

Lab 2

CST8912_011

Romeo De Guzman

degu0055

January 27, 2025

Submitted to :

Prof. Tanishq Bansal

Lab Report Format

Title

Configuring Virtual Network Peering and Connectivity Testing in Azure

Introduction or Purpose

The purpose of this lab is to cover the basics of creating a Virtual network. The virtual network created will be peered into another network. Then, later, validate if they can successfully communicate through the RDP and PowerShell

Steps covered in the lab

Create Resource Group

1. Click **Resource Group** on the home page.
2. Click **Create**.
3. **Subscription**: Azure students.
4. **Resource Group**: CST8912.
5. **Region**: Canada.

Create Virtual Networks

1. In the Azure portal, search for **Virtual Network**.
2. **Create**:
 - o One Virtual Network: `cst8912_vnet0` in Canada Central.
 - o Two Virtual Networks, `cst8912_vnet1` and `cst8912_vnet2`, are in the East US region.

Peering Configuration

1. Go to the first Virtual Network (VM0) created.
 2. Search for **Peerings**.
 3. Click **+ Add** to create a new peering.
 4. Set **Peering Link Name**: `cst8912_vnet0_to_cst8912_vnet1`.
 5. Repeat the steps to connect:
 - o **VN0** to **VN2**.
 - o **VN1** to **VN2**.
-

Create VM

1. Go to the **Home Page**.
2. Click **Create Resource**.
3. Search for **Virtual Machine**.
4. Click **Create**.
5. For the **Basic tab**, repeat the steps used to create Virtual Networks.
6. **Image**: Windows.
7. Set **Username** and **Password**.
8. Create:
 - o **VM0** in Canada Central (VNet0).
 - o **VM1/VM2** in East US (VNet1/VNet2).

Connect to VM0 via RDP

1. Download the **Windows App**.
2. Click **Add PC**.
3. Enter the **Public IP Address** of **VM0**.
4. Enter the **Username** and **Password** set on Azure.
5. The Windows GUI will show up.

Run PowerShell on VM0

1. Open **PowerShell**.
2. Perform a **Peer Test**:

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

3. Perform the test on all Virtual Networks created.
4. Once the results are successful, **delete all the resources on Azure**.

Results

Resource group

Microsoft Azure

Search resources, services, and docs (G+)

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degu0055@algonquinli...
ALGONQUIN COLLEGE (ALGONQ...

Home >

CST8912-demo Resource group

Search

+ Create Manage view Delete resource group Refresh Export to CSV Open query Assign tags Move Delete Export template

Overview

Activity log

Access control (IAM)

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Resource visualizer

Events

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Cost Management

Cost analysis

Cost alerts (preview)

Budgets

Advisor recommendations

Monitoring

Automation

Help

Support + Troubleshooting

Essentials

Resources Recommendations

Filter for any field... Type equals all Location equals all Add filter

Showing 0 to 0 of 0 records. Show hidden types

No grouping List view

Name Type Location

No resources match your filters

Try changing or clearing your filters.

Create resources Clear filters

Learn more

Give feedback

VNET | VN0(Canada), VN1(US), VN2(US)

soft Azure

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cst8912_vnet0 Virtual network

Search

Move Delete Refresh Give feedback

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Essentials

Resource group (move) : CST8912-demo

Location (move) : Canada Central

Subscription (move) : Azure for Students

Subscription ID : cdb9bdf3-e7ee-43e9-8f6c-ba7327868df1

Address space : 10.0.0.0/16

DNS servers : Azure provided DNS service

Flow timeout : Configure

BGP community string : Configure

Virtual network ID : cb84fe75-4bd0-4d21-83f4-3bd51fd32d2c

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.

Not configured

Microsoft Defender for Cloud

Strengthen the security posture of your environment.

