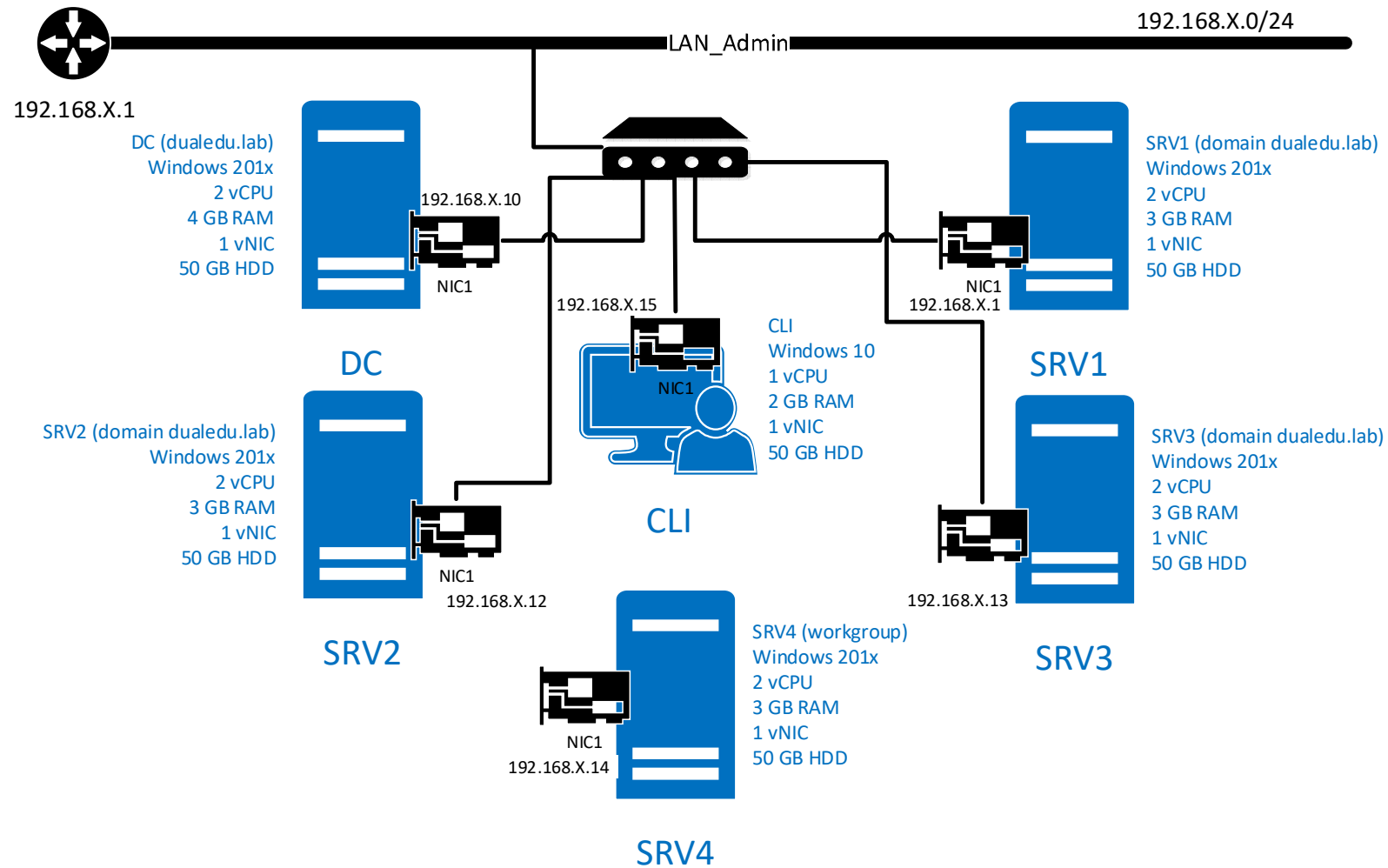


Úvodná konfigurácia LAB-u

Špecializované IKT systémy Windows

Ing. Stanislav Lukac, PhD.

Initial LAB setup



Po ukončení konfigurácie na každej VM vytvoriť SNAPSHOT !

VPN inštalácia

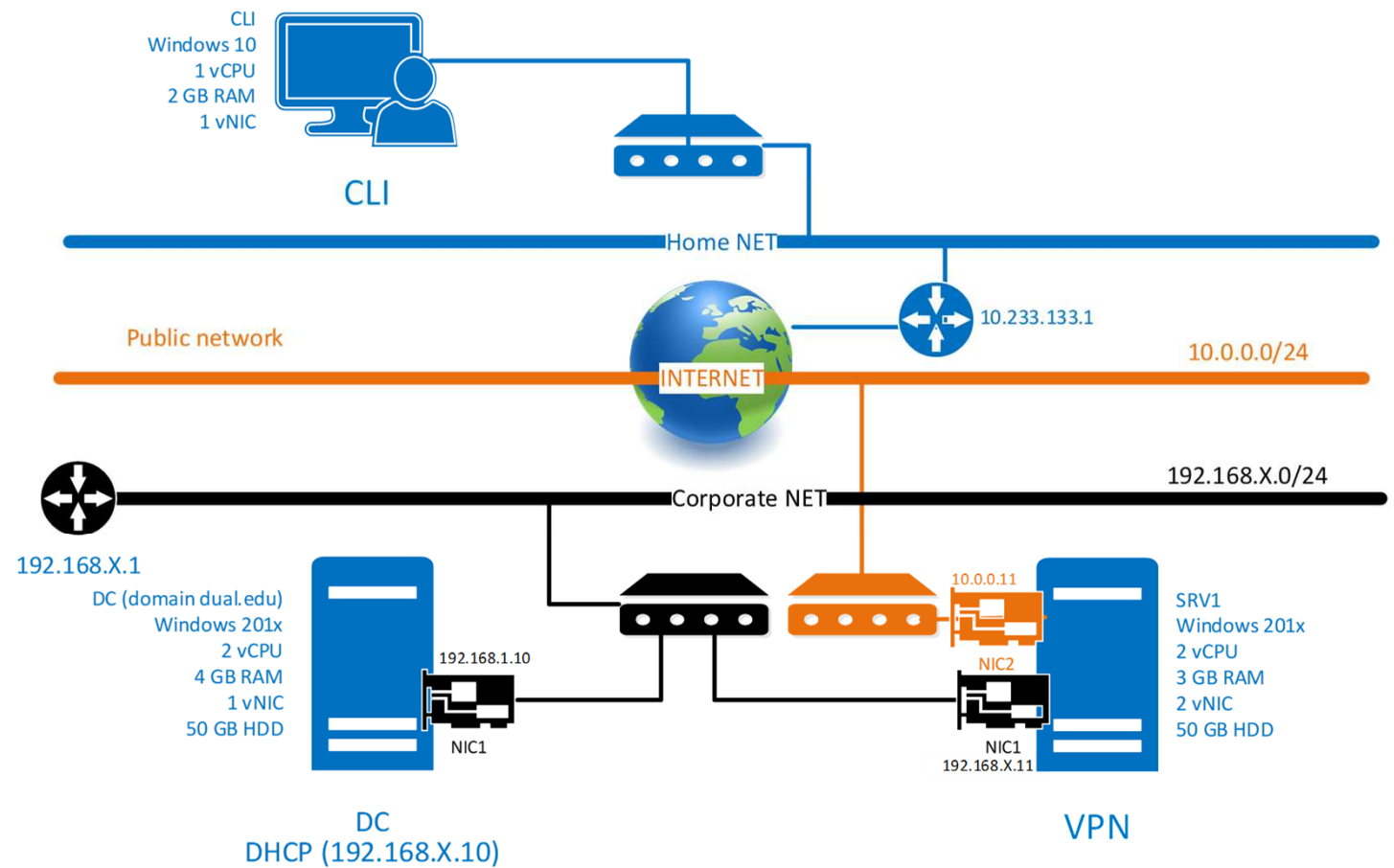
Špecializované IKT systémy Windows

Ing. Stanislav Lukac, PhD.

Krok 1

::Inštalácia 3 VMs podľa schémy

LAB: VPN installation



Krok 2

::Premenovanie vNICs na SRV1 (VPN serveri)

```
PS C:\Users\Administrator> Get-NetAdapter
```

Name	InterfaceDescription	ifIndex	Status	MacAddress	LinkSpeed
Ethernet 6	Microsoft Hyper-V Network Adapter #6	8	Up	00-15-5D-9F-8A-0C	10 Gbps
Ethernet 5	Microsoft Hyper-V Network Adapter #5	9	Up	02-BF-0A-00-00-64	10 Gbps

```
PS C:\Users\Administrator> Rename-NetAdapter -Name 'Ethernet 6' -NewName NIC_External
```

```
PS C:\Users\Administrator> Rename-NetAdapter -Name 'Ethernet 5' -NewName NIC_Internal
```

```
PS C:\Users\Administrator> Get-NetAdapter
```

Name	InterfaceDescription	ifIndex	Status	MacAddress	LinkSpeed
NIC_External	Microsoft Hyper-V Network Adapter #6	8	Up	00-15-5D-9F-8A-0C	10 Gbps
NIC_Internal	Microsoft Hyper-V Network Adapter #5	9	Up	02-BF-0A-00-00-64	10 Gbps

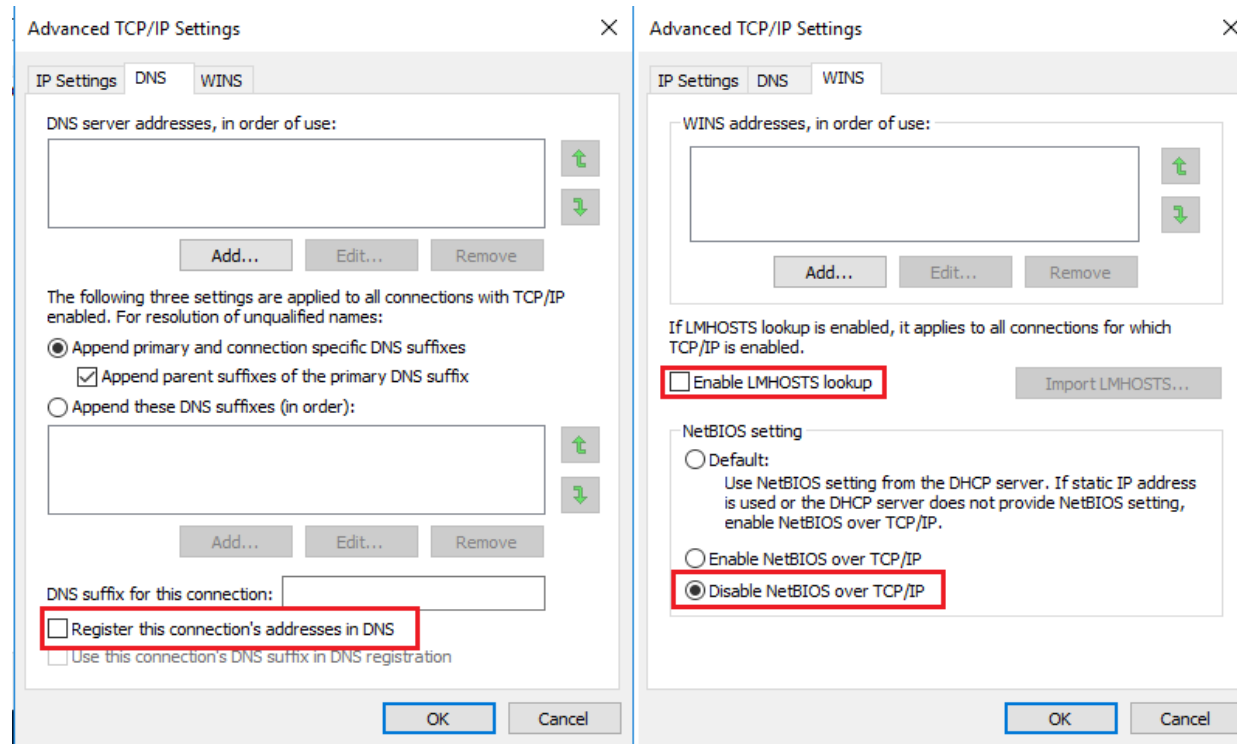
Krok 3

::Overenie sieťovej konfigurácie na SRV1 (VPN server)

	Network	GW	DNS	IPv6
NIC_Internal	192.168.X.0/24	none	10.0.0.10	Enabled
NIC_External	10.0.0.0/24 VLAN 5	10.233.133.1	none	Enabled

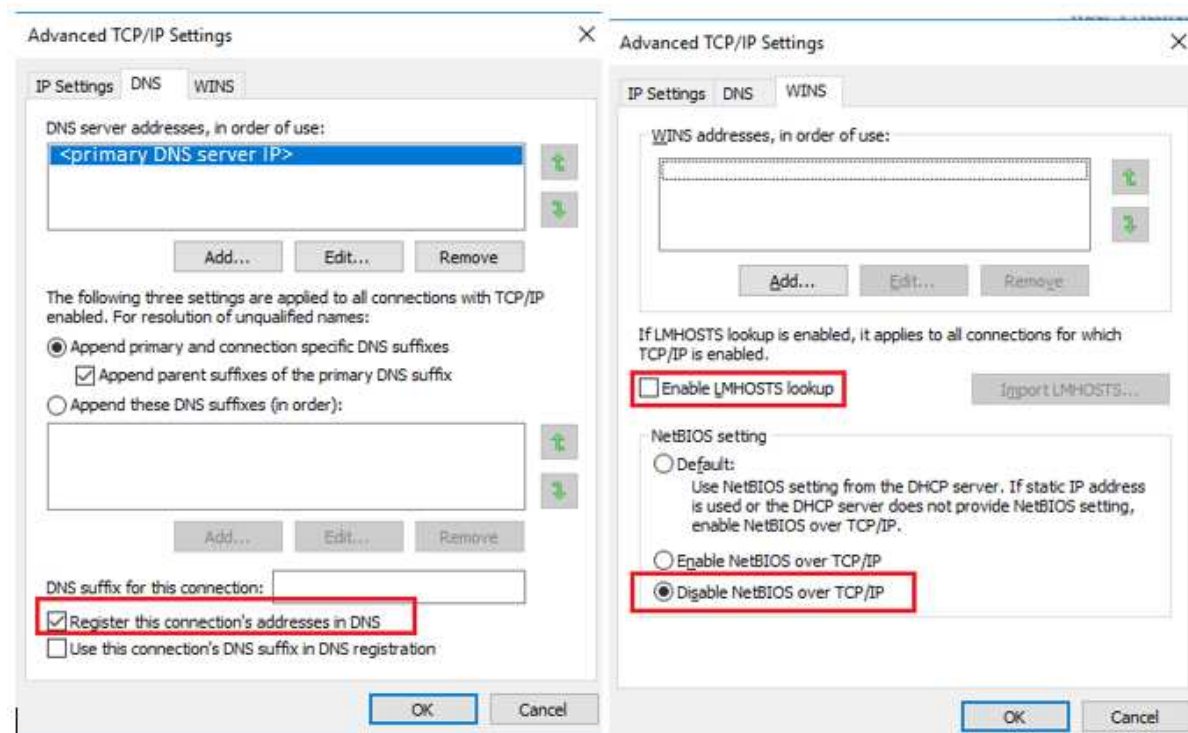
Krok 4

::Vypnutie registrácie DNS a NetBios na Externom NIC SRV1



Krok 5

::Zapnutie registrácie DNS a NetBios na INTERNOM NIC SRV1



Krok 6

::Zapnutie FW na všetkých FW profiloch SRV1

```
Administrator: Windows PowerShell
Windows PowerShell
Copyright (C) 2016 Microsoft Corporation. All rights reserved.

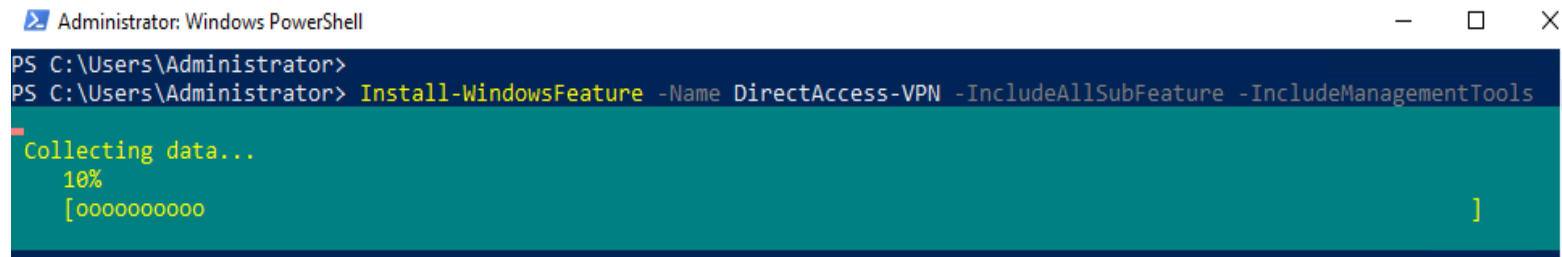
PS C:\Users\administrator.TESTLAB> Get-NetFirewallProfile | ft -AutoSize
```

Name	Enabled	DefaultInboundAction	DefaultOutboundAction	AllowInboundRules	AllowLocalFirewallRules	AllowLocalIPsecRules
Domain	True	Block	Allow	NotConfigured	NotConfigured	NotConfigured
Private	True	Block	Allow	NotConfigured	NotConfigured	NotConfigured
Public	True	Block	Allow	NotConfigured	NotConfigured	NotConfigured

```
PS C:\Users\administrator.TESTLAB>
```

Krok 7

::Inštalácia role



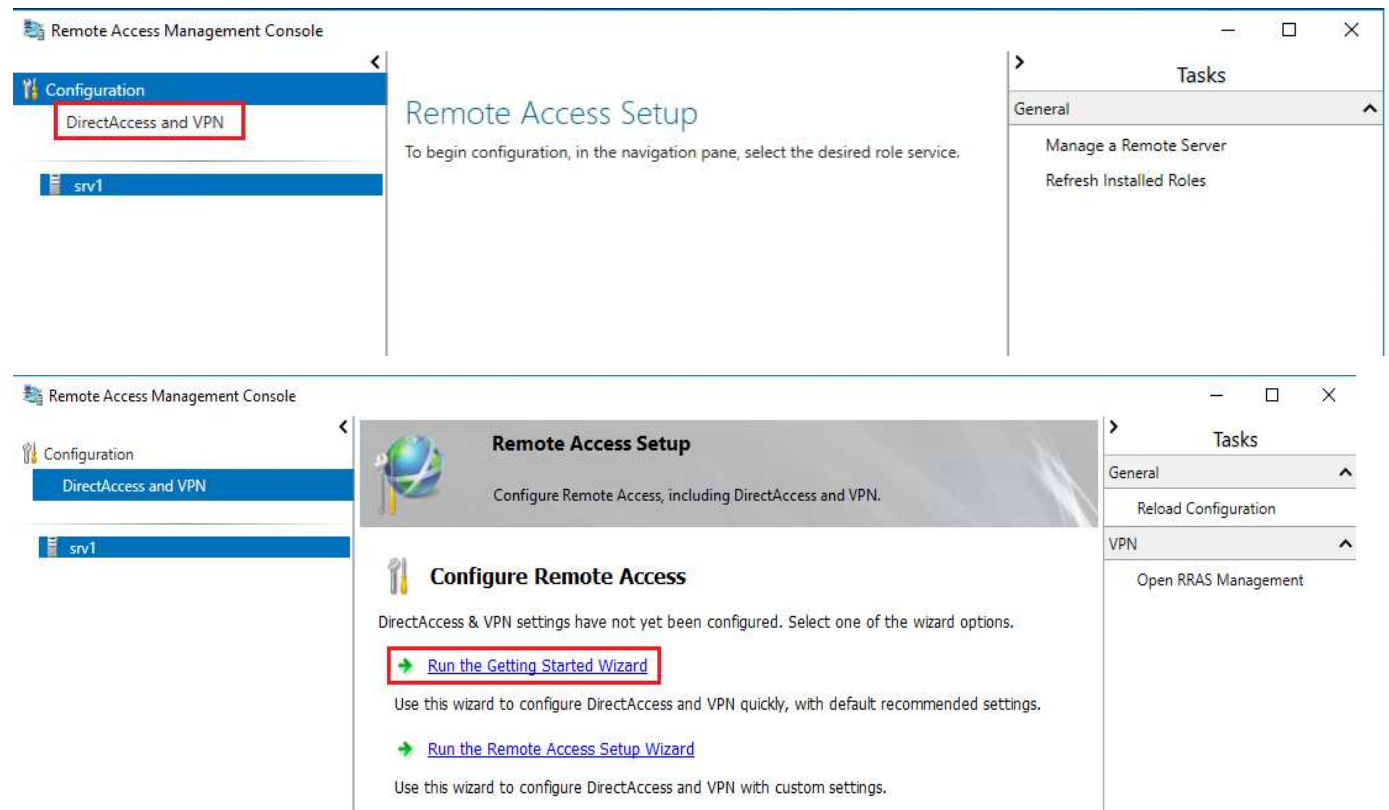
```
Administrator: Windows PowerShell
PS C:\Users\Administrator>
PS C:\Users\Administrator> Install-WindowsFeature -Name DirectAccess-VPN -IncludeAllSubFeature -IncludeManagementTools

Collecting data...
10%
[oooooooooooo]
```

Krok 8

::Konfigurácia role VPN

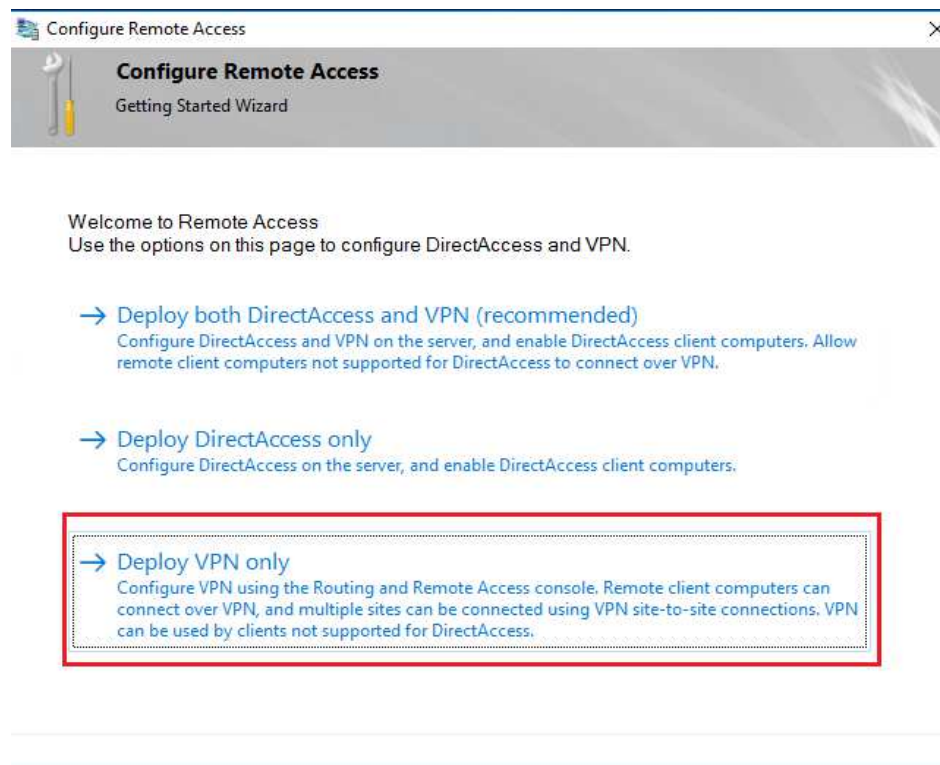
Administrative tools -> Remote Access Management console



Krok 8

::Konfigurácia role VPN

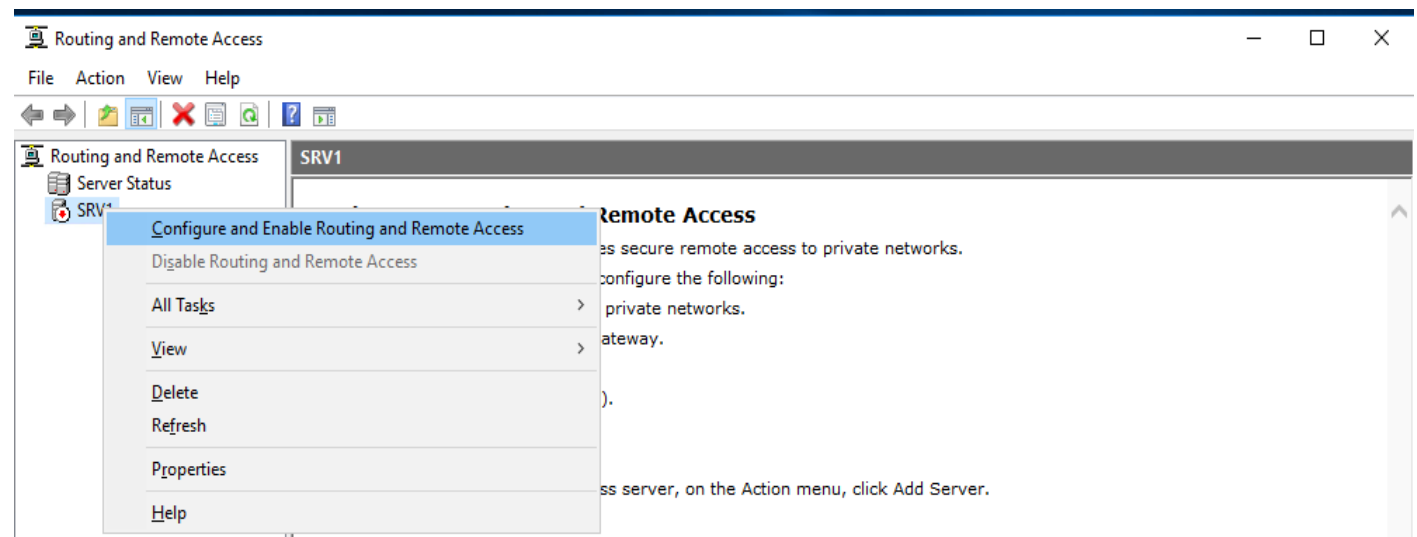
Administrative tools -> Remote Access Management console



Krok 8

::Konfigurácia role VPN

Administrative tools -> Remote Access Management console



Krok 8

::Konfigurácia role VPN

Administrative tools -> Remote Access Management console

Routing and Remote Access Server Setup Wizard

Welcome to the Routing and Remote Access Server Setup Wizard

This wizard helps you set up your server so that you can connect to other networks and allow connections from remote clients.

To continue, click Next.

Routing and Remote Access Server Setup Wizard

Configuration

You can enable any of the following combinations of services, or you can customize this server.

- ☒ Remote access (dial-up or VPN)
Allow remote clients to connect to this server through either a dial-up connection or a secure virtual private network (VPN) Internet connection.
- ☐ Network address translation (NAT)
Allow internal clients to connect to the Internet using one public IP address.
- ☐ Virtual private network (VPN) access and NAT
Allow remote clients to connect to this server through the Internet and local clients to connect to the Internet using a single public IP address.
- ☐ Secure connection between two private networks
Connect this network to a remote network, such as a branch office.
- ☐ Custom configuration
Select any combination of the features available in Routing and Remote Access.

< Back Next > Cancel

< Back Next > Cancel

Krok 8

::Konfigurácia role VPN

Administrative tools -> Remote Access Management console

Routing and Remote Access Server Setup Wizard

Remote Access

You can set up this server to receive both dial-up and VPN connections.

☒ VPN

A VPN server (also called a VPN gateway) can receive connections from remote clients through the Internet.

☐ Dial-up

A dial-up remote access server can receive connections directly from remote clients through dial-up media, such as a modem.

< Back

Next >

Cancel

Routing and Remote Access Server Setup Wizard

VPN Connection

To enable VPN clients to connect to this server, at least one network interface must be connected to the Internet.

Select the network interface that connects this server to the Internet.

Network interfaces:

Name	Description	IP Address
NIC_External	Microsoft Hyper-V Netw...	
NIC_Internal	Microsoft Hyper-V Netw...	

☒ Enable security on the selected interface by setting up static packet filters.
Static packet filters allow only VPN traffic to gain access to this server through the selected interface.

< Back

Next >

Cancel

Krok 8

::Konfigurácia role VPN

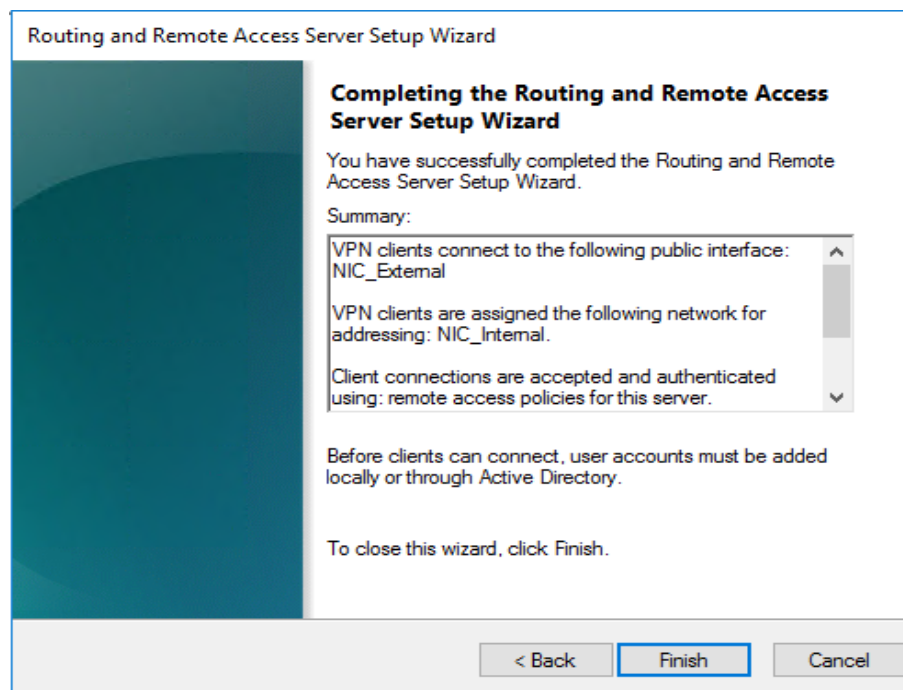
Administrative tools -> Remote Access Management console

Routing and Remote Access Server Setup Wizard	Routing and Remote Access Server Setup Wizard
IP Address Assignment You can select the method for assigning IP addresses to remote clients.	Managing Multiple Remote Access Servers Connection requests can be authenticated locally or forwarded to a Remote Authentication Dial-In User Service (RADIUS) server for authentication.
How do you want IP addresses to be assigned to remote clients? <input checked="" type="radio"/> Automatically If you use a DHCP server to assign addresses, confirm that the server is configured to provide addresses to remote clients. If you do not use a DHCP server, this server will generate addresses. <input type="radio"/> From a specified range of addresses	Although Routing and Remote Access can authenticate connection requests, large networks that include multiple remote access servers often use a RADIUS server for central authentication. If you are using a RADIUS server on your network, you can set up this server to forward authentication requests to the RADIUS server. Do you want to set up this server to work with a RADIUS server? <input checked="" type="radio"/> No, use Routing and Remote Access to authenticate connection requests <input type="radio"/> Yes, set up this server to work with a RADIUS server
< Back	< Back Next > Cancel

Krok 8

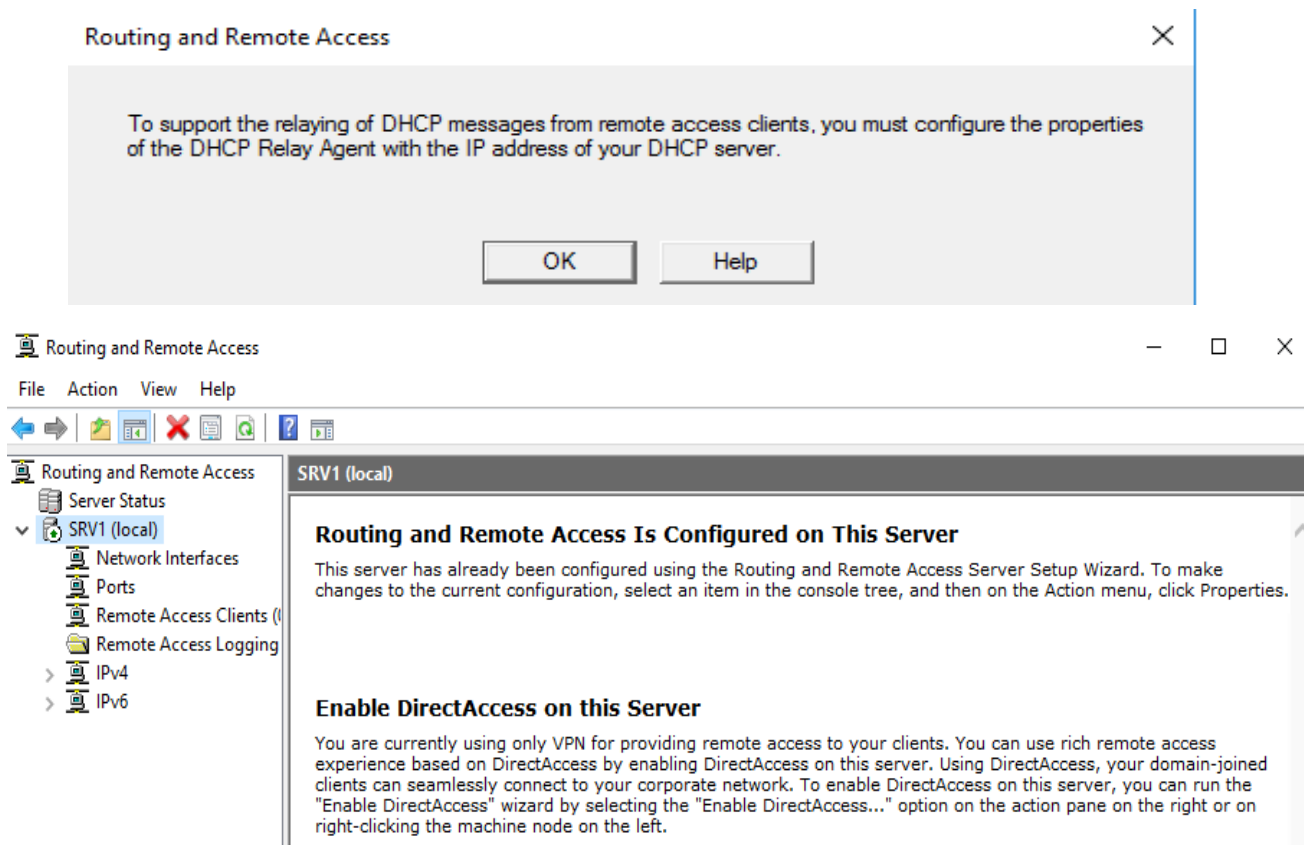
::Konfigurácia role VPN

Administrative tools -> Remote Access Management console



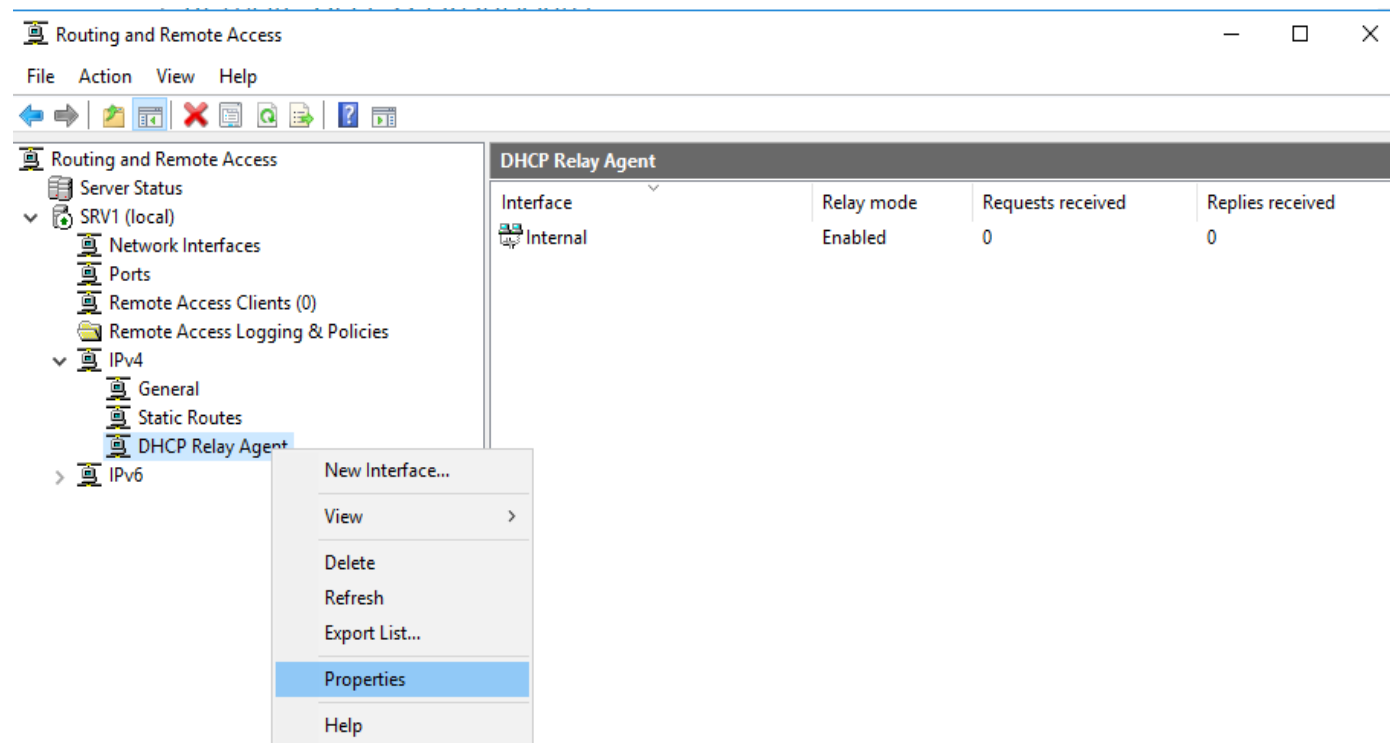
Krok 8

::Konfigurácia role VPN



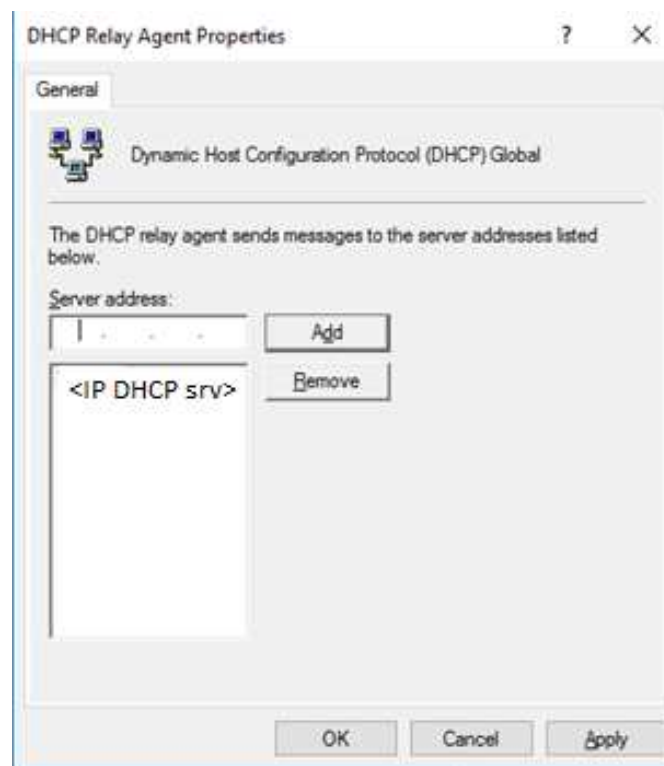
Krok 8

::Konfigurácia role VPN



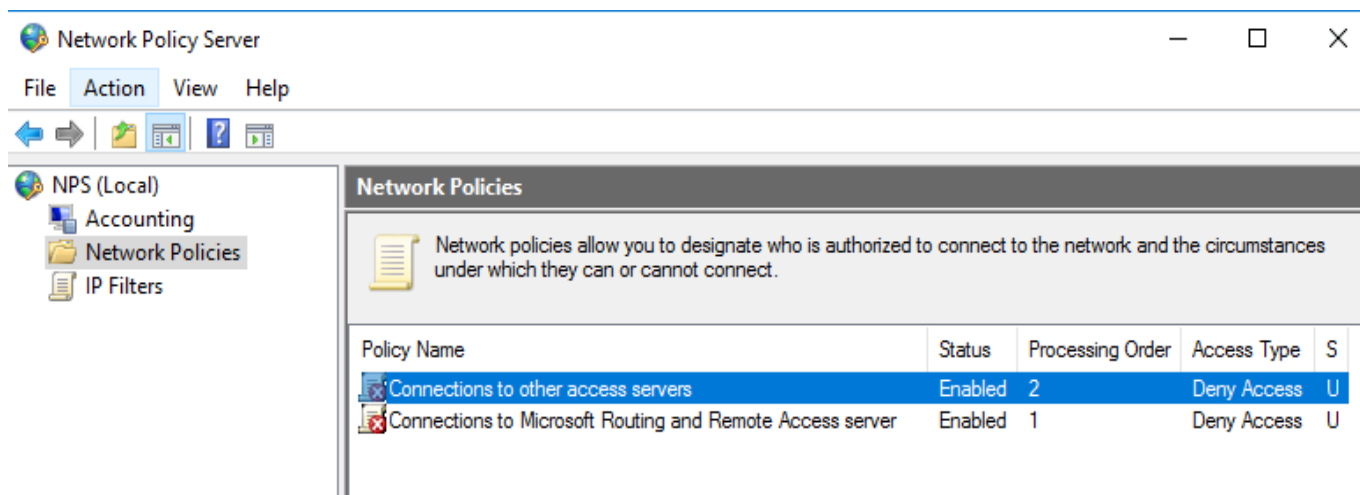
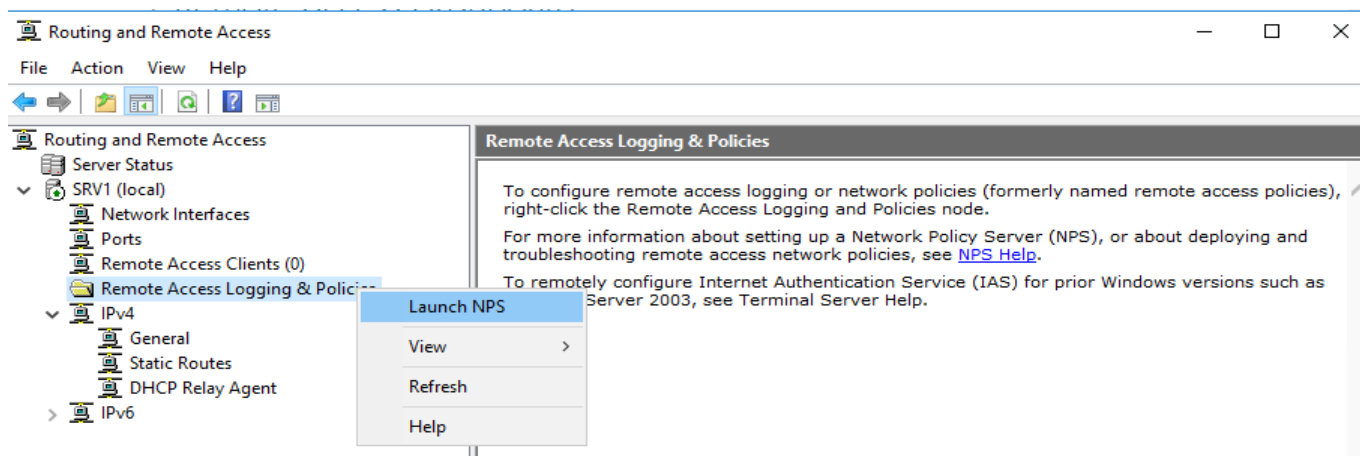
Krok 8

::Konfigurácia role VPN



Krok 9

::Konfigurácia Access Policy cez NPS



Krok 9

::Konfigurácia Access Policy cez NPS

The screenshot shows the Network Policy Server (NPS) console. The left pane shows the tree structure with 'NPS (Local)' expanded, and 'Network Policies' selected. The right pane shows the 'Network Policies' list with a table of existing policies. A context menu is open over 'Network Policies' with 'New' selected. The 'New Network Policy' dialog box is open, titled 'Specify Network Policy Name and Connection Type'. It contains a 'Policy name' field with 'UserVPNAllowAccess' entered. Below it, the 'Network connection method' section is expanded, showing 'Type of network access server' selected with a dropdown menu set to 'Remote Access Server(VPN-Dial up)'. The 'Vendor specific' option is also visible with a value of '10'.

Network Policies

Network policies allow you to designate who is authorized to connect to the network and the circumstances under which they can or cannot connect.

	Status	Processing Order	Access Type	S
Connections to other access servers	Enabled	2	Deny Access	U
Connections to Microsoft Routing and Remote Access server	Enabled	1	Deny Access	U

New Network Policy

Specify Network Policy Name and Connection Type

You can specify a name for your network policy and the type of connections to which the policy is applied.

Policy name:

UserVPNAllowAccess

Network connection method

Select the type of network access server that sends the connection request to NPS. You can select either the network access server type or Vendor specific, but neither is required. If your network access server is an 802.1X authenticating switch or wireless access point, select Unspecified.

☒ Type of network access server:

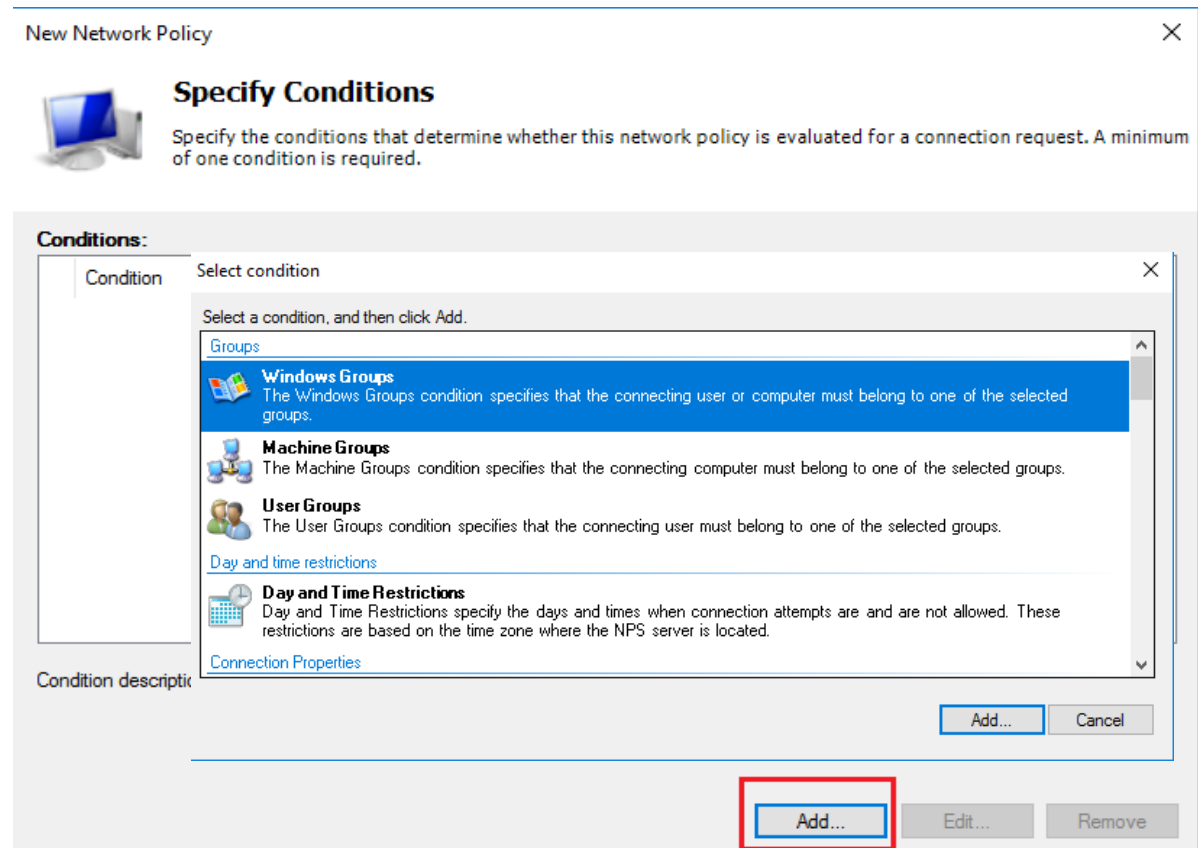
Remote Access Server(VPN-Dial up)

☐ Vendor specific:

10

Krok 9


::Konfigurácia Access Policy cez NPS



Krok 9

::Konfigurácia Access Policy cez NPS

New Network Policy ×

 **Specify Access Permission**

Configure whether you want to grant network access or deny network access if the connection request matches this policy.

☒ Access granted
Grant access if client connection attempts match the conditions of this policy.

☐ Access denied
Deny access if client connection attempts match the conditions of this policy.

☐ Access is determined by User Dial-in properties (which override NPS policy)
Grant or deny access according to user dial-in properties if client connection attempts match the conditions of this policy.

Previous Next Finish Cancel

Krok 9

::Konfigurácia Access Policy cez NPS

New Network Policy



Configure Authentication Methods

Configure one or more authentication methods required for the connection request to match this policy. For EAP authentication, you must configure an EAP type.

EAP types are negotiated between NPS and the client in the order in which they are listed.

EAP Types:

Microsoft: Secured password (EAP-MSCHAP v2)

Move Up

Move Down

Add...

Edit...

Remove

Less secure authentication methods:

☒ Microsoft Encrypted Authentication version 2 (MS-CHAP-v2)

☒ User can change password after it has expired

☐ Microsoft Encrypted Authentication (MS-CHAP)

☐ User can change password after it has expired

☐ Encrypted authentication (CHAP)

☐ Unencrypted authentication (PAP, SPAP)

☐ Allow clients to connect without negotiating an authentication method.

Previous

Next

Finish


Cancel

Krok 9

::Konfigurácia Access Policy cez NPS

Všetky ďalšie nastavenie nechajte default

New Network Policy

**Configure Constraints**

Constraints are additional parameters of the network policy. If a constraint is not matched by the connection request, network access is denied. If you do not want to configure constraints, click Cancel.

Configure the constraints for this network policy.
If all constraints are not matched by the connection request, network access is denied.

Constraints:

Constraints

Idle Timeout

Session Timeout

Called Station ID


Day and time restrictions

NAS Port Type

Specify the maximum time in minutes that a user can be disconnected after the maximum idle time.

☐ Disconnect after the maximum idle time.

New Network Policy

**Configure Settings**

NPS applies settings to the connection request if all of the network policy conditions are matched.

Configure the settings for this network policy.
If conditions and constraints match the connection request and the policy grants access.

Settings:

RADIUS Attributes


Standard

☒ Vendor Specific

To send additional attributes to RADIUS clients, then click Edit. If you do not configure an attribute, your RADIUS client documentation for required attributes.

Name	Value
Framed-Protocol	PPP
Service-Type	Framed

New Network Policy

**Completing New Network Policy**

You have successfully created the following network policy:

UserVPNAllowAccess

Policy conditions:

Condition	Value
Windows Groups	TESTLAB\Domain Users OR TESTLAB\Domain Admins

Policy settings:

Condition	Value
Authentication Method	EAP OR MS-CHAP v2 OR MS-CHAP v2 (User can change password)
Access Permission	Grant Access
Framed-Protocol	PPP
Service-Type	Framed
Ignore User Dial-In Properties	False
Extensible Authentication Protocol Method	Microsoft Secured password (EAP-MSCHAP v2)

To close this wizard, click Finish.

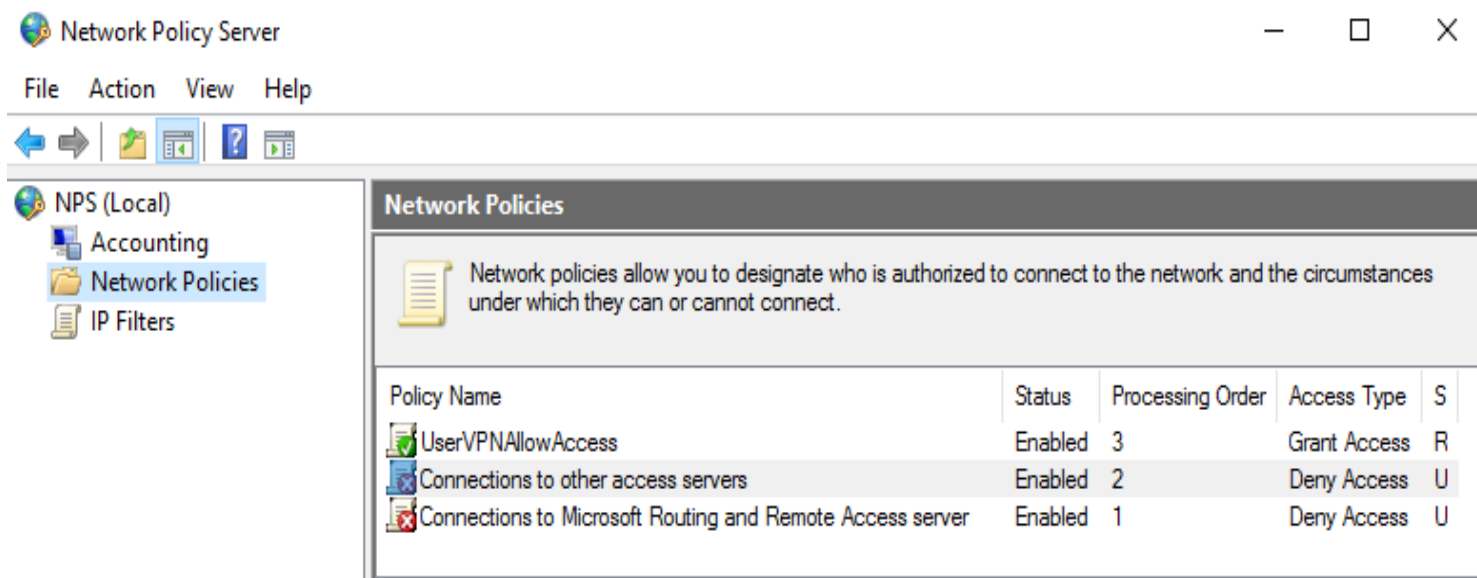
Previous

Next

Finish

Krok 9

::Konfigurácia Access Policy cez NPS



The screenshot shows the Network Policy Server (NPS) console window. The title bar reads "Network Policy Server". The menu bar includes "File", "Action", "View", and "Help". The left-hand tree view shows the following structure:

- NPS (Local)
 - Accounting
 - Network Policies (selected)
 - IP Filters

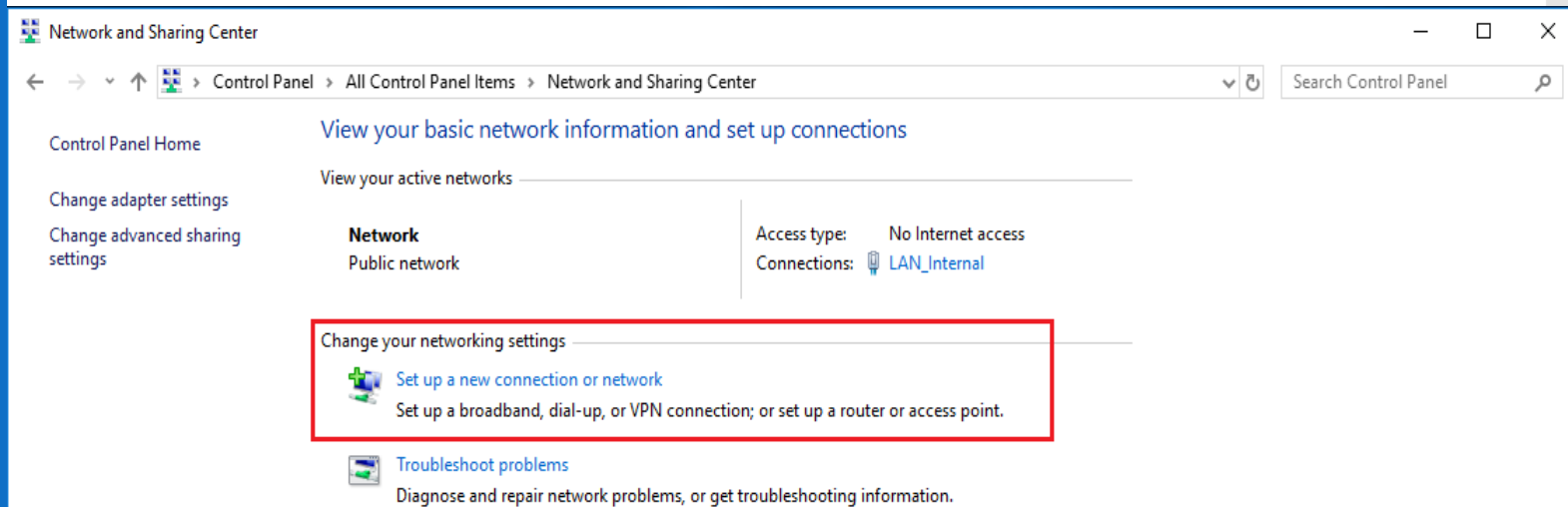
The main pane displays the "Network Policies" section. It includes a descriptive text box and a table of configured policies.

Network policies allow you to designate who is authorized to connect to the network and the circumstances under which they can or cannot connect.

Policy Name	Status	Processing Order	Access Type	S
UserVPNAllowAccess	Enabled	3	Grant Access	R
Connections to other access servers	Enabled	2	Deny Access	U
Connections to Microsoft Routing and Remote Access server	Enabled	1	Deny Access	U

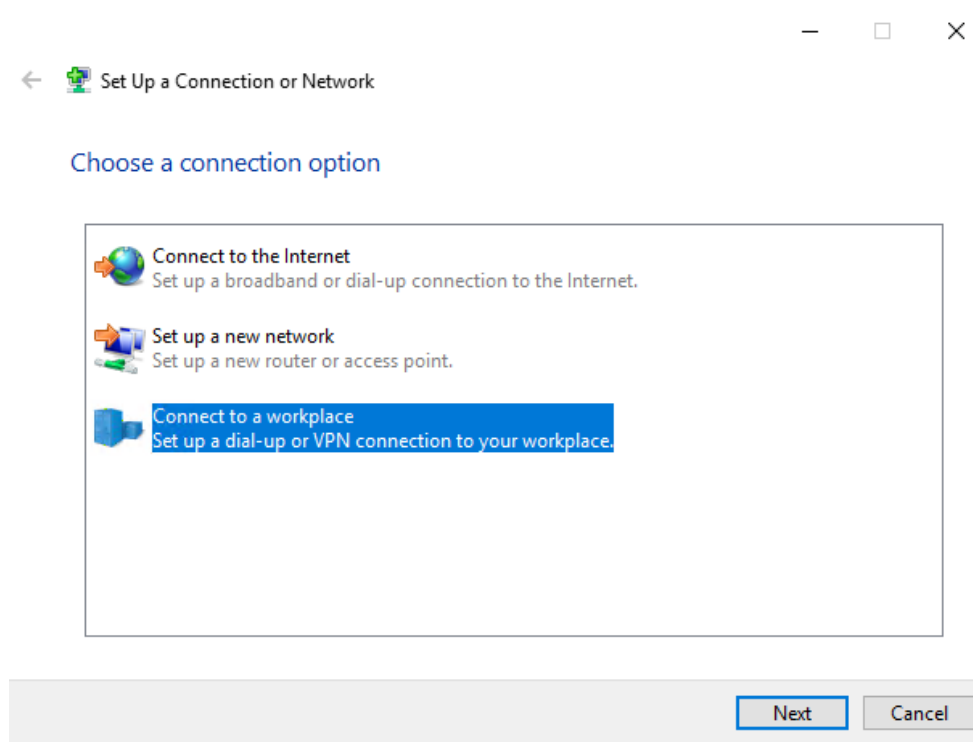
Krok 10

::Klient nastavenie (CLI vm)



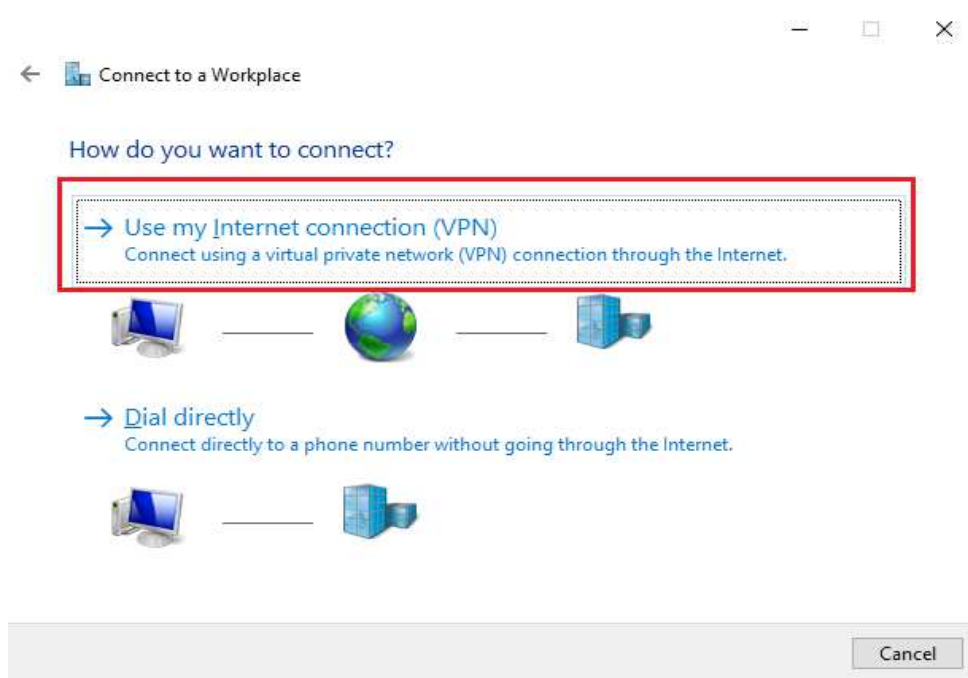
Krok 10

::Klient nastavenie (CLI vm)



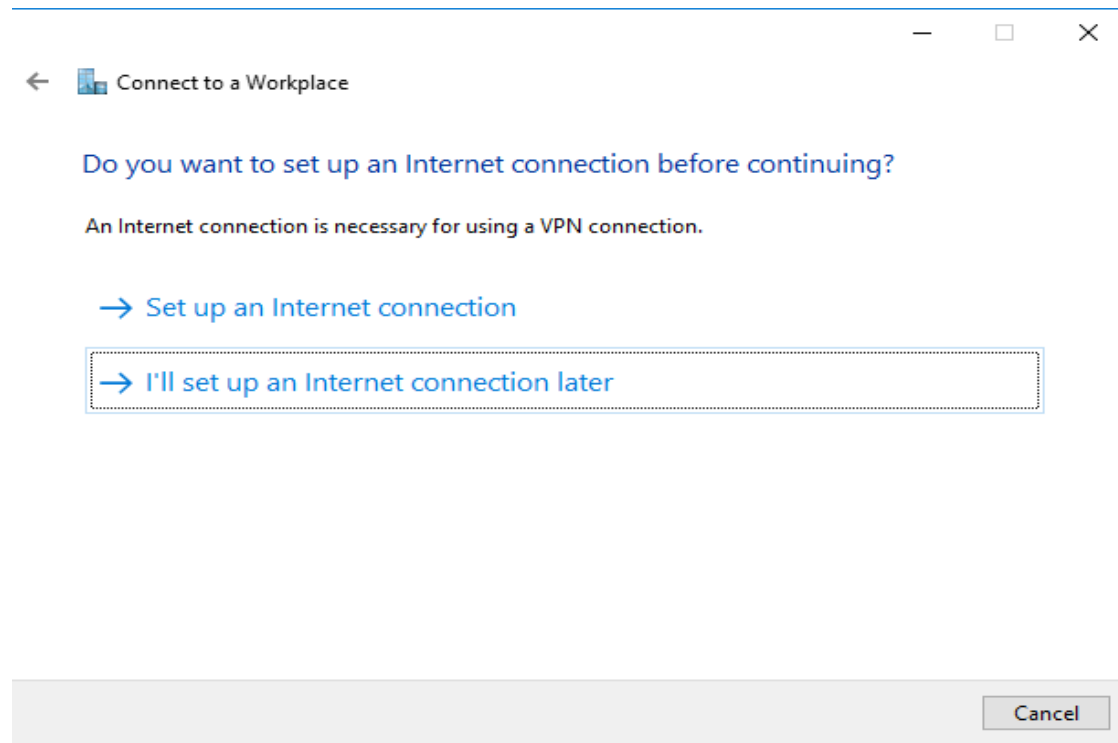
Krok 10

::Klient nastavenie (CLI vm)



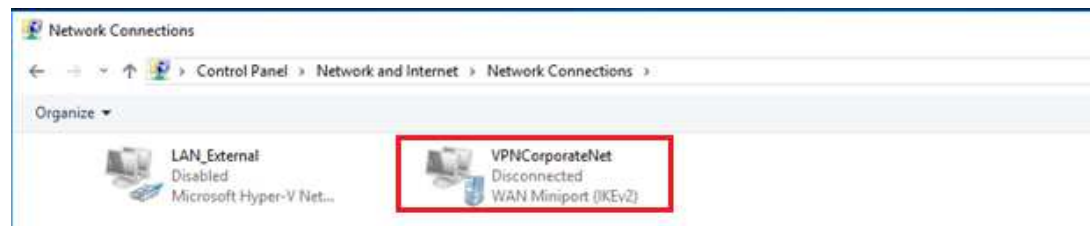
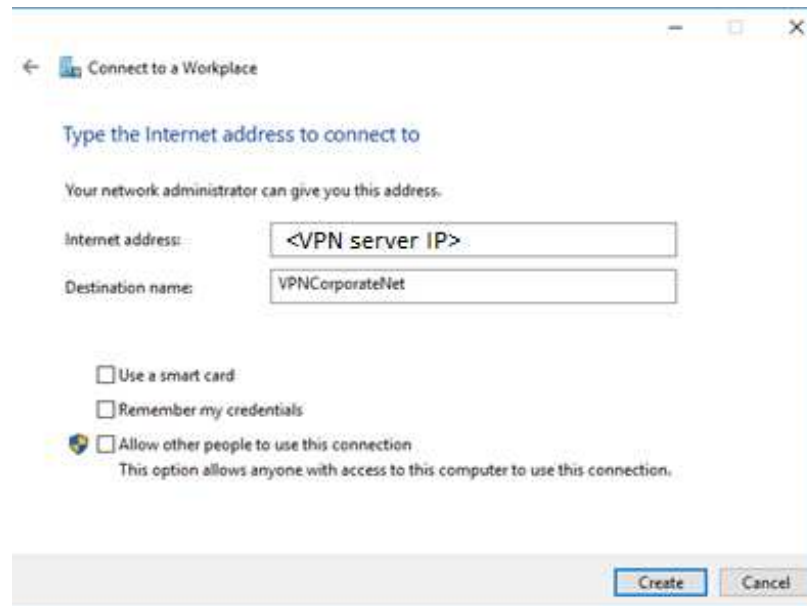
Krok 10

::Klient nastavenie (CLI vm)



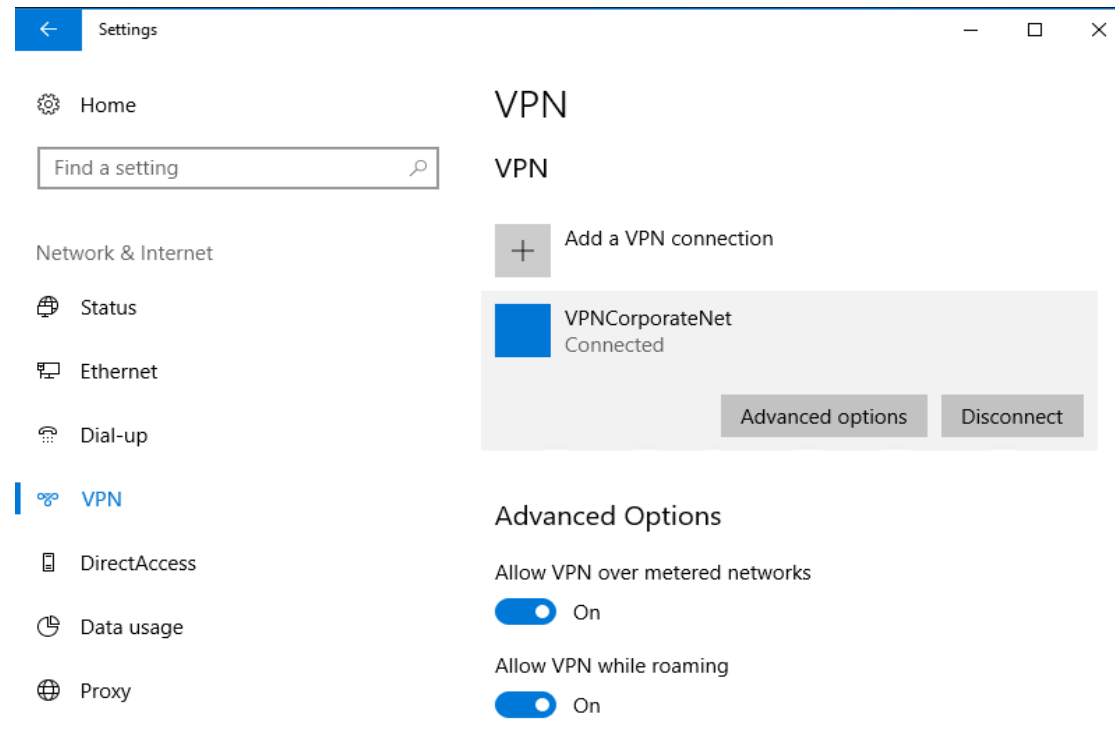
Krok 10

::Klient nastavenie (CLI vm)



TEST VPN pripojenia

::Pripojiť sa z CLI do korporátnej siete cez externý adaptér



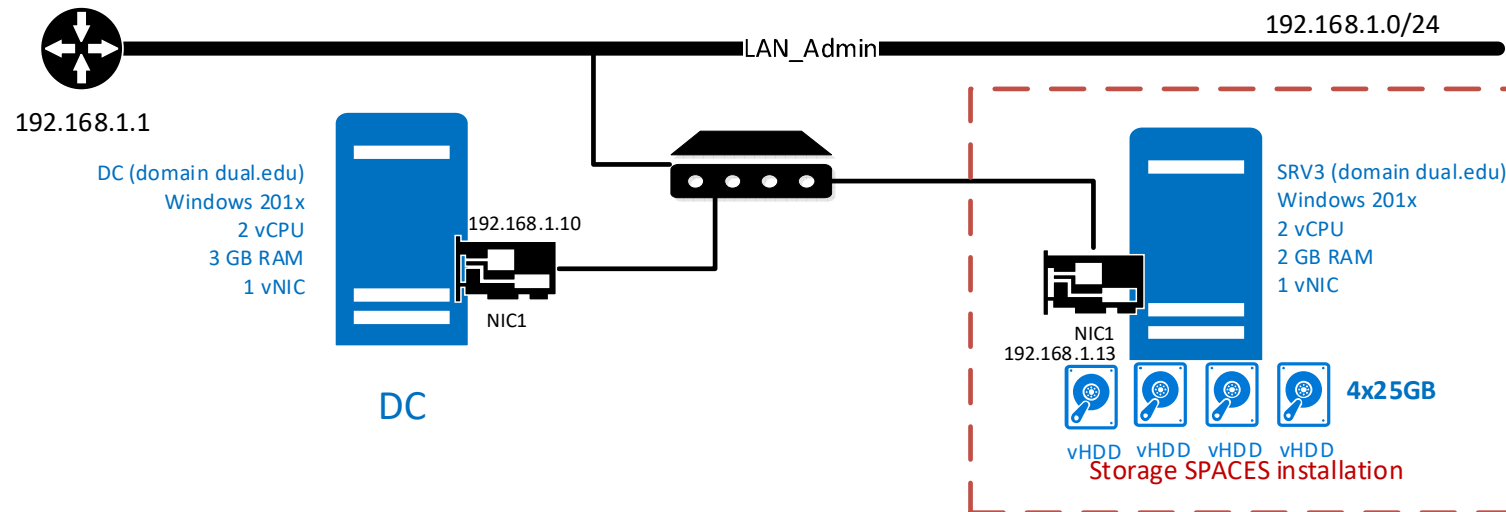
Akú máte pridelenú IP po úspešnom pripojení ?

Storage spaces

Špecializované IKT systémy Windows

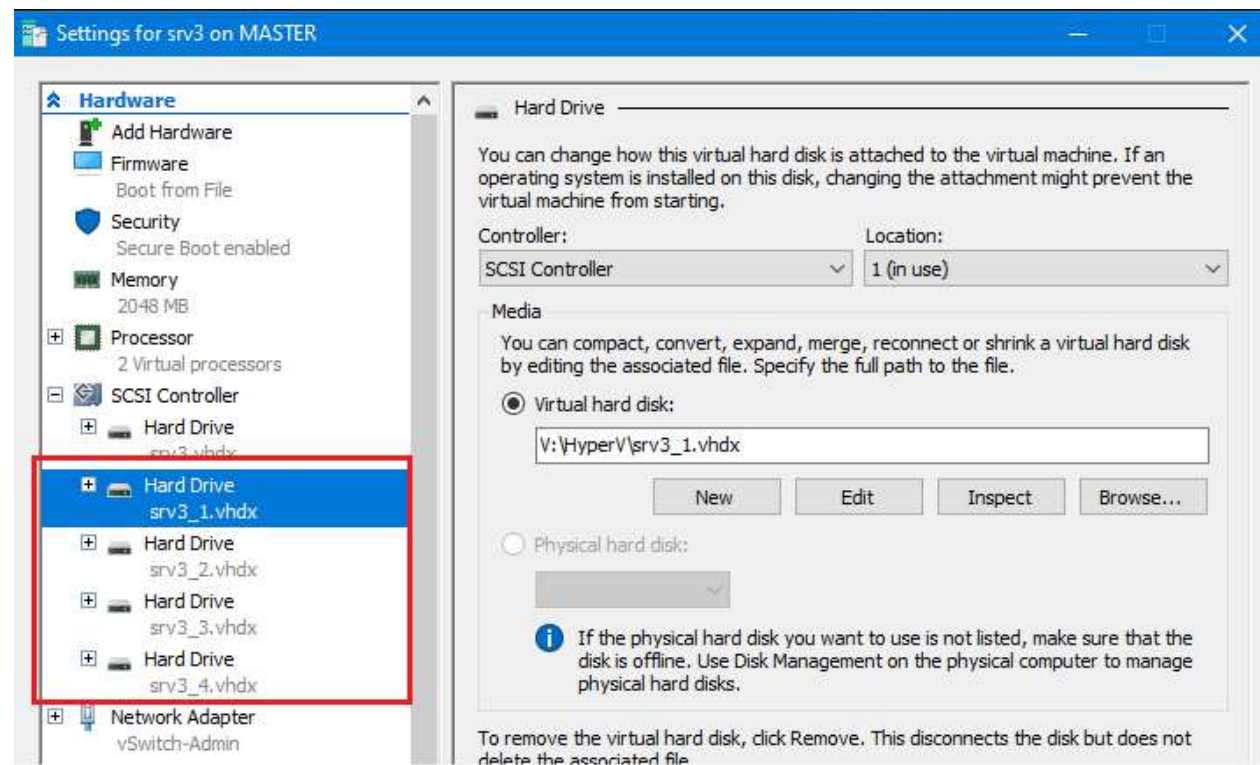
Ing. Stanislav Lukac, PhD.

LAB: Storage Spaces installation



Krok 1

::Inštalácia dodatočných pevných diskov na SRV3



Krok 2

::Vytvorenie Storage POOL na SRV3

Server Manager

Navigation: Volumes > Storage Pools

Storage Pools: All storage pools | 1 total

Name	Type	Managed by	Available to	Read-Write Server
Windows Storage (1)				
Primordial	Available Disks	srv3	srv3	srv3

Virtual Disks: No related data is available.

Physical Disks: Primordial on srv3

Slot	Name	Status	Capacity
	Msft Virtual Disk (srv3)		25.0 GB
	Msft Virtual Disk (srv3)		25.0 GB
	Msft Virtual Disk (srv3)		25.0 GB
	Msft Virtual Disk (srv3)		25.0 GB

Krok 2

::Vytvorenie Storage POOL na SRV3

New Storage Pool Wizard

Specify a storage pool name and subsystem

Before You Begin
Storage Pool Name
Physical Disks
Confirmation
Results

Name: DemoStoragePool

Description:

Select the group of available disks (also known as a primordial pool) that you want to use:

Managed by	Available to	Subsystem	Primordial Pool
srv3	srv3	Windows Storage	Primordial

< Previous Next > Create Cancel

Krok 2

::Vytvorenie Storage POOL na SRV3

New Storage Pool Wizard

Select physical disks for the storage pool

Before You Begin
Storage Pool Name
Physical Disks
Confirmation
Results

On select storage subsystems you can additionally allocate disks as hot spares that can replace failed disks.

Physical disks:

<input checked="" type="checkbox"/>	Slot	Name	Capacity	Bus	RPM	Model	Allocation	Chassis
<input checked="" type="checkbox"/>		Msft Virtual Di...	25.0 GB	SAS		Virtual Disk	Automatic	Integrated : Adapter 0 : Port 0 : Target 0
<input checked="" type="checkbox"/>		Msft Virtual Di...	25.0 GB	SAS		Virtual Disk	Automatic	Integrated : Adapter 0 : Port 0 : Target 0
<input checked="" type="checkbox"/>		Msft Virtual Di...	25.0 GB	SAS		Virtual Disk	Automatic	Integrated : Adapter 0 : Port 0 : Target 0
<input checked="" type="checkbox"/>		Msft Virtual Di...	25.0 GB	S...		Virtual Di...	Hot Spare	Integrated : Adapter 0 : Port 0 : Target 0

Total selected capacity: 100.0 GB

i Selecting these disks will create a local pool.

< Previous Next > Create Cancel

Krok 2

::Vytvorenie Storage POOL na SRV3

New Storage Pool Wizard

Confirm selections

Before You Begin
Storage Pool Name
Physical Disks
Confirmation
Results

Confirm that the following are the correct settings, and then click Create.

STORAGE POOL LOCATION

Server:	srv3
Cluster role:	Not Clustered
Storage subsystem:	Windows Storage

STORAGE POOL PROPERTIES

Name:	DemoStoragePool
Capacity:	100.0 GB

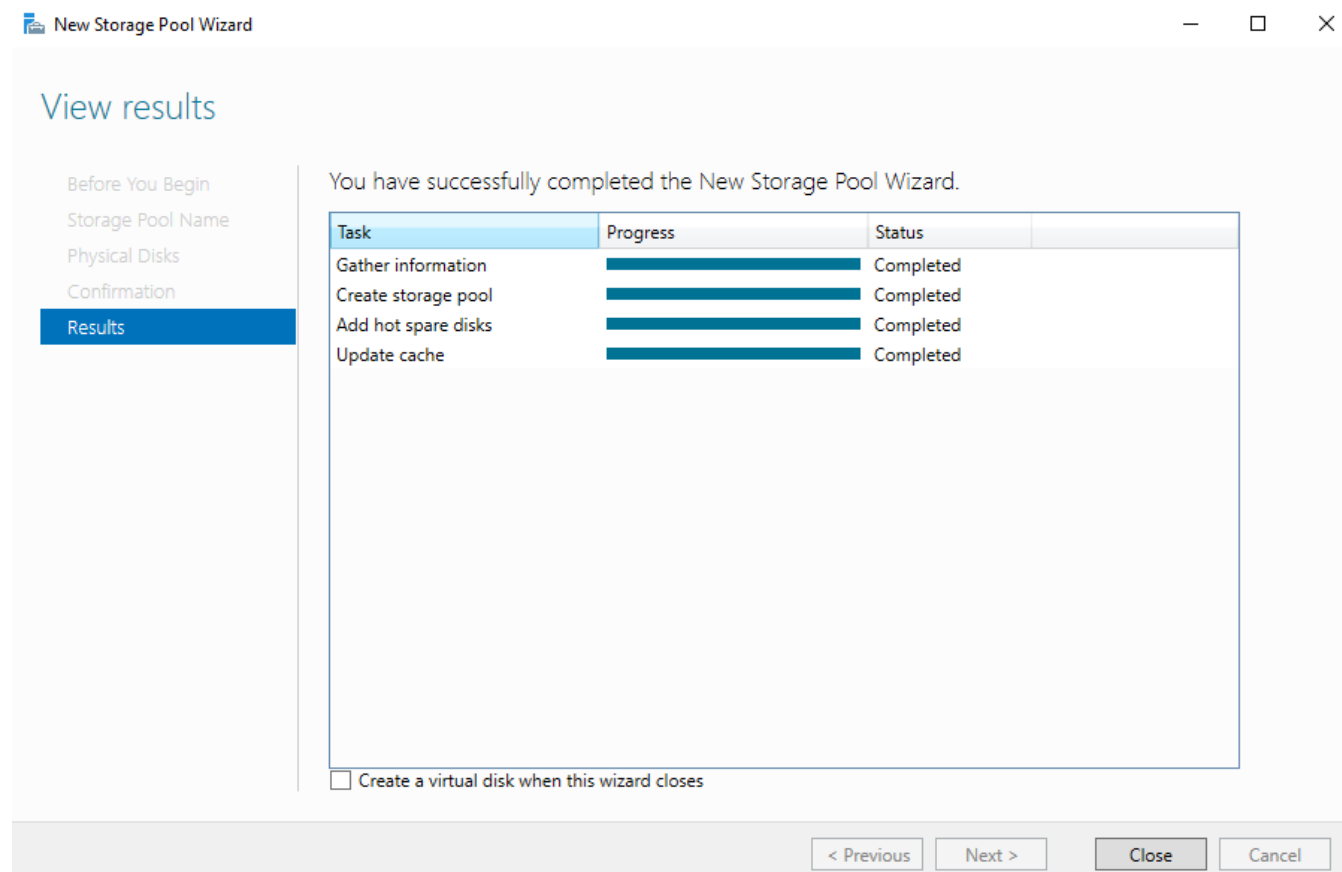
PHYSICAL DISKS

Msft Virtual Disk (srv3)	Automatic
Msft Virtual Disk (srv3)	Automatic
Msft Virtual Disk (srv3)	Automatic
Msft Virtual Disk (srv3)	Hot Spare

< Previous Next > Create Cancel

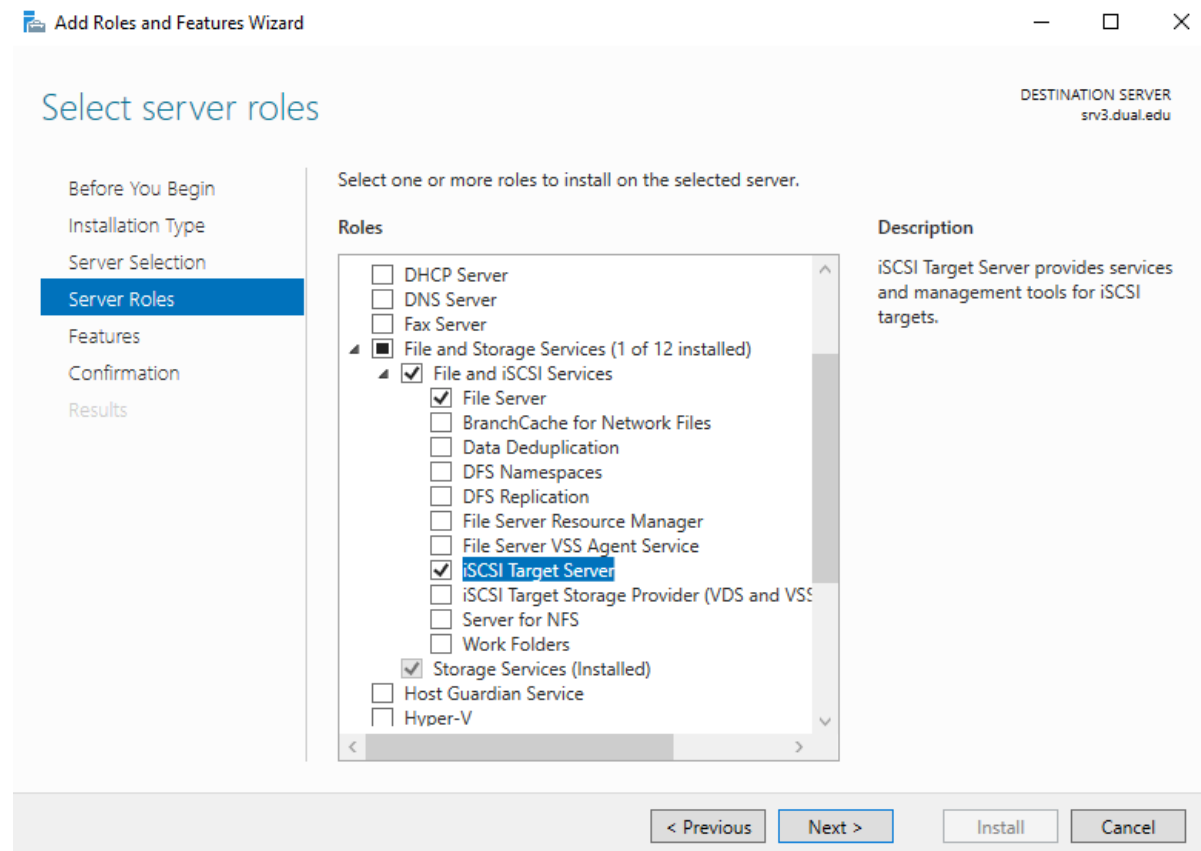
Krok 2

::Vytvorenie Storage POOL na SRV3



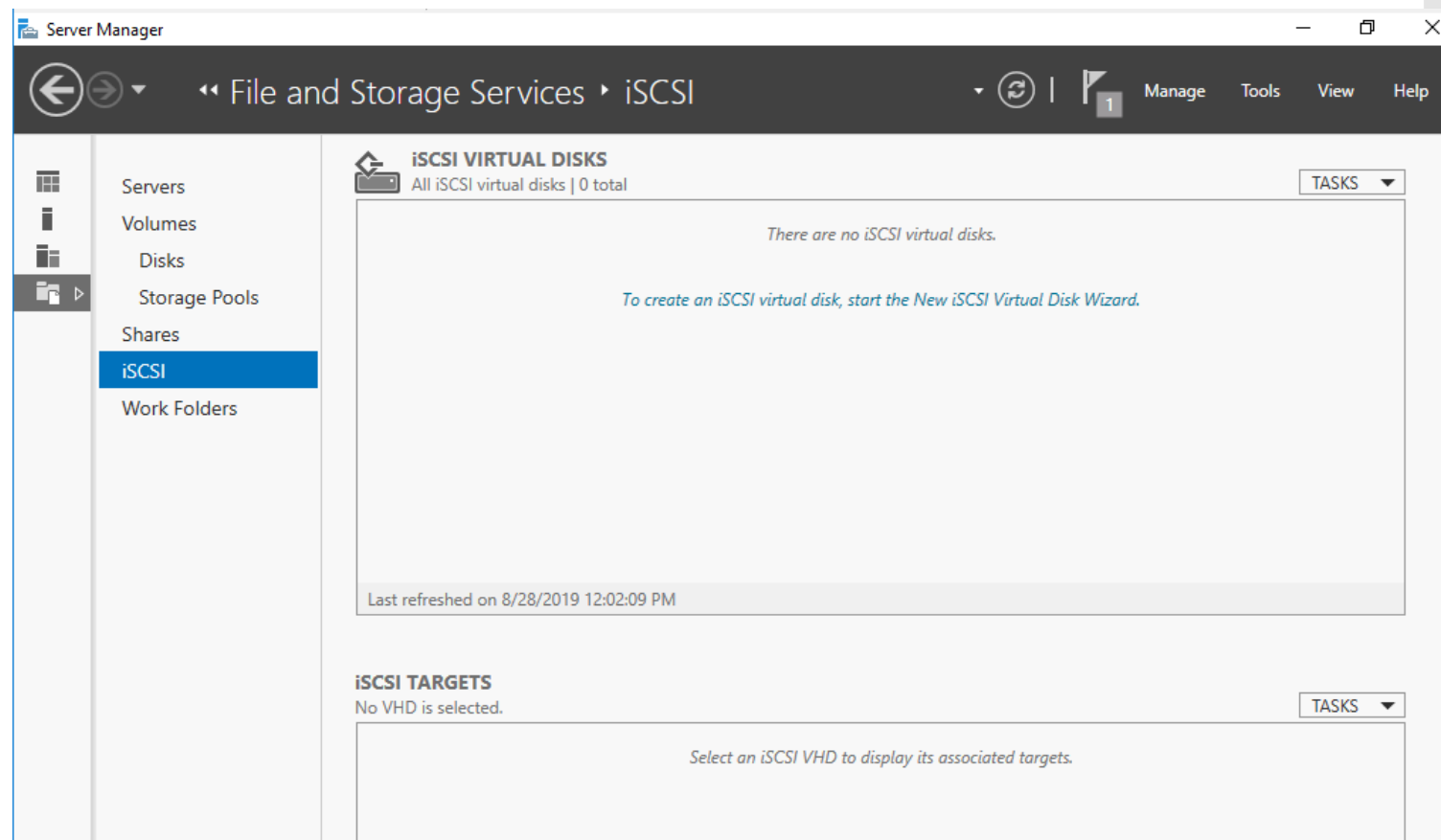
Krok 3

::Inštalácia iSCSI Target server role na SRV3



Krok 4

::Konfigurácia iSCSI Target server role na SRV3



Krok 4

::Konfigurácia virtuálneho disku z DemoStoragePool na SRV3

Krok 4

::Konfigurácia virtuálneho disku z DemoStoragePool na SRV3

Server Manager

Navigation: Volumes > Storage Pools

Storage Pools: All storage pools | 1 total

Storage pool selection dialog:

Pool Name	Managed by	Available to	Capacity	Free Space	Subsystem
DemoStoragePool	srv3	srv3	97.0 GB	96.0 GB	Windows Storage

Buttons: OK, Cancel

Virtual disks section:

No related virtual disks exist.

To create a virtual disk, start the New Virtual Disk Wizard.

Slot	Name	Status	Capacity
	Msft Virtual Disk (srv3)		25.0 GB
	Msft Virtual Disk (srv3)		25.0 GB
	Msft Virtual Disk (srv3)		25.0 GB
	Msft Virtual Disk (srv3)		25.0 GB

Krok 4

::Konfigurácia virtuálneho disku z DemoStoragePool na SRV3

New Virtual Disk Wizard

Specify the virtual disk name

Before You Begin
Virtual Disk Name
Enclosure Awareness
Storage Layout
Provisioning
Size
Confirmation
Results

Name: iSCSIDisk

Description: Pre iSCSI pripojenie

☐ Create storage tiers on this virtual disk
Storage tiers enable automatic movement of the most frequently accessed files to faster storage.

i To use storage tiers, the storage pool requires a minimum of one automatically allocated physical disk of each media type (SSD and HDD).

< Previous Next > Create Cancel

Krok 4

::Konfigurácia virtuálneho disku z DemoStoragePool na SRV3

The screenshot shows the 'New Virtual Disk Wizard' window with the title bar 'New Virtual Disk Wizard'. The window is divided into two main sections. On the left is a vertical navigation pane with the following steps: 'Before You Begin', 'Virtual Disk Name', 'Enclosure Awareness' (which is highlighted with a blue background), 'Storage Layout', 'Provisioning', 'Size', 'Confirmation', and 'Results'. The main area on the right is titled 'Specify enclosure resiliency'. It contains the following text: 'EnclosureAwareness stores copies of your data on separate storage enclosures (JBODs). Helping protect your data if an entire enclosure fails.' followed by 'If you enable enclosure awareness, settings that requires additional enclosures are grayed out.' Below this text is a checkbox labeled 'Enable enclosure awareness' which is currently unchecked. At the bottom of the main area is an information icon (a blue 'i' in a circle) followed by the text: 'To use enclosure awareness, your server must have at least three enclosures and the physical disks in each enclosure must have automatic allocation.' At the bottom of the window is a gray bar containing four buttons: '< Previous', 'Next >', 'Create', and 'Cancel'.

New Virtual Disk Wizard

Specify enclosure resiliency

Before You Begin
Virtual Disk Name
Enclosure Awareness
Storage Layout
Provisioning
Size
Confirmation
Results

EnclosureAwareness stores copies of your data on separate storage enclosures (JBODs). Helping protect your data if an entire enclosure fails.

If you enable enclosure awareness, settings that requires additional enclosures are grayed out.

☐ Enable enclosure awareness

i To use enclosure awareness, your server must have at least three enclosures and the physical disks in each enclosure must have automatic allocation.

< Previous Next > Create Cancel

Krok 4

::Konfigurácia virtuálneho disku z DemoStoragePool na SRV3

The screenshot shows the 'New Virtual Disk Wizard' window. The title bar reads 'New Virtual Disk Wizard'. The main heading is 'Select the storage layout'. On the left, a list of steps is shown: 'Before You Begin', 'Virtual Disk Name', 'Enclosure Awareness', 'Storage Layout' (highlighted), 'Provisioning', 'Size', 'Confirmation', and 'Results'. The 'Layout' section contains a list box with three options: 'Simple', 'Mirror' (selected), and 'Parity'. The 'Description' section contains the following text: 'Data is striped across physical disks, creating two or three copies of your data. This increases reliability, but reduces capacity. To protect against a single disk failure, use at least two disks (three if you're using a cluster); to protect against two disk failures, use at least five disks.' At the bottom, there are four buttons: '< Previous', 'Next >', 'Create', and 'Cancel'.

New Virtual Disk Wizard

Select the storage layout

Before You Begin
Virtual Disk Name
Enclosure Awareness
Storage Layout
Provisioning
Size
Confirmation
Results

Layout:

- Simple
- Mirror**
- Parity

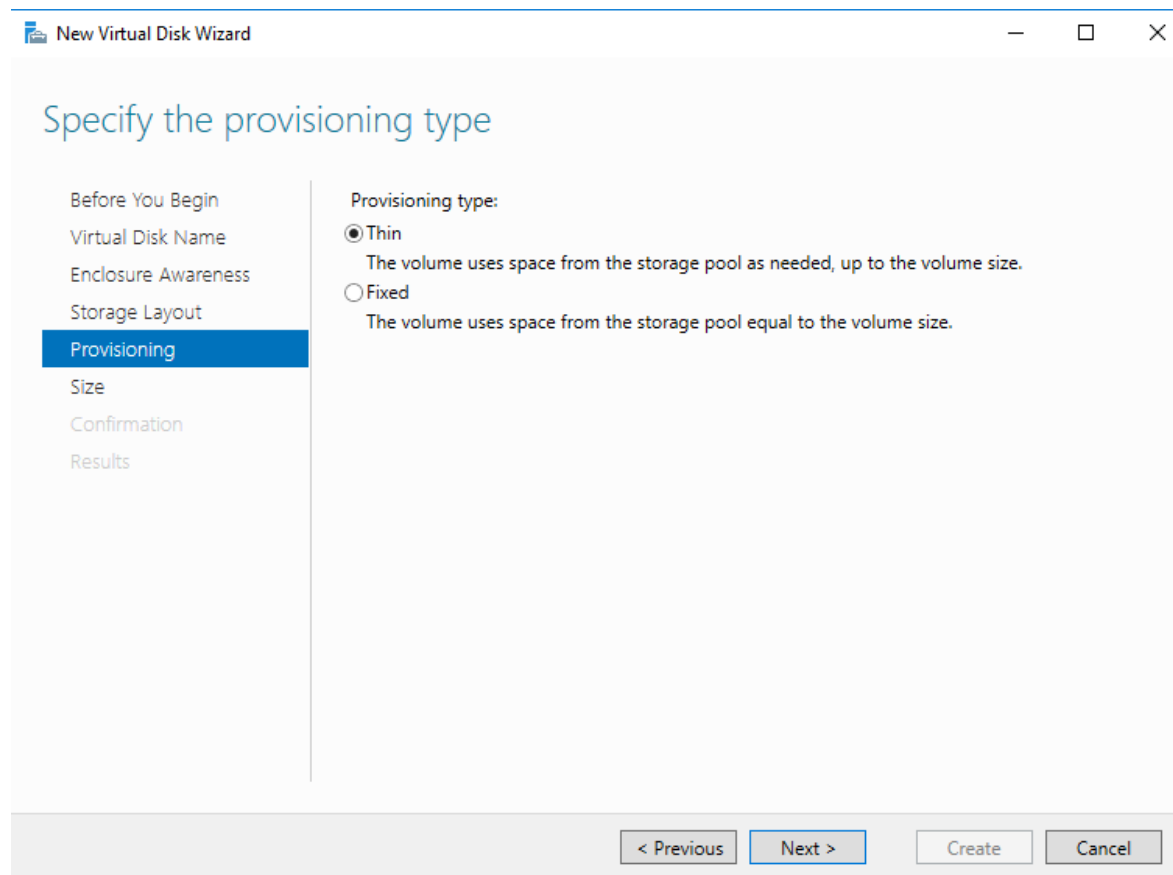
Description:

Data is striped across physical disks, creating two or three copies of your data. This increases reliability, but reduces capacity. To protect against a single disk failure, use at least two disks (three if you're using a cluster); to protect against two disk failures, use at least five disks.

< Previous Next > Create Cancel

Krok 4

::Konfigurácia virtuálneho disku z DemoStoragePool na SRV3



The screenshot shows the 'New Virtual Disk Wizard' window with the title bar 'New Virtual Disk Wizard'. The main heading is 'Specify the provisioning type'. On the left, a list of steps includes 'Before You Begin', 'Virtual Disk Name', 'Enclosure Awareness', 'Storage Layout', 'Provisioning' (highlighted), 'Size', 'Confirmation', and 'Results'. On the right, under 'Provisioning type:', there are two options: 'Thin' (selected with a radio button) and 'Fixed' (unselected). The description for 'Thin' is 'The volume uses space from the storage pool as needed, up to the volume size.' and for 'Fixed' is 'The volume uses space from the storage pool equal to the volume size.' At the bottom, there are four buttons: '< Previous', 'Next >', 'Create', and 'Cancel'.

New Virtual Disk Wizard

Specify the provisioning type

Before You Begin
Virtual Disk Name
Enclosure Awareness
Storage Layout
Provisioning
Size
Confirmation
Results

Provisioning type:

☒ Thin
The volume uses space from the storage pool as needed, up to the volume size.

☐ Fixed
The volume uses space from the storage pool equal to the volume size.

< Previous Next > Create Cancel

Krok 4

::Konfigurácia virtuálneho disku z DemoStoragePool na SRV3

New Virtual Disk Wizard

Specify the size of the virtual disk

Before You Begin
Virtual Disk Name
Enclosure Awareness
Storage Layout
Provisioning
Size
Confirmation
Results

☒ Specify size:
50 GB

☐ Maximum size

i The virtual disk might take additional space to create a write-back cache.

