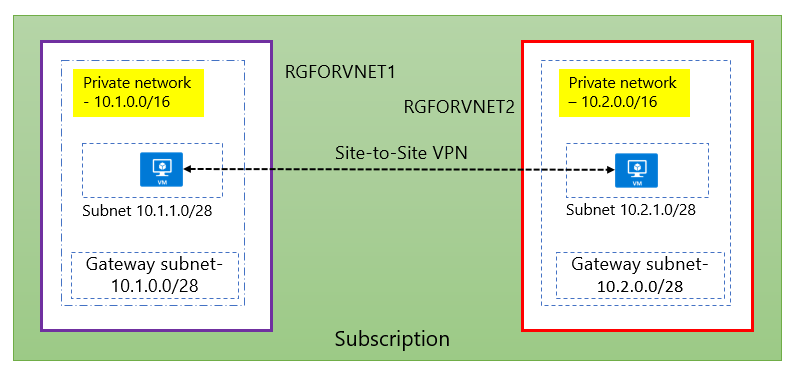
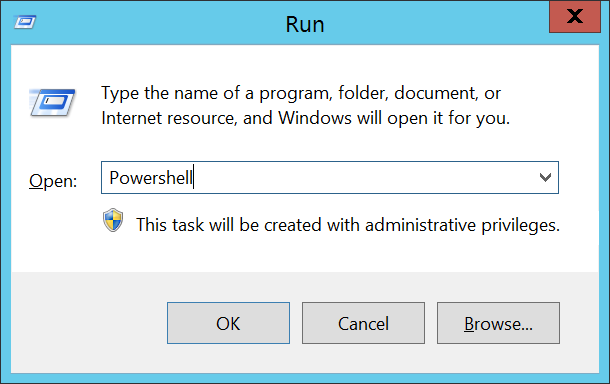
# Configuring Site to Site Connectivity between two Virtual Networks

## Objective

* 1. The objective of this lab is to connect two virtual networks using a site-to-site VPN connection as shown below.
  2. 

## Exercise 1: Login to your Azure subscription

1. Login to the **LABVM** created in the first lab.
2. Once in, use ‘Windows+R’ keys and type ‘PowerShell’



1. Set the PowerShell context to the relevant subscription by logging in to your Azure account.

Login-AzureRmAccount

This command will prompt a sign-in window, please provide the necessary credentials to sign-in to your Azure account. This will take around 4 seconds to associate the context with PowerShell window.

1. Depending on the number of subscriptions associated with your Microsoft account or organizational account, all the subscriptions are loaded. Execute a get command to get the list.

Get-AzureRmSubscription

This will display list of subscriptions. Copy the name of the subscription you are interested in.

1. Type the following command to select a particular subscription. Paste the subscription name from step 4 above.

Select-AzureRmSubscription –SubscriptionName <Subscription name>

At this point, all commands that you execute will be against this one particular selected subscription.

## Exercise 2: Create virtual network 1 with gateway configuration

**Values for VNet1:**

* Virtual Network Name = VNet1
* Resource Group = RGFORVNET1
* Address Space = 10.1.0.0/16
* Region = US West
* GatewaySubnet = 10.1.0.0/28
* Subnet1 = 10.1.1.0/28

1. Let us create a resource group to begin with. This resource group with contain the virtual network.

New-AzureRmResourceGroup -Name RGFORVNET1 -Location 'West US'

1. Let us create the virtual network with two subnets as part of this resource group. Please note that one of the subnets is a gateway subnet.

$subnet = New-AzureRmVirtualNetworkSubnetConfig -Name 'GatewaySubnet' -AddressPrefix 10.1.0.0/28

$subnet1 = New-AzureRmVirtualNetworkSubnetConfig -Name 'Subnet1' -AddressPrefix '10.1.1.0/28'

New-AzureRmVirtualNetwork -Name VNet1 -ResourceGroupName RGFORVNET1 -Location 'West US' -AddressPrefix 10.1.0.0/16 -Subnet $subnet, $subnet1

1. Request for public IP address. This public IP shall be associated with the gateway configuration which should be publicly accessible for the VPN connectivity.

$gwpip= New-AzureRmPublicIpAddress -Name gwpip1 -ResourceGroupName RGFORVNET1 -Location 'West US' -AllocationMethod Dynamic

1. Create the gateway configuration with the above public IP and gateway subnet.

$vnet = Get-AzureRmVirtualNetwork -Name VNet1 -ResourceGroupName RGFORVNET1

$subnet = Get-AzureRmVirtualNetworkSubnetConfig -Name 'GatewaySubnet' -VirtualNetwork $vnet

$gwipconfig = New-AzureRmVirtualNetworkGatewayIpConfig -Name gwipconfig1 -SubnetId $subnet.Id -PublicIpAddressId $gwpip.Id

1. Create the gateway itself using the gateway configuration from step 9 above.

New-AzureRmVirtualNetworkGateway -Name vnetgw1 -ResourceGroupName RGFORVNET1 -Location 'West US' -IpConfigurations $gwipconfig -GatewayType Vpn -VpnType RouteBased

At this point we have a virtual network with one two subnets, one for VM provisioning in the private network and other as gateway subnet with public IP configuration. Let us create the 2nd virtual network.

## Exercise 2: Create virtual network 2 with gateway configuration

**Values for VNet2:**

* Virtual Network Name = VNet2
* Resource Group = RGFORVNET2
* Address Space = 10.2.0.0/16
* Region = Japan East
* GatewaySubnet = 10.2.0.0/28
* Subnet1 = 10.2.1.0/28

1. We will create this network and resource group in Japan East. Let us start by creating the resource group.

New-AzureRmResourceGroup -Name RGFORVNET2 -Location 'Japan East'

1. Let us create the virtual network with two subnets as part of this resource group. Please note that one of the subnets is a gateway subnet.

$subnet = New-AzureRmVirtualNetworkSubnetConfig -Name 'GatewaySubnet' -AddressPrefix 10.2.0.0/28

$subnet1 = New-AzureRmVirtualNetworkSubnetConfig -Name 'Subnet1' -AddressPrefix '10.2.1.0/28'

New-AzureRmVirtualNetