Lab2

CST8912_011

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January 22, 2025

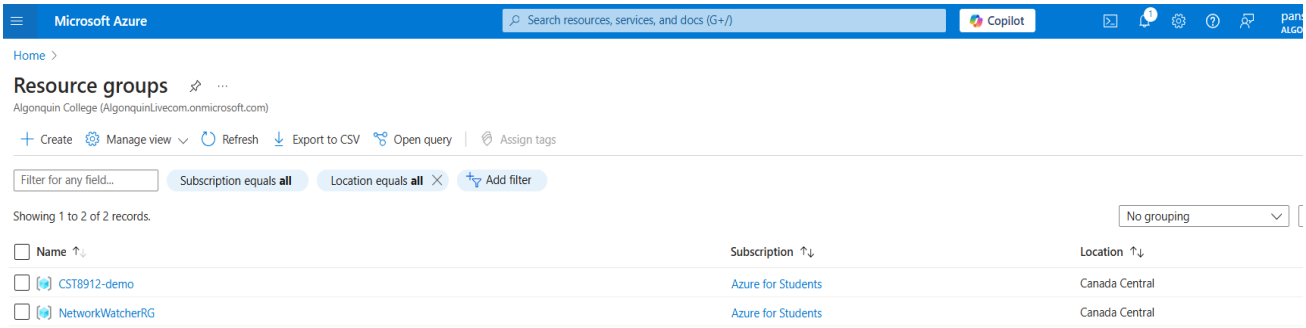
Submitted to : Prof. Tanishq Bansal

Title :- In this lab, I Learned how to explored Virtual Network Peering and Virtual Machine Connectivity Across Azure Regions.

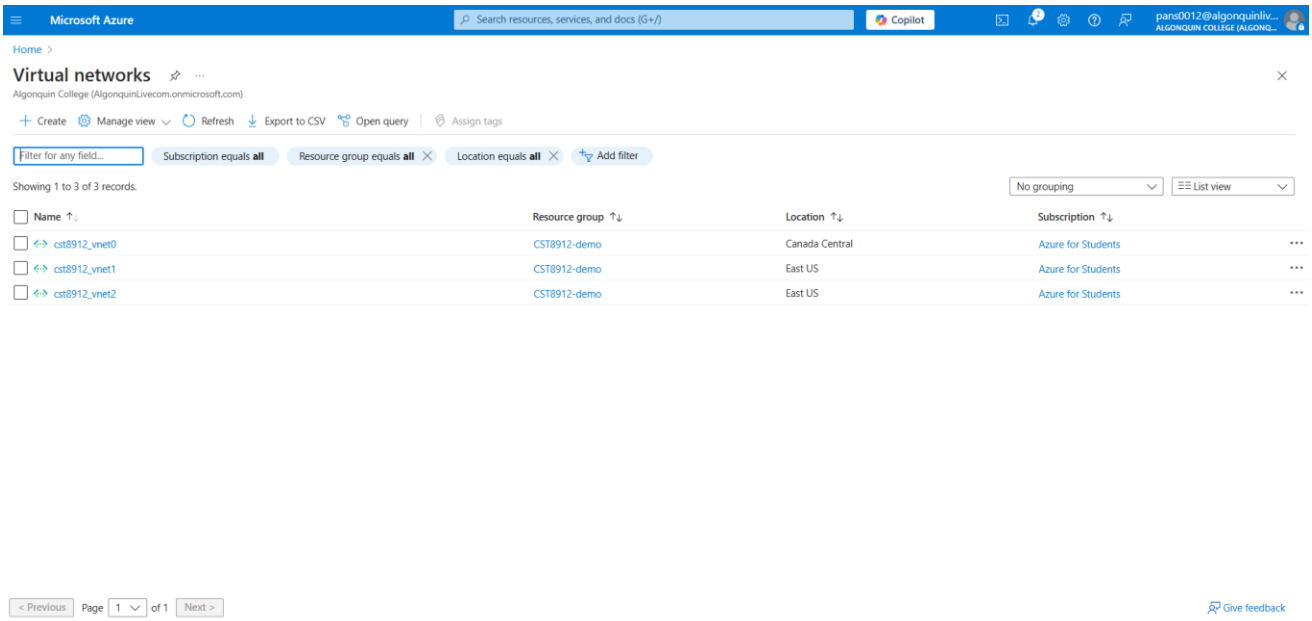
Introduction :- I deployed virtual machines (VMs) in various locations, set up VNet peering between them, and constructed and configured many virtual networks (VNets) in Azure. The objective was to use private IP addresses over port 3389 (RDP) to verify connection between these virtual machines. This lab gave me hands-on experience setting up VNet peering across several Azure regions and showcasing how to use private IP addresses to provide safe communication between virtual machines. It made it easier for me to comprehend how to set up VNets, create peering connections, and check connectivity to make sure network communication runs well.

Steps covered in the lab :-

1. Create a Resource Group - CST8912-demo in Canada Central Region

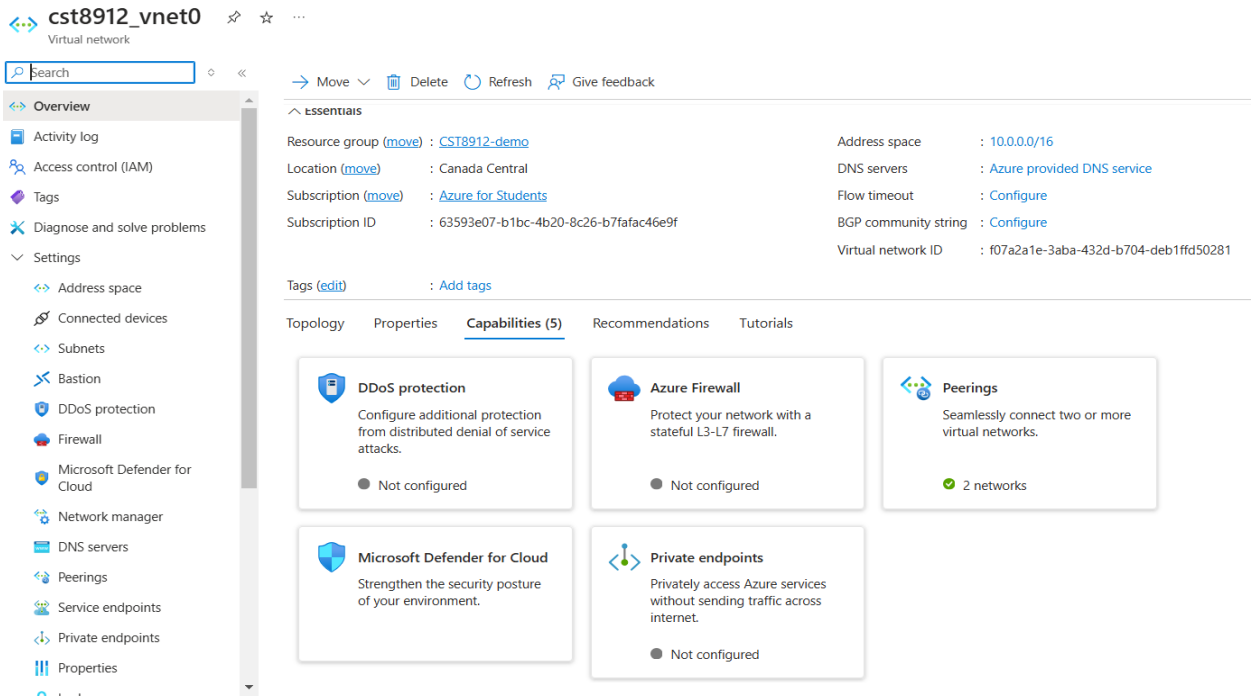


2. In the Azure portal, search for and select Virtual networks. Create one Virtual Network (cst8912_vnet0) for Canada central region and two Virtual networks (cst8912_vnet1 and cst8912_vnet2) in EAST US region.

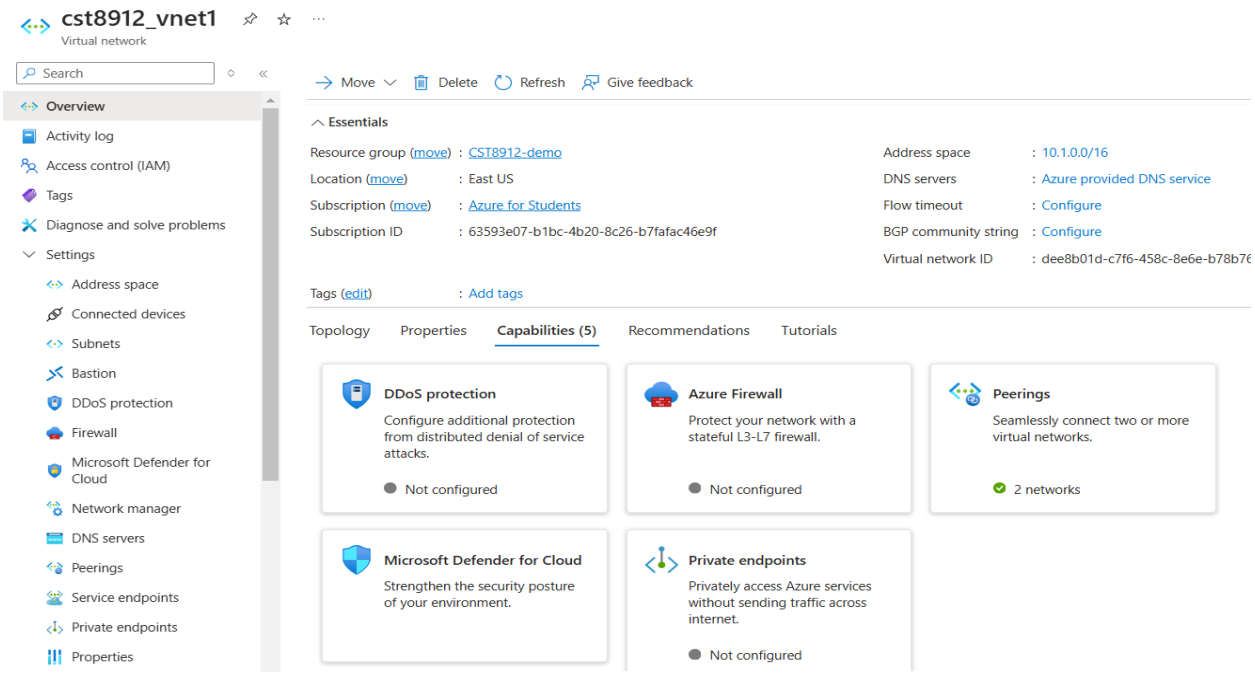


3. Reviewing Virtual Network Configuration

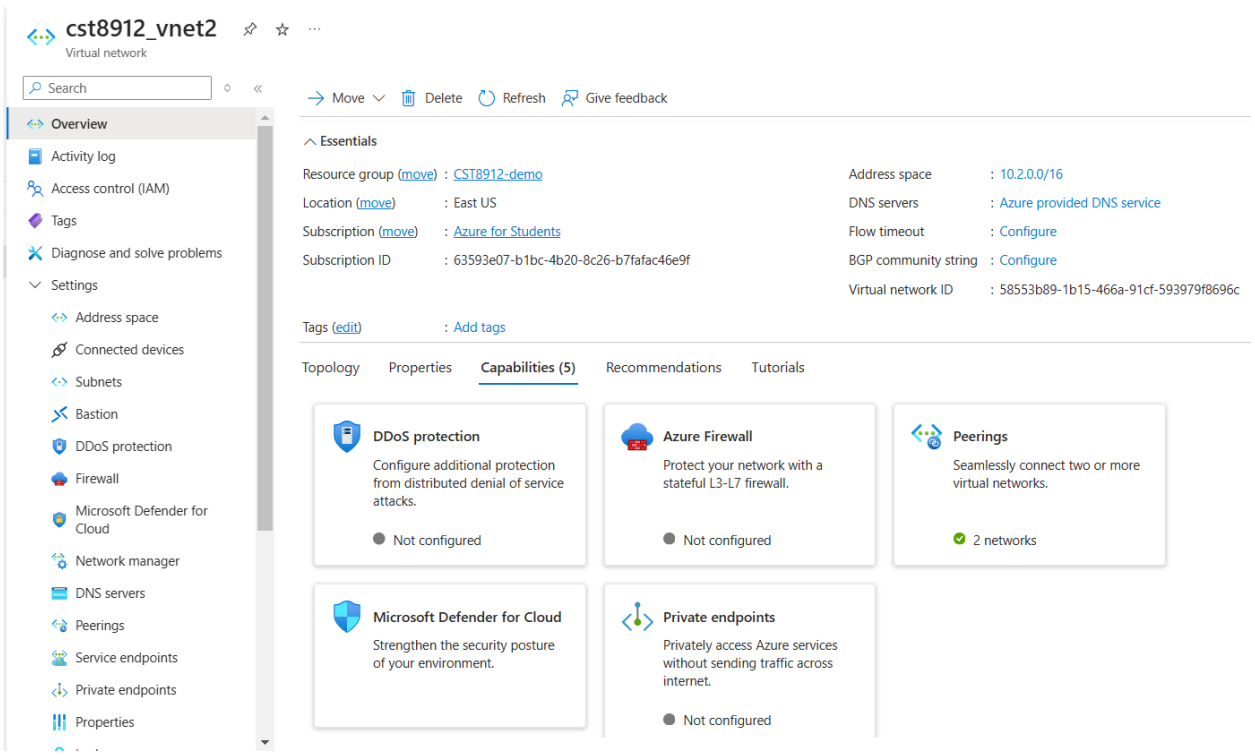
I)VM0



II)VM1


cst8912_vnet1
Virtual network
Search
Overview
Activity log
Access control (IAM)
Tags
Diagnose and solve problems
Settings
Address space
Connected devices
Subnets
Bastion
DDoS protection
Firewall
Microsoft Defender for Cloud
Network manager
DNS servers
Peerings
Service endpoints
Private endpoints
Properties
Move
Delete
Refresh
Give feedback
Essentials
Resource group (move) : CST8912-demo
Location (move) : East US
Subscription (move) : Azure for Students
Subscription ID : 63593e07-b1bc-4b20-8c26-b7fafac46e9f
Address space : 10.1.0.0/16
DNS servers : Azure provided DNS service
Flow timeout : Configure
BGP community string : Configure
Virtual network ID : dee8b01d-c7f6-458c-8e6e-b78b7
Tags (edit) : Add tags
Topology
Properties
Capabilities (5)
Recommendations
Tutorials
DDoS protection
Configure additional protection from distributed denial of service attacks.
Not configured
Azure Firewall
Protect your network with a stateful L3-L7 firewall.
Not configured
Peerings
Seamlessly connect two or more virtual networks.
2 networks
Microsoft Defender for Cloud
Strengthen the security posture of your environment.
Private endpoints
Privately access Azure services without sending traffic across internet.
Not configured

III) VM2


cst8912_vnet2
Virtual network
Search
Overview
Activity log
Access control (IAM)
Tags
Diagnose and solve problems
Settings
Address space
Connected devices
Subnets
Bastion
DDoS protection
Firewall
Microsoft Defender for Cloud
Network manager
DNS servers
Peerings
Service endpoints
Private endpoints
Properties
Move
Delete
Refresh
Give feedback
Essentials
Resource group (move) : CST8912-demo
Location (move) : East US
Subscription (move) : Azure for Students
Subscription ID : 63593e07-b1bc-4b20-8c26-b7fafac46e9f
Address space : 10.2.0.0/16
DNS servers : Azure provided DNS service
Flow timeout : Configure
BGP community string : Configure
Virtual network ID : 58553b89-1b15-466a-91cf-593979f8696c
Tags (edit) : Add tags
Topology
Properties
Capabilities (5)
Recommendations
Tutorials
DDoS protection
Configure additional protection from distributed denial of service attacks.
Not configured
Azure Firewall
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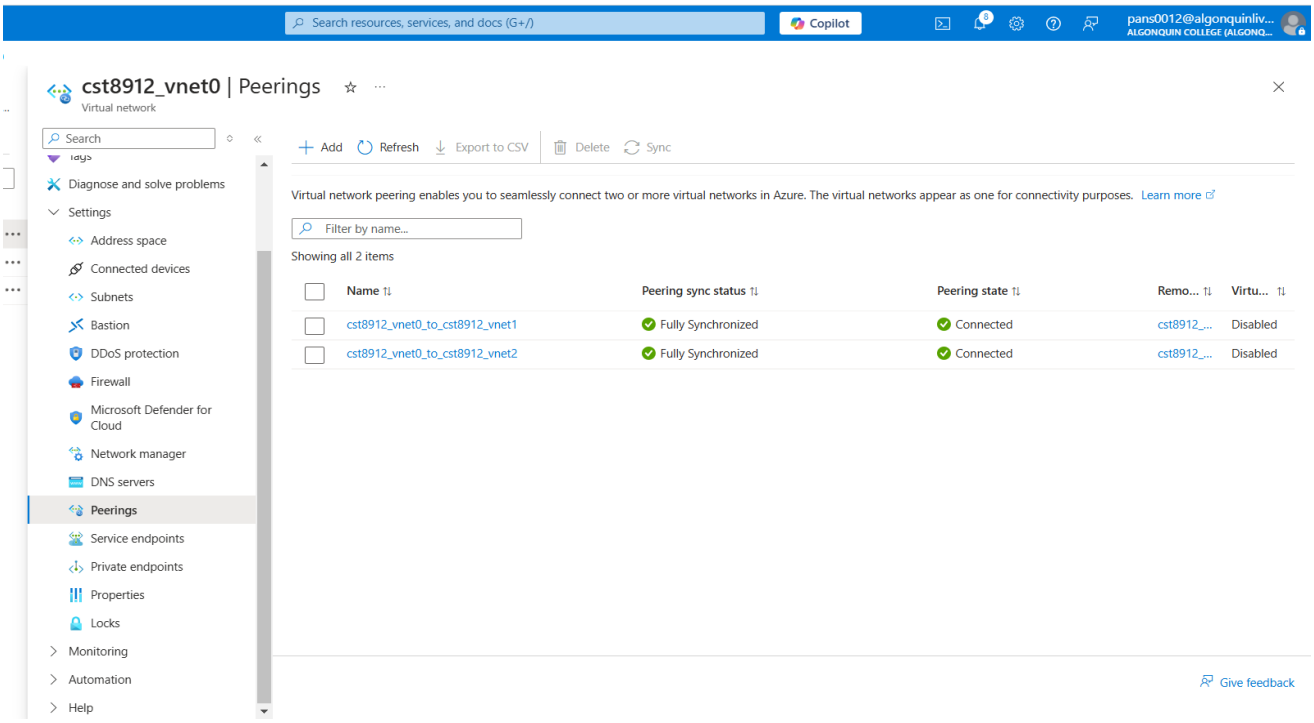
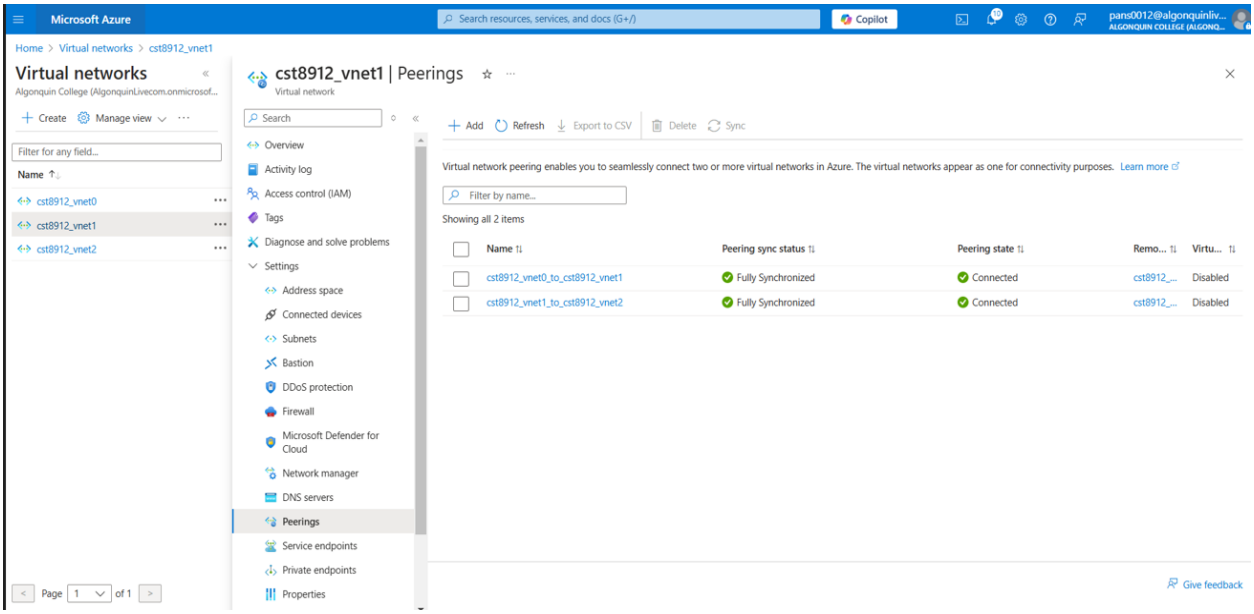
Q :- 4 & 5


Search resources, services, and docs (G+/)
Copilot
pans0012@algonquinliv...
ALGONQUIN COLLEGE (ALGONQ...
cst8912_vnet0 | Peerings
Virtual network
Search
Diagnose and solve problems
Settings
Address space
Connected devices
Subnets
Bastion
DDoS protection
Firewall
Microsoft Defender for Cloud
Network manager
DNS servers
Peerings
Service endpoints
Private endpoints
Properties
Locks
Monitoring
Automation
Help
Add
Refresh
Export to CSV
Delete
Sync
Virtual network peering enables you to seamlessly connect two or more virtual networks in Azure. The virtual networks appear as one for connectivity purposes. Learn more
Filter by name...
Showing all 2 items
Name
Peering sync status
Peering state
Remo...
Virtu...
cst8912_vnet0_to_cst8912_vnet1
Fully Synchronized
Connected
cst8912_...
Disabled
cst8912_vnet0_to_cst8912_vnet2
Fully Synchronized
Connected
cst8912_...
Disabled
Give feedback


Microsoft Azure
Search resources, services, and docs (G+/)
Copilot
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ALGONQUIN COLLEGE (ALGONQ...
Home > Virtual networks > cst8912_vnet1
Virtual networks
Algonquin College (AlgonquinLivecom.onmicrosof...
Create
Manage view
Filter for any field...
Name
cst8912_vnet0
cst8912_vnet1
cst8912_vnet2
Page 1 of 1
cst8912_vnet1 | Peerings
Virtual network
Search
Overview
Activity log
Access control (IAM)
Tags
Diagnose and solve problems
Settings
Address space
Connected devices
Subnets
Bastion
DDoS protection
Firewall
Microsoft Defender for Cloud
Network manager
DNS servers
Peerings
Service endpoints
Private endpoints
Properties
Add
Refresh
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Sync
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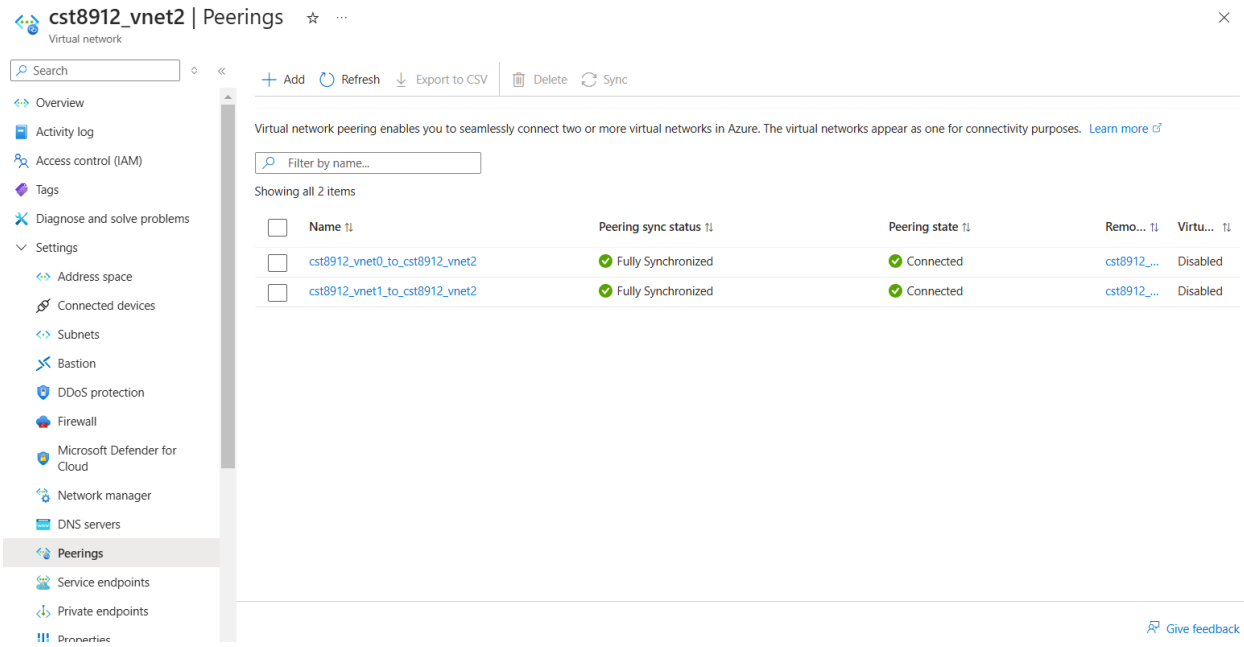
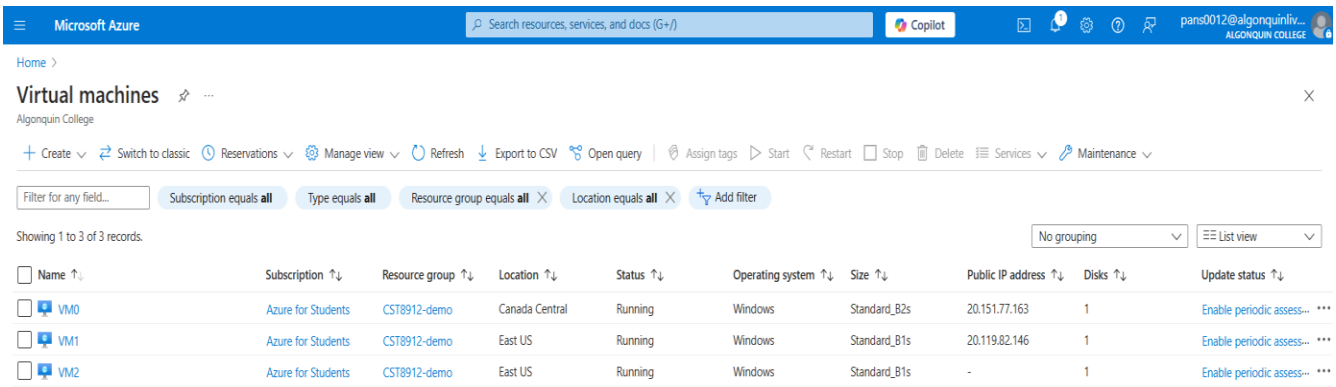
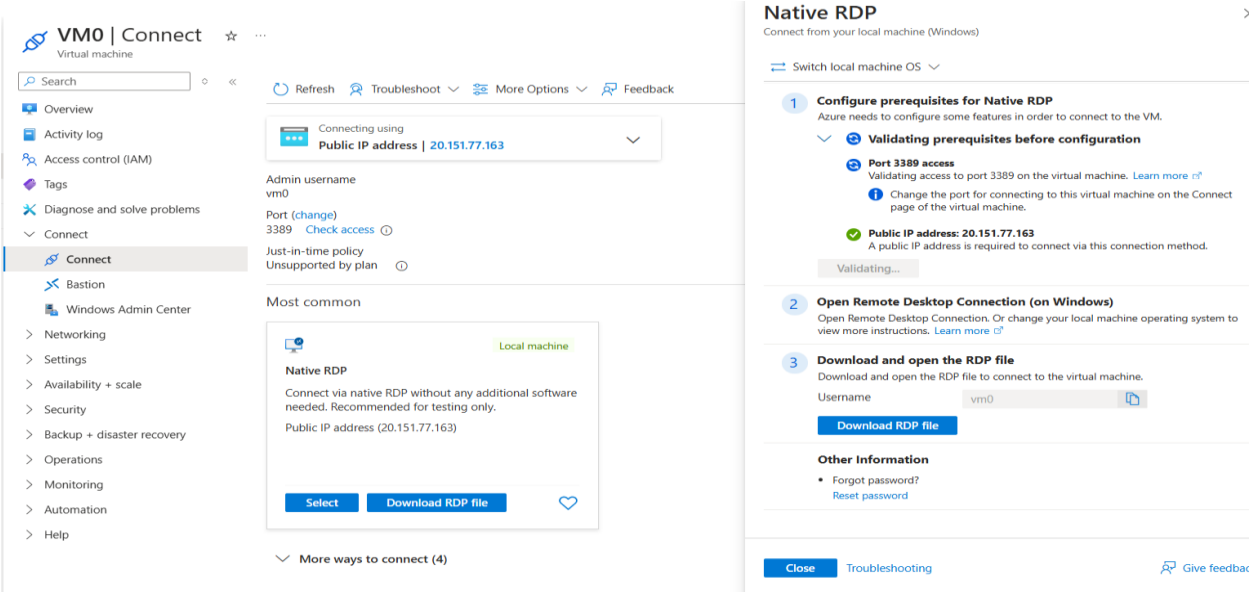
Filter by name...
Showing all 2 items
Name
Peering sync status
Peering state
Remo...
Virtu...
cst8912_vnet0_to_cst8912_vnet1
Fully Synchronized
Connected
cst8912_...
Disabled
cst8912_vnet1_to_cst8912_vnet2
Fully Synchronized
Connected
cst8912_...
Disabled
Give feedback



