Peering with Gateway Transit

Objective

- Create peering with gateway transit and test the connection between the VMs.

Comments

Today I put into practice what I learned about peering with gateway transit. It was a great experience because before I was only creating basic peering, without gateway transit or UDRs.

Using only the CLI, I created Resource Groups, VNets, subnets, VMs, and the peering configuration.

This practice was very smooth and intuitive — quick to execute — and it's rewarding to see the theory being applied and everything starting to make more sense as I prepare for the AZ-104 certification.

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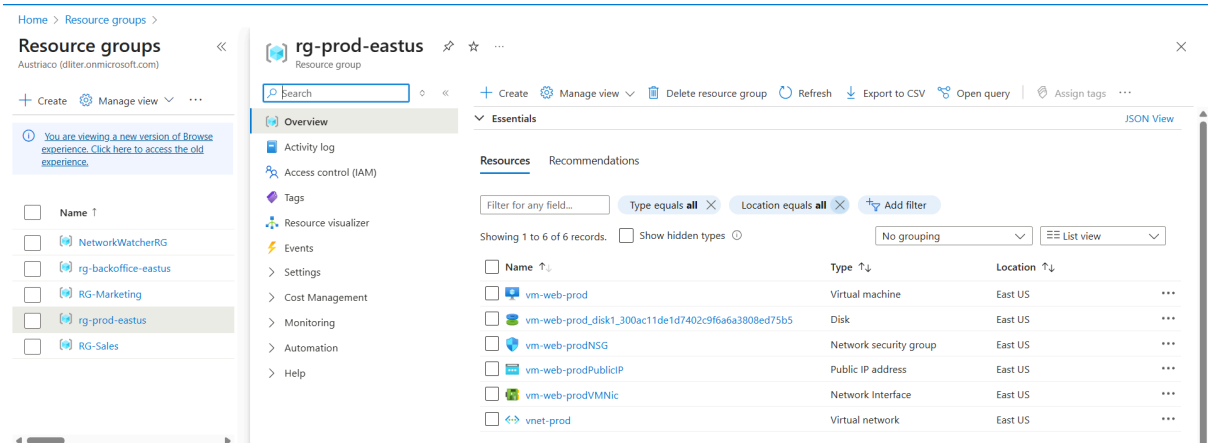
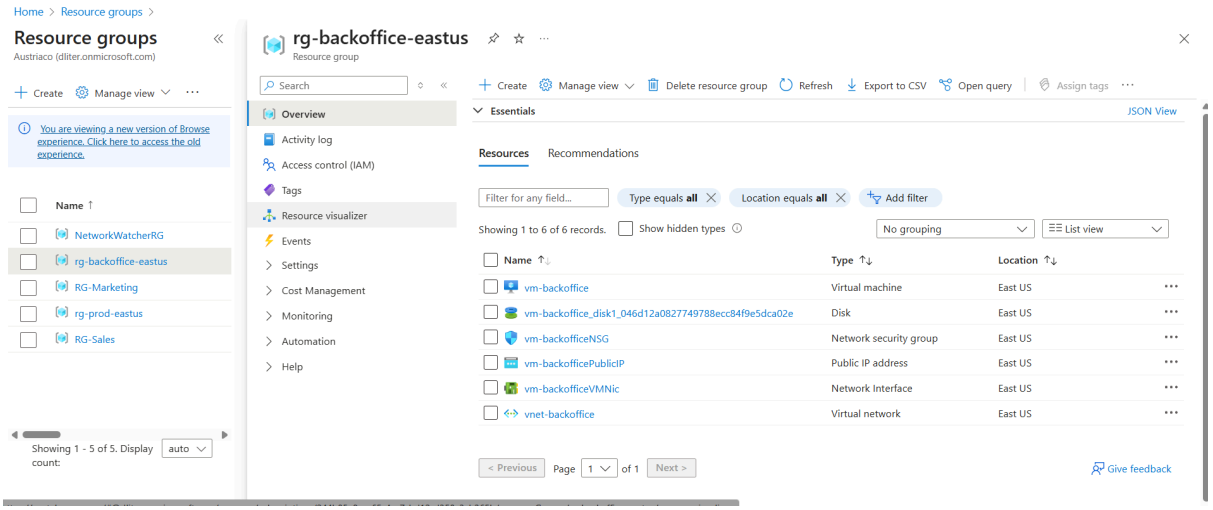
1. Create RG-pro-eastus

