Lab 05 - Implement Intersite Connectivity

Objectives

In this lab, we will:

* Task 1: Provision the lab environment
* Task 2: Configure local and global virtual network peering
* Task 3: Test intersite connectivity

## Task 1: Provision the lab environment

In this task, we will deploy three virtual machines, each into a separate virtual network, with two of them in the same Azure region and the third one in another Azure region.

For us to do this, first we need to sign in to the Azure portal. Then, in the Azure portal, we will open the **Azure Cloud Shell** and select **PowerShell**. There we will upload the two .json files, that were provided, in the Cloud shell directory. These files are: **az104-05-vnetvm-loop-template.json** and **az104-05-vnetvm-loop-parameters.json**.

After we upload the two files, we can start with the creation of the resource group that will be hosting the lab environment. The first two virtual networks and a pair of virtual machines will be deployed in ‘eastus’ Azure region. The third virtual network and the third virtual machine will be deployed in the same resource group but ‘westus’ Azure region. (The ‘eastus’ and ‘westus’ Azure regions were recommended for this lab). For us to do this we need to run the following in the Cloud Shell:

$location1 = 'eastus'

$location2 = 'westus'

$rgName = 'az104-05-rg1'

New-AzResourceGroup -Name $rgName -Location $location1

Here is a screenshot from the commands:

PS /home/ana> $10cation1 = 
PS /home/ana> $10cation2 = 
'westus' 
PS /home/ana> $rgName = 
PS /home/ana> New-AzResourceGroup -Name SrgName 
ResourceGroupName • 
. azi04-ø5-rg1 
Location 
eastus 
ProvisioningState 
: Succeeded 
Tags 
Resourceld 
-Location $10cation1 
: /subscriptions/9947c7d8-ØØØ2-4f95-9be2-e61cef4a15b3/resourceGroups/az1Ø4-Ø5- 

After this set of commands we will run the following commands in order to create the three virtual networks and deploy virtual machines into them by using the template and parameter files we uploaded.

The command we need to run:

New-AzResourceGroupDeployment `

-ResourceGroupName $rgName `

-TemplateFile $HOME/az104-05-vnetvm-loop-template.json `

-TemplateParameterFile $HOME/az104-05-vnetvm-loop-parameters.json `

-location1 $location1 `

-location2 $location2

After this we will need to wait for the deployment to complete.

Here is screenshot form the command:

PS /home/ana> New-AzResourceGroupDepIoyment 
-ResourceGroupName $rgName 
-TemplateFi1e $HOME/az1e4-ø5-vnetvm-100p-temp1ate.json 
-TemplateParameterFi1e $HOME/az1Ø4-e5-vnetvm-100p-parameters.json 
-locationl $10cation1 
-location2 $10cation2 
DeploymentName 
ResourceGroupName 
ProvisioningState 
Timestamp 
Mode 
TemplateLink 
Parameters 
Outputs 
. az1ø4-ø5-vnetvm- loop-template 
aziØ4-Ø5-rg1 
• Succeeded 
• 3/25/2023 pm 
Incremental 
Name 
vmsize 
locationl 
location2 
adminusername 
admi npassword 
String 
String 
String 
String 
Securestring 
Value 
"Standard D2s v3" 
"eastus" 
"westus" 
" Student" 
null 
DeploymentDebugLogLeve1 : 

## Task 2: Configure local and global virtual network peering

In this task, we will configure local and global peering between the virtual networks we deployed in the previous tasks.

First, we go to the Azure portal and then we select **Virtual Networks.** There we review the virtual networks we created in the previous task and verify that the first two are located in the same Azure region and the third one in a different Azure region.

Here, we see that the first two virtual networks are located in the same Azure region and the third one is in a different Azure region.

East US 
East US 
az104 05 vnct2 
azi04-05.rg1 
azi04-05.rg1 
azi04 05 rql 

After this we will need to peer the virtual networks.

In the Azure portal, in **Virtual Networks**, from the list, we select **az104-05-vnet0.** On the **az104-05-vnet0** virtual network blade, in the **Settings** section, we click **Peerings** and then we click **+ Add**. We add a peering with the following settings and leave others with the default values:

| Setting | Value |
| --- | --- |
| This virtual network: Peering link name | **az104-05-vnet0\_to\_az104-05-vnet1** |
| This virtual network: Traffic to remote virtual network | **Allow (default)** |
| This virtual network: Traffic forwarded from remote virtual network | **Block traffic that originates from outside this virtual network** |
| Virtual network gateway | **None** |
| Remote virtual network: Peering link name | **az104-05-vnet1\_to\_az104-05-vnet0** |
| Virtual network deployment model | **Resource manager** |
| I know my resource ID | unselected |
| Subscription | the name of the Azure subscription you are using in this lab |
| Virtual network | **az104-05-vnet1** |
| Traffic to remote virtual network | **Allow (default)** |
| Traffic forwarded from remote virtual network | **Block traffic that originates from outside this virtual network** |
| Virtual network gateway | **None** |

With this we establish two local peerings:

- one from **az104-05-vnet0** to **az104-05-vnet1**

- and one from **az104-05-vnet1** to **az104-05-vnet0**

We add another peering with these values:

| Setting | Value |
| --- | --- |
| This virtual network: Peering link name | **az104-05-vnet0\_to\_az104-05-vnet2** |
| This virtual network: Traffic to remote virtual network | **Allow (default)** |
| This virtual network: Traffic forwarded from remote virtual network | **Block traffic that originates from outside this virtual network** |
| Virtual network gateway | **None** |
| Remote virtual network: Peering link name | **az104-05-vnet2\_to\_az104-05-vnet0** |
| Virtual network deployment model | **Resource manager** |
| I know my resource ID | unselected |
| Subscription | the name of the Azure subscription you are using in this lab |
| Virtual network | **az104-05-vnet2** |
| Traffic to remote virtual network | **Allow (default)** |
| Traffic forwarded from remote virtual network | **Block traffic that originates from outside this virtual network** |
| Virtual network gateway | **None** |

With this we establish two global peerings:

- one from **az104-05-vnet0** to **az104-05-vnet2**

- and one from **az104-05-vnet2** to **az104-05-vnet0**

After we crated the peering for **az104-05-vnet0** we can proceed with the crating the peerings for **az104-05-vnet1.**

In the Azure portal, in **Virtual Networks**, from the list, we select **az104-05-vnet1.** On the **az104-05-vnet1** virtual network blade, in the **Settings** section, we click **Peerings** and then we click **+ Add**. We add a peering with the following settings and leave others with the default values:

| Setting | Value |
| --- | --- |
| This virtual network: Peering link name | **az104-05-vnet1\_to\_az104-05-vnet2** |
| This virtual network: Traffic to remote virtual network | **Allow (default)** |
| This virtual network: Traffic forwarded from remote virtual network | **Block traffic that originates from outside this virtual network** |
| Virtual network gateway | **None** |
| Remote virtual network: Peering link name | **az104-05-vnet2\_to\_az104-05-vnet1** |
| Virtual network deployment model | **Resource manager** |
| I know my resource ID | unselected |
| Subscription | the name of the Azure subscription you are using in this lab |
| Virtual network | **az104-05-vnet2** |
| Traffic to remote virtual network | **Allow (default)** |
| Traffic forwarded from remote virtual network | **Block traffic that originates from outside this virtual network** |
| Virtual network gateway | **None** |

With this we establish two global peerings:

- one from **az104-05-vnet1** to **az104-05-vnet2**

- and one from **az104-05-vnet2** to **az104-05-vnet1**

When all this is done, we can proceed to test the intersite connectivity.

## Task 3: Test intersite connectivity

In this task, we will test connectivity between virtual machines on the three virtual networks that we connected via local and global peering in the previous task.

We go the Azure portal and select Virtual machines. In the list of virtual machines, we select **az104-05-vm0**. On the **az104-05-vm0** blade, we click Connect, in the drop-down menu, click **RDP**, on the **Connect with RDP blade**, click **Download RDP File** and we follow the prompts to start the Remote Desktop session.

Within the Remote Desktop session to **az104-05-vm0**, right-click the **Start** button and, in the right-click menu, click **Windows PowerShell (Admin).** In the Windows PowerShell console window, we run the following to test the connectivity to **az104-05-vm1** (which has the private IP address of 10.51.0.4) and **az104-05-vm2** (which has the private IP address of 10.52.0.4)

* To test the connectivity to **az104-05-vm1**:

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

* To test the connectivity to **az104-05-vm2**:

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

Screenshot from the output of the commands:

- 20.169.129.2548389 
Administrator: Windows PowerSheII 
Windows PowerSheII 
- Remote Desktop Connection 
Copyright (C) Microsoft Corporation. All rights r•eserwed . 
PS C: Test-NetConnection 
ComputerName 
Remt ePort 
Name ResolutåonResuIts 
matchingIP5ecRuIe5 
Network Isolation Context 
SourceAddress 
NetRoute (NextHop) 
TcpTestSucceeded 
: 1ø.51.ø.4 
: 1ø.51.ø.4 
: 3389 
: 1ø.51.ø.,i 
: Internet 
: Ethernet 
: 1ø.sø.ø.4 
: 1ø.5ø.ø.1 
PS C: Test-Netconnectåon 
•ComputerName 10.51.Ø.4 
-ComputerName 
1ø.52.ø.4 
.port 3389 
-Port 
3389 
-InformationLeveI 
-InfornationLeveI 
'Detailed 
'Detailed 
RemteAddre55 
Remot epor•t 
NameResoI ut ionResuIts 
matchingIPsecRuIes 
InterfaceAI ias 
SourceAddress 
NetRoute (NextHop) 
TcpTestSucceeded 
: 1ø.52.ø.4 
: 1ø.52.ø.4 
: 3389 
: 1ø.52.ø.4 
Internet 
Ethernet 
: 1ø.5a.ø.4 
: lø.sø.ø.l 

After this we switch back to Azure portal on the lab computer and we navigate back to **Virtual Machines** blade, but this time, we select **az104-05-vm1.** On the **az104-05-vm1** blade, we click Connect, in the drop-down menu, click **RDP**, on the **Connect with RDP blade**, click **Download RDP File** and we follow the prompts to start the Remote Desktop session.

Within the Remote Desktop session to **az104-05-vm1**, right-click the **Start** button and, in the right-click menu, click **Windows PowerShell (Admin).** In the Windows PowerShell console window, we run the following to test the connectivity to **az104-05-vm2** (which has the private IP address of 10.52.0.4).

* To test the connectivity to **az104-05-vm2**:

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

Screenshot from the output of the command:

azi04-05-vm1 - 20.228.135.8:3389 - Remote Desktop connection 
Administrator. Windows k.werSheIl 
Windows Powershell 
Copyright (C) Microsoft Corporation. All rights reserved. 
PS Test-Netconnection -Cotnputer•Narne le.52.e.4 
. 10.52.e.4 
RemoteAddress 
: 10.52.ø.4 
RemotePort 
3389 
NameResoIutionResuIts 
: 10.52.e.4 
MatchingIPsecRuIes 
Networ•kIs01ationContext : 
Internet 
InterfaceAIia5 
: Ethernet 
SourceAddress 
: 10.51.ø.4 
NetRoute (NextHop) 
: 10.51.e.1 
: True 
T CPT estSucceeded 
-Port 3389 
-Information Level 
•Detailed 