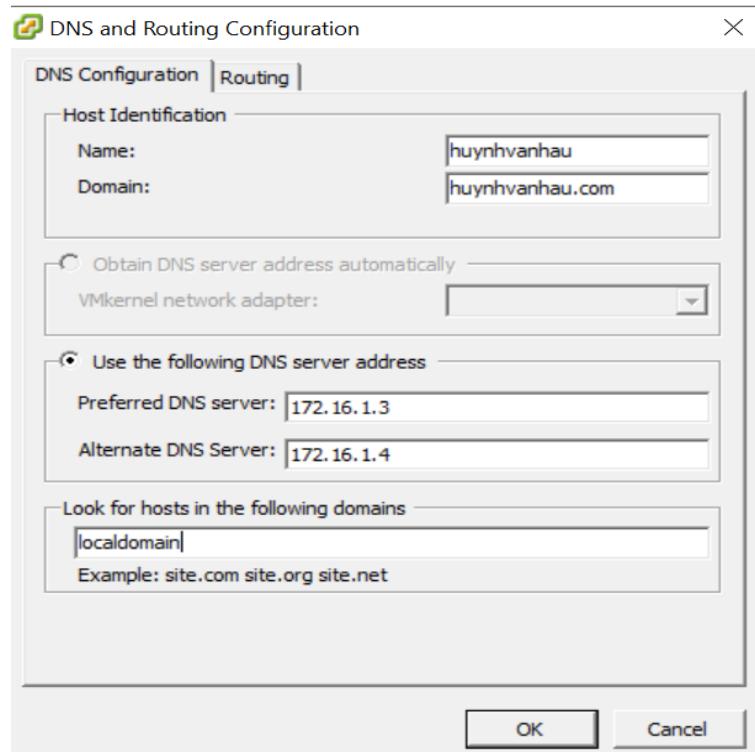
Hiển thị thông tin DNS và Routing Information

localhost.localdomain VMware ESXi, 6.0.0, 3029758

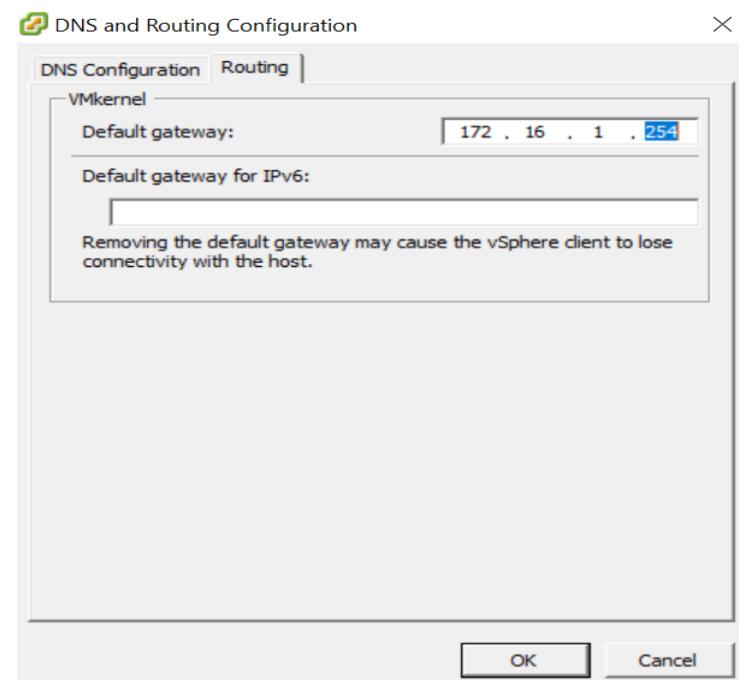
The screenshot shows the 'Configuration' tab selected in the top navigation bar. On the left, the 'Hardware' sidebar lists 'Health Status', 'Processors', 'Memory', 'Storage', 'Networking', 'Storage Adapters', 'Network Adapters', 'Advanced Settings', and 'Power Management'. The 'Software' sidebar lists 'Licensed Features', 'Time Configuration', and 'DNS and Routing' (which is expanded). The main panel is titled 'DNS and Routing' and displays several sections:

- Host Identification**: Name: localhost, Domain: localdomain
- DNS Servers**: Method: Static, Preferred DNS Server: 192.168.91.1, Alternate DNS Server: (empty)
- Search Domains**: localdomain
- Default Gateways**: VMkernel, VMkernel IPv6

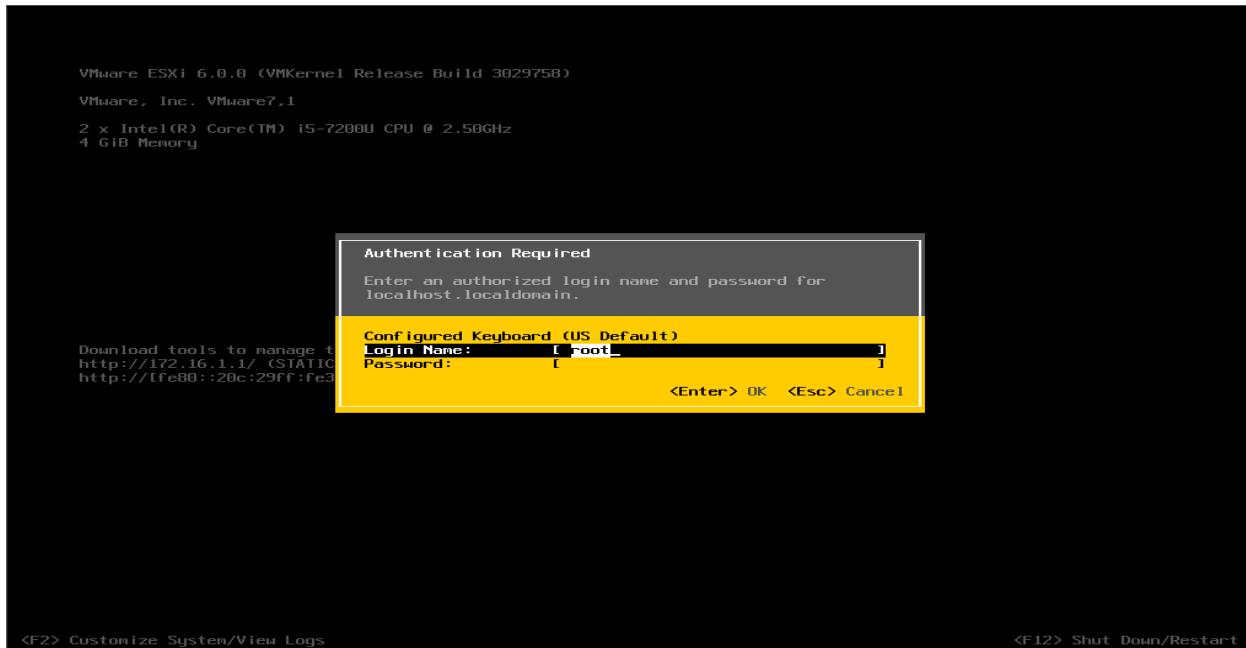
Chọn Properties để cấu hình thông tin: Name, Domain, DNS



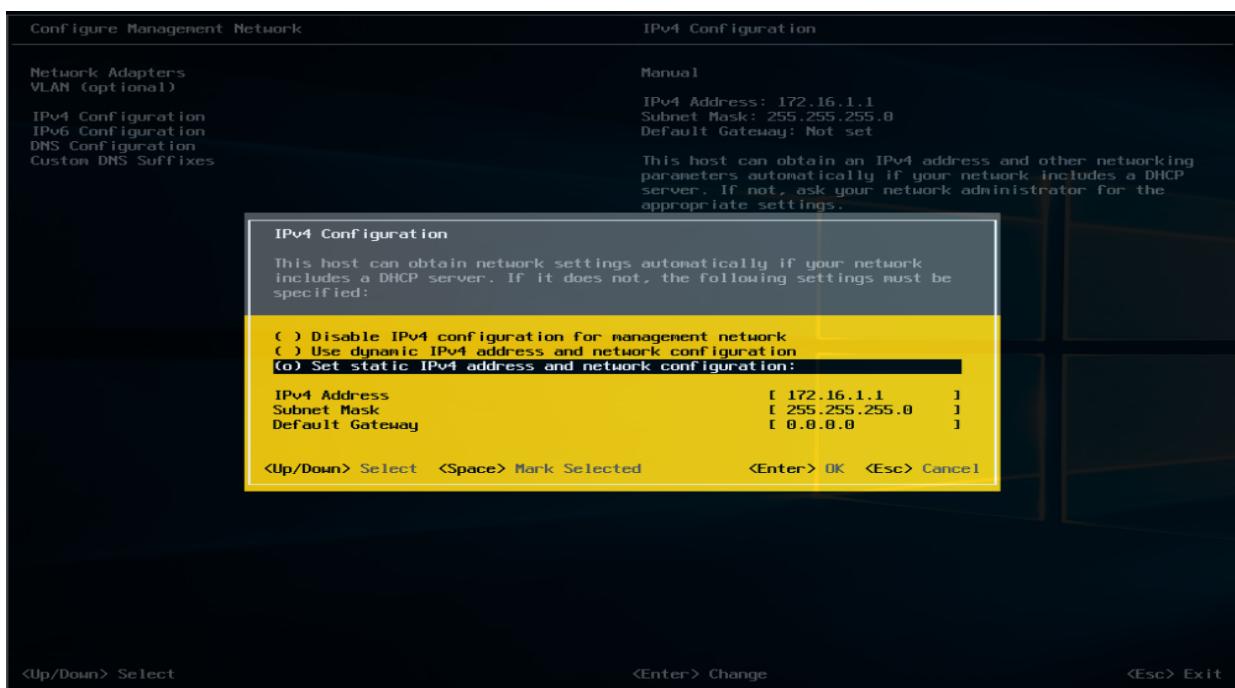
Cấu hình thông tin Routing Information



Cấu hình IP tĩnh cho máy ESXI: nhấn F2, điền thông tin tài khoản root



Vào Configure Mangerment Network



Vào **IPv4 Configuration** → Set static IPv4 address and network configuration → **Đặt IP**



b) Kích hoạt SSH trên máy ESXI
Chọn **Security Profile**

The screenshot shows the VMware ESXi Configuration interface. The 'Configuration' tab is selected. In the left sidebar, 'Security Profile' is selected under the 'Software' section. On the right, the 'Firewall' section is shown with a table of incoming connections:

Connection Type	Ports	Action
Fault Tolerance	8100,8200,8300 (TCP,UDP)	All
Virtual SAN Clustering Service	12345,23451,12321 (UDP)	All
vMotion	8000 (TCP)	All
CIM Server	5988 (TCP)	All
NFC	902 (TCP)	All
DVSSync	8301,8302 (UDP)	All
DNS Client	53 (UDP)	All

Tại tab Security Profile → Properties

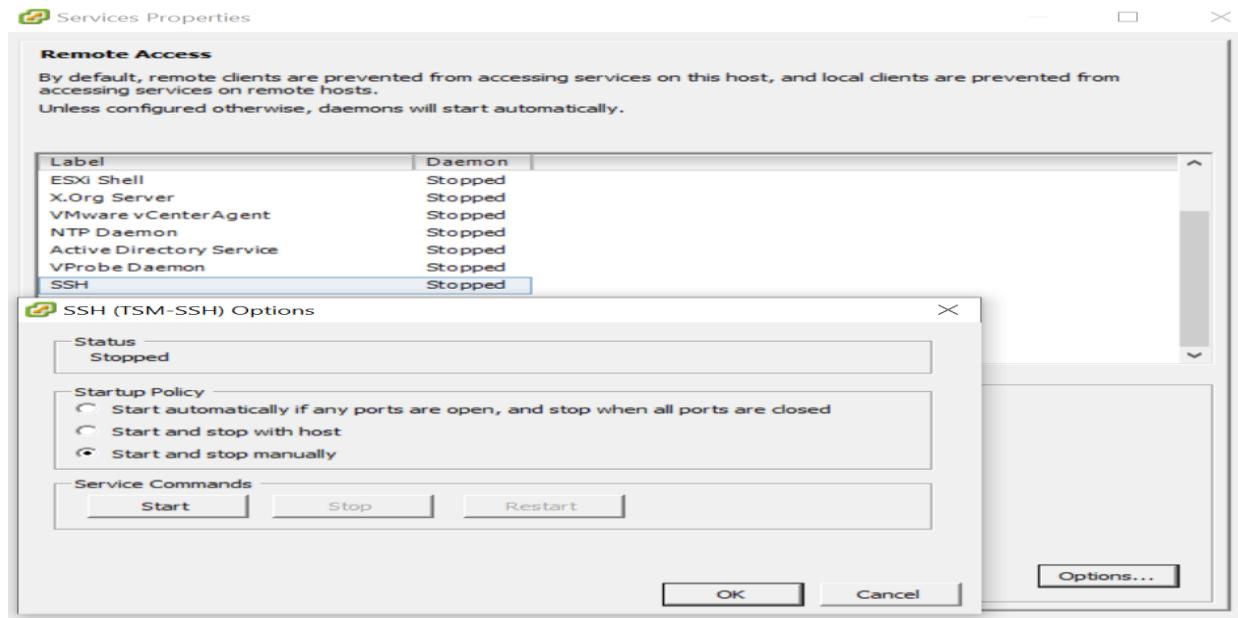
Security Profile

Services

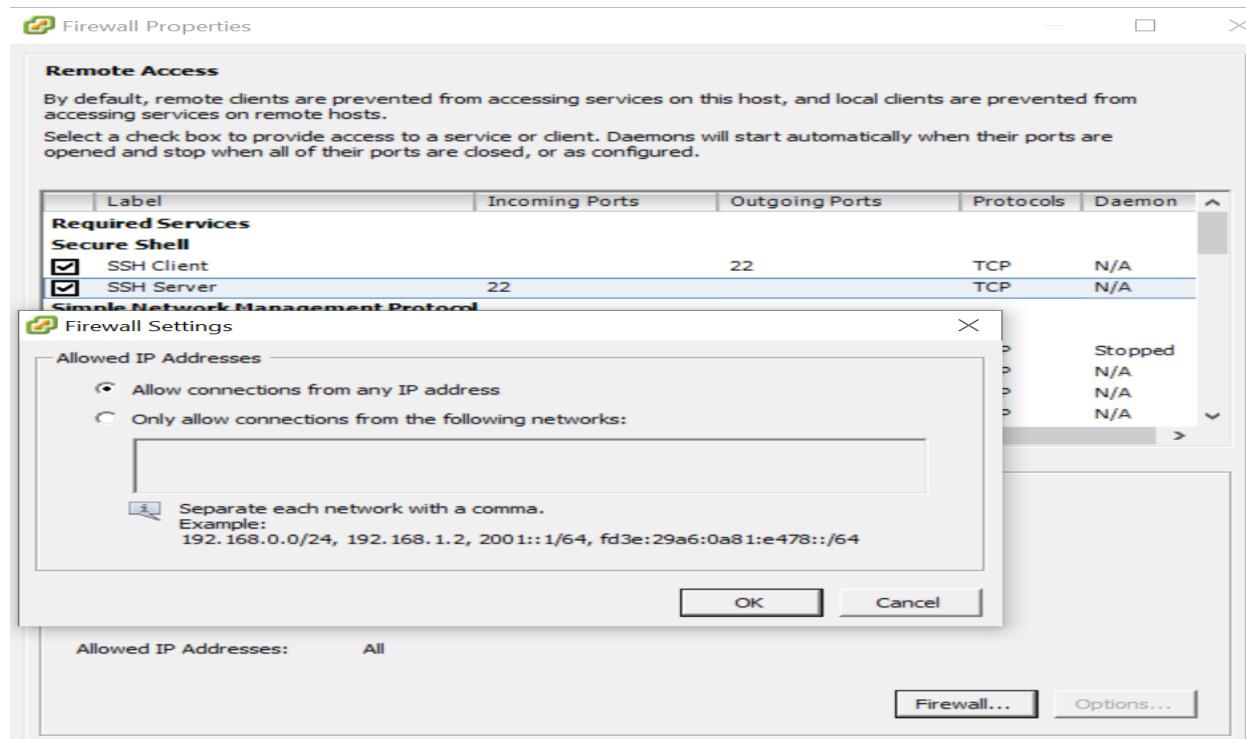
Refresh Properties...

- SNMP Server
- PC/SC Smart Card Daemon
- Load-Based Teaming Daemon
- ESXi Shell
- X.Org Server
- VMware vCenter Agent
- NTP Daemon
- Active Directory Service
- VProbe Daemon
- SSH
- Syslog Server
- Direct Console UI
- CIM Server

Chọn dịch vụ SSH và start



Ở tab Firewall cho phép kết nối SSH:



Thử kết nối đến máy ESXi và thành công

```
OpenSSH SSH client
Microsoft Windows [Version 10.0.17763.678]
(c) 2018 Microsoft Corporation. All rights reserved.

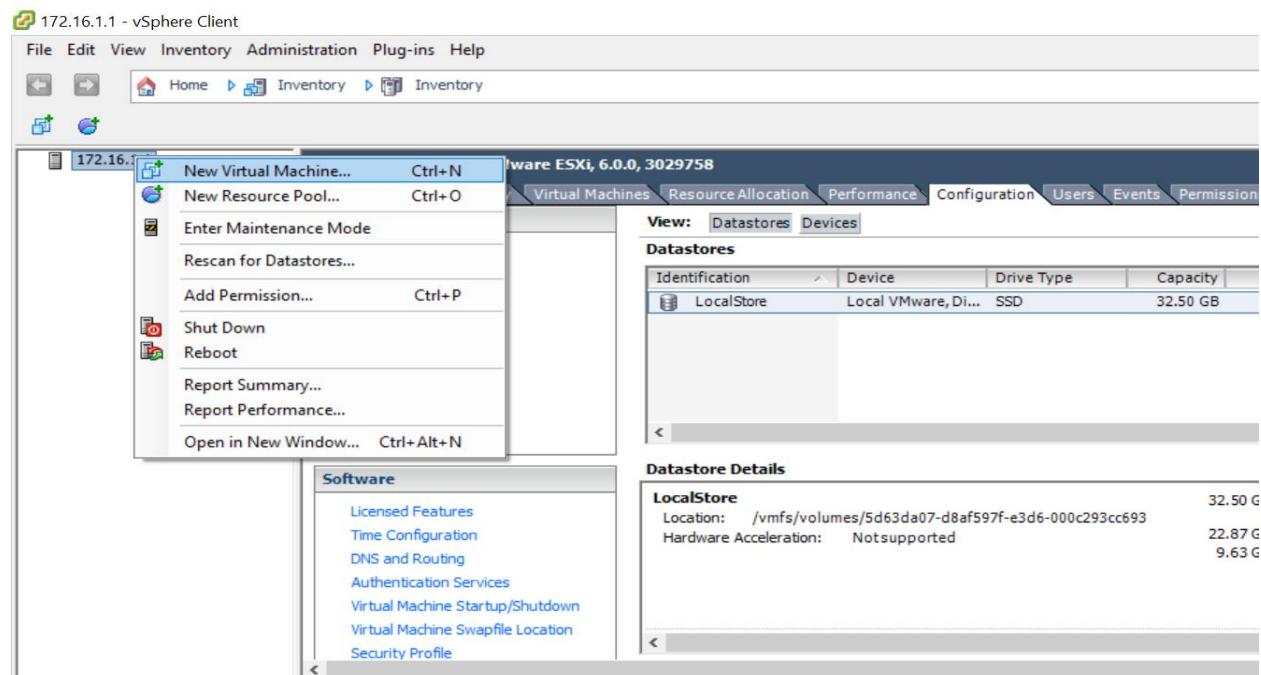
C:\Users\huynh>ssh root@172.16.1.1
Password:
The time and date of this login have been sent to the system logs.

VMware offers supported, powerful system administration tools. Please
see www.vmware.com/go/sysadmintools for details.

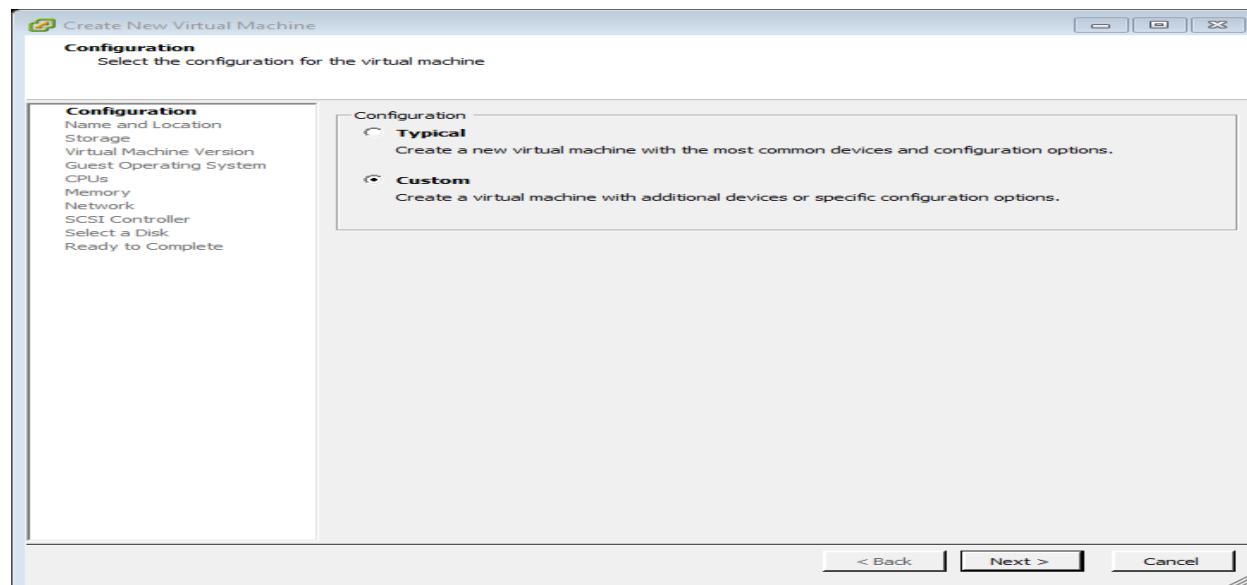
The ESXi Shell can be disabled by an administrative user. See the
vSphere Security documentation for more information.
[root@localhost:~]
```

4) Làm việc với máy ảo:

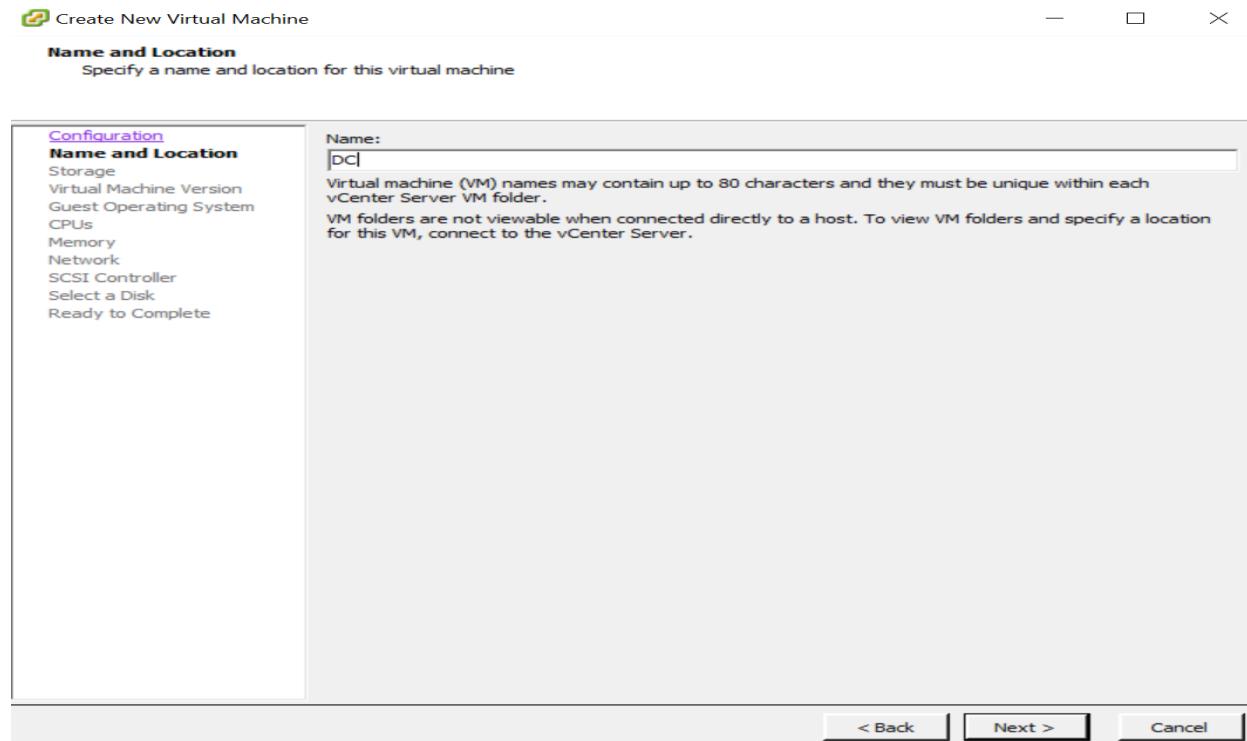
a) Tạo một máy ảo:
Chọn **New Virtual Machine** trên máy ESXI



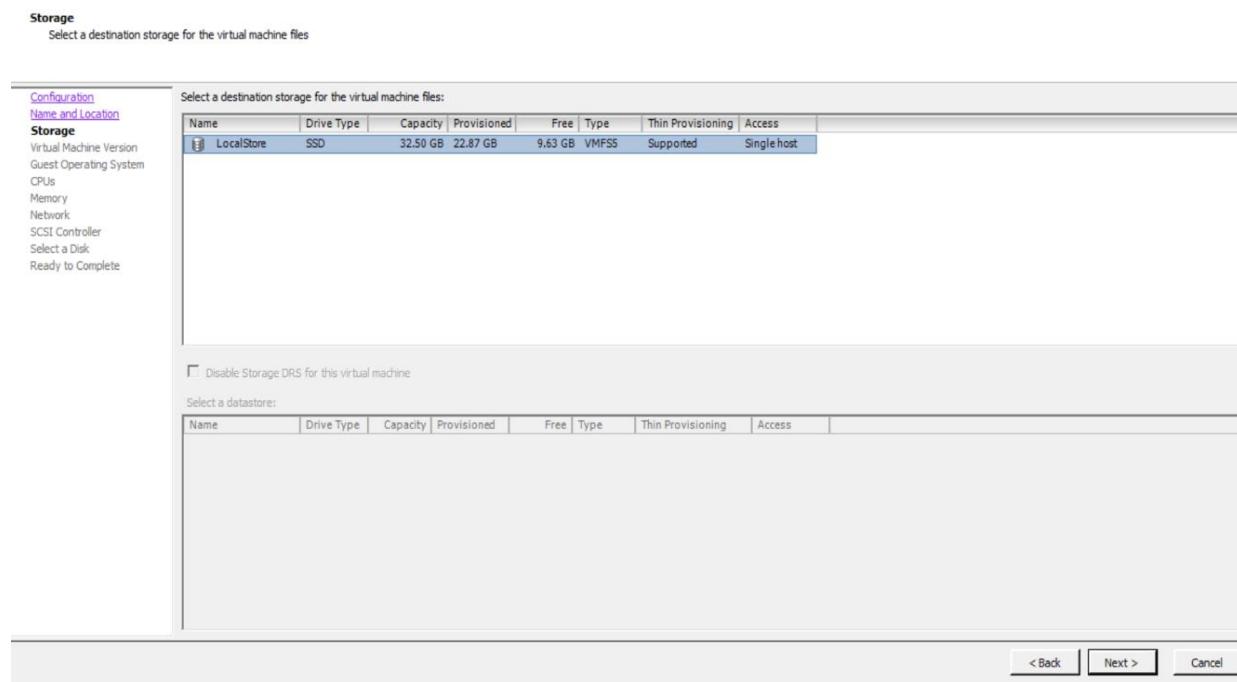
Chọn **Custom**



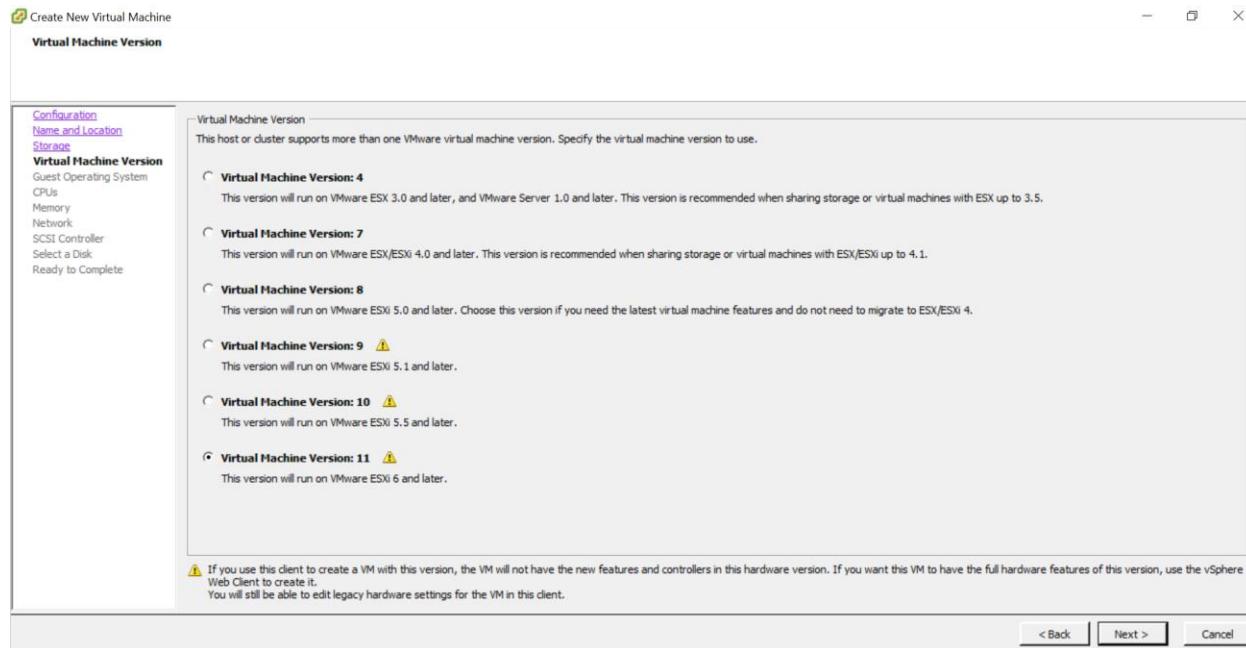
Đặt tên cho máy ảo: DC



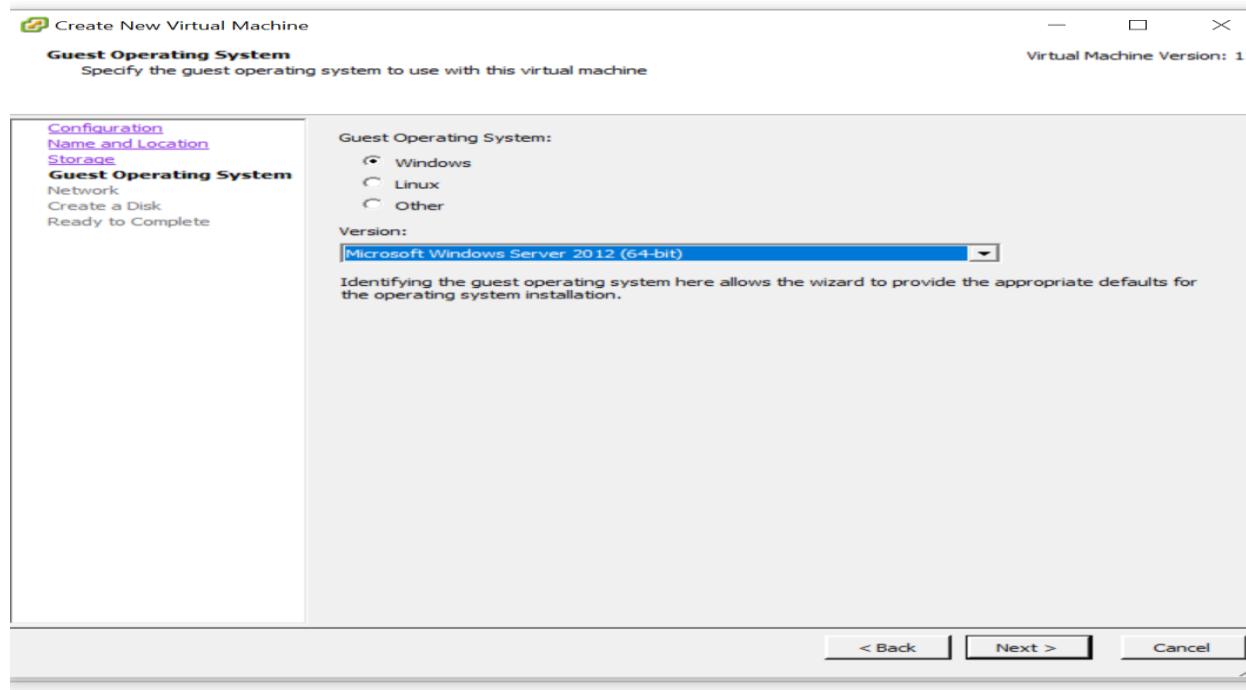
Chọn Next



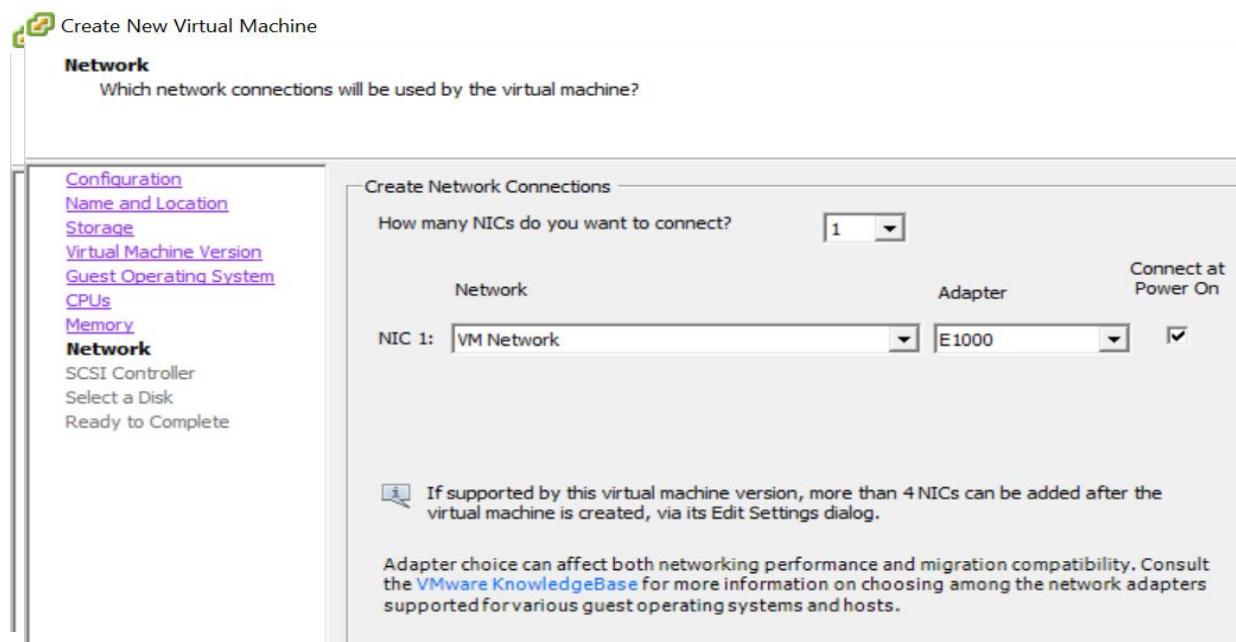
Chọn Virtual Machine Version 11



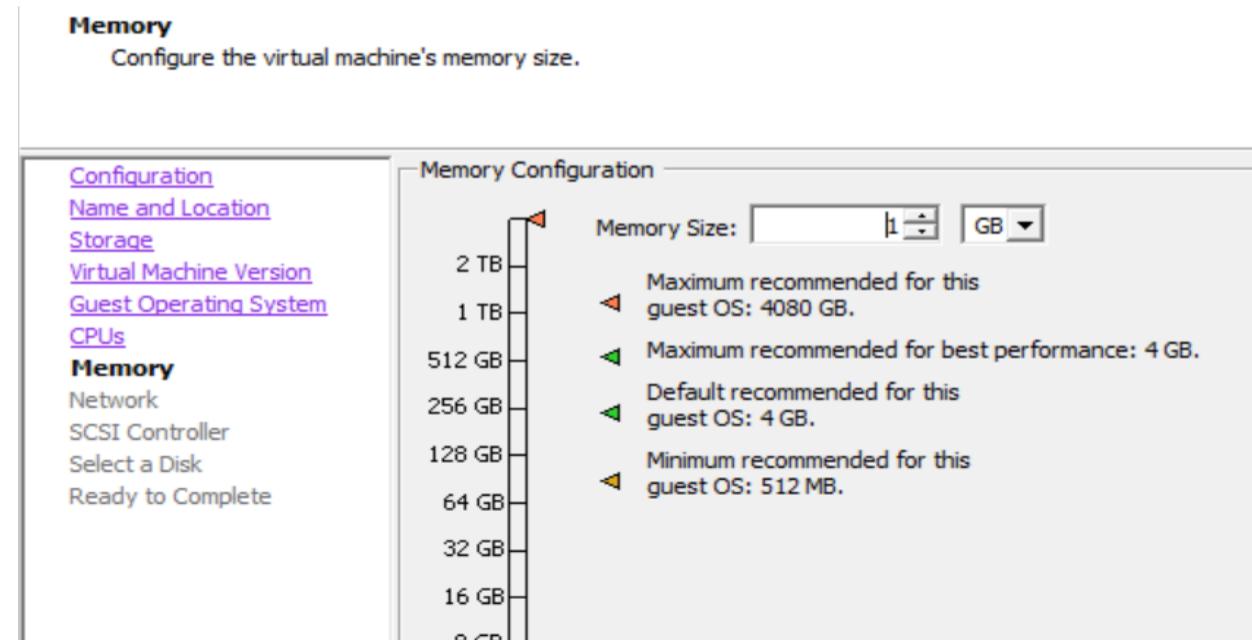
Chọn phiên bản Window Server 2012 R2 (64bit)



Để mặc định và chọn Next



Cấu hình RAM



Để mặc định và chọn Next

Chọn Next

SCSI Controller
Which SCSI controller type would you like to use?

[Configuration](#)
[Name and Location](#)
[Storage](#)
[Virtual Machine Version](#)
[Guest Operating System](#)
[CPUs](#)
[Memory](#)
[Network](#)
SCSI Controller
Select a Disk
Ready to Complete

SCSI controller

- BusLogic Parallel (not recommended for this guest OS)
- LSI Logic Parallel
- LSI Logic SAS
- VMware Paravirtual

Chọn Next

 Create New Virtual Machine

Select a Disk

[Configuration](#)
[Name and Location](#)
[Storage](#)
[Virtual Machine Version](#)
[Guest Operating System](#)
[CPUs](#)
[Memory](#)
[Network](#)
[SCSI Controller](#)
Select a Disk
Create a Disk
Advanced Options
Ready to Complete

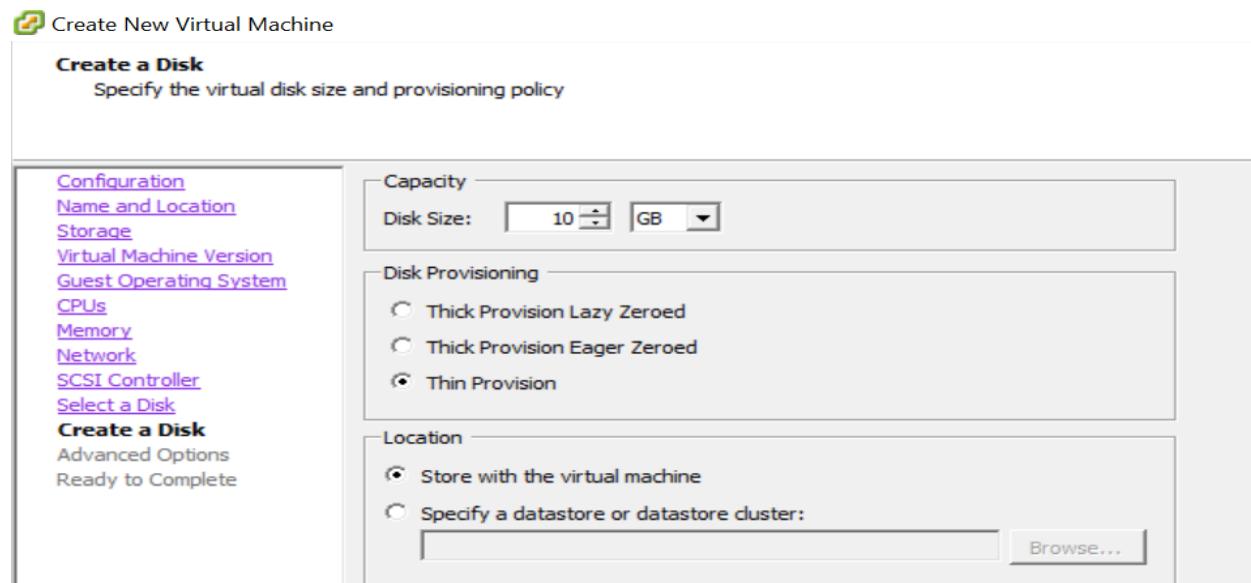
A virtual disk is composed of one or more files on the host file system. Together these files appear as a single hard disk to the guest operating system.

Select the type of disk to use.

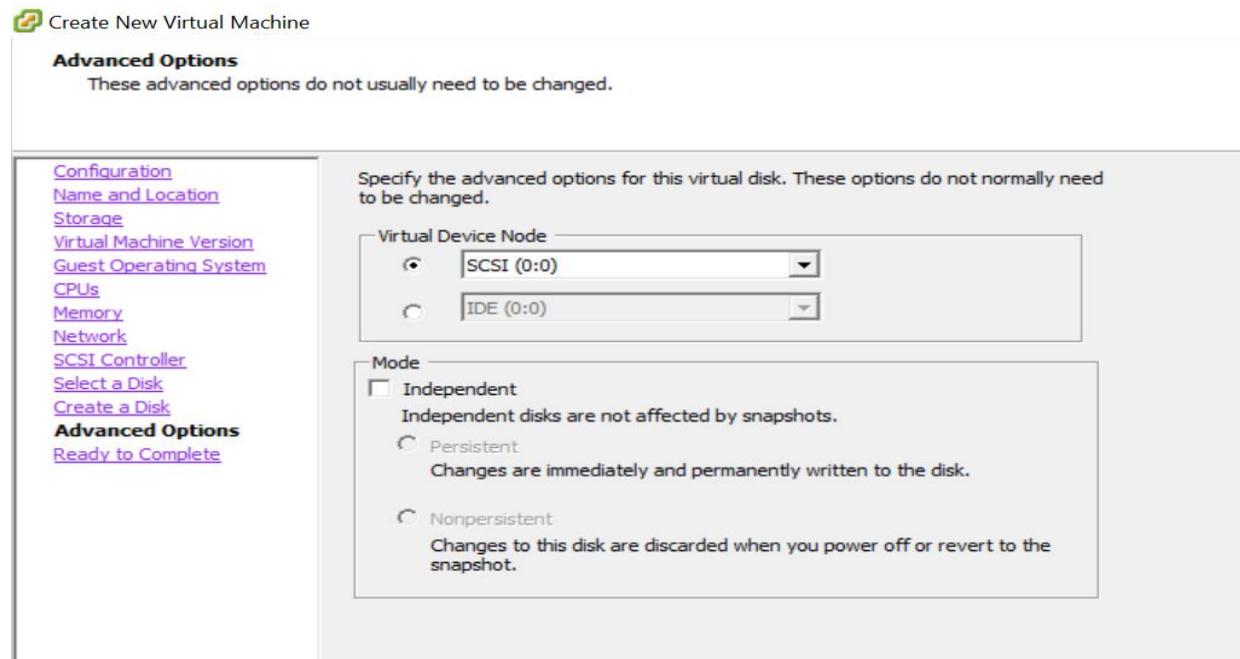
Disk

- Create a new virtual disk
- Use an existing virtual disk
Reuse a previously configured virtual disk.
- Raw Device Mappings
Give your virtual machine direct access to SAN. This option allows you to use existing SAN commands to manage the storage and continue to access it using a datastore.
- Do not create disk

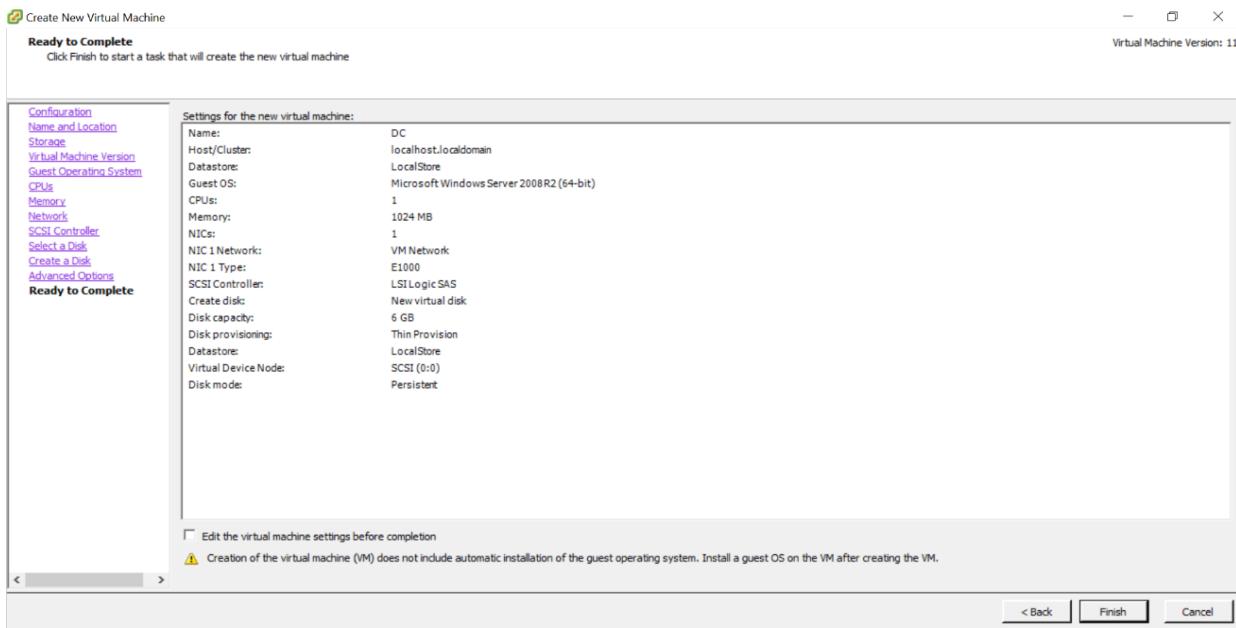
Gán dung lượng cho ổ cứng và chọn **Thin Provision**



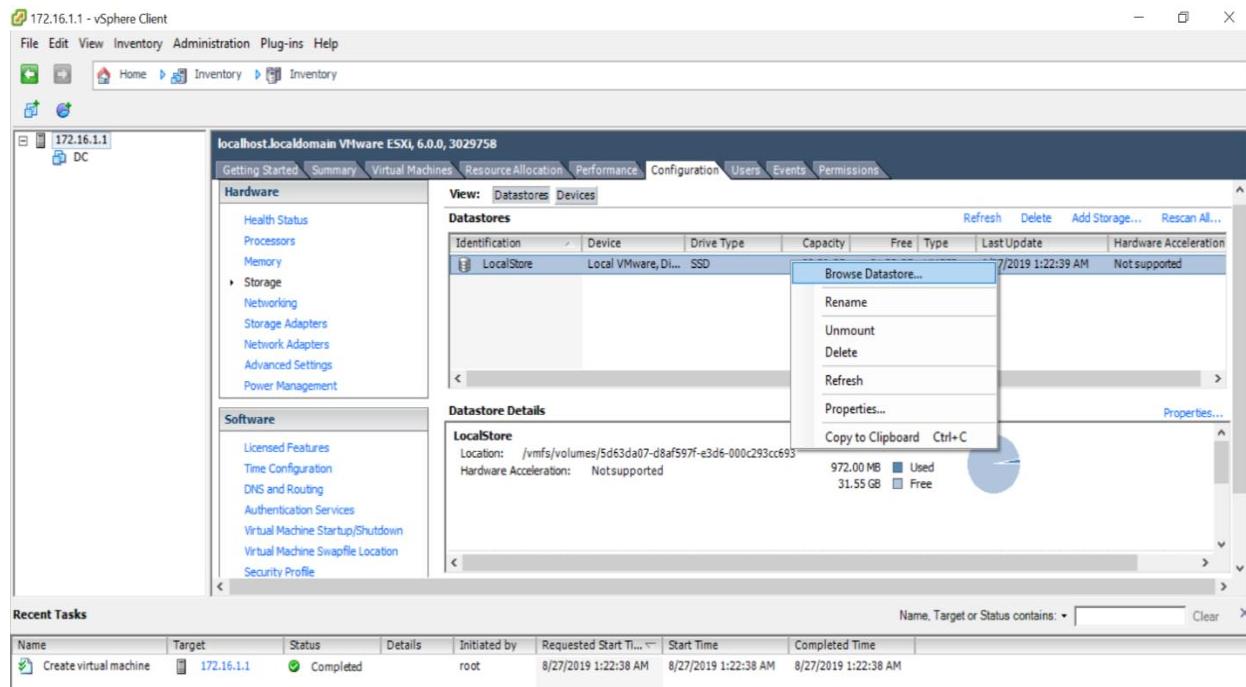
Chọn Next



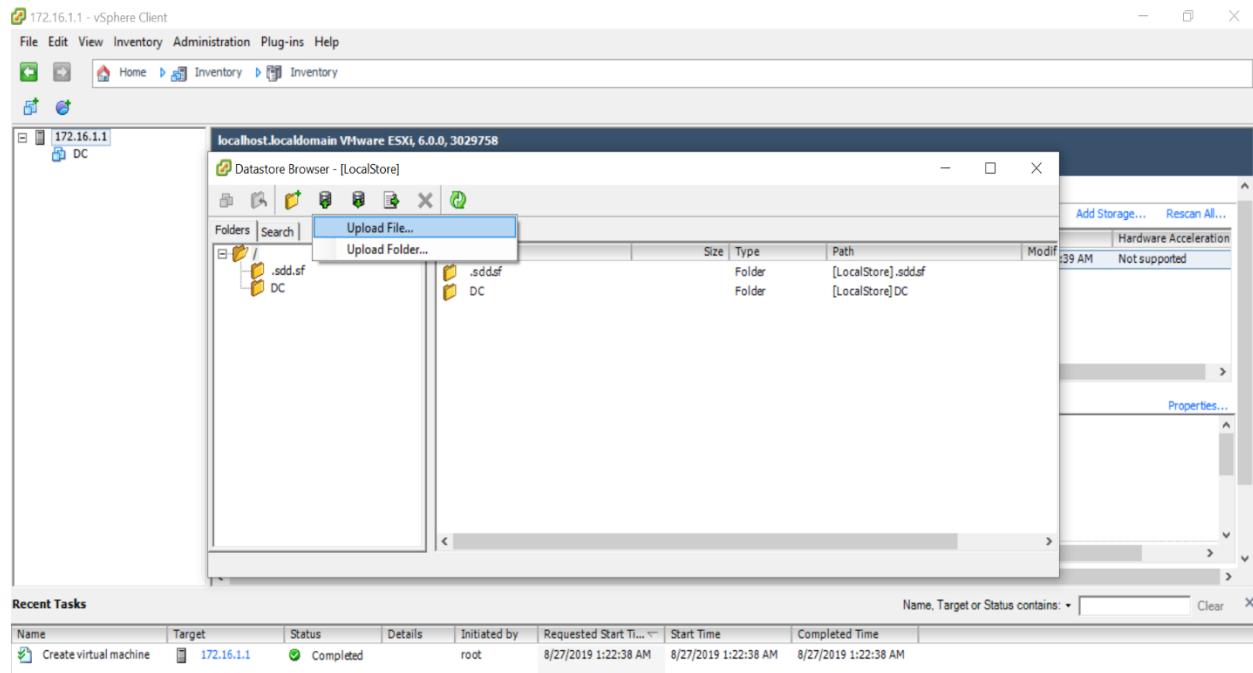
Chọn Finish



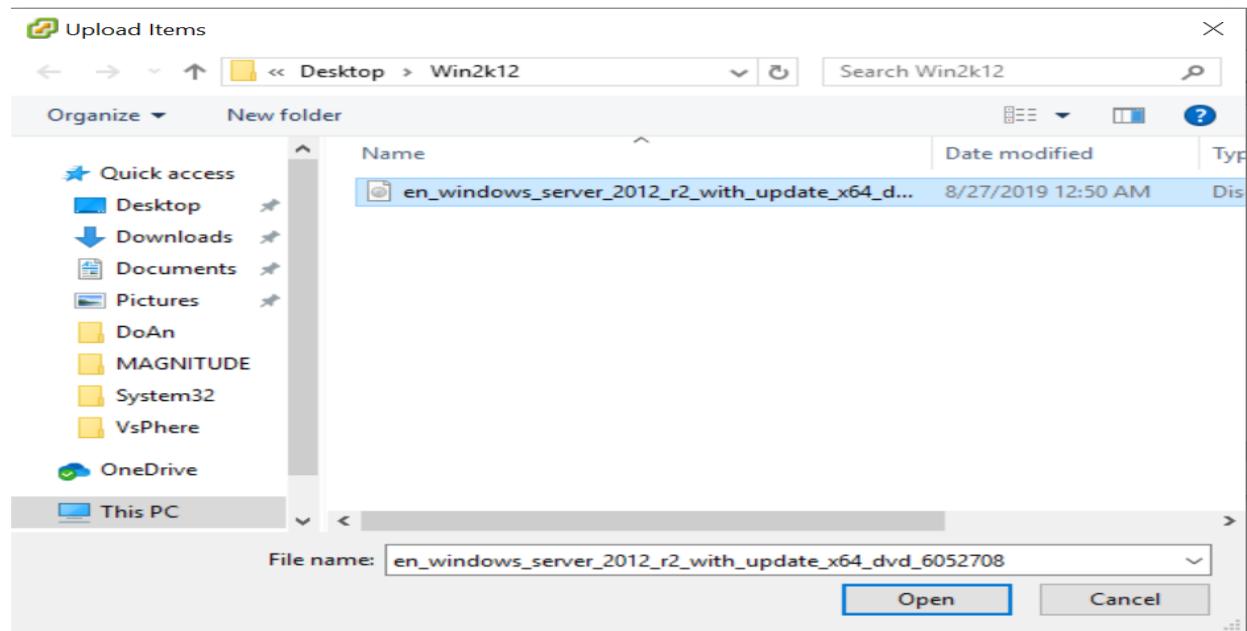
Chọn Browse Database



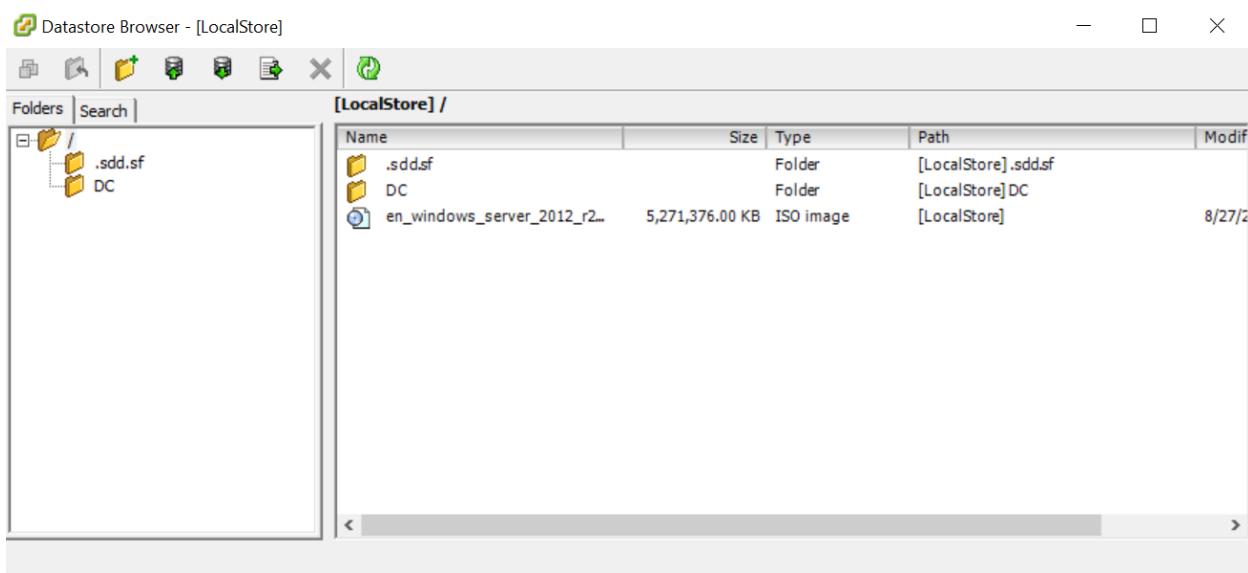
Chọn Upfile và sau đó chọn Upload File



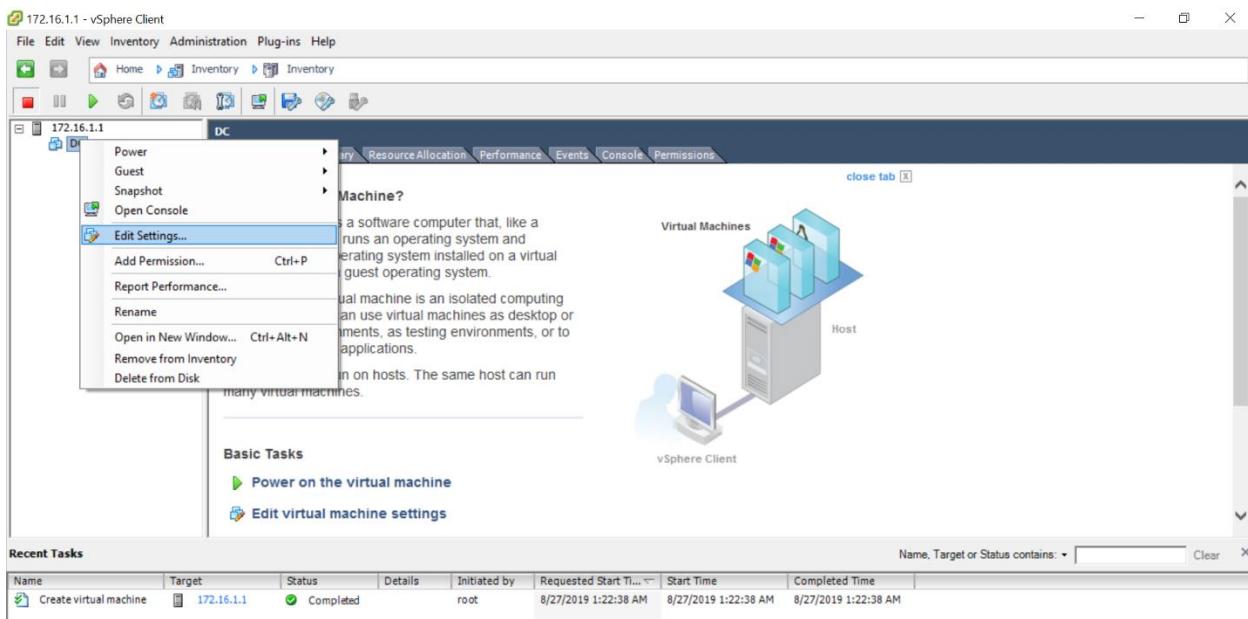
Upload file ISO



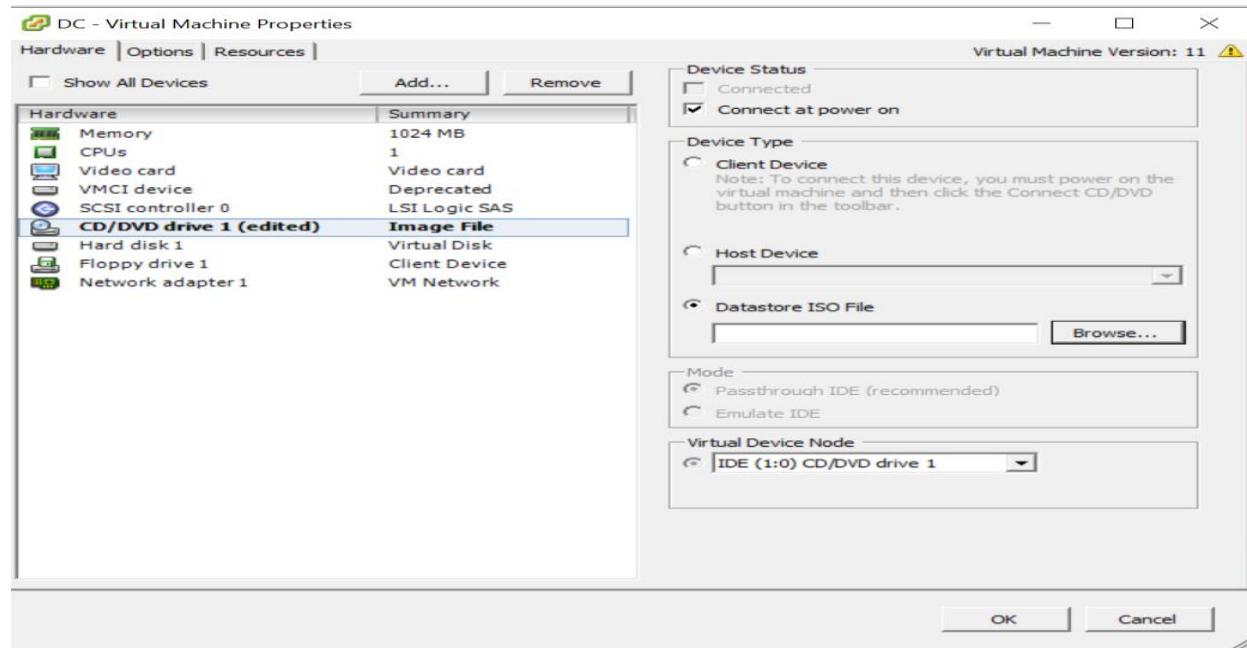
Đã Upfile thành công



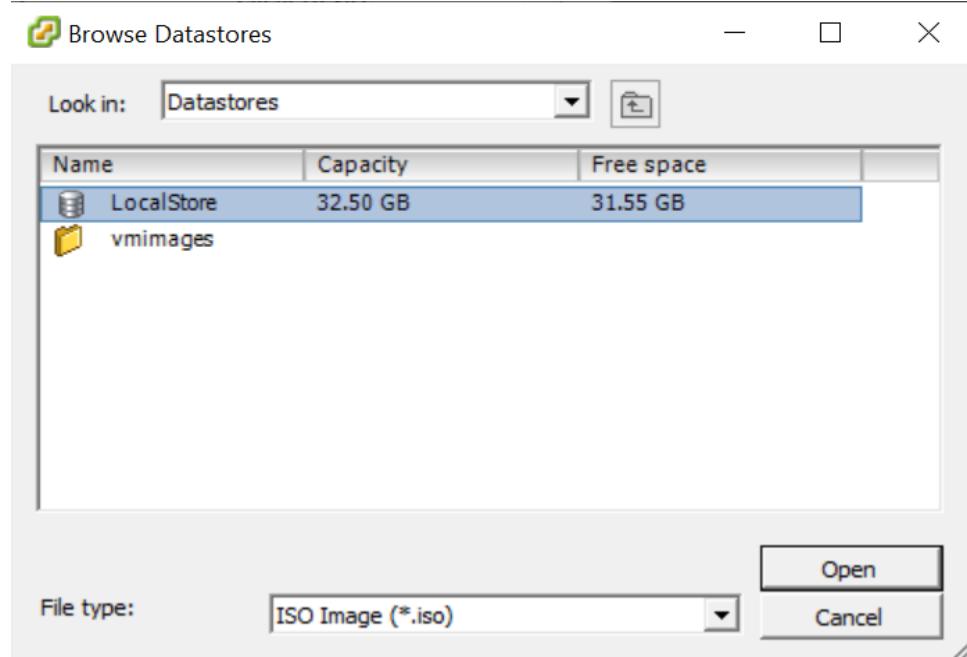
Chọn Edit Setting



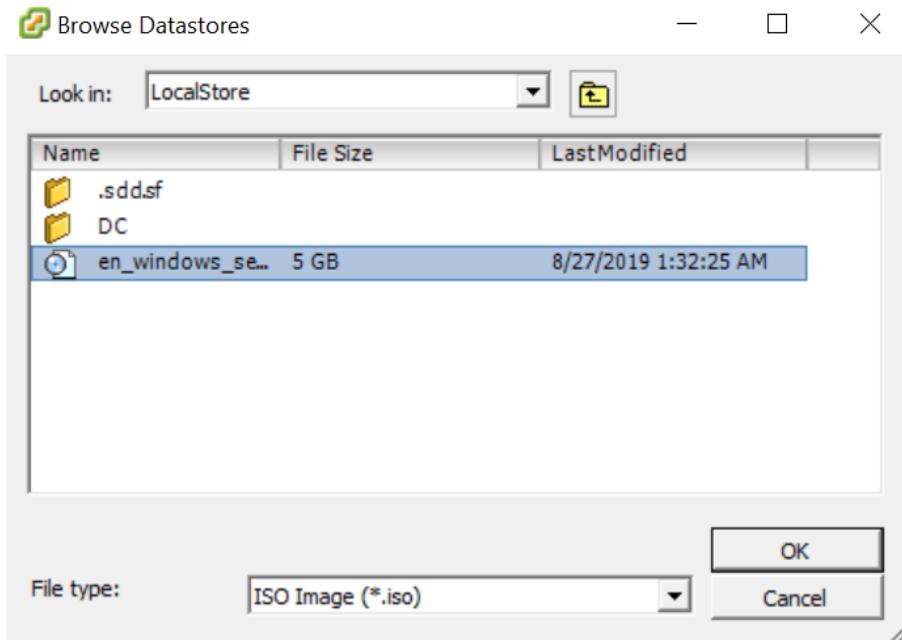
Chọn CD/DVD drive 1 → Check Connect at power on → chọn file ISO ở ô Datastore ISO File



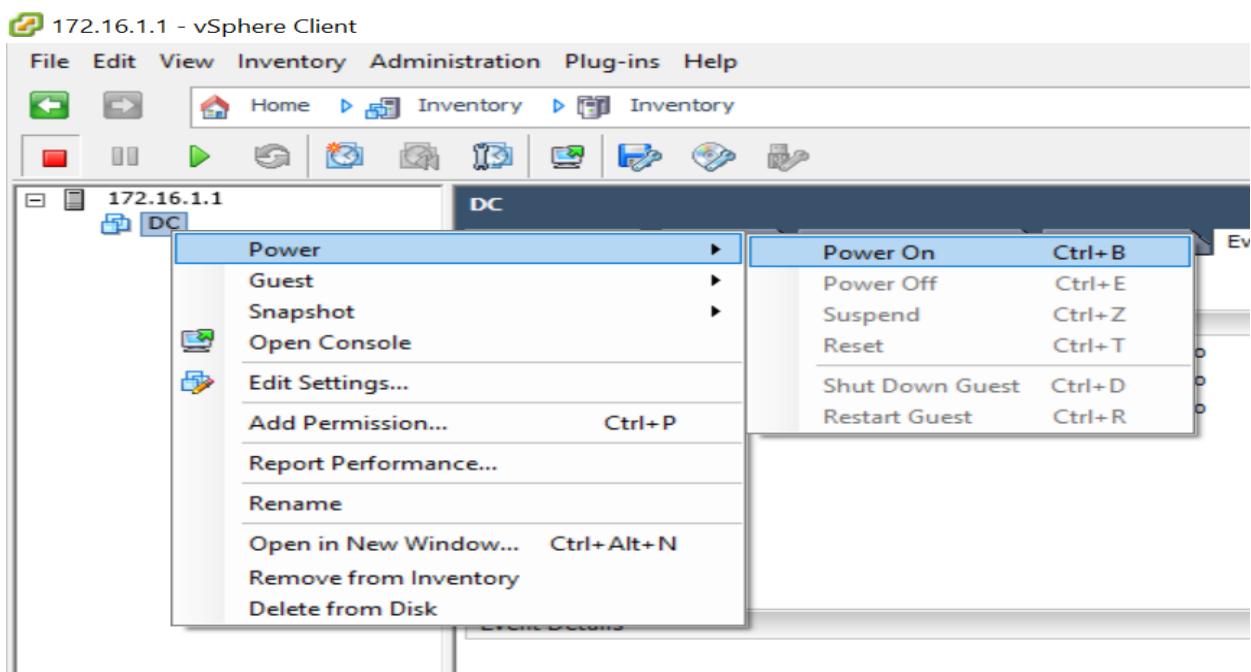
Chọn đến LocalStore



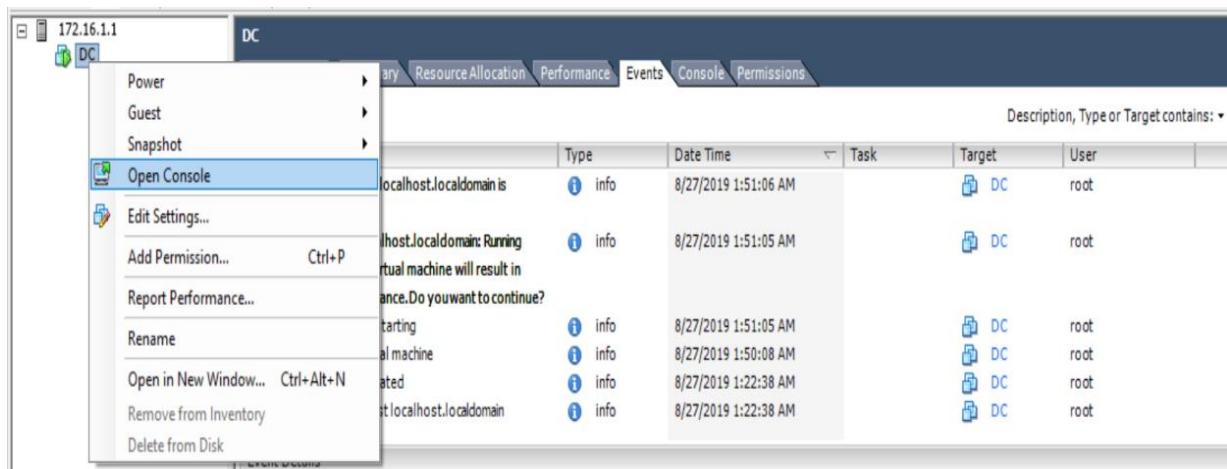
Chọn file ISO



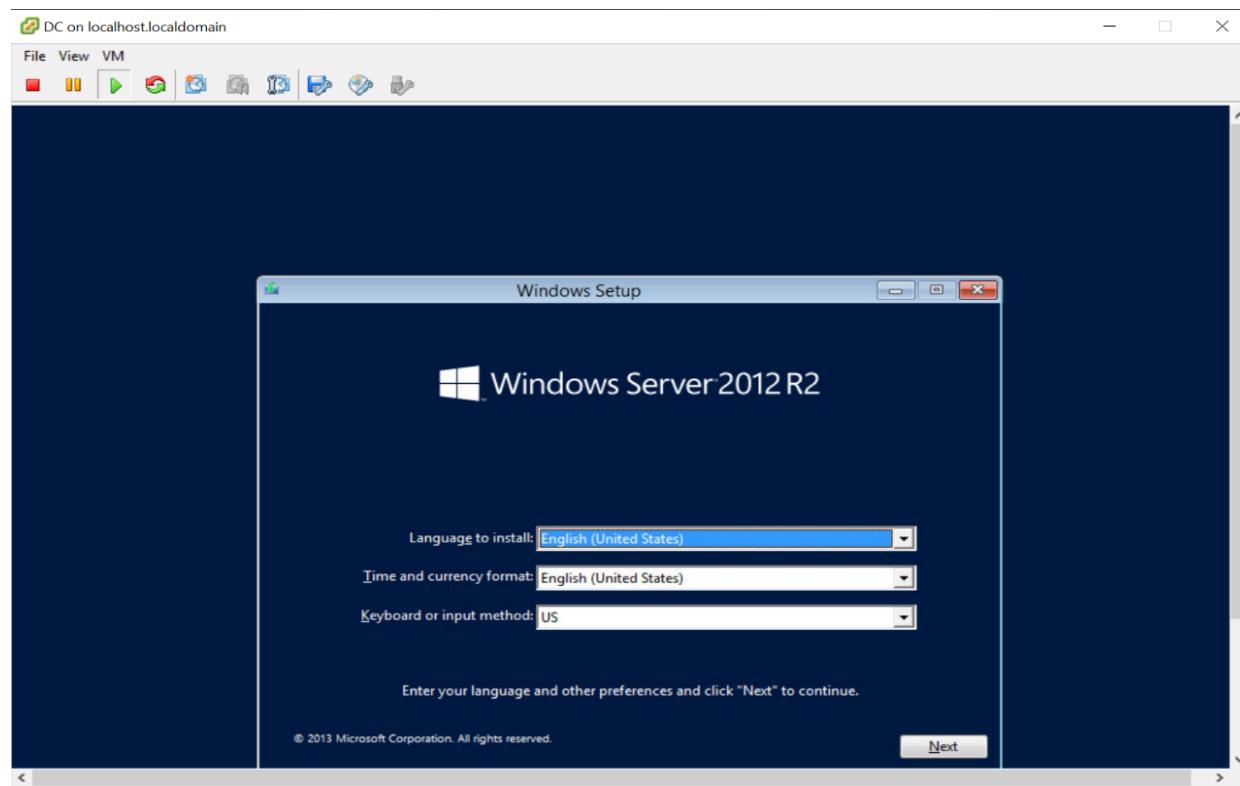
Mở máy DC



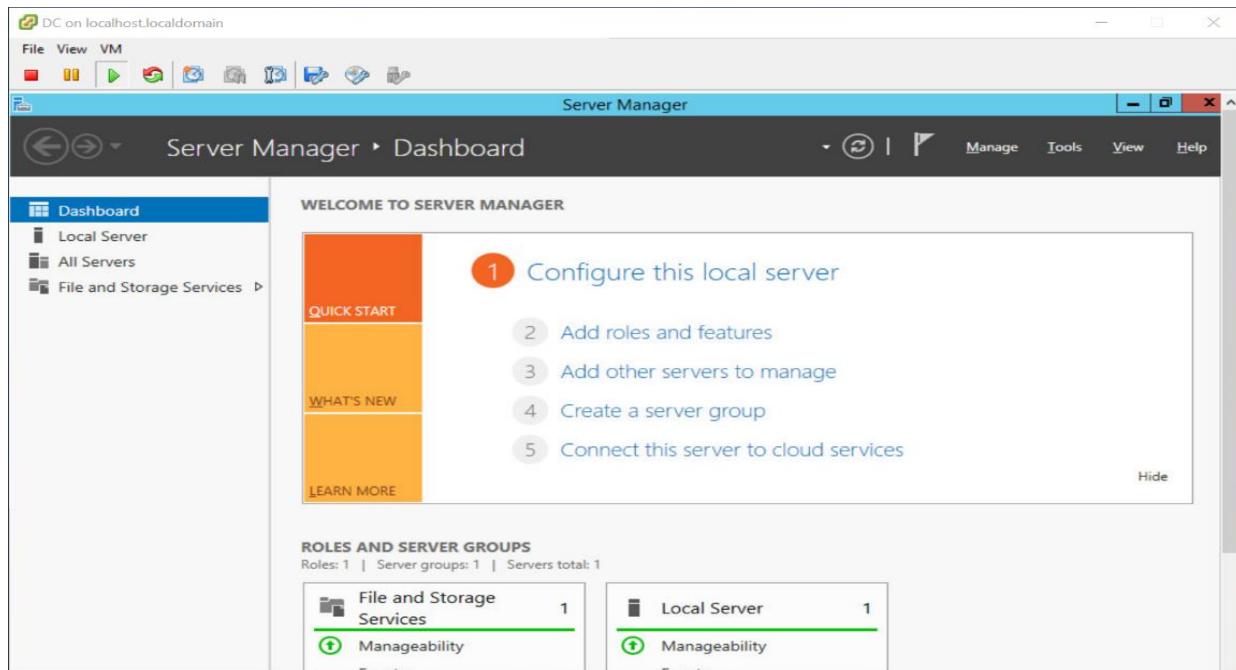
Mở Console



b) Tiến hành cài đặt Window Server 2012

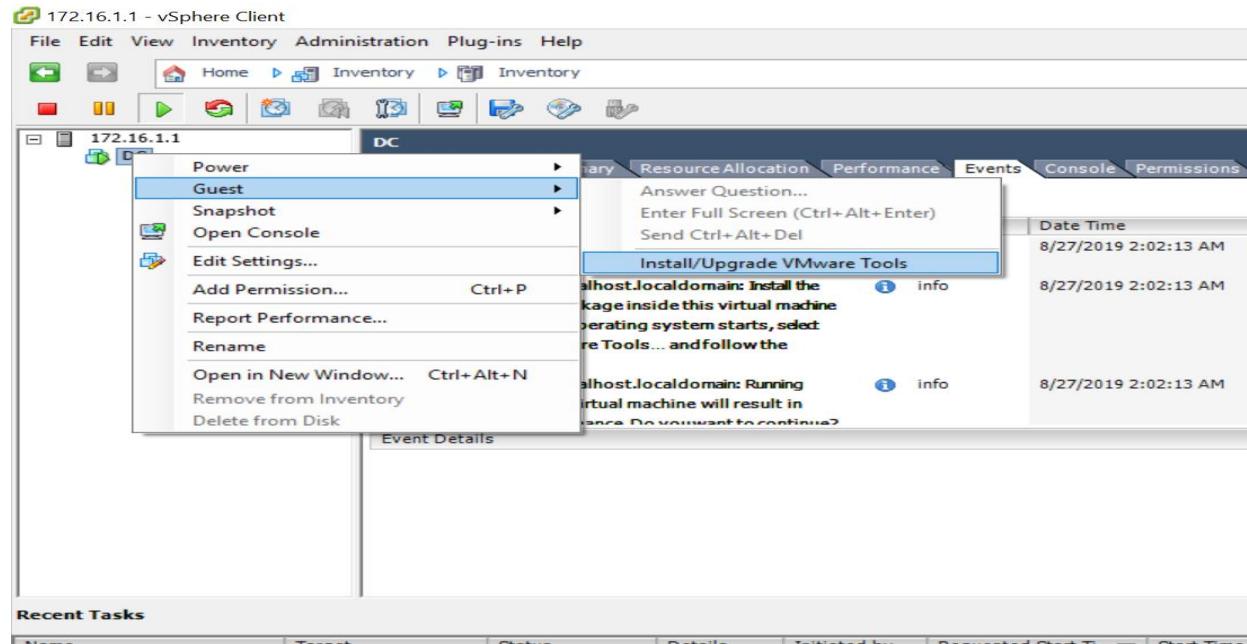


Đã cài đặt thành công Window Server 2012

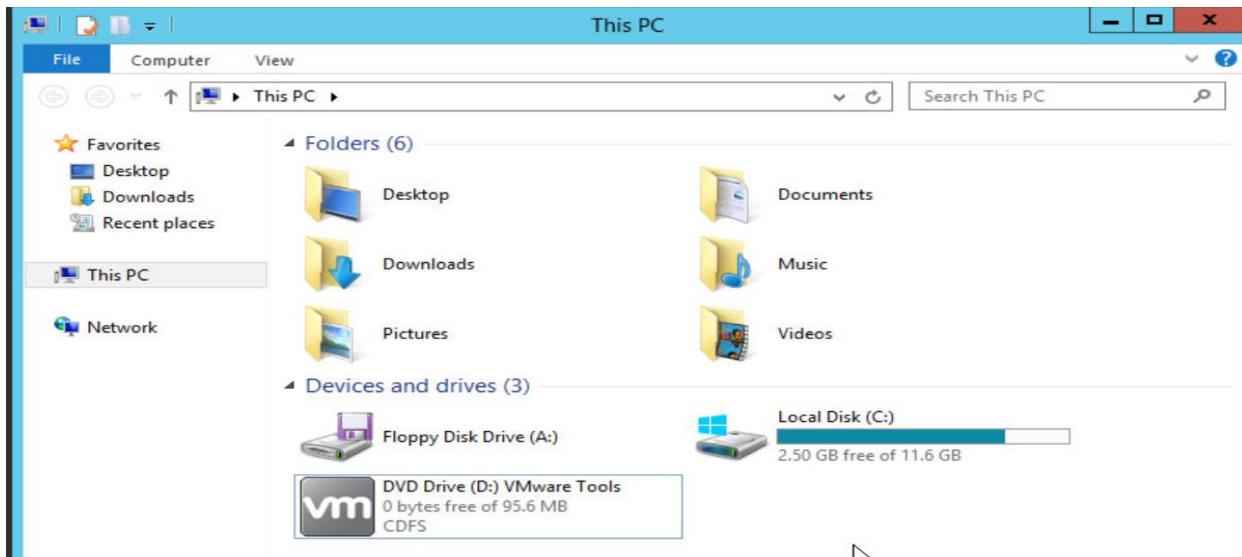


c) Cài đặt VM Tool cho máy ảo

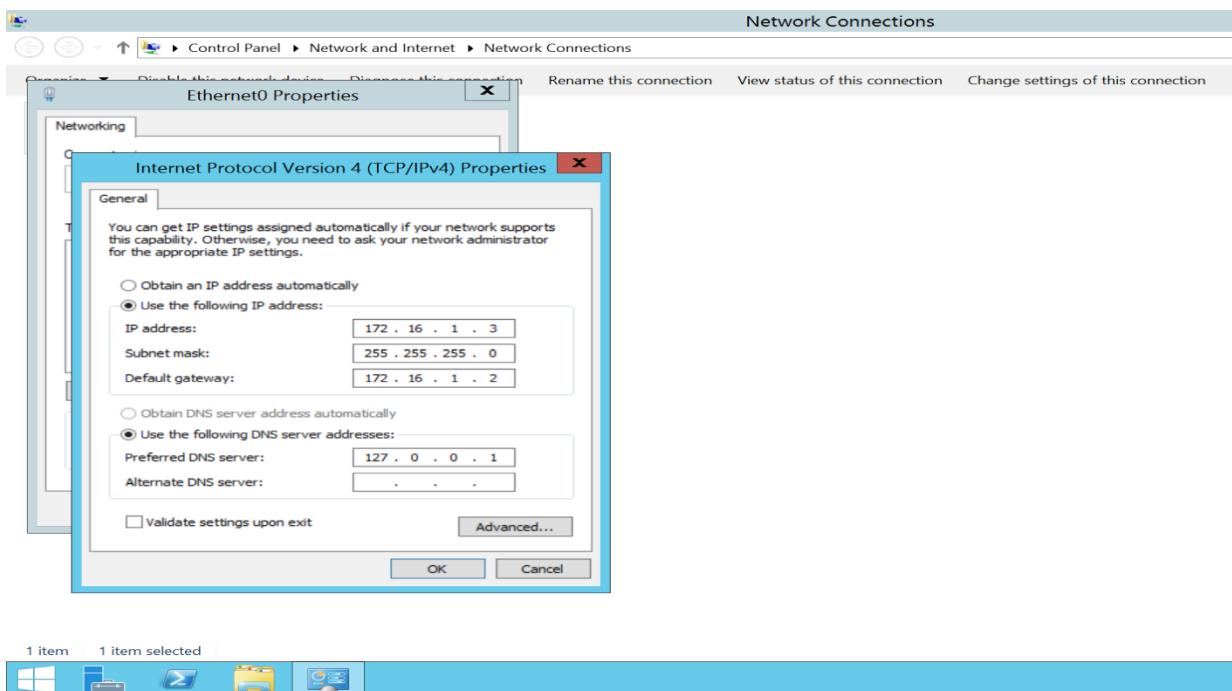
Chuột phải lên tên máy ảo chọn Guest → **Install/Upgrade VMware Tools**



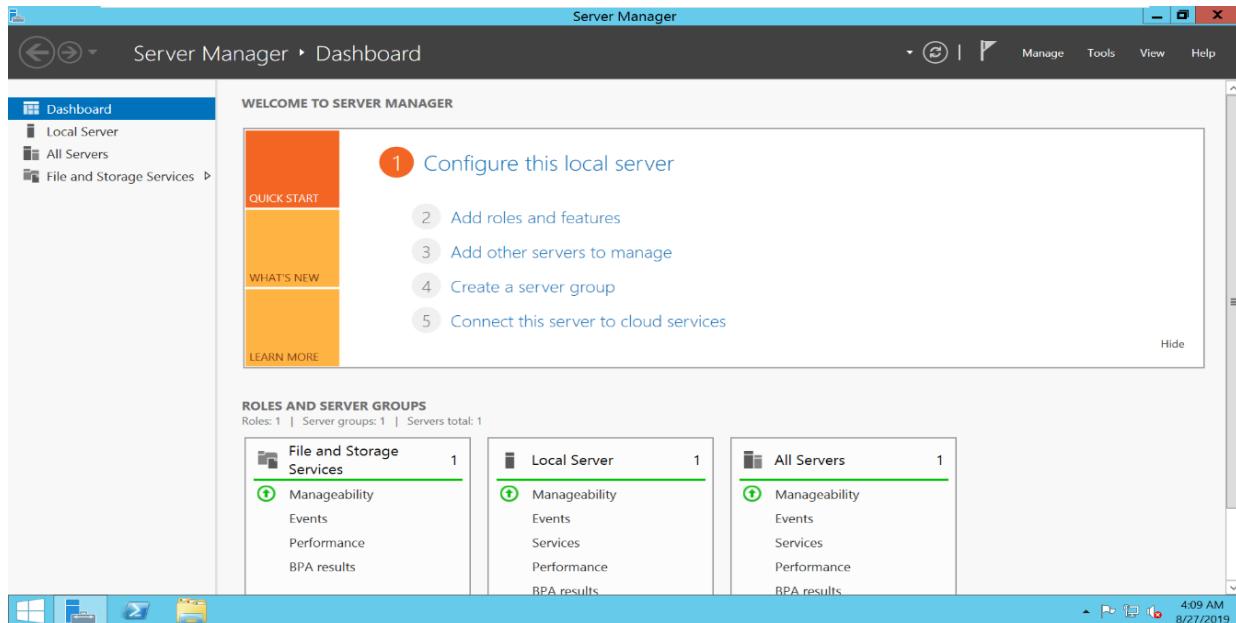
Tiến hành cài VMWare Tool → Click vào hình VM vào cài đặt



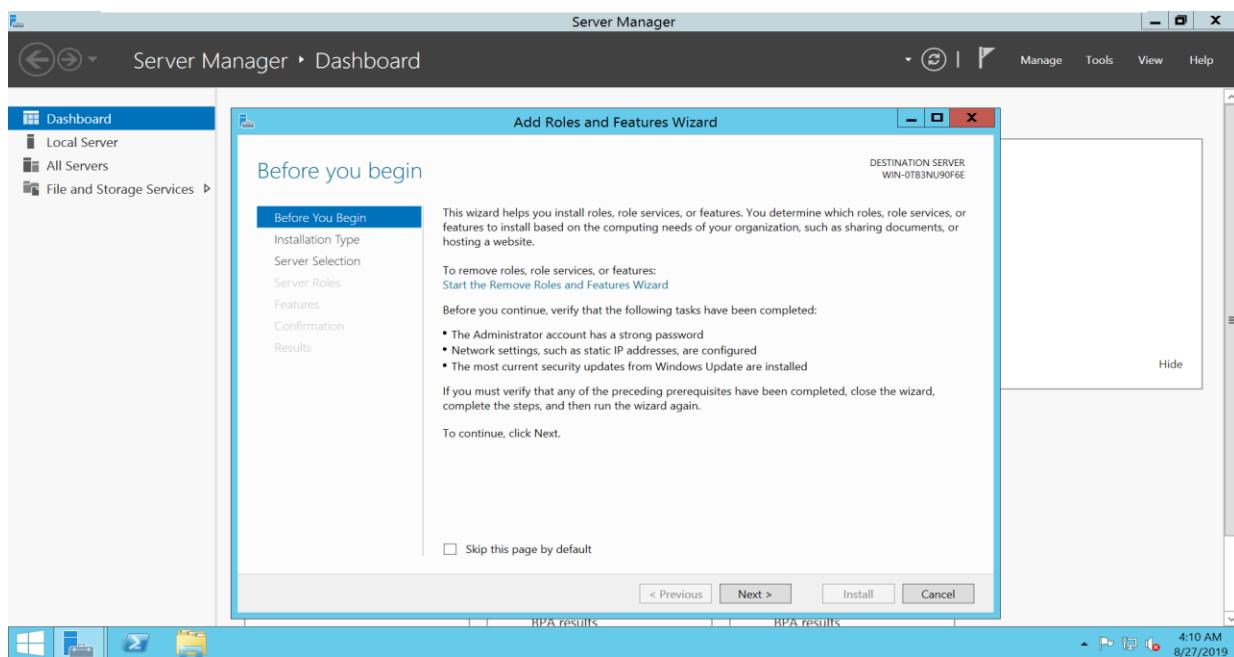
d) Nâng cấp Window Server 2012 thành Domain Controller
Đặt IP cho máy Window Server 2012



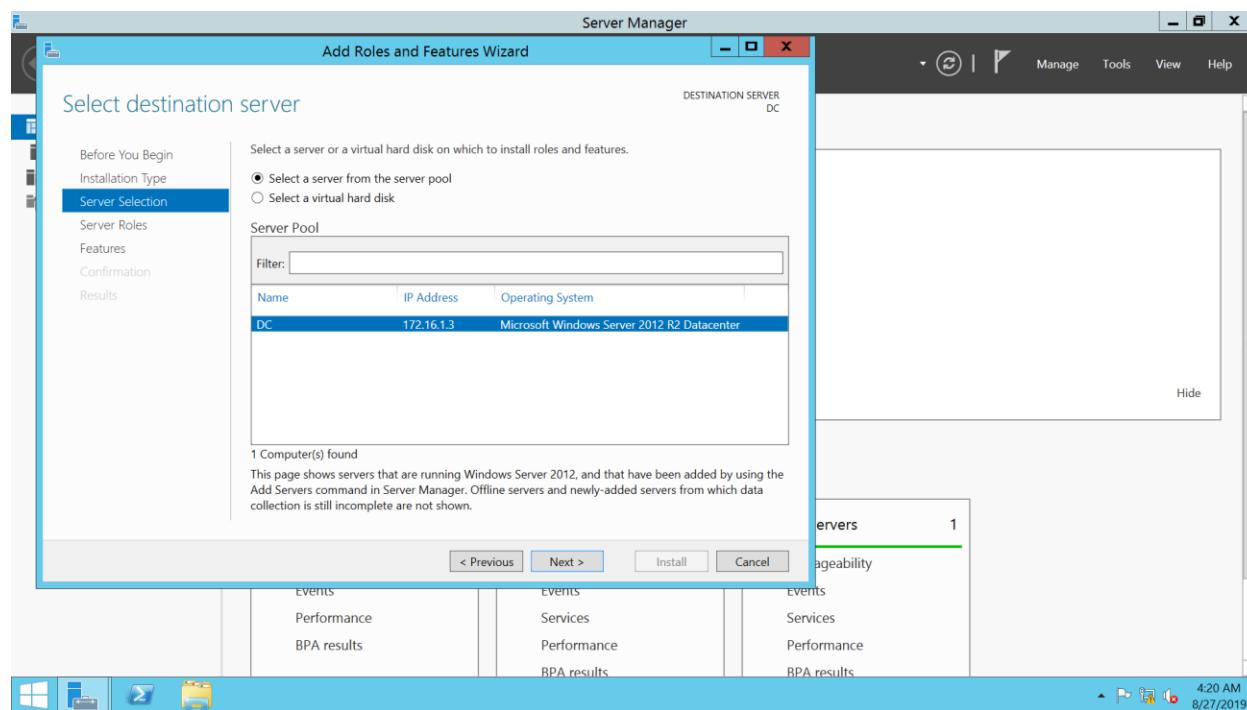
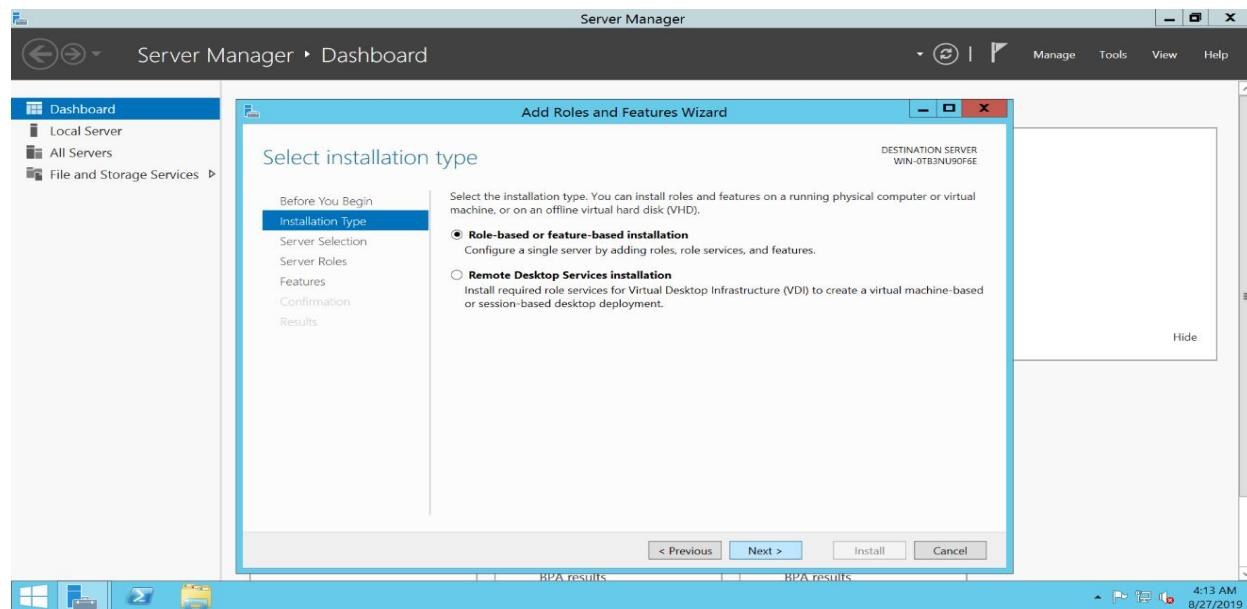
Chọn Server Manager → Add roles and features



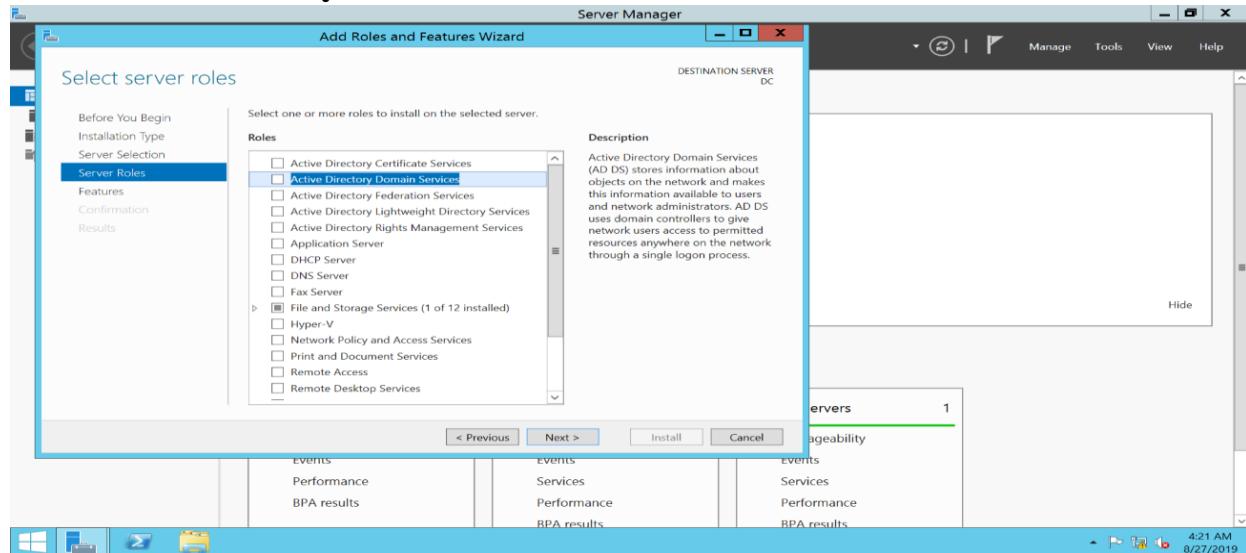
Chọn Next



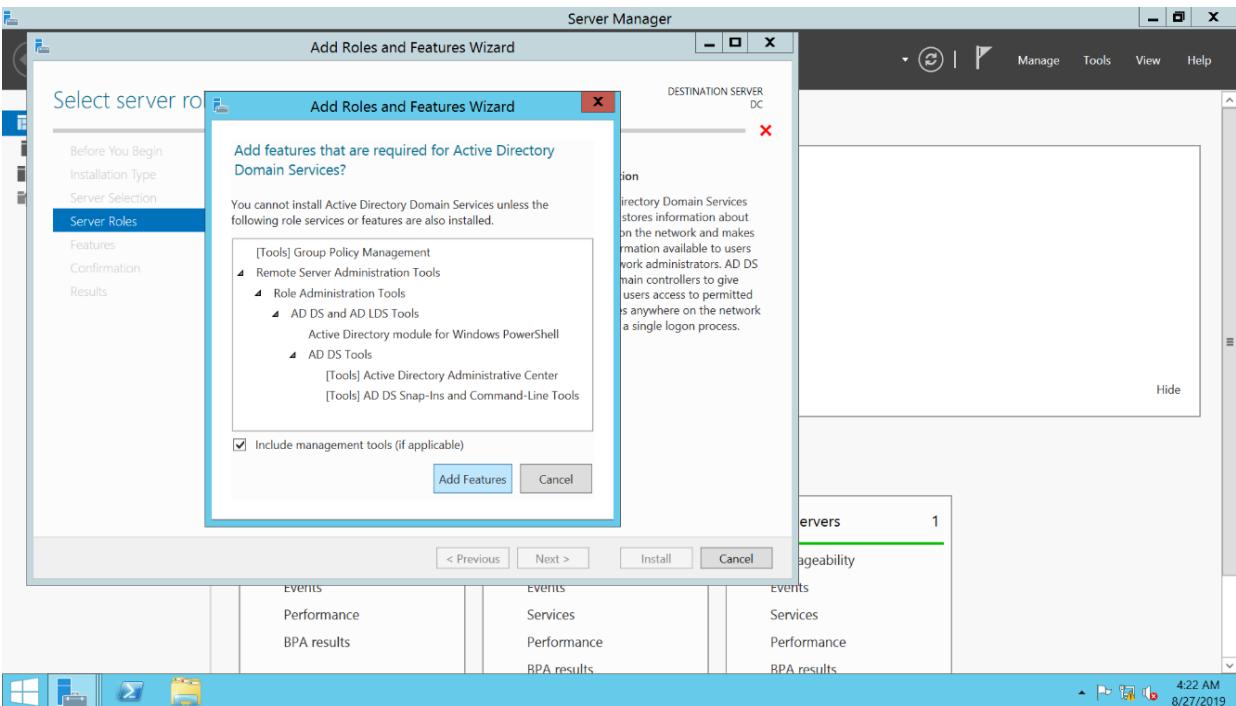
Chọn Next



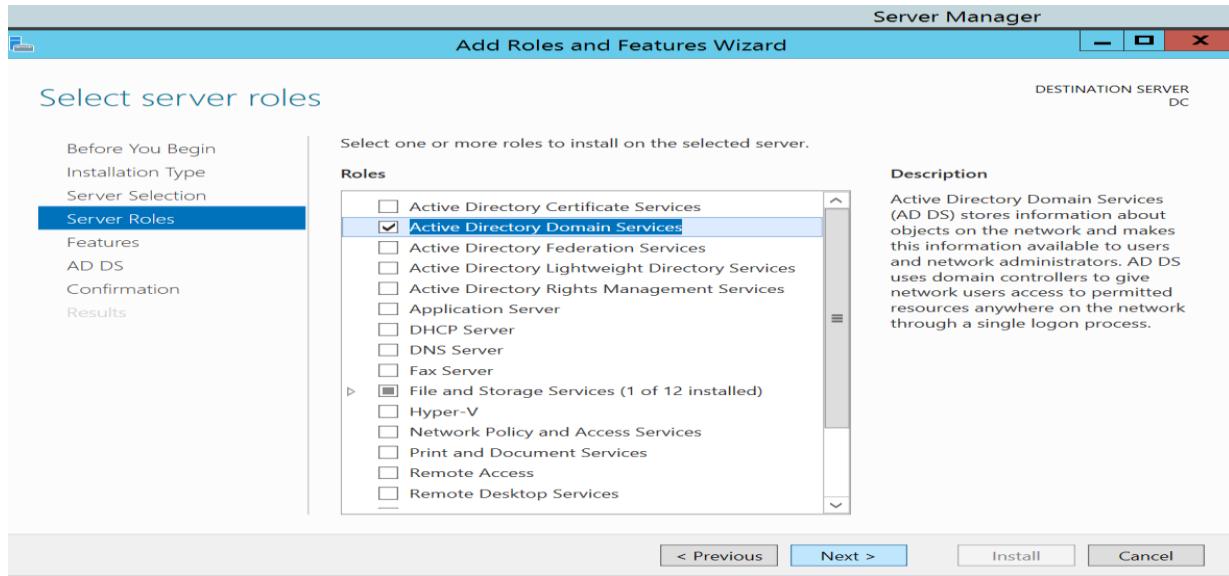
Chọn Active Directory Domain Service và sau đó chọn Next



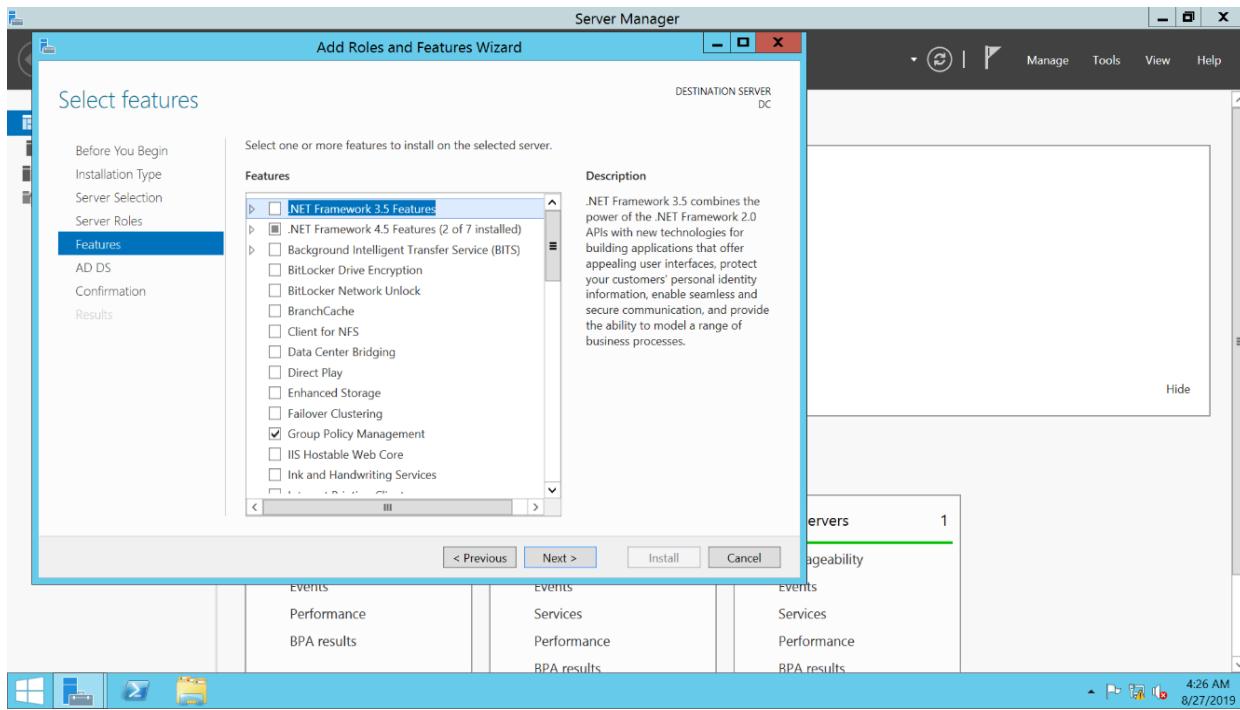
Chọn Add Features



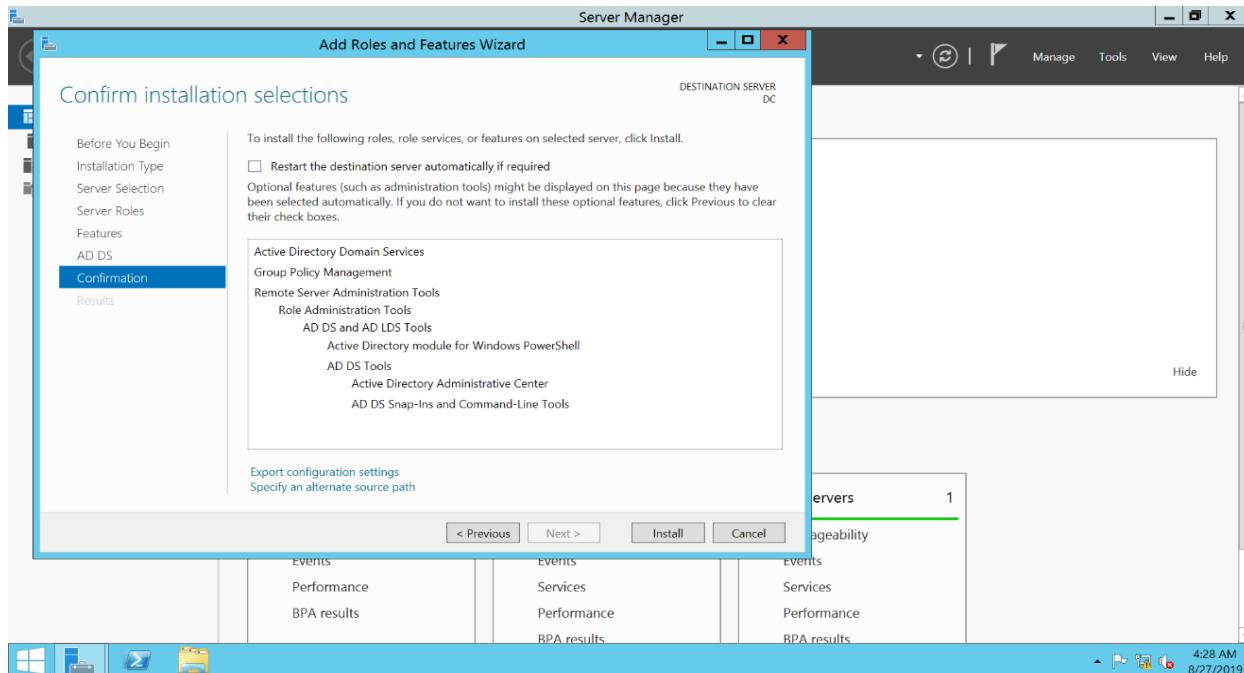
Chọn Next



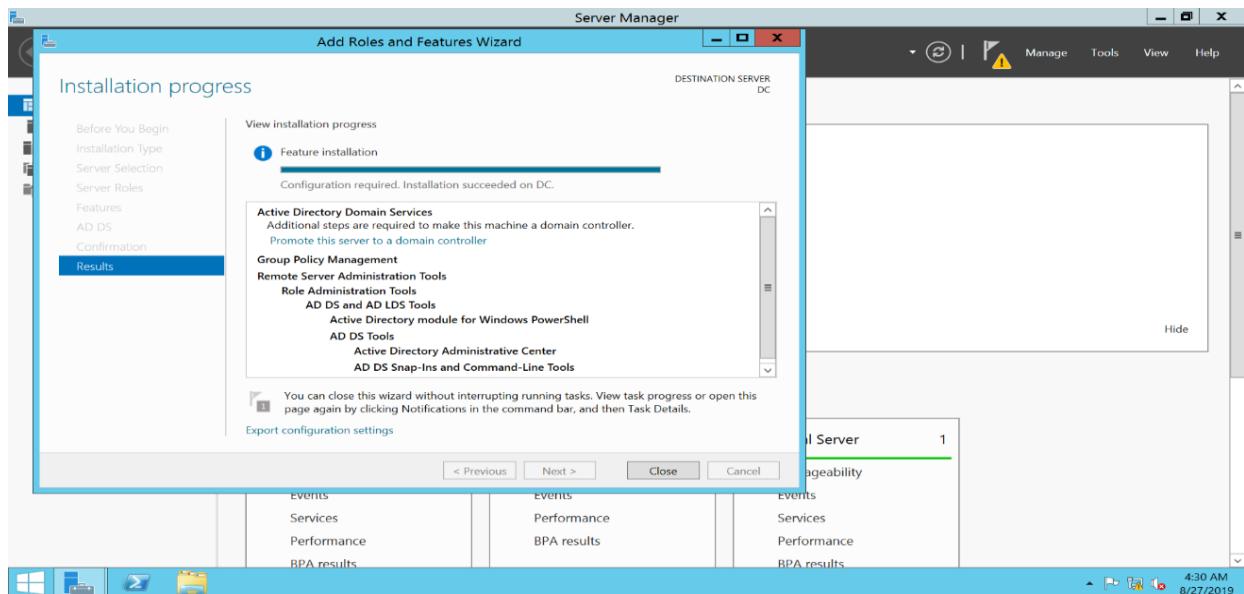
Chọn Next



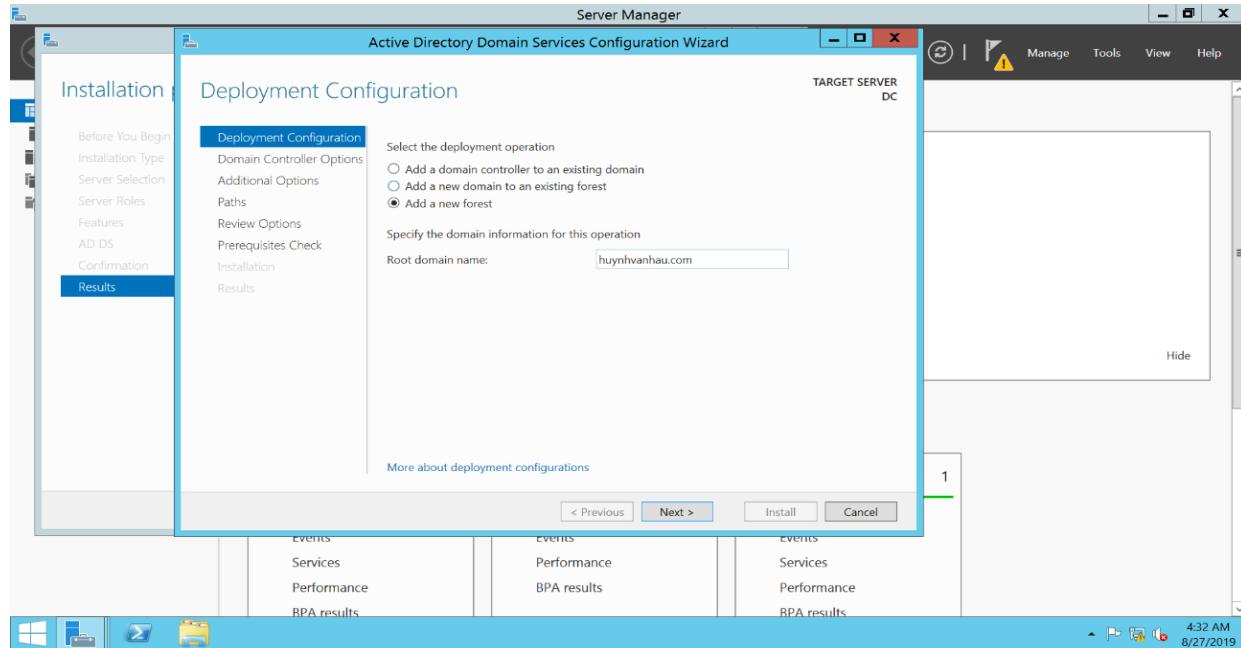
Chọn Install



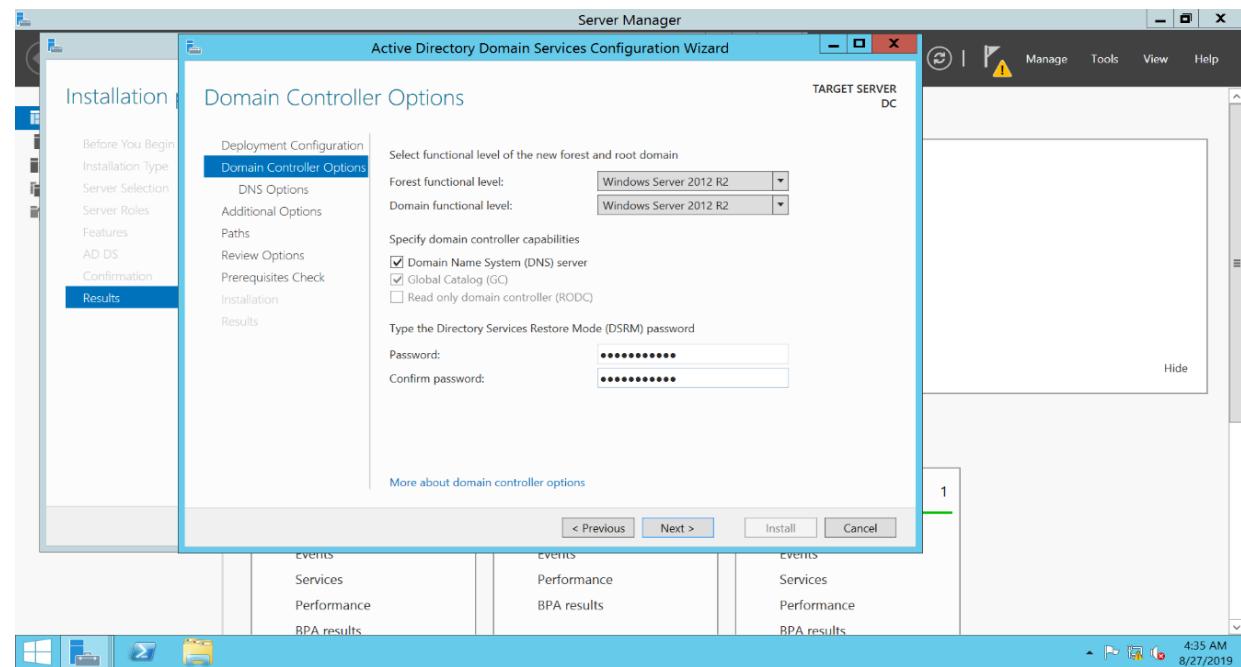
Chọn Promote this server to a domain controller



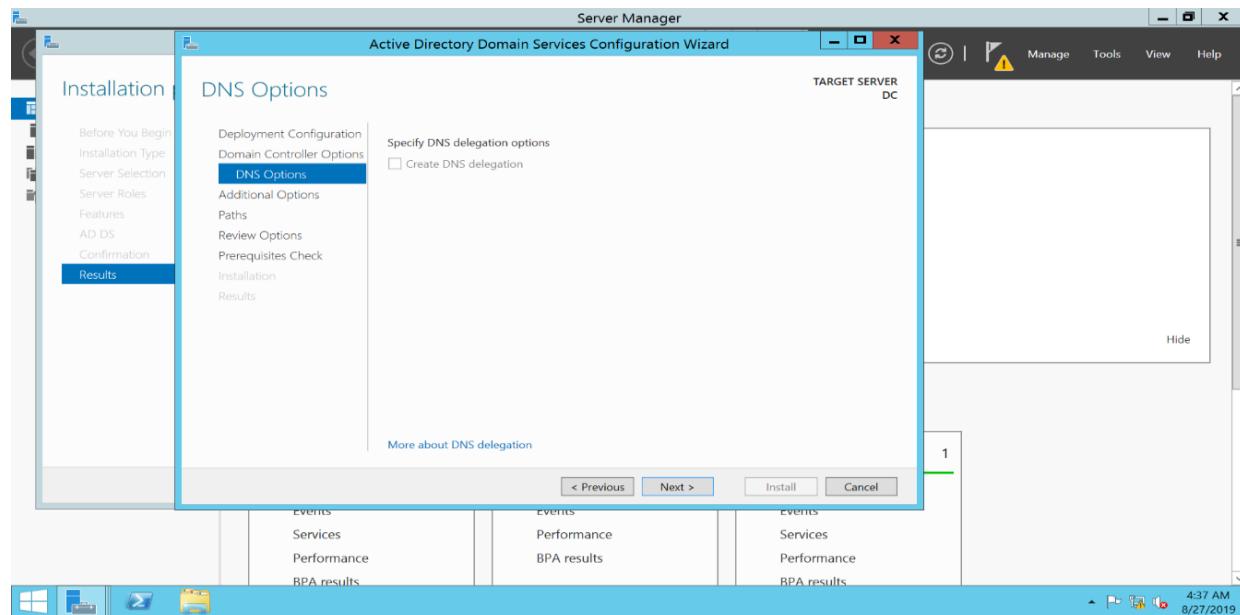
Chọn Add a new forest → Nhập tên miền → Next



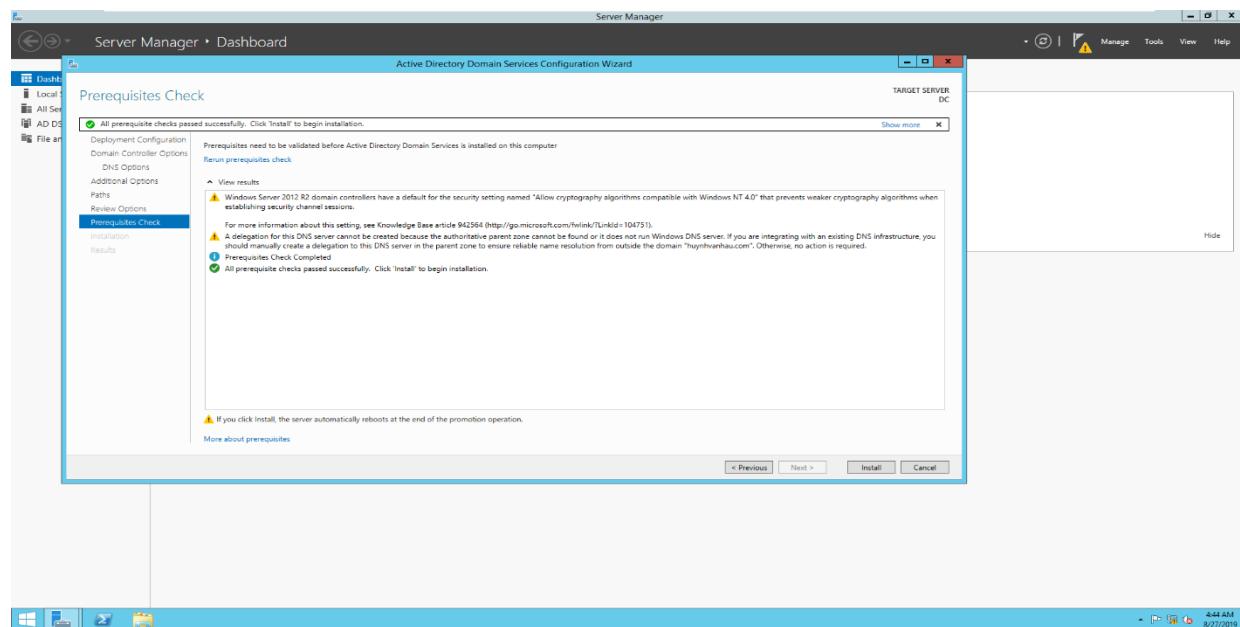
Nhập Mật khẩu và nhấn Next



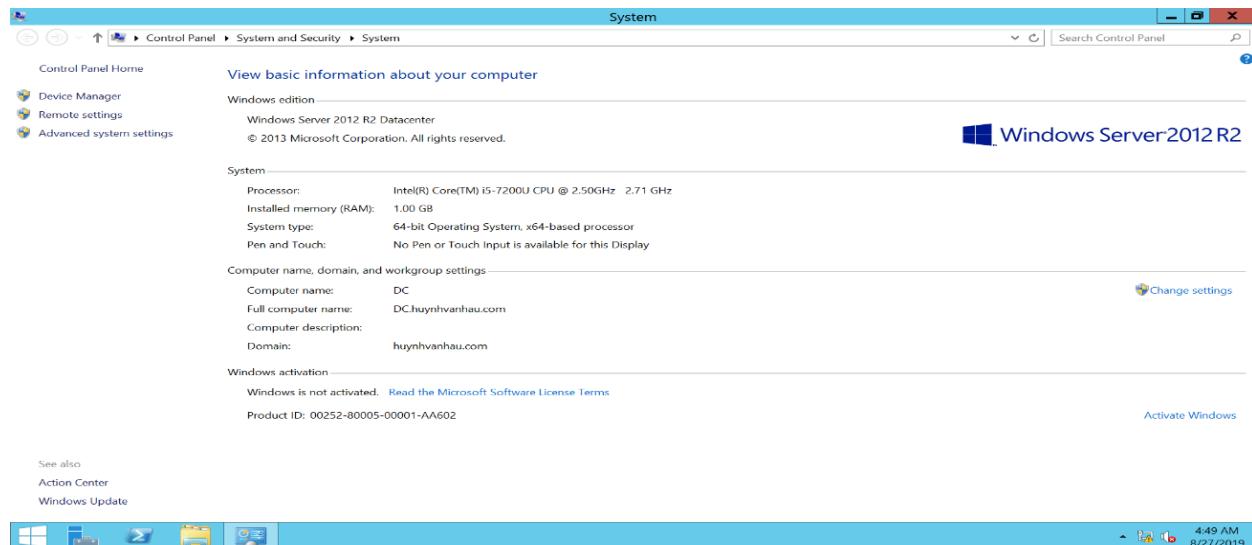
Chọn Next



Chọn Next đến khi xuất hiện cửa sổ trong hình và chọn **Install**

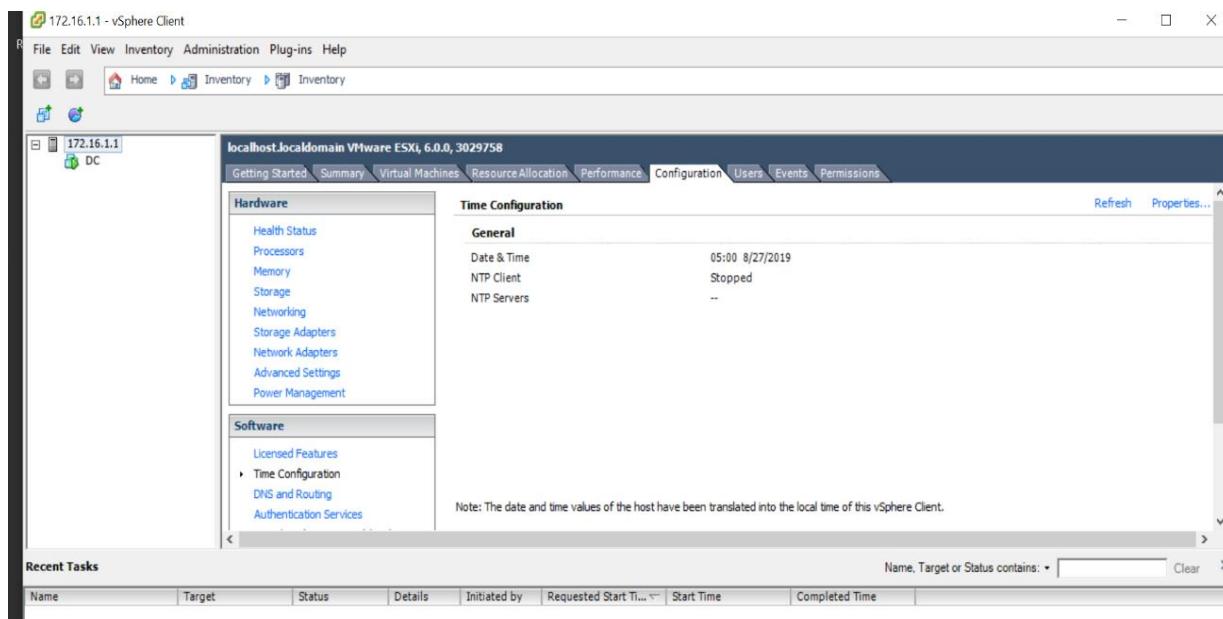


Sau khi khởi động lại và nâng cấp thành công thành máy DC

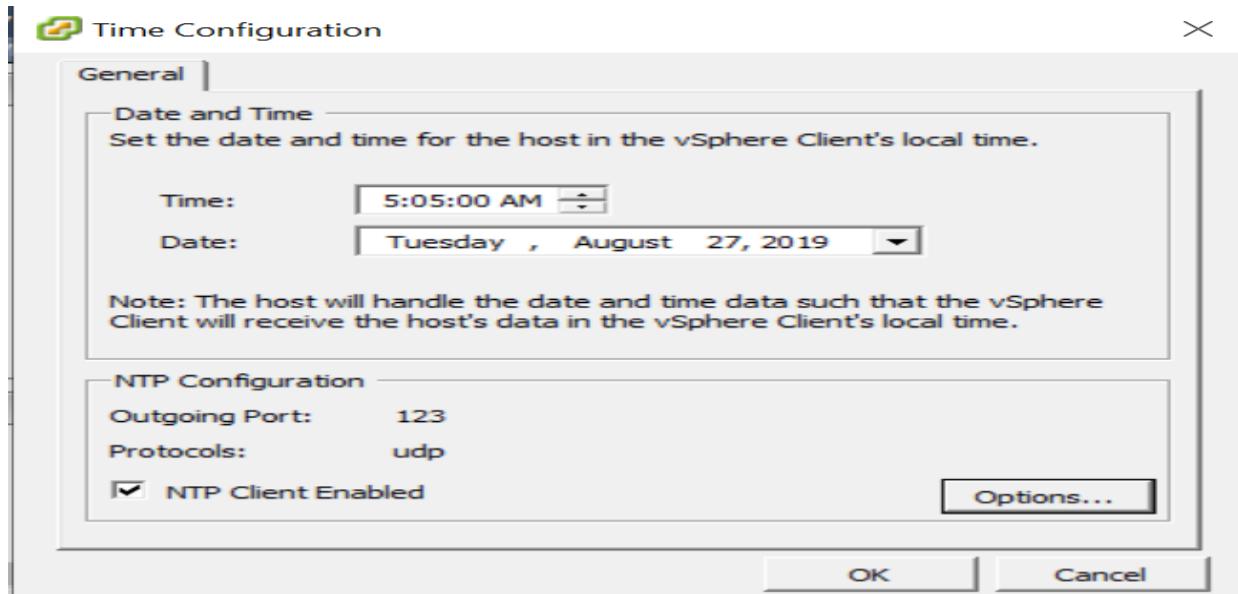


e) Join domain cho máy ảo ESXI

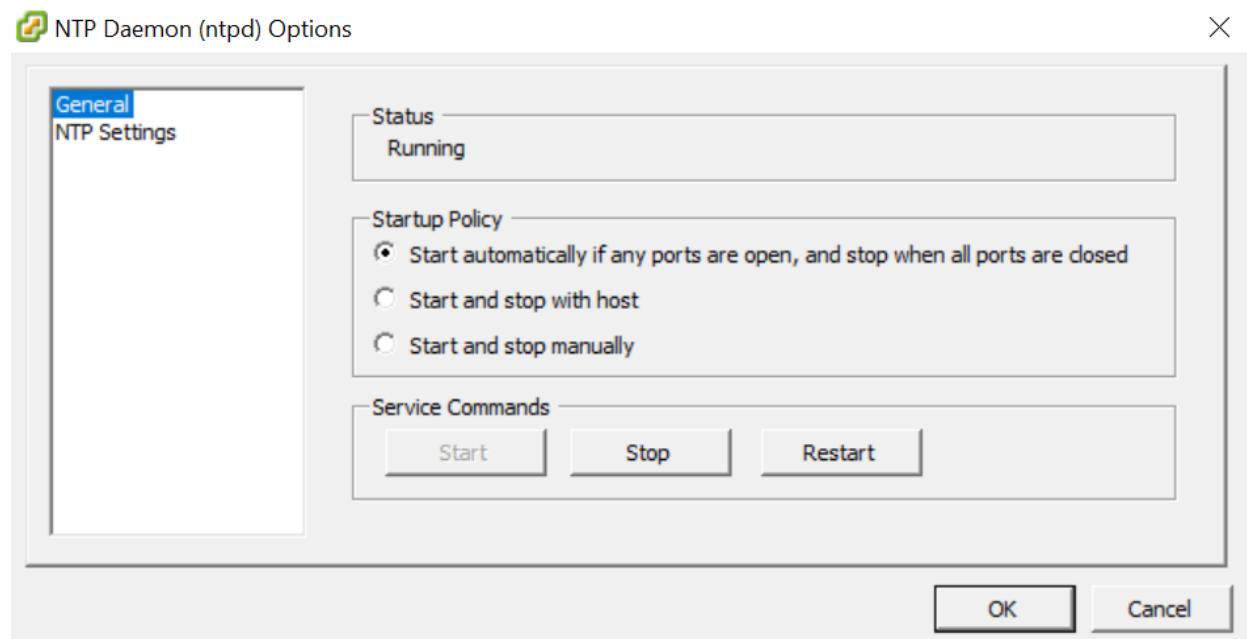
Cấu hình đồng bộ thời gian:
Tại tab Software chọn Time Configuration → Properties



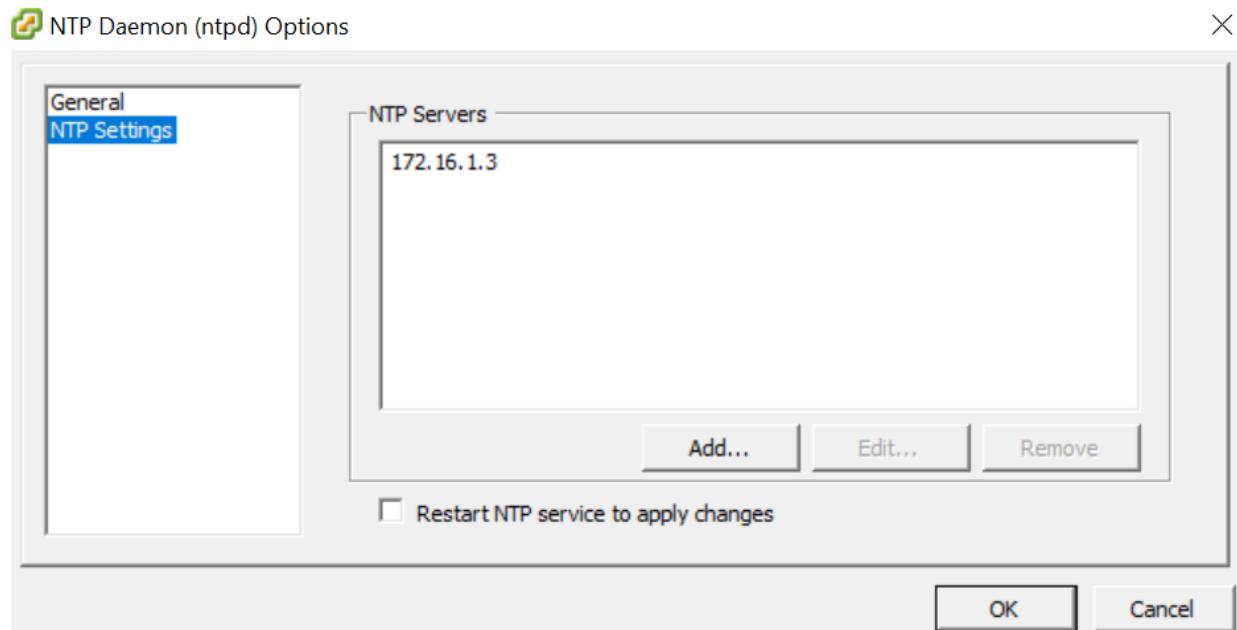
Chọn Options



Chọn General và Start dịch vụ



Nhập vào IP của máy DC

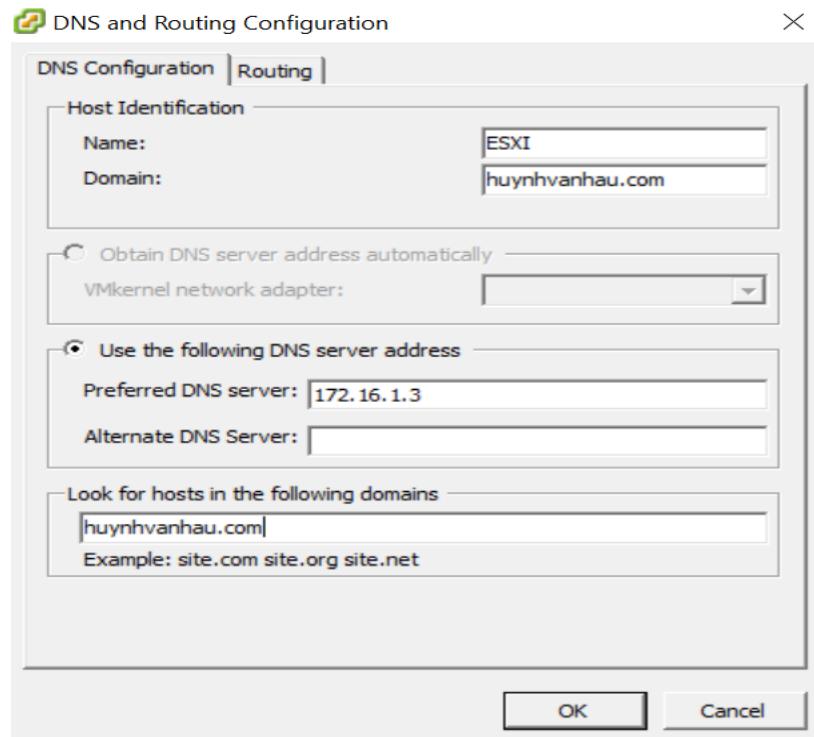


Tại Tab DNS and Routing chọn Properties

The screenshot shows the 'Configuration' tab in the VMware ESXi host interface. On the left, there is a sidebar with 'Hardware' and 'Software' sections. The 'Software' section has 'DNS and Routing' selected. The main pane is titled 'DNS and Routing' and contains the following properties:

- Host Identification:**
 - Name: localhost
 - Domain: localdomain
- DNS Servers:**
 - Method: Static
 - Preferred DNS Server: 192.168.91.1
 - Alternate DNS Server: 192.168.91.1
- Search Domains:**
 - localdomain
- Default Gateways:**
 - VMkernel: 172.16.1.2
 - VMkernel IPv6

Điều thông tin Tên máy, Domain, Ip của DC



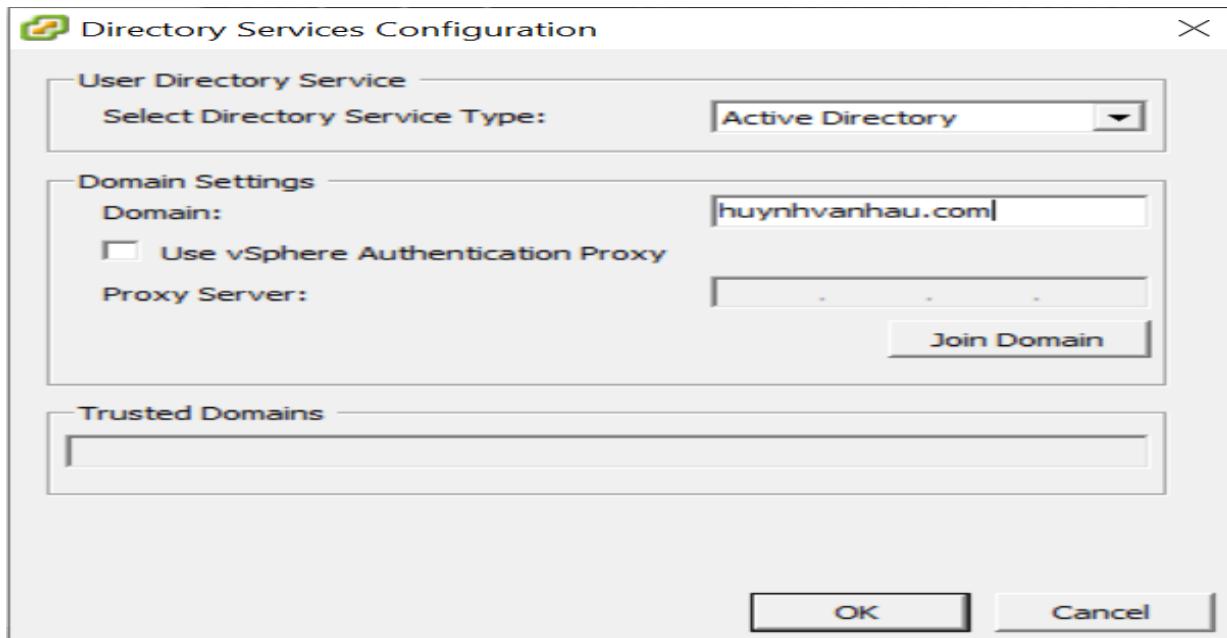
Thông tin sau khi cấu hình

ESX1.huynhvanhau.com VMware ESXi, 6.0.0, 3029758
Getting Started Summary Virtual Machines Resource Allocation Performance Configuration Users Events Permissions
Hardware
Health Status
Processors
Memory
Storage
Networking
Storage Adapters
Network Adapters
Advanced Settings
Power Management
Software
Licensed Features
Time Configuration
DNS and Routing
Authentication Services
DNS and Routing
Host Identification
Name: ESXI
Domain: huynhvanhau.com
DNS Servers
Method: Static
Preferred DNS Server: 172.16.1.3
Alternate DNS Server:
Search Domains
huynhvanhau.com
Default Gateways
VMkernel: 172.16.1.2
VMkernel IPv6:

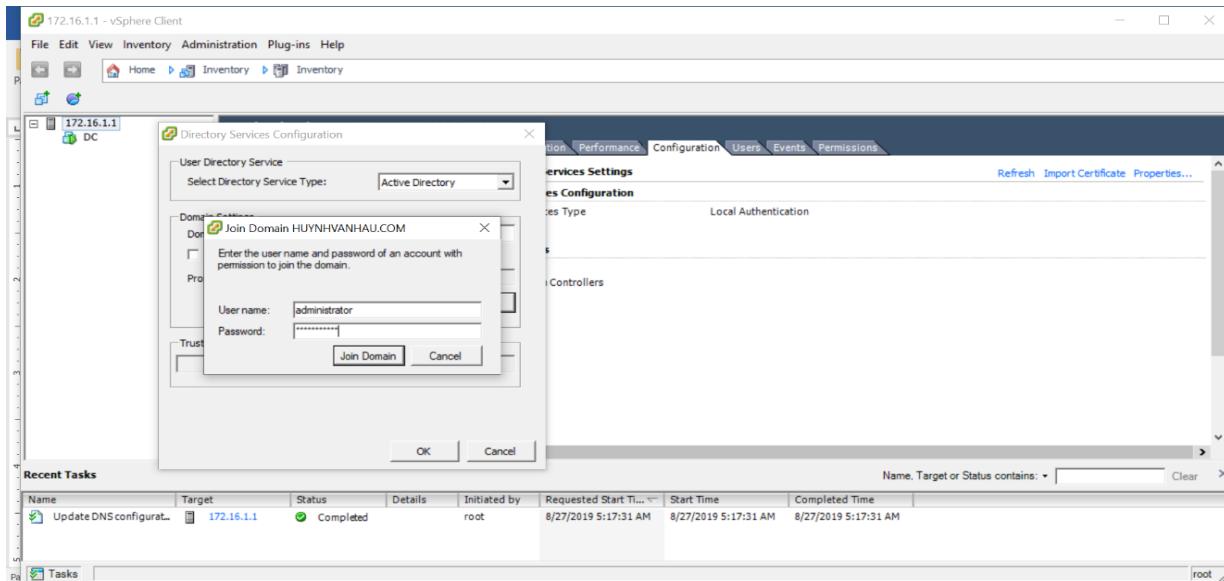
Chọn Authentication Services

The screenshot shows the VMware ESXi 6.0.0 Configuration interface. The top navigation bar includes tabs for Getting Started, Summary, Virtual Machines, Resource Allocation, Performance, Configuration, Users, Events, and Permissions. The Configuration tab is selected. The main content area is titled "Authentication Services Settings". It contains two sections: "Directory Services Configuration" and "Domain Settings". Under "Directory Services Configuration", the "Directory Services Type" is set to "Local Authentication". Under "Domain Settings", there are fields for "Domain" and "Trusted Domain Controllers". On the left sidebar, under the "Hardware" section, options like Health Status, Processors, Memory, Storage, Networking, Storage Adapters, Network Adapters, Advanced Settings, and Power Management are listed. Under the "Software" section, options like Licensed Features, Time Configuration, DNS and Routing, and Authentication Services are listed, with Authentication Services being expanded.

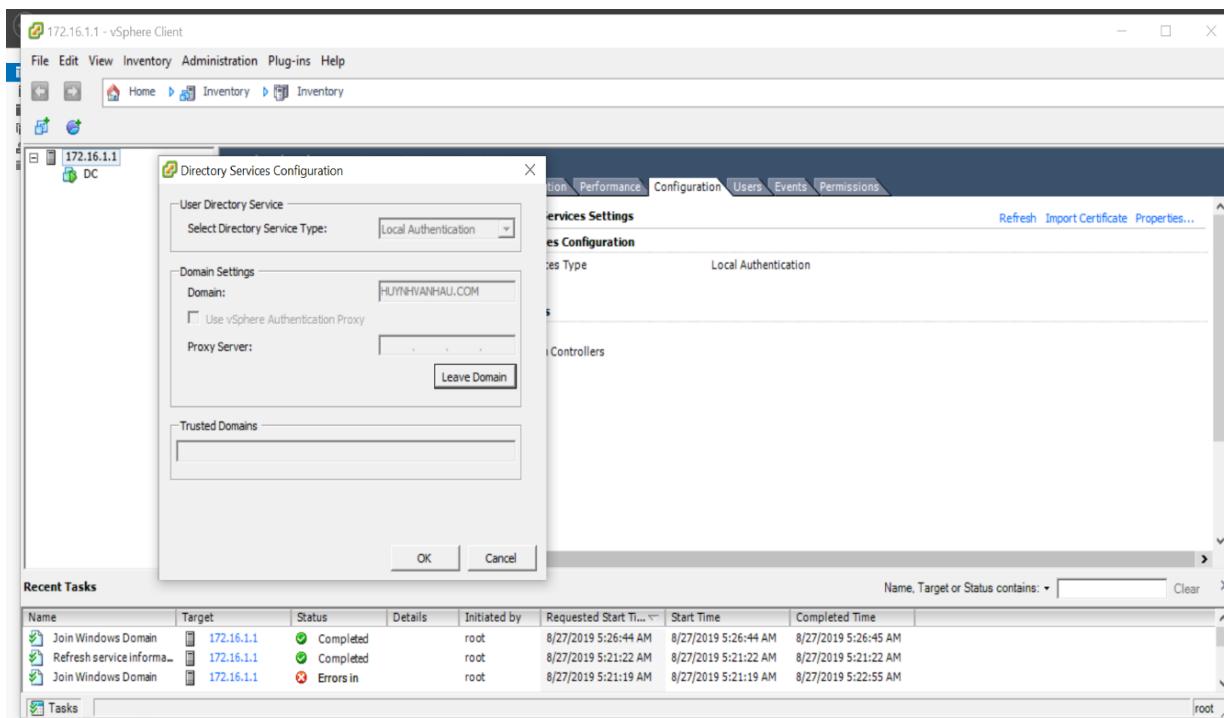
Chọn Active Directory, nhập Domain và sau đó nhấn Join Domain



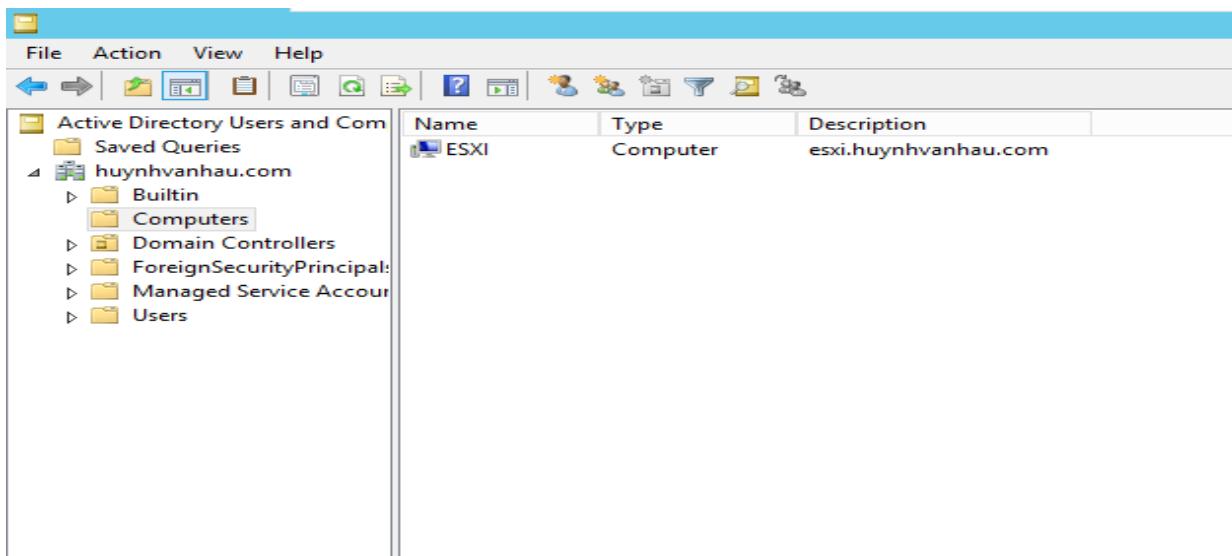
Nhập vào User name và Password để chứng thực



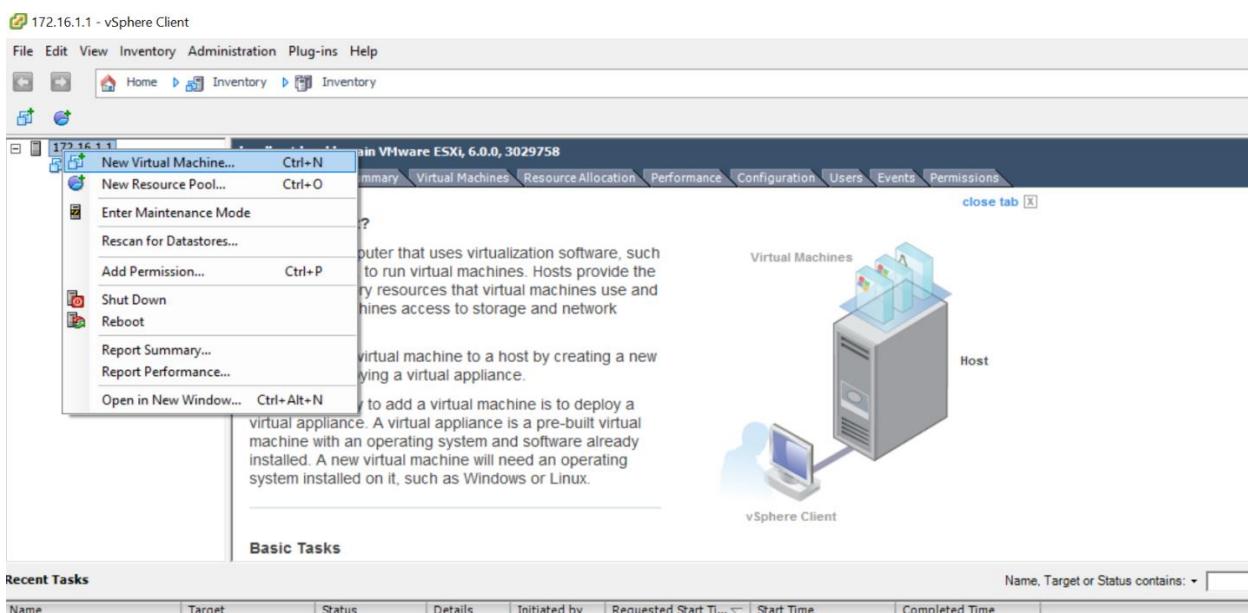
Đã nhận thấy Domain và nhấn Ok



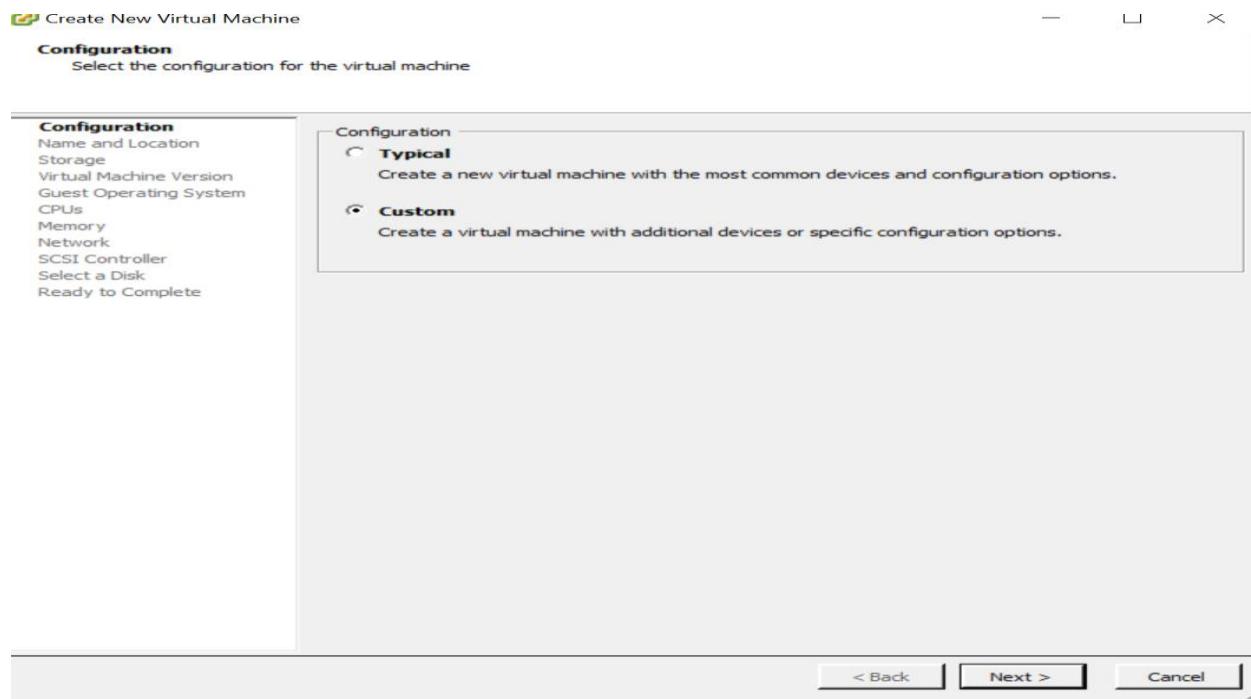
Join Domain thành công



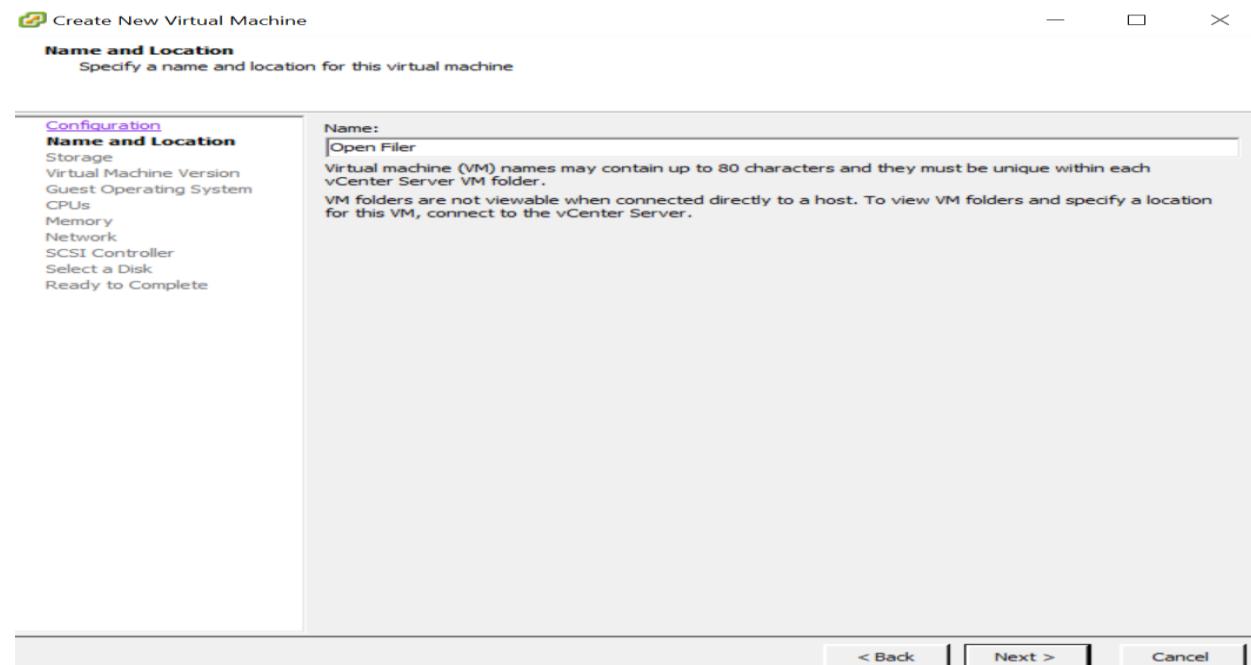
- 5) Cài đặt và cấu hình Software SAN OpenFiler
a) Cài đặt OpenFiler giả lập như một hệ thống SAN