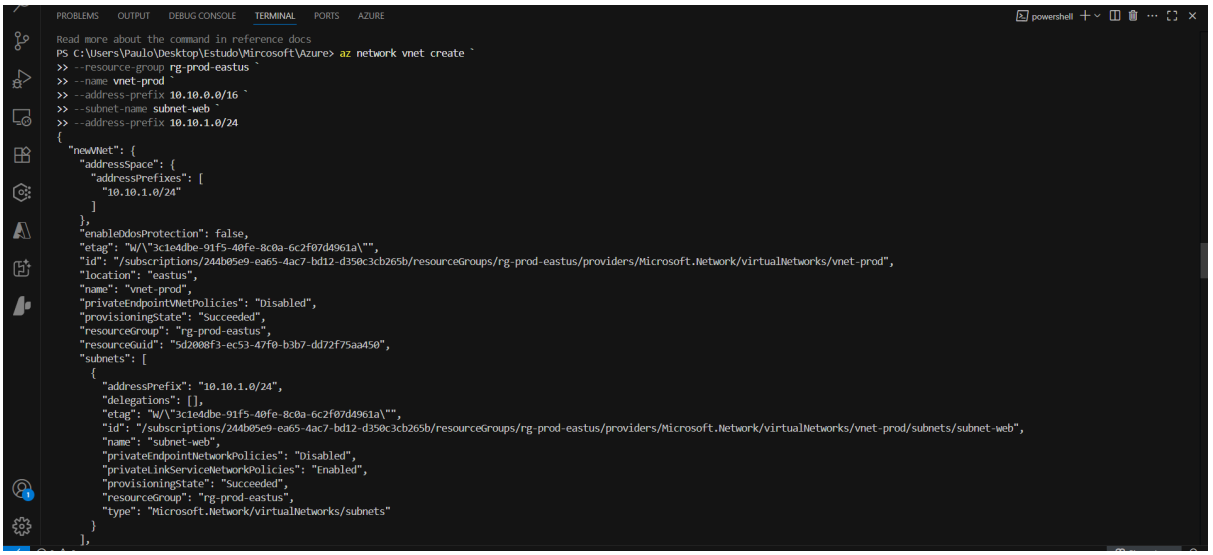


2. Create RG-backoffice-eastus

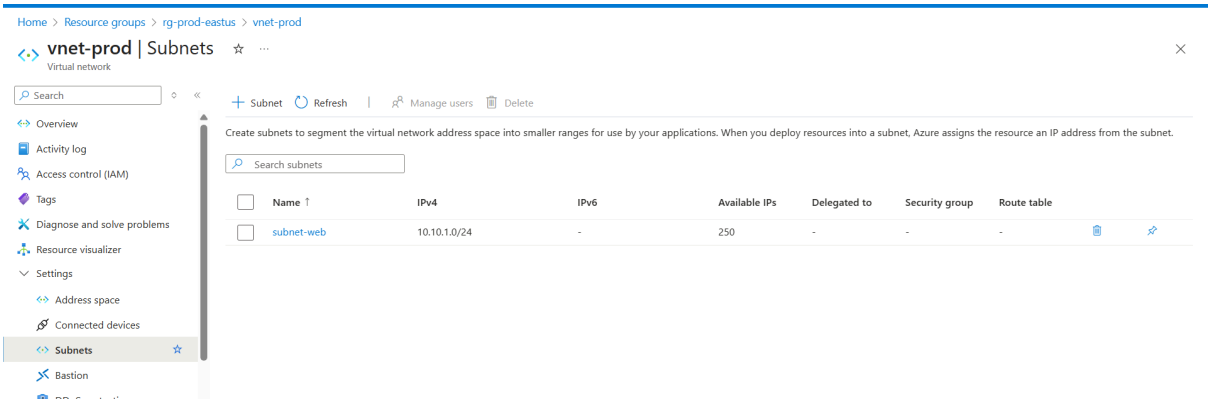
```
Read more about the command in reference docs
PS C:\Users\Paulo\Desktop\Estudo\Mircosoft\Azure> az group create `
>> --name rg-backoffice-eastus `
>> --location eastus
{
  "id": "/subscriptions/244b05e9-ea65-4ac7-bd12-d350c3cb265b/resourceGroups/rg-backoffice-eastus",
  "location": "eastus",
  "managedBy": null,
  "name": "rg-backoffice-eastus",
  "properties": {
    "provisioningState": "Succeeded"
  },
  "tags": null,
  "type": "Microsoft.Resources/resourceGroups"
}
```



