Lab 05 - Implement Intersite Connectivity

Task 1: Provision the lab environment

We upload the files \Allfiles\Labs\05\az104-05-vnetvm-loop-template.json and \Allfiles\Labs\05\az104-05-vnetvm-loop-parameters.json into the Cloud Shell home directory

```
-rw-r--r-- 1 andrijana andrijana  373 Mar 23 22:38 az104-05-vnetvm-loop-parameters.json
-rw-r--r-- 1 andrijana andrijana 7842 Mar 23 22:37 az104-05-vnetvm-loop-template.json
```

Upon listing the available locations, I've chosen 'eastus' and 'westus2' as the locations for my lab provisioning. However, 'westus2' wasn't available for deploying the virtual networks, so eventually, I had to change it to 'westus'.

```
PS /home/andrijana> $location1 = 'eastus'
PS /home/andrijana> $location2 = 'westus2'
PS /home/andrijana> $rgName = 'az104-05-rg1'
PS /home/andrijana> New-AzResourceGroup -Name $rgName -Location $location1

ResourceGroupName : az104-05-rg1
Location          : eastus
ProvisioningState : Succeeded
Tags              :
ResourceId        : /subscriptions/836f56df-cca0-4866-b552-adbe26a742da/resourceGroups/az104-05-rg1
```

```
New-AzResourceGroupDeployment: 10:45:21 PM - Error: Code=InvalidTemplateDeployment; Message=The template deployment 'az104-05-vnetvm-loop-template' is not valid according to the validation procedure. The tracking id is '06500cef-4df3-4e4
3-b481-c6f98cb71389'. See inner errors for details.
New-AzResourceGroupDeployment: 10:45:21 PM - Error: Code=SkuNotAvailable; Message=The requested VM size for resource 'Following SKUs have failed for Capacity Restrictions: Standard_D2s_v3' is currently not available in location 'westus2'
. Please try another size or deploy to a dif Terminal container button different zone. See https://aka.ms/azureskunotavailable for details.
New-AzResourceGroupDeployment: The deployment validation failed
```

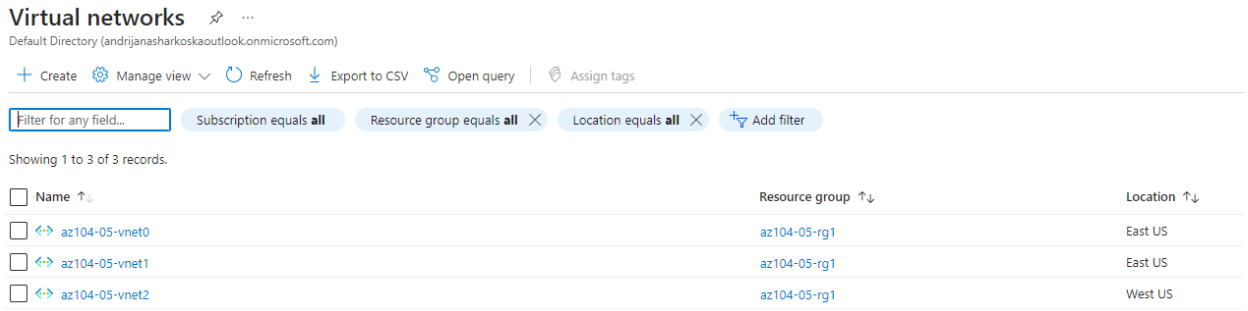
Successful creation of the Virtual Networks:

```
PS /home/andrijana> $location2 = 'westus'
PS /home/andrijana> New-AzResourceGroupDeployment `
>>    -ResourceGroupName $rgName `
>>    -TemplateFile $HOME/az104-05-vnetvm-loop-template.json `
>>    -TemplateParameterFile $HOME/az104-05-vnetvm-loop-parameters.json `
>>    -location1 $location1 `
>>    -location2 $location2

DeploymentName          : az104-05-vnetvm-loop-template
ResourceGroupName       : az104-05-rg1
ProvisioningState       : Succeeded
Timestamp               : 3/23/2023 10:46:55 PM
Mode                    : Incremental
TemplateLink            :
Parameters              :
                          Name             Type                       Value
                          ===============  =========================  ==========
                          vmSize           String                     "Standard_D2s_v3"
                          location1        String                     "eastus"
                          location2        String                     "westus"
                          adminUsername    String                     "Student"
                          adminPassword    SecureString               null

Outputs                 :
DeploymentDebugLogLevel :
```

