PROJECT REPORT

Submitted By :-
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ABSTRACT

In the current era of digital transformation, businesses increasingly adopt cloud computing to leverage its flexibility, scalability, and cost-effectiveness. Microsoft Azure is a leading cloud platform that offers a wide array of services to support diverse workloads. As organizations migrate to the cloud, ensuring seamless connectivity between on-premises infrastructure and cloud resources becomes critical. This project aims to establish a highly available, secure, and reliable connectivity model between an on-premises network and Azure cloud resources using Site-to-Site (S2S) tunneling and Transit Vnet peering. The architecture includes the creation of a Virtual Network Gateway in the Hub VNet to enable communication between the on-premises network and the Azure environment. Additionally, Transit Vnet peering is implemented to allow traffic flow between the Hub VNet and multiple Spoke VNets while ensuring network isolation. The project involves a comprehensive step-by-step configuration, testing, and verification process to achieve bi-directional communication between the on-premises VM, Hub VM, and Spoke VMs.

Contents

List of Figures

Chapter 1
Introduction

In today's cloud-driven landscape, businesses embrace cloud technologies to stay competitive, accelerate innovation, and meet customer demands. A hybrid cloud approach, where on-premises infrastructure coexists with cloud resources, offers a balanced solution. Microsoft Azure provides a robust platform for deploying and managing cloud-based applications, services, and data. To connect the on-premises network with Azure VNets, a well-designed and secure networking infrastructure is essential. This project demonstrates the process of setting up a highly available and scalable network architecture using S2S VPN and Transit Vnet peering.

Chapter 2
Basic Concepts

Virtual Private Network (VPN): A Virtual Private Network (VPN) is a secure and encrypted connection that enables users to access resources over the internet as if they were directly connected to a private network. S2S VPN is a type of VPN configuration that establishes a secure connection between an on-premises network and a cloud-based virtual network, such as Azure VNets. This allows users to access resources in the cloud as if they were part of the on-premises network.

Virtual Network Gateway: The Virtual Network Gateway in Microsoft Azure acts as the termination point for the S2S VPN connection. It provides the necessary routing functionality and encryption for secure communication between the on-premises network and the Azure virtual network. The Virtual Network Gateway resides in the Hub VNet and facilitates bidirectional traffic flow between on-premises and cloud resources.

Hub and Spoke Network Topology: The Hub and Spoke network topology is a common architecture used to manage and control network traffic in a hierarchical manner. The Hub VNet serves as the central hub through which all communication between the on-premises network and multiple Spoke VNets takes place. This approach simplifies network management and enhances security by centralizing the control of traffic flow.

Transit Vnet Peering: Transit Vnet peering enables communication between multiple Spoke VNets through the Hub VNet, even if direct peering connections between Spoke VNets are not established. This allows for efficient and controlled communication across the entire network topology without compromising network isolation. Transit Vnet peering provides a scalable solution to ensure that traffic from one Spoke VNet can reach another Spoke VNet through the Hub VNet.

Routing and Remote Access Service (RRAS): Routing and Remote Access Service (RRAS) is a Microsoft Windows service that enables routing functionality on Windows servers. In the context of this project, RRAS is configured on the On-premises VM to serve as the local gateway for routing traffic between the on-premises network and the Azure VNets. It facilitates the flow of traffic to the appropriate destinations within the Azure environment.

Chapter 3
Problem Statement

Configuration of On-premises to Hub and Spoke connectivity using S2S tunneling from On-premises and hub and Transit Vnet peering from hub to spoke. Configure RRAS on on-premises VM and establish S2S connectivity to the Hub. The On-premises VM should be able to ping both Hub VM and Spoke VM successfully. The connectivity should be bi-directional. There is no direct connectivity established between spoke and On-premises Vnet.

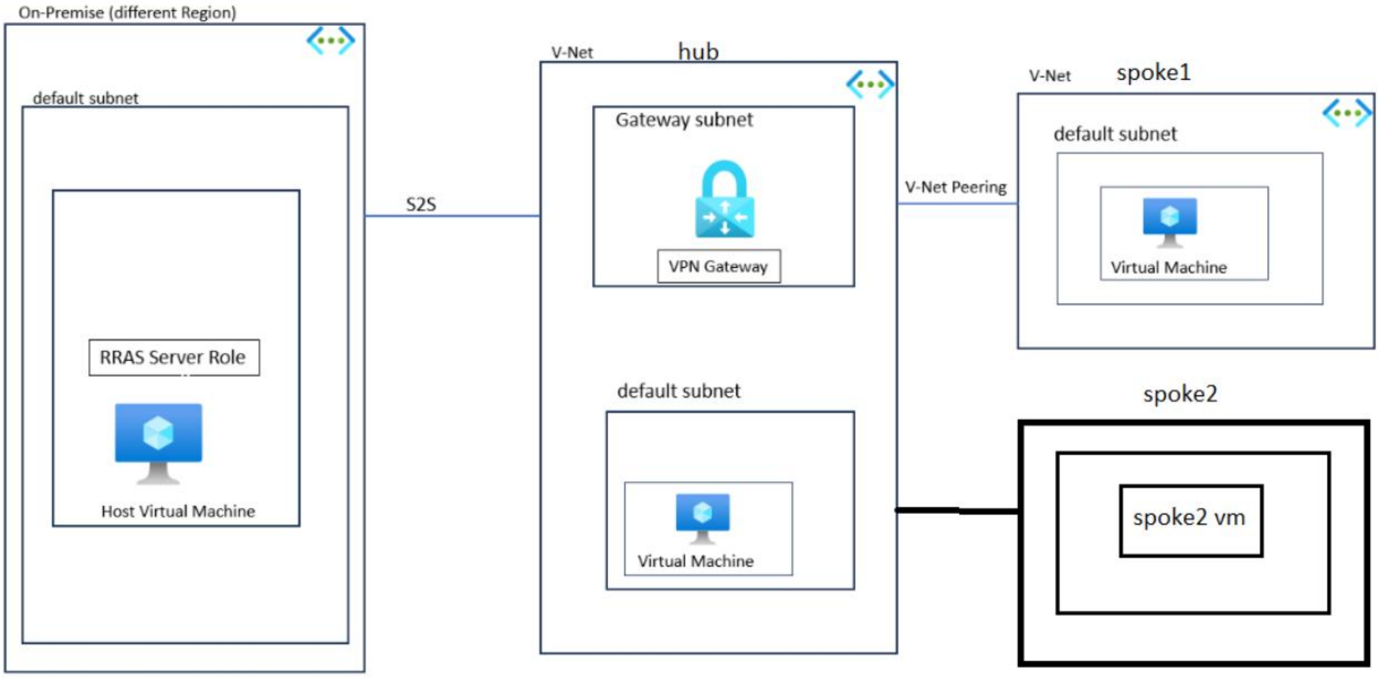
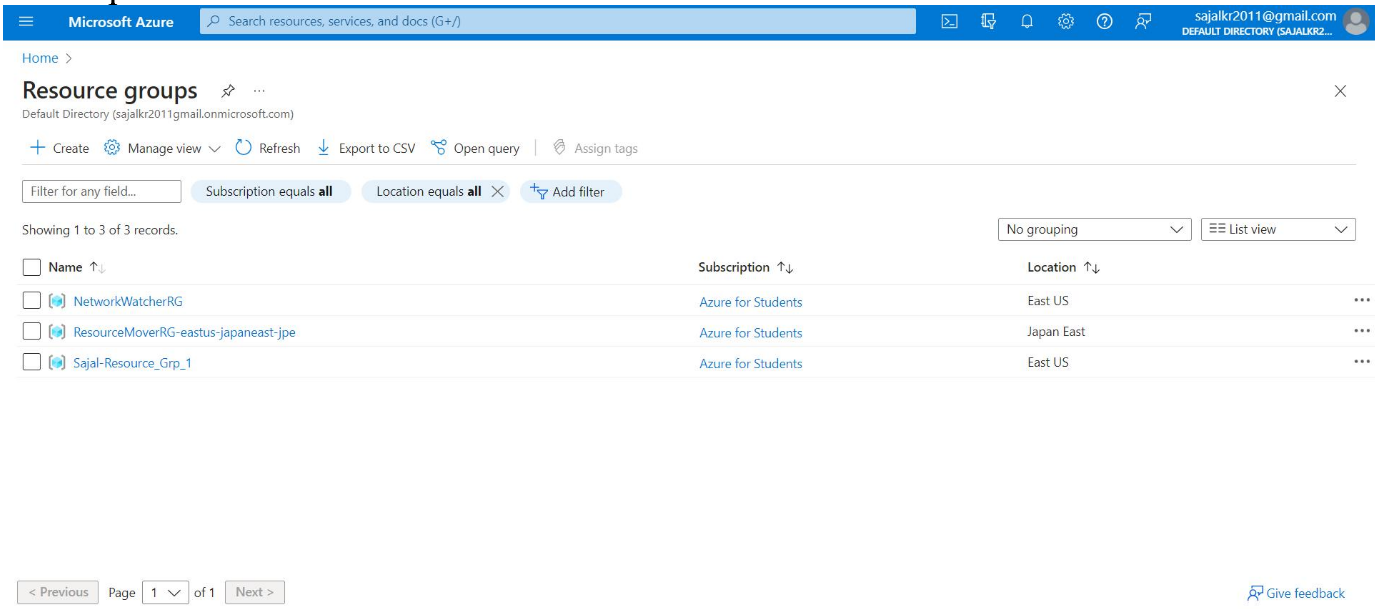