3.create vnet e subnet



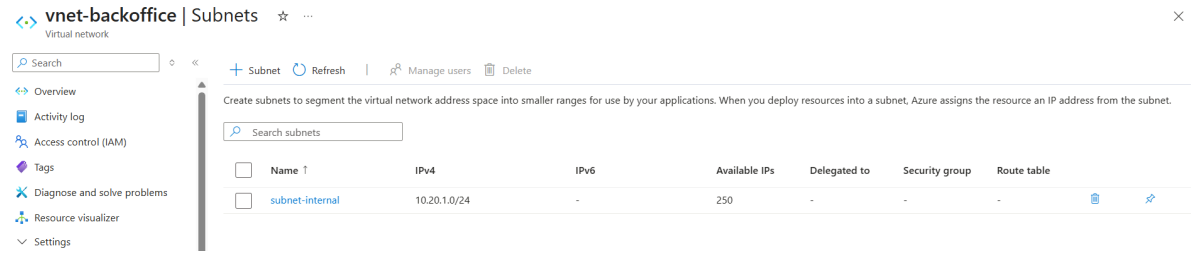
```
PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL  PORTS  AZURE                                                    powershell

Read more about the command in reference docs
PS C:\Users\Paulo\Desktop\Estudo\Mircosoft\Azure> az network vnet create `
>> --resource-group rg-prod-eastus `
>> --name vnet-prod `
>> --address-prefix 10.10.0.0/16 `
>> --subnet-name subnet-web `
>> --address-prefix 10.10.1.0/24
{
  "newVNet": {
    "addressSpace": {
      "addressPrefixes": [
        "10.10.1.0/24"
      ]
    },
    "enableDdosProtection": false,
    "etag": "W/\"3c1e4dbe-91f5-40fe-8c0a-6c2f07d4961a\"",
    "id": "/subscriptions/244b05e9-ea65-4ac7-bd12-d350c3cb265b/resourceGroups/rg-prod-eastus/providers/Microsoft.Network/virtualNetworks/vnet-prod",
    "location": "eastus",
    "name": "vnet-prod",
    "privateEndpointVNetPolicies": "Disabled",
    "provisioningState": "Succeeded",
    "resourceGroup": "rg-prod-eastus",
    "resourceGuid": "5d2008f3-ec53-47f0-b3b7-dd72f75aa450",
    "subnets": [
      {
        "addressPrefix": "10.10.1.0/24",
        "delegations": [],
        "etag": "W/\"3c1e4dbe-91f5-40fe-8c0a-6c2f07d4961a\"",
        "id": "/subscriptions/244b05e9-ea65-4ac7-bd12-d350c3cb265b/resourceGroups/rg-prod-eastus/providers/Microsoft.Network/virtualNetworks/vnet-prod/subnets/subnet-web",
        "name": "subnet-web",
        "privateEndpointNetworkPolicies": "Disabled",
        "privateLinkServiceNetworkPolicies": "Enabled",
        "provisioningState": "Succeeded",
        "resourceGroup": "rg-prod-eastus",
        "type": "Microsoft.Network/virtualNetworks/subnets"
      }
    ],
```



4. create vnet e subnet

```
PS C:\Users\Paulo\Desktop\Estudo\Mircosoft\Azure> az network vnet create `
>> --resource-group rg-backoffice-eastus `
>> --name vnet-backoffice `
>> --address-prefix 10.20.0.0/16 `
>>
{
  "newVNet": {
    "addressSpace": {
      "addressPrefixes": [
        "10.20.0.0/16"
      ]
    },
    "enableDdosProtection": false,
    "etag": "W/\"0abdb13e-45b0-4b73-944f-221d3e0393a4\"",
    "id": "/subscriptions/244b05e9-ea65-4ac7-bd12-d350c3cb265b/resourceGroups/rg-backoffice-eastus/providers/Microsoft.Network/virtualNetworks/vnet-backoffice",
    "location": "eastus",
    "name": "vnet-backoffice",
    "privateEndpointVNetPolicies": "Disabled",
    "provisioningState": "Succeeded",
    "resourceGroup": "rg-backoffice-eastus",
    "resourceGuid": "09bcfa38-1317-48fe-875a-49ae5a382674",
    "subnets": [],
    "type": "Microsoft.Network/virtualNetworks",
    "virtualNetworkPeerings": []
```