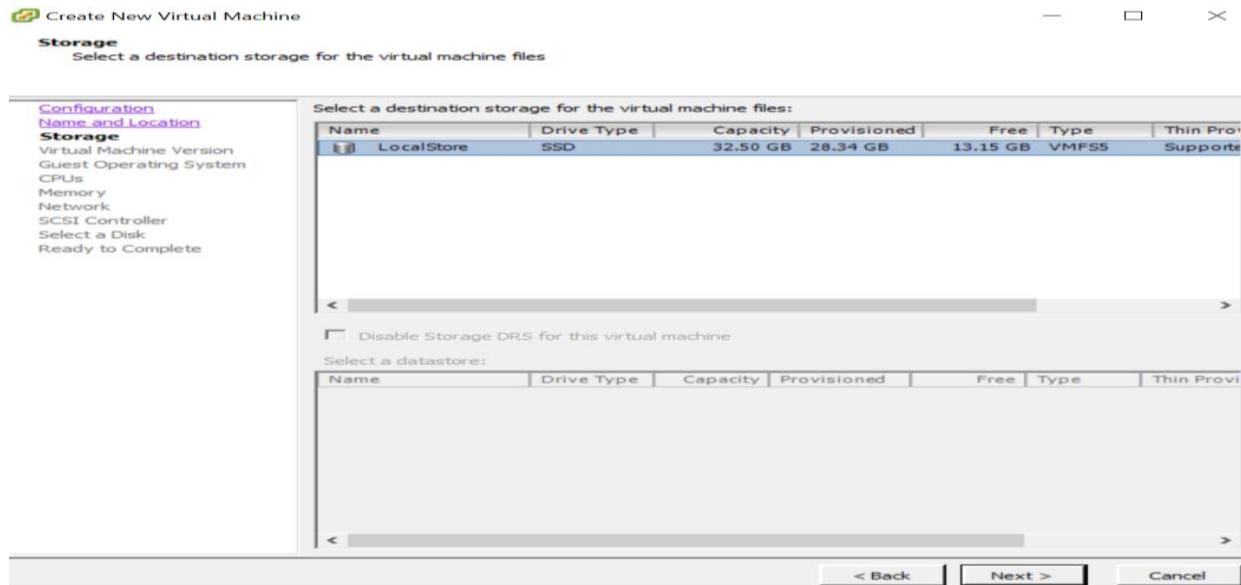


Chọn Next

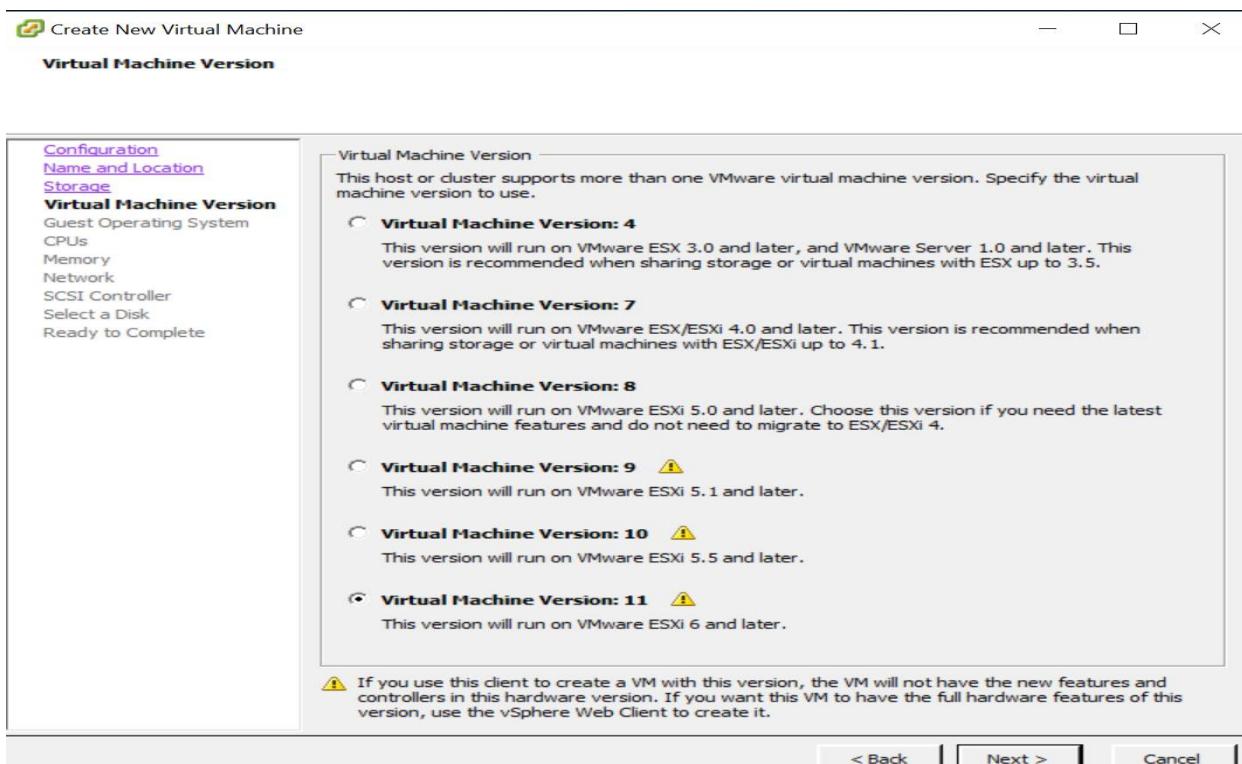


Đặt tên cho máy ảo và chọn Next



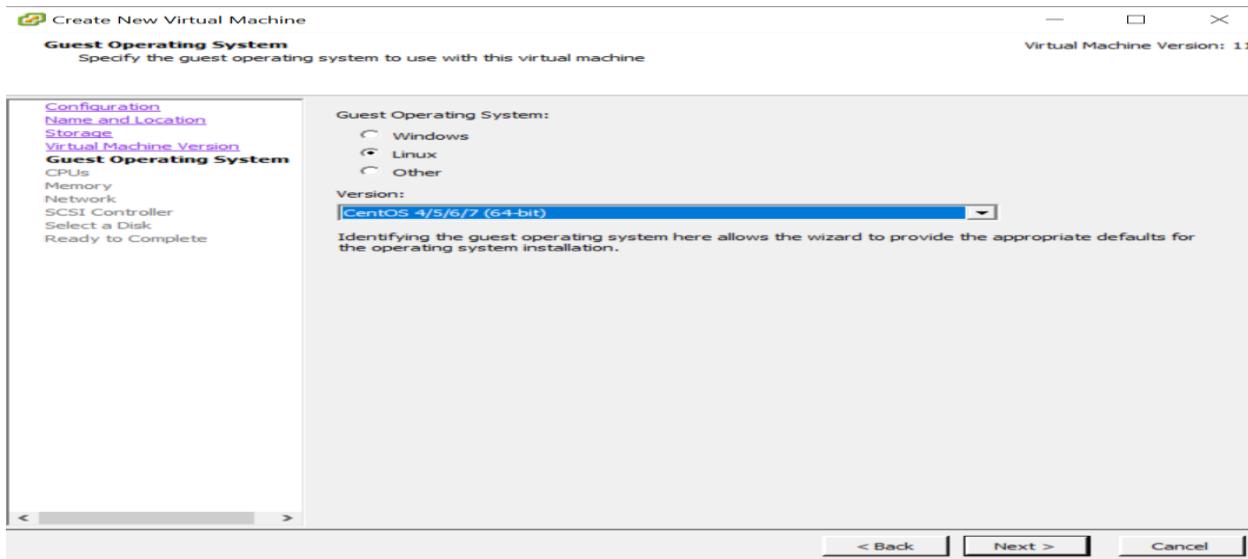


Chọn nơi lưu trữ và chọn Next

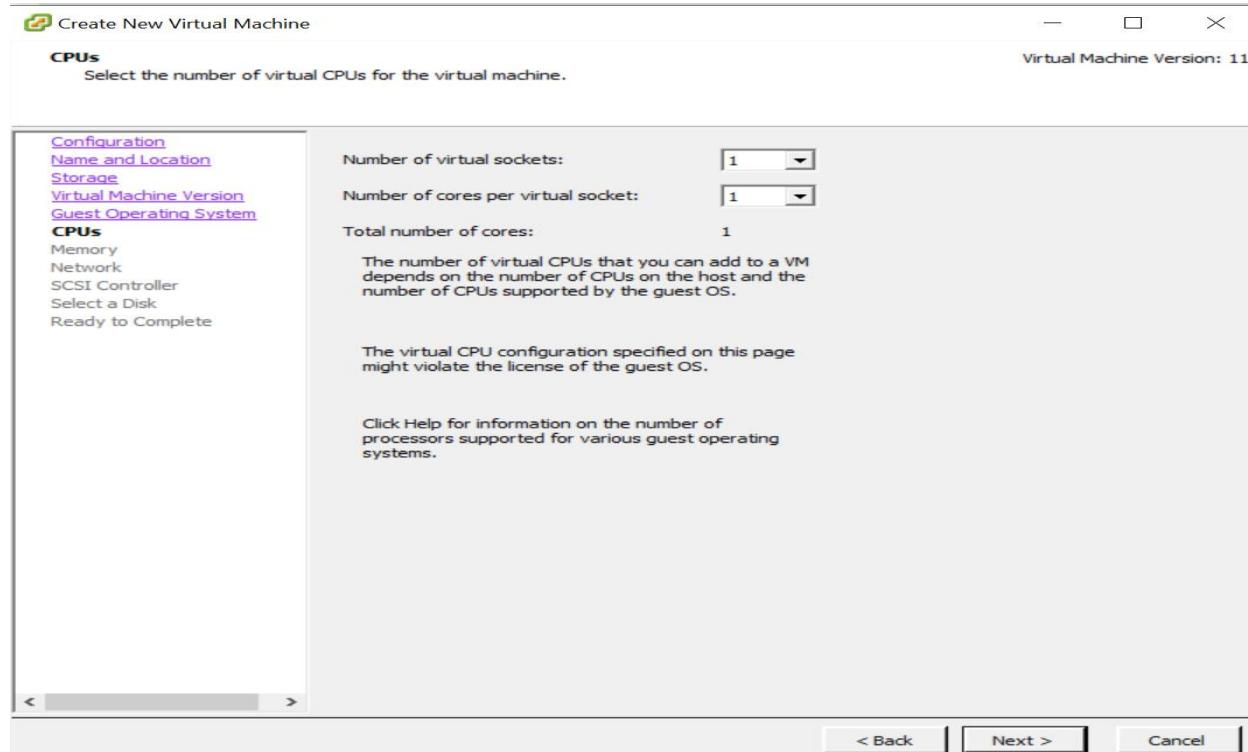


Chọn Next

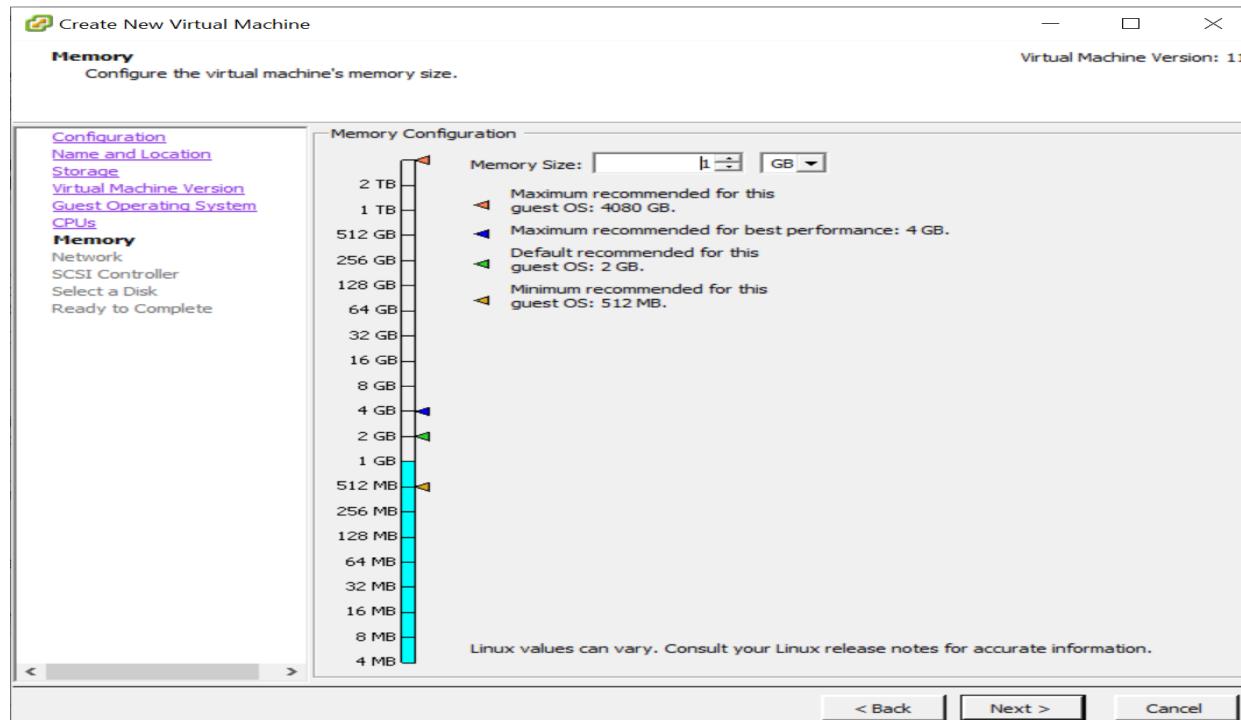
Chọn Next



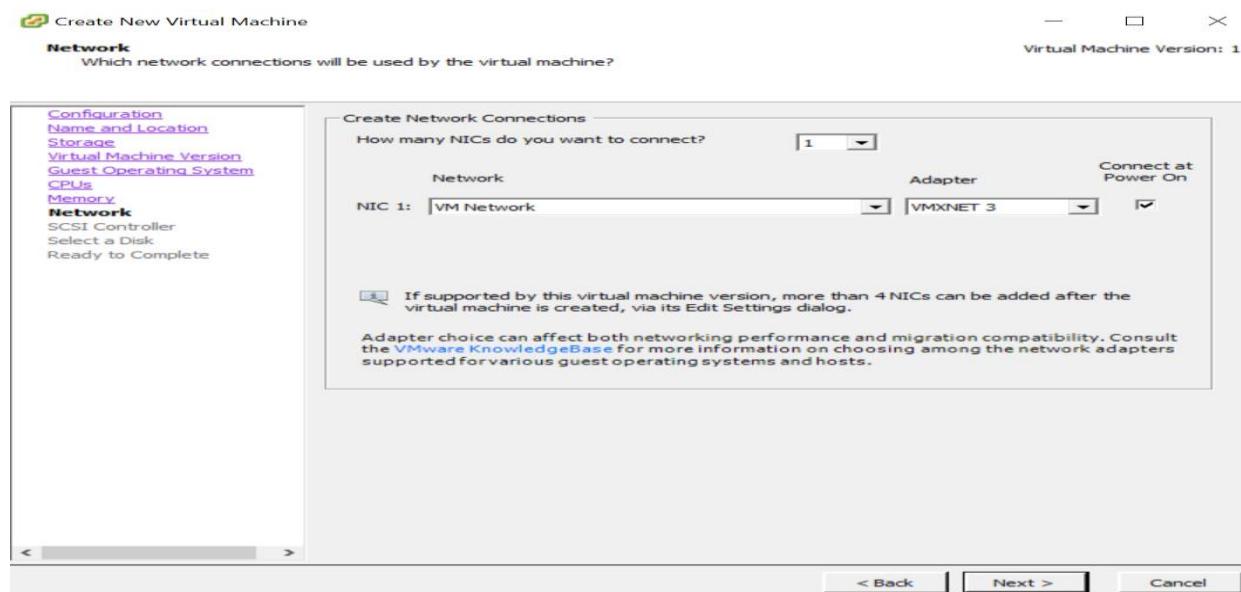
Chọn Next



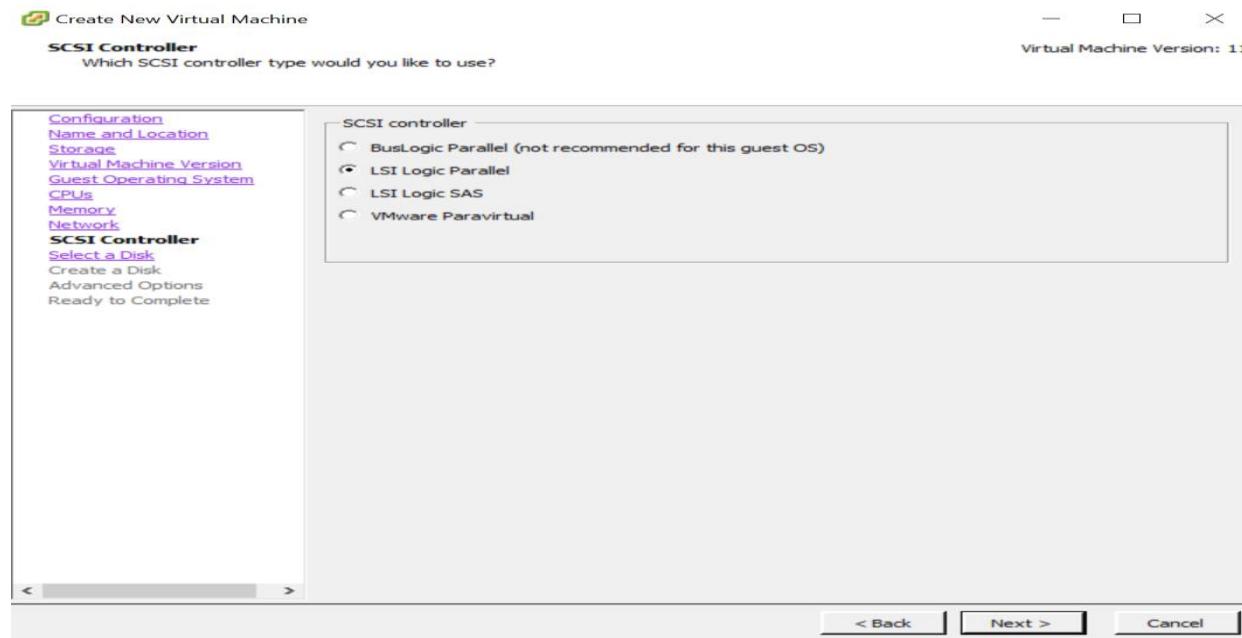
Chọn dung lượng RAM và chọn Next



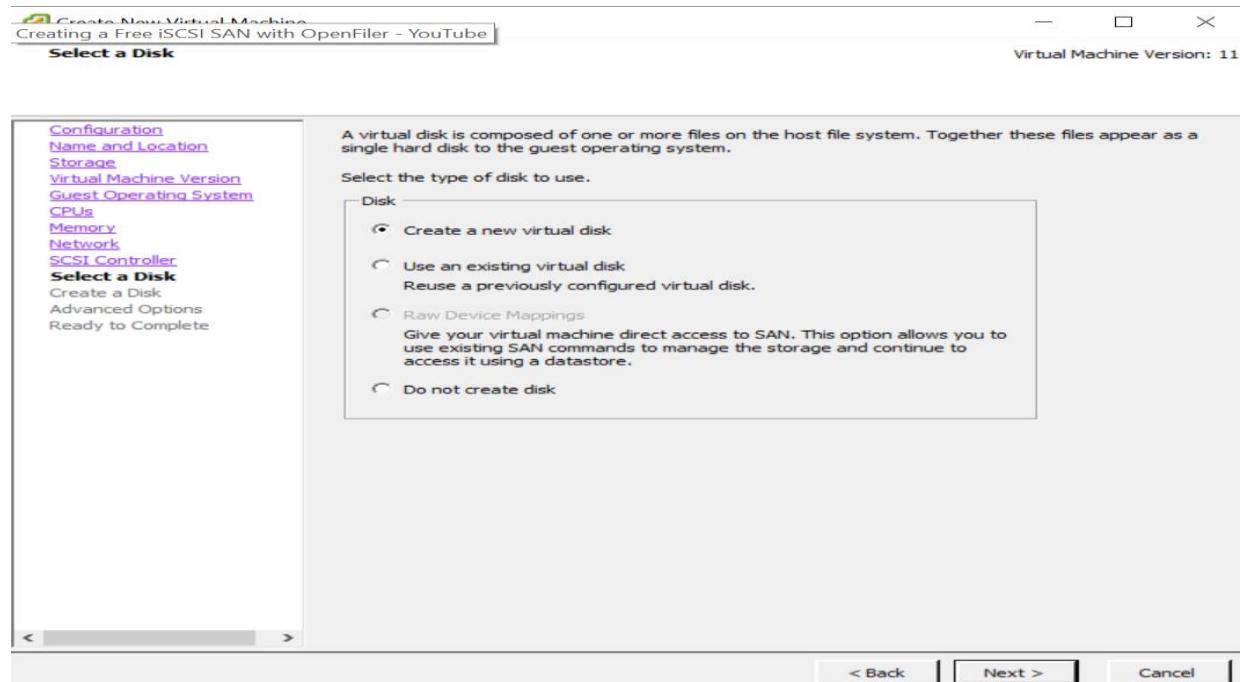
Chọn Next



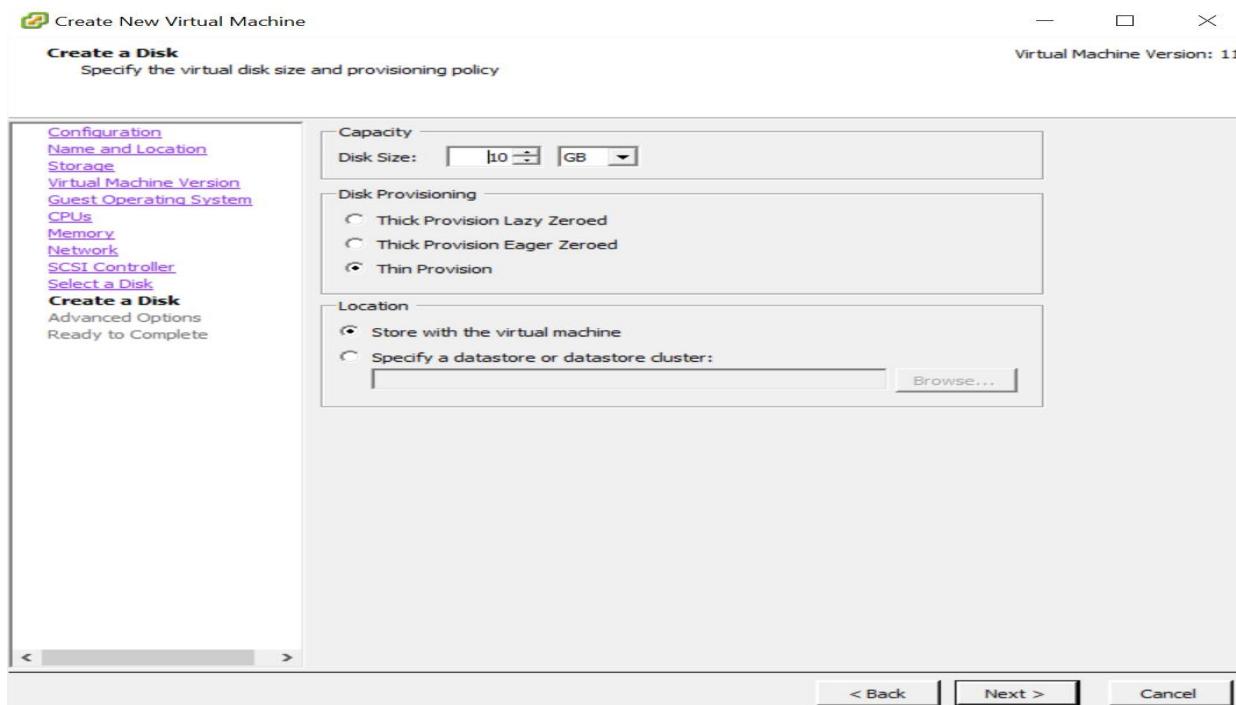
Chọn Next



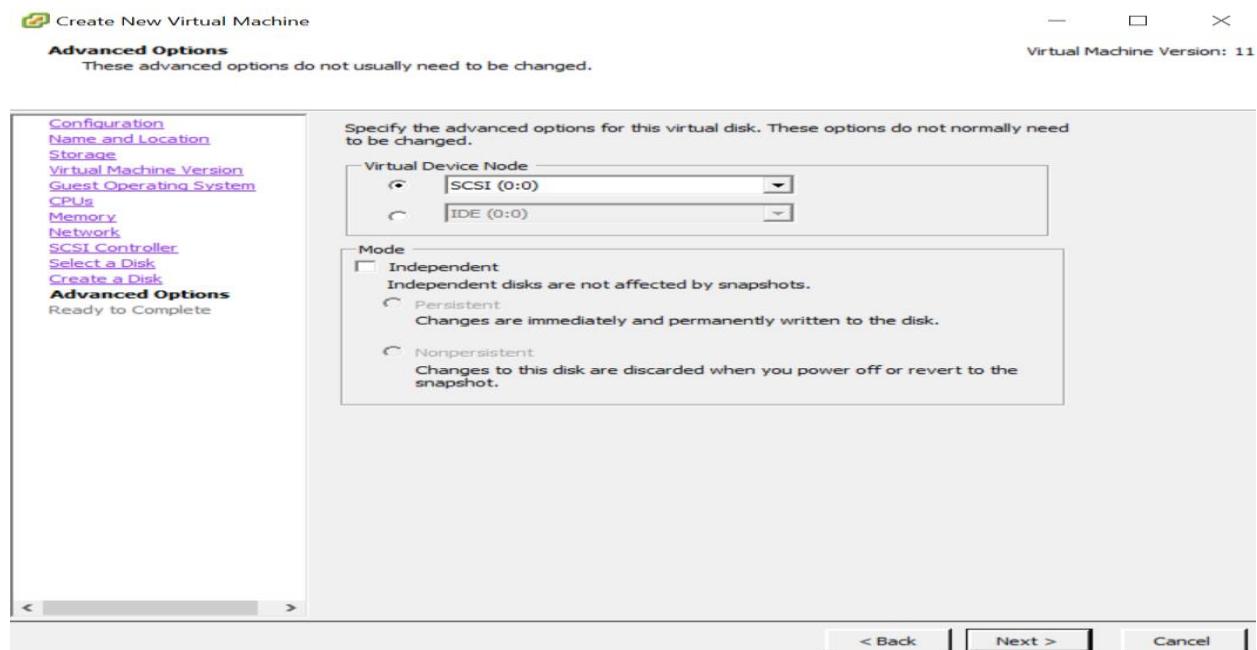
Chọn Next



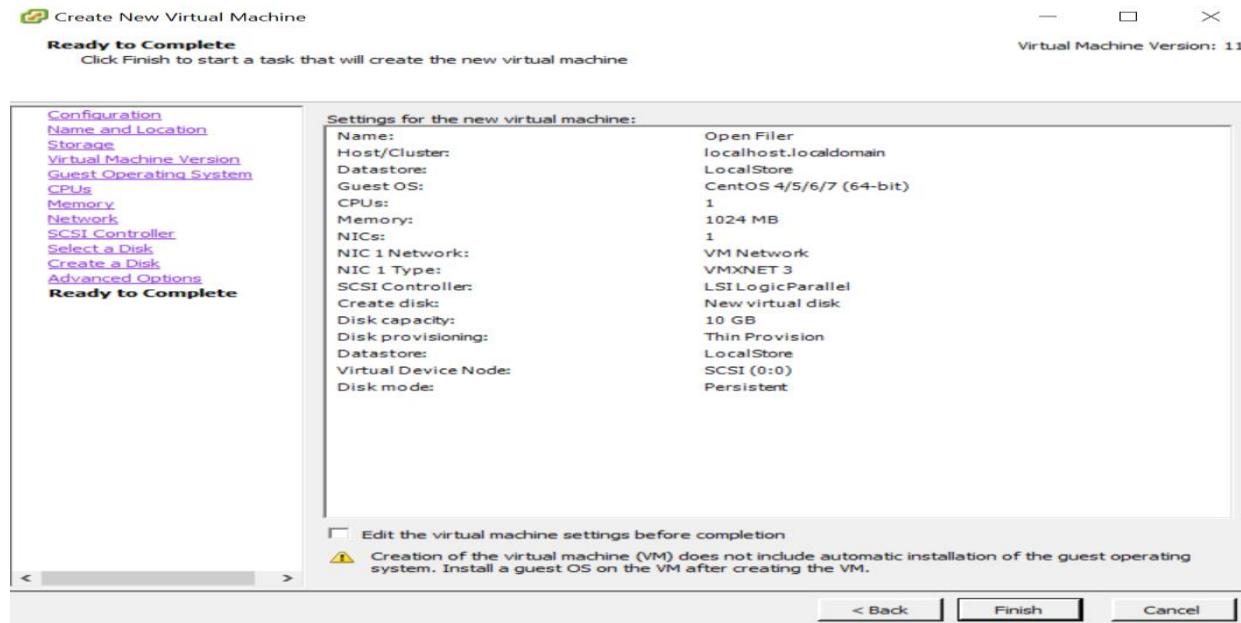
Chọn dung lượng ổ cứng và chọn Next



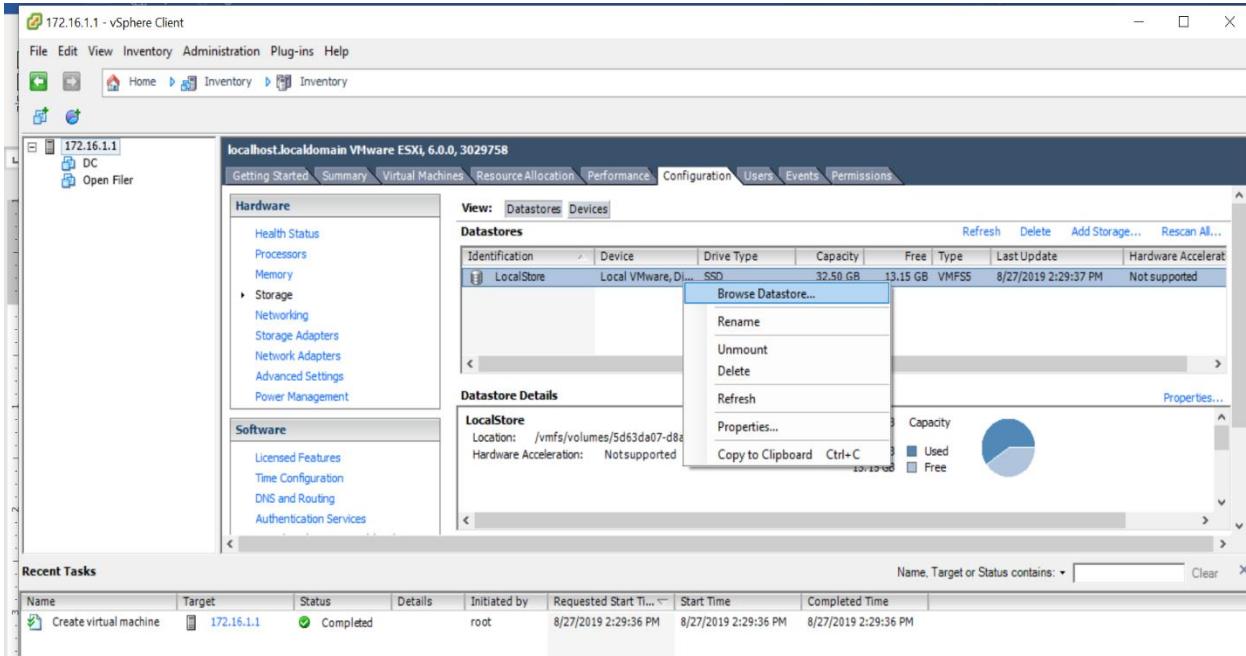
Chọn Next



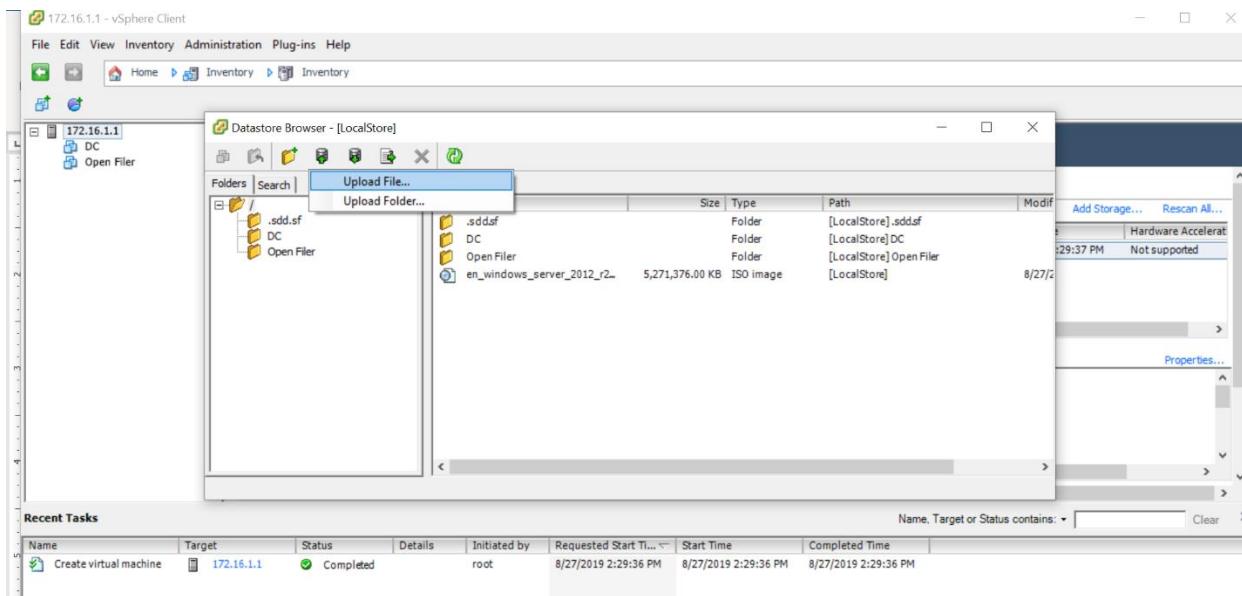
Chọn Finish



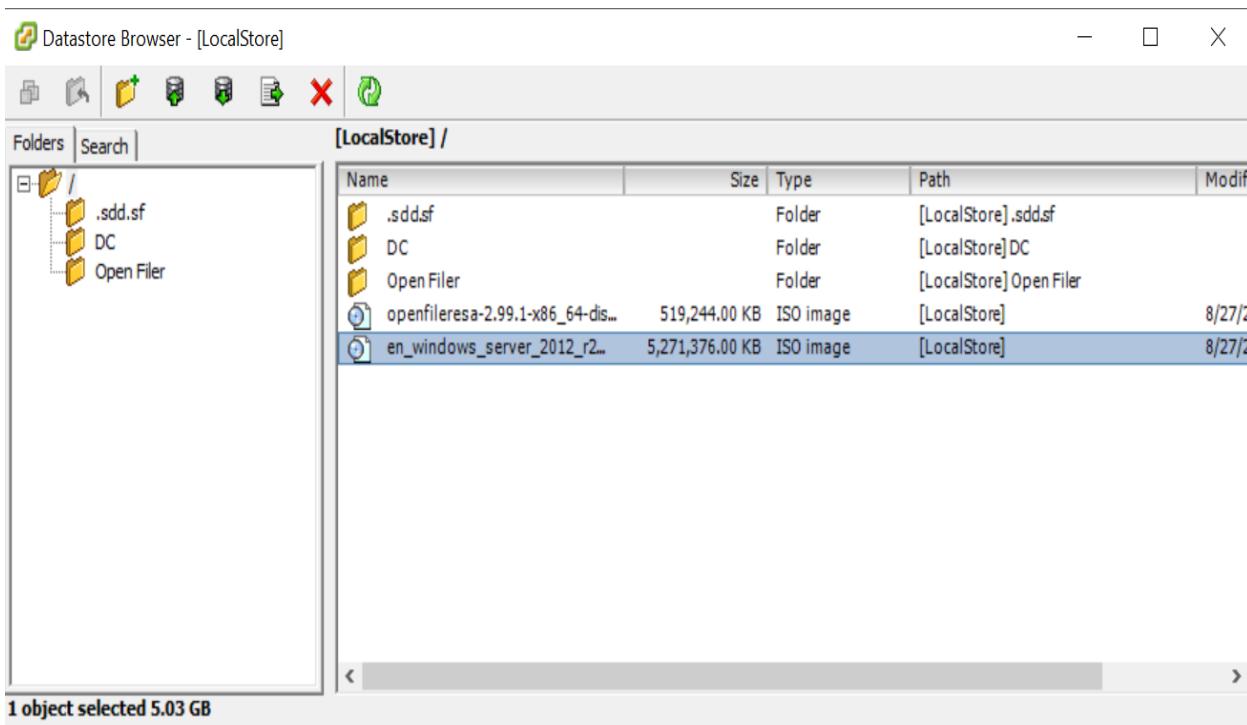
Tiến hành upload file ISO, chuột phải LocalStore và chọn **Browse Datastore**



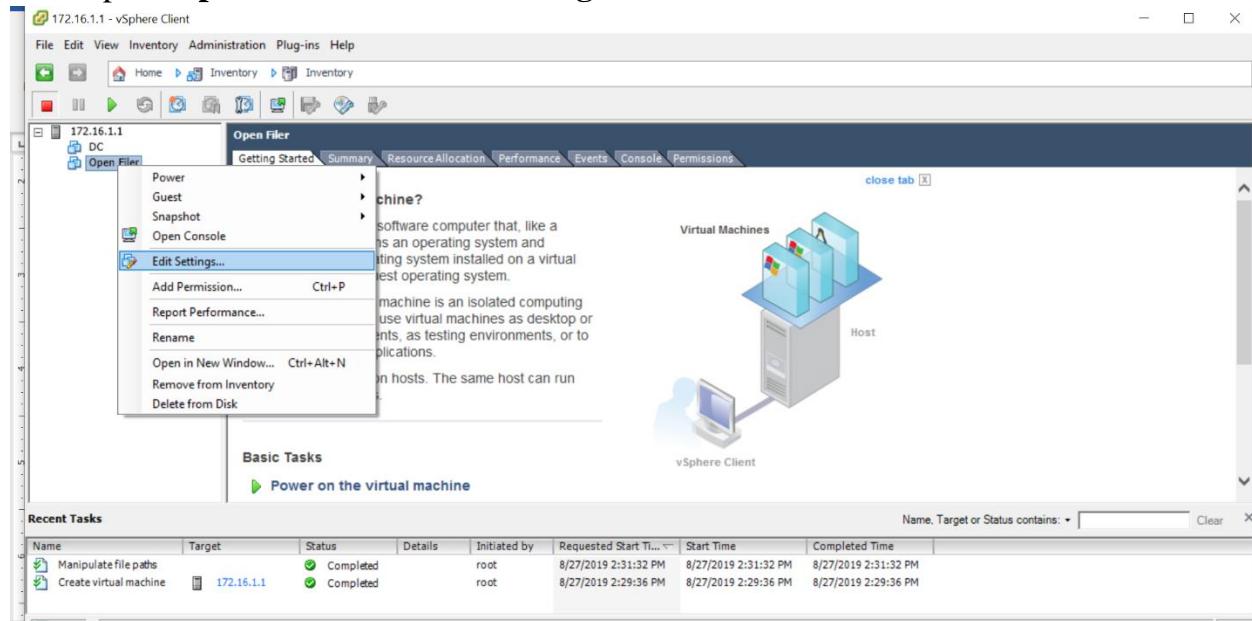
Chọn Upload File



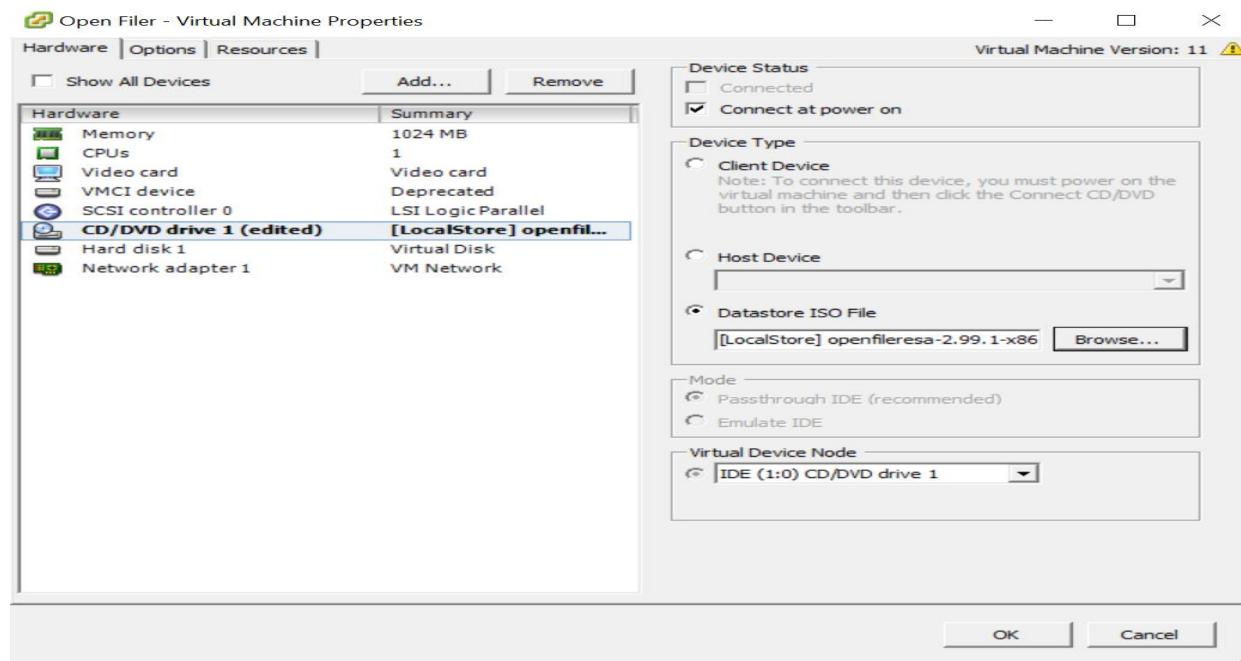
Đã Upload File thành công



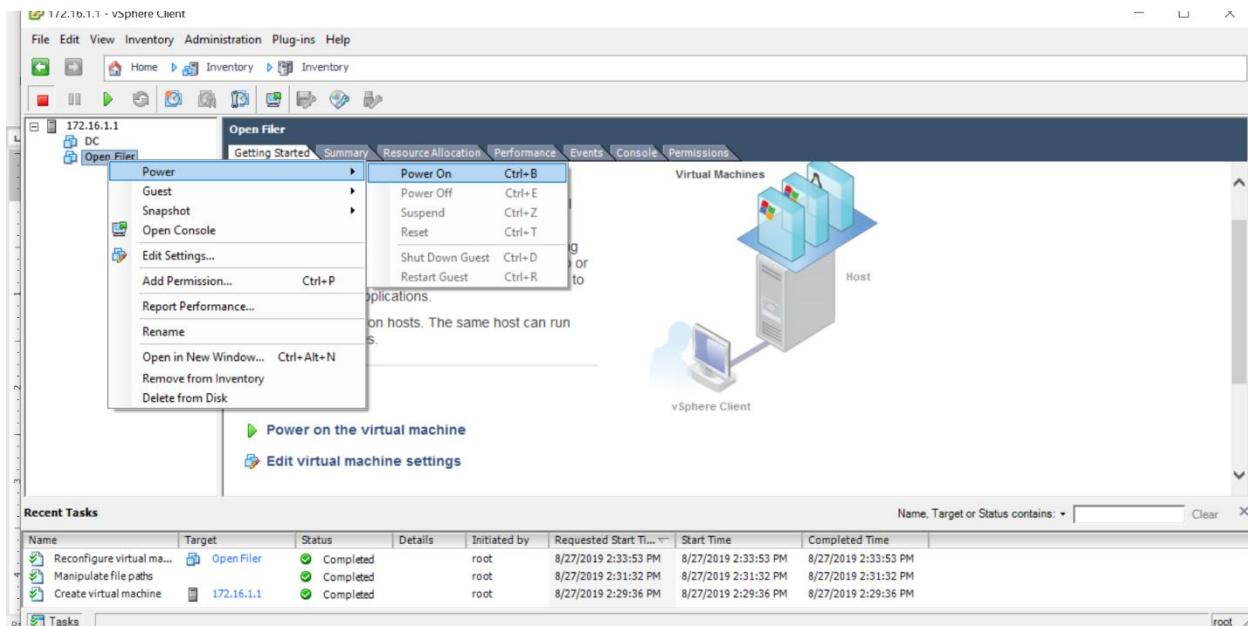
Chuột phải Open Filer chọn Edit Setting



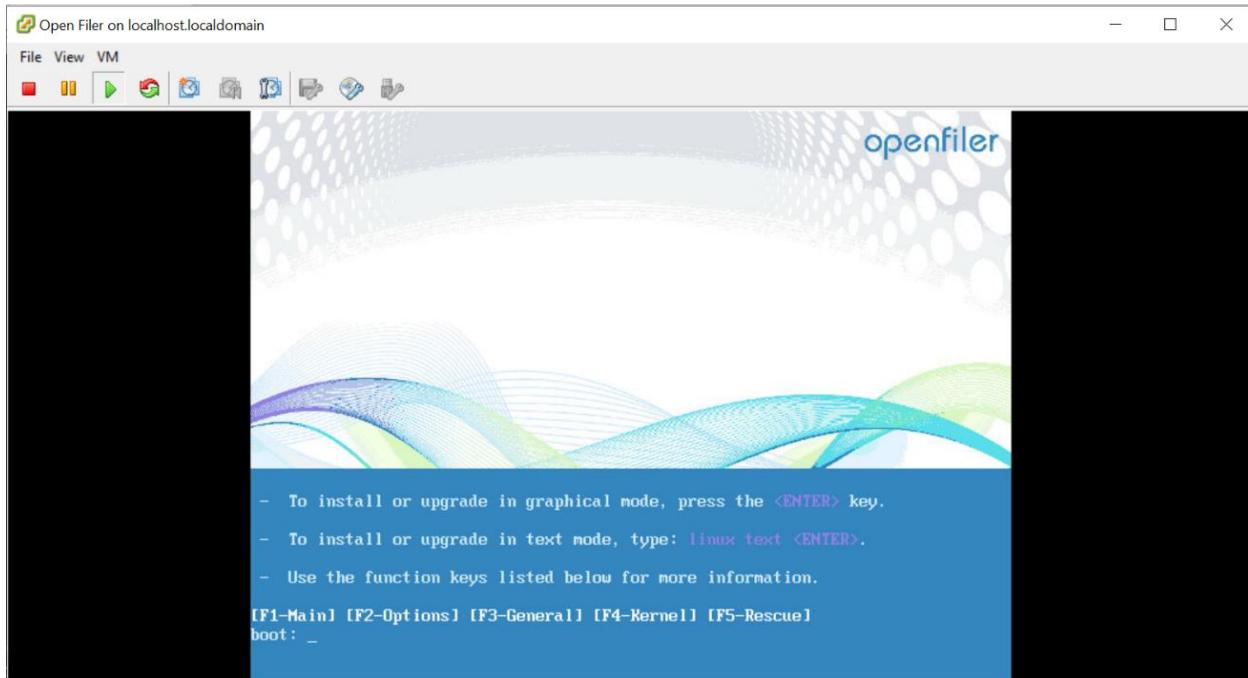
Chỉ đến File ISO vừa Upload



Tiến hành mở máy Open Filer



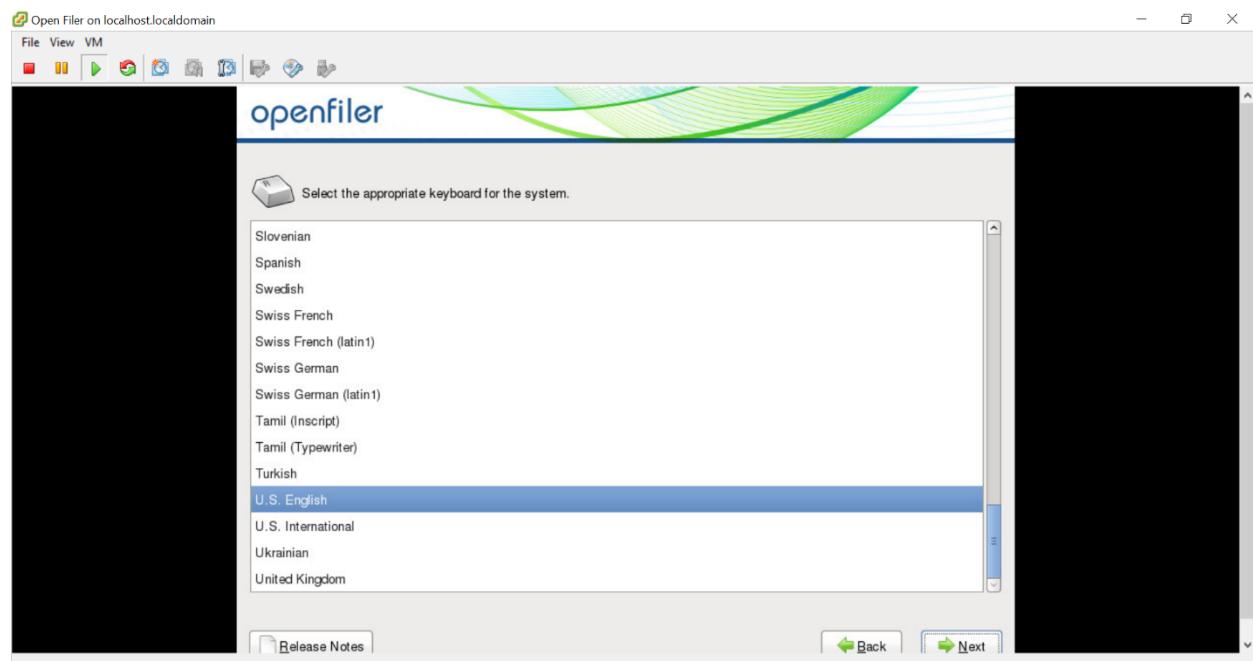
Giao diện của Open Filer



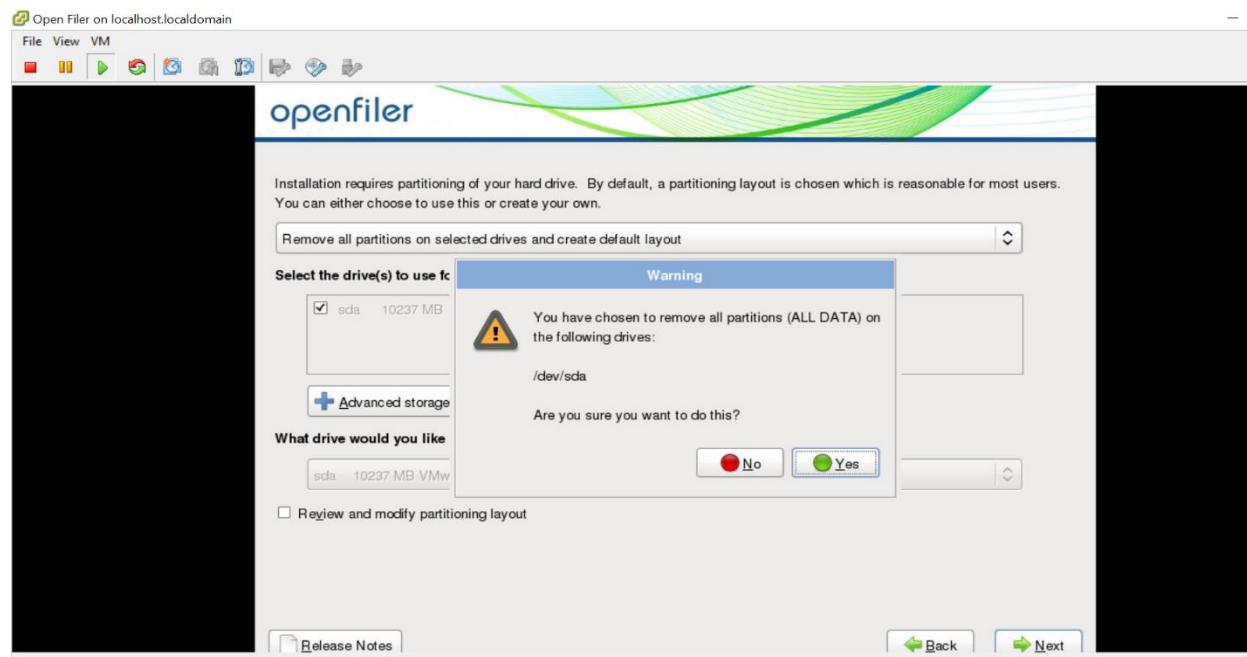
Chọn Next



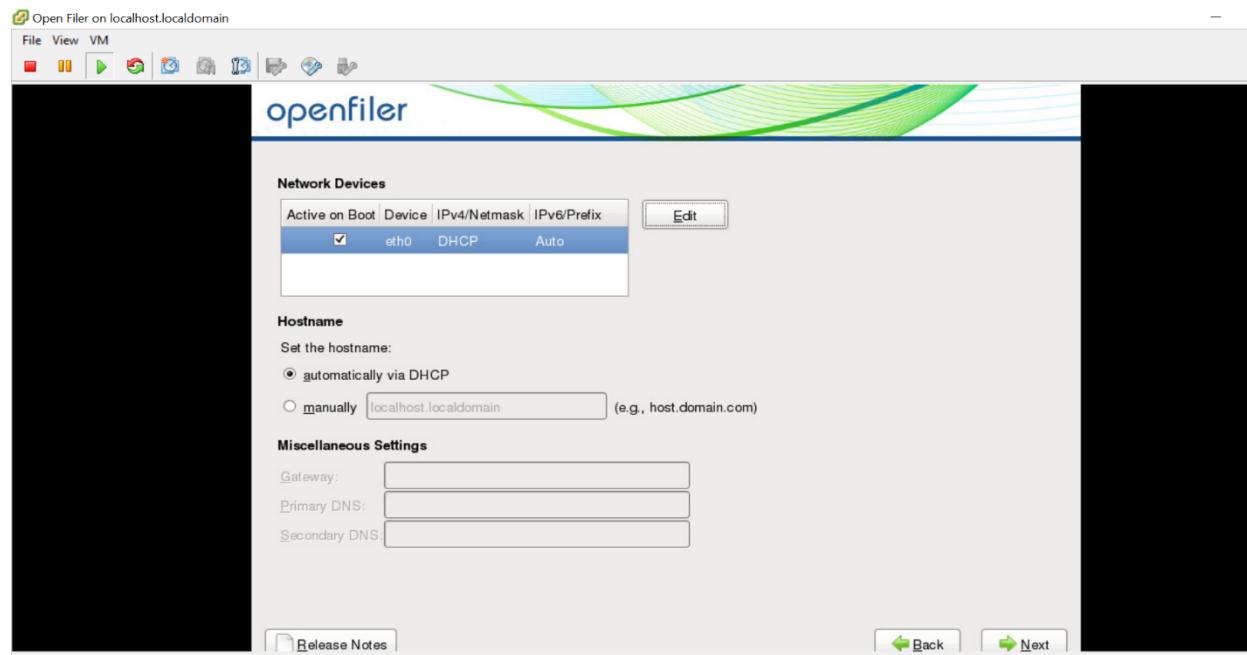
Chọn Next



Chọn Yes sau đó chọn Next



Chọn Next



Cấu hình IP và sau đó chọn **OK**

Edit Interface

VMware VMXNET3 Ethernet Controller
Hardware address: 00:0C:29:F1:18:3B

Enable IPv4 support

Dynamic IP configuration (DHCP)
 Manual configuration

IP Address: Prefix (Netmask):