< Previous Next > Create Cancel

Krok 4

::Konfigurácia virtuálneho disku z DemoStoragePool na SRV3

New Virtual Disk Wizard

Confirm selections

Before You Begin
Virtual Disk Name
Enclosure Awareness
Storage Layout
Provisioning
Size
Confirmation
Results

Confirm that the following are the correct settings, and then click Create.

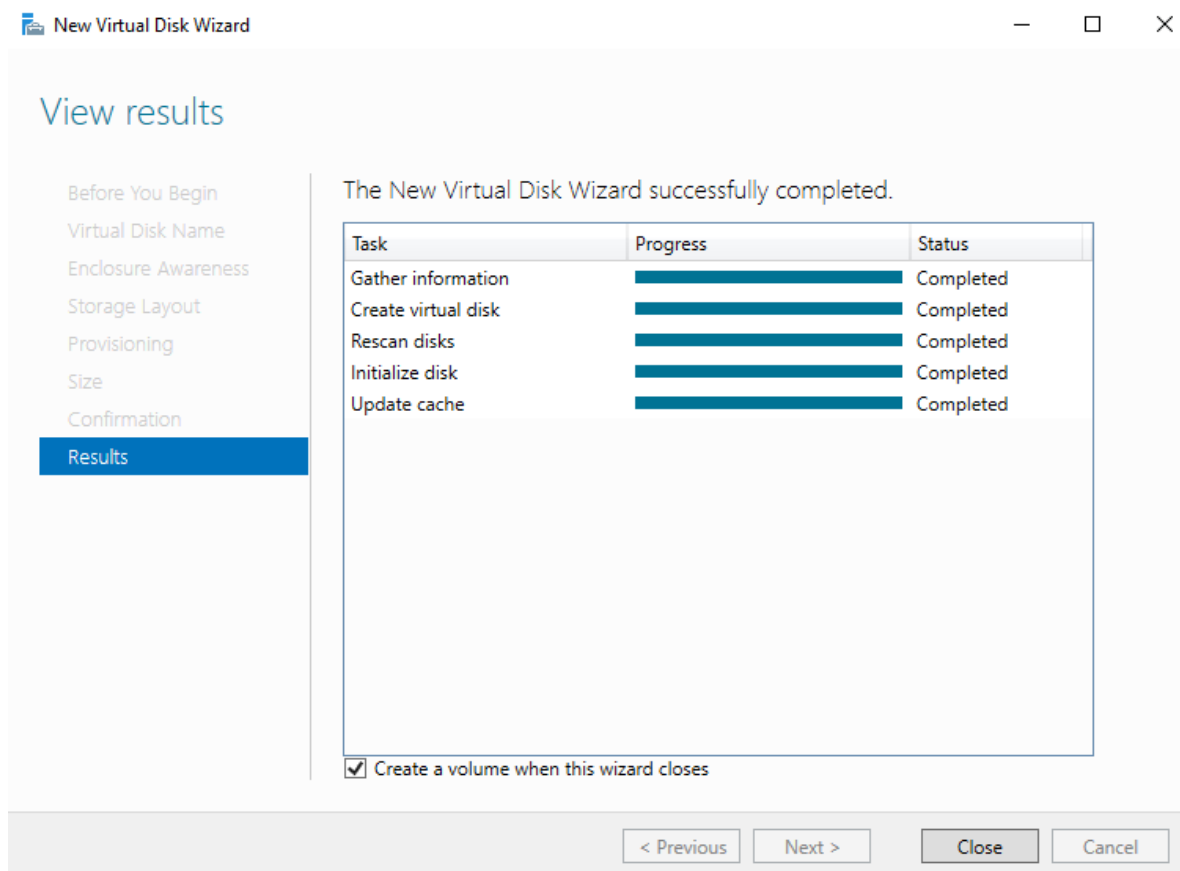
VIRTUAL DISK LOCATION	
Server:	srv3
Subsystem:	Windows Storage
Storage pool name:	DemoStoragePool
Status:	OK
Free space:	96.0 GB

VIRTUAL DISK PROPERTIES	
Name:	iSCSIDisk
Description:	Pre iSCSI pripojenie
Storage tiers:	Disabled
Storage layout:	Mirror
Provisioning type:	Thin
Total requested size:	50.0 GB
Enclosure awareness:	None

< Previous Next > Create Cancel

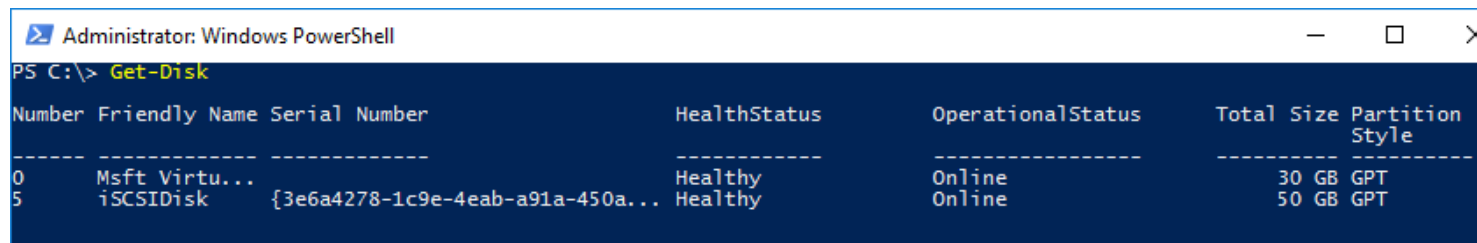
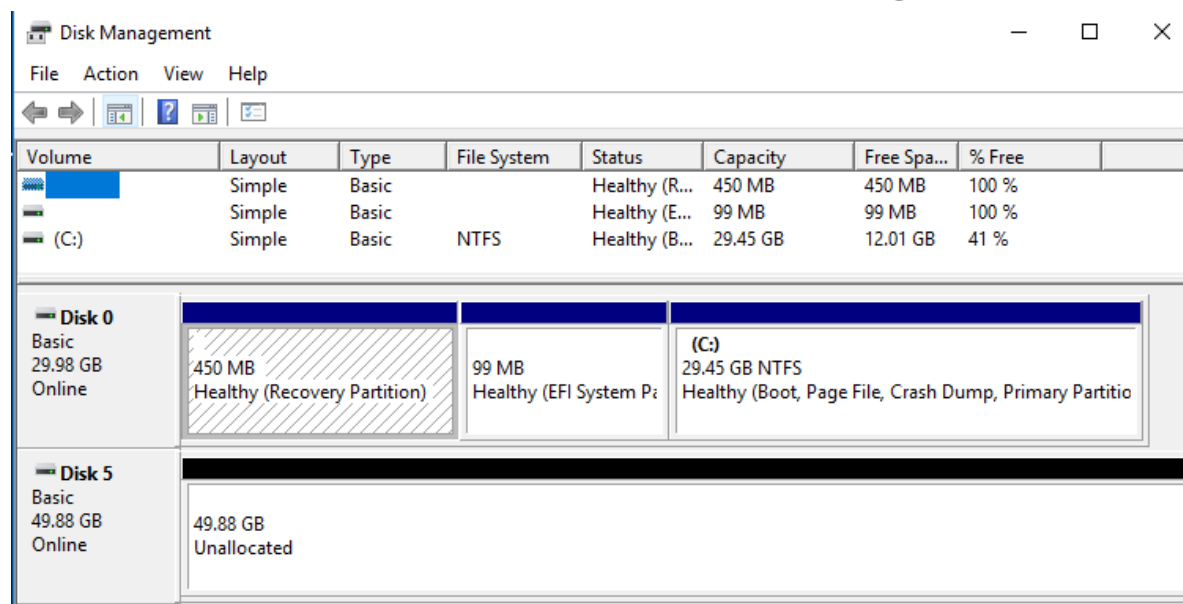
Krok 4

::Konfigurácia virtuálneho disku z DemoStoragePool na SRV3



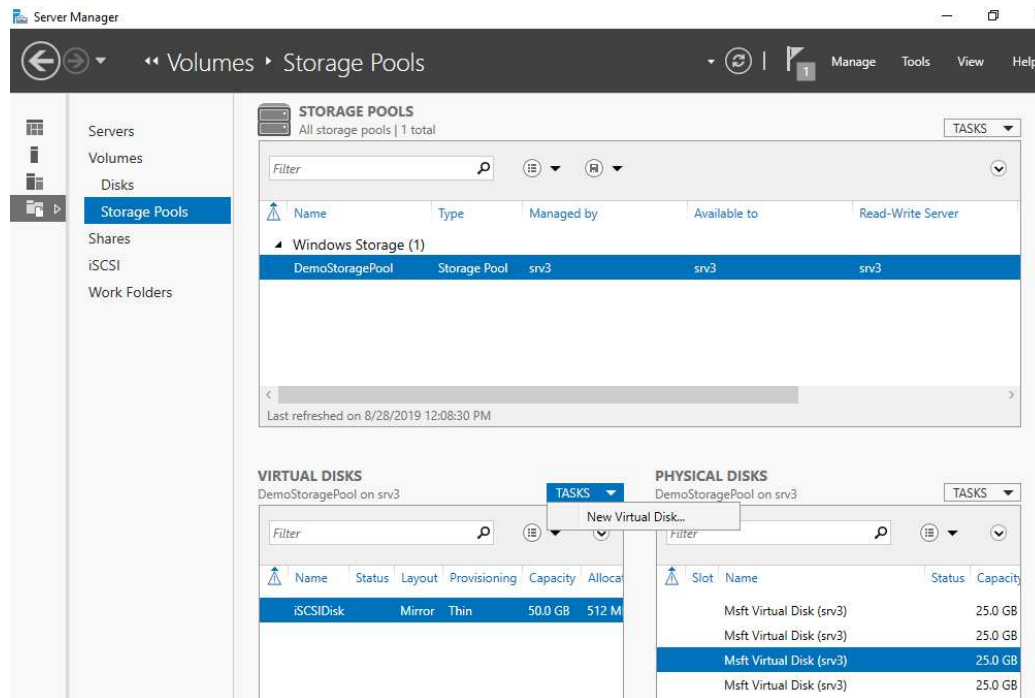
Krok 4

::Validácia nového virtuálneho disku na SRV3



Krok 5

::Vytvorenie volume S na novo virtuálnom disku na SRV3



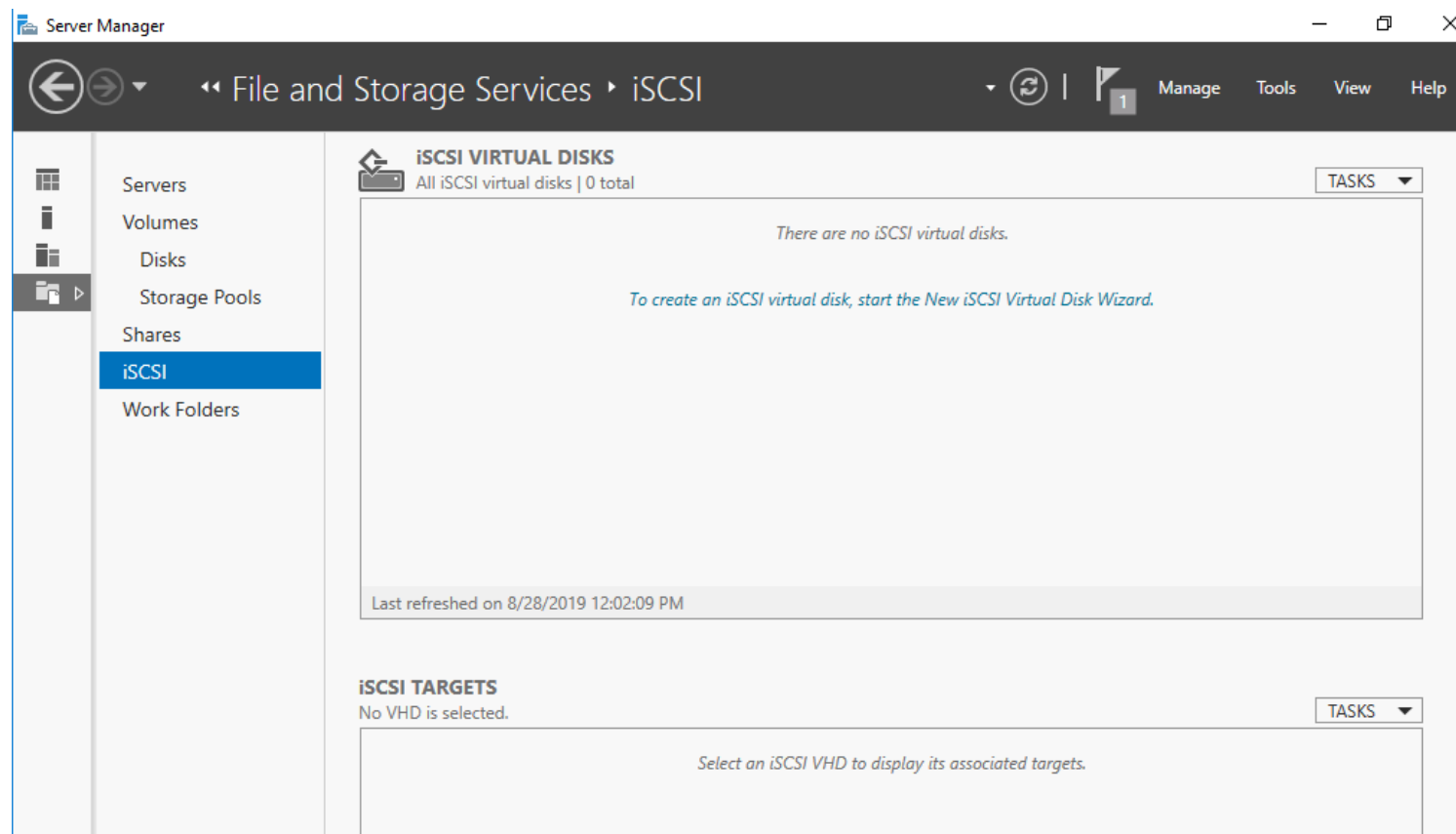
Select Administrator: Windows PowerShell

```
PS C:\> Get-Disk -Number 5 | New-Volume -FriendlyName iSCSI -FileSystem NTFS -DriveLetter I
```

DriveLetter	FileSystemLabel	FileSystem	DriveType	HealthStatus	OperationalStatus	SizeRemaining	Size
I	iSCSI	NTFS	Fixed	Healthy	OK	49.78 GB	49.87 GB

Krok 6

::Konfigurácia iSCSI target role na SRV3



Krok 6

::Konfigurácia iSCSI target role na SRV3

New iSCSI Virtual Disk Wizard

Select iSCSI virtual disk location

ISCSI Virtual Disk Location

- ISCSI Virtual Disk Name
- ISCSI Virtual Disk Size
- ISCSI Target
- Target Name and Access
- Access Servers
- Enable authentication ser...
- Confirmation
- Results

Server:

Server Name	Status	Cluster Role	Owner Node
srv3	Online	Not Clustered	

i The list is filtered to show only servers with the iSCSI Target Server role installed.

Storage location:

☒ Select by volume:

Volume	Free Space	Capacity	File System
C:	12.0 GB	29.5 GB	NTFS
J:	49.8 GB	49.9 GB	NTFS

The iSCSI virtual disk will be saved at \iSCSIVirtualDisk on the selected volume.

☐ Type a custom path:

Krok 6

::Konfigurácia iSCSI target role na SRV3

New iSCSI Virtual Disk Wizard

Specify iSCSI virtual disk name

iSCSI Virtual Disk Location

iSCSI Virtual Disk Name

iSCSI Virtual Disk Size

iSCSI Target

Target Name and Access

Access Servers

Enable authentication ser...

Confirmation

Results

Name: iSCSILUN

Description: iSCSI LUN for Witness

Path: I:\iSCSIVirtualDisks\iSCSILUN.vhdx

< Previous Next > Create Cancel

Krok 6

::Konfigurácia iSCSI target role na SRV3

The screenshot shows the 'New iSCSI Virtual Disk Wizard' window, specifically the 'Specify iSCSI virtual disk size' step. The left sidebar contains a list of steps: 'iSCSI Virtual Disk Location', 'iSCSI Virtual Disk Name', 'iSCSI Virtual Disk Size' (which is highlighted), 'iSCSI Target', 'Target Name and Access', 'Access Servers', 'Enable authentication ser...', 'Confirmation', and 'Results'. The main area displays 'Free space: 49.7 GB' and a 'Size' input field set to '1' GB. Three disk types are presented as radio button options: 'Fixed size', 'Dynamically expanding' (which is selected), and 'Differencing'. Each option includes a brief description of its characteristics and recommendations. The 'Dynamically expanding' option is selected. Below the 'Differencing' option, there is a 'Parent virtual disk path:' label and an empty text box with a 'Browse...' button next to it. At the bottom of the window, there are four buttons: '< Previous', 'Next >', 'Create', and 'Cancel'.