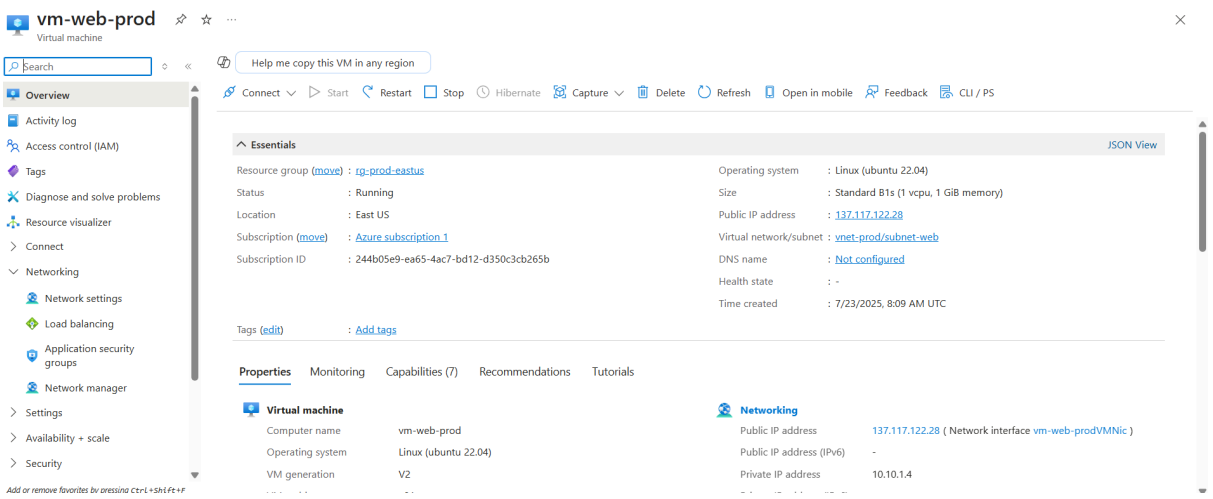
```
PS C:\Users\Paulo\Desktop\Estudo\Mircosoft\Azure> az network vnet subnet create `
>> --resource-group rg-backoffice-eastus `
>> --vnet-name vnet-backoffice `
>> --name subnet-internal `
>> --address-prefix 10.20.1.0/24
{
  "addressPrefix": "10.20.1.0/24",
  "delegations": [],
  "etag": "W/\"fef5bdba-dfc3-404b-84e4-f59cbe1b505f\"",
  "id": "/subscriptions/244b05e9-ea65-4ac7-bd12-d350c3cb265b/resourceGroups/rg-backoffice-eastus/providers/Microsoft.N
  "name": "subnet-internal",
  "privateEndpointNetworkPolicies": "Disabled",
  "privateLinkServiceNetworkPolicies": "Enabled",
  "provisioningState": "Succeeded",
  "resourceGroup": "rg-backoffice-eastus",
  "type": "Microsoft.Network/virtualNetworks/subnets"
}
```