Enable IPv6 support

Automatic neighbor discovery
 Dynamic IP configuration (DHCPv6)
 Manual configuration

IP Address: Prefix:

Cancel **OK**

Chọn **Next**

openfiler

Network Devices

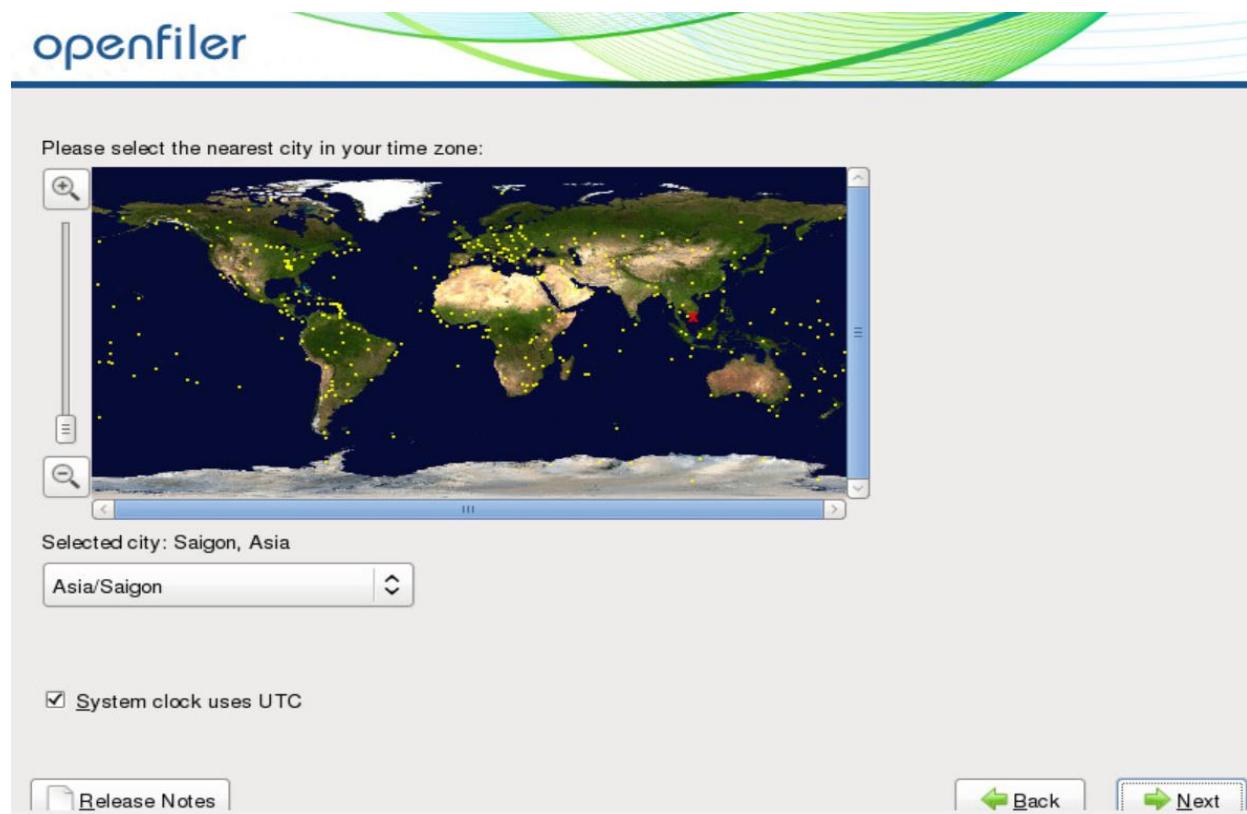
Active on Boot	Device	IPv4/Netmask	IPv6/Prefix
<input checked="" type="checkbox"/>	eth0	172.16.1.4/24	Disabled
<input type="button" value="Edit"/>			

Hostname
Set the hostname:
 automatically via DHCP
 manually (e.g., host.domain.com)

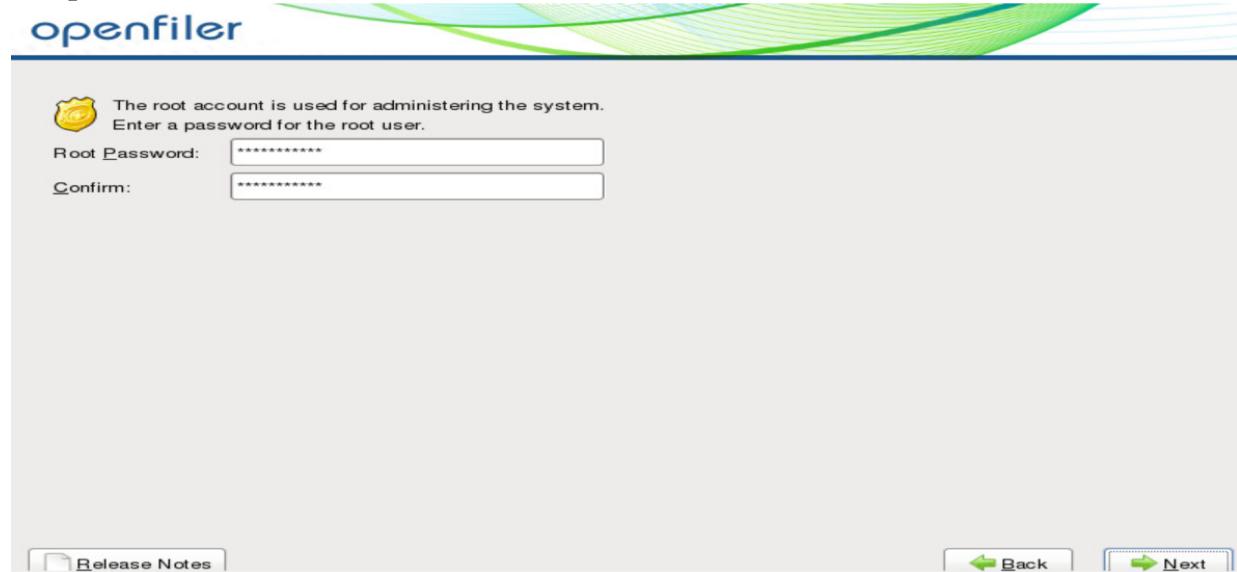
Miscellaneous Settings

Gateway:
Primary DNS:
Secondary DNS:

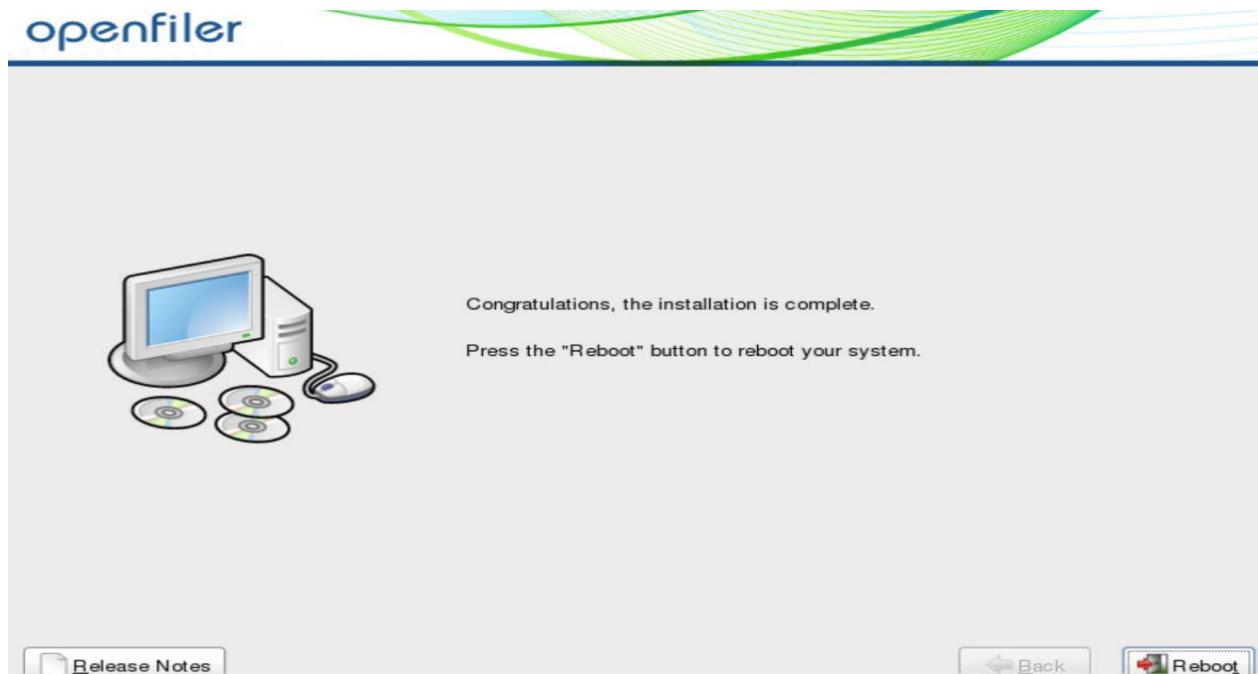
Chọn Next



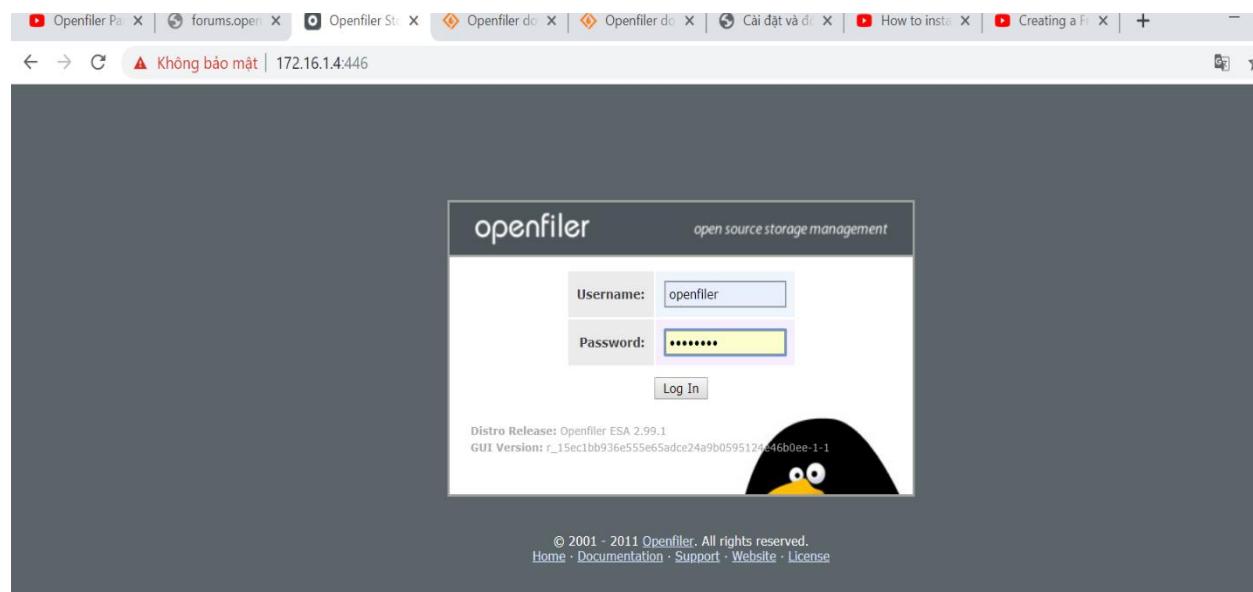
Nhập mật khẩu và chọn Next



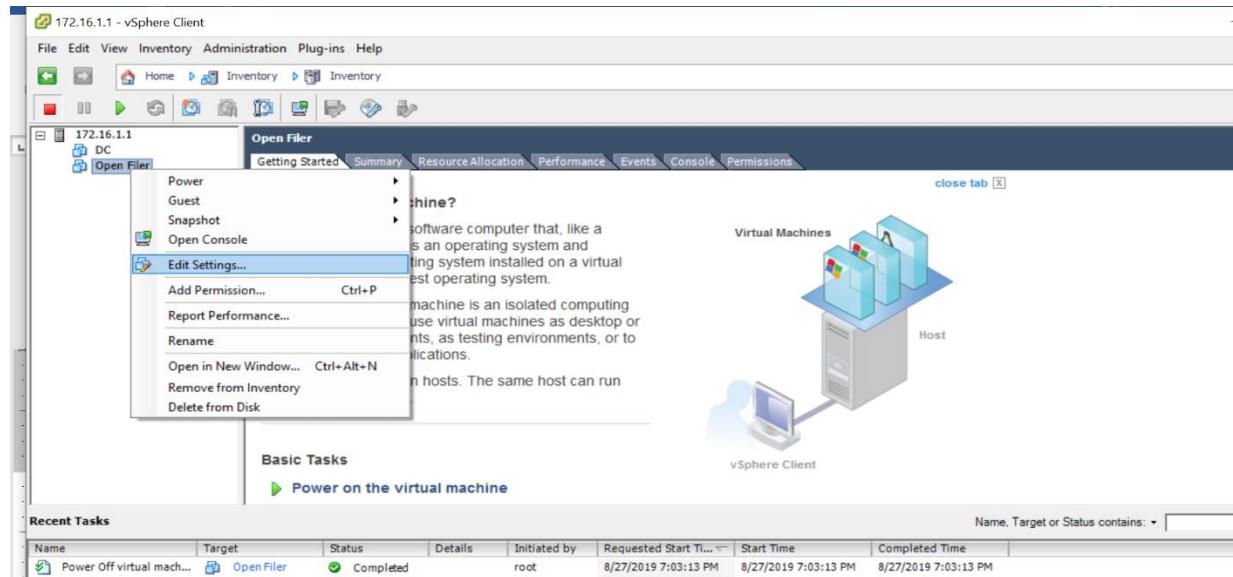
Chọn Reboot



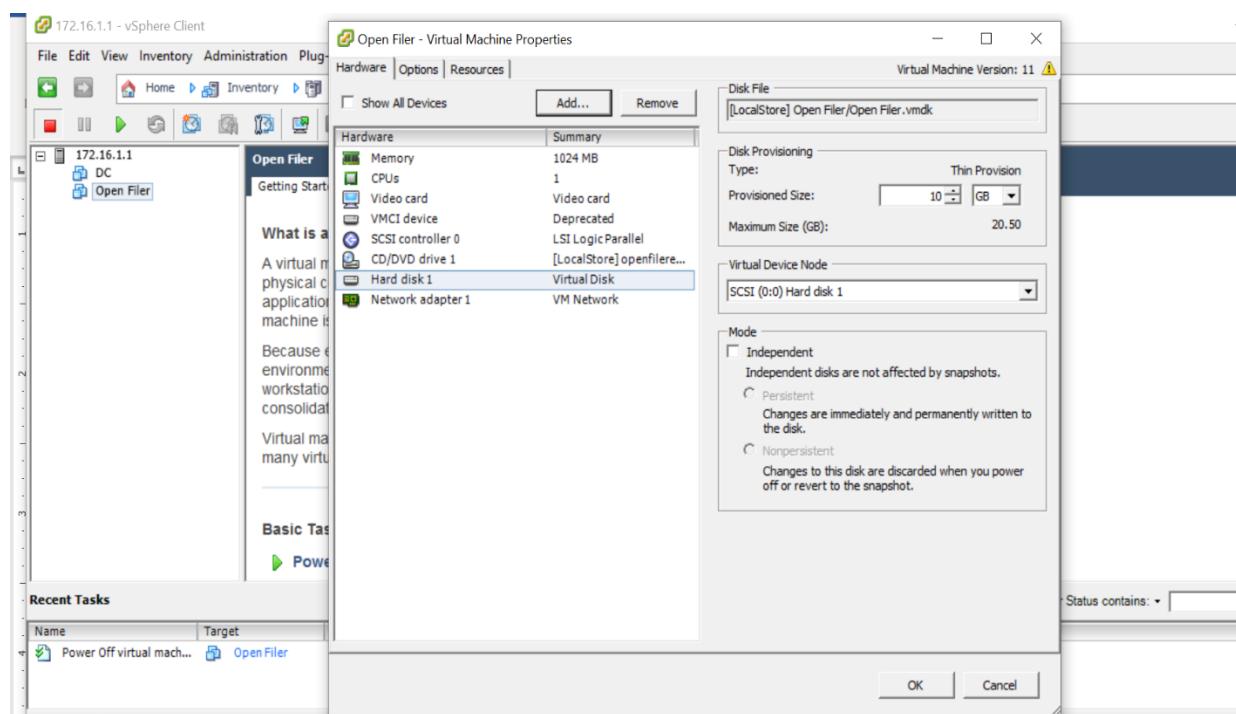
Tiến hành đăng nhập vào hệ thống



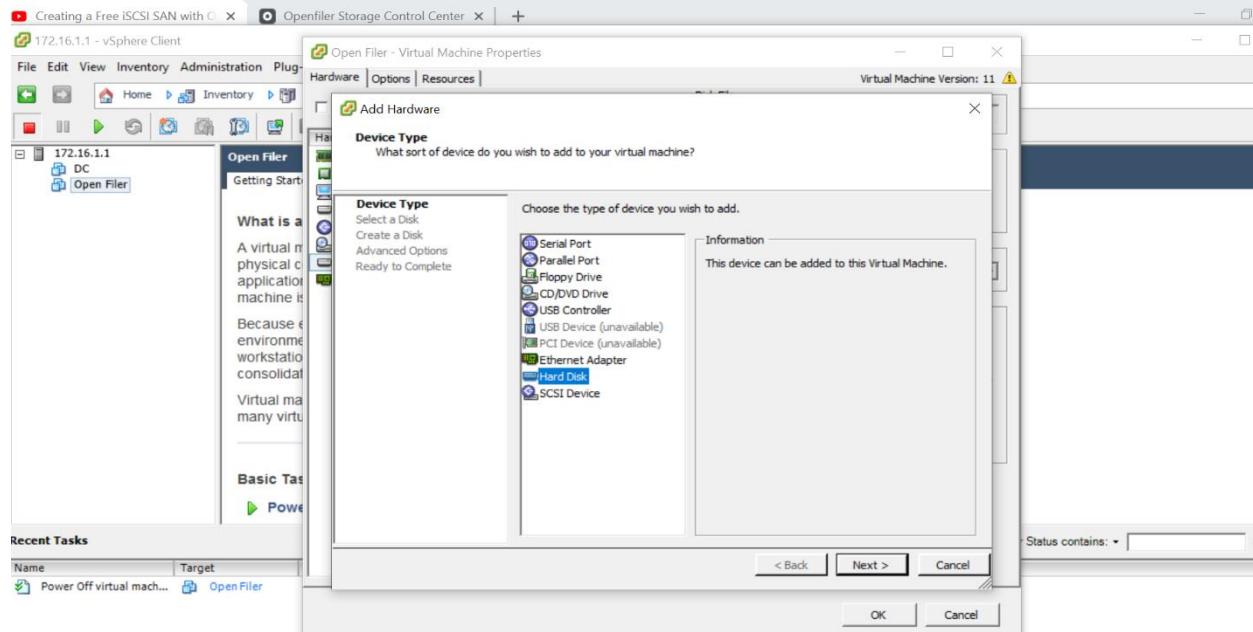
b) Cấu hình các dạng ổ đĩa chia sẻ qua mạng iSCSI



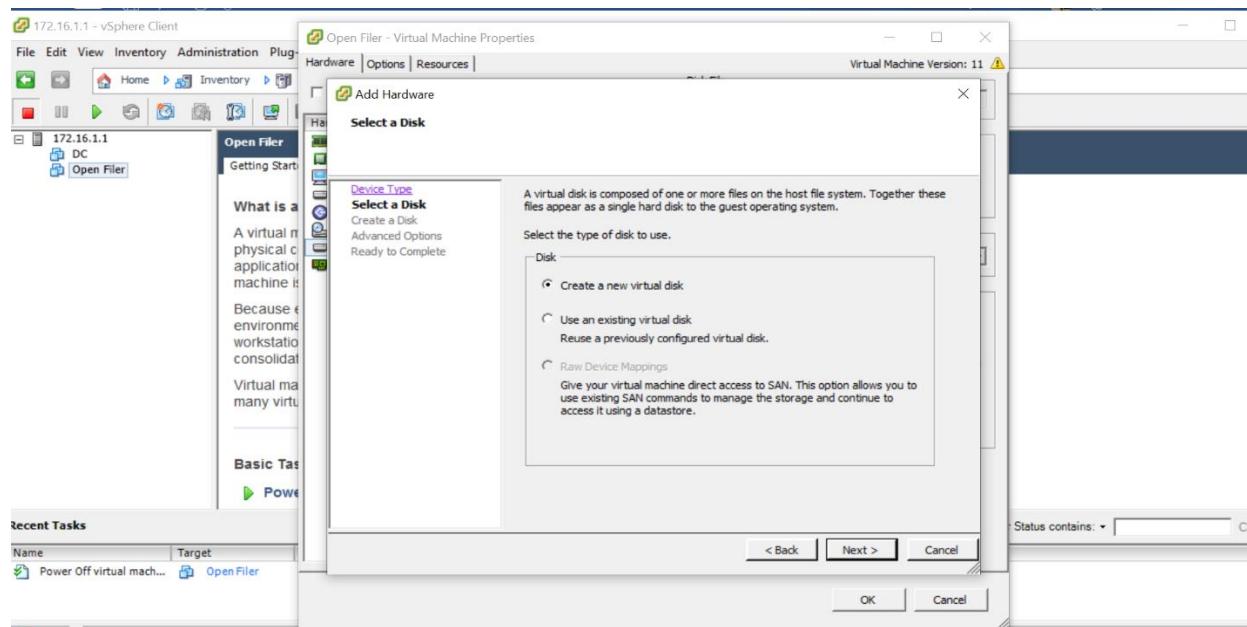
Add ổ cứng và chọn OK



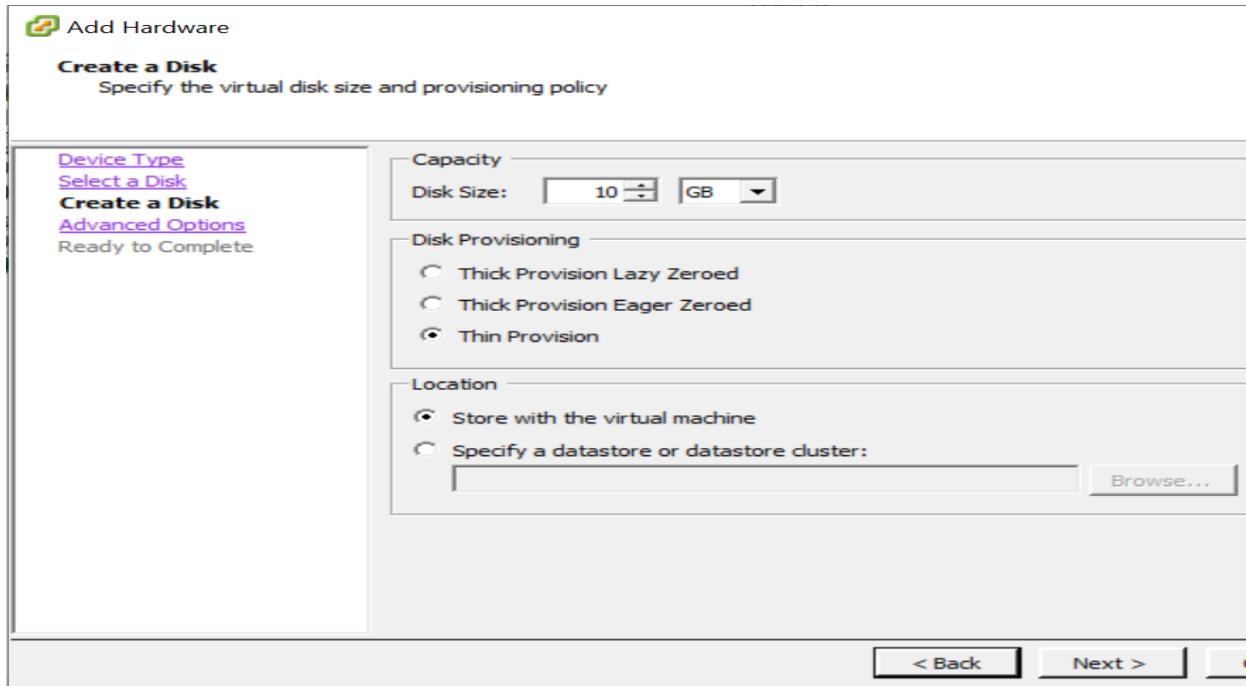
Chọn Hard Disk và chọn Next



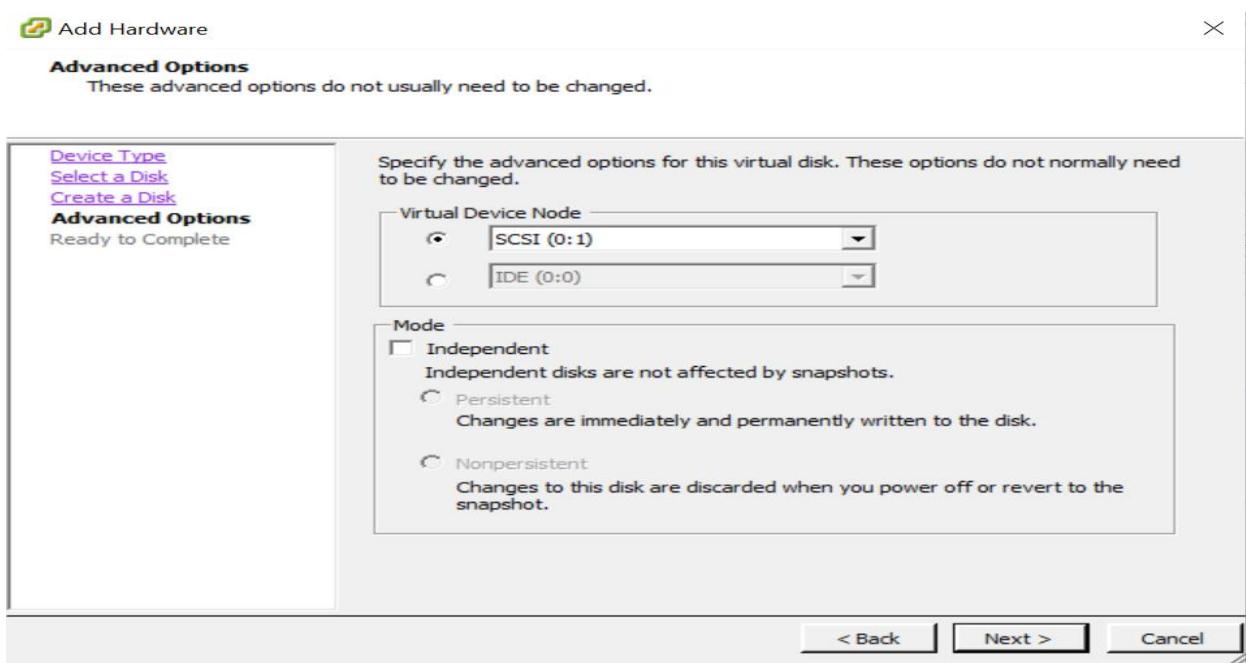
Chọn Next



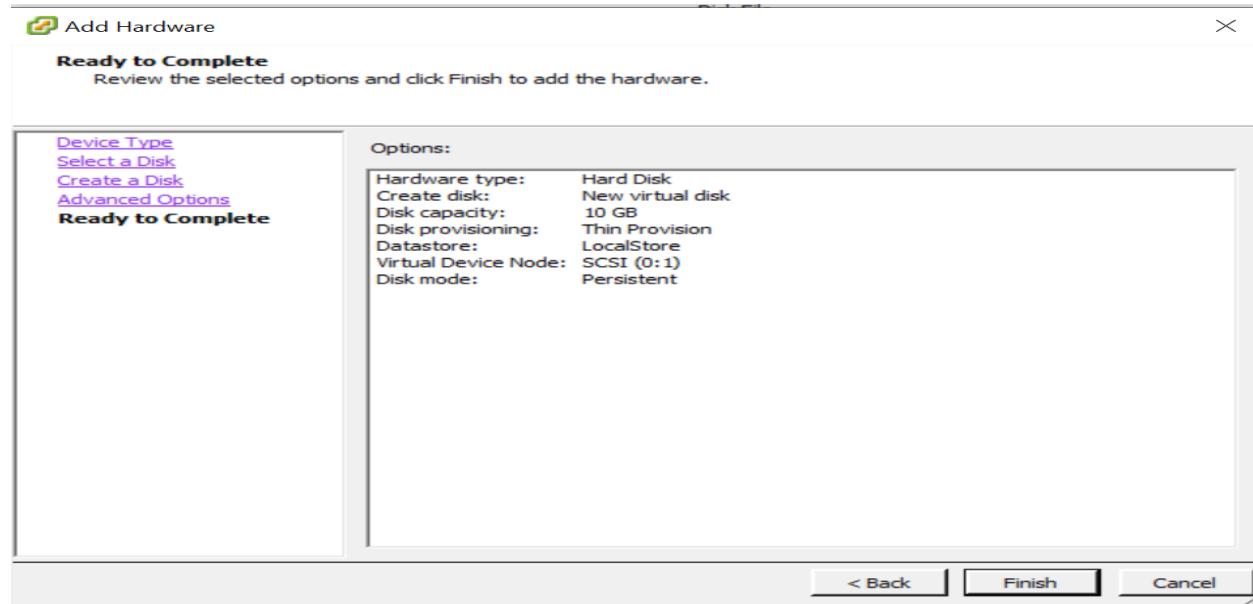
Chọn dung lượng ổ cứng và chọn Next



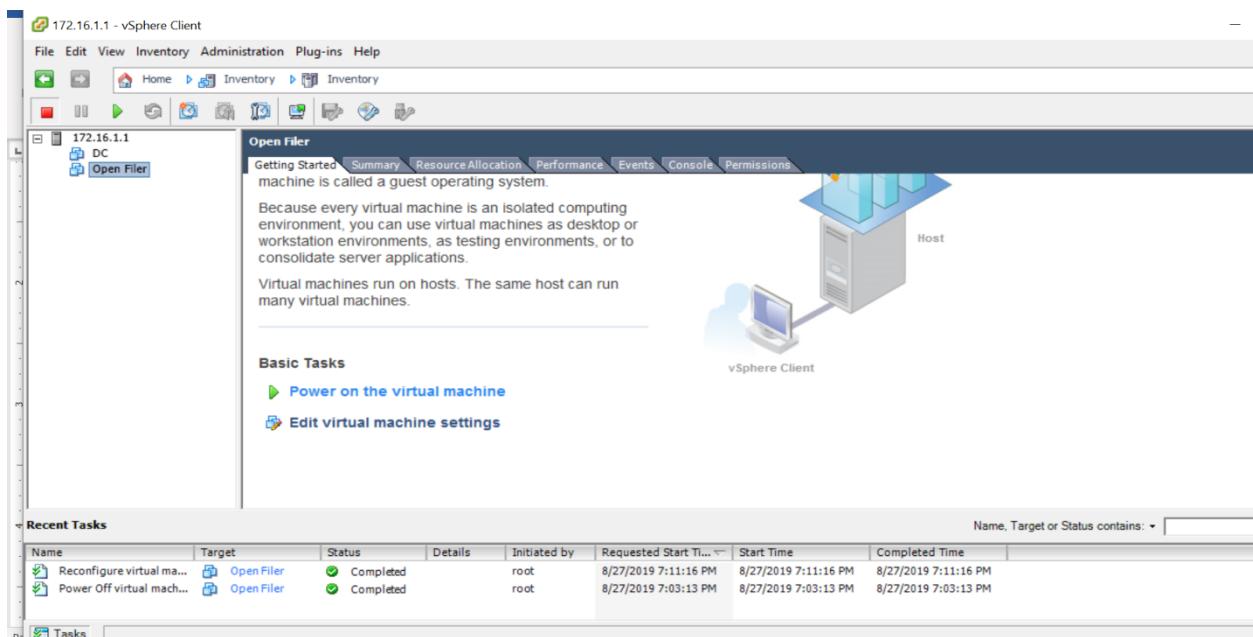
Chọn Next



Chọn Finish



Đã cài thành công Open Filer



Chọn tab Volumes

The screenshot shows the 'Volume Group Management' page of the Openfiler web interface. The top navigation bar includes links for Status, System, Volumes (which is highlighted), Cluster, Quota, Shares, Services, and Accounts. On the right side, there are two sidebar sections: 'Volumes section' containing links for Manage Volumes, Volume Groups, Block Devices, Add Volume, iSCSI Targets, and Software RAID; and 'Support resources' containing links for Report bug, Get support, Forums, and Admin Guide. The main content area displays a message: 'No existing physical volumes were found, or all existing physical volumes are used. You can [create new physical volumes](#)'. At the bottom, a footer bar shows copyright information and links to Home, Documentation, Support, Website, License, and Log Out.

Kéo xuống phần dưới

The screenshot shows the 'Create a partition in /dev/sdb' page. The top navigation bar includes links for Status, System, Volumes (selected), Cluster, Quota, Shares, Services, and Accounts. On the right side, there is a sidebar titled 'Software RAID' with links for Manage Volumes, Volume Groups, Block Devices, Add Volume, iSCSI Targets, and Software RAID. The main content area displays a message: 'You can use ranges within the following extents:' followed by a table with columns: Mode, Starting cylinder, Ending cylinder, and Space. The table shows one row for a Primary partition starting at cylinder 1, ending at cylinder 1305, with a size of 10.00 GB. Below the table is a form with fields for Mode (Primary), Partition Type (Physical volume), Starting cylinder (1), Ending cylinder (1305), Size (10 GB), Create (button), and Reset (button). A link 'Back to the list of physical storage devices' is also present.

Tab Volumes section chọn Add Volume

The screenshot shows the 'Edit partitions in /dev/sdb' page. At the top, there's a table with one row:

Device	Type	Number	Start cyl	End cyl	Blocks	Size	Type	Delete
/dev/sdb1	Linux Physical Volume (0x8e)	1	1	1245	9995814	9.53 GB	Primary	Delete

Below the table is a pie chart illustrating disk usage:

- Free (5%)
- sdb1 (95%)

[Back to the list of physical storage devices](#)

The right sidebar contains two sections: 'Volumes section' and 'Support resources'.

Volumes section

- Manage Volume
- Volume Groups
- Block Devices
- Add Volume
- iSCSI Targets
- Software RAID

Support resources

- Report bug
- Get support
- Forums
- Admin Guide

Kéo xuống phần Create a new volume group

The screenshot shows the 'Create a new volume group' page. At the top, there's a table with one row:

Volume Group Name	Size	Allocated	Free	Members	Add physical storage	Delete VG

Below the table is a form for creating a new volume group:

Volume group name (no spaces):

Select physical volumes to add:

	Device	Size
<input checked="" type="checkbox"/>	/dev/sdb1	9.53 GB

[Add volume group](#)

The right sidebar contains two sections: 'Volumes section' and 'Support resources'.

Volumes section

- Manage Volumes
- Volume Groups**
- Block Devices
- Add Volume
- iSCSI Targets
- Software RAID

Support resources

- Report bug
- Get support
- Forums
- Admin Guide

Tab Volumes section chọn Volume Groups

The screenshot shows the 'Volume Group Management' section of the openfiler web interface. At the top, there is a table with one row for 'vsphere'. The columns are: Volume Group Name, Size, Allocated, Free, Members, Add physical storage, and Delete VG. The 'Members' column contains a link 'View member PVs'. The 'Delete VG' button is highlighted in blue. On the left, there is a navigation bar with icons for Status, System, Volumes, Cluster, Quota, Shares, Services, and Accounts. On the right, there are two sidebar sections: 'Volumes section' containing links for Manage Volumes, Volume Groups, Block Devices, Add Volume, iSCSI Targets, and Software RAID; and 'Support resources' containing links for Report bug, Get support, Forums, and Admin Guide.

Chọn Create a new filesystem volume

The screenshot shows the 'Shares section' of the openfiler web interface. A message box at the top says 'No filesystem volumes configured. Please [create a new filesystem volume](#)'. Below this, there is a 'Network Shares' section with a single entry: 'vsphere (/mnt/vsphere/)'. On the left, there is a navigation bar with icons for Status, System, Volumes, Cluster, Quota, Shares, Services, and Accounts. On the right, there are two sidebar sections: 'Shares section' containing links for Existing Shares and Snapshot Shares; and 'Support resources' containing links for Report bug, Get support, Forums, and Admin Guide.

Điền thông tin và sau đó chọn **Create**

>Create a volume in "vsphere"

Volume Name (*no spaces*. Valid characters [a-z,A-Z,0-9]):	isisc-1
Volume Description:	Share Disk
Required Space (MB):	9760
Filesystem / Volume type:	block (ISCSI,FC,etc)

Create

Cấu hình mạng chia sẻ ở Tab System section chọn Network Setup

Network Interface Configuration

Interface	Boot Protocol	IP Address	Network Mask	Speed	MTU	Link	Edit
eth0	Static	172.16.1.4	255.255.255.0	10000Mb/s	1500	Yes	Configure

Create bonded interface

Network Access Configuration

Delete	Name	Network/Host	Netmask	Type
New	isisc	172.16.1.0	255.255.255.0	Share

Update

Đặt ip chọn **Update**

Network Access Configuration

Delete	Name	Network/Host	Netmask	Type
<input type="checkbox"/>	iscsc	172.16.1.0	255.255.255.0	Share
New	<input type="text"/>	<input type="text"/>	<input type="text" value="0.0.0"/> ▼	Share ▼

Update

Start dịch vụ iSCSI Target

← → C ⚠ Không bảo mật | 172.16.1.4:446/admin/services.html?service=iscsi-target&action=enable

Manage Services

Service	Boot Status	Modify Boot	Current Status	Start / Stop
CIFS Server	Disabled	Enable	Stopped	Start
NFS Server	Disabled	Enable	Stopped	Start
RSync Server	Disabled	Enable	Stopped	Start
HTTP/Dav Server	Disabled	Enable	Running	Stop
LDAP Container	Disabled	Enable	Stopped	Start
FTP Server	Disabled	Enable	Stopped	Start
iSCSI Target	Enabled	Disable	Running	Stop
UPS Manager	Disabled	Enable	Stopped	Start
UPS Monitor	Disabled	Enable	Stopped	Start
iSCSI Initiator	Disabled	Enable	Stopped	Start
ACPI Daemon	Enabled	Disable	Running	Stop
SCST Target	Disabled	Enable	Stopped	Start
FC Target	Disabled	Enable	Stopped	Start
Cluster Manager	Disabled	Enable	Stopped	Start

Manage Services
[SMB/CIFS Setup](#)
[LDAP Setup](#)
[UPS Setup](#)
[Rsync Setup](#)
[iSCSI Target Setup](#)
[FTP Setup](#)

Support resources
[Report bug](#)
[Get support](#)
[Forums](#)
[Admin Guide](#)

Chọn SCSI Targets

The screenshot shows a web-based management interface for storage volumes. At the top, there's a navigation bar with icons for back, forward, search, and a warning message: "Không bảo mật | 172.16.1.4:446/admin/volumes.html". Below the navigation is a dropdown menu set to "vsphere" with a "Change" button. The main content area has a title "Volumes in volume group 'vsphere' (9760 MB)". A large green circle represents the volume usage, labeled "(100%)". Below the circle is a table with the following data:

Volume name	Volume description	Volume size	File system type	File system size	FS used space	FS free space	Delete	Properties	Snapshots
isisc-1	Share Disk	9760 MB	ISCSI	Not applicable	Not applicable	Not applicable	Delete	Edit	Create

Below the table, two status messages are displayed: "0 MB allocated to snapshots" and "0 MB of free space left". On the right side of the interface, there's a sidebar titled "Support resources" with links to Report bug, Get support, Forums, and Admin Guide. There are also links for iSCSI Targets and Software RAID.

Add

The screenshot shows a web-based management interface for adding a new iSCSI target. The top navigation bar includes links for Status, System, Volumes (which is highlighted), Cluster, Quota, Shares, Services, and Accounts. The main content area has tabs for Target Configuration, LUN Mapping, Network ACL, and CHAP Authentication. The current tab is "Target Configuration". Under this tab, there's a section titled "Add new iSCSI Target" with a "Target IQN" input field containing "iqn.2006-01.com.openfiler:tsn.0626724ec20f" and an "Add" button. Below this is a "Select iSCSI Target" section with a note: "Please select an iSCSI target to display and/or edit." It shows a dropdown menu with "iqn.2006-01.com.openfiler:tsn.82dc0619db34" selected and a "Change" button. At the bottom, it displays "Settings for target: iqn.2006-01.com.openfiler:tsn.82dc0619db34". To the right, there's a sidebar titled "Volumes section" with links for Manage Volumes, Volume Groups, Block Devices, Add Volume, iSCSI Targets, and Software RAID. There's also a "Support resources" sidebar with links to Report bug, Get support, Forums, and Admin Guide.

The screenshot shows the openfiler web interface with the title bar "openfiler" and the status "14:32:04 up 1:40, 2 users, load average: 0.12, 0.14, 0.05". The navigation menu includes Status, System, Volumes, Cluster, Quota, Shares, Services, and Accounts. The main content area has tabs for Target Configuration, LUN Mapping, Network ACL, and CHAP Authentication. The LUN Mapping tab is active, showing a table of mapped LUNs:

LUN Id.	LUN Path	R/W Mode	SCSI Serial No.	SCSI Id.	Transfer Mode	Unmap LUN
0	/dev/vsphere/lsisc-1	write-thru	ecD0JZ-IDmq-hp79	ecD0JZ-IDmq-hp79	blockio	Unmap

A pink warning box contains the text "All mappable ISCSI LUNs for this target have been mapped." Below the table, there are fields for Secondary DNS and Gateway, with "Update" and "Cancel" buttons. On the right side, there are "Support resources" links: Report bug, Get support, Forums, and Admin Guide. A "Secure Console" checkbox is also present.

Tab LUN Mapping chọn Map

The screenshot shows the openfiler web interface with the title bar "openfiler" and the status "14:32:04 up 1:40, 2 users, load average: 0.12, 0.14, 0.05". The navigation menu includes Status, System, Volumes, Cluster, Quota, Shares, Services, and Accounts. The main content area has tabs for Target Configuration, LUN Mapping, Network ACL, and CHAP Authentication. The LUN Mapping tab is active, showing a table with one row:

Name	LUN Path	R/W Mode	SCSI Serial No.	SCSI Id.	Transfer Mode	Map LUN
Share Disk	/dev/vsphere/lsisc-1	write-thru	ecD0JZ-IDmq-hp79	ecD0JZ-IDmq-hp79	blockio	Map

A pink warning box contains the text "No LUNs mapped to this target". On the right side, there are two sections: "Volumes section" with links to Manage Volumes, Volume Groups, Block Devices, Add Volume, iSCSI Targets, and Software RAID; and "Support resources" with links to Report bug, Get support, Forums, and Admin Guide.

Chọn Allow

Name	Network/Host	Netmask	Access
isisc	172.16.1.0	255.255.255.0	Deny ▾ Deny Allow

- 6) Kết nối máy ESXi sử dụng các ổ đĩa iSCSI từ hệ thống SAN
a) Thiết lập Vmkernel để kết nối vào máy SAN

localhost.localdomain VMware ESXi, 6.0.0, 3029758

Hardware

- Health Status
- Processors
- Memory
- Storage
- Networking
 - Storage Adapters
 - Network Adapters
 - Advanced Settings
 - Power Management

Software

- Licensed Features
- Time Configuration
- DNS and Routing
- Authentication Services
- Virtual Machine Startup/Shutdown
- Virtual Machine Swapfile Location

View: vSphere Standard Switch

Networking

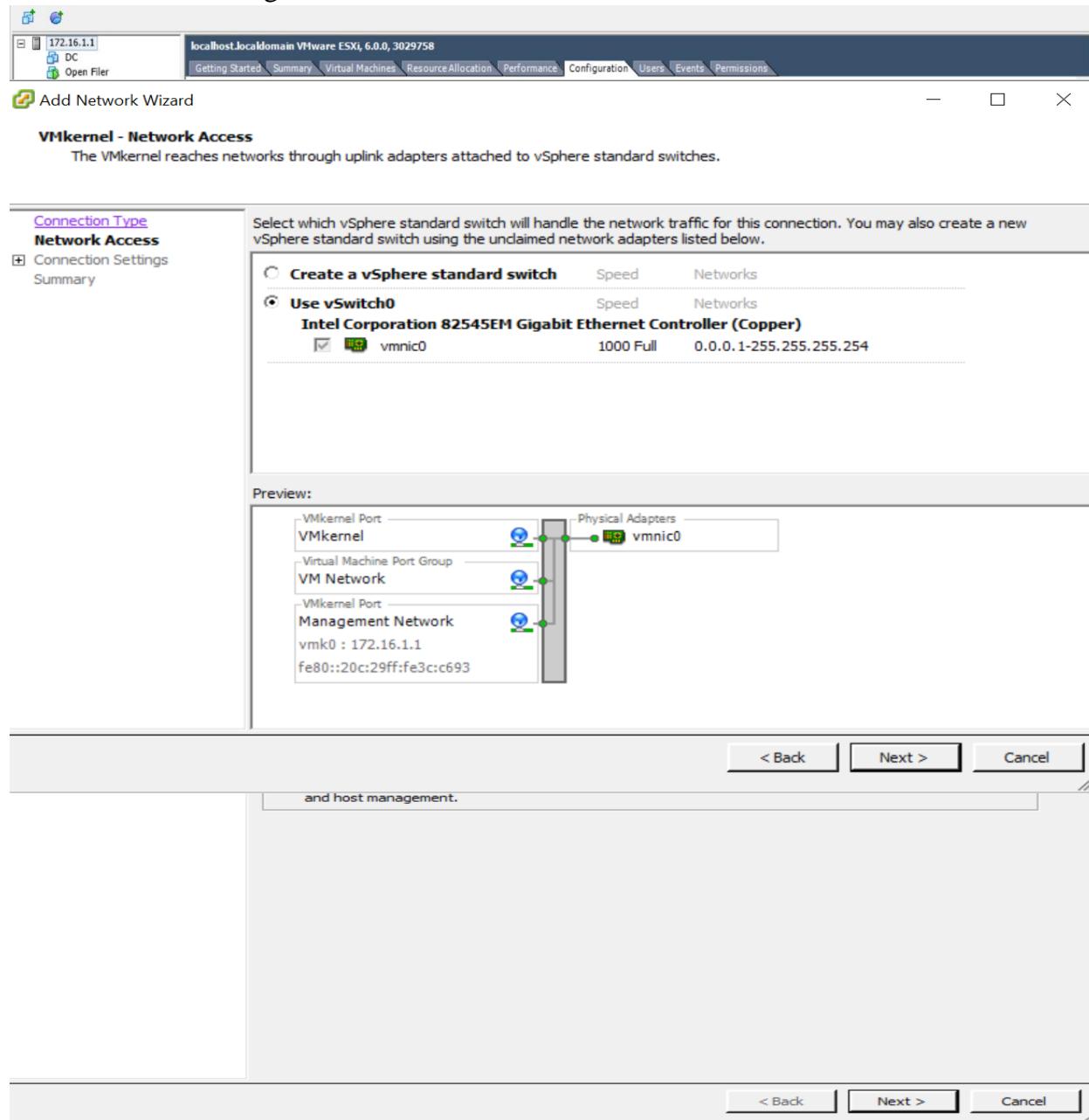
Standard Switch: vSwitch0

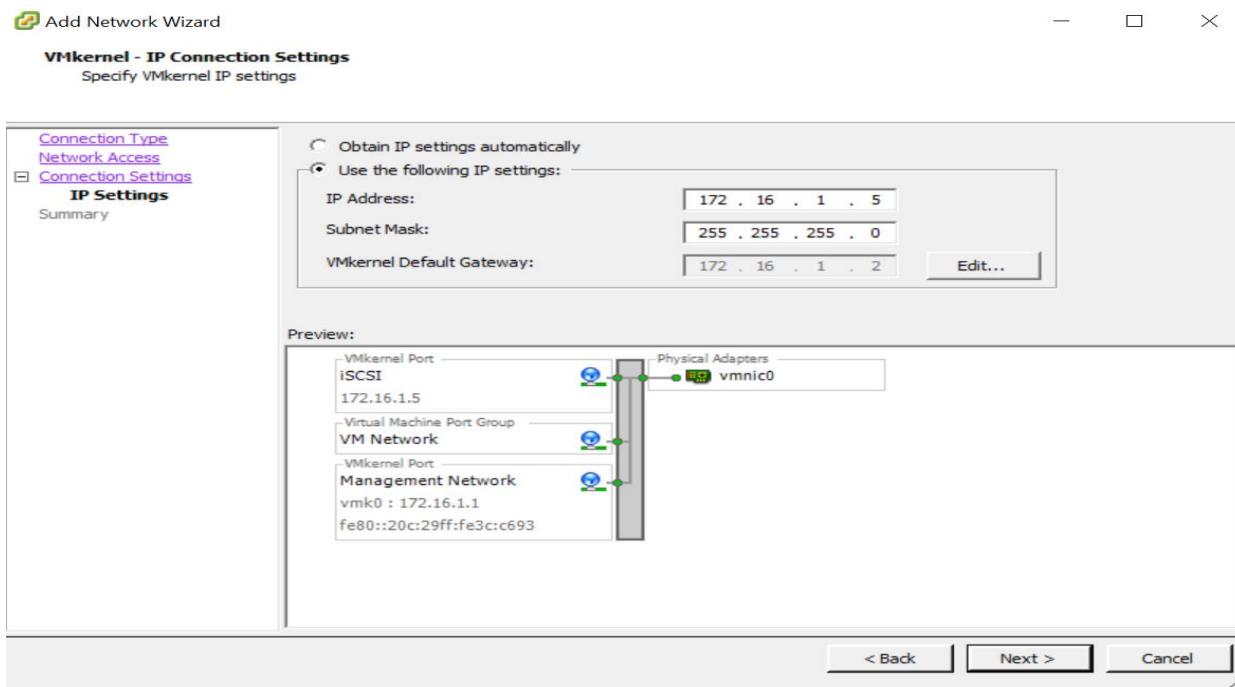
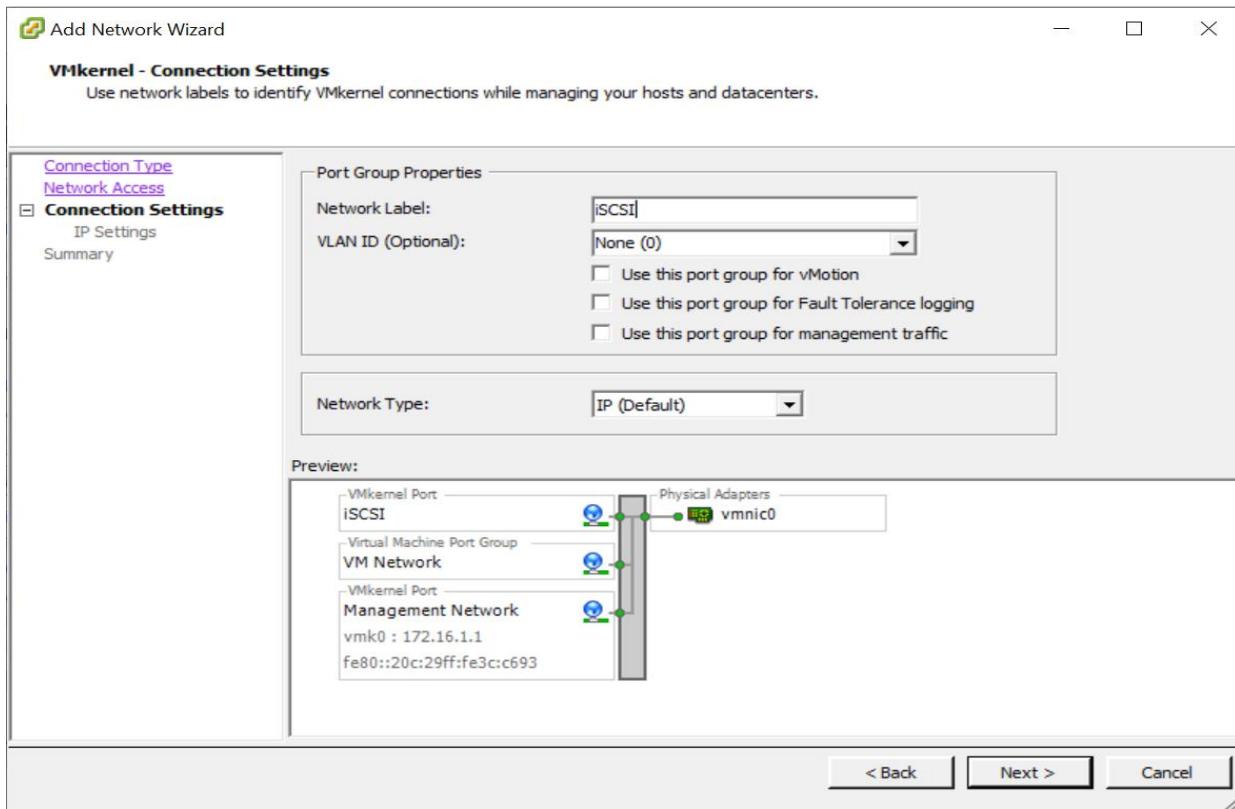
Virtual Machine Port Group: VM Network (2 virtual machine(s))

