WEEK- 3 – Assignment - Vnet

Understanding CIDR, Subnetting, and VNet Peering:

CIDR (Classless Inter-Domain Routing)

CIDR notation is a method for allocating IP addresses and routing. It is written in the format

IP Address/Prefix Length. For example:

192.168.1.0/24

192.168.1.0 is the network address. /24 indicates that the first 24 bits are used for the network part of the address, leaving the remaining bits for host addresses.

Subnetting:

Subnetting divides a network into smaller subnets. This helps in organizing the network and improving security. For example:

192.168.1.0/24 can be divided into:

192.168.1.0/26 (Subnet 1)

192.168.1.64/26 (Subnet 2)

192.168.1.128/26 (Subnet 3)

192.168.1.192/26 (Subnet 4)

Each /26 subnet supports 62 hosts (64 addresses minus 2 reserved addresses).

VNet Peering:

VNet Peering connects two Azure VNets, allowing resources to communicate with each other as if they were in the same network. This can be within the same region or across regions.

Prerequisites for Azure Virtual Network:

Before you begin, ensure you have:

An active Azure subscription.

The necessary permissions to create and manage resources in Azure.

Steps to Create an Azure Virtual Network

Log in to Azure Portal

Go to Azure Portal and log in with your credentials.

Create a Virtual Network

Navigate to Virtual Networks

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Click on Create a resource > Networking > Virtual Network.

Configure the VNet:

Basics Tab:

Subscription: Select your Azure subscription.

Resource group: Select an existing resource group or create a new one.

Name: Enter a name for your VNet.

Region: Select the Azure region where you want to create the VNet.

IP Addresses Tab:

IPv4 Address space: Enter the address space in CIDR notation (e.g., 10.0.0.0/16).

Security Tab (Optional):

Bastion Host: Enable if you need secure and seamless RDP and SSH connectivity to your VMs without a public IP.

Review + Create:

Review the configuration and click Create.

Configure Subnets:

Create a Subnet:

Go to the VNet you created.

Click on Subnets under Settings.

Click on + Subnet.

Name: Enter a name for the subnet.

Subnet address range: Enter the address range in CIDR notation (e.g., 10.0.1.0/24).

Click Add.

Configure VNet Peering

Add Peering:

Go to your VNet.

Click on Peerings under Settings.

Click on + Add.

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Name: Enter a name for the peering link.

Peer details: Select the VNet you want to peer with and configure the necessary settings like allowing gateway transit if needed.

Click Add.

Deploying Windows and Linux Virtual Machines

Deploy a Windows Virtual Machine

Navigate to Virtual Machines:

Click on Create a resource > Compute > Virtual Machine.

Configure VM Basics:

Subscription: Select your subscription.

Resource group: Select the same resource group used for the VNet.

Virtual machine name: Enter a name for the VM.

Region: Select the same region as the VNet.

Availability options: Choose as per your requirement.

Image: Select a Windows Server image (e.g., Windows Server 2019 Datacenter).

Size: Choose the appropriate VM size.

Administrator account: Enter a username and password.

Network Configuration:

Virtual network: Select the VNet created earlier.

Subnet: Select the subnet created within the VNet.

Review + Create:

Review all the settings and click Create.

Deploy a Linux Virtual Machine

Navigate to Virtual Machines:

Click on Create a resource > Compute > Virtual Machine.

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Configure VM Basics:

Subscription: Select your subscription.

Resource group: Select the same resource group used for the VNet.

Virtual machine name: Enter a name for the VM.

Region: Select the same region as the VNet.

Availability options: Choose as per your requirement.

Image: Select a Linux distribution (e.g., Ubuntu Server 20.04 LTS).

Size: Choose the appropriate VM size.

Authentication type: Choose SSH public key.

Username: Enter a username.

SSH public key: Enter your SSH public key.

Network Configuration:

Virtual network: Select the VNet created earlier.

Subnet: Select the subnet created within the VNet.

Review + Create:

Review all the settings and click Create.

Additional Configuration and Management:

Network Security Groups (NSGs):

NSGs control inbound and outbound traffic to your VMs.

Configure NSGs by navigating to Network Security Groups in the Azure Portal, creating rules to allow or deny specific traffic.

Public IP Address:

Assign a public IP if your VM needs to be accessible from the internet.

Configure this during VM creation or by navigating to the VM's networking settings.

DNS Settings:

Configure DNS settings if needed for name resolution within your VNet.

Navigate to DNS servers under the VNet settings to specify custom DNS servers.

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Summary of Prerequisites:

- Azure Subscription: Ensure you have a valid Azure subscription.
- Permissions: Ensure you have permissions to create and manage resources.
- CIDR Range Planning: Plan your network and subnet CIDR ranges.
- Resource Group: Create or select an existing resource group.
- VM Images: Choose the appropriate images for Windows and Linux VMs.
- Authentication Methods: Decide on authentication methods (password for Windows, SSH key for Linux).