5.create VM

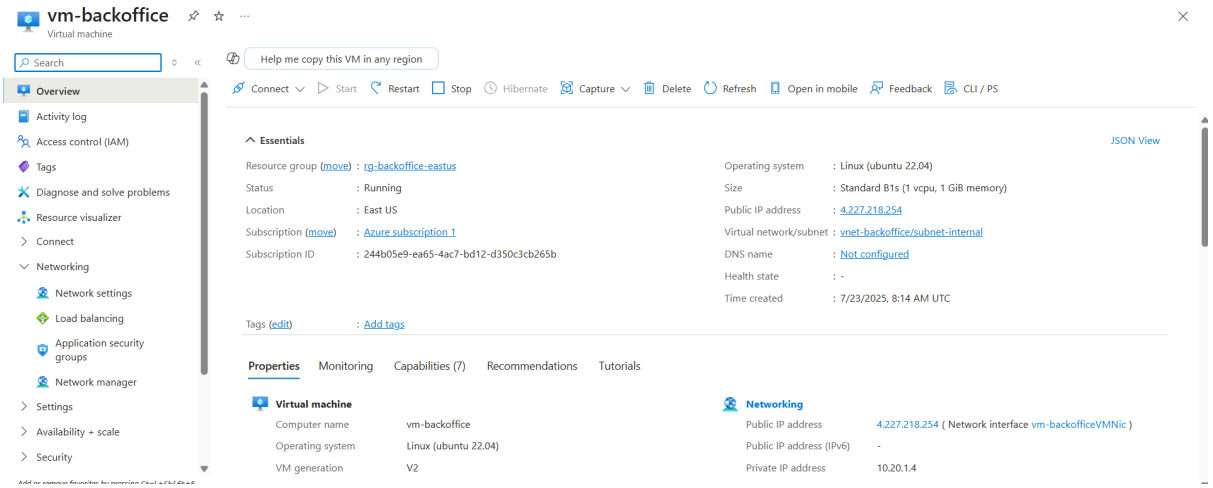
```
PS C:\Users\Paulo\Desktop\Estudo\Mircosoft\Azure> az vm create `
>> --resource-group rg-prod-eastus `
>> --name vm-web-prod `
>> --vnet-name vnet-prod `
>> --subnet subnet-web `
>> --image Ubuntu2204 `
>> --size Standard_B1s `
>> --admin-username azureuser `
```

```
>> --authentication-type password `
>> --public-ip-sku Standard
The default value of '--size' will be changed to 'Standard_D2s_v5' from 'Standard_DS1_v2' in a future release.
{
  "fqdns": "",
  "id": "/subscriptions/244b05e9-ea65-4ac7-bd12-d350c3cb265b/resourceGroups/rg-prod-eastus/providers/Microsoft.Compute/virtualMachines/vm-web-prod",
  "location": "eastus",
  "macAddress": "00-22-48-28-0A-BB",
  "powerState": "VM running",
  "privateIpAddress": "10.10.1.4",
  "publicIpAddress": "137.117.122.28",
  "resourceGroup": "rg-prod-eastus",
  "zones": ""
}
```