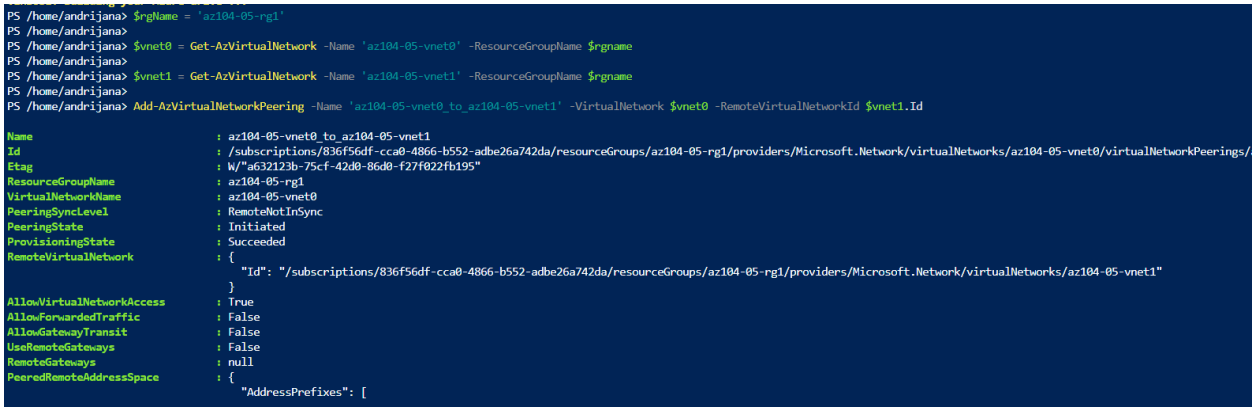
Terminal container button

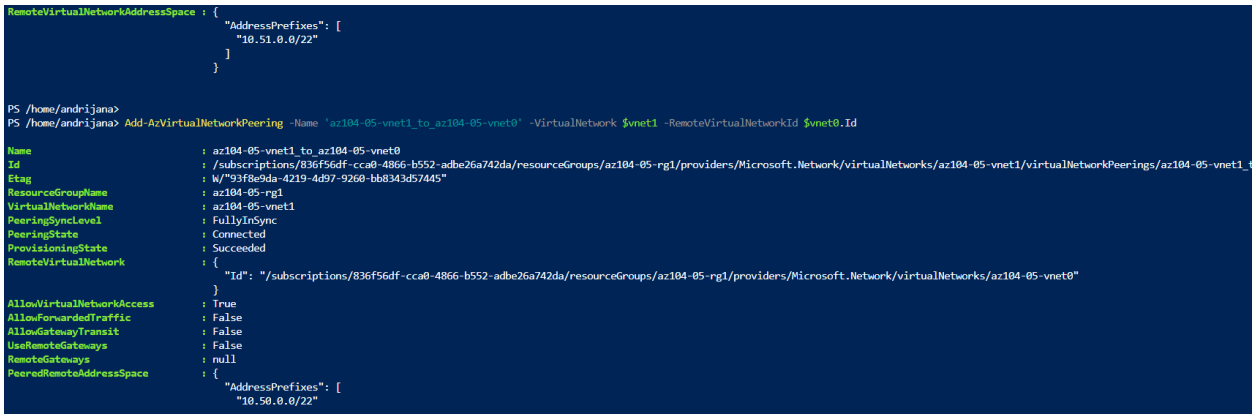
Task 2: Configure local and global virtual network peering

Verifying the location of each virtual network. The first two networks are in East US, while the third one is in West US.

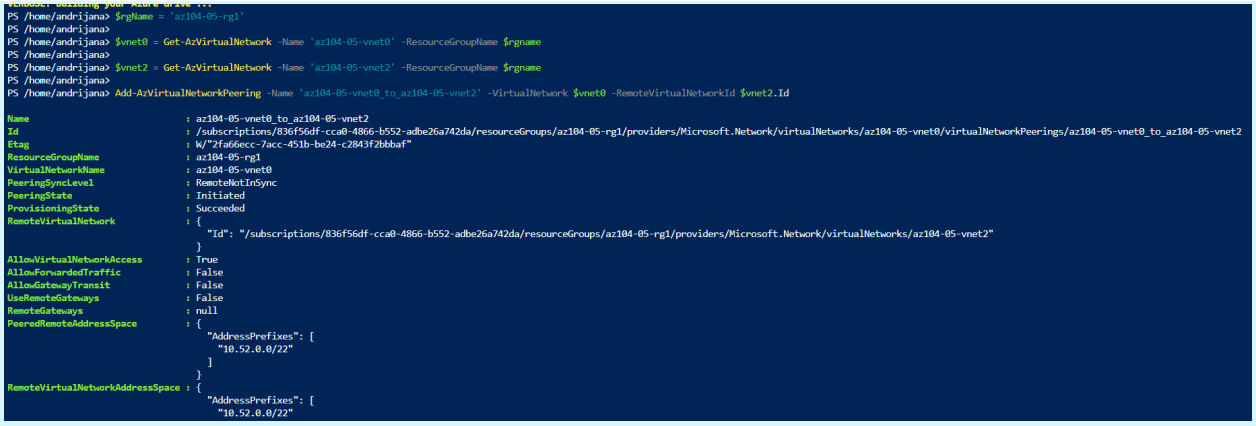


The networks were not displaying in the Peering section, so I had to run the following code to establish the connection:

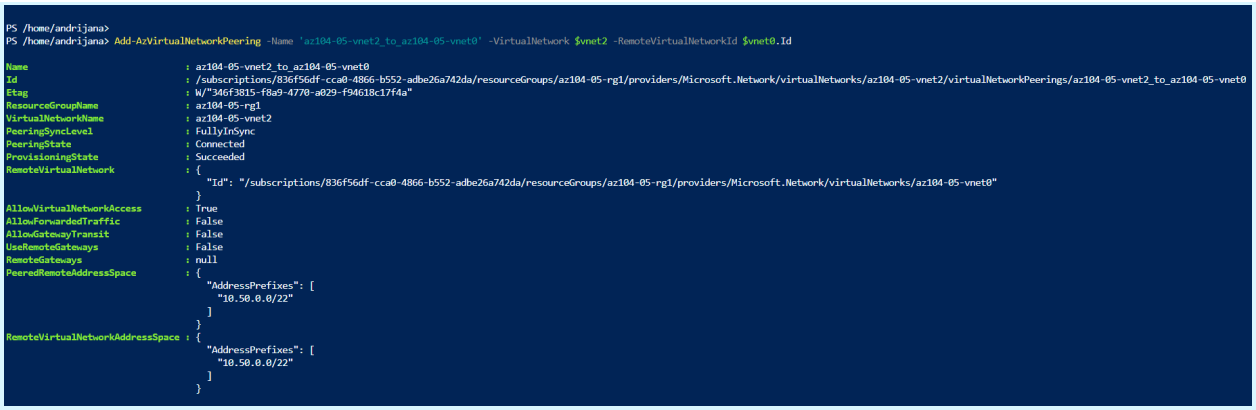




I had to repeat the same step in the PowerShell for adding a peering from `az104-05-vnet2` to `az104-05-vnet0`:

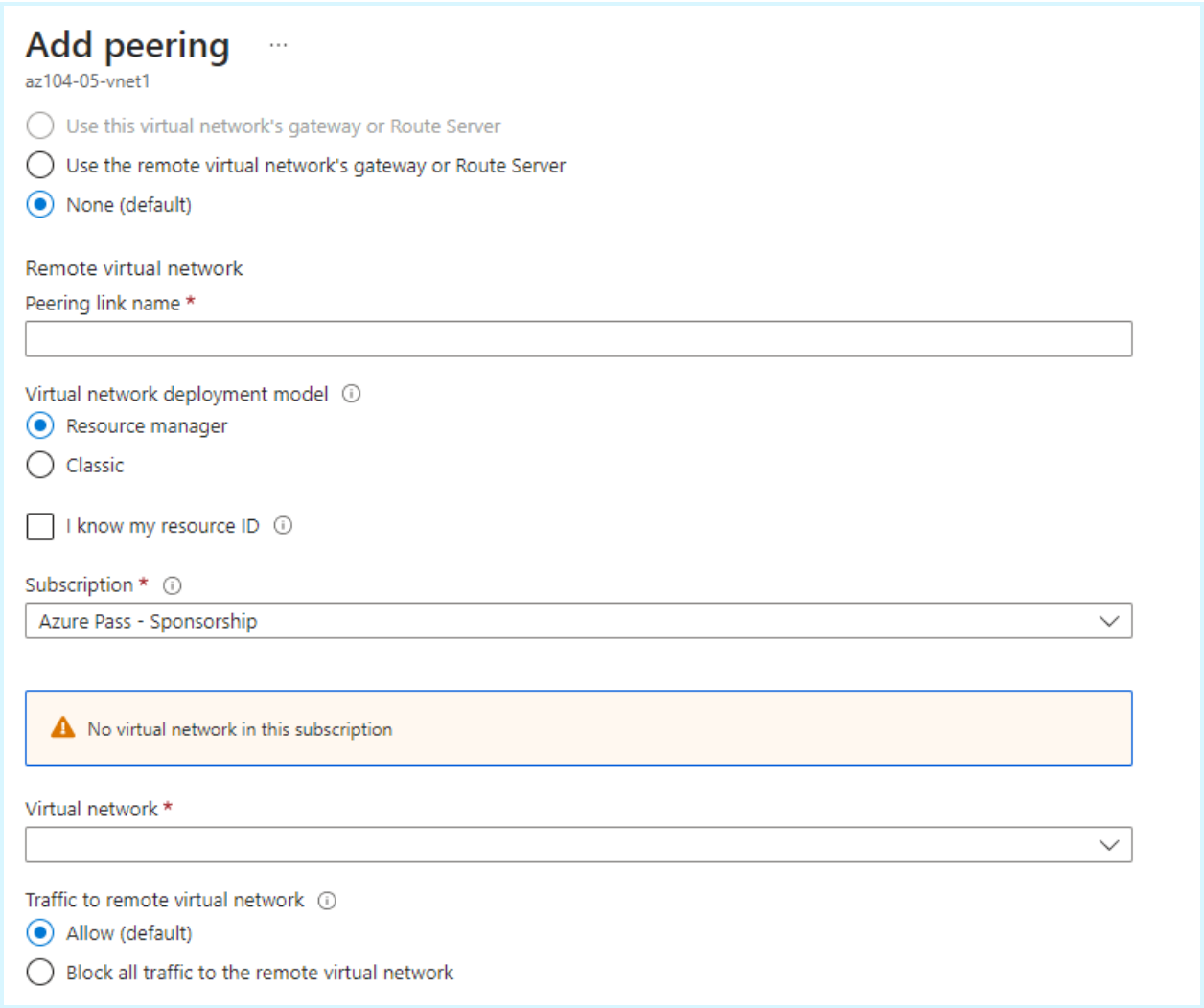


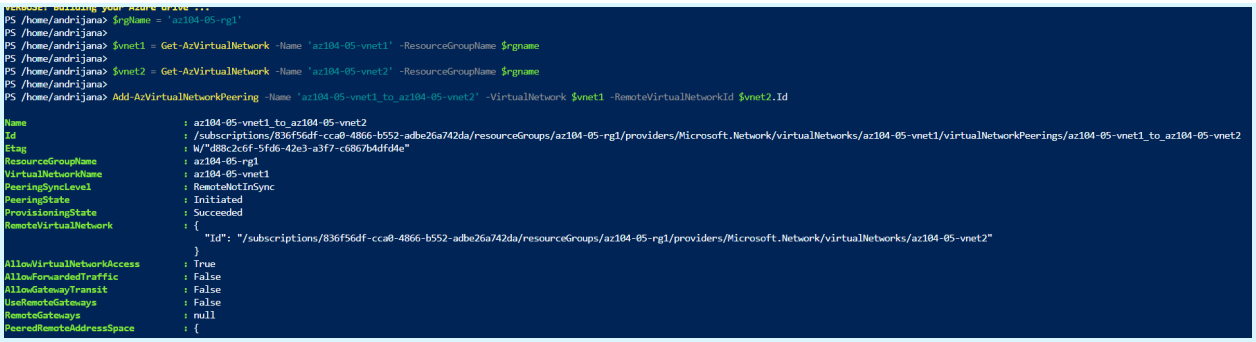
```
PS /home/andrijana> $rgName = 'az104-05-rg1'
PS /home/andrijana>
PS /home/andrijana> $vnet0 = Get-AzVirtualNetwork -Name 'az104-05-vnet0' -ResourceGroupName $rgname
PS /home/andrijana>
PS /home/andrijana> $vnet2 = Get-AzVirtualNetwork -Name 'az104-05-vnet2' -ResourceGroupName $rgname
PS /home/andrijana>
PS /home/andrijana> Add-AzVirtualNetworkPeering -Name 'az104-05-vnet0_to_az104-05-vnet2' -VirtualNetwork $vnet0 -RemoteVirtualNetworkId $vnet2.Id

Name                          : az104-05-vnet0_to_az104-05-vnet2
Id                            : /subscriptions/836f56df-cca0-4866-b552-adbe26a742da/resourceGroups/az104-05-rg1/providers/Microsoft.Network/virtualNetworks/az104-05-vnet0/virtualNetworkPeerings/az104-05-vnet0_to_az104-05-vnet2
Etag                          : W/"2fa66ecc-7acc-451b-be24-c2843f2bbbaf"
ResourceGroupName             : az104-05-rg1
VirtualNetworkName            : az104-05-vnet0
PeeringSyncLevel              : RemoteNotInSync
PeeringState                  : Initiated
ProvisioningState             : Succeeded
RemoteVirtualNetwork          : {
                                  "Id": "/subscriptions/836f56df-cca0-4866-b552-adbe26a742da/resourceGroups/az104-05-rg1/providers/Microsoft.Network/virtualNetworks/az104-05-vnet2"
                                }
AllowVirtualNetworkAccess     : True
AllowForwardedTraffic         : False
AllowGatewayTransit           : False
UseRemoteGateways             : False
RemoteGateways                : null
PeeredRemoteAddressSpace      : {
                                  "AddressPrefixes": [
                                    "10.52.0.0/22"
                                  ]
                                }
RemoteVirtualNetworkAddressSpace : {
                                     "AddressPrefixes": [
                                       "10.52.0.0/22"
```



```
PS /home/andrijana>
PS /home/andrijana> Add-AzVirtualNetworkPeering -Name 'az104-05-vnet2_to_az104-05-vnet0' -VirtualNetwork $vnet2 -RemoteVirtualNetworkId $vnet0.Id

Name                          : az104-05-vnet2_to_az104-05-vnet0
Id                            : /subscriptions/836f56df-cca0-4866-b552-adbe26a742da/resourceGroups/az104-05-rg1/providers/Microsoft.Network/virtualNetworks/az104-05-vnet2/virtualNetworkPeerings/az104-05-vnet2_to_az104-05-vnet0
Etag                          : W/"346f3815-f8a9-4770-a029-f94618c17f4a"
ResourceGroupName             : az104-05-rg1
VirtualNetworkName            : az104-05-vnet2
PeeringSyncLevel              : FullyInSync
PeeringState                  : Connected
ProvisioningState             : Succeeded
RemoteVirtualNetwork          : {
                                  "Id": "/subscriptions/836f56df-cca0-4866-b552-adbe26a742da/resourceGroups/az104-05-rg1/providers/Microsoft.Network/virtualNetworks/az104-05-vnet0"
                                }
AllowVirtualNetworkAccess     : True
AllowForwardedTraffic         : False
AllowGatewayTransit           : False
UseRemoteGateways             : False
RemoteGateways                : null
PeeredRemoteAddressSpace      : {
                                  "AddressPrefixes": [
                                    "10.50.0.0/22"
                                  ]
                                }
RemoteVirtualNetworkAddressSpace : {
                                     "AddressPrefixes": [
                                       "10.50.0.0/22"
                                     ]
                                   }
```

Since no virtual networks are available for the peering between virtual network 1 and virtual network 2, the same steps from above are repeated:

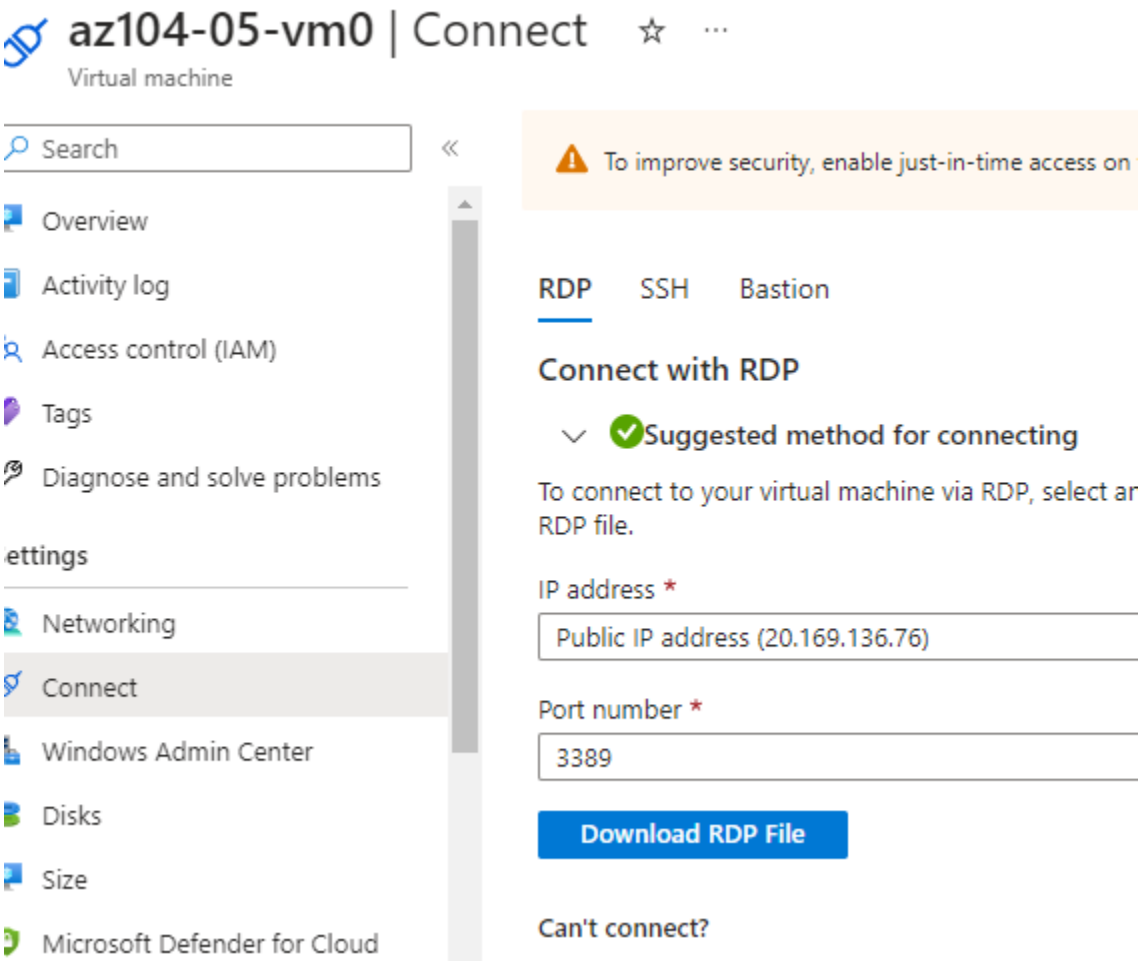




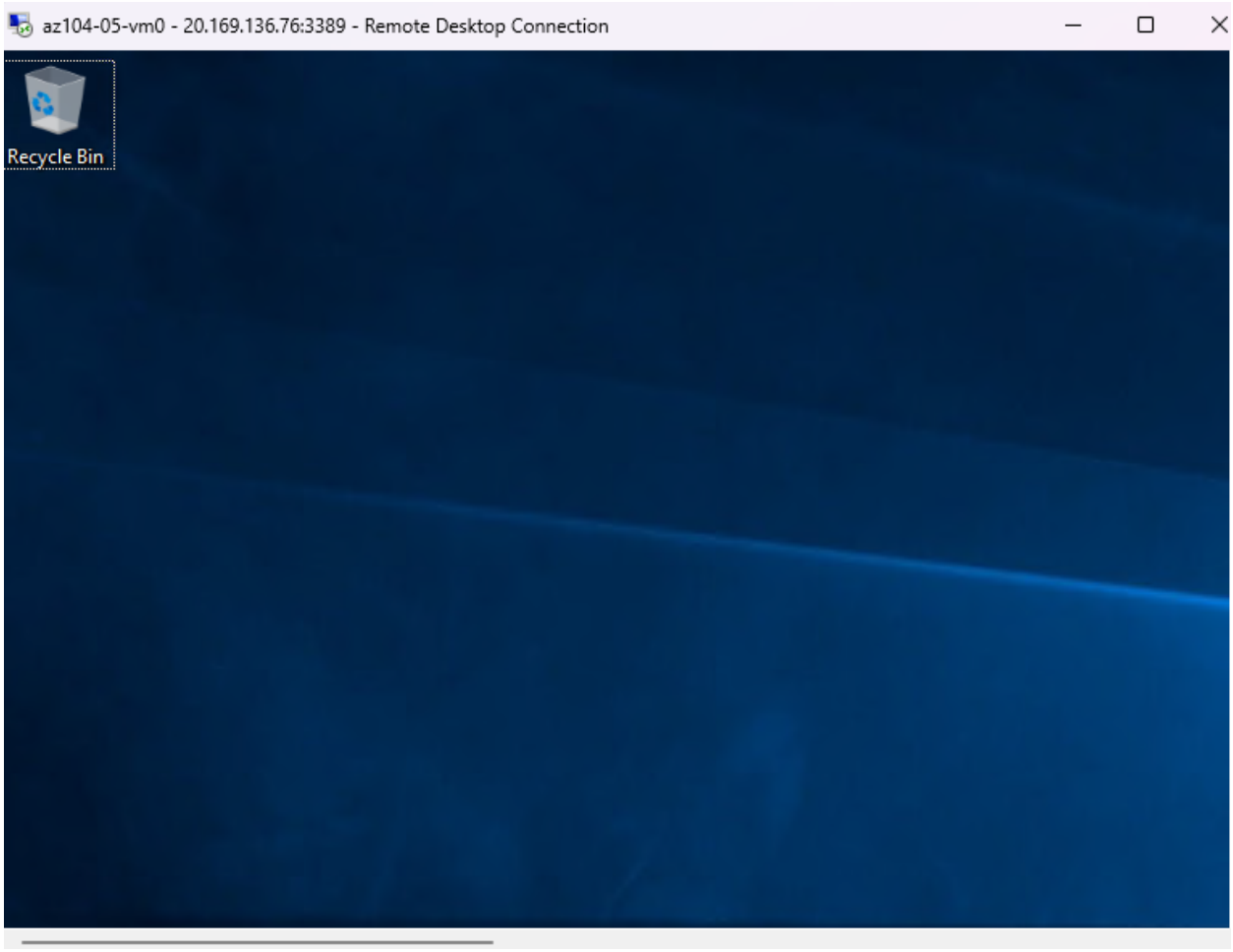
```
PS /home/andrijana>
PS /home/andrijana> Add-AzVirtualNetworkPeering -Name 'az104-05-vnet2_to_az104-05-vnet1' -VirtualNetwork $vnet2 -RemoteVirtualNetworkId $vnet1.Id

Name                          : az104-05-vnet2_to_az104-05-vnet1
Id                            : /subscriptions/836f56df-cca0-4866-b552-adbe26a742da/resourceGroups/az104-05-rg1/providers/Microsoft.Network/virtualNetworks/az104-05-vnet2/virtualNetworkPeerings/az104-05-vnet2_to_az104-05-vnet1
Etag                          : W/"a722a8d2-7345-4ae8-a9ed-2768b6cf9e2f"
ResourceGroupName             : az104-05-rg1
VirtualNetworkName            : az104-05-vnet2
PeeringSyncLevel              : FullyInSync
PeeringState                  : Connected
ProvisioningState             : Succeeded
RemoteVirtualNetwork          : {
                                  "Id": "/subscriptions/836f56df-cca0-4866-b552-adbe26a742da/resourceGroups/az104-05-rg1/providers/Microsoft.Network/virtualNetworks/az104-05-vnet1"
                                }
AllowVirtualNetworkAccess     : True
AllowForwardedTraffic         : False
AllowGatewayTransit           : False
UseRemoteGateways             : False
RemoteGateways                : null
PeeredRemoteAddressSpace      : {
                                  "AddressPrefixes": [
                                    "10.51.0.0/22"
                                  ]
                                }
RemoteVirtualNetworkAddressSpace : {
                                  "AddressPrefixes": [
                                    "10.51.0.0/22"
                                  ]
                                }
```

Task 3: Test intersite connectivity

Checking connectivity for the Virtual Network 0 through RDP:

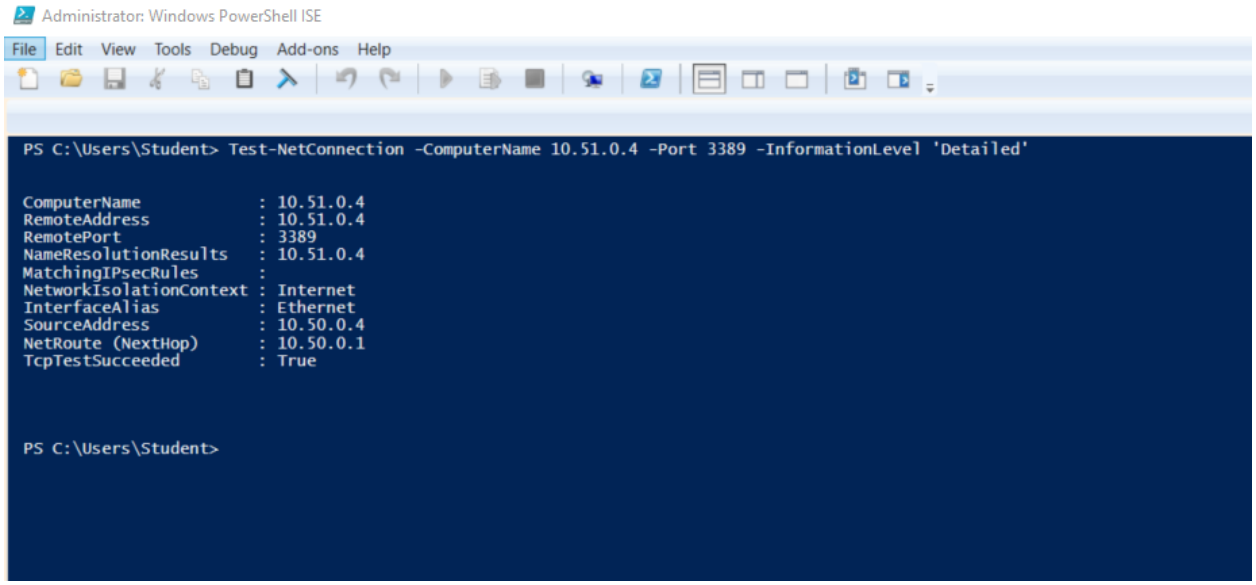


When prompted, sign in by using the Student username and the password from your parameters file.



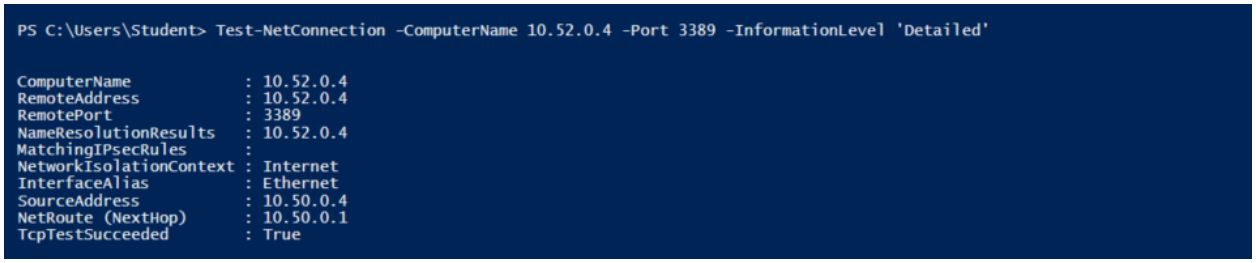
We are testing the connectivity to az104-05-vm1 via PowerShell (run as administrator):

```
Test-NetConnection -ComputerName 10.51.0.4 -Port 3389 -InformationLevel 'Detailed'
```



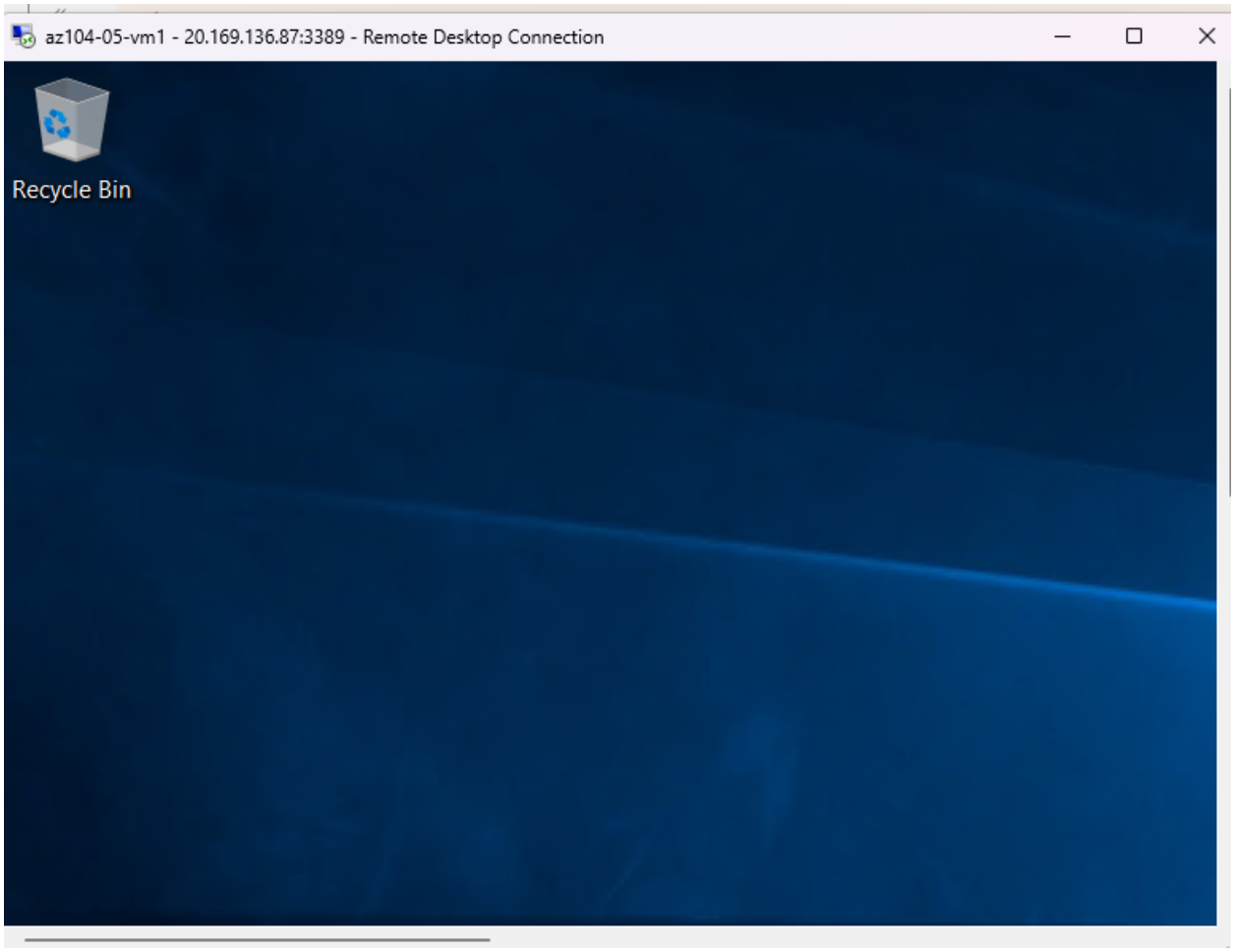
We are testing the connectivity to az104-05-vm2 via PowerShell (run as administrator):

```
Test-NetConnection -ComputerName 10.52.0.4 -Port 3389 -InformationLevel 'Detailed'
```



Upon concluding the connection was successful, we navigate back to the default directory in the Azure Portal.

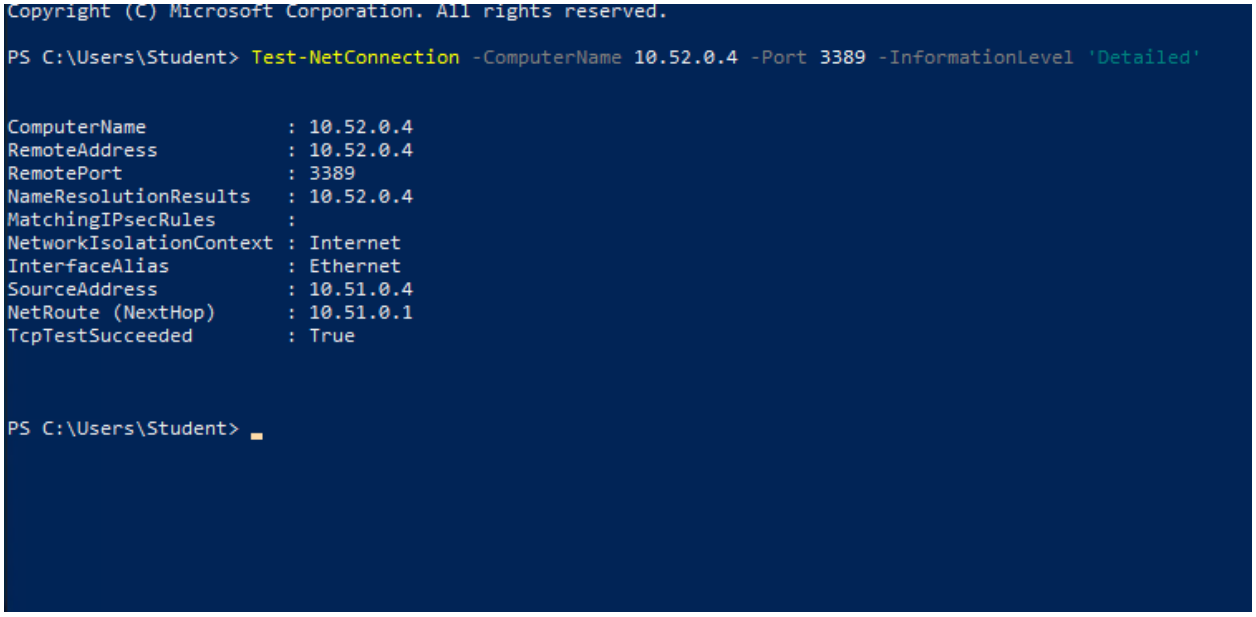
In the next step, we check the connectivity for the Virtual Network 1 through RDP:



We are checking connectivity to az104-05-vm2 via PowerShell (run as administrator).

In the Windows PowerShell console window, run the following to test connectivity to az104-05-vm2 (which has the private IP address of 10.52.0.4) over TCP port 3389:

```
Test-NetConnection -ComputerName 10.52.0.4 -Port 3389 -InformationLevel 'Detailed'
```



After we've ensured the interconnectivity among the three virtual networks is established, it's time to clean up the resources.