**Module 2: Azure Virtual Network service and components**

**Lab A: Creating and configuring virtual networks**

**Exercise 1: Creating virtual networks**

**Task 1: Create virtual networks by using Azure Portal**

1. From your computer, start your browser and go to http://portal.azure.us, and then, if prompted, sign in by using the Microsoft account that is the Service Administrator of your Azure subscription.
2. In the **Hub menu** on the left side of the portal page, click **Create a resource**.
3. On the **New** blade, click **Networking**.
4. On the **Networking** blade, click **Virtual Network**.
5. On the **Create virtual network** blade, specify the following settings, and then click **Create**:
6. **Name**: lab2aVNet1
7. **Address space**: 10.0.0.0/16
8. **Subscription**: \_Your Azure subscription\_
9. **Resource group**: Create new
10. **New resource group name**: wintellgov-XX-labRG2a (Replace XX with your number).
11. **Location**: USGov Virginia
12. **Subnet name**: Subnet1
13. **Subnet address range**: 10.0.0.0/24
14. **Service endpoints**: Disabled

Note: Ignore any messages about overlapping address spaces that might appear when you type the value in the **Address space** text box.

1. In the **Hub menu** on the left side of the portal page, click **Create a resource**.
2. On the **New** blade, click **Networking**.
3. On the **Networking** blade, click **Virtual Network**.
4. On the **Create virtual network** blade, specify the following settings, and then click **Create**:
   1. **Name**: lab2aVNet2
   2. **Address space**: 10.1.0.0/16
   3. **Subscription**: \_Your Azure subscription\_
   4. **Resource group**: Use existing: wintellgov-XX-labRG2a (Replace XX with your number).
   5. **Location**: the same Azure region you chose when creating the first virtual network\_
   6. **Subnet name**: Subnet1
   7. **Subnet address range**: 10.1.0.0/24
   8. **Service endpoints**: Disabled

Note: Ignore any messages about overlapping address spaces that might appear when you type the value in the **Address space** text box.

1. Leave browser with the Azure portal open.

**Task 2: Configure VNet peering by using the Azure portal**

1. On the dashboard of the Azure portal, click **Lab2aVNet1**.
2. On the **lab3aVNet1** blade console tree, click **Peerings**.
3. Click **+ Add**.
4. On the **Add peering** blade, in the **Name** text box, type **lab2aVNet1-lab2aVNet2**.
5. Ensure that the **Virtual network deployment model** is set to **Resource manager**.
6. Ensure that **Subscription** is set to the Azure subscription you intend to use for this lab.
7. Click Search virtual network (**>** character).
8. From the list, select **lab2aVNet2 wintellgov-XX-labRG2a**.
9. Ensure that **Allow virtual network access** is set to **Enabled**.
10. Leave the remaining settings **Allow forwarded traffic**, **Allow gateway transit**, and **Use remote gateways** with their default values (**disabled**).
11. Click **OK**.
12. Click **Microsoft Azure Government** in the upper left corner of the portal.
13. On the dashboard of the Azure portal, click **lab2aVNet2**.
14. On the **lab2aVNet2** blade, click **Peerings**.
15. Click **+ Add**.
16. On the **Add peering** blade, in the **Name** text box, type **lab2aVNet2-lab2aVNet1**.
17. Ensure that the **Virtual network deployment model** is set to **Resource manager**.
18. Ensure that **Subscription** is set to the Azure subscription you intend to use for this lab.
19. Click Search virtual network (**>** character).
20. From the list, select **lab2aVNet1 wintellgov-XX-labRG2a**.
21. Ensure that **Allow virtual network access** is set to **Enabled**.
22. Leave the remaining settings Allow forwarded traffic, Allow gateway transit, and Use remote gateways with their default values (**disabled**).
23. Click **OK**.

**Result**: After completing this exercise, you should have created two Azure virtual networks and configured VNet peering between them by using the Azure portal