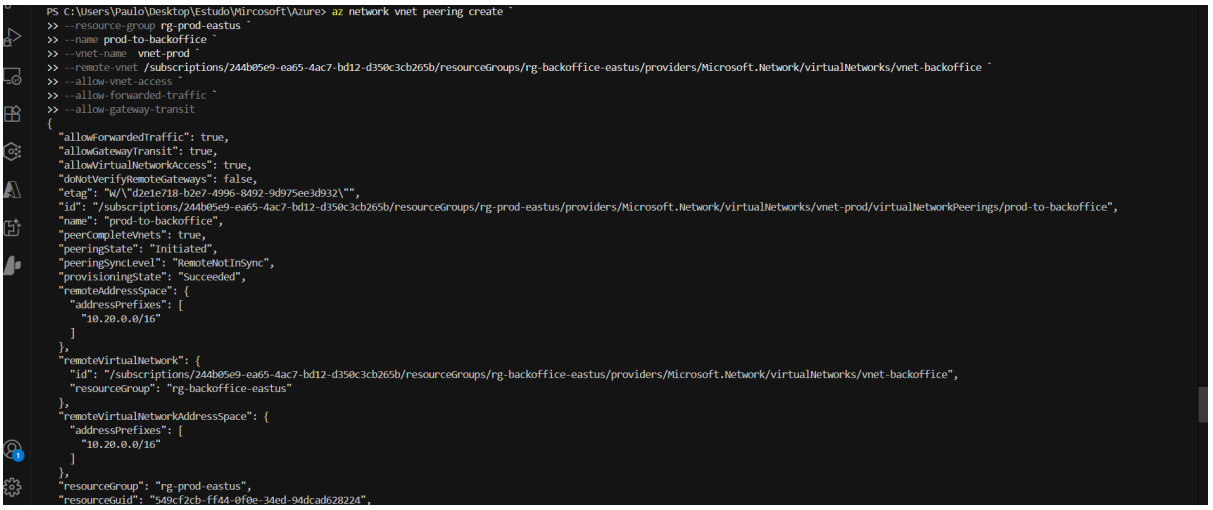


6.create VM

```
PS C:\Users\Paulo\Desktop\Estudo\Mircosoft\Azure> az vm create `
>> --resource-group rg-backoffice-eastus `
>> --name vm-backoffice `
>> --vnet-name vnet-backoffice `
>> --subnet subnet-internal `
>> --image Ubuntu2204 `
>> --size Standard_B1s `
>> --admin-username azureuser `
>> --admin-password Azure123456789 `
>> --authentication-type password `
>> --public-ip-sku Standard
The default value of '--size' will be changed to 'Standard_D2s_v5' from 'Standard_DS1_v2' in a future release.
{
  "fqdns": "",
  "id": "/subscriptions/244b05e9-ea65-4ac7-bd12-d350c3cb265b/resourceGroups/rg-backoffice-eastus/providers/Microsoft.Compute/virtualMachines/vm-backoffice",
  "location": "eastus",
  "macAddress": "7C-1E-52-64-2E-24",
  "powerState": "VM running",
  "privateIpAddress": "10.20.1.4",
  "publicIpAddress": "4.227.218.254",
  "resourceGroup": "rg-backoffice-eastus",
  "zones": ""
}
```

