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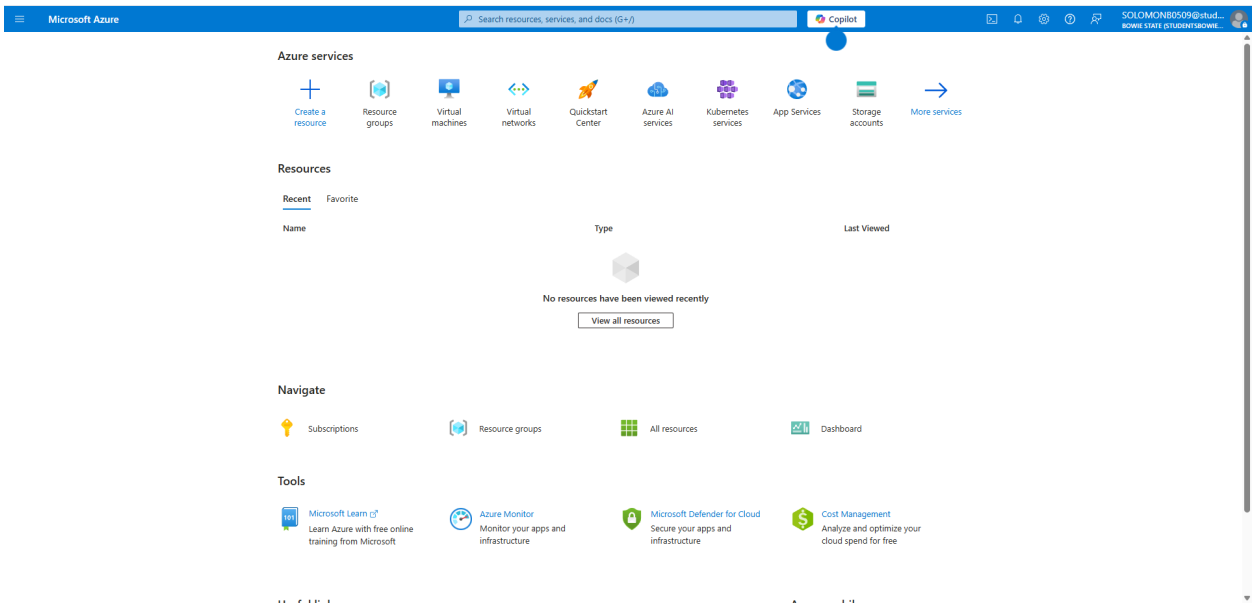
5/7/25
Professor Francis
CTEC 475

Capstone Module 5

1. Choose a cloud platform: AWS, Azure, or GCP. You can repeat these steps with a second or third platform later. Check with your instructor on the requirements for this Capstone Project.



2. Research the platform's peering service and answer the following questions:

   A. How much does peering cost?

Traffic between peered virtual networks in the same region is charged at a rate of around $0.01 per GB for both inbound and outbound data transfer

B. Can you peer with a virtual network in another account?

Yes, you can peer a virtual network with a virtual network in a different Azure account.

C. Is peering transitive?

No, VNet peering in Azure is not transitive by default.

D. Where is peering configured in the cloud platform?

In the Azure cloud platform, peering connections are configured within the Azure Virtual Network settings.

E. What resources must already exist before peering can be established?

Virtual networks themselves, and potentially a route server or gateway within the peered virtual network.