Figure 3 Problem architecture

Chapter 4
Implementation

Step 1 : Create Azure Resource Group:

The first step in the implementation process is to create an Azure Resource Group. The resource group serves as a logical container for all the resources that will be deployed for this project. It helps manage and organize these resources as a single entity within an Azure subscription.



Resource groups

Default Directory (sajalkr2011gmail.onmicrosoft.com)

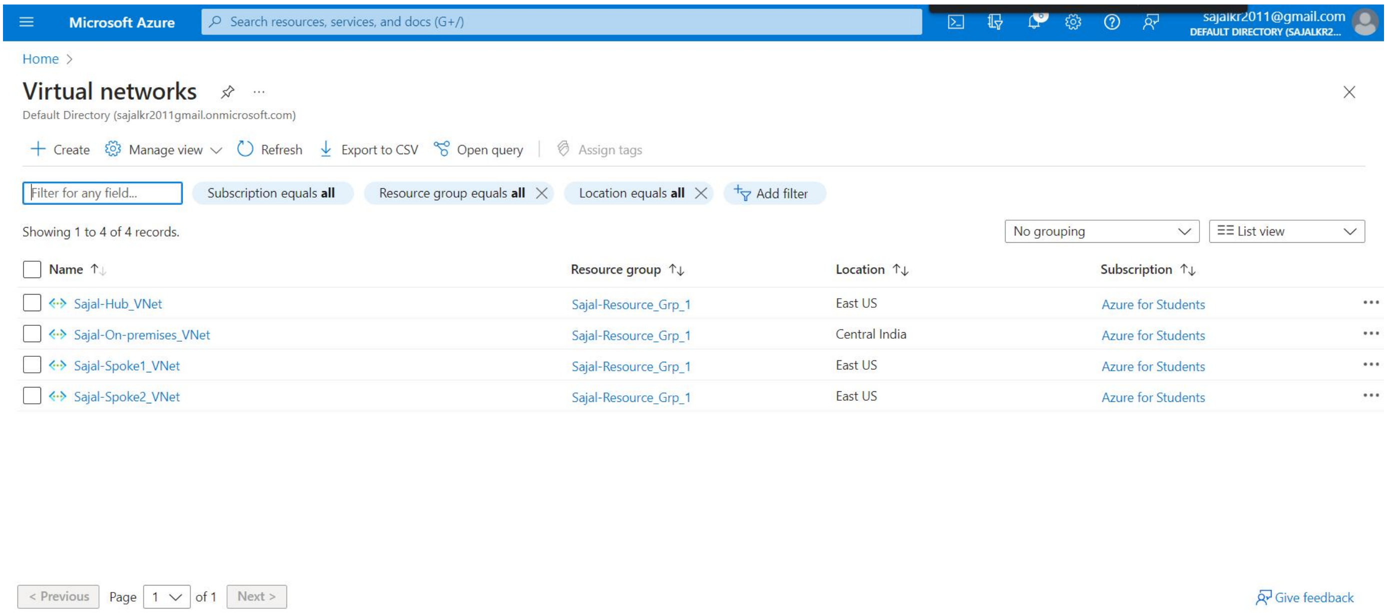
Showing 1 to 3 of 3 records.

Name	Subscription	Location
NetworkWatcherRG	Azure for Students	East US
ResourceMoverRG-eastus-japaneast-jpe	Azure for Students	Japan East
Sajal-Resource_Grp_1	Azure for Students	East US

Figure 4.1 Resource groups

Step 2 : Create Azure Virtual Networks (VNets):

Once the resource group is set up, the project team proceeds to create the required Azure Virtual Networks. Using the Azure portal, they create the On-premises VNet, Hub VNet, and multiple Spoke VNets. Each VNet is assigned a unique address space to prevent IP range conflicts.



Virtual networks

Default Directory (sajalkr2011gmail.onmicrosoft.com)

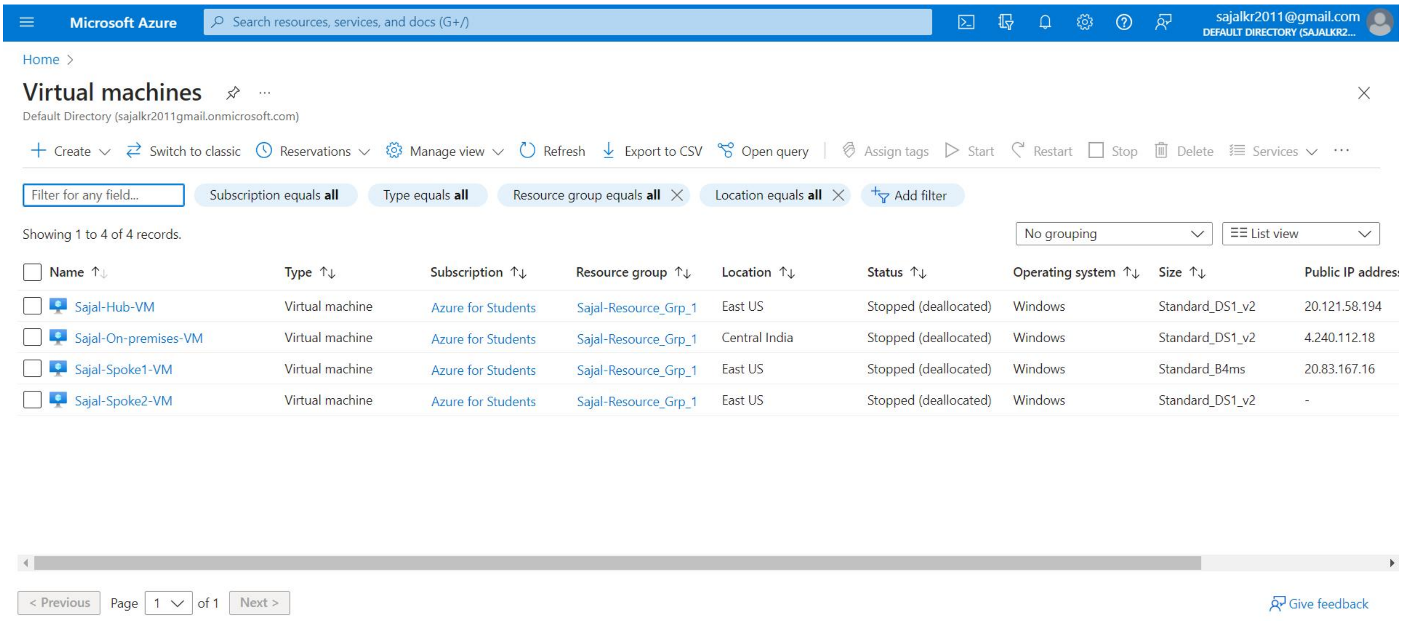
Showing 1 to 4 of 4 records.

Name	Resource group	Location	Subscription
Sajal-Hub_VNet	Sajal-Resource_Grp_1	East US	Azure for Students
Sajal-On-premises_VNet	Sajal-Resource_Grp_1	Central India	Azure for Students
Sajal-Spoke1_VNet	Sajal-Resource_Grp_1	East US	Azure for Students
Sajal-Spoke2_VNet	Sajal-Resource_Grp_1	East US	Azure for Students

Figure 4.2 Virtual Networks

Step 3 : Provision Virtual Machines in each VNet:

To validate the connectivity later, the team provisions Virtual Machines in the On-premises VNet, Hub VNet, and each Spoke VNet. These VMs represent various resources, such as web servers, application servers, and database servers, to simulate real-world scenarios.



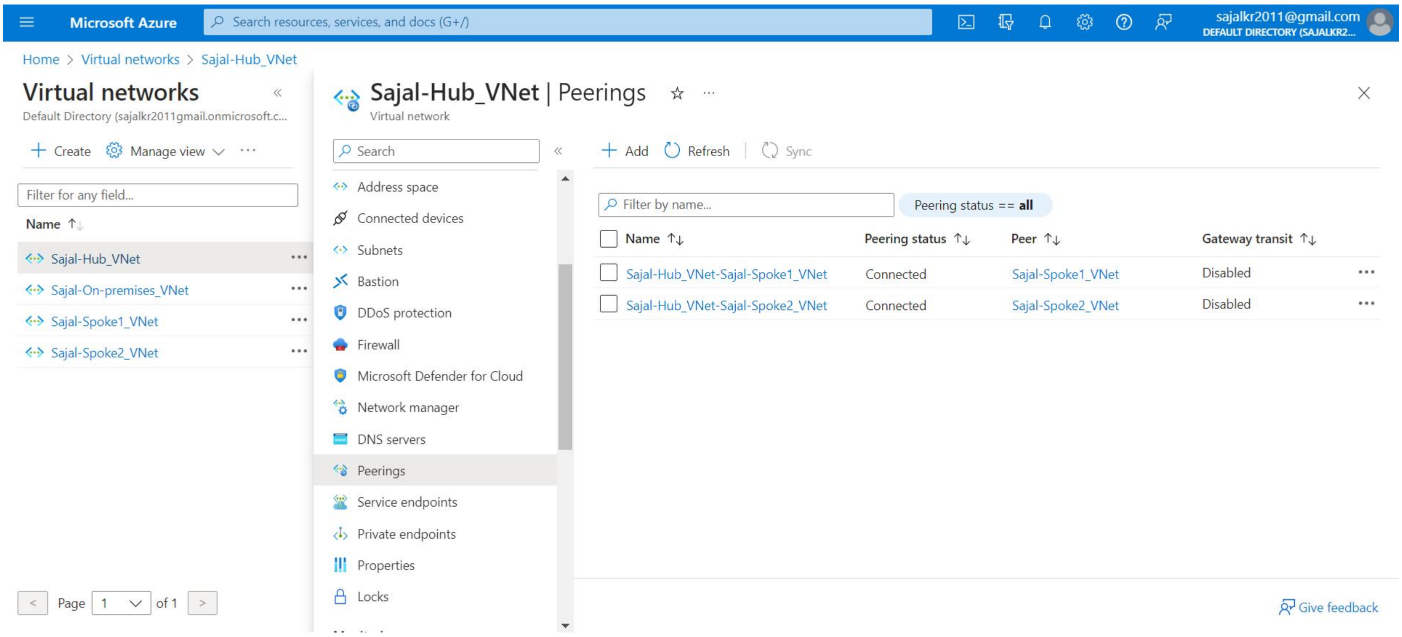
Showing 1 to 4 of 4 records.

Name	Type	Subscription	Resource group	Location	Status	Operating system	Size	Public IP addres
Sajal-Hub-VM	Virtual machine	Azure for Students	Sajal-Resource_Grp_1	East US	Stopped (deallocated)	Windows	Standard_DS1_v2	20.121.58.194
Sajal-On-premises-VM	Virtual machine	Azure for Students	Sajal-Resource_Grp_1	Central India	Stopped (deallocated)	Windows	Standard_DS1_v2	4.240.112.18
Sajal-Spoke1-VM	Virtual machine	Azure for Students	Sajal-Resource_Grp_1	East US	Stopped (deallocated)	Windows	Standard_B4ms	20.83.167.16
Sajal-Spoke2-VM	Virtual machine	Azure for Students	Sajal-Resource_Grp_1	East US	Stopped (deallocated)	Windows	Standard_DS1_v2	-

Figure 4.3 Virtual Machine

Step 4 : Configuring Virtual Network Peering between Hub VNet and Spoke VNets:

After setting up the Virtual Network Gateway for the Hub VNet, the next crucial step is to establish Virtual Network Peering between the Hub VNet and each Spoke VNet. This enables communication between the Spoke VNets through the central Hub VNet, even if direct peering connections between the Spoke VNets are not established.

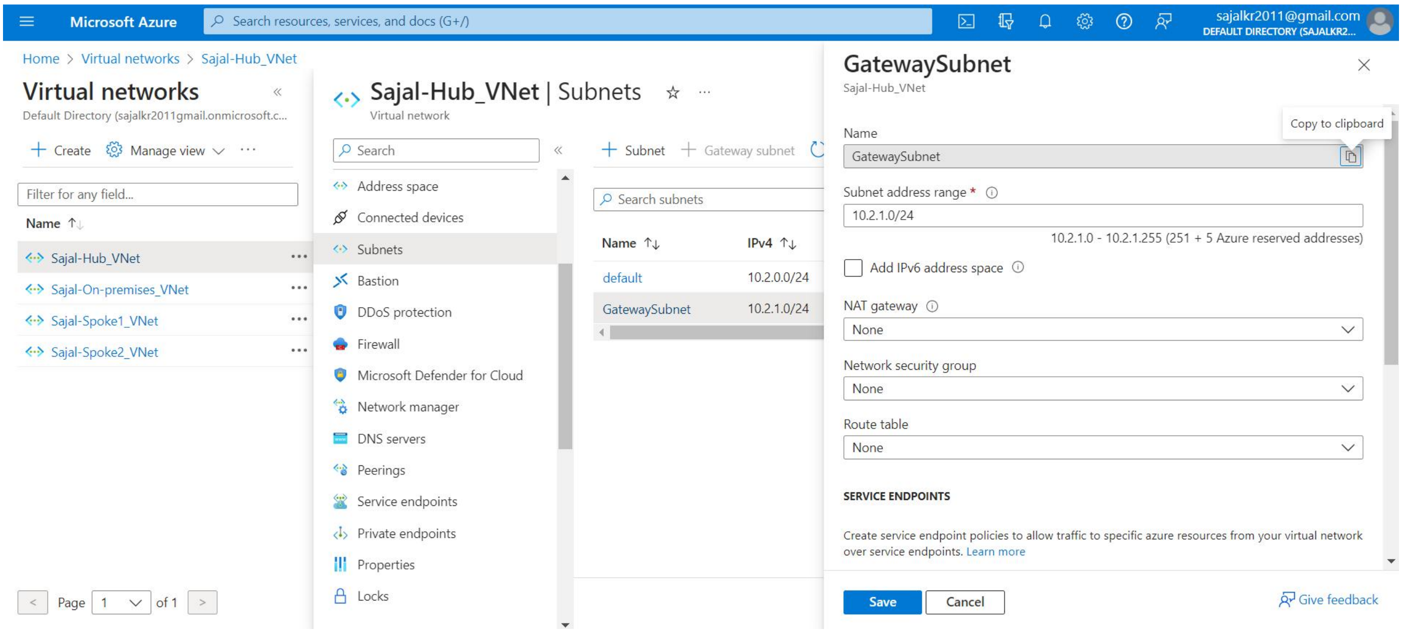


Name	Peering status	Peer	Gateway transit
Sajal-Hub_VNet-Sajal-Spoke1_VNet	Connected	Sajal-Spoke1_VNet	Disabled
Sajal-Hub_VNet-Sajal-Spoke2_VNet	Connected	Sajal-Spoke2_VNet	Disabled

Figure 4.4 Virtual networks peerings

Step 5 : Creating Gateway Subnet in the Hub VNet:

To enable the Virtual Network Gateway to function as the termination point for the Site-to-Site (S2S) VPN connection, a dedicated subnet called the Gateway Subnet needs to be created within the Hub VNet. The Gateway Subnet acts as the hosting location for the Virtual Network Gateway, providing the necessary resources and configuration for secure communication with on-premises networks.