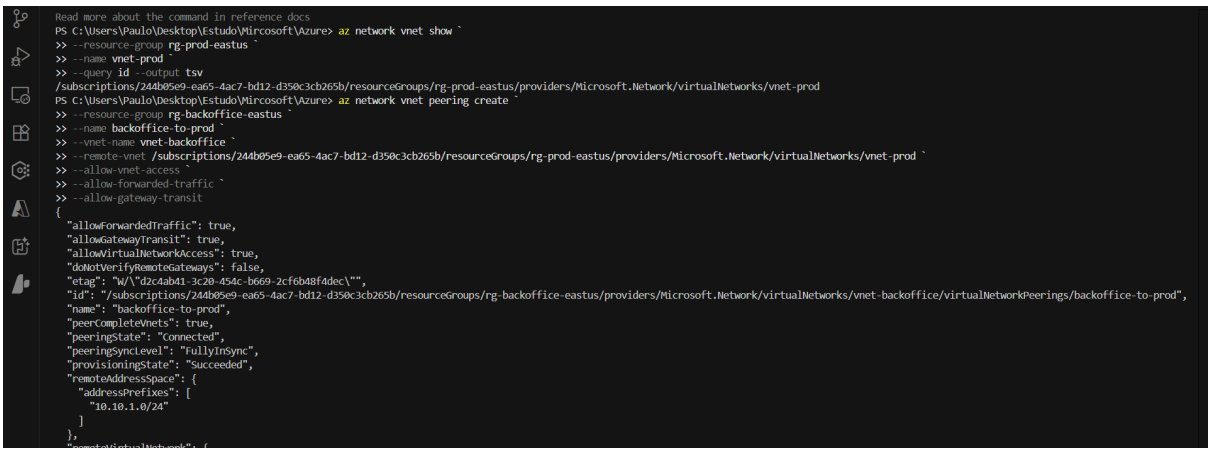


7.Peering with gateway Prod-to-Backoffice



```
PS C:\Users\Paulo\Desktop\Estudo\Mircosoft\Azure> az network vnet peering create `
>> --resource-group rg-prod-eastus `
>> --name prod-to-backoffice `
>> --vnet-name  vnet-prod `
>> --remote-vnet /subscriptions/244b05e9-ea65-4ac7-bd12-d350c3cb265b/resourceGroups/rg-backoffice-eastus/providers/Microsoft.Network/virtualNetworks/vnet-backoffice `
>> --allow-vnet-access `
>> --allow-forwarded-traffic `
>> --allow-gateway-transit
{
  "allowForwardedTraffic": true,
  "allowGatewayTransit": true,
  "allowVirtualNetworkAccess": true,
  "doNotVerifyRemoteGateways": false,
  "etag": "W/\"d2e1e718-b2e7-4996-8492-9d975ee3d932\"",
  "id": "/subscriptions/244b05e9-ea65-4ac7-bd12-d350c3cb265b/resourceGroups/rg-prod-eastus/providers/Microsoft.Network/virtualNetworks/vnet-prod/virtualNetworkPeerings/prod-to-backoffice",
  "name": "prod-to-backoffice",
  "peerCompleteVnets": true,
  "peeringState": "Initiated",
  "peeringSyncLevel": "RemoteNotInSync",
  "provisioningState": "Succeeded",
  "remoteAddressSpace": {
    "addressPrefixes": [
      "10.20.0.0/16"
    ]
  },
  "remoteVirtualNetwork": {
    "id": "/subscriptions/244b05e9-ea65-4ac7-bd12-d350c3cb265b/resourceGroups/rg-backoffice-eastus/providers/Microsoft.Network/virtualNetworks/vnet-backoffice",
    "resourceGroup": "rg-backoffice-eastus"
  },
  "remoteVirtualNetworkAddressSpace": {
    "addressPrefixes": [
      "10.20.0.0/16"
    ]
  },
  "resourceGroup": "rg-prod-eastus",
  "resourceGuid": "549cf2cb-ff44-0f0e-34ed-94dcad628224",
```

8.Peering with gateway Backoffice-to-prod



```
  Read more about the command in reference docs
PS C:\Users\Paulo\Desktop\Estudo\Mircosoft\Azure> az network vnet show `
>> --resource-group rg-prod-eastus `
>> --name vnet-prod `
>> --query id --output tsv
/subscriptions/244b05e9-ea65-4ac7-bd12-d350c3cb265b/resourceGroups/rg-prod-eastus/providers/Microsoft.Network/virtualNetworks/vnet-prod
PS C:\Users\Paulo\Desktop\Estudo\Mircosoft\Azure> az network vnet peering create `
>> --resource-group rg-backoffice-eastus `
>> --name backoffice-to-prod `
>> --vnet-name vnet-backoffice `
>> --remote-vnet /subscriptions/244b05e9-ea65-4ac7-bd12-d350c3cb265b/resourceGroups/rg-prod-eastus/providers/Microsoft.Network/virtualNetworks/vnet-prod `
>> --allow-vnet-access `
>> --allow-forwarded-traffic `
>> --allow-gateway-transit
{
  "allowForwardedTraffic": true,
  "allowGatewayTransit": true,
  "allowVirtualNetworkAccess": true,
  "doNotVerifyRemoteGateways": false,
  "etag": "W/\"d2c4ab41-3c20-454c-b669-2cf6b48f4dec\"",
  "id": "/subscriptions/244b05e9-ea65-4ac7-bd12-d350c3cb265b/resourceGroups/rg-backoffice-eastus/providers/Microsoft.Network/virtualNetworks/vnet-backoffice/virtualNetworkPeerings/backoffice-to-prod",
  "name": "backoffice-to-prod",
  "peerCompleteVnets": true,
  "peeringState": "Connected",
  "peeringSyncLevel": "FullyInSync",
  "provisioningState": "Succeeded",
  "remoteAddressSpace": {
    "addressPrefixes": [
      "10.10.1.0/24"
    ]
  },
```