Private endpoints

Privately access Azure services without sending traffic across internet.

https://portal.azure.com/#

Microsoft Azure

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Home >

cst8912_vnet2

Virtual network

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Connected devices

Subnets

Bastion

DDoS protection

Firewall

Microsoft Defender for Cloud

Network manager

DNS servers

Peerings

Service endpoints

Essentials

Resource group (move) : CST8912-demo

Location (move) : East US

Subscription (move) : Azure for Students

Subscription ID : cdb9bdf3-e7ee-43e9-8f6c-ba7327868df1

Address space : 10.2.0.0/16

DNS servers : Azure provided DNS service

Flow timeout : Configure

BGP community string : Configure

Virtual network ID : bce4b85d-6f16-4eb3-a95a-c9bc34cc5248

Tags (edit) : Add tags

Topology Properties Capabilities (5) Recommendations Tutorials

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2 networks

Microsoft Defender for Cloud

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Private endpoints

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https://portal.azure.com/#@AlgonquinLivecom.onmicrosoft.com/resource/subscriptions/cdb9bdf3-e7ee-43e9-8f6c-ba7327868df1/resourceGroups/CST8912-demo/providers/Microsoft.Network/virtualNetworks/cst8912_vnet2/overview

Microsoft Azure

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Home >

cst8912_vnet2

Virtual network

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Connected devices

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Bastion

DDoS protection

Firewall

Microsoft Defender for Cloud

Network manager

DNS servers

Peerings

Service endpoints

Essentials

Resource group (move) : CST8912-demo

Location (move) : East US

Subscription (move) : Azure for Students

Subscription ID : cdb9bdf3-e7ee-43e9-8f6c-ba7327868df1

Address space : 10.2.0.0/16

DNS servers : Azure provided DNS service

Flow timeout : Configure

BGP community string : Configure

Virtual network ID : bce4b85d-6f16-4eb3-a95a-c9bc34cc5248

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2 networks

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Show portal menu

https://portal.azure.com/#@

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CST8912-demo

Resource group

Search

+ Create

Manage view

Delete resource group

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Open query

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Resources

Recommendations

Filter for any field...

Type equals all

Location equals all

Add filter

Showing 1 to 3 of 3 records. ☐ Show hidden types

No grouping

List view

Name	Type	Location
cst8912_vnet0	Virtual network	Canada Central
cst8912_vnet1	Virtual network	East US
cst8912_vnet2	Virtual network	East US

< Previous Page 1 of 1 Next >

Give feedback

VNET Peering

Microsoft Azure

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Home > cst8912_vnet0

cst8912_vnet0

Virtual network

peering

+ Add

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Bastion

DDoS protection

Firewall

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	Remote virt...	Virtu...
cst8912_vnet0_to_cst8912_vnet1	Fully Synchronized	Connected	cst8912_vnet1	Disabled
cst8912_vnet0_to_cst8912_vnet2	Fully Synchronized	Connected	cst8912_vnet2	Disabled

Microsoft Azure

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Home > cst8912_vnet1

cst8912_vnet1

Virtual network

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Subnets

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Filter by name...

Showing all 2 items

Name	Peering sync status	Peering state	Remote virt...	Virtu...
cst8912_vnet0_to_cst8912_vnet1	Fully Synchronized	Connected	cst8912_vnet0	Disabled
cst8912_vnet1_to_cst8912_vnet2	Fully Synchronized	Connected	cst8912_vnet2	Disabled

Microsoft Azure

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Home > cst8912_vnet2

cst8912_vnet2 | Peerings

Virtual network

Search

+ 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	Remote virt...	Virtu...
cst8912_vnet0_to_cst8912_vnet2	Fully Synchronized	Connected	cst8912_vnet0	Disabled
cst8912_vnet1_to_cst8912_vnet2	Fully Synchronized	Connected	cst8912_vnet1	Disabled

Virtual Machine

Microsoft Azure

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ALGONQUIN COLLEGE (ALGONQ...

Home > CreateVm-MicrosoftWindowsServer.WindowsServer-202-20250123005432 | Overview

VM0

Virtual machine

Search

VM0 virtual machine agent status is not ready. Troubleshoot the issue

Help me copy this VM in any region

Connect Start Restart Stop Hibernate Capture Delete Refresh Open in mobile Feedback CLI / PS

Essentials

JSON View

Properties

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Capabilities (8)

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Tutorials

Virtual machine

Computer name VM0

Operating system Windows

VM generation V2

VM architecture x64

Agent status Not Ready

Agent version Unknown

Hibernation Disabled

Host group -

Host -

Proximity placement group -

Colocation status N/A

Capacity reservation group -

Disk controller type SCSI

Networking

Public IP address 20.116.221.55 (Network interface vm0670_x1)