Physical Adapters: vmnic0 1000 Full

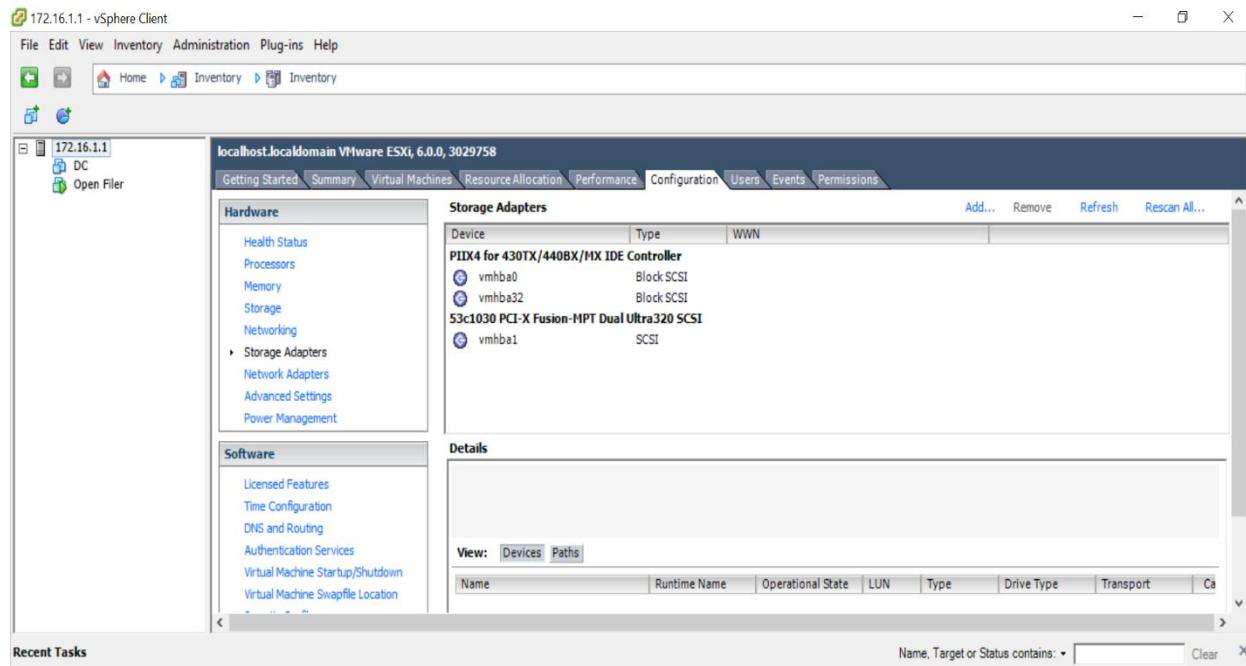
VMkernel Port: Management Network (vmk0 : 172.16.1.1 fe80::20c:29ff:fe3c:c693)

Chọn AddNetworking

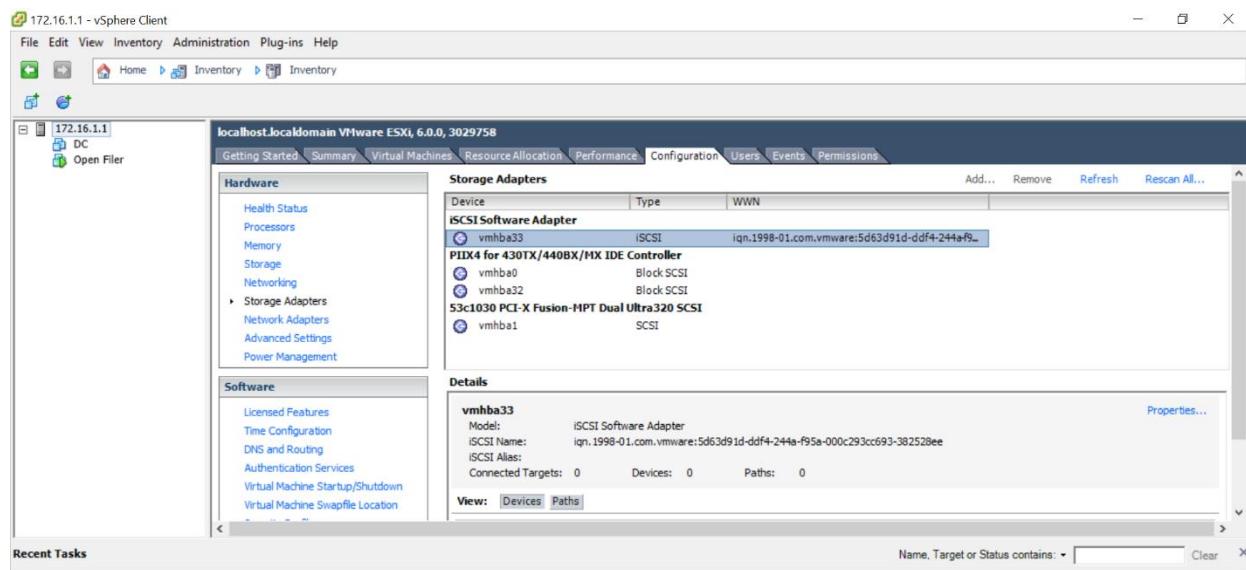


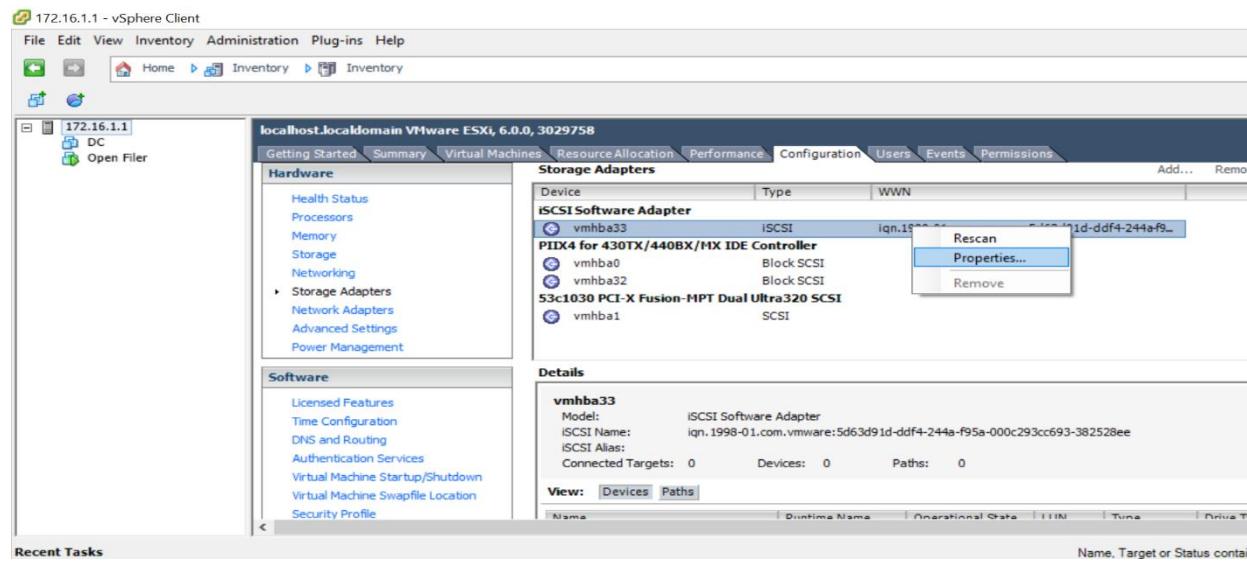


Ở tab Storage Adapter chọn Add

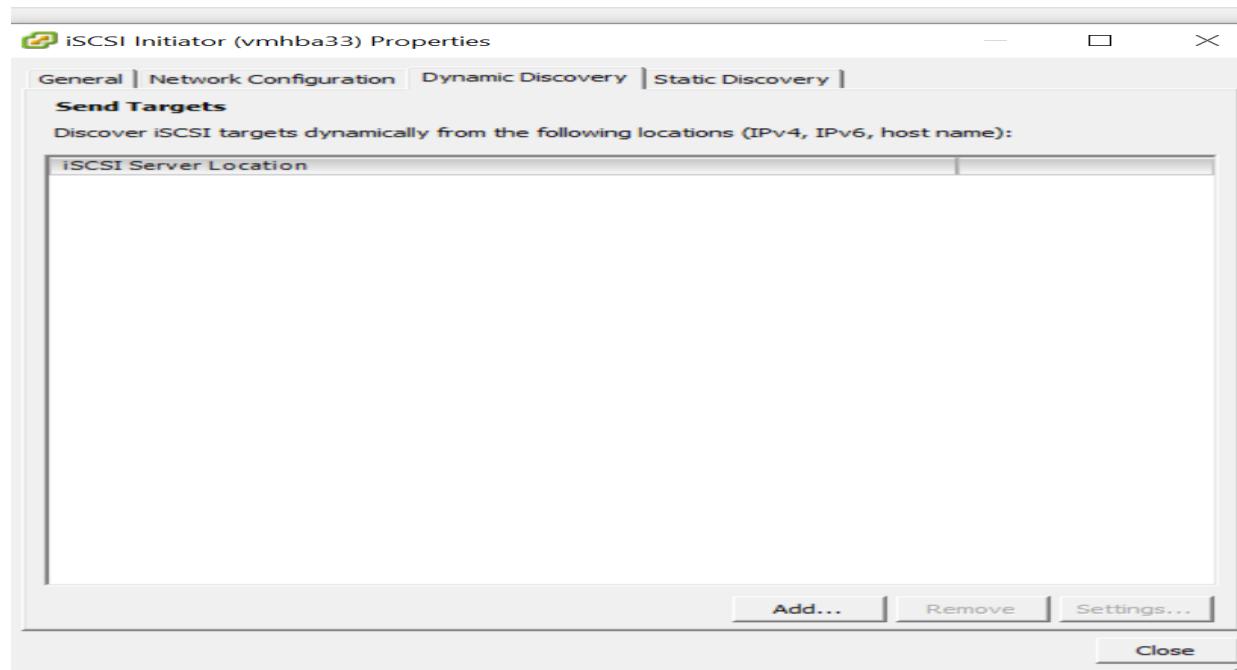


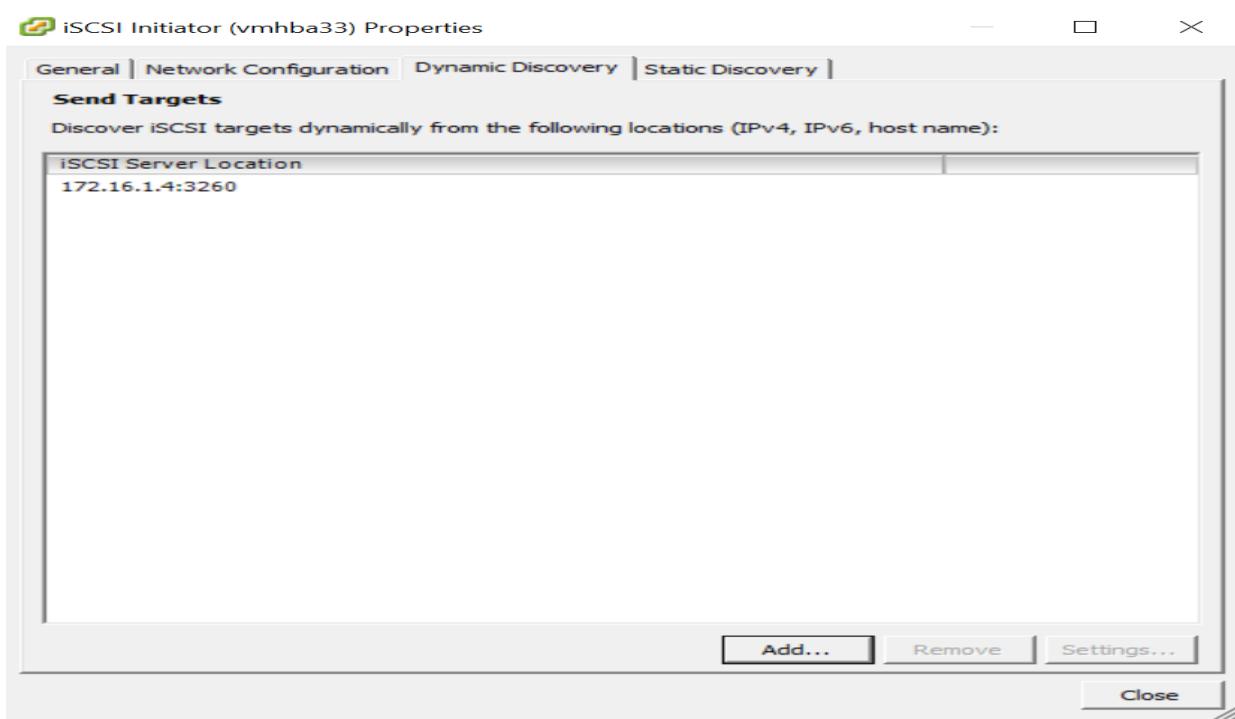
Chọn Add sẽ xuất hiện vmhba33



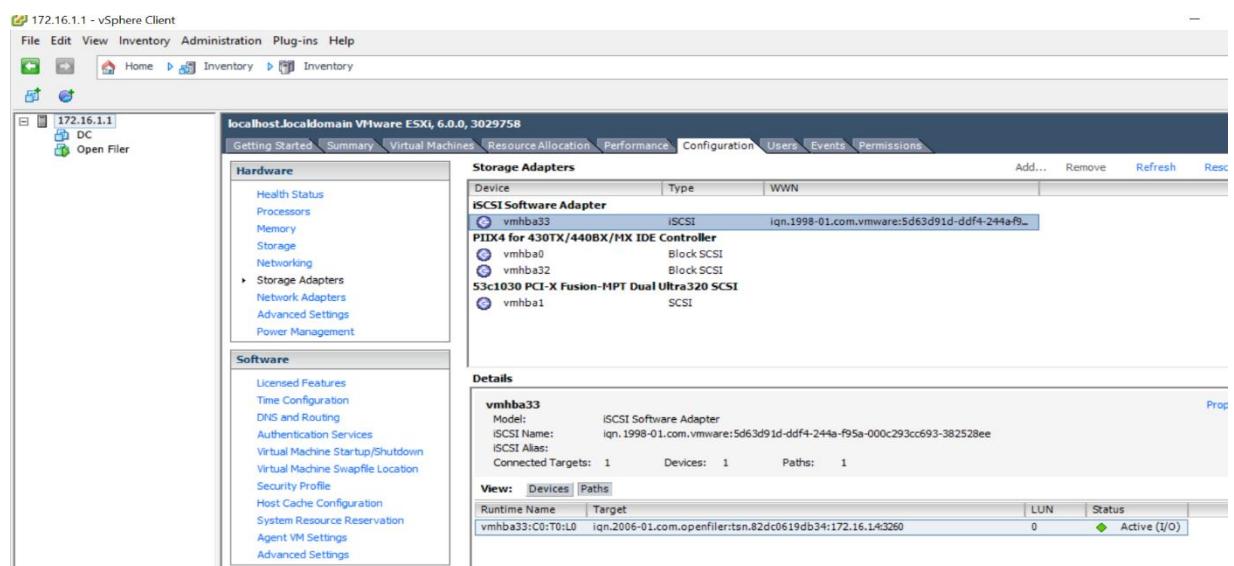


Ở tab Dynamic Discovery chọn Add

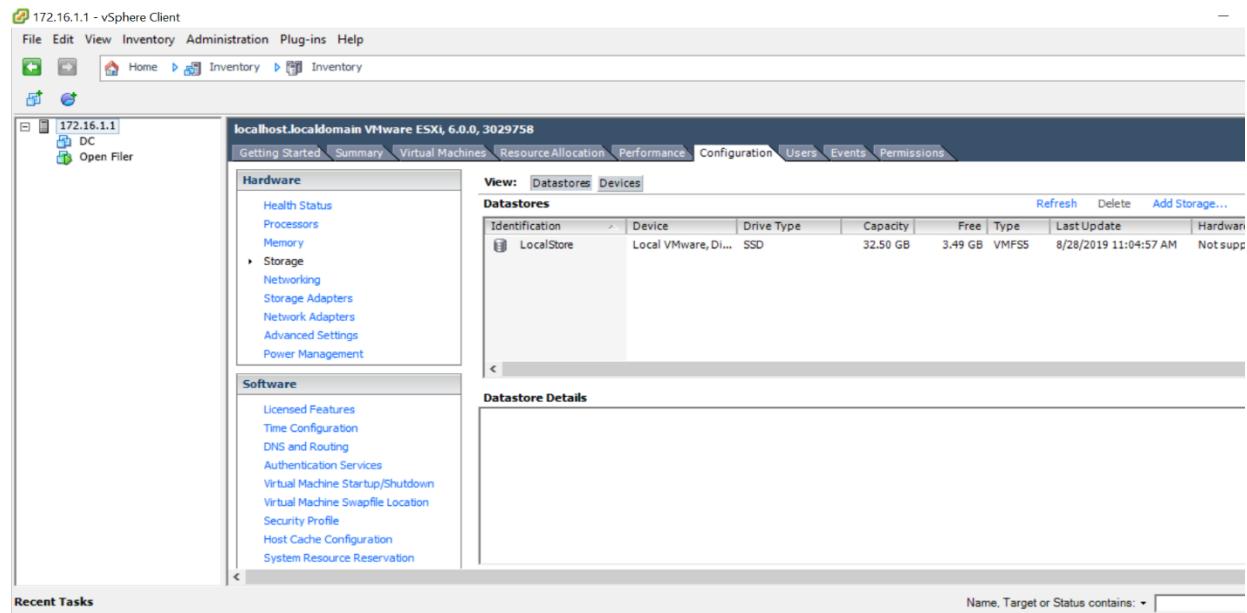




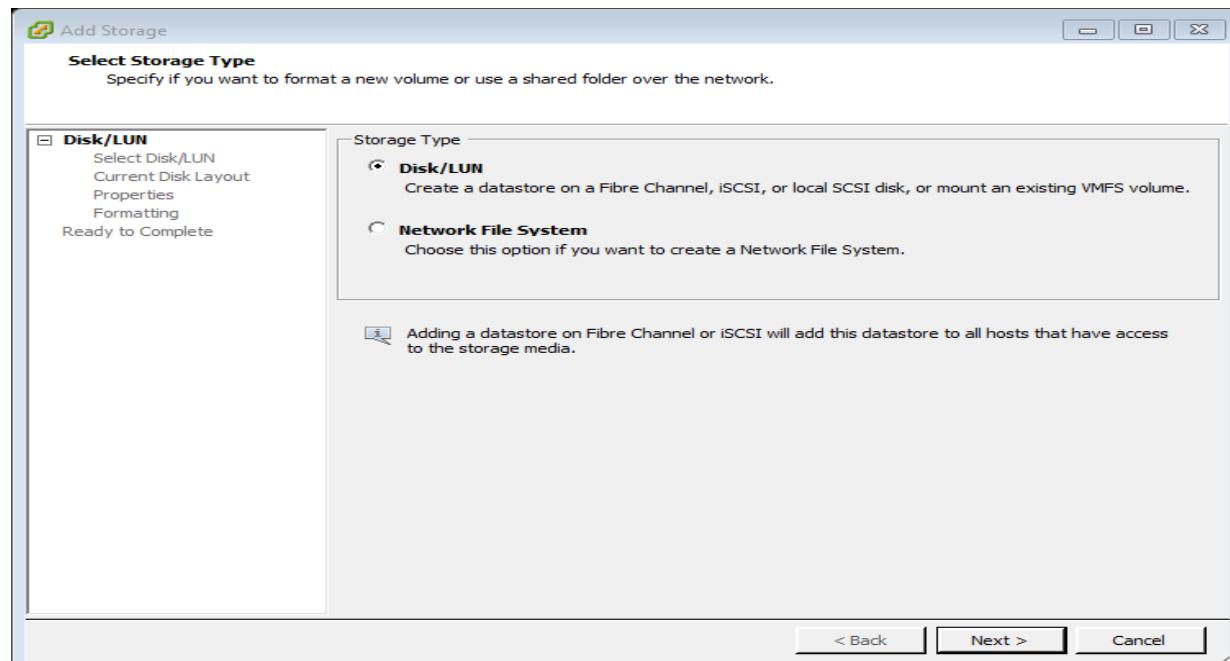
Sau khi scan ta đã được 1 Devices

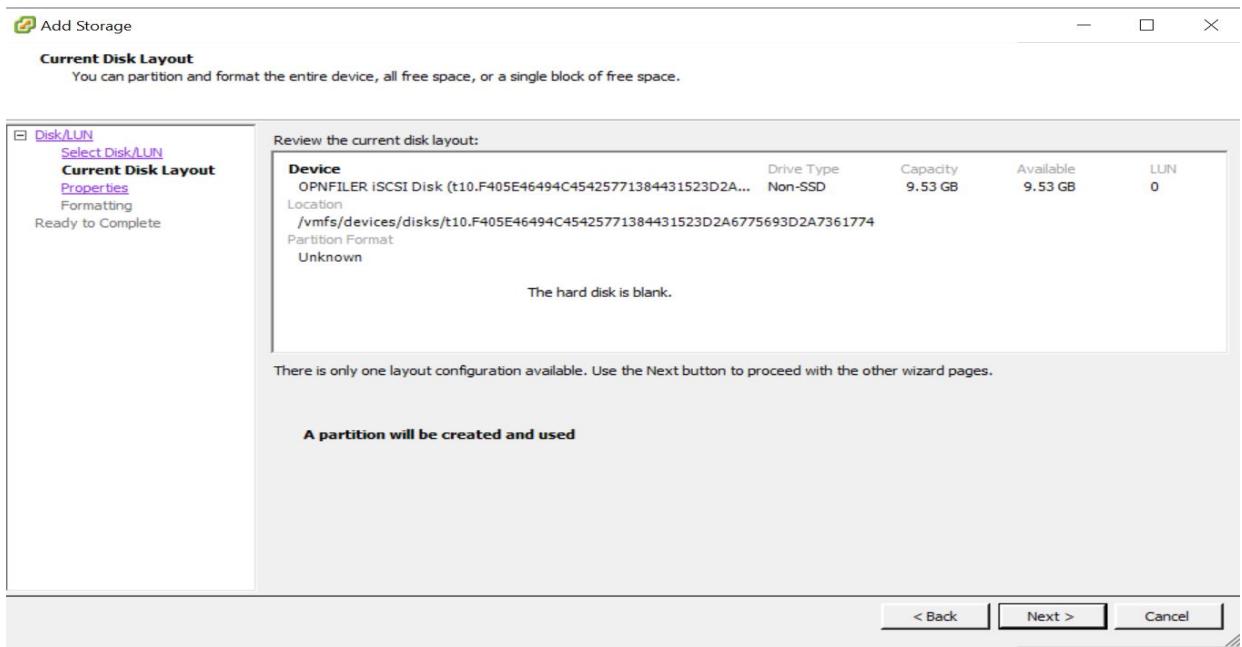
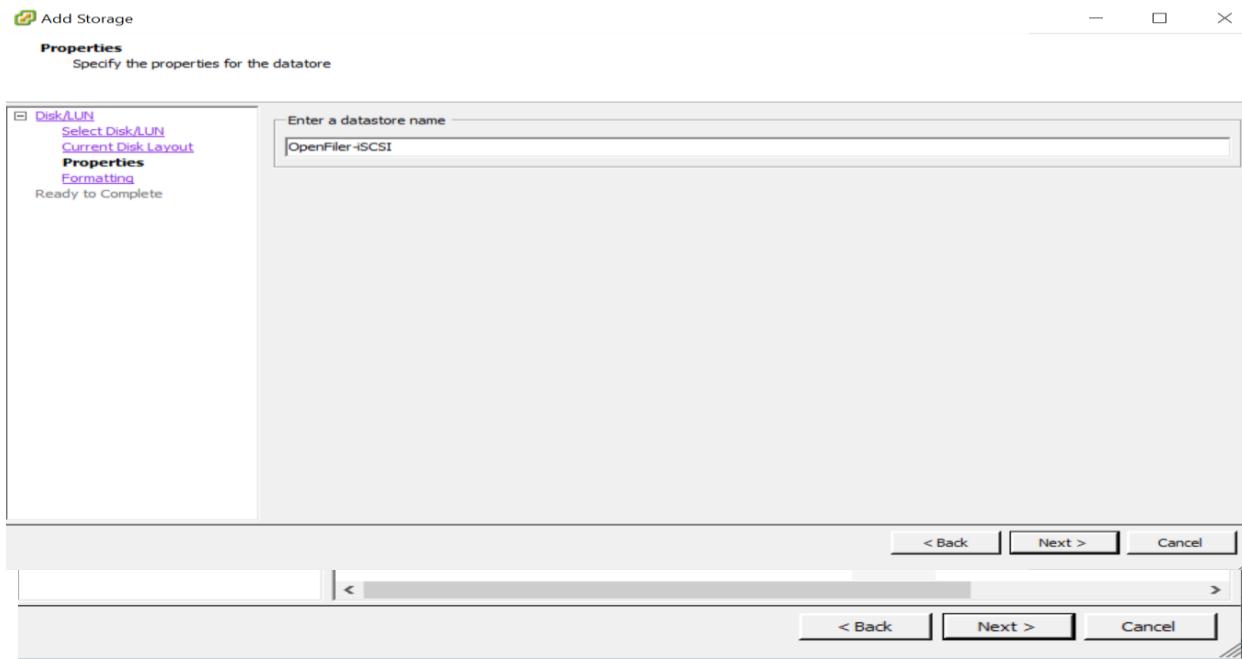


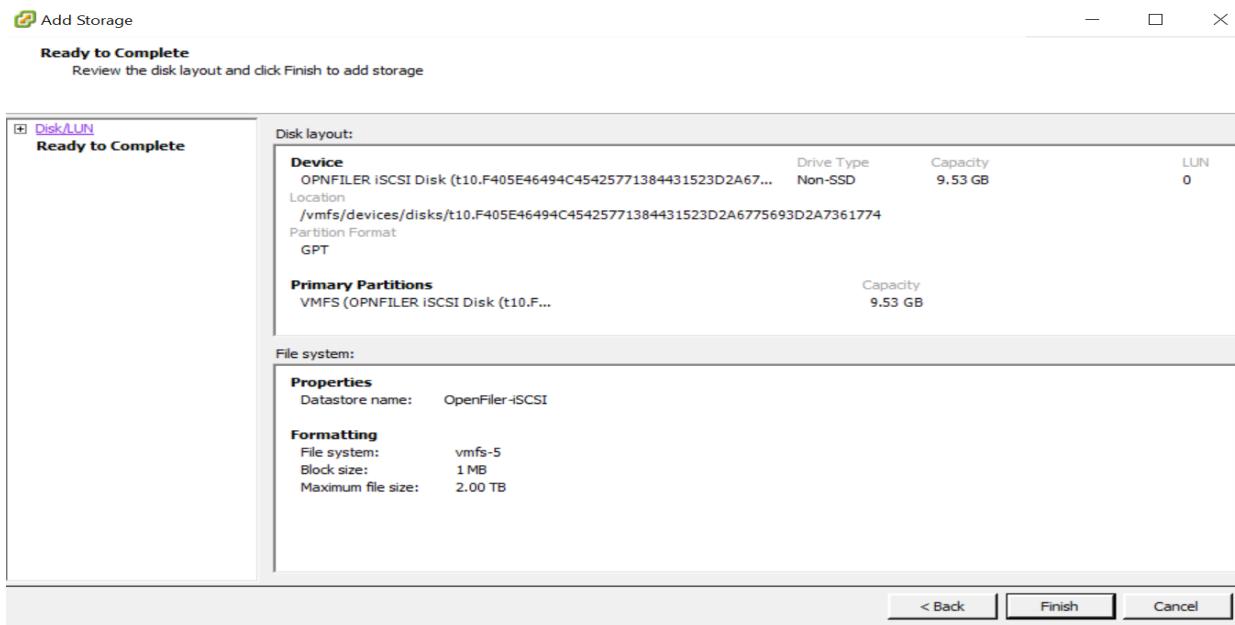
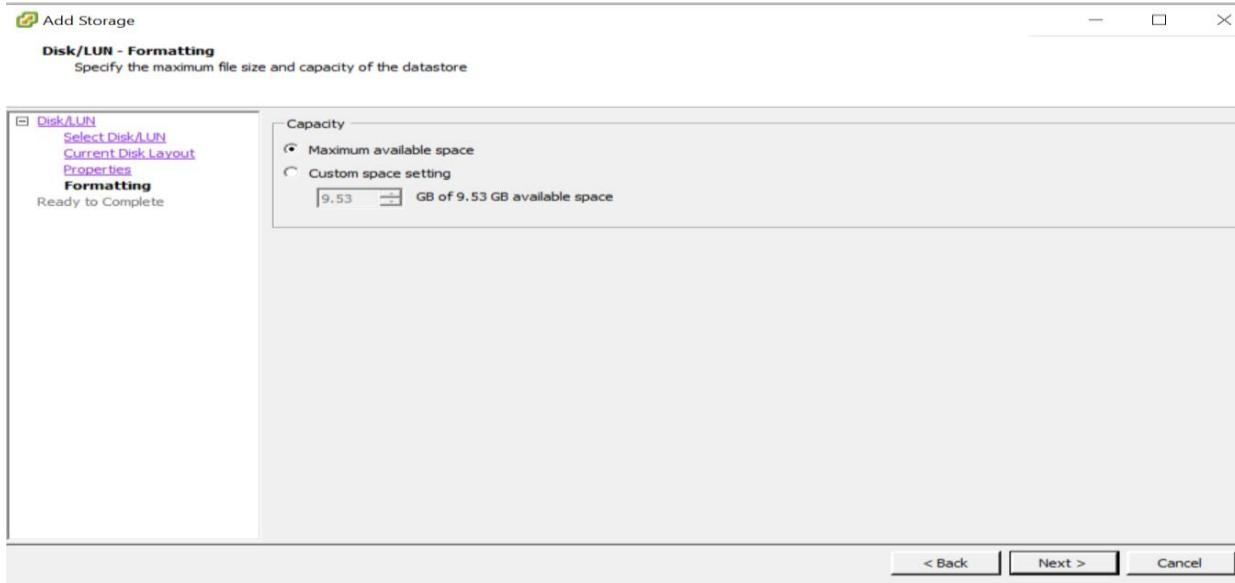
Ở tab storage chọn Add Storage



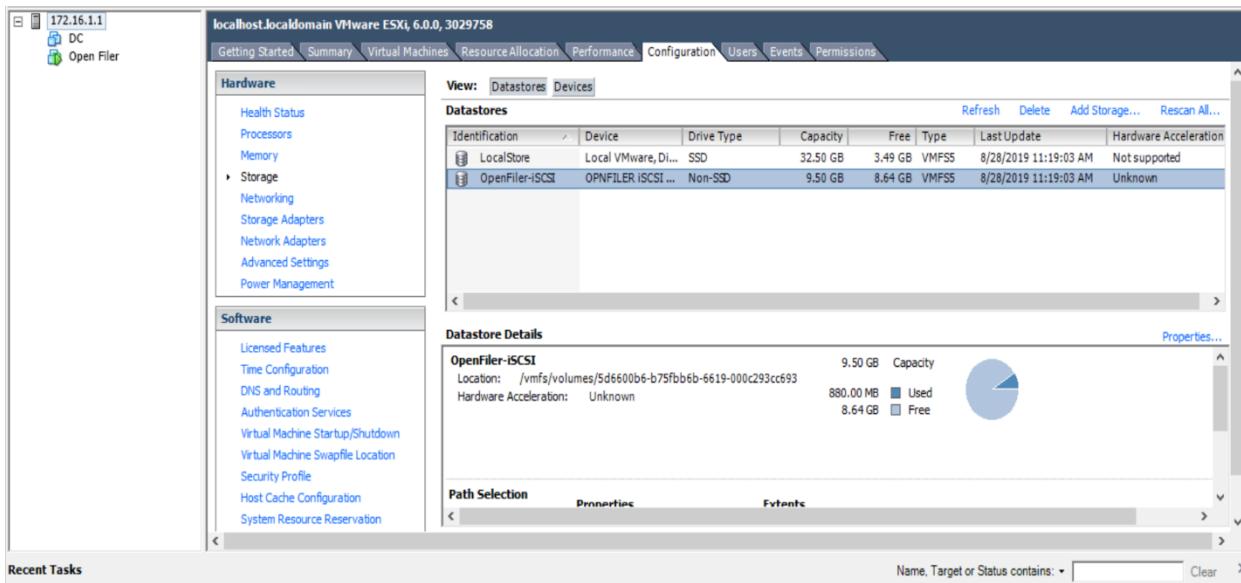
Chọn Disk/LUN và chọn Next





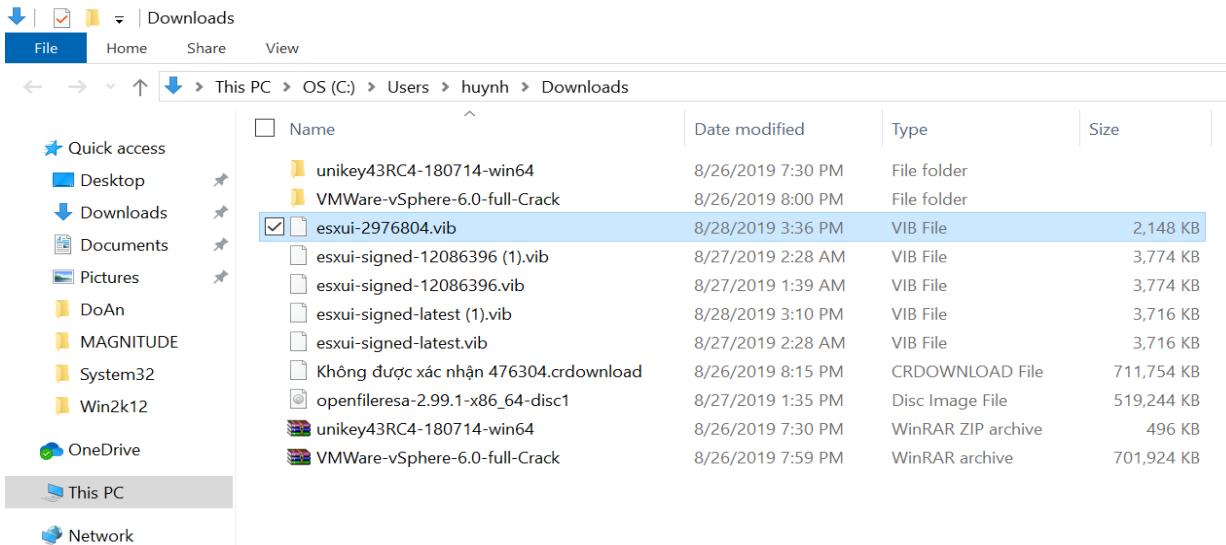


Đã add thành công

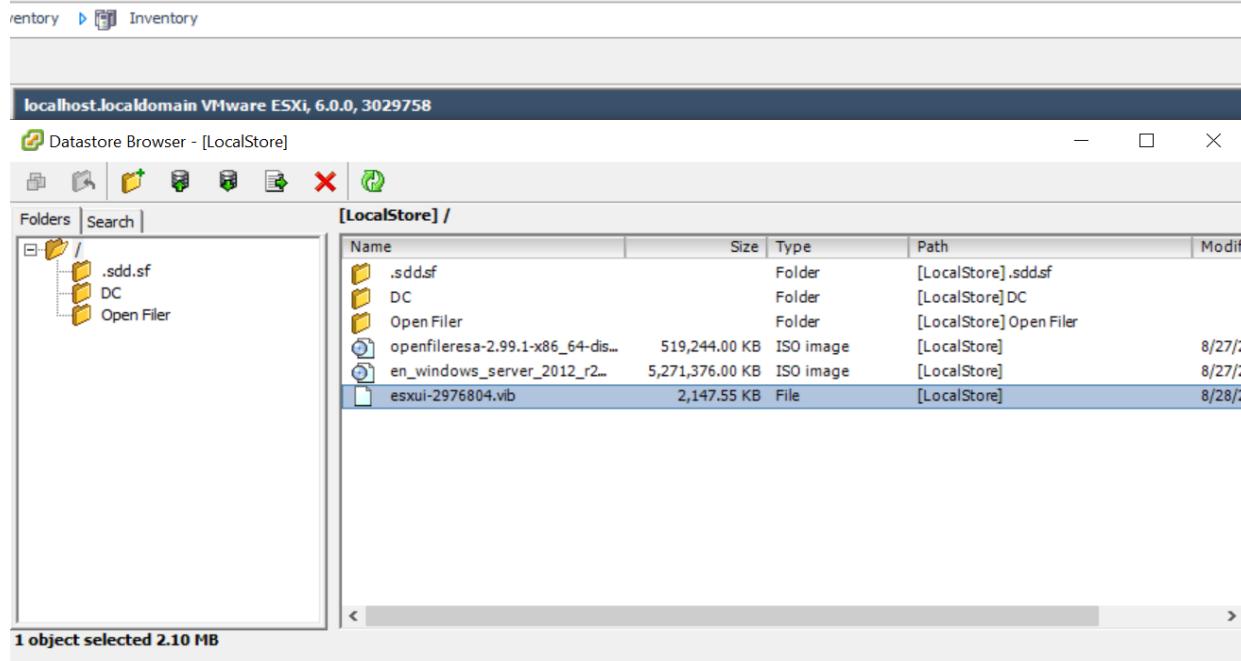


7) Sử dụng vSphere Web Client

a) Download file esxui



b) Kết nối SSH và cài đặt tin exsui:
Tiến hành upload file esxi lên máy ESXI



```
OpenSSH SSH client
Microsoft Windows [Version 10.0.17763.678]
(c) 2018 Microsoft Corporation. All rights reserved.

C:\Users\huynh>ssh root@172.16.1.1
Password:
The time and date of this login have been sent to the system logs.

VMware offers supported, powerful system administration tools. Please
see www.vmware.com/go/sysadmintools for details.

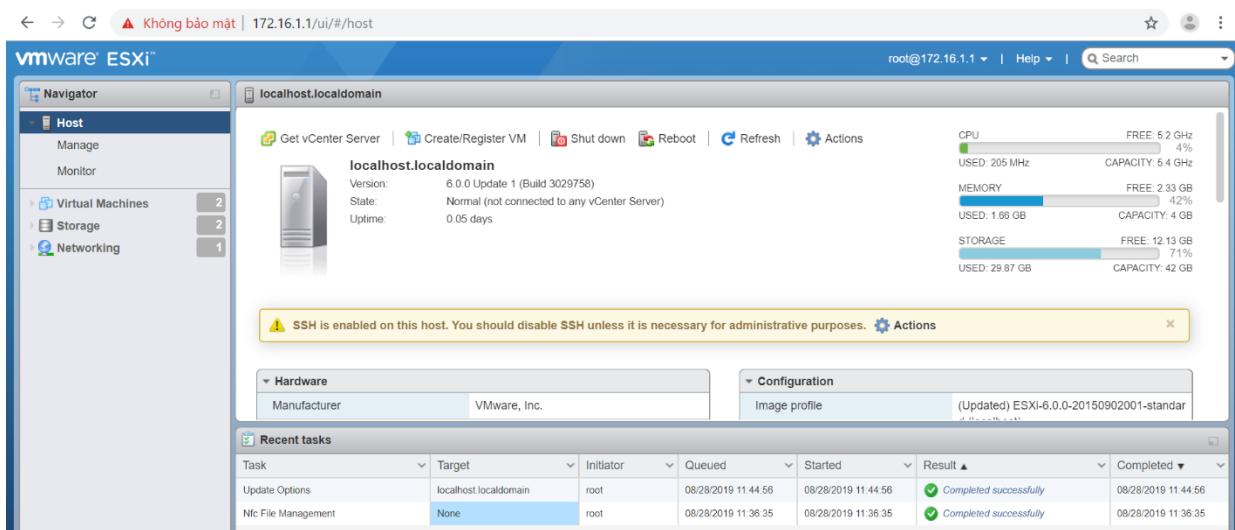
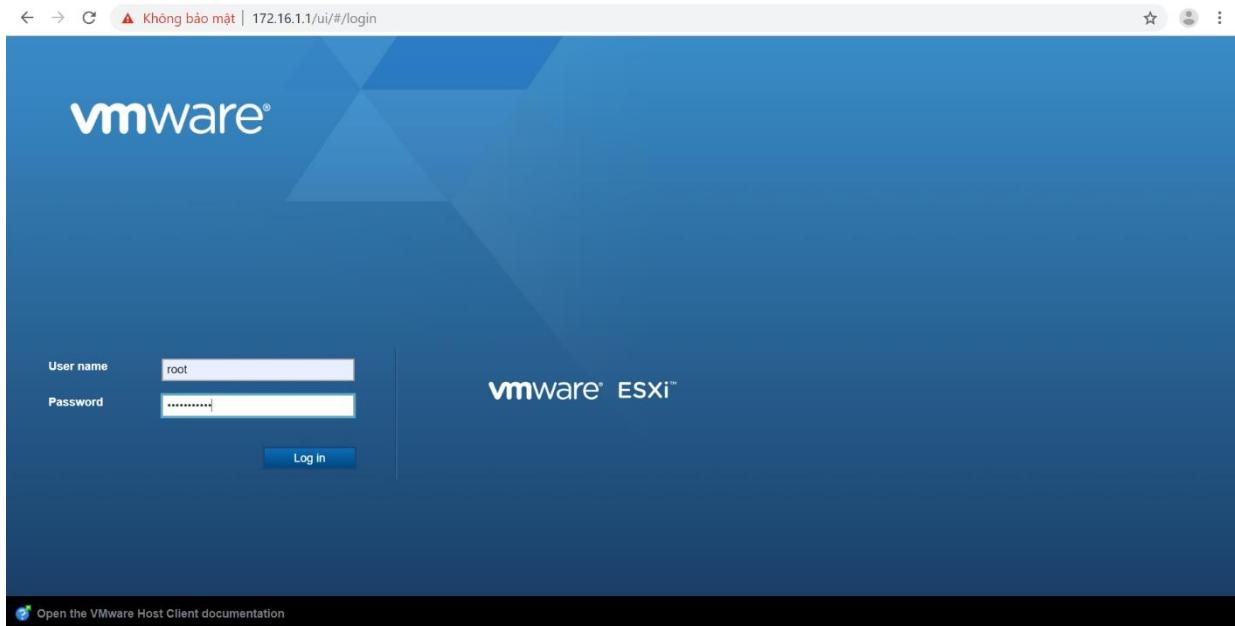
The ESXi Shell can be disabled by an administrative user. See the
vSphere Security documentation for more information.
The time and date of this login have been sent to the system logs.

VMware offers supported, powerful system administration tools. Please
see www.vmware.com/go/sysadmintools for details.

The ESXi Shell can be disabled by an administrative user. See the
vSphere Security documentation for more information.
[root@localhost:~] _
```

```
[root@localhost:~] esxcli software vib install -v /vmfs/volumes/LocalStore/esxui-2976804.vib
Installation Result
  Message: Operation finished successfully.
  Reboot Required: false
  VIBs Installed: VMware_bootbank_esx-ui_0.0.2-0.1.2976804
  VIBs Removed:
  VIBs Skipped:
[root@localhost:~]
```

Cài đặt thành công và đăng nhập



Quản trị máy chủ ESXI sử dụng vSphere Client

Ta có thể tắt mở máy các máy

The screenshot shows the vSphere Client interface for managing services on the host 'localhost.localdomain'. The 'Services' tab is selected. The table lists two services:

Name	Description	Status	Source	Firewall rules
DCUI	Direct Console UI	Running	Base system	None
lbtd	Load-Based Teaming Daemon	Running	Base system	None

Below the table, there is a detailed view for the 'Direct Console UI' service, showing it is running.

Recent tasks table:

Task	Target	Initiator	Queued	Started	Result	Completed
Update Options	localhost.localdomain	root	08/28/2019 11:44:56	08/28/2019 11:44:56	Completed successfully	08/28/2019 11:44:56
Nfc File Management	None	root	08/28/2019 11:36:35	08/28/2019 11:36:35	Completed successfully	08/28/2019 11:36:35

Theo dõi Performance

The screenshot shows the vSphere Client interface for monitoring performance on the host 'localhost.localdomain'. The 'Performance' tab is selected. The table displays CPU usage for various components:

Name	Unit	Average	Maximum	Minimum	Latest
localhost.localdomain	%	4.36	27.92	1.84	3.79
PCPU 0	%	4.48	21.51	1.36	4.96
PCPU 1	%	4.25	34.32	1.52	2.63
Package 0	%	8.96	21.51	1.36	4.96

Recent tasks table:

Task	Target	Initiator	Queued	Started	Result	Completed
Update Options	localhost.localdomain	root	08/28/2019 11:44:56	08/28/2019 11:44:56	Completed successfully	08/28/2019 11:44:56
Nfc File Management	None	root	08/28/2019 11:36:35	08/28/2019 11:36:35	Completed successfully	08/28/2019 11:36:35

Theo dõi Event

The screenshot shows the VMware ESXi interface with the 'Monitor' section selected. In the left sidebar, 'Host' and 'Monitor' are expanded, showing 'Virtual Machines' (2), 'Storage' (2), and 'Networking' (1). The main window displays the 'localhost.localdomain - Monitor' screen with the 'Events' tab active. The interface includes navigation buttons ('Previous page', 'Next page'), a search bar, and a table for event logs. The table columns are 'Event', 'Time', 'Type', and 'Target'. The log entries show three info-level events related to user logins and VIB installations.

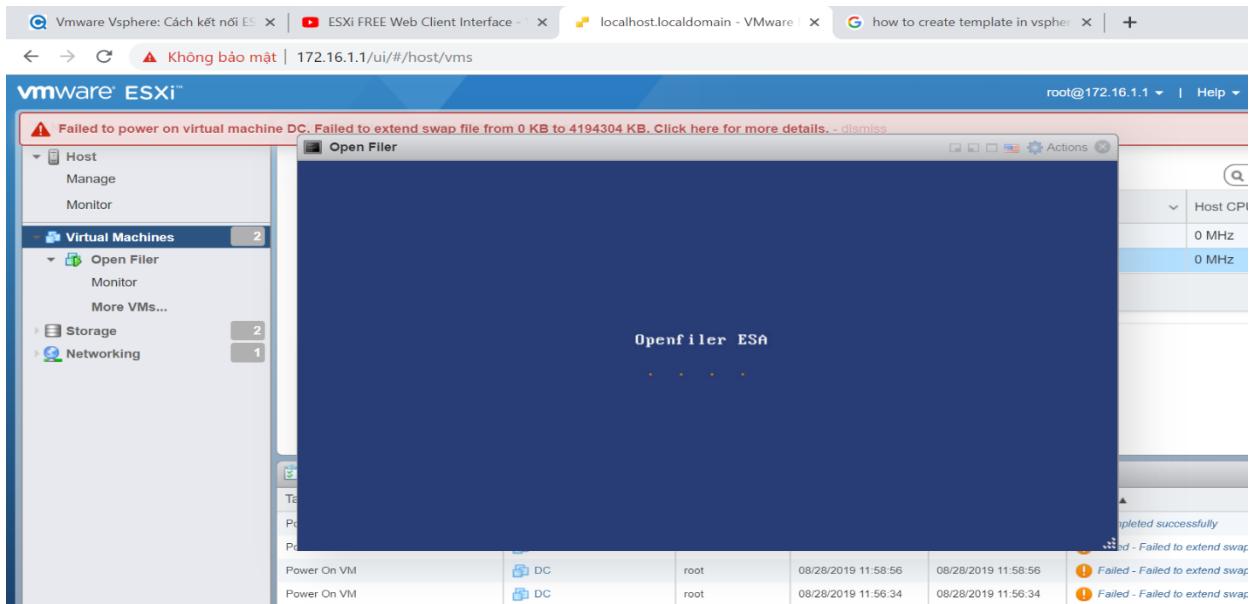
Event	Time	Type	Target
User root@172.16.1.2 logged in as Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/5...	Wednesday, August 28, 20...	Info	None
User root@127.0.0.1 logged out (login time: Wednesday, 28 August, 2019 04:42:08, number of...	Wednesday, August 28, 20...	Info	None
Successfully installed 1 VIB(s), removed 0 VIB(s). Please use 'esxcli software profile get' or se...	Wednesday, August 28, 20...	Info	None

Theo dõi Log

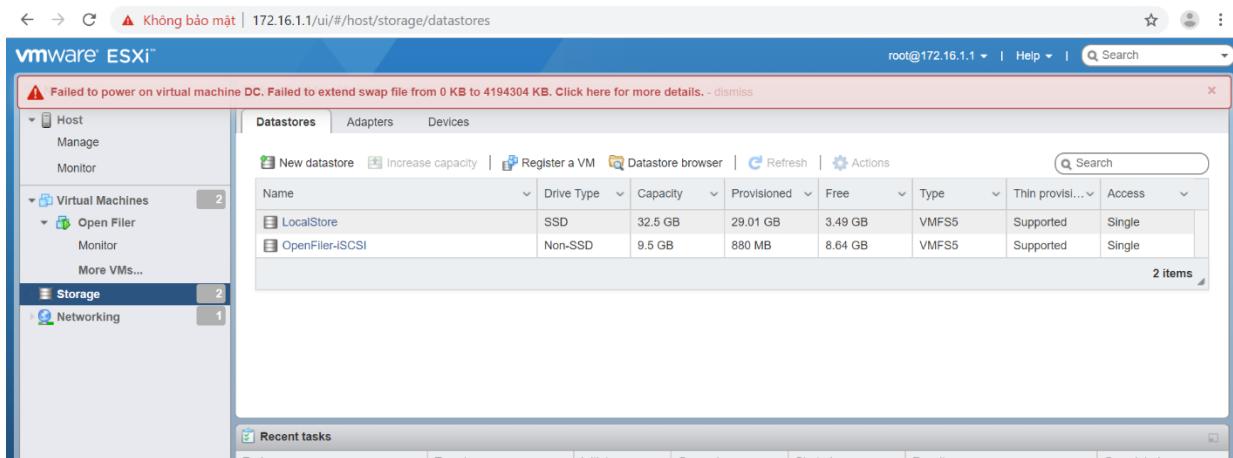
The screenshot shows the VMware ESXi interface with the 'Monitor' section selected. In the left sidebar, 'Host' and 'Monitor' are expanded, showing 'Virtual Machines' (2), 'Storage' (2), and 'Networking' (1). The main window displays the 'localhost.localdomain - Monitor' screen with the 'Logs' tab active. The interface includes a 'Generate support bundle' button, a search bar, and a table for log files. The table columns are 'Log' and 'Description'. The log files listed are /var/log/vpxa.log (vCenter agent log), /var/log/vobd.log (VMware observer daemon log), /var/log/vmkwarning.log (VMkernel warnings log), and /var/log/vmkeventd.log (VMkernel event daemon log). Below the table, a message says 'No log selected'.