F. What are the basic steps to create the peering connection?

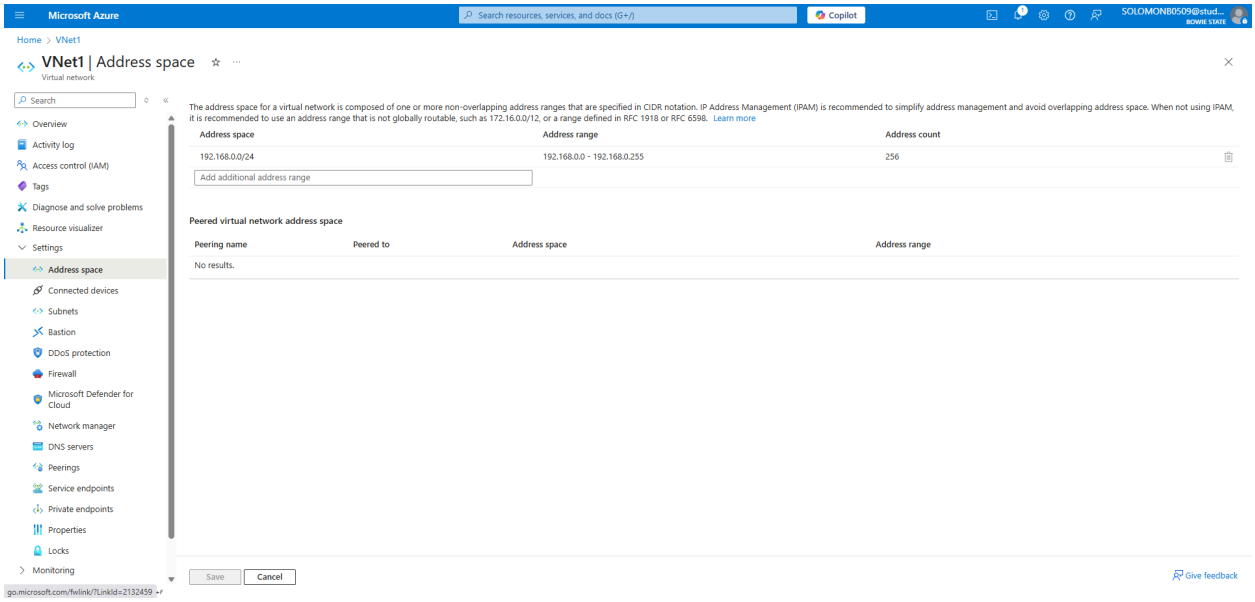
Navigate to the Virtual Network resource, then access the Peerings settings, and finally add a new peering link, specifying the details of the remote network to be connected.

G. What significant limitations exist on the peering service for this platform?

The document mentions that there are limitations, but it doesn't list them. Some limitations of Azure VNet peering include:

1. Non-overlapping address spaces (with some exceptions using Gateway Transit).
2. Limits on the number of peerings per virtual network.
3. Regional peering and global peering have some differences.

3. In your selected cloud platform, create two virtual networks with nonoverlapping CIDR blocks, such as 192.168.0.0/24 and 192.168.1.0/24. Create a peering connection between these virtual networks. Take a screenshot showing the peering connection; submit this visual with your responses to this project's questions.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Activity log
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Tags
Diagnose and solve problems
Resource visualizer
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
The address space for a virtual network is composed of one or more non-overlapping address ranges that are specified in CIDR notation. IP Address Management (IPAM) is recommended to simplify address management and avoid overlapping address space. When not using IPAM, it is recommended to use an address range that is not globally routable, such as 172.16.0.0/12, or a range defined in RFC 1918 or RFC 6598. Learn more
Address space
Address range
Address count
192.168.0.0/24
192.168.0.0 - 192.168.0.255
256
Add additional address range
Peered virtual network address space
Peering name
Peered to
Address space
Address range
No results.
Save
Cancel
Give feedback
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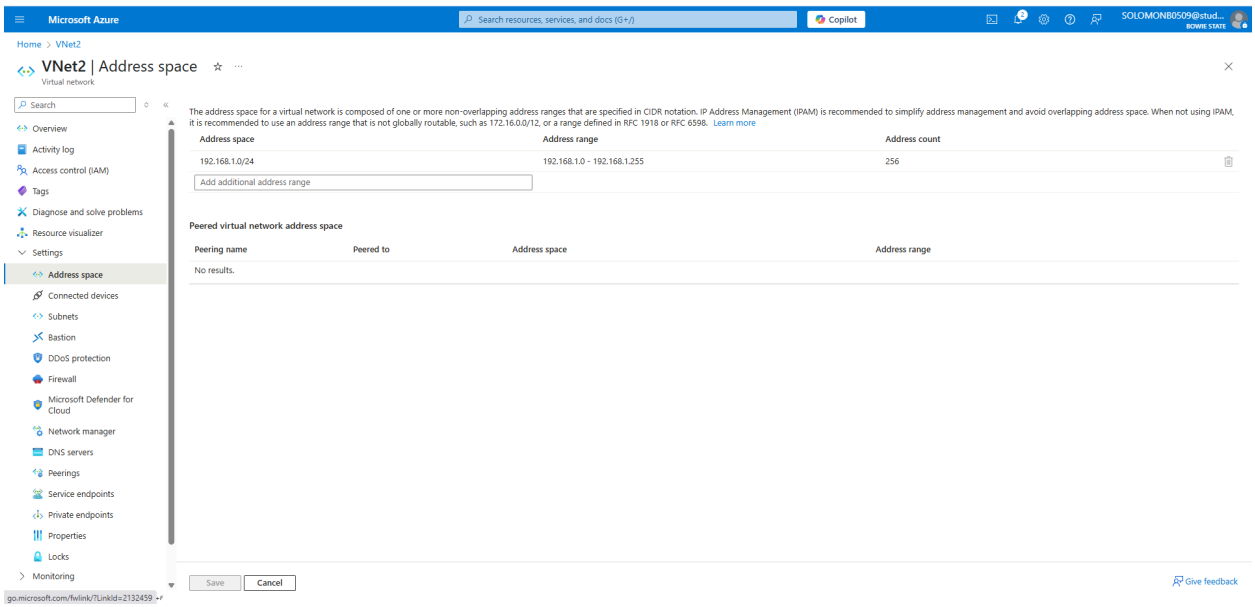
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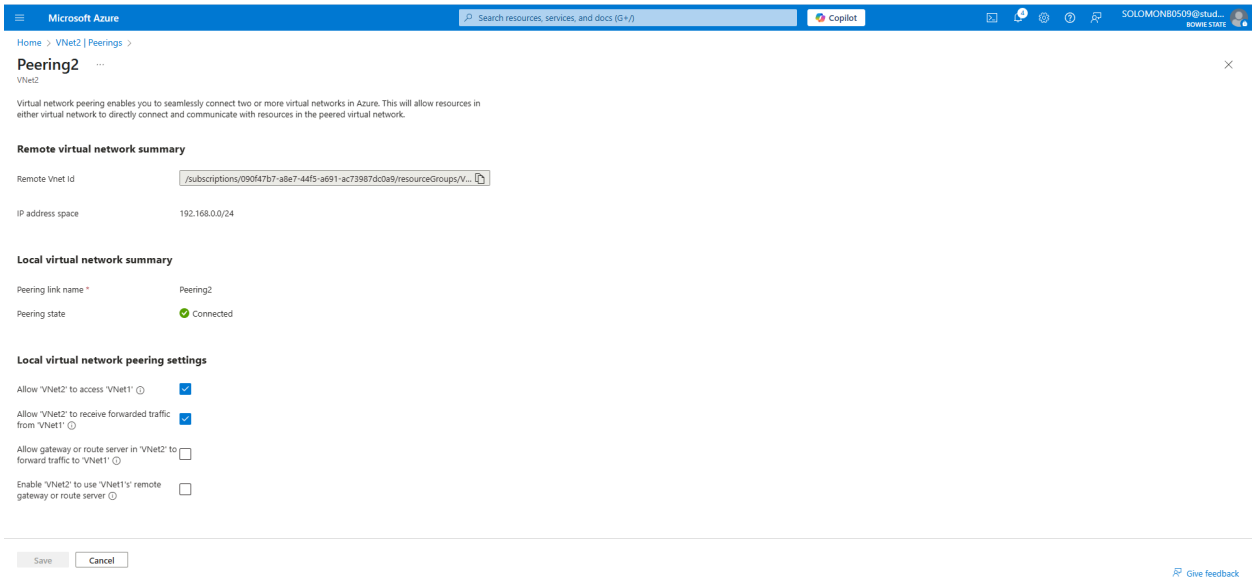
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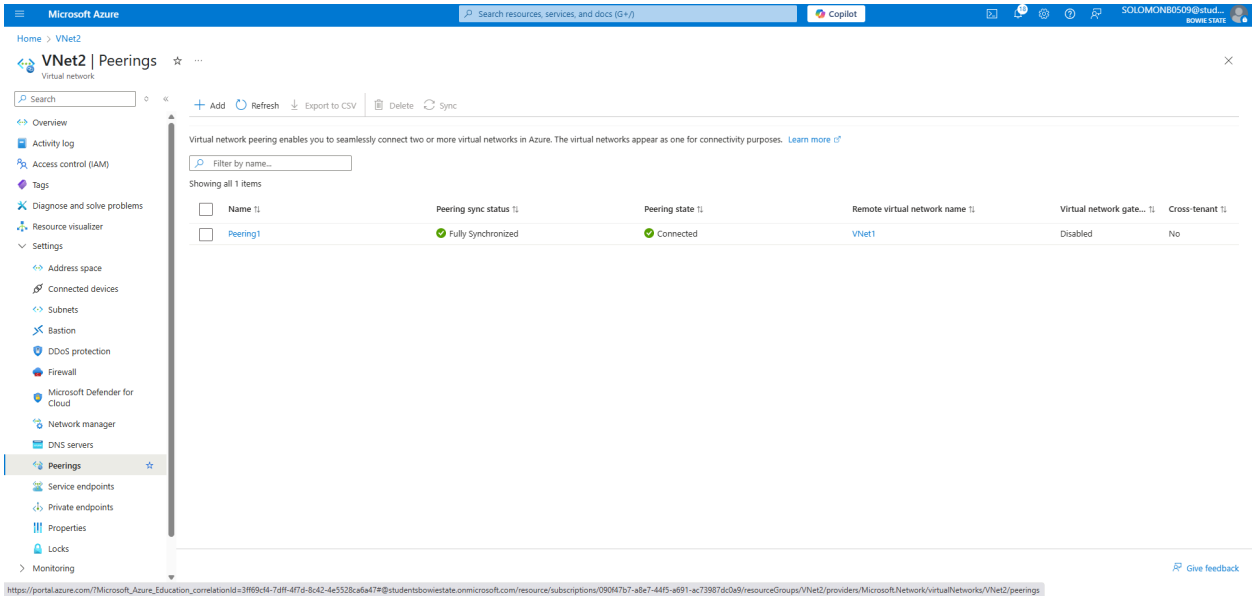
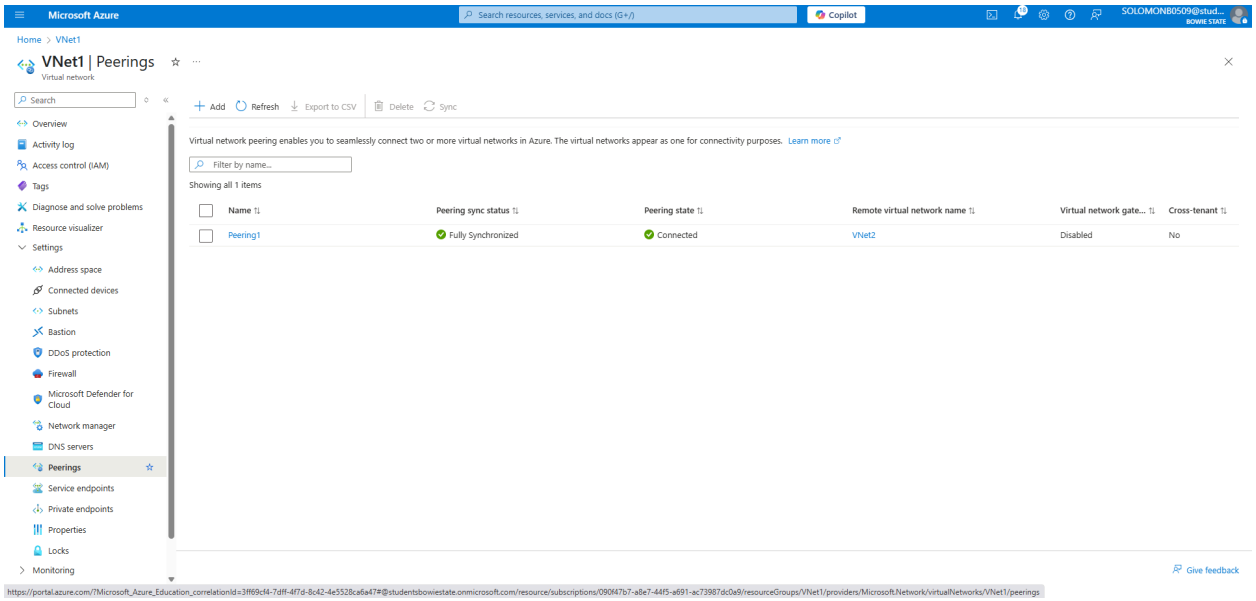
Home > VNet2 | Peerings >
Peering2
VNet2
Virtual network peering enables you to seamlessly connect two or more virtual networks in Azure. This will allow resources in either virtual network to directly connect and communicate with resources in the peered virtual network.
Remote virtual network summary
Remote Vnet Id
/subscriptions/090f47b7-a8e7-44f5-a691-ac73987dc0a9/resourceGroups/V...
IP address space
192.168.0.0/24
Local virtual network summary
Peering link name *
Peering2
Peering state
Connected
Local virtual network peering settings
Allow 'VNet2' to access 'VNet1'
Allow 'VNet2' to receive forwarded traffic from 'VNet1'
Allow gateway or route server in 'VNet2' to forward traffic to 'VNet1'
Enable 'VNet2' to use 'VNet1's' remote gateway or route server
Save
Cancel
Give feedback





4. In your selected cloud platform, create two virtual networks with overlapping CIDR blocks, such as 192.168.0.0/24 and 192.168.0.128/24. Attempt to create a peering connection between these virtual networks. What happens?

I try to do it, but it keeps giving me errors for it.

5. Suppose you wanted to peer three virtual networks in a mesh network. List three /24 CIDR blocks that would work for this scenario.

VNet1: 10.3.0.0/24

VNet2: 10.4.0.0/24

VNet3: 10.5.0.0/24

6. For group projects: Each group member should create a VPC or VNet in their chosen cloud platform. Work together to try to create a peering connection between your VPC or VNet and another group member's VPC or VNet. What information did you have to share with each other? What problems did you run into? Were you successful in establishing an active peering connection?

Our group of three each created a Virtual Network (VNet) in Microsoft Azure. To establish peering between our VNets, we had to share the following information:

- **VNet Name:** VNet1, VNet2, VNet3
- **Azure Subscription ID:** Azure for students.
- **Resource Group Name:** VNet
- **VNet CIDR Block:** 192.16.0.0, 192.16.1.0, 192.16.2.0
- **Subscription Permissions:** Initially, we had some issues with Azure Role-Based Access Control (RBAC) permissions. Not everyone had the necessary rights to create peering connections in other subscriptions. This required one group member with higher privileges to grant the appropriate permissions to the others.
- **CIDR Block Conflict (Initially):** In our first attempt, two group members accidentally chose overlapping CIDR blocks. Azure prevented us from creating the peering until we corrected the address ranges to be non-overlapping. This highlights Azure's built-in safeguard against routing conflicts.
- **Finding the Correct Resources:** With multiple resources in Azure, it took a little time to locate the exact VNet and Resource Group names needed for the peering configuration.

Ultimately, we were successful in establishing active peering connections between all three VNets. After resolving the permission issues and CIDR block conflict, the peering process itself was relatively straightforward using the Azure portal. We were able to verify connectivity by creating test virtual machines in each VNet and pinging them from the other VNets.

7. Delete any cloud resources you created for this project. Repeat the project with another cloud platform if desired or if required by your instructor.

I deleted all of the recent cloud resources I created for this project.