Name ↑↓
Sajal-Hub_VNet
Sajal-On-premises_VNet
Sajal-Spoke1_VNet
Sajal-Spoke2_VNet

Name ↑↓	IPv4 ↑↓
default	10.2.0.0/24
GatewaySubnet	10.2.1.0/24

GatewaySubnet
Sajal-Hub_VNet

Name: GatewaySubnet

Subnet address range *: 10.2.1.0/24
10.2.1.0 - 10.2.1.255 (251 + 5 Azure reserved addresses)

□ Add IPv6 address space

NAT gateway: None

Network security group: None

Route table: None

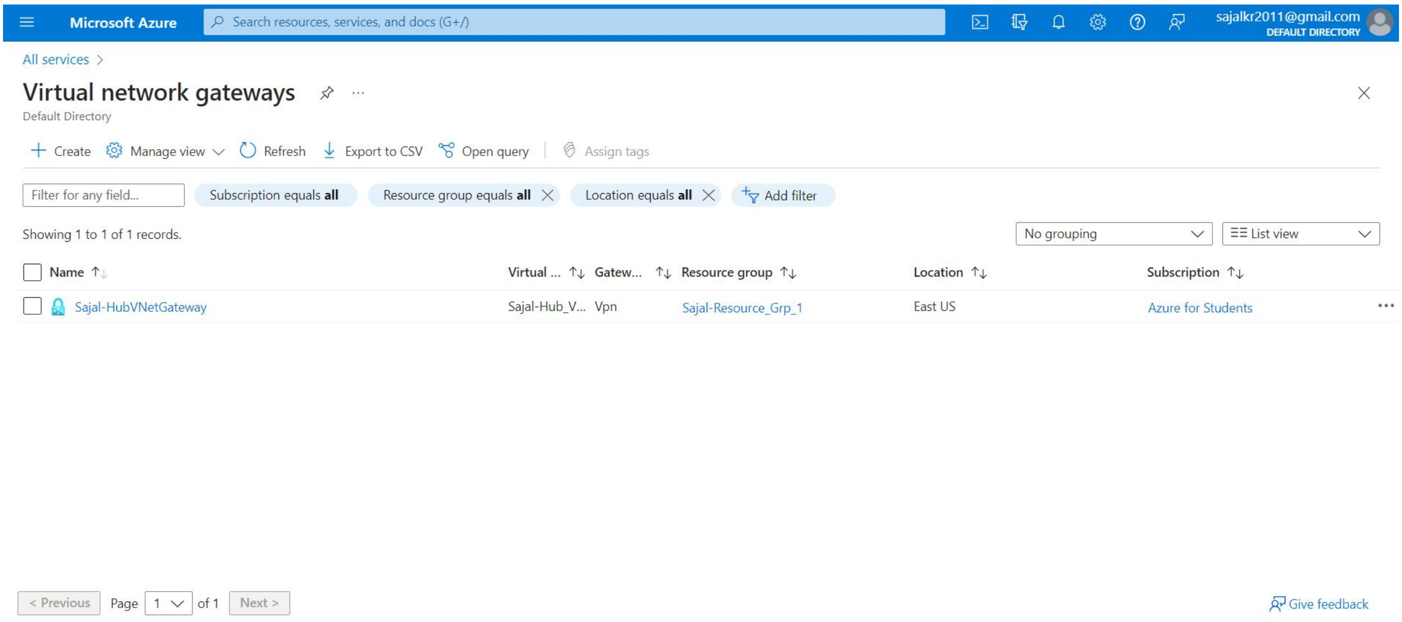
SERVICE ENDPOINTS

Create service endpoint policies to allow traffic to specific azure resources from your virtual network over service endpoints. Learn more

Figure 4.5 Gateway Subnet

Step 6 : Creating the Virtual Network Gateway in the Hub VNet:

With the Gateway Subnet in place, the project team proceeds to create the Virtual Network Gateway within the Hub VNet. The Virtual Network Gateway acts as the endpoint for the Site-to-Site (S2S) VPN connection, facilitating secure communication between the on-premises network and the Azure cloud resources.



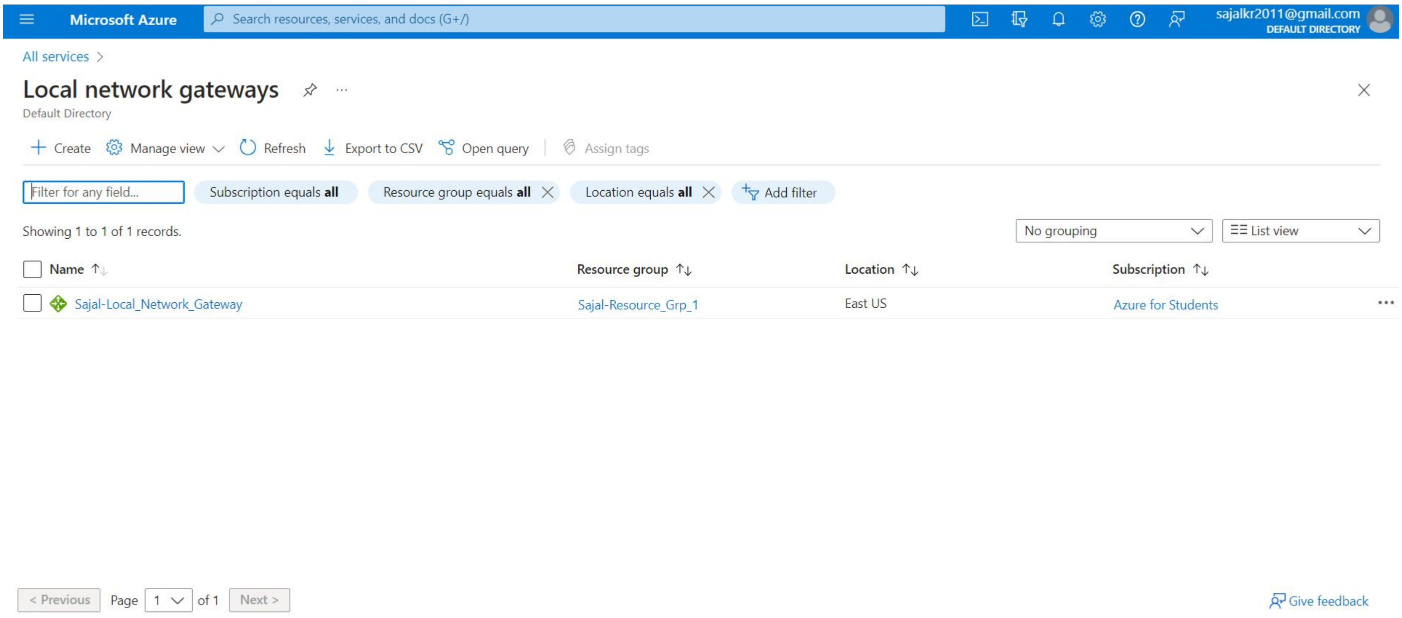
Showing 1 to 1 of 1 records.

Name ↑↓	Virtual ... ↑↓	Gatew... ↑↓	Resource group ↑↓	Location ↑↓	Subscription ↑↓
Sajal-HubVNetGateway	Sajal-Hub_V...	Vpn	Sajal-Resource_Grp_1	East US	Azure for Students

Figure 4.6 Virtual Network Gateway

Step 7 : Creating the Local Network Gateway:

To establish the Site-to-Site (S2S) VPN connection between the on-premises network and the Azure Virtual Network Gateway, the project team needs to create a Local Network Gateway. The Local Network Gateway represents the on-premises VPN device or the on-premises network's public IP address and network settings.



Local network gateways

Default Directory

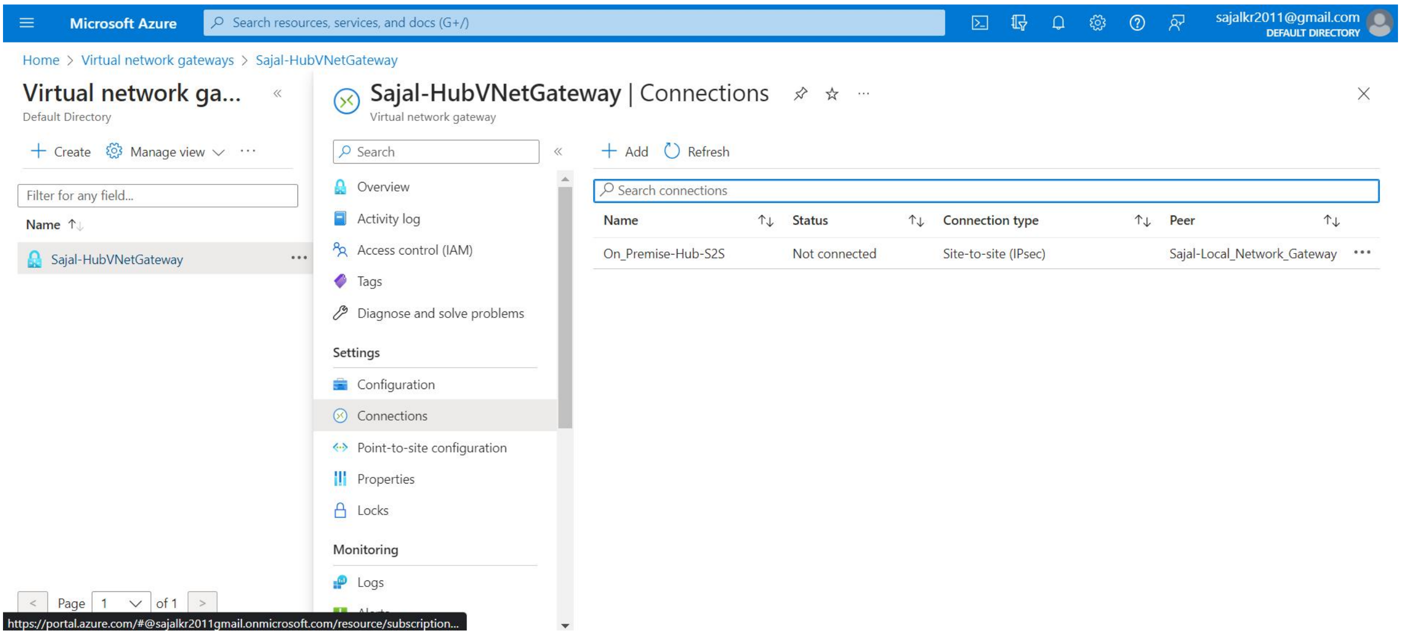
Showing 1 to 1 of 1 records.

Name	Resource group	Location	Subscription
Sajal-Local_Network_Gateway	Sajal-Resource_Grp_1	East US	Azure for Students

Figure 4.7 Local Network Gateway

Step 8 : Creating the Connection between the Local Network Gateway and Virtual Network Gateway:

With both the Local Network Gateway representing the on-premises network and the Virtual Network Gateway in the Hub VNet set up, the project team proceeds to establish the VPN connection between the two gateways. This connection enables the Site-to-Site (S2S) VPN tunnel, providing a secure and encrypted communication channel between the on-premises network and the Azure environment.



Sajal-HubVNetGateway | Connections

Virtual network gateway

Name	Status	Connection type	Peer
On_Premise-Hub-S2S	Not connected	Site-to-site (IPsec)	Sajal-Local_Network_Gateway

Figure 4.8 Local & Virtual Net Gateway connection

Step 9 : Enabling Routing and Remote Access Service (RRAS) on the On-premises VM:

To facilitate the flow of network traffic between the on-premises network and the Azure Virtual Network Gateway, the Routing and Remote Access Service (RRAS) is configured on the On-premises VM. RRAS enables the On-premises VM to act as a local gateway, routing traffic between the on-premises network and the Azure VNets.

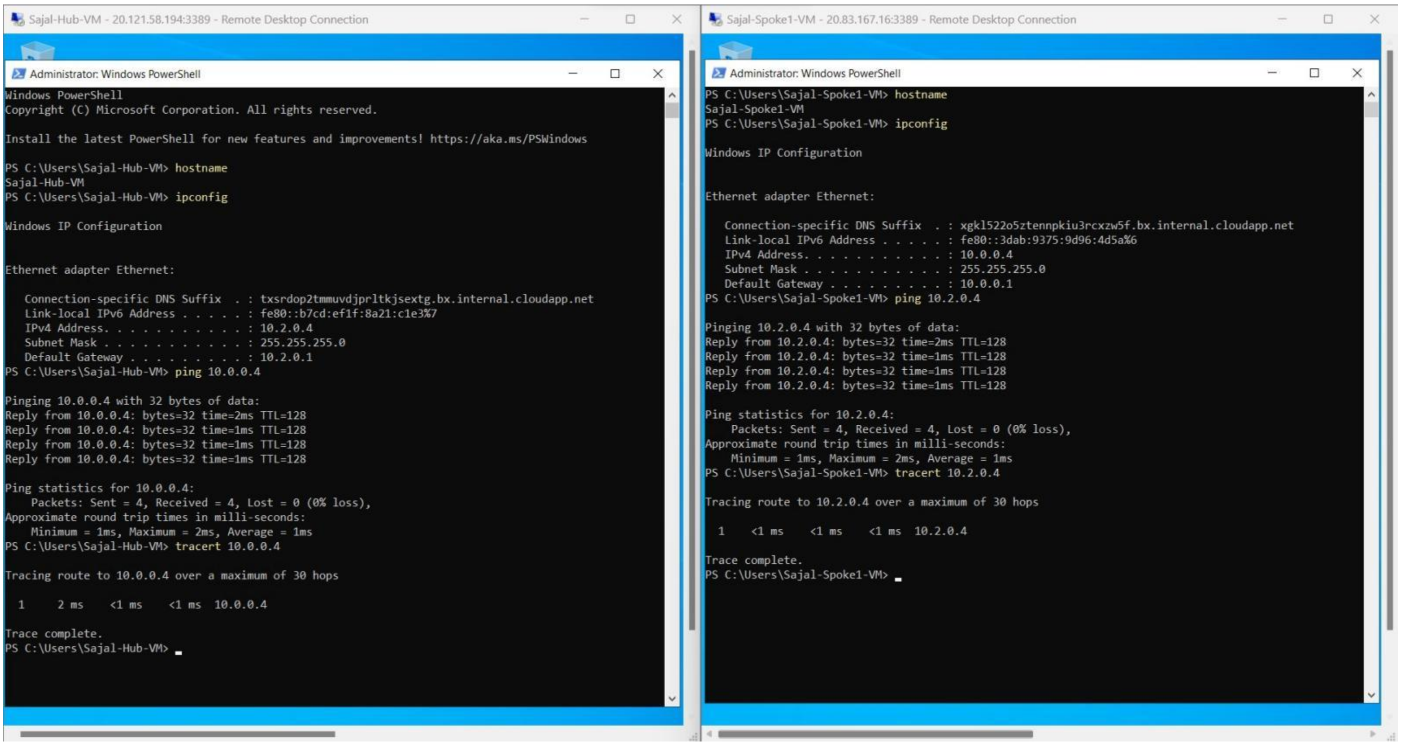
Step 10: Enable ICMP

Go to the windows defender firewall with advanced security and then click on
inbound rules and click on file and printer sharing ..(ICMP) and right click and enable it. Do this in all VM's.

Chapter 5
Conclusion and Result

The successful completion of this project establishes a robust connectivity model between the on-premises network and Azure cloud resources. By configuring S2S tunneling and Transit Vnet peering, organizations can achieve secure communication and resource isolation. The project report serves as a comprehensive guide for configuring On-premises to Hub and Spoke connectivity on Microsoft Azure. It outlines step-by-step procedures, including optional security measures, monitoring, and documentation to ensure a successful implementation.