Log	Description
/var/log/vpxa.log	vCenter agent log
/var/log/vobd.log	VMware observer daemon log
/var/log/vmkwarning.log	VMkernel warnings log
/var/log/vmkeventd.log	VMkernel event daemon log

Thử mở máy Openfiler



Quản lý Storage



Quản lý Networking

The screenshot shows the VMware ESXi host interface. In the left sidebar, under the 'Networking' section, there is a warning message: 'Failed to power on virtual machine DC. Failed to extend swap file from 0 KB to 4194304 KB. Click here for more details.' Below this, the 'Port groups' section lists three entries:

Name	Active ports	VLAN ID	Type	vSwitch	VMs
VM Network	1	0	Standard port group	vSwitch0	2
iSCSI	1	0	Standard port group	vSwitch0	N/A
Management Network	1	0	Standard port group	vSwitch0	N/A

Below the port groups, the 'Recent tasks' section shows the following history:

Task	Target	Initiator	Queued	Started	Result	Completed
Power Off VM	Open Filer	root	08/28/2019 11:59:37	08/28/2019 11:59:37	Completed successfully	08/28/2019 11:59:
Power On VM	DC	root	08/28/2019 11:59:08	08/28/2019 11:59:08	Failed - Failed to extend swap file ...	08/28/2019 11:59:
Power On VM	DC	root	08/28/2019 11:58:56	08/28/2019 11:58:56	Failed - Failed to extend swap file ...	08/28/2019 11:58:
Power On VM	DC	root	08/28/2019 11:56:34	08/28/2019 11:56:34	Failed - Failed to extend swap file ...	08/28/2019 11:56:
Refresh Services	localhost.localdomain	root	08/28/2019 11:55:39	08/28/2019 11:55:39	Completed successfully	08/28/2019 11:55:
Refresh Services	localhost.localdomain	root	08/28/2019 11:53:33	08/28/2019 11:53:33	Completed successfully	08/28/2019 11:53:

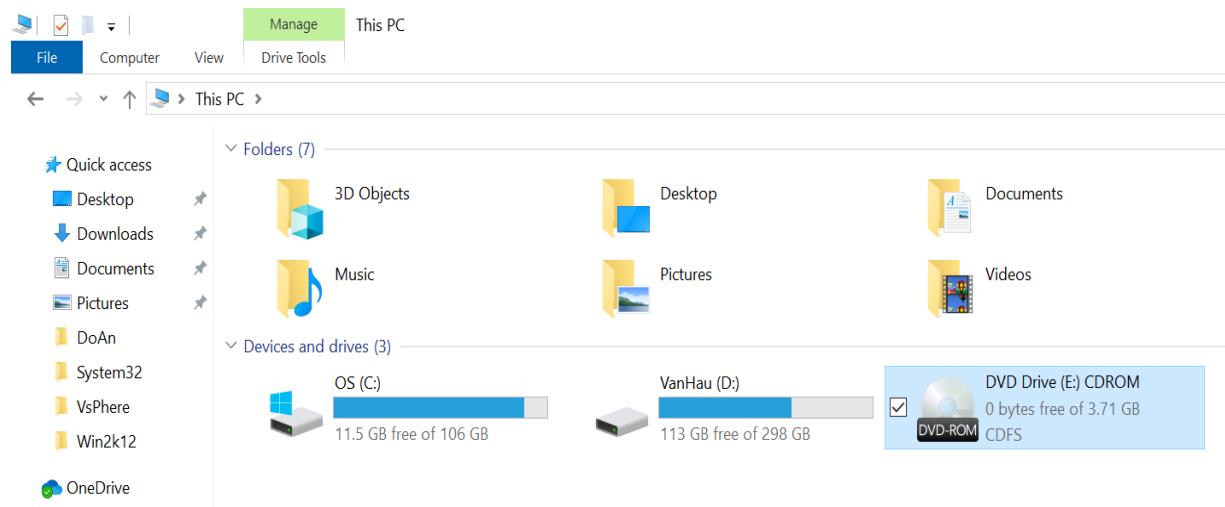
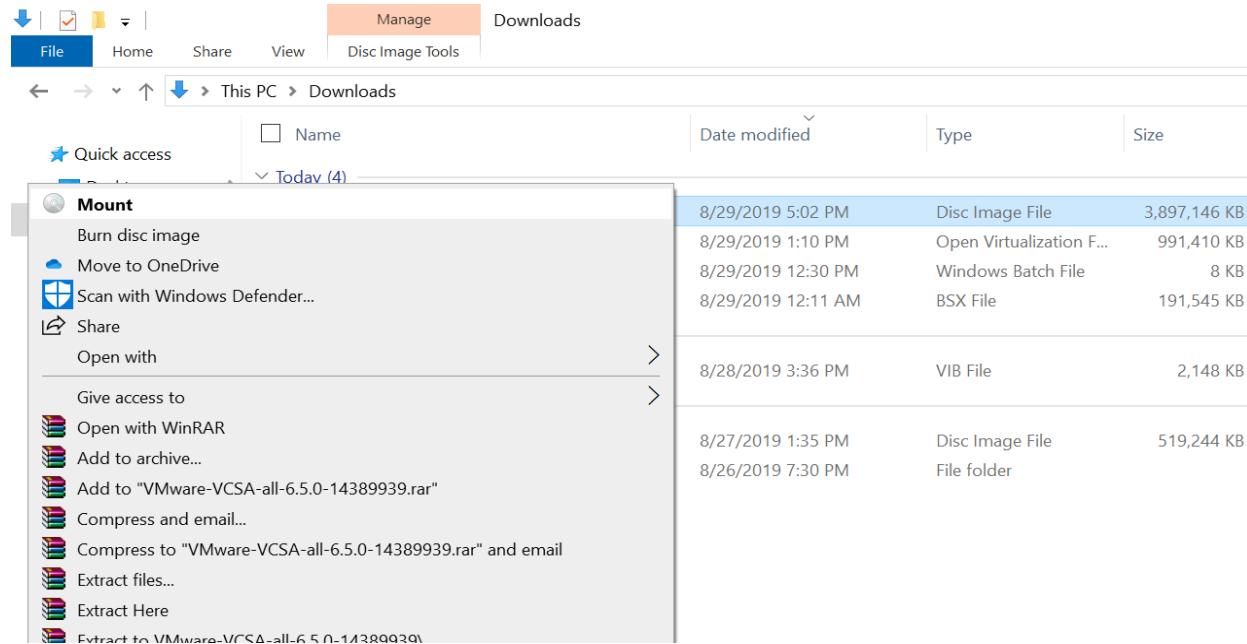
Cài đặt vCenter

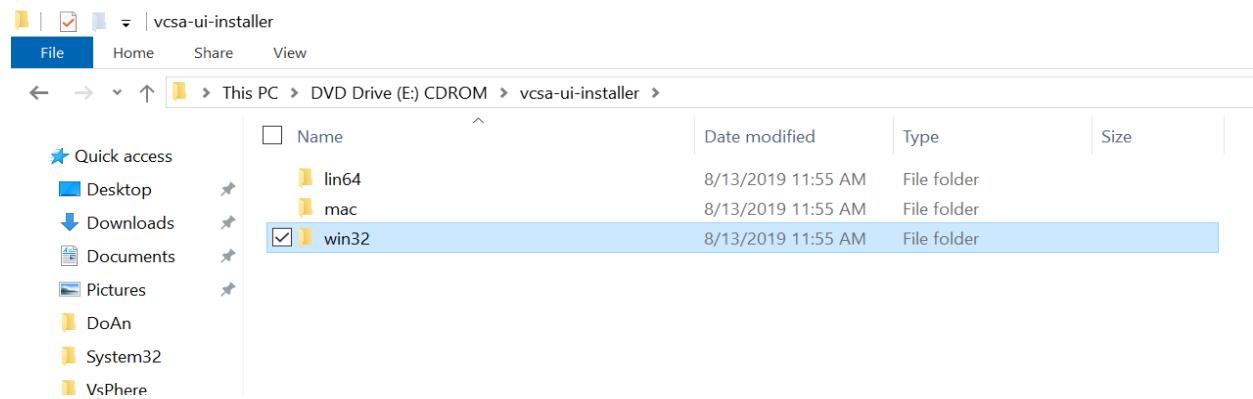
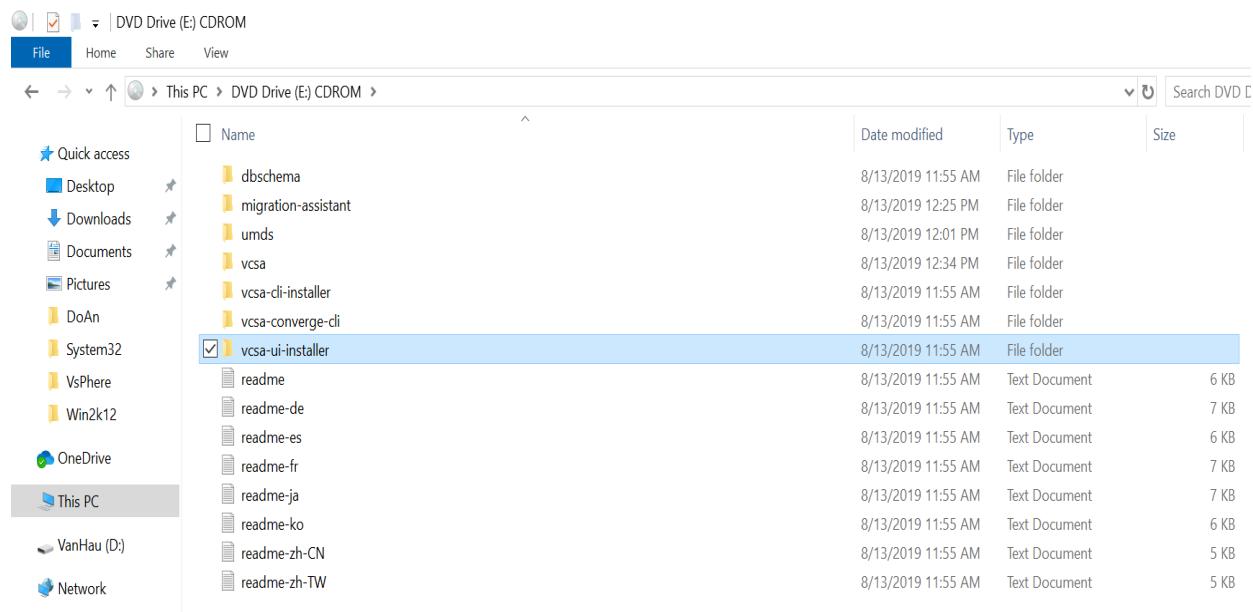
Chuẩn bị file iso

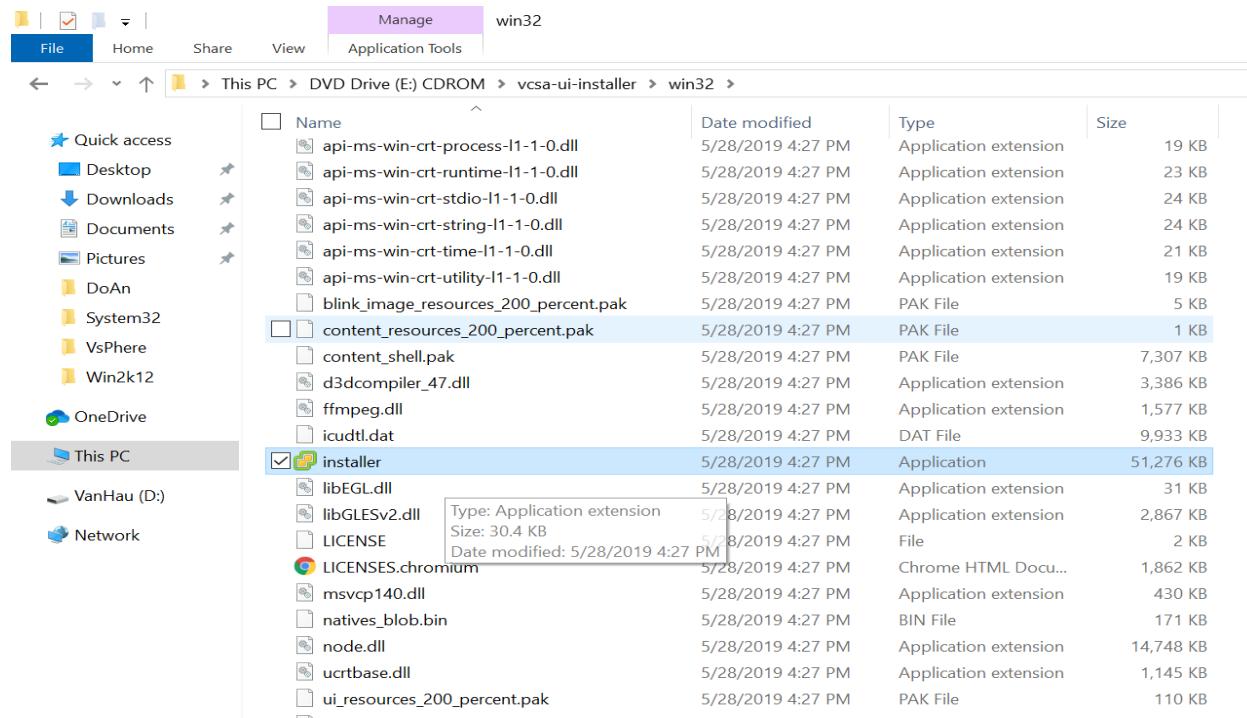
The screenshot shows a Windows File Explorer window with the 'Downloads' folder selected. The contents of the Downloads folder are listed in a table:

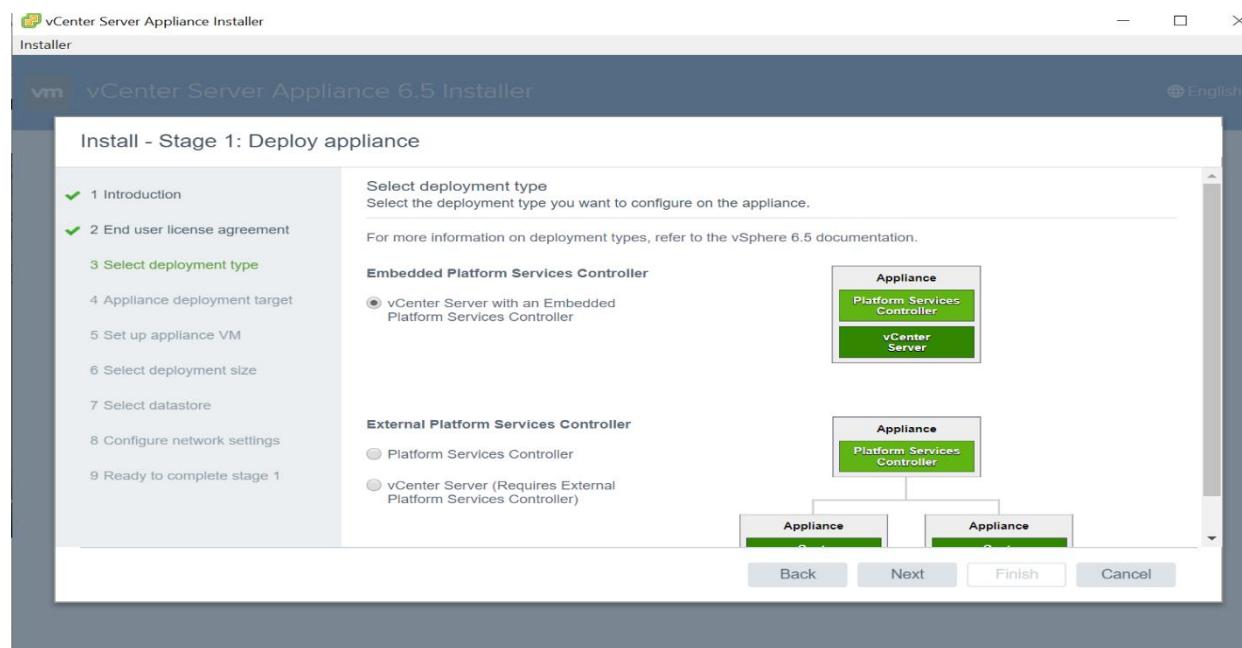
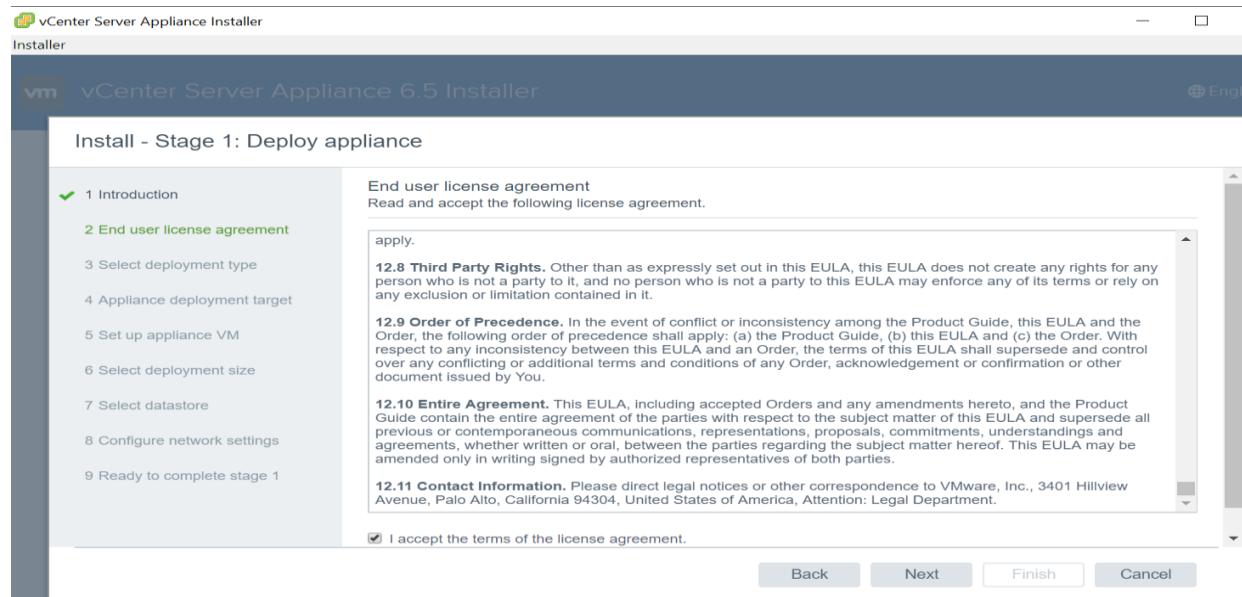
Name	Date modified	Type	Size
VMware-VCSA-all-6.5.0-14389939	8/29/2019 5:02 PM	Disc Image File	3,897,146 KB
h5ngcVA-4.2.0.0-13172979_OVF10	8/29/2019 1:10 PM	Open Virtualization F...	991,410 KB
server-configure	8/29/2019 12:30 PM	Windows Batch File	8 KB
installer-4.2.0.bsx	8/29/2019 12:11 AM	BSX File	191,545 KB
esxui-2976804.vib	8/28/2019 3:36 PM	VIB File	2,148 KB
openfileresa-2.99.1-x86_64-disc1	8/27/2019 1:35 PM	Disc Image File	519,244 KB
unkey43RC4-180714-win64	8/26/2019 7:30 PM	File folder	

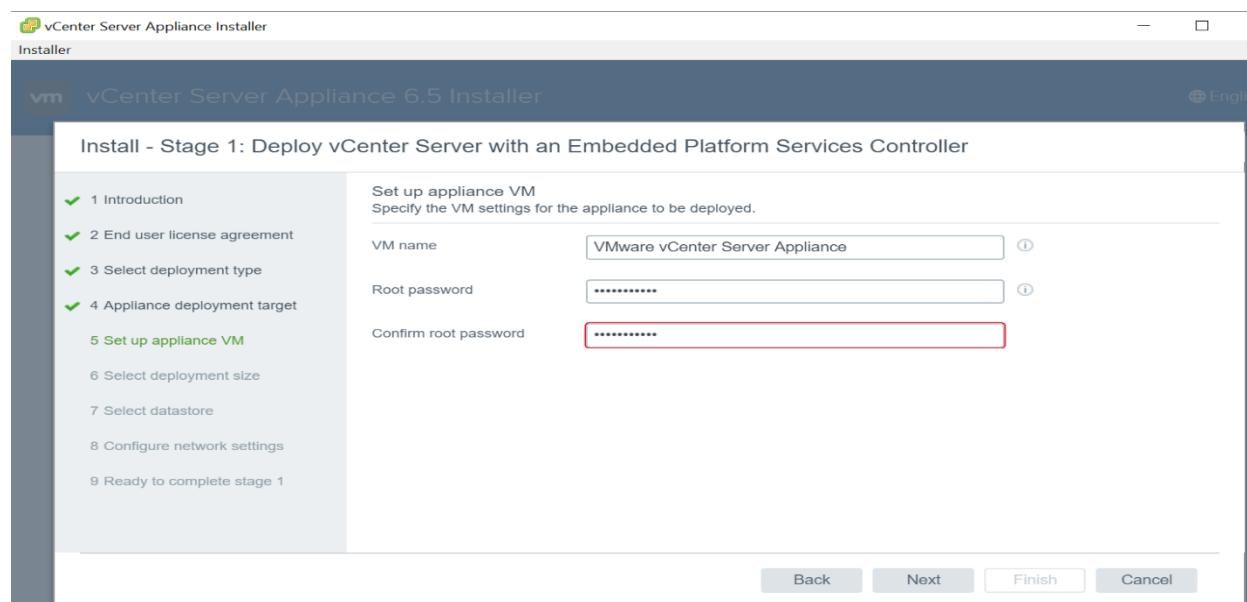
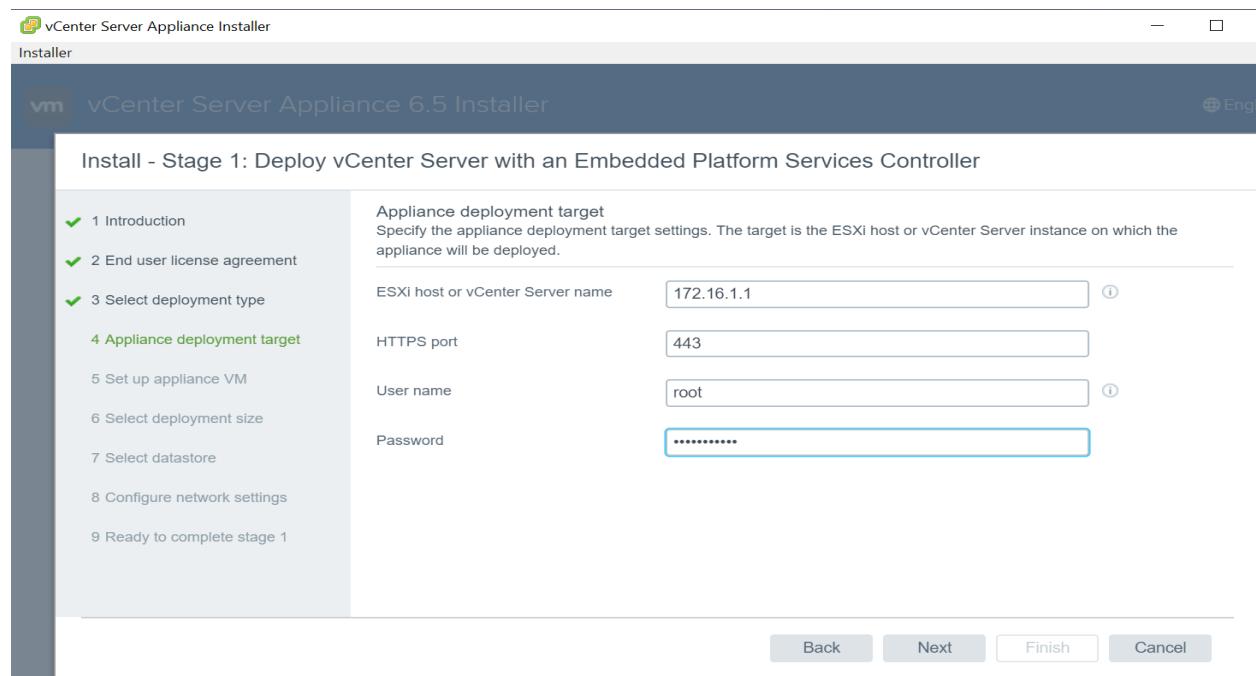
Tiến hành mount ổ đĩa

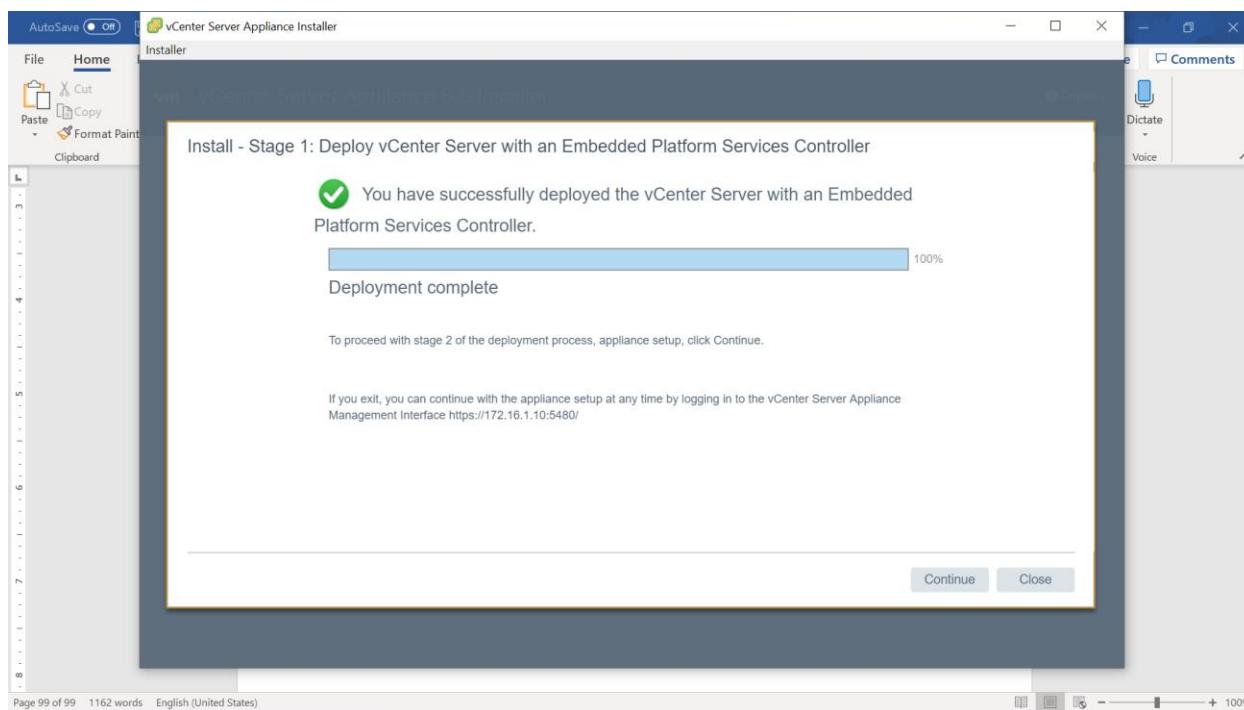
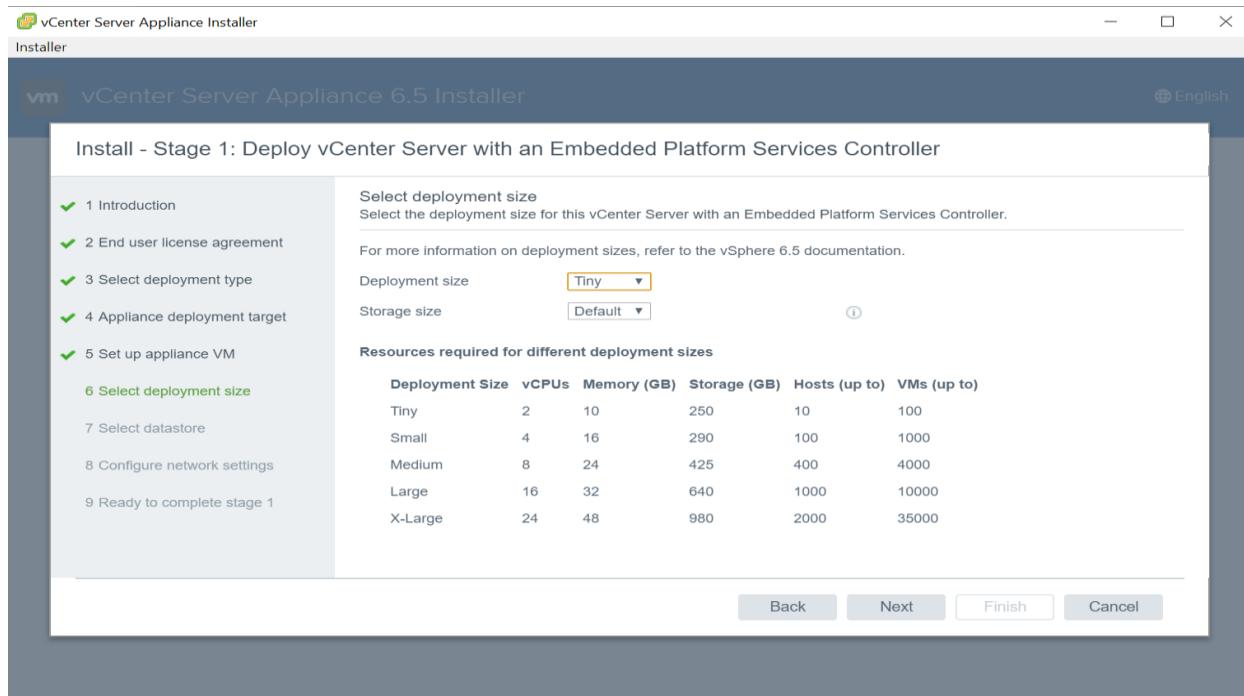


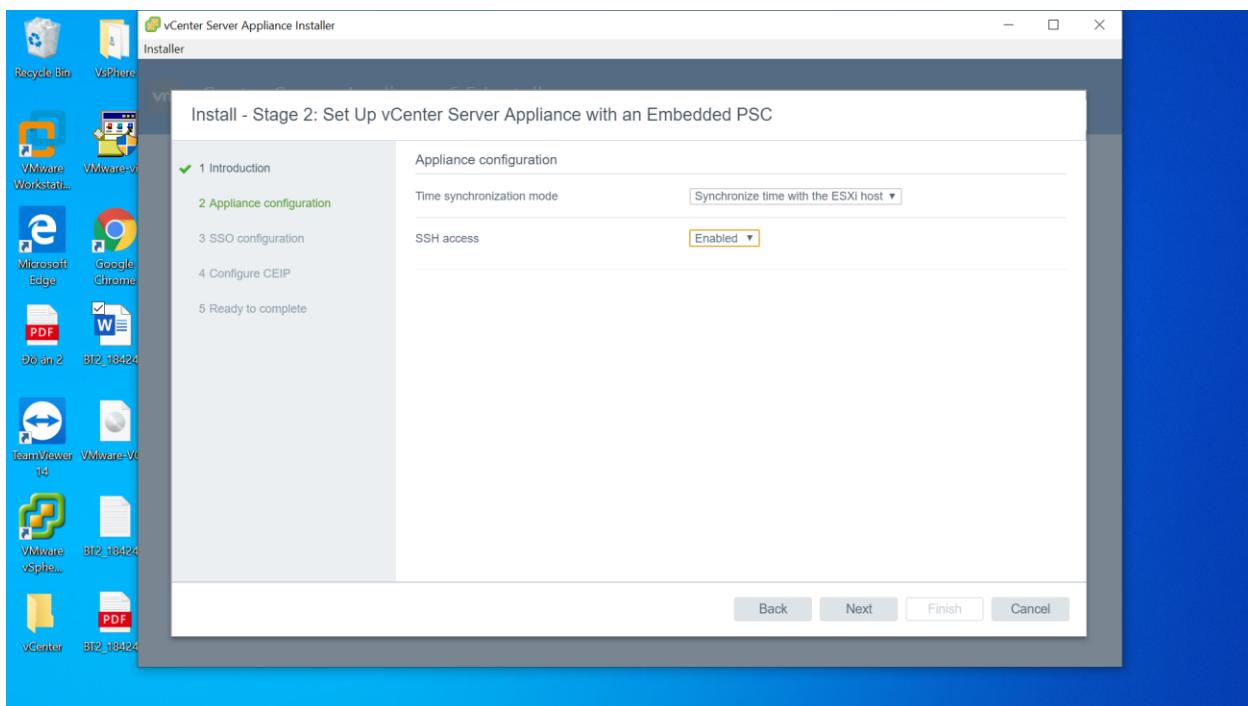
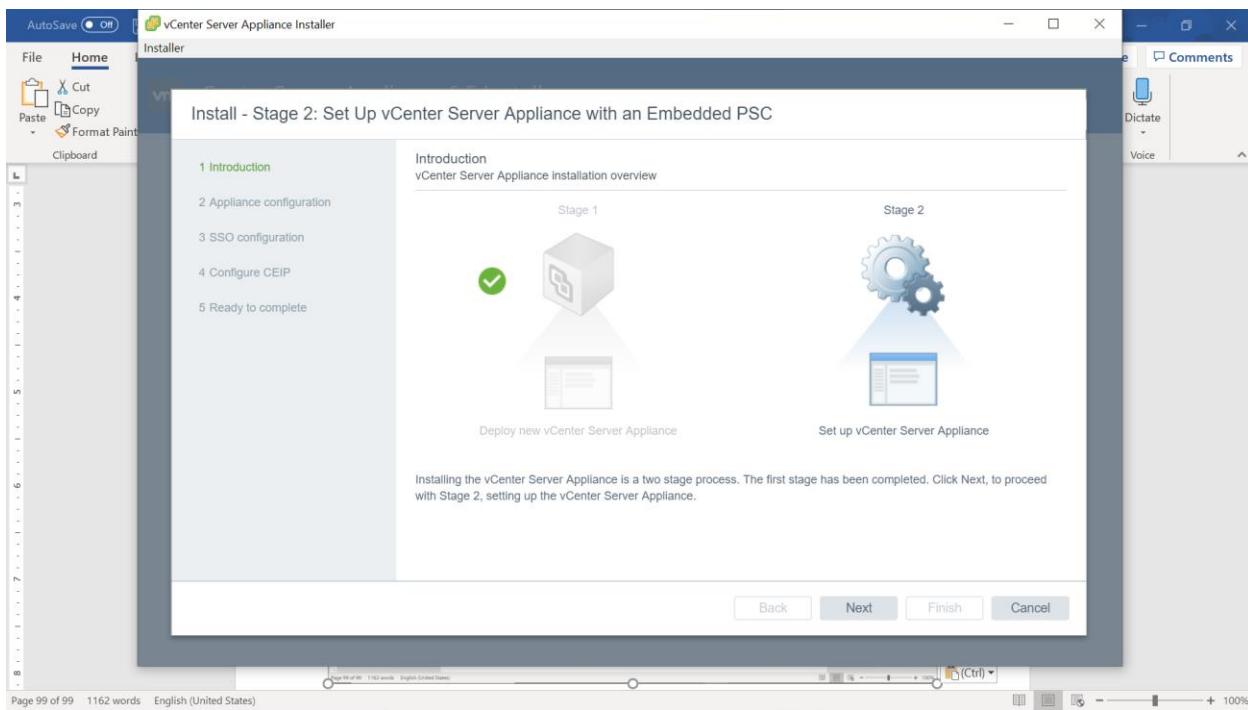


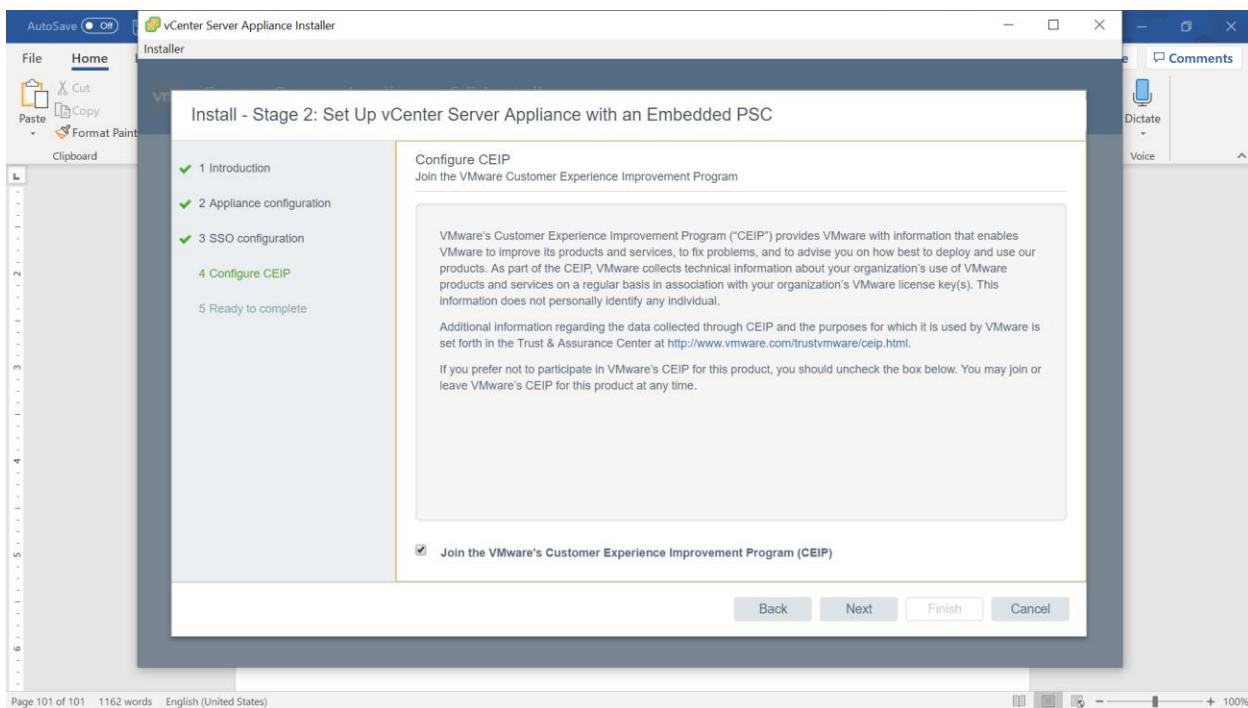
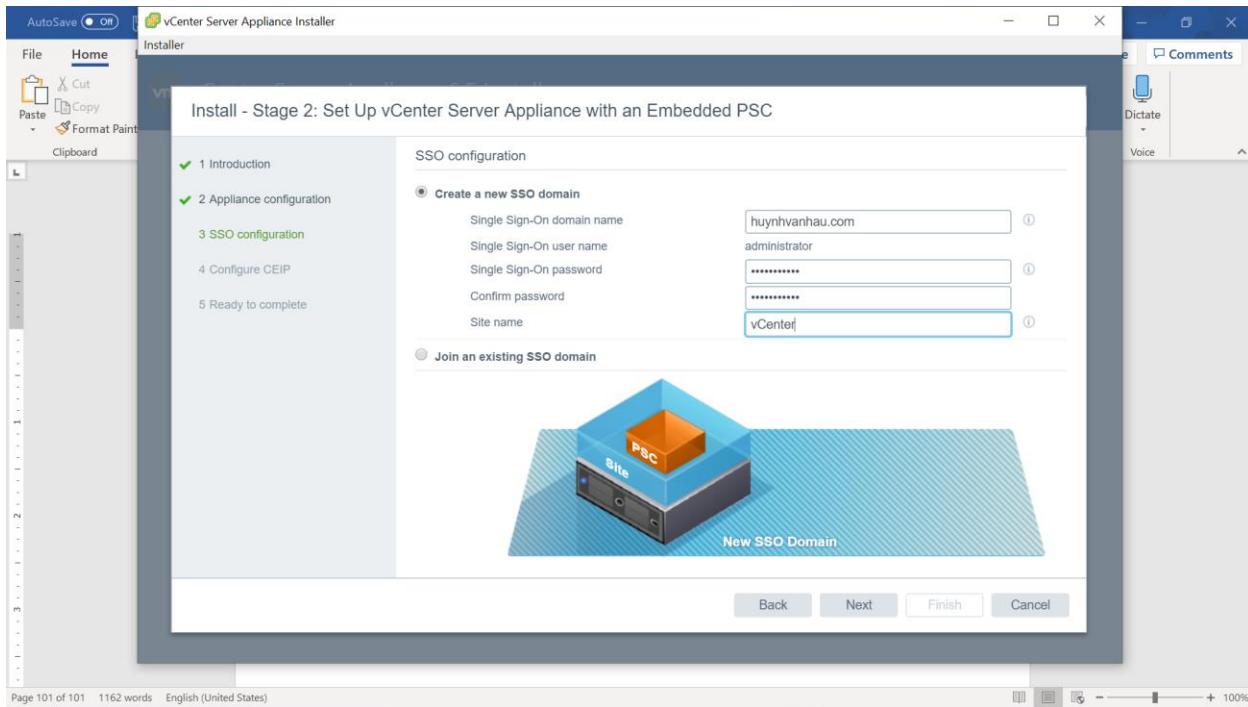


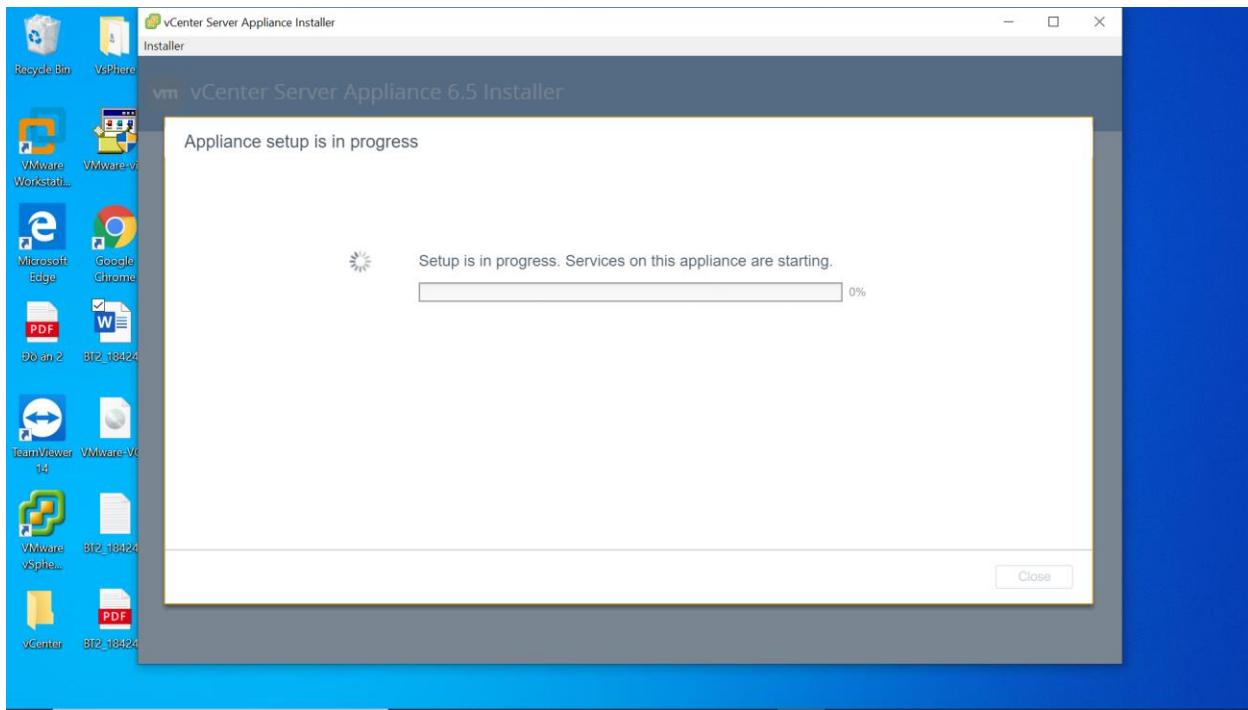
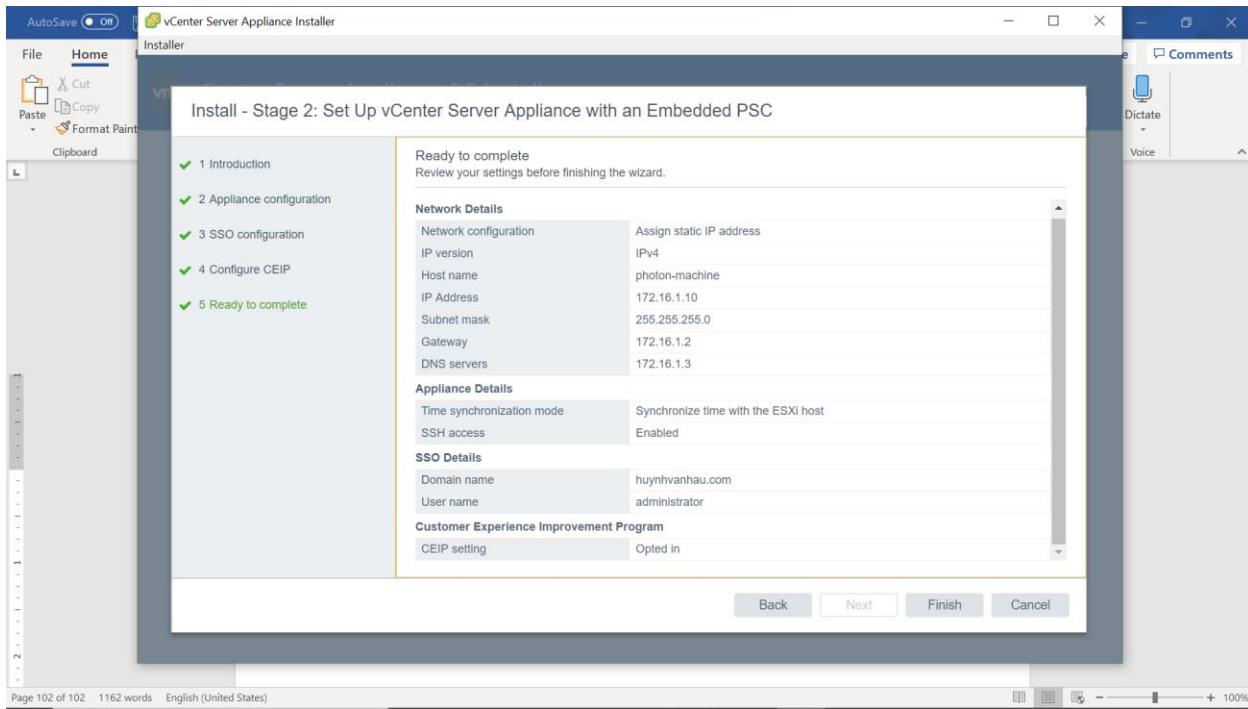


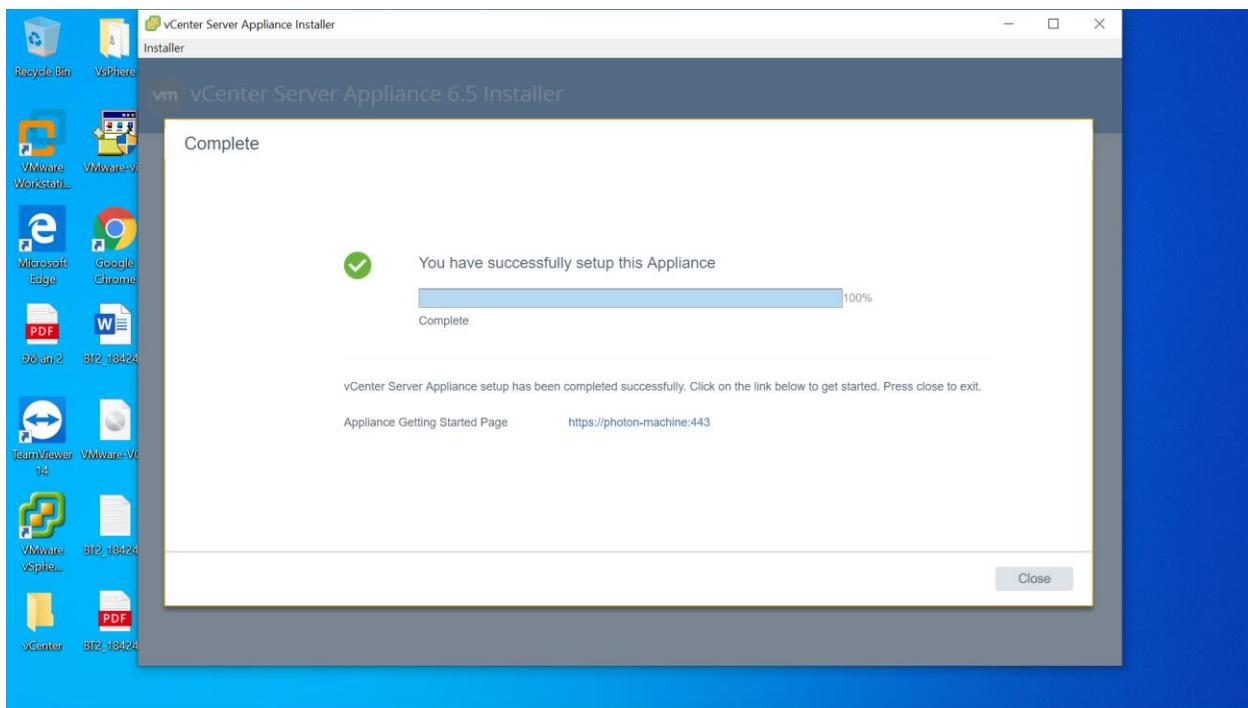












The screenshot shows the vSphere Client interface. The main window is titled "Open Filer - Summary". The left sidebar shows the vSphere inventory tree with nodes like "172.16.1.0", "Datacenter", "172.16.1", "DC", and "Open Filer". The main pane displays the following information for the "Open Filer" VM:

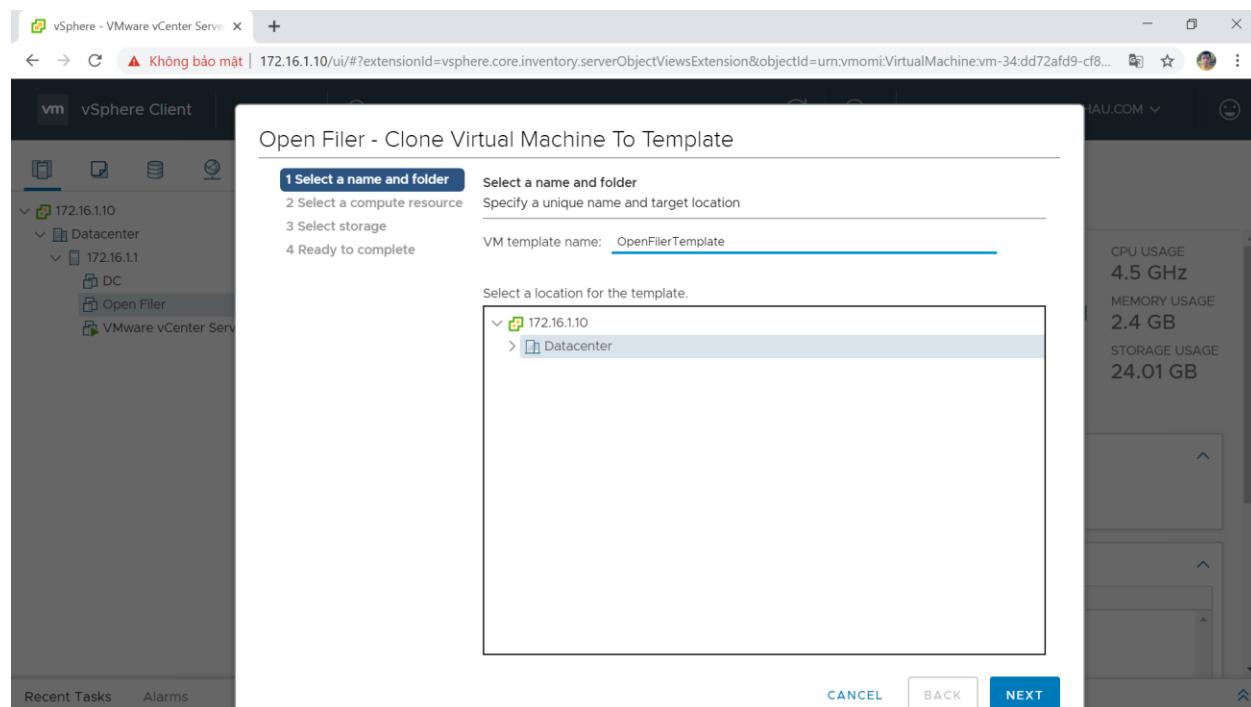
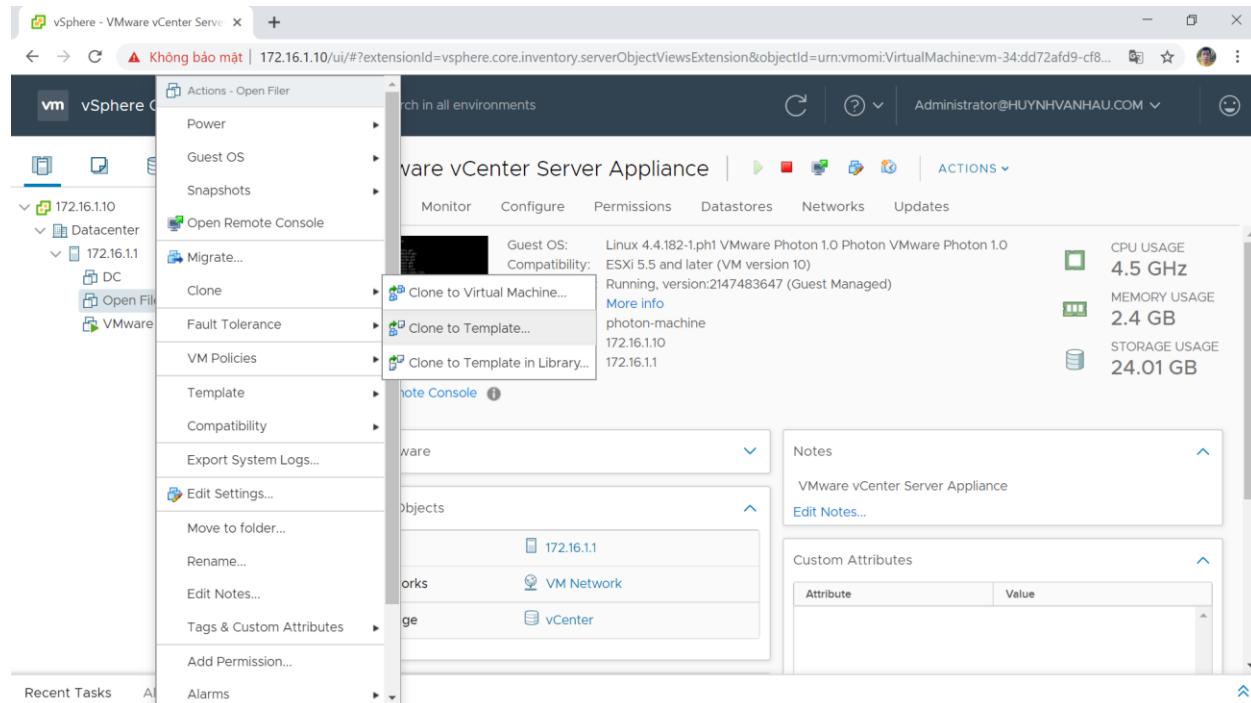
- Guest OS: CentOS 4/5/6/7 (64-bit)
- Compatibility: ESXi 6.0 and later (VM version 11)
- VMware Tools: Not running, not installed
- DNS Name: [More info](#)
- IP Addresses: [Edit](#)
- Host: 172.16.1.1