**Exercise 2: Verifying virtual network functionality**

**Task 1: Deploy Azure virtual machines into existing virtual networks**

1. From host computer, in the Azure portal in the browser window, in the **Hub menu** on the left side of the portal page, click **Create a resource**.
2. On the **New** blade, click **Windows Server 2016 Datacenter** (if not available in the initial list, type **Windows Server 2016 Datacenter** in the **Search** bar, and then select **Windows Server 2016 Datacenter** from returned list).
3. If necessary, in the **Windows Server 2016 Datacenter** blade, click **Create**.
4. On the **Basics** blade, specify the following settings, and then click **OK**:
   1. **Name**: wingovXXLab2VM1 (Replace XX with your number)
   2. **VM disk type**: HDD
   3. **User name**: Student
   4. **Password**: Pa55w.rd1234
   5. **Subscription**: \_your Azure subscription\_
   6. **Resource group**: Use existing **wintellgov-XX-labRG2a** (Replace XX with your number).
   7. **Location**: \_The same Azure region to which you deployed the two virtual networks in the first exercise of this lab
   8. **Save money**: No
5. On the **Choose a size** blade, click compute types and select **General purpose** and then click the **Recommend** column 2 times.
6. On the **Choose a size** blade, click **D1\_v2 Standard**, and then click **Select**.
7. On the **Settings** blade, specify the following settings, and then click **OK**:
   1. **Availability set**: None
   2. **Storage** **Use managed disks**: Yes
   3. **Virtual network**: lab2aVNet1
   4. **Subnet**: Subnet1 (10.0.0.0/24)
   5. **Public IP address**: (new) wintgovXXLab2VM1-ip
   6. **Network security group**: **Advanced**: wingovXXLab2VM1-nsg (Replace XX with your number), and then click the **>** symbol, and then in the **Create network security group** blade (on the far-right hand side), click **OK**.
   7. **Extensions**: No extensions
   8. **Boot diagnostics**: Disabled
   9. **Guest OS diagnostics:** Disabled
   10. **Backup**: Disabled
8. On the **Summary** blade, note the **Validation passed** message, and then click **OK**. Proceed directly to the next step without waiting for the deployment to complete.
9. From the host computer, in the Azure portal in the browser window, in the **Hub menu** on the left side of the portal page, click **Create a resource**.
10. On the **New** blade, click **Windows Server 2016 Datacenter** (if not available in the initial list, type **Windows Server 2016 Datacenter** in the **Search** bar, and then select **Windows Server 2016 Datacenter** from returned list).
11. If necessary, in the **Windows Server 2016 Datacenter** blade, click **Create**.
12. On the **Basics** blade, specify the following settings, and then click **OK**:
    1. **Name**: wingovXXLab2VM2 (Replace XX with your number)
    2. **VM disk type**: HDD
    3. **User name**: Student
    4. **Password**: Pa55w.rd1234
    5. **Subscription**: \_your Azure subscription\_
    6. **Resource group**: Use existing wintellgov-XX-labRG2a (Replace XX with your number).
    7. **Location**: \_The same Azure region to which you deployed the two virtual networks in the first exercise of this lab\_
    8. Save money: **No**
13. On the **Choose a size** blade, click compute types and select **General purpose** and then click the **Recommend** column twice
14. On the **Choose a size** blade, click **D1\_V2 Standard**, and then click **Select**.
15. On the Settings blade, specify the following settings, and then click **OK**:
    1. **Availability set**: None
    2. **Use managed disks**: Yes
    3. **Virtual network**: Click Virtual network (**>** symbol) and then click **lab2aVNet2**
    4. **Subnet**: Subnet1 (10.1.0.0/24)
    5. **Public IP address**: wingovXXLab2VM2-ip (Replace XX with your number)
    6. **Network security group: Advanced** (firewall): wingovXXLab2VM2-nsg (Replace XX with your number), and then click the **>** symbol, and then in the **Create network security group** blade (on the far-right hand side), click **OK**.
    7. **Extensions:** o extensions
    8. **Boot diagnostics**: Disabled
    9. **Guest OS diagnostics**: Disabled
    10. **Backup**: Disabled
16. On the **Summary** blade, note the **Validation passed** message, and then click **OK**.
17. Wait for both deployments to complete before proceeding to the next task. Leave Microsoft Edge with the Azure portal open.

**Task 2: Test Virtual network connectivity**

1. In the browser, in the Azure portal, in the **Hub menu**, click **Virtual machines**.
2. On the **Virtual machines** blade, click **wingovXXLab2VM2** (Replace XX with your number)
3. On the **wingovXXLabVM2** blade console tree, click **Properties**. Note the **IP address** listed directly under the **PRIVATE IP ADDRESS** label. This is the private IP address of wingovXX-Lab2VM2.
4. Scroll back to the **Virtual machines** blade, and then on the **Virtual machines** blade, click **wingovXXLab2VM1** (Replace XX with your number).
5. On the **wingovXXLab2VM1** blade, click **Connect**, then select **Download RDP File**
6. When prompted whether to save the .rdp file, click **Save**.
7. Once the file has been saved, click **Open**. Then **Allow** in the pop up.
8. In the **Remote Desktop Connection** window, click **Connect**.
9. In the **Windows Security** dialog box, click **More choices**, **Use a different account**, and then specify the following details, and then click **OK**:
   1. User name: **.\Student**
   2. Password: **Pa55w.rd1234**
10. In the **Remote Desktop Connection** window, click **Yes**, and then wait until the connection is successfully established.
11. In the RDP session to the **wingovXXLab2VM1** virtual machine, right-click the Windows logo in the lower-left corner, and then click **Run**.
12. In the **Open** text box, type the following command (where 10.1.0.4 is the private IP address of **wingovXXLab2VM2,** which you identified in step 3 of this task), and then press **Enter**:

mstsc /admin /h:768 /w:1024 /v:10.1.0.4

**Note:** If the IP address you identified in step 3 is different, then specify that IP address when typing the above command.

1. When prompted for credentials, in the **Windows Security** dialog box specify the following and then click **OK**:
   1. User name: **Student**
   2. Password: **Pa55w.rd1234**
2. In the **Remote Desktop Connection** window, click **Yes**. Verify that you have successfully connected to the **wingovXXLab2VM2** virtual machine by using its private IP address, and then close the Remote Desktop session to **wingovXXLabV2M1**
3. Delete the **wintellgov-XX-labRG2a** resource group, using the same steps you used in Module 1, Lab D.
4. Sign out of the **Azure Portal** and close the browser window.