✧ Hub - Spoke 1


Sajal-Hub-VM - 20.121.58.194:3389 - Remote Desktop Connection
Administrator: Windows PowerShell
Sajal-Spoke1-VM - 20.83.167.16:3389 - Remote Desktop Connection
Administrator: Windows PowerShell

```
Windows PowerShell
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PS C:\Users\Sajal-Hub-VM> hostname
Sajal-Hub-VM
PS C:\Users\Sajal-Hub-VM> ipconfig

Windows IP Configuration


Ethernet adapter Ethernet:

   Connection-specific DNS Suffix  . : txsrdop2tmmuvdjprltkjsextg.bx.internal.cloudapp.net
   Link-local IPv6 Address . . . . . : fe80::b7cd:ef1f:8a21:c1e3%7
   IPv4 Address. . . . . . . . . . . : 10.2.0.4
   Subnet Mask . . . . . . . . . . . : 255.255.255.0
   Default Gateway . . . . . . . . . : 10.2.0.1
PS C:\Users\Sajal-Hub-VM> ping 10.0.0.4

Pinging 10.0.0.4 with 32 bytes of data:
Reply from 10.0.0.4: bytes=32 time=2ms TTL=128
Reply from 10.0.0.4: bytes=32 time=1ms TTL=128
Reply from 10.0.0.4: bytes=32 time=1ms TTL=128
Reply from 10.0.0.4: bytes=32 time=1ms TTL=128

Ping statistics for 10.0.0.4:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 1ms, Maximum = 2ms, Average = 1ms
PS C:\Users\Sajal-Hub-VM> tracert 10.0.0.4

Tracing route to 10.0.0.4 over a maximum of 30 hops

  1     2 ms    <1 ms    <1 ms  10.0.0.4

Trace complete.
PS C:\Users\Sajal-Hub-VM>
```
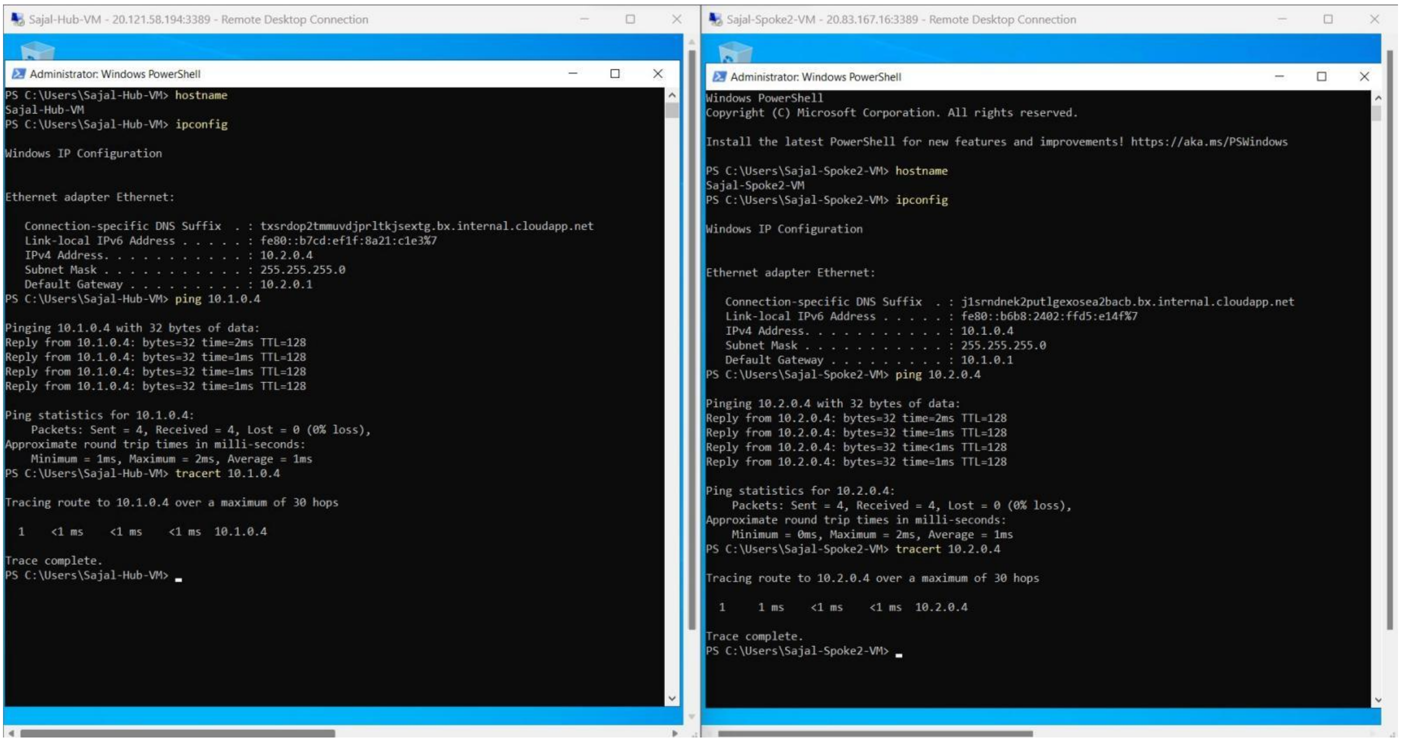

```
PS C:\Users\Sajal-Spoke1-VM> hostname
Sajal-Spoke1-VM
PS C:\Users\Sajal-Spoke1-VM> ipconfig

Windows IP Configuration


Ethernet adapter Ethernet:

   Connection-specific DNS Suffix  . : xgkl522o5ztennpkiu3rcxzw5f.bx.internal.cloudapp.net
   Link-local IPv6 Address . . . . . : fe80::3dab:9375:9d96:4d5a%6
   IPv4 Address. . . . . . . . . . . : 10.0.0.4
   Subnet Mask . . . . . . . . . . . : 255.255.255.0
   Default Gateway . . . . . . . . . : 10.0.0.1
PS C:\Users\Sajal-Spoke1-VM> ping 10.2.0.4

Pinging 10.2.0.4 with 32 bytes of data:
Reply from 10.2.0.4: bytes=32 time=2ms TTL=128
Reply from 10.2.0.4: bytes=32 time=1ms TTL=128
Reply from 10.2.0.4: bytes=32 time=1ms TTL=128
Reply from 10.2.0.4: bytes=32 time=1ms TTL=128

Ping statistics for 10.2.0.4:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 1ms, Maximum = 2ms, Average = 1ms
PS C:\Users\Sajal-Spoke1-VM> tracert 10.2.0.4

Tracing route to 10.2.0.4 over a maximum of 30 hops

  1    <1 ms    <1 ms    <1 ms  10.2.0.4

Trace complete.
PS C:\Users\Sajal-Spoke1-VM>
```

Figure 5.1 Hub - Spoke 1

✧ Hub - Spoke 2


Sajal-Hub-VM - 20.121.58.194:3389 - Remote Desktop Connection
Administrator: Windows PowerShell
Sajal-Spoke2-VM - 20.83.167.16:3389 - Remote Desktop Connection
Administrator: Windows PowerShell

```
PS C:\Users\Sajal-Hub-VM> hostname
Sajal-Hub-VM
PS C:\Users\Sajal-Hub-VM> ipconfig

Windows IP Configuration


Ethernet adapter Ethernet:

   Connection-specific DNS Suffix  . : txsrdop2tmmuvdjprltkjsextg.bx.internal.cloudapp.net
   Link-local IPv6 Address . . . . . : fe80::b7cd:ef1f:8a21:c1e3%7
   IPv4 Address. . . . . . . . . . . : 10.2.0.4
   Subnet Mask . . . . . . . . . . . : 255.255.255.0
   Default Gateway . . . . . . . . . : 10.2.0.1
PS C:\Users\Sajal-Hub-VM> ping 10.1.0.4

Pinging 10.1.0.4 with 32 bytes of data:
Reply from 10.1.0.4: bytes=32 time=2ms TTL=128
Reply from 10.1.0.4: bytes=32 time=1ms TTL=128
Reply from 10.1.0.4: bytes=32 time=1ms TTL=128
Reply from 10.1.0.4: bytes=32 time=1ms TTL=128

Ping statistics for 10.1.0.4:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 1ms, Maximum = 2ms, Average = 1ms
PS C:\Users\Sajal-Hub-VM> tracert 10.1.0.4

Tracing route to 10.1.0.4 over a maximum of 30 hops

  1    <1 ms    <1 ms    <1 ms  10.1.0.4

Trace complete.
PS C:\Users\Sajal-Hub-VM>
```

```
Windows PowerShell
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PS C:\Users\Sajal-Spoke2-VM> hostname
Sajal-Spoke2-VM
PS C:\Users\Sajal-Spoke2-VM> ipconfig

Windows IP Configuration


Ethernet adapter Ethernet:

   Connection-specific DNS Suffix  . : j1srndnek2putlgexosea2bacb.bx.internal.cloudapp.net
   Link-local IPv6 Address . . . . . : fe80::b6b8:2402:ffd5:e14f%7
   IPv4 Address. . . . . . . . . . . : 10.1.0.4
   Subnet Mask . . . . . . . . . . . : 255.255.255.0
   Default Gateway . . . . . . . . . : 10.1.0.1
PS C:\Users\Sajal-Spoke2-VM> ping 10.2.0.4

Pinging 10.2.0.4 with 32 bytes of data:
Reply from 10.2.0.4: bytes=32 time=2ms TTL=128
Reply from 10.2.0.4: bytes=32 time=1ms TTL=128
Reply from 10.2.0.4: bytes=32 time<1ms TTL=128
Reply from 10.2.0.4: bytes=32 time=1ms TTL=128

Ping statistics for 10.2.0.4:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 2ms, Average = 1ms
PS C:\Users\Sajal-Spoke2-VM> tracert 10.2.0.4

Tracing route to 10.2.0.4 over a maximum of 30 hops

  1     1 ms    <1 ms    <1 ms  10.2.0.4

Trace complete.
PS C:\Users\Sajal-Spoke2-VM>
```
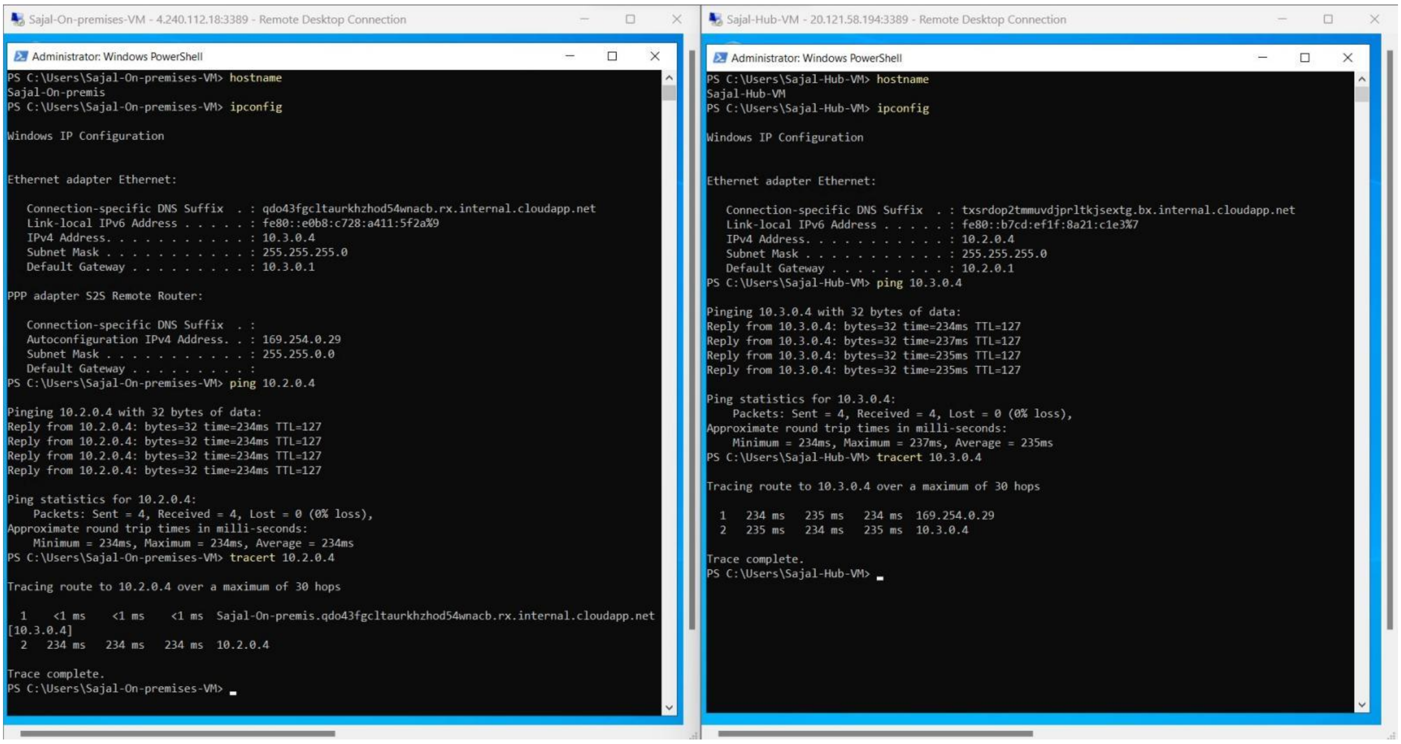

Figure 5.2 Hub - Spoke 2

✧ On-premises - Hub

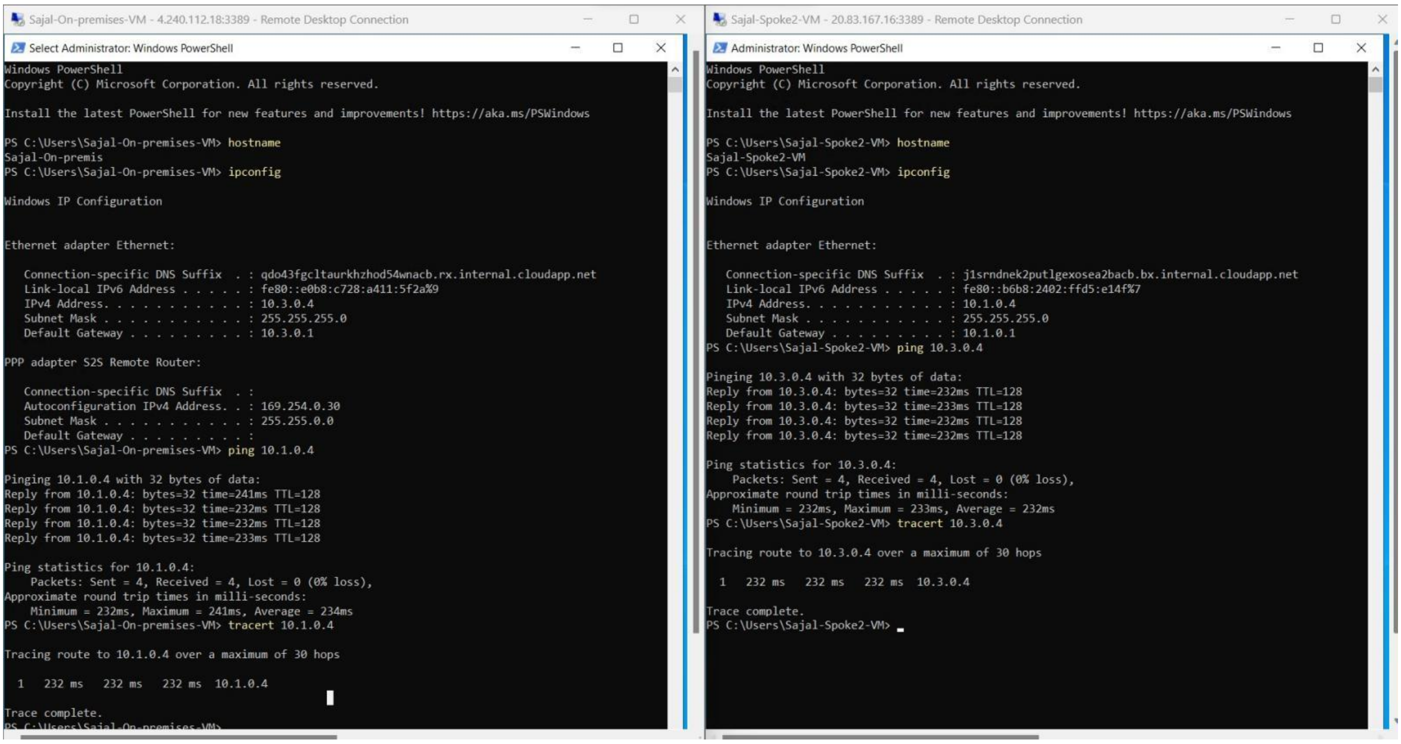

Sajal-On-premises-VM - 4.240.112.18:3389 - Remote Desktop Connection
Administrator: Windows PowerShell
Sajal-Hub-VM - 20.121.58.194:3389 - Remote Desktop Connection
Administrator: Windows PowerShell

```
PS C:\Users\Sajal-On-premises-VM> hostname
Sajal-On-premis
PS C:\Users\Sajal-On-premises-VM> ipconfig

Windows IP Configuration


Ethernet adapter Ethernet:

   Connection-specific DNS Suffix  . : qdo43fgcltaurkhzhod54wnacb.rx.internal.cloudapp.net
   Link-local IPv6 Address . . . . . : fe80::e0b8:c728:a411:5f2a%9
   IPv4 Address. . . . . . . . . . . : 10.3.0.4
   Subnet Mask . . . . . . . . . . . : 255.255.255.0
   Default Gateway . . . . . . . . . : 10.3.0.1

PPP adapter S2S Remote Router:

   Connection-specific DNS Suffix  . :
   Autoconfiguration IPv4 Address. . : 169.254.0.29
   Subnet Mask . . . . . . . . . . . : 255.255.0.0
   Default Gateway . . . . . . . . . :
PS C:\Users\Sajal-On-premises-VM> ping 10.2.0.4

Pinging 10.2.0.4 with 32 bytes of data:
Reply from 10.2.0.4: bytes=32 time=234ms TTL=127
Reply from 10.2.0.4: bytes=32 time=234ms TTL=127
Reply from 10.2.0.4: bytes=32 time=234ms TTL=127
Reply from 10.2.0.4: bytes=32 time=234ms TTL=127

Ping statistics for 10.2.0.4:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 234ms, Maximum = 234ms, Average = 234ms
PS C:\Users\Sajal-On-premises-VM> tracert 10.2.0.4

Tracing route to 10.2.0.4 over a maximum of 30 hops

  1    <1 ms    <1 ms    <1 ms  Sajal-On-premis.qdo43fgcltaurkhzhod54wnacb.rx.internal.cloudapp.net
[10.3.0.4]
  2   234 ms   234 ms   234 ms  10.2.0.4

Trace complete.
PS C:\Users\Sajal-On-premises-VM>
```

```
PS C:\Users\Sajal-Hub-VM> hostname
Sajal-Hub-VM
PS C:\Users\Sajal-Hub-VM> ipconfig

Windows IP Configuration


Ethernet adapter Ethernet:

   Connection-specific DNS Suffix  . : txsrdop2tmmuvdjprltkjsextg.bx.internal.cloudapp.net
   Link-local IPv6 Address . . . . . : fe80::b7cd:ef1f:8a21:c1e3%7
   IPv4 Address. . . . . . . . . . . : 10.2.0.4
   Subnet Mask . . . . . . . . . . . : 255.255.255.0
   Default Gateway . . . . . . . . . : 10.2.0.1
PS C:\Users\Sajal-Hub-VM> ping 10.3.0.4

Pinging 10.3.0.4 with 32 bytes of data:
Reply from 10.3.0.4: bytes=32 time=234ms TTL=127
Reply from 10.3.0.4: bytes=32 time=237ms TTL=127
Reply from 10.3.0.4: bytes=32 time=235ms TTL=127
Reply from 10.3.0.4: bytes=32 time=235ms TTL=127

Ping statistics for 10.3.0.4:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 234ms, Maximum = 237ms, Average = 235ms
PS C:\Users\Sajal-Hub-VM> tracert 10.3.0.4

Tracing route to 10.3.0.4 over a maximum of 30 hops

  1   234 ms   235 ms   234 ms  169.254.0.29
  2   235 ms   234 ms   235 ms  10.3.0.4

Trace complete.
PS C:\Users\Sajal-Hub-VM>
```

Figure 5.3 On-premises - Hub

✧ On-premises - Spoke 2


Sajal-On-premises-VM - 4.240.112.18:3389 - Remote Desktop Connection
Select Administrator: Windows PowerShell
Sajal-Spoke2-VM - 20.83.167.16:3389 - Remote Desktop Connection
Administrator: Windows PowerShell

```
Windows PowerShell
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PS C:\Users\Sajal-On-premises-VM> hostname
Sajal-On-premis
PS C:\Users\Sajal-On-premises-VM> ipconfig

Windows IP Configuration


Ethernet adapter Ethernet:

   Connection-specific DNS Suffix  . : qdo43fgcltaurkhzhod54wnacb.rx.internal.cloudapp.net
   Link-local IPv6 Address . . . . . : fe80::e0b8:c728:a411:5f2a%9
   IPv4 Address. . . . . . . . . . . : 10.3.0.4
   Subnet Mask . . . . . . . . . . . : 255.255.255.0
   Default Gateway . . . . . . . . . : 10.3.0.1

PPP adapter S2S Remote Router:

   Connection-specific DNS Suffix  . :
   Autoconfiguration IPv4 Address. . : 169.254.0.30
   Subnet Mask . . . . . . . . . . . : 255.255.0.0
   Default Gateway . . . . . . . . . :
PS C:\Users\Sajal-On-premises-VM> ping 10.1.0.4

Pinging 10.1.0.4 with 32 bytes of data:
Reply from 10.1.0.4: bytes=32 time=241ms TTL=128
Reply from 10.1.0.4: bytes=32 time=232ms TTL=128
Reply from 10.1.0.4: bytes=32 time=232ms TTL=128
Reply from 10.1.0.4: bytes=32 time=233ms TTL=128

Ping statistics for 10.1.0.4:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 232ms, Maximum = 241ms, Average = 234ms
PS C:\Users\Sajal-On-premises-VM> tracert 10.1.0.4

Tracing route to 10.1.0.4 over a maximum of 30 hops

  1   232 ms   232 ms   232 ms  10.1.0.4

Trace complete.
PS C:\Users\Sajal-On-premises-VM>
```

```
Windows PowerShell
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Install the latest PowerShell for new features and improvements! https://aka.ms/PSWindows

PS C:\Users\Sajal-Spoke2-VM> hostname
Sajal-Spoke2-VM
PS C:\Users\Sajal-Spoke2-VM> ipconfig

Windows IP Configuration


Ethernet adapter Ethernet:

   Connection-specific DNS Suffix  . : j1srndnek2putlgexosea2bacb.bx.internal.cloudapp.net
   Link-local IPv6 Address . . . . . : fe80::b6b8:2402:ffd5:e14f%7
   IPv4 Address. . . . . . . . . . . : 10.1.0.4
   Subnet Mask . . . . . . . . . . . : 255.255.255.0
   Default Gateway . . . . . . . . . : 10.1.0.1
PS C:\Users\Sajal-Spoke2-VM> ping 10.3.0.4

Pinging 10.3.0.4 with 32 bytes of data:
Reply from 10.3.0.4: bytes=32 time=232ms TTL=128
Reply from 10.3.0.4: bytes=32 time=233ms TTL=128
Reply from 10.3.0.4: bytes=32 time=232ms TTL=128
Reply from 10.3.0.4: bytes=32 time=232ms TTL=128

Ping statistics for 10.3.0.4:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 232ms, Maximum = 233ms, Average = 232ms
PS C:\Users\Sajal-Spoke2-VM> tracert 10.3.0.4

Tracing route to 10.3.0.4 over a maximum of 30 hops

  1   232 ms   232 ms   232 ms  10.3.0.4

Trace complete.
PS C:\Users\Sajal-Spoke2-VM>
```

Figure 5.4 On-premises - Spoke 2

Chapter 6
References

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