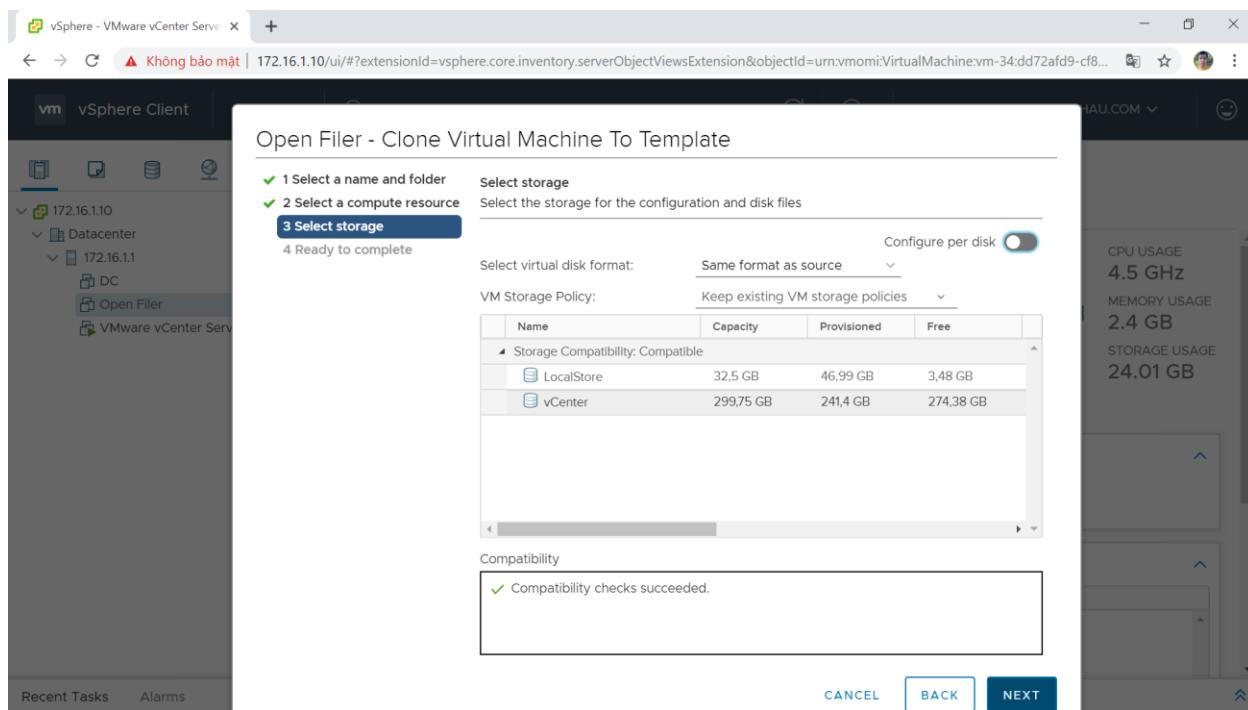
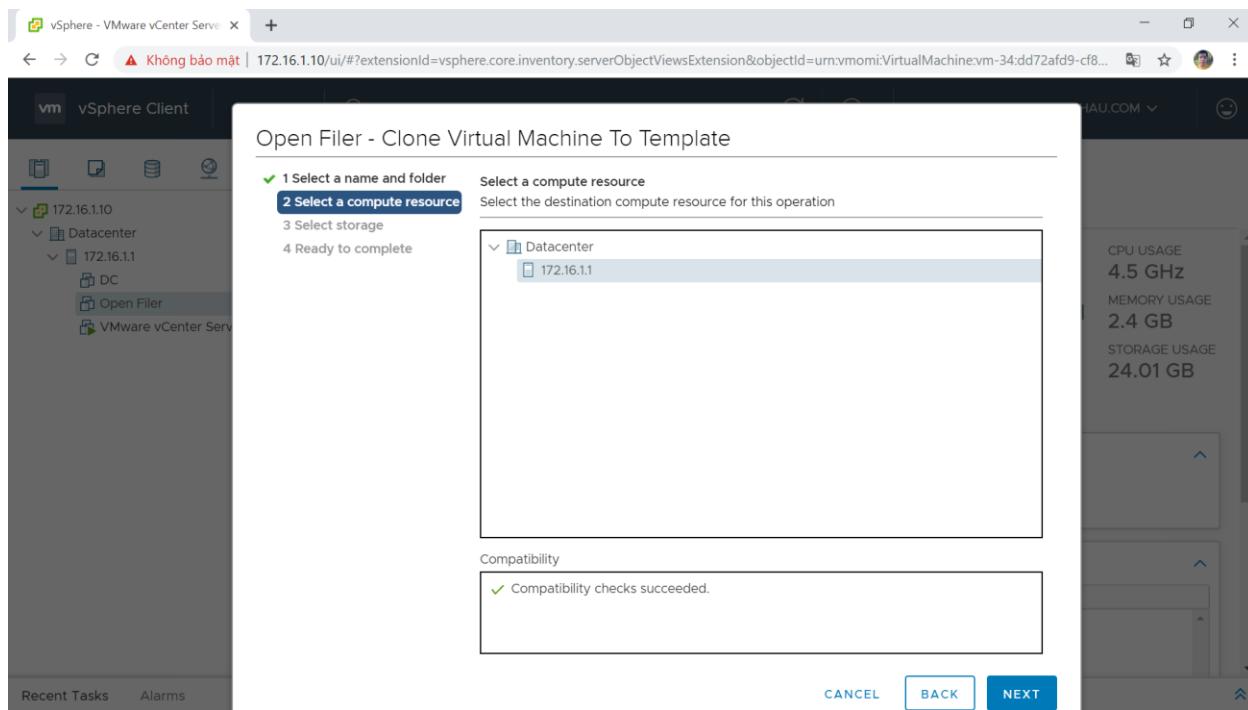
On the right side, there are performance metrics:

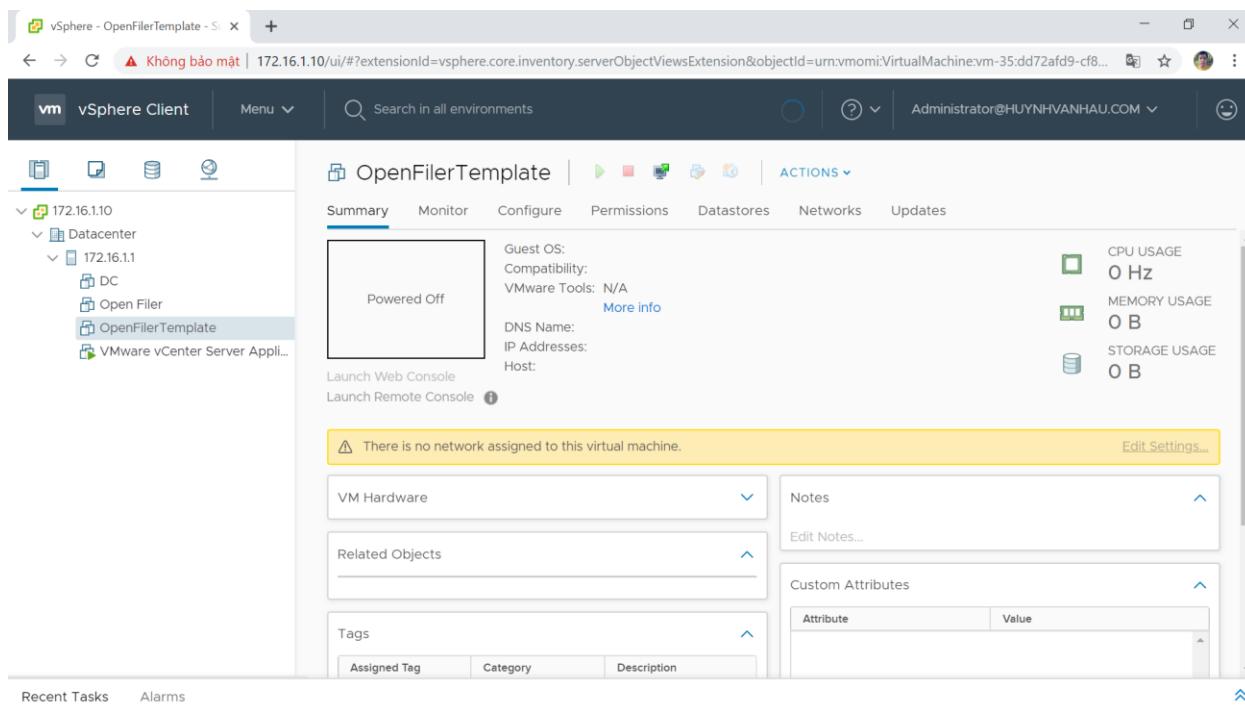
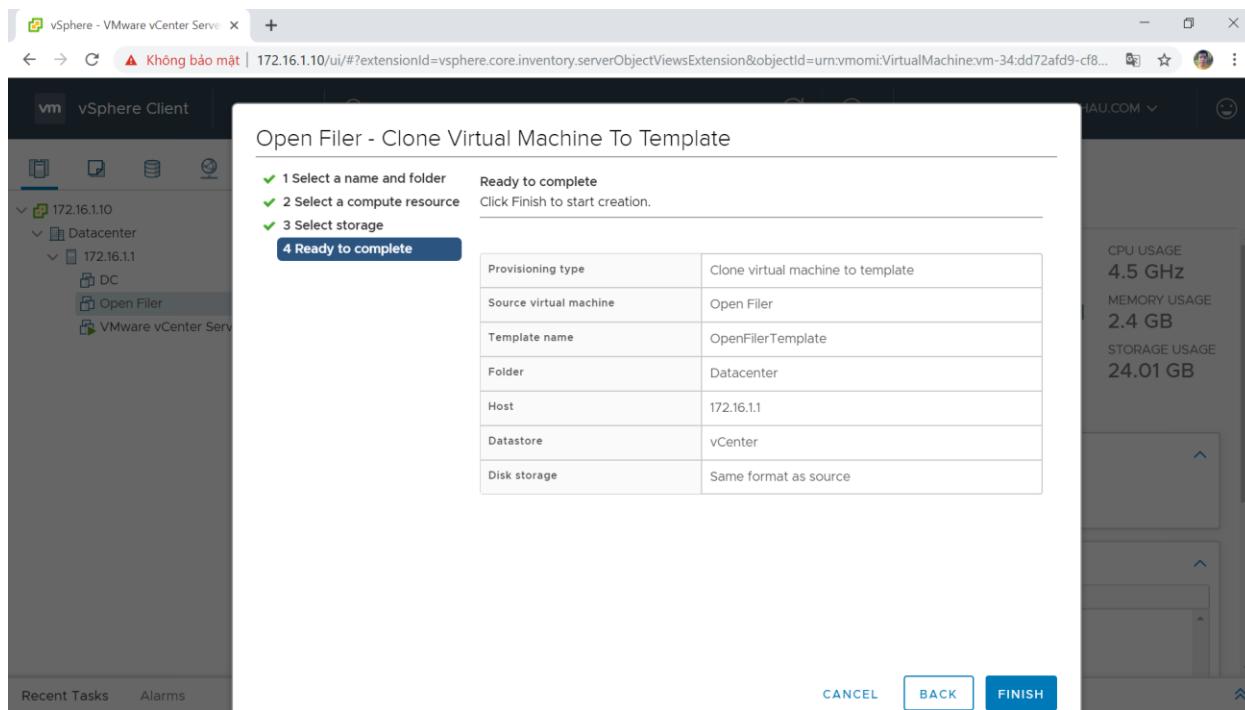
- CPU USAGE: 0 Hz
- MEMORY USAGE: 0 B
- STORAGE USAGE: 12.17 GB

The bottom navigation bar includes "Recent Tasks" and "Alarms".

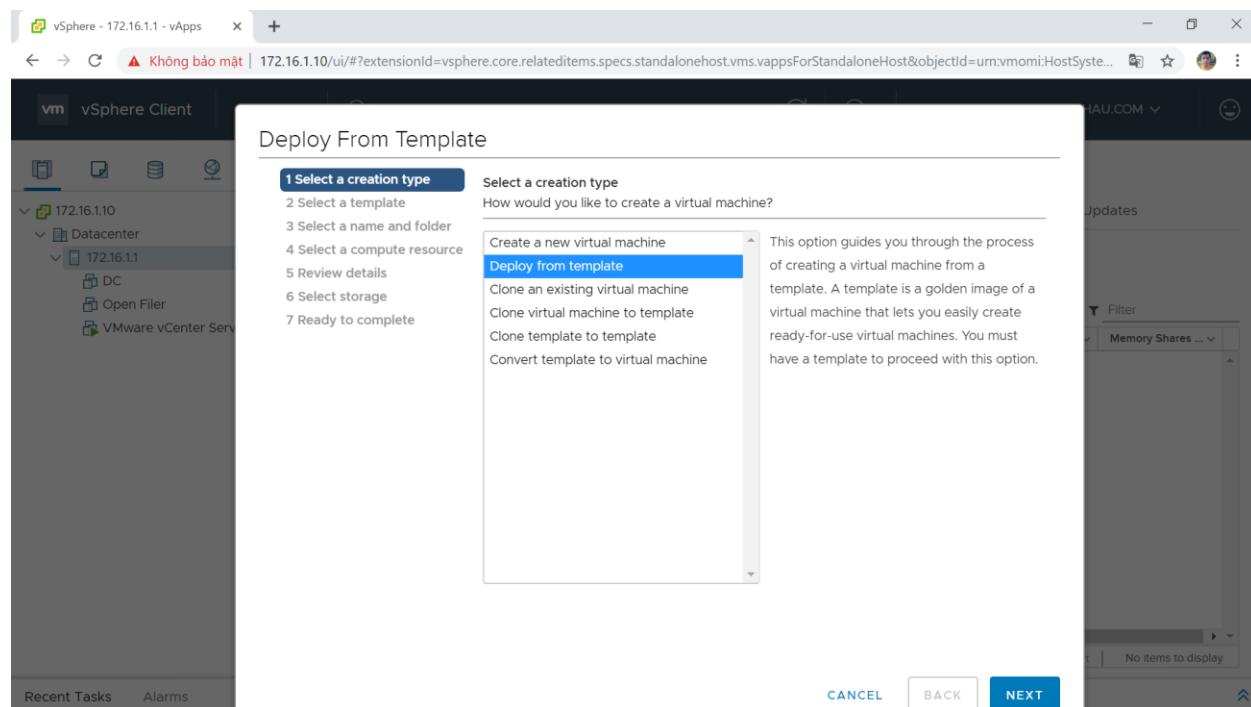
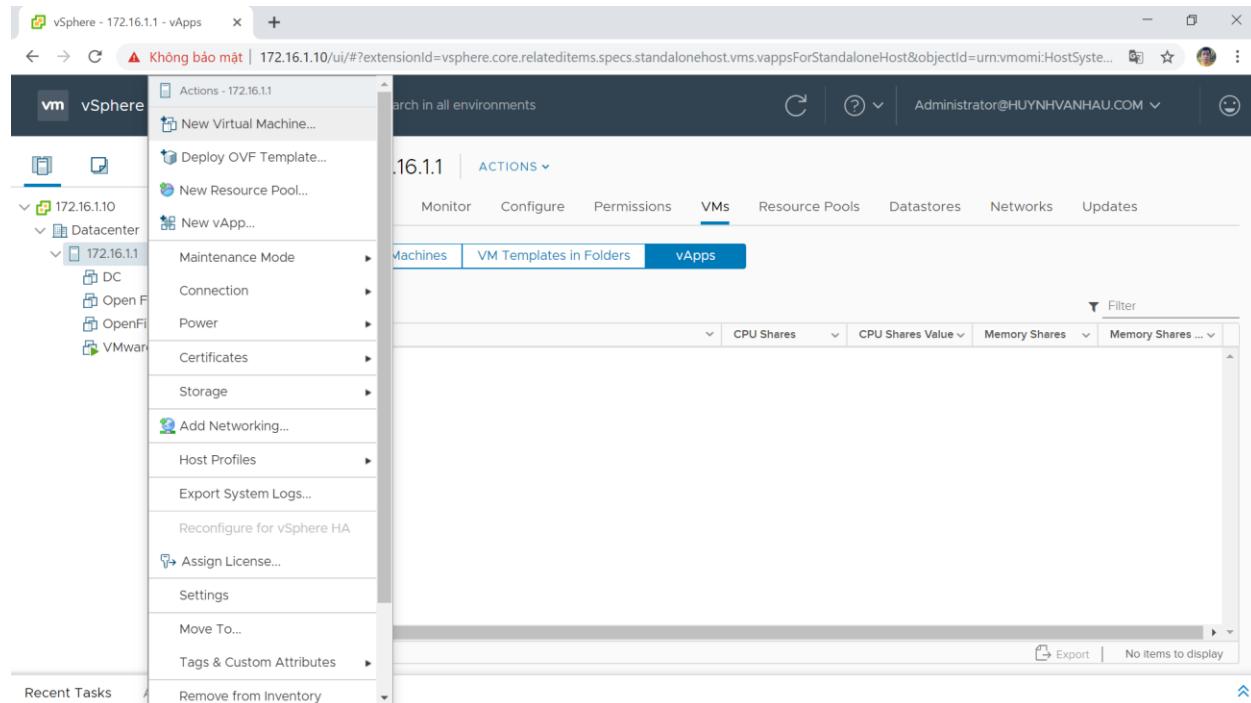
d. Tạo Template

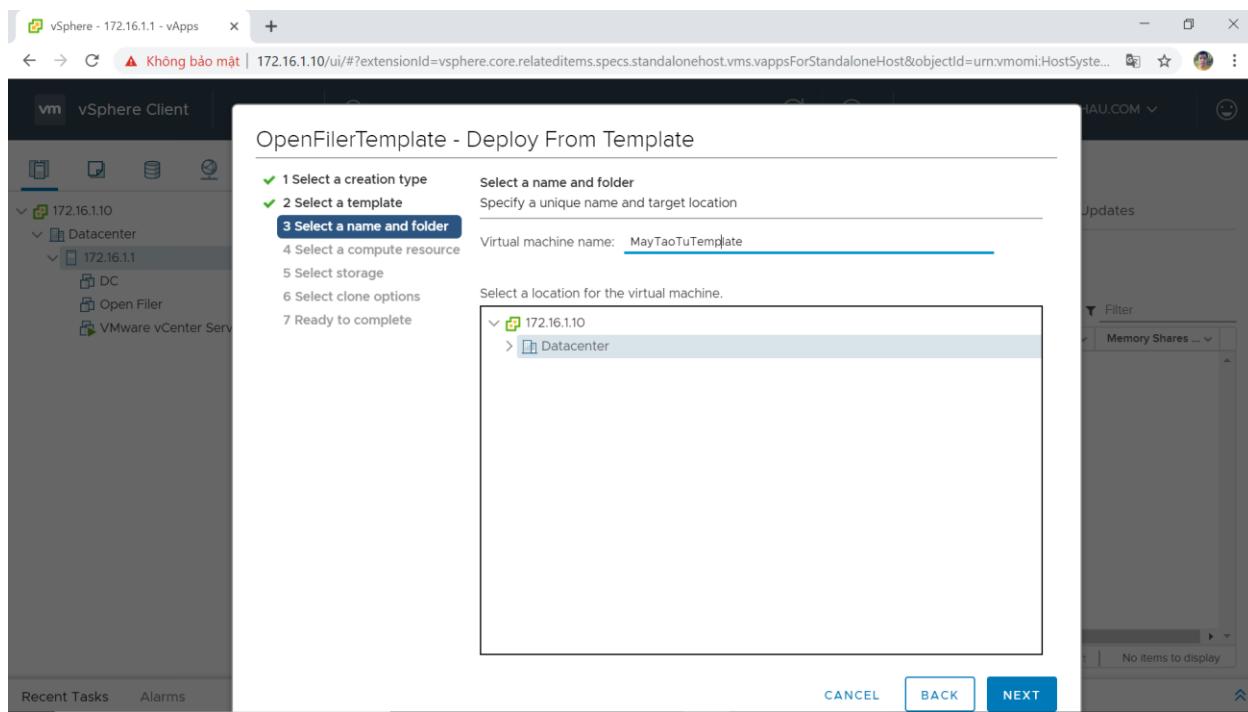
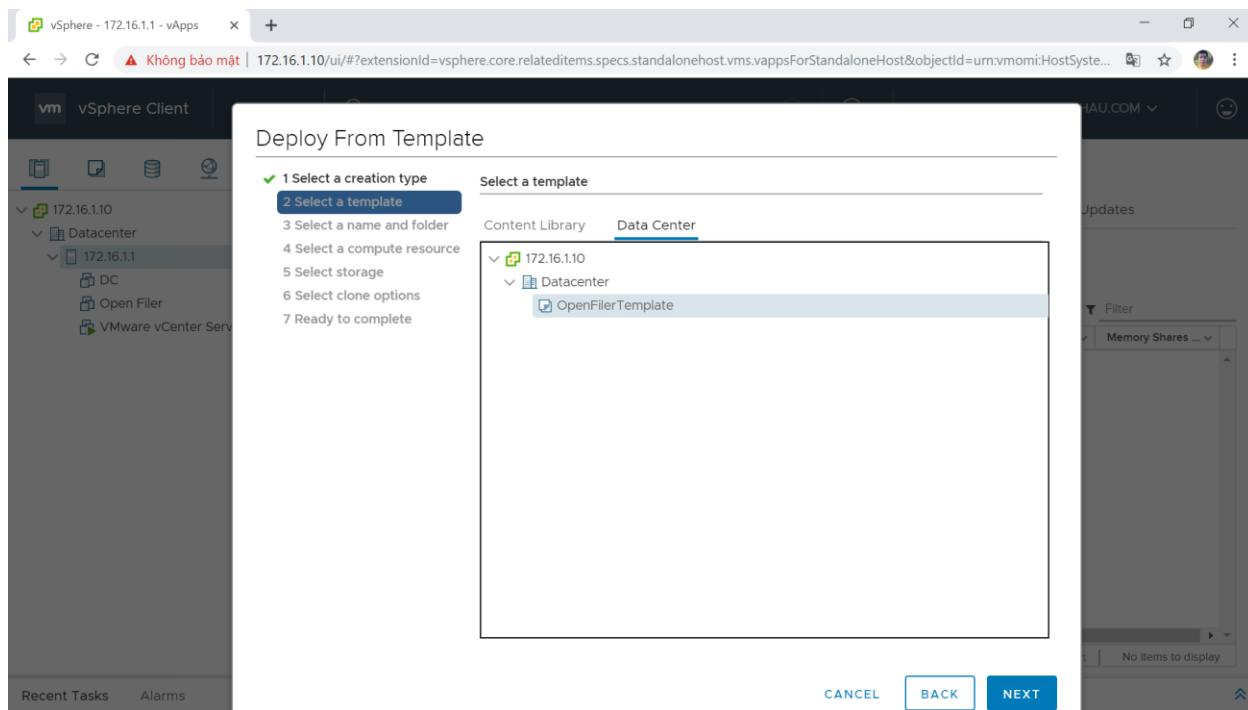


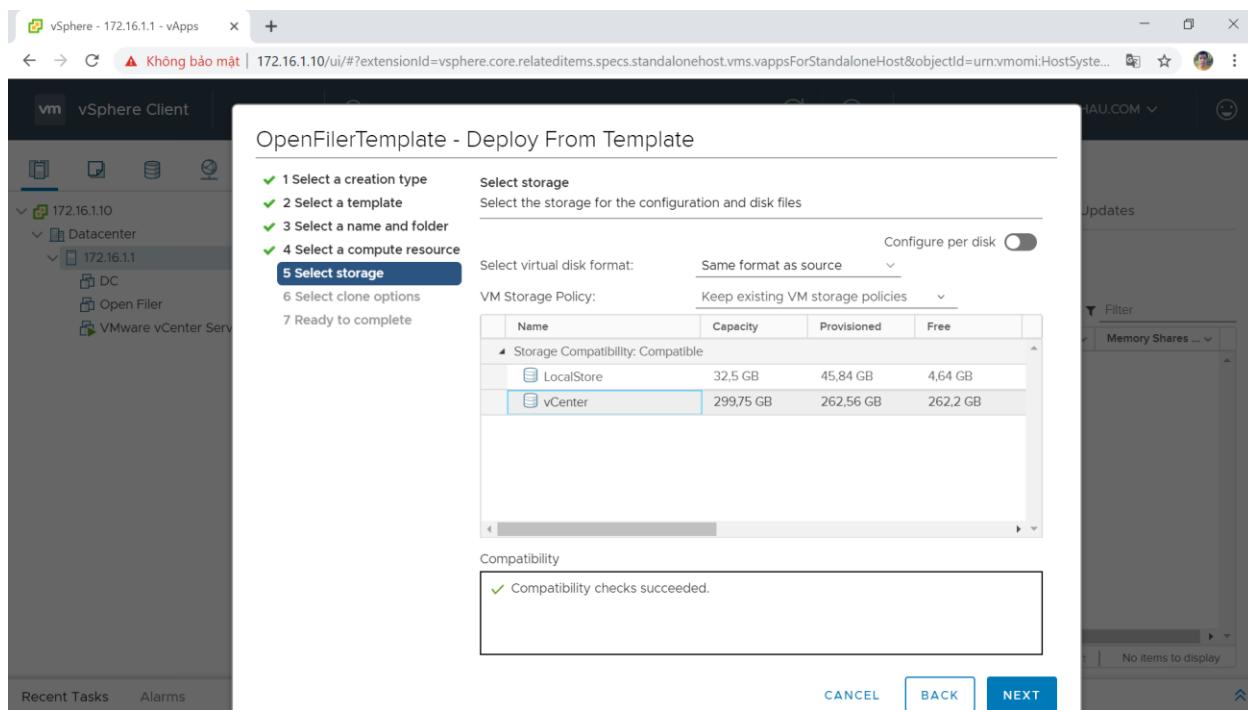
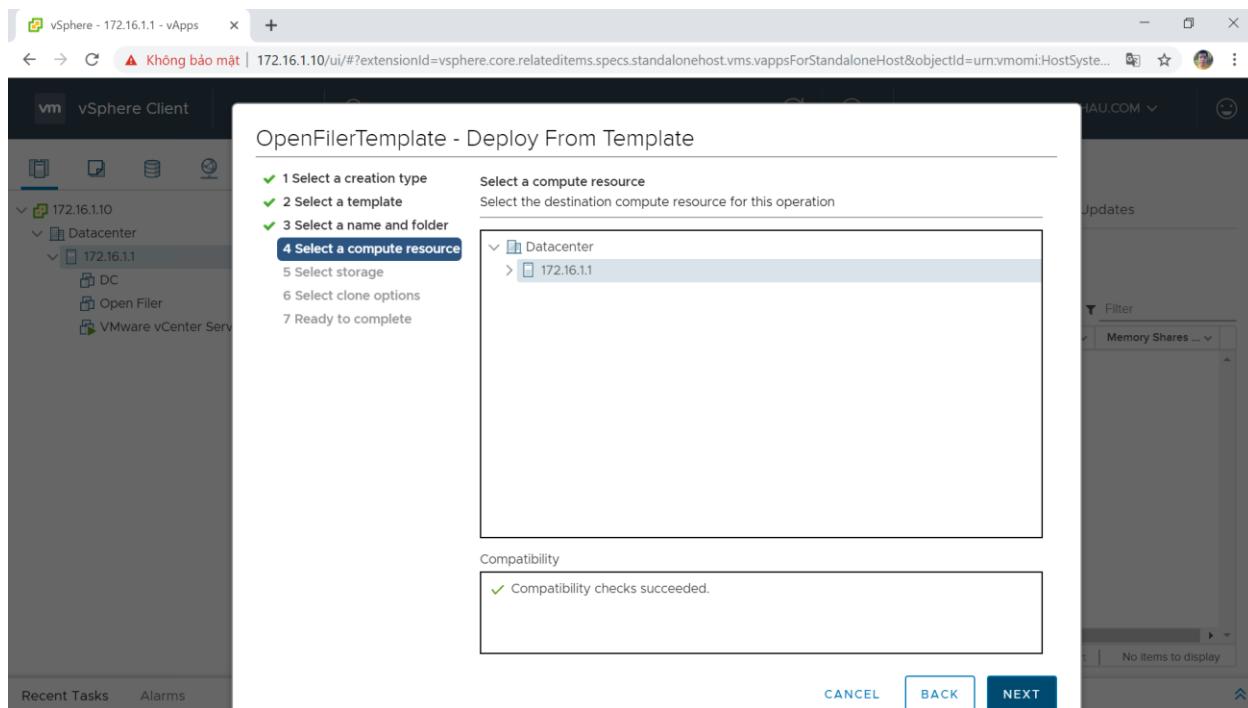


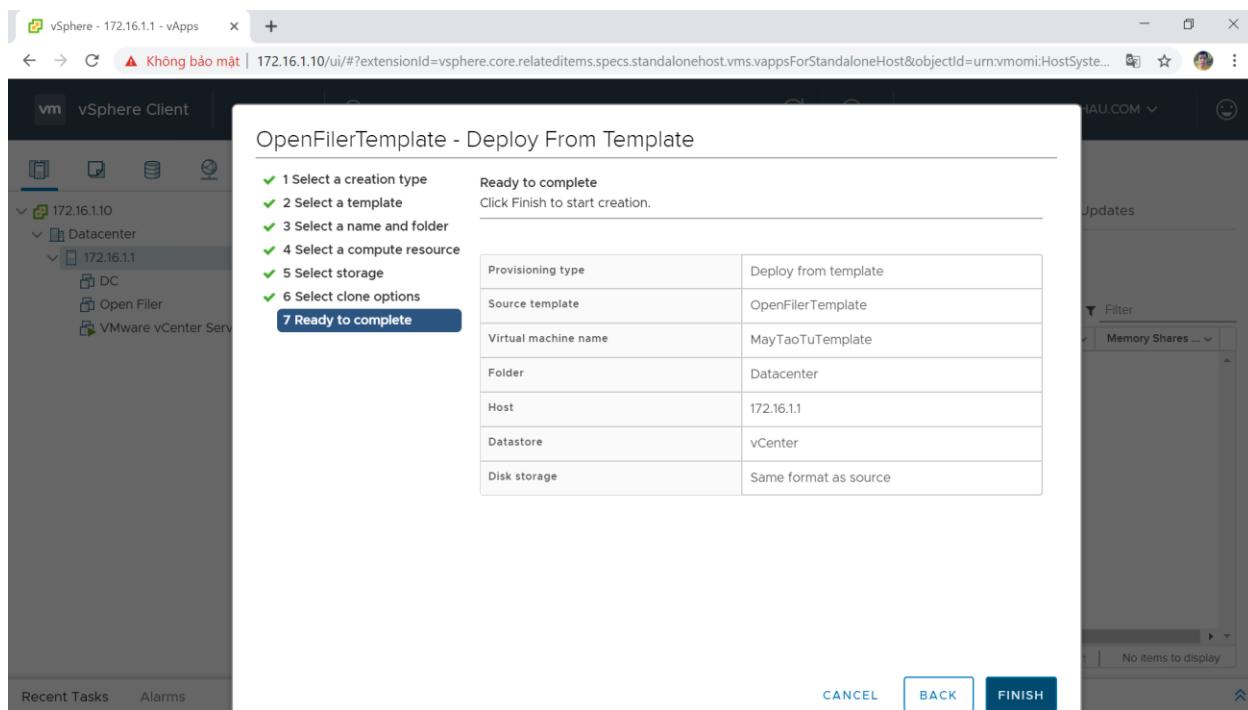
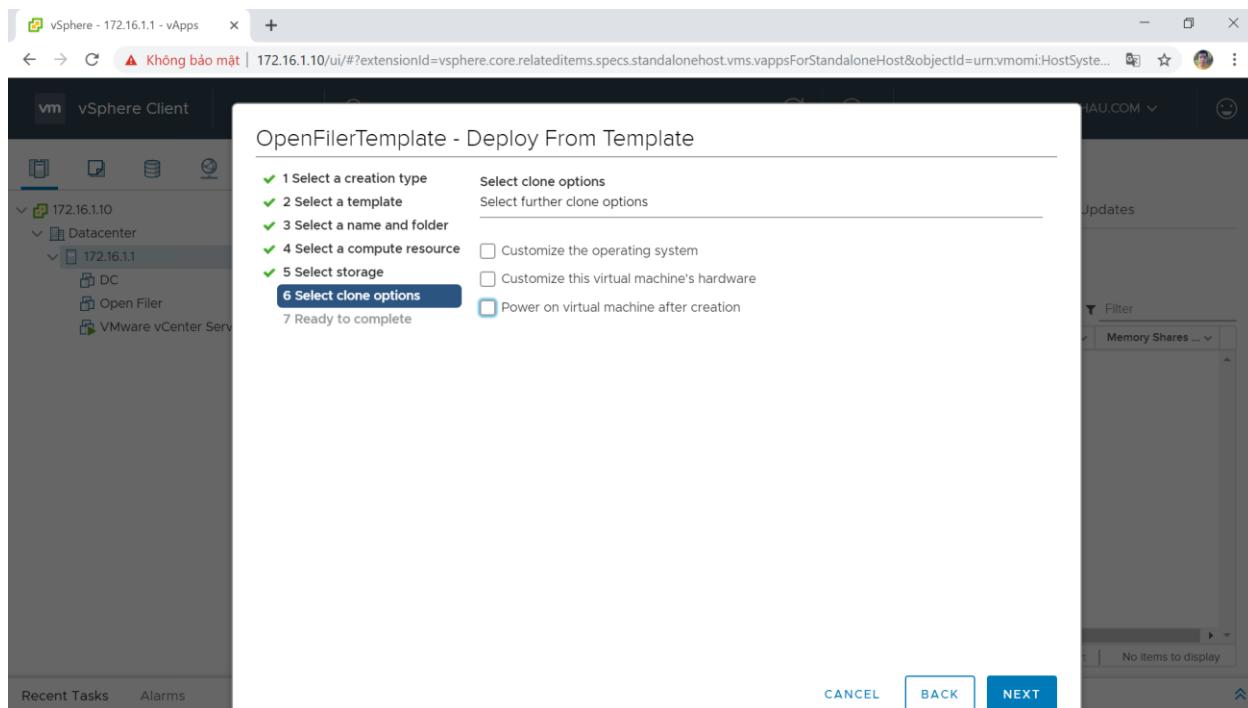


e.Tạo một máy ảo mới từ Template









The screenshot shows the vSphere Client interface. On the left, the navigation tree shows a Datacenter containing host 172.16.1.1, which has a folder named 'DC' and a template named 'MayTaoTuTemplate'. The main pane is titled '172.16.1.1' and shows the 'vApps' tab selected. A table lists vApps, with 'MayTaoTuTemplate' highlighted. The terminal window below shows the Openfiler ESA login screen:

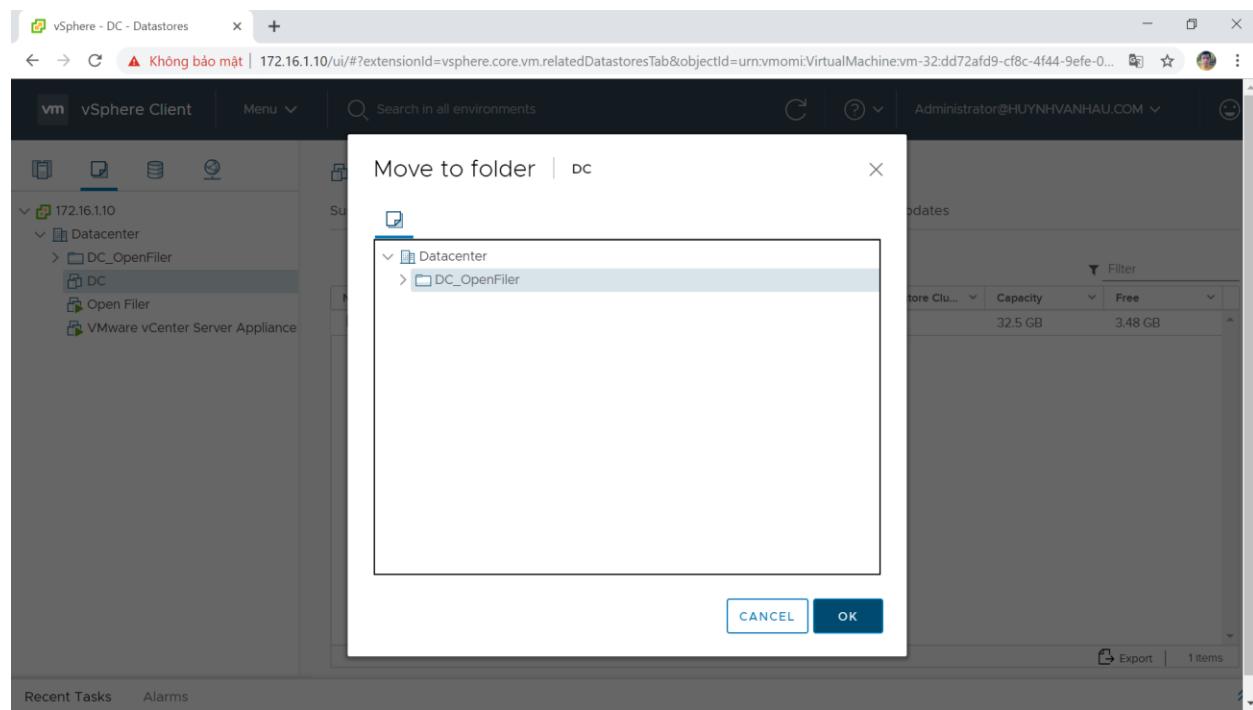
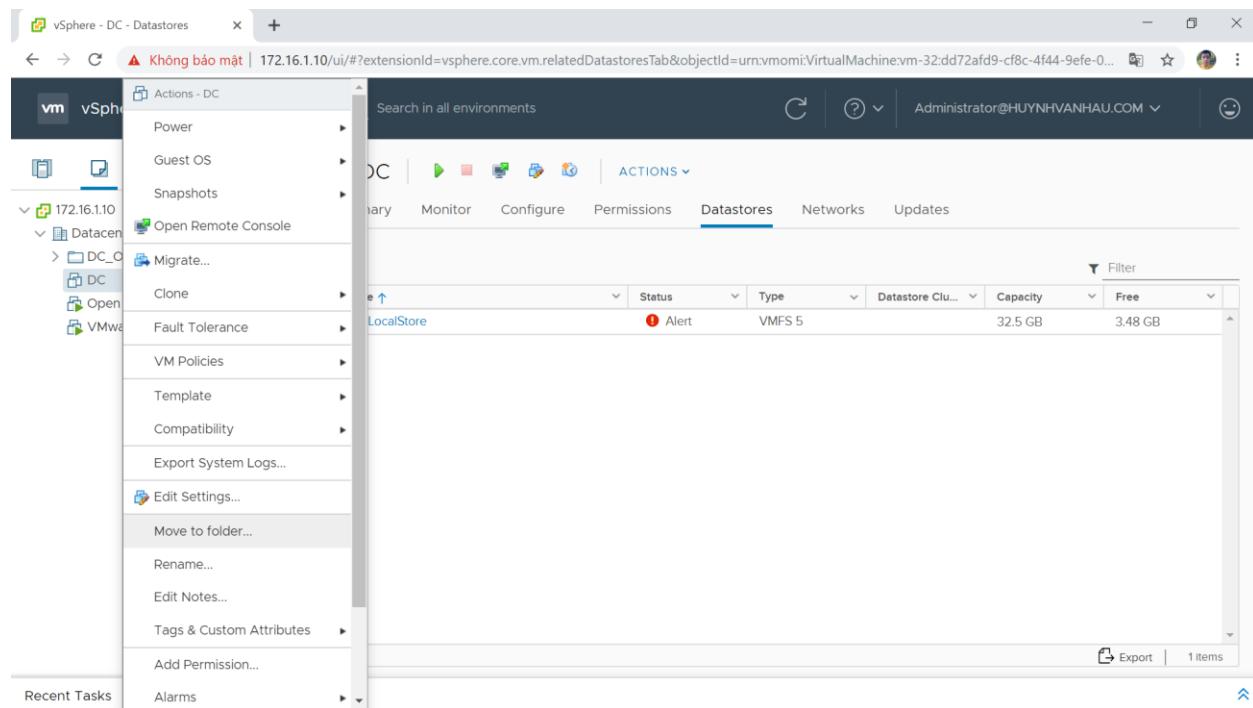
```
Commercial Support: http://www.openfiler.com/support/
Administrator Guide: http://www.openfiler.com/buy/administrator-guide
Community Support: http://www.openfiler.com/community/forums/
Internet Relay Chat: server: irc.freenode.net channel: #openfiler

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http://www.gnu.org/licenses/gpl-2.0.html

Welcome to Openfiler ESA, version 2.99.1
You do not appear to have networking. Please login to start networking.
openfiler login: _
```

e. Di chuyển máy ảo từ Local Store sang DataStore trên SAN

The screenshot shows the vSphere Client interface for managing a Datacenter. On the left, the navigation tree shows a selected Datacenter node under the path 172.16.1.10 > Datacenter. The main pane displays the Datacenter Actions menu, which includes options like Add Host..., New Cluster..., and various folder creation and deployment tools. A tooltip message "Datastore usage on disk" is visible. Below the Actions menu, there are sections for Attributes and Tags. A central alert box titled "5.1.1: Host memory usage" has "Acknowledge" and "Reset To Green" buttons. In the foreground, a modal dialog titled "New Folder" is open, prompting the user to "Enter a name for the folder:" with the text "DC_OpenFiler" typed in. The dialog also contains "CANCEL" and "OK" buttons.

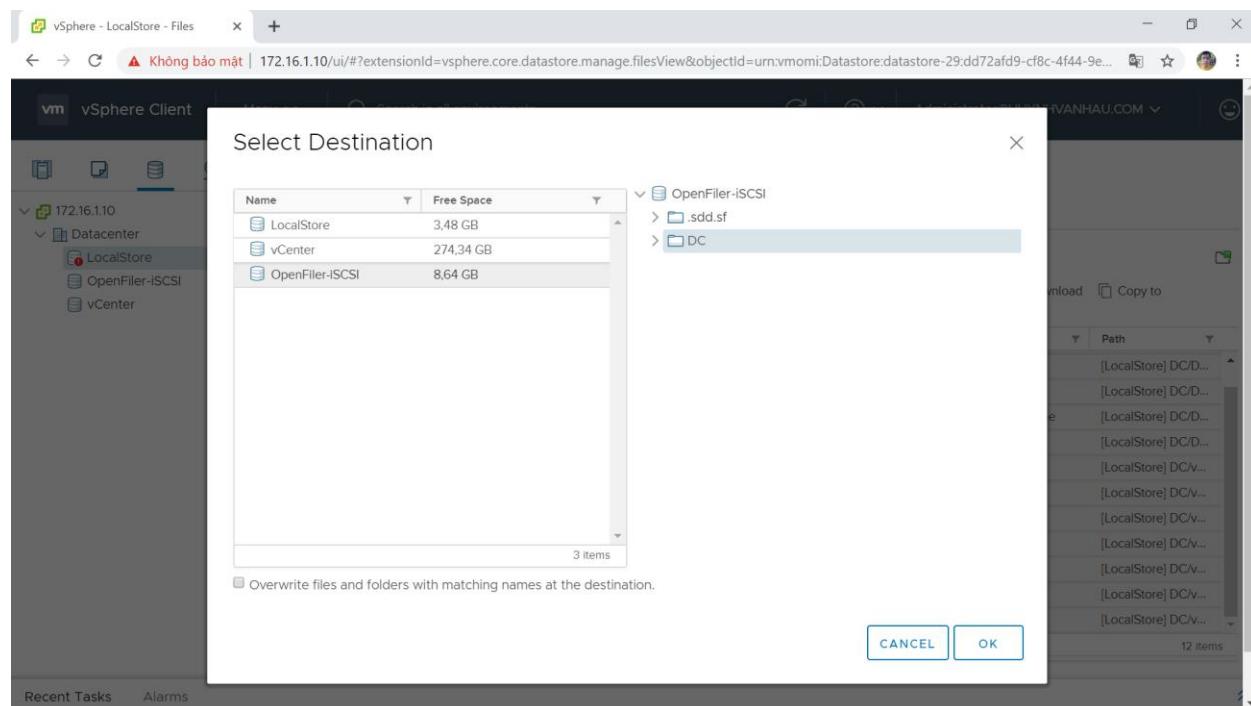
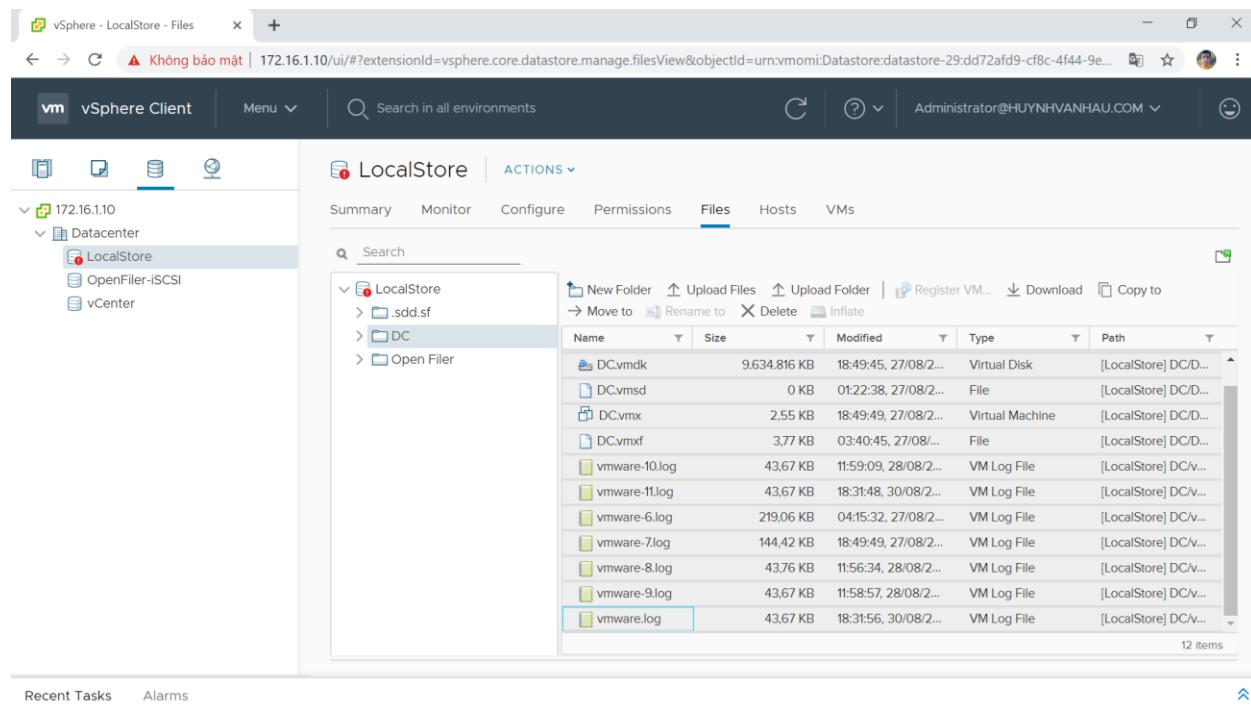


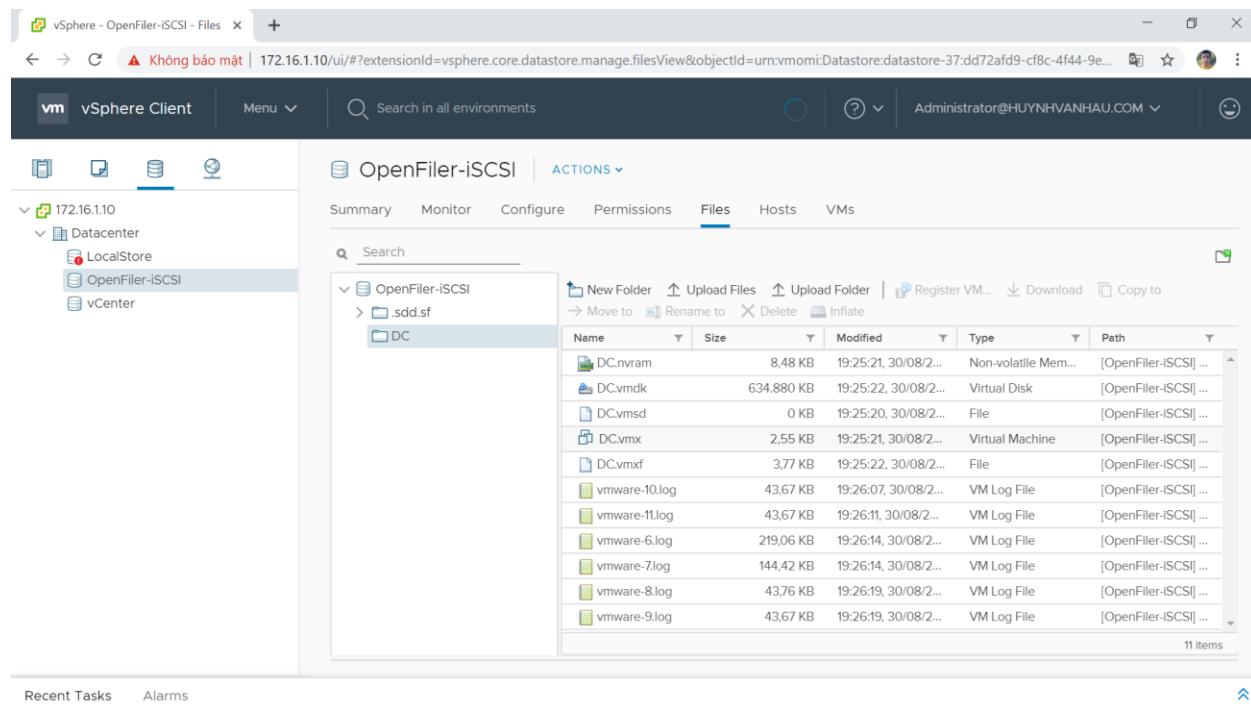
The image displays two screenshots of the vSphere Client interface, both showing the 'Files' tab for the 'OpenFiler-iSCSI' datastore.

Screenshot 1 (Top): This screenshot shows a successful file listing. The left sidebar shows the path: 172.16.1.10 > Datacenter > Localstore > OpenFiler-iSCSI. The main pane displays a folder structure under 'OpenFiler-iSCSI' with a single item: '.sdd.sf'. A context menu is open over this item, showing options like 'New Folder', 'Upload Files', 'Upload Folder', 'Register VM...', 'Download', 'Copy to', 'Move to', 'Rename to', 'Delete', and 'Inflate'. Below the menu is a table with one item:

Name	Size	Modified	Type	Path
.sdd.sf		11:19:03, 28/08/2...	Folder	[OpenFiler-iSCSI] ...

Screenshot 2 (Bottom): This screenshot shows a failed file listing. The left sidebar is identical. The main pane shows the same folder structure, but the table below is empty and displays a 'Loading...' message. At the bottom of the table, it says 'No items to display'.





g. Tạo Snapshot cho máy ảo