Public IP address (IPv6) -

Private IP address 10.0.0.4

Private IP address (IPv6) -

Virtual network/subnet cst8912_vnet0/default

DNS name Configure

Size

Size Standard B1s

vCPUs 1

RAM 1 GiB

Source image details

Microsoft Azure

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Home >

VM1
Virtual machine

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Connect

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Windows Admin Center

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Essentials

Resource group (move) : CST8912-demo

Status : Running

Location : East US (Zone 3)

Subscription (move) : Azure for Students

Subscription ID : cdb9bdf3-e7ee-43e9-8f6c-ba7327868df1

Availability zone : 3

Tags (edit) : Add tags

Operating system : Windows (Windows Server 2022 Datacenter Azure Edition)

Size : Standard B1s (1 vcpu, 1 GiB memory)

Public IP address : 20.55.52.212

Virtual network/subnet : cst8912_vnet1/default

DNS name : Not configured

Health state : -

Time created : 1/23/2025, 6:23 AM UTC

JSON View

Properties Monitoring Capabilities (8) Recommendations Tutorials

Virtual machine

Computer name : VM1

Operating system : Windows (Windows Server 2022 Datacenter Azure Edition)

VM generation : V2

VM architecture : x64

Agent status : Ready

Agent version : 2.7.41491.1095

Networking

Public IP address : 20.55.52.212 (Network interface vm165_z3)

Public IP address (IPv6) : -

Private IP address : 10.1.0.4

Private IP address (IPv6) : -

Virtual network/subnet : cst8912_vnet1/default

DNS name : Configure

Microsoft Azure

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ALGONQUIN COLLEGE

Home >

VM2
Virtual machine

Help me copy this VM in any region

Connect Start Restart Stop Hibernate Capture Delete Refresh Open in mobile Feedback CLI / PS

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Essentials

Resource group (move) : CST8912-demo

Status : Running

Location : East US (Zone 3)

Subscription (move) : Azure for Students

Subscription ID : cdb9bdf3-e7ee-43e9-8f6c-ba7327868df1

Availability zone : 3

Tags (edit) : Add tags

Operating system : Windows (Windows Server 2022 Datacenter Azure Edition)

Size : Standard B1s (1 vcpu, 1 GiB memory)

Public IP address : 20.115.87.200

Virtual network/subnet : cst8912_vnet1/default

DNS name : Not configured

Health state : -

Time created : 1/23/2025, 6:24 AM UTC

JSON View

Properties Monitoring Capabilities (8) Recommendations Tutorials

Virtual machine

Computer name : VM2

Operating system : Windows (Windows Server 2022 Datacenter Azure Edition)

VM generation : V2

VM architecture : x64

Agent status : Ready

Agent version : 2.7.41491.1095

Networking

Public IP address : 20.115.87.200 (Network interface vm2448_z3)

Public IP address (IPv6) : -

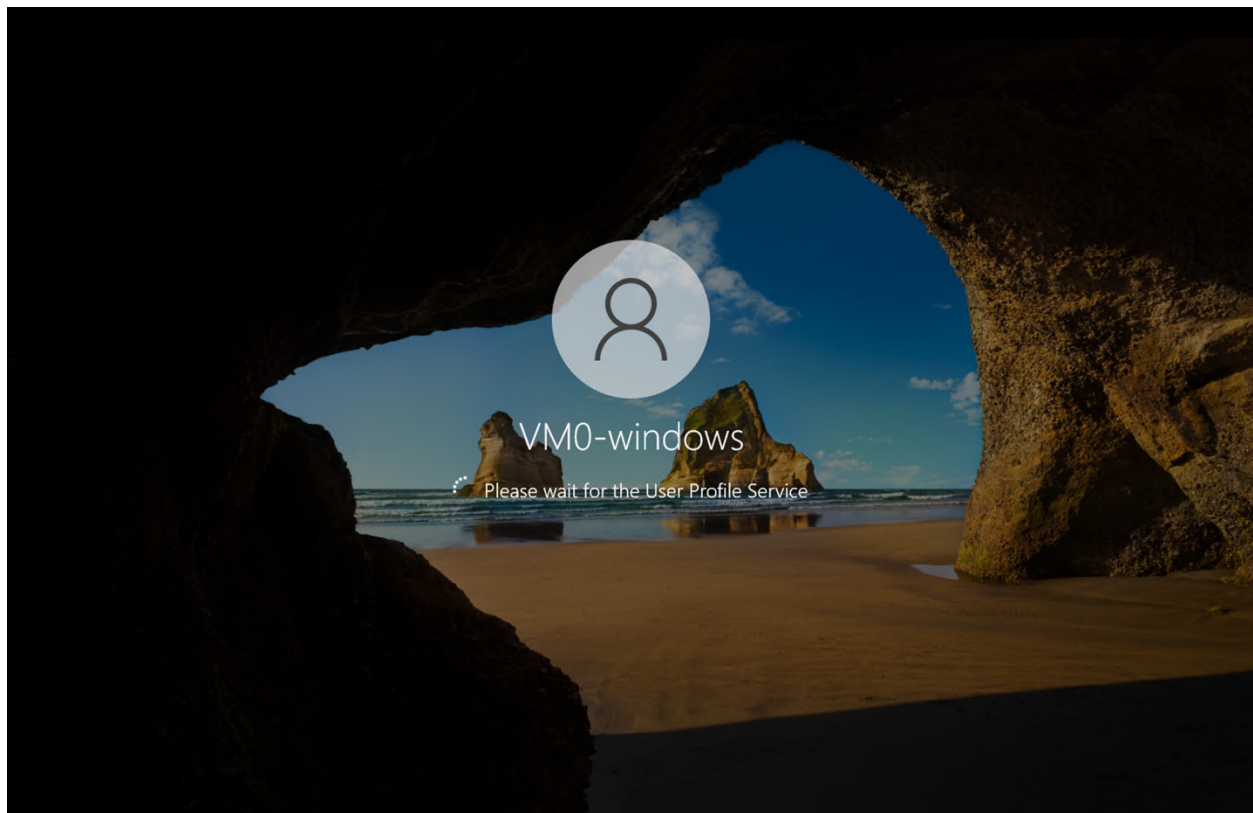
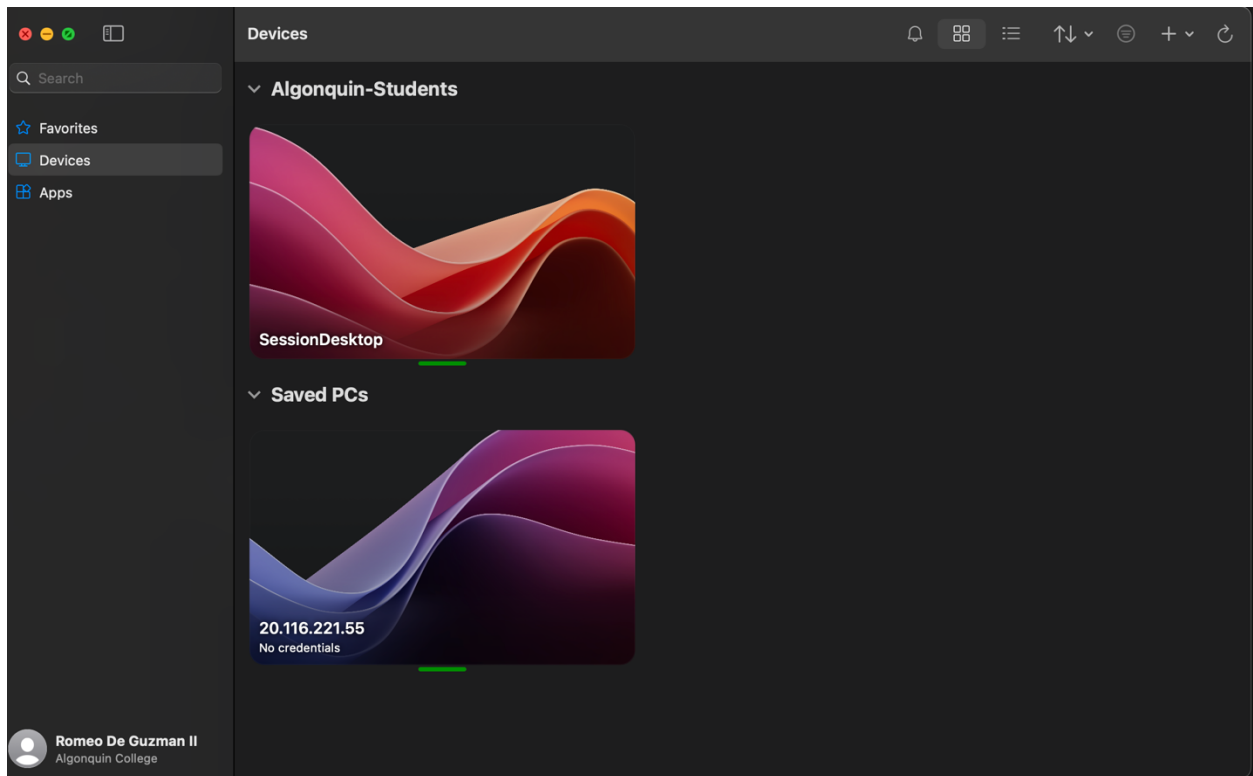
Private IP address : 10.1.0.5