7. In the Azure portal, search for and select Virtual machines. In the list of virtual machines, create VM0 in Canada Central on Vnet 0 and VM1 and VM2 in East US (use Windows Server 2022 Datacenter) image on Vnet1 and Vnet 2 respectively

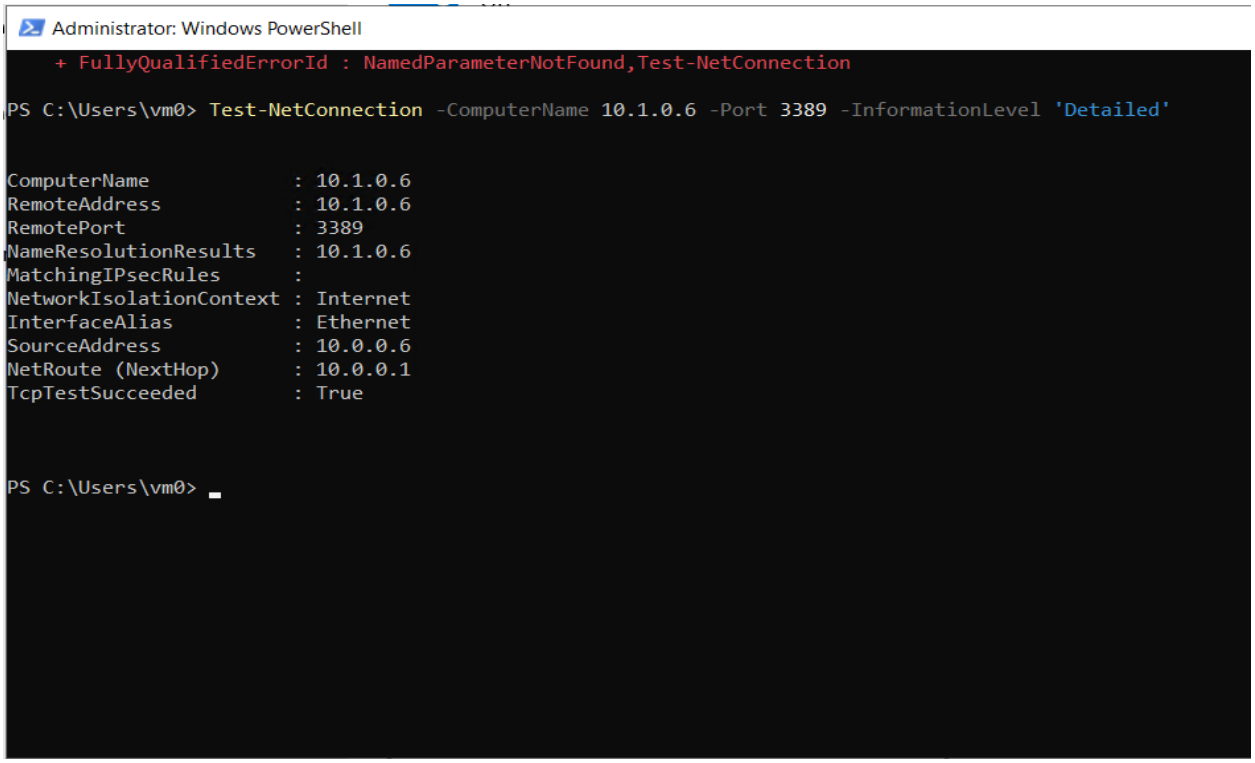


8. Select VM0 and connect using RDP signing in with username and password



9. Within RDP ,in the Windows PowerShell console window, run the following to test connectivity to vm1 (use private ip) over TCP port 3389: Test-NetConnection -ComputerName “ip” -Port 3389 -InformationLevel 'Detailed'

Vm0 to VM1 connection:



11. Repeat the same step to connect Vm0 to Vm2 and Vm1 to Vm2 and test the connection

VM0 to VM2 Connection:

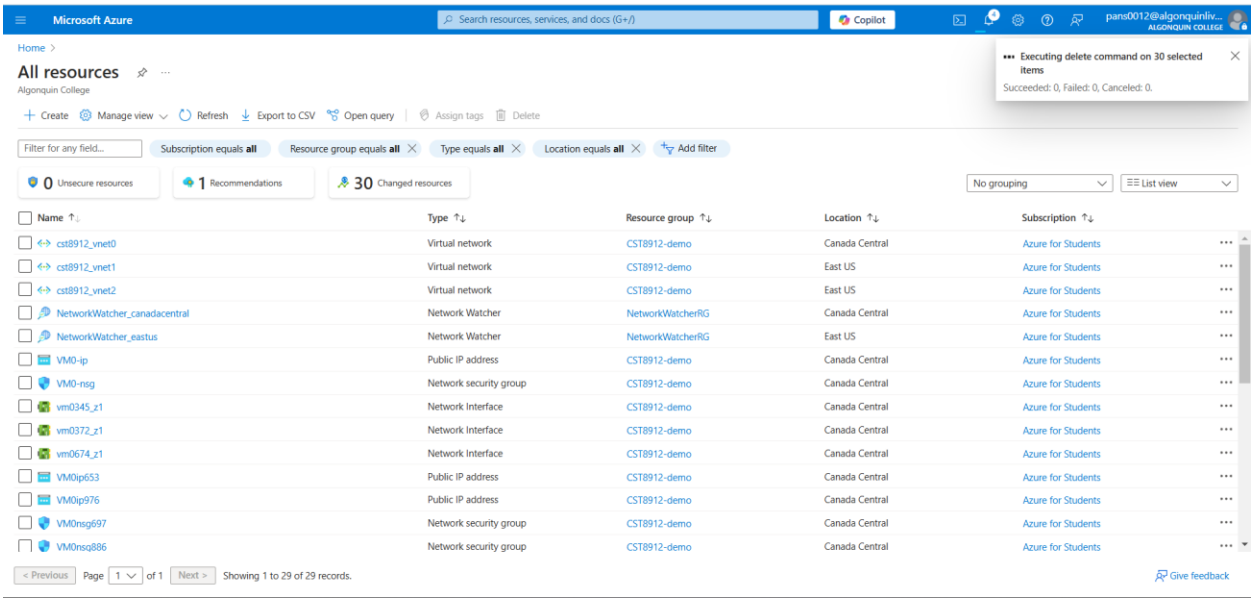
Administrator: Windows PowerShell

```
PS C:\Users\vm0> Test-NetConnection -ComputerName 10.1.0.6 -Port 3389 -InformationLevel 'Detailed'


ComputerName            : 10.1.0.6
RemoteAddress           : 10.1.0.6
RemotePort              : 3389
NameResolutionResults   : 10.1.0.6
MatchingIPsecRules      :
NetworkIsolationContext : Internet
InterfaceAlias          : Ethernet
SourceAddress           : 10.0.0.6
NetRoute (NextHop)      : 10.0.0.1
TcpTestSucceeded        : True



PS C:\Users\vm0> Test-NetConnection -ComputerName 10.2.0.4 -Port 3389 -InformationLevel 'Detailed'


ComputerName            : 10.2.0.4
RemoteAddress           : 10.2.0.4
RemotePort              : 3389
NameResolutionResults   : 10.2.0.4
MatchingIPsecRules      :
NetworkIsolationContext : Internet
InterfaceAlias          : Ethernet
SourceAddress           : 10.0.0.6
NetRoute (NextHop)      : 10.0.0.1
TcpTestSucceeded        : True
```

VM1 to VM2 Connection:

```
PS C:\Users\vm0> Test-NetConnection -ComputerName 10.2.0.4 -Port 3389 -InformationLevel 'Detailed'


ComputerName            : 10.2.0.4
RemoteAddress           : 10.2.0.4
RemotePort              : 3389
NameResolutionResults   : 10.2.0.4
MatchingIPsecRules      :
NetworkIsolationContext : Internet
InterfaceAlias          : Ethernet
SourceAddress           : 10.0.0.6
NetRoute (NextHop)      : 10.0.0.1
TcpTestSucceeded        : True
```

12. After demo delete all the resources created during this lab and create a lab report documenting all the steps with screenshots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Home
All resources
Algonquin College
Executing delete command on 30 selected items
Succeeded: 0, Failed: 0, Canceled: 0.
Create
Manage view
Refresh
Export to CSV
Open query
Assign tags
Delete
Filter for any field...
Subscription equals all
Resource group equals all
Type equals all
Location equals all
Add filter
0 Unsecure resources
1 Recommendations
30 Changed resources
No grouping
List view
Name
Type
Resource group
Location
Subscription
cst8912_vnet0 Virtual network CST8912-demo Canada Central Azure for Students
cst8912_vnet1 Virtual network CST8912-demo East US Azure for Students
cst8912_vnet2 Virtual network CST8912-demo East US Azure for Students
NetworkWatcher_canadacentral Network Watcher NetworkWatcherRG Canada Central Azure for Students
NetworkWatcher_eastus Network Watcher NetworkWatcherRG East US Azure for Students
VM0-ip Public IP address CST8912-demo Canada Central Azure for Students
VM0-nsg Network security group CST8912-demo Canada Central Azure for Students
vm0345_z1 Network Interface CST8912-demo Canada Central Azure for Students
vm0372_z1 Network Interface CST8912-demo Canada Central Azure for Students
vm0674_z1 Network Interface CST8912-demo Canada Central Azure for Students
VM0ip653 Public IP address CST8912-demo Canada Central Azure for Students
VM0ip976 Public IP address CST8912-demo Canada Central Azure for Students
VM0nsg697 Network security group CST8912-demo Canada Central Azure for Students
VM0nsg886 Network security group CST8912-demo Canada Central Azure for Students
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Page 1 of 1
Next >
Showing 1 to 29 of 29 records.
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