New iSCSI Virtual Disk Wizard

Specify iSCSI virtual disk size

iSCSI Virtual Disk Location
iSCSI Virtual Disk Name
iSCSI Virtual Disk Size
iSCSI Target
Target Name and Access
Access Servers
Enable authentication ser...
Confirmation
Results

Free space: 49.7 GB

Size: 1 GB

☐ Fixed size

This type of disk provides better performance and is recommended for servers running applications with a high level of disk activity. The virtual hard disk is created using the size of the fixed virtual hard disk. It does not change when data is added or deleted.

☒ Clear the virtual disk on allocation

Note: Un-selecting is NOT RECOMMENDED. Clearing a disk to zero will remove any fragments of data that remained on underlying storage, thus protecting from information leaks.

☒ Dynamically expanding

This type of disk provides better use of physical storage space and is recommended for servers running applications that are not disk intensive. The .vhdx file is small when the disk is created and grows as data is written to it.

☐ Differencing

This type of disk is associated in a parent-child relationship with another disk that you want to leave intact. You can make changes to this virtual hard disk without affecting the parent disk and easily revert the changes later.

Parent virtual disk path:

Browse...

< Previous Next > Create Cancel

Krok 6

::Konfigurácia iSCSI target role na SRV2

New iSCSI Virtual Disk Wizard

Assign iSCSI target

iSCSI Virtual Disk Location
iSCSI Virtual Disk Name
iSCSI Virtual Disk Size
iSCSI Target
Target Name and Access
Access Servers
Enable authentication ser...
Confirmation
Results

Assign this iSCSI virtual disk to an existing iSCSI target or create a new target for it.

☐ Existing iSCSI target:

Target Name	Initiator IDs	Description
-------------	---------------	-------------

☒ New iSCSI target

< Previous Next > Create Cancel

Krok 6

::Konfigurácia iSCSI target role na SRV3

The screenshot shows the 'New iSCSI Virtual Disk Wizard' window, specifically the 'Specify target name' step. The window has a title bar with the text 'New iSCSI Virtual Disk Wizard' and standard Windows window controls. On the left, a vertical list of steps is shown: 'iSCSI Virtual Disk Location', 'iSCSI Virtual Disk Name', 'iSCSI Virtual Disk Size', 'iSCSI Target', 'Target Name and Access' (which is highlighted with a blue background), 'Access Servers', 'Enable authentication ser...', 'Confirmation', and 'Results'. The main area of the wizard is titled 'Specify target name'. It contains two input fields: 'Name:' with the text 'iSCSI TargetSRV3' entered, and 'Description:' with an empty text box. At the bottom of the window, there are four buttons: '< Previous', 'Next >', 'Create', and 'Cancel'.

New iSCSI Virtual Disk Wizard

Specify target name

iSCSI Virtual Disk Location
iSCSI Virtual Disk Name
iSCSI Virtual Disk Size
iSCSI Target
Target Name and Access
Access Servers
Enable authentication ser...
Confirmation
Results

Name: iSCSI TargetSRV3

Description:

< Previous Next > Create Cancel

Krok 6

::Konfigurácia iSCSI target role na SRV3

New iSCSI Virtual Disk Wizard

Specify access servers

iSCSI Virtual Disk Location
iSCSI Virtual Disk Name
iSCSI Virtual Disk Size
iSCSI Target
Target Name and Access
Access Servers
Enable authentication ser...
Confirmation
Results

Click Add to specify the iSCSI initiator(s) that will access this iSCSI virtual disk.

Type	Value
IPAddress	192.168.1.10
IPAddress	192.168.1.11
IPAddress	192.168.1.12

Add... Remove

< Previous Next > Create Cancel

Krok 6

::Konfigurácia iSCSI target role na SRV3

The screenshot shows the 'New iSCSI Virtual Disk Wizard' window, specifically the 'Enable Authentication' step. The wizard is titled 'New iSCSI Virtual Disk Wizard' and has a progress bar on the left. The steps in the progress bar are: iSCSI Virtual Disk Location, iSCSI Virtual Disk Name, iSCSI Virtual Disk Size, iSCSI Target, Target Name and Access Servers, Access Servers, **Enable authentication services** (highlighted), Confirmation, and Results. The main content area is titled 'Enable Authentication' and contains the following text: 'Optionally, enable the CHAP protocol to authenticate initiator connections, or enable reverse CHAP to allow the initiator to authenticate the iSCSI target.' There are two sections: 'Enable CHAP' (checked) and 'Enable reverse CHAP' (unchecked). The 'Enable CHAP' section has three input fields: 'User name' (containing 'iscsiuser'), 'Password' (masked with dots), and 'Confirm password' (masked with dots). The 'Enable reverse CHAP' section has three empty input fields: 'User name', 'Password', and 'Confirm password'. At the bottom of the window, there are four buttons: '< Previous', 'Next >', 'Create', and 'Cancel'.

New iSCSI Virtual Disk Wizard

Enable Authentication

ISCSI Virtual Disk Location
ISCSI Virtual Disk Name
ISCSI Virtual Disk Size
ISCSI Target
Target Name and Access Servers
Access Servers
Enable authentication services
Confirmation
Results

ISCSI Virtual Disk Location
ISCSI Virtual Disk Name
ISCSI Virtual Disk Size
ISCSI Target
Target Name and Access Servers
Access Servers
Enable authentication services
Confirmation
Results

Optionally, enable the CHAP protocol to authenticate initiator connections, or enable reverse CHAP to allow the initiator to authenticate the iSCSI target.

☒ Enable CHAP:

User name: iscsiuser

Password:

Confirm password:

☐ Enable reverse CHAP:

User name:

Password:

Confirm password:

< Previous Next > Create Cancel

Krok 6

::Konfigurácia iSCSI target role na SRV3

New iSCSI Virtual Disk Wizard

Confirm selections

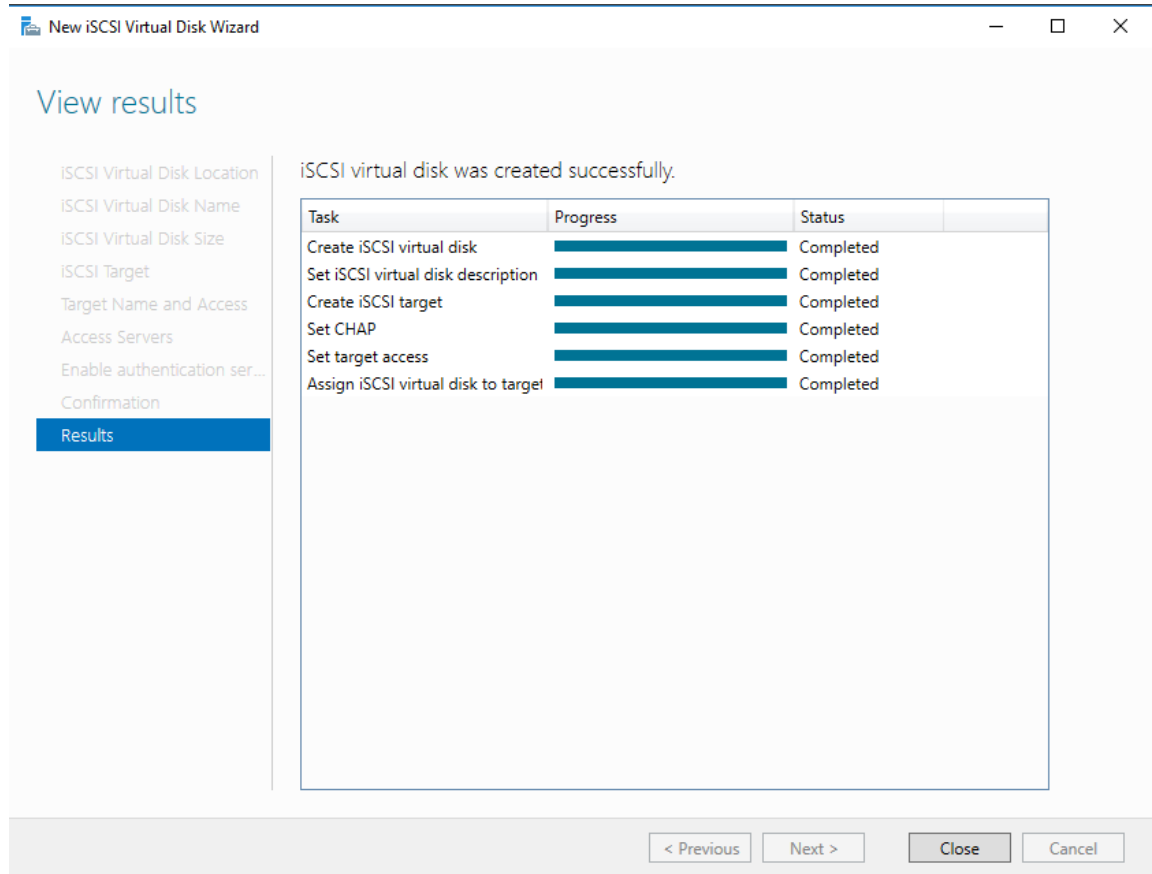
Confirm that the following are the correct settings, and then click Create.

ISCSI VIRTUAL DISK LOCATION	
Server:	srv3
Cluster role:	Not Clustered
Path:	I:\ISCSIVirtualDisks\iSCSILUN.vhdx
ISCSI VIRTUAL DISK PROPERTIES	
Name:	iSCSILUN
Description:	iSCSI LUN for Witness
Size:	1.00 GB
TARGET PROPERTIES	
Name:	iscsitargetsrv3
ACCESS SERVERS	
DNS Name:	dual.edu
SECURITY	
CHAP:	Enabled
Reverse CHAP:	Disabled

< Previous Next > Create Cancel

Krok 6

::Konfigurácia iSCSI target role na SRV3



Krok 6

::Konfigurácia iSCSI target role na SRV3

The screenshot shows the Windows Server Manager interface. The left-hand navigation pane is open to 'iSCSI'. The main area displays two sections: 'iSCSI VIRTUAL DISKS' and 'iSCSI TARGETS'.

iSCSI VIRTUAL DISKS

All iSCSI virtual disks | 1 total

Path	Status	Virtual Disk Status	Target Name	Target Status	Initiator ID	Size
srv3 (1)						
I:\iSCSIVirtualDisks\iSCSILUN.vhdx	Not Connected		iscsitargetsrv3	Not Connected	DNSName:dual.edu	1.00 GB

Last refreshed on 8/28/2019 12:20:25 PM

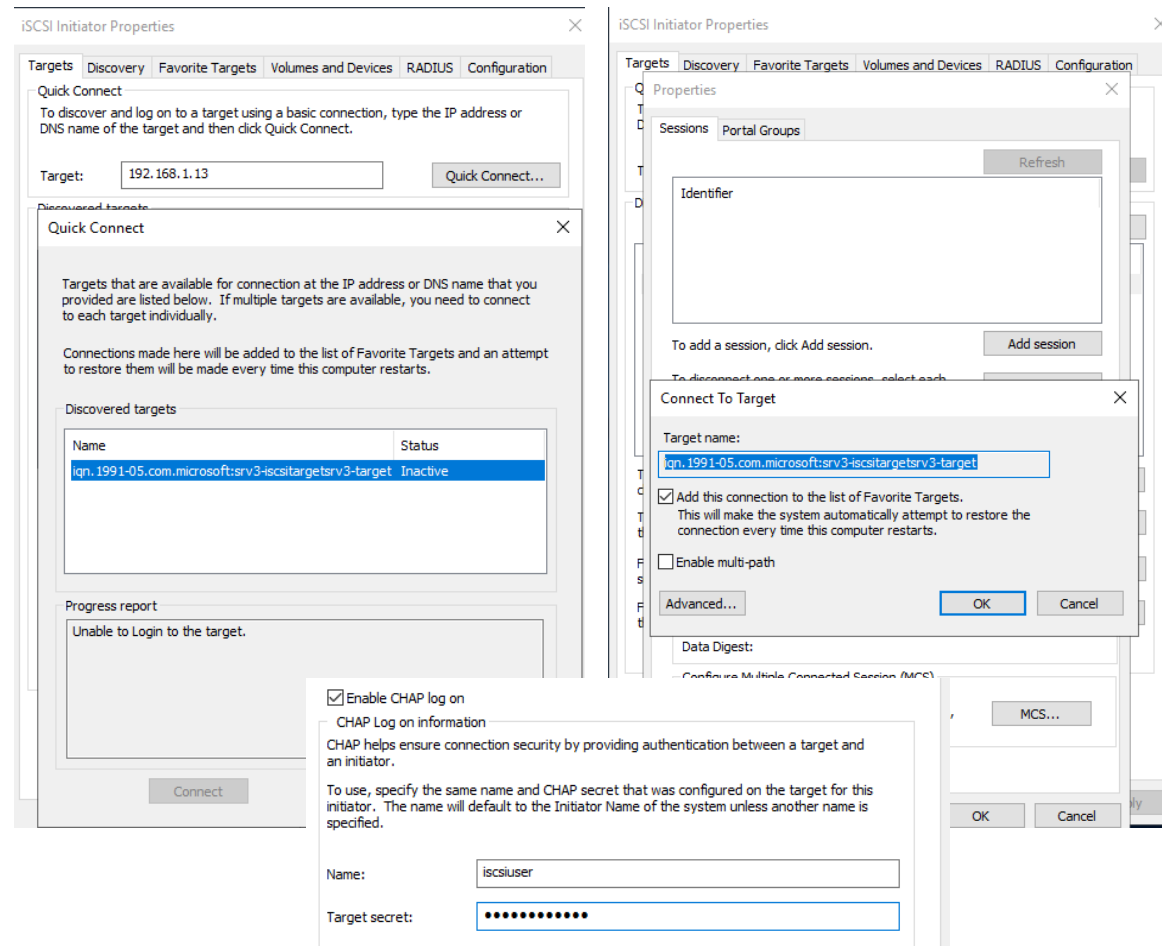
iSCSI TARGETS

I:\iSCSIVirtualDisks\iSCSILUN.vhdx on srv3

Name	Server Name	Target IQN	Target Status	Initiator ID	Last Logon
iscsitargetsrv3	srv3	iqn.1991-05.com.microsoft:srv3-iscsitargetsrv3-target	Not Connected	DNSName:dual.edu	

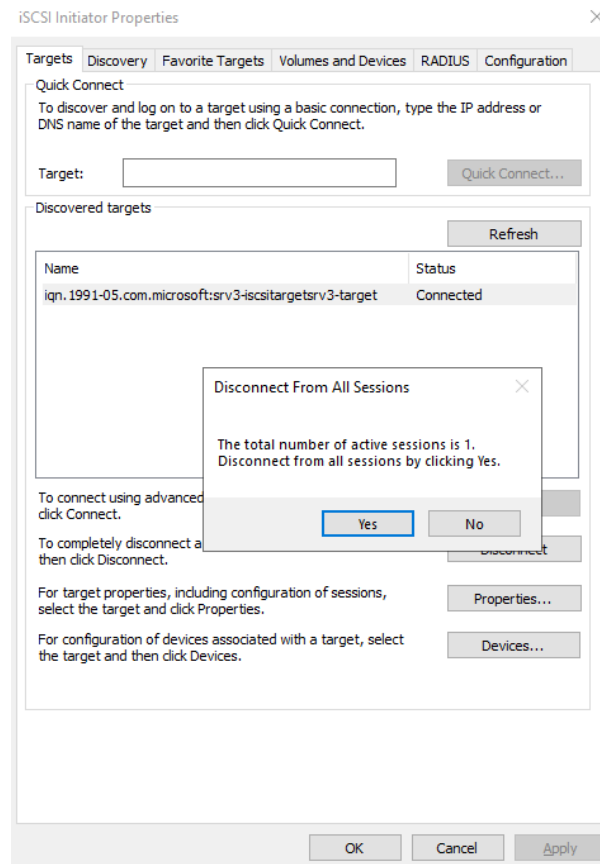
Krok 7

::Test konekcie iSCSILun cez iSCSI Initiator na DC VM



Krok 8

::Disconnect iSCSI LUN and stop iSCSI service on DC VM.



Administrator: Windows PowerShell

```
PS C:\Users\Administrator> Get-Service *iscsi*

Status  Name                DisplayName
-----
Running MSiSCSI           Microsoft iSCSI Initiator Service

PS C:\Users\Administrator> Get-Service *iscsi* | Stop-Service
PS C:\Users\Administrator>
```