Private IP address (IPv6) : -

Virtual network/subnet : cst8912_vnet1/default

DNS name : Configure

Access VM0 using the Windows App



Test the connection between VM0, VM1, and VM2.

```
Administrator: Windows PowerShell ISE
File Edit View Tools Debug Add-ons Help

PS C:\Users\VM0-windows> Test-NetConnection -ComputerName 20.116.221.55 -Port 3389 -InformationLevel 'Detailed'

ComputerName           : 20.116.221.55
RemoteAddress          : 20.116.221.55
RemotePort             : 3389
NameResolutionResults   : 20.116.221.55
MatchingIPsecRules      :
NetworkIsolationContext : Internet
InterfaceAlias          : Ethernet
SourceAddress           : 10.0.0.4
NetRoute (NextHop)      : 10.0.0.1
TcpTestSucceeded        : True

PS C:\Users\VM0-windows> Test-NetConnection -ComputerName 20.55.52.212 -Port 3389 -InformationLevel 'Detailed'

ComputerName           : 20.55.52.212
RemoteAddress          : 20.55.52.212
RemotePort             : 3389
NameResolutionResults   : 20.55.52.212
MatchingIPsecRules      :
NetworkIsolationContext : Internet
InterfaceAlias          : Ethernet
SourceAddress           : 10.0.0.4
NetRoute (NextHop)      : 10.0.0.1
TcpTestSucceeded        : True

PS C:\Users\VM0-windows> Test-NetConnection -ComputerName 20.115.87.200 -Port 3389 -InformationLevel 'Detailed'

ComputerName           : 20.115.87.200
RemoteAddress          : 20.115.87.200
RemotePort             : 3389
NameResolutionResults   : 20.115.87.200
MatchingIPsecRules      :
NetworkIsolationContext : Internet
InterfaceAlias          : Ethernet
SourceAddress           : 10.0.0.4
NetRoute (NextHop)      : 10.0.0.1
TcpTestSucceeded        : True

PS C:\Users\VM0-windows>
```

Delete all resources.

Microsoft Azure

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Home >

CST8912-demo Resource group

Search

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Resources Recommendations (1)

Filter for any field...

Type equals all Location equals all Add filter

Showing 1 to 24 of 24 records. Show hidden types

Name	Type
cst8912_vnet0	Virtual network
cst8912_vnet0-bastion	Bastion
cst8912_vnet0-ip	Public IP address
cst8912_vnet1	Virtual network
cst8912_vnet2	Virtual network
VM0	Virtual machine
VM0-ip	Public IP address
VM0-nsg	Network security group
vm0670_x1	

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https://portal.azure.com/#

Delete a resource group

The following resource group and all its dependent resources will be permanently deleted.

Resource group to be deleted

CST8912-demo

Dependent resources to be deleted (24)

All dependent resources, including hidden types, are shown

Name	Resource type
cst8912_vnet0	Virtual network
cst8912_vnet0-bastion	Bastion
cst8912_vnet0-ip	Public IP address
cst8912_vnet1	Virtual network
cst8912_vnet2	Virtual network
VM0	Virtual machine
VM0-ip	Public IP address
VM0-nsg	Network security group

Apply force delete for selected Virtual machines and Virtual machine scale sets

Enter resource group name to confirm deletion *

CST8912-demo

Delete Cancel