AZURE VIRTUAL NETWORKS

The Azure Virtual Network (VNet) is a foundational service in Microsoft Azure that serves as the cornerstone for your private network in the cloud. It is essentially your own isolated and secure network space within Azure's vast public cloud infrastructure, providing a familiar networking environment.

A VNet enables various Azure resources, such as Virtual Machines (VMs), web apps, databases, and other services, to:

- Securely Communicate with Each Other
- Connect to the Internet
- Full control over your network topology, IP addressing, routing, and security.
- Establish Connectivity to On-Premises Networks

By leveraging Azure Virtual Networks, you gain the benefits of Azure's scalable, available, and isolated infrastructure, giving you full control over your network topology, IP addressing, routing, and security. It is the core framework upon which you build and connect your cloud-based applications and services.

Prerequisites for Creating an Azure Virtual Network:

Before you proceed with creating an Azure Virtual Network, it's essential to ensure you have all the necessary components and information prepared. This planning phase helps in designing an efficient and functional network infrastructure.

- **An Azure Account with an Active Subscription :** You must have an active Azure account. You can sign up for a free Azure account which often includes credits for experimentation.
- **Appropriate Permissions:** The Azure account or user identity you are using to create the VNet must have the necessary Role-Based Access Control permissions within your subscription. If you are working in an organizational environment, ensure your IT administrator has granted you the required permissions for network resource creation.
- **Method of Access to Azure:**

1. Azure Portal
2. Azure Cloud Shell
3. Azure PowerShell
4. Azure CLI

- **Planning Information for Your VNet Design:**

1. Resource Group
2. Virtual Network Name
3. Azure Region/Location
4. IPv4 Address Space (CIDR Block)
5. Subnet(s) Configuration

CONCLUSION

The Azure Virtual Network (VNet) stands as the cornerstone of your private network in the cloud. It provides a secure, isolated space within Azure's vast infrastructure, offering a familiar networking environment. This powerful service enables diverse Azure resources, from Virtual Machines to databases, to securely communicate internally, establish controlled connections to the internet, and seamlessly link with your on-premises networks. By leveraging VNets, you gain comprehensive control over your network's topology, IP addressing, routing, and security, ultimately building upon Azure's highly scalable, available, and isolated infrastructure to deploy robust cloud applications.

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References:

https://learn.microsoft.com/en-us/azure/virtual-network/virtual-networks-overview
https://learn.microsoft.com/en-us/azure/virtual-network/virtual-network-manage-subnet?tabs=azure-portal
https://learn.microsoft.com/en-us/azure/virtual-network/virtual-network-peering-overview