9.Ping VM prod to VM backoffice

```
austriaco@LAPTOP-1DJED4Q6:~$ ssh azureuser@137.117.122.28
The authenticity of host '137.117.122.28 (137.117.122.28)' can't be established.
ED25519 key fingerprint is SHA256:dmJniO9WHjL1OZlER7in4HoFIumwh6abtszDIlNsmSA.
This key is not known by any other names
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added '137.117.122.28' (ED25519) to the list of known hosts.
azureuser@137.117.122.28's password:
Welcome to Ubuntu 22.04.5 LTS (GNU/Linux 6.8.0-1031-azure x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:     https://landscape.canonical.com
 * Support:        https://ubuntu.com/pro

 System information as of Wed Jul 23 08:34:55 UTC 2025

  System load:  0.08              Processes:             105
  Usage of /:   5.3% of 28.89GB   Users logged in:       0
  Memory usage: 29%               IPv4 address for eth0: 10.10.1.4
  Swap usage:   0%

 * Strictly confined Kubernetes makes edge and IoT secure. Learn how MicroK8s
   just raised the bar for easy, resilient and secure K8s cluster deployment.

   https://ubuntu.com/engage/secure-kubernetes-at-the-edge

Expanded Security Maintenance for Applications is not enabled.

0 updates can be applied immediately.
```

```
azureuser@vm-web-prod:~$ ping 10.20.1.4
PING 10.20.1.4 (10.20.1.4) 56(84) bytes of data.
64 bytes from 10.20.1.4: icmp_seq=1 ttl=64 time=2.71 ms
64 bytes from 10.20.1.4: icmp_seq=2 ttl=64 time=2.12 ms
64 bytes from 10.20.1.4: icmp_seq=3 ttl=64 time=1.17 ms
64 bytes from 10.20.1.4: icmp_seq=4 ttl=64 time=1.98 ms
64 bytes from 10.20.1.4: icmp_seq=5 ttl=64 time=1.75 ms
64 bytes from 10.20.1.4: icmp_seq=6 ttl=64 time=1.41 ms
64 bytes from 10.20.1.4: icmp_seq=7 ttl=64 time=1.60 ms
64 bytes from 10.20.1.4: icmp_seq=8 ttl=64 time=1.23 ms
^C
--- 10.20.1.4 ping statistics ---
8 packets transmitted, 8 received, 0% packet loss, time 7010ms
rtt min/avg/max/mdev = 1.166/1.746/2.710/0.481 ms
azureuser@vm-web-prod:~$ exit
logout
```

10.Ping VM backoffice to VM prod

```
austriaco@LAPTOP-1DJED4Q6:~$ ssh azureuser@4.227.218.254
The authenticity of host '4.227.218.254 (4.227.218.254)' can't be established.
ED25519 key fingerprint is SHA256:6zn9lX1av9STiSxhG00c+fUlOJLWjV18C8z/YyfdoJs.
This key is not known by any other names
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added '4.227.218.254' (ED25519) to the list of known hosts.
azureuser@4.227.218.254's password:
Welcome to Ubuntu 22.04.5 LTS (GNU/Linux 6.8.0-1031-azure x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:     https://landscape.canonical.com
 * Support:        https://ubuntu.com/pro

 System information as of Wed Jul 23 08:36:58 UTC 2025

  System load:  0.08              Processes:             104
  Usage of /:   5.4% of 28.89GB   Users logged in:       0
  Memory usage: 31%               IPv4 address for eth0: 10.20.1.4
  Swap usage:   0%

Expanded Security Maintenance for Applications is not enabled.

0 updates can be applied immediately.

Enable ESM Apps to receive additional future security updates.
See https://ubuntu.com/esm or run: sudo pro status
```

```
azureuser@vm-backoffice:~$ ping 10.10.1.4
PING 10.10.1.4 (10.10.1.4) 56(84) bytes of data.
64 bytes from 10.10.1.4: icmp_seq=1 ttl=64 time=2.42 ms
64 bytes from 10.10.1.4: icmp_seq=2 ttl=64 time=2.17 ms
64 bytes from 10.10.1.4: icmp_seq=3 ttl=64 time=1.71 ms
64 bytes from 10.10.1.4: icmp_seq=4 ttl=64 time=1.97 ms
64 bytes from 10.10.1.4: icmp_seq=5 ttl=64 time=2.94 ms
64 bytes from 10.10.1.4: icmp_seq=6 ttl=64 time=1.81 ms
64 bytes from 10.10.1.4: icmp_seq=7 ttl=64 time=2.62 ms
64 bytes from 10.10.1.4: icmp_seq=8 ttl=64 time=1.36 ms
^C
--- 10.10.1.4 ping statistics ---
8 packets transmitted, 8 received, 0% packet loss, time 7011ms
rtt min/avg/max/mdev = 1.360/2.123/2.940/0.484 ms
azureuser@vm-backoffice:~$ exit
logout
Connection to 4.227.218.254 closed.
austriaco@LAPTOP-1DJED4Q6:~$
```

Thank you if you've seen this far, it may seem a little, but for those who are studying for the AZ-104 exam, this is the way, because practicing every day is what will make me become an excellent Cloud Engineer, thank you all, let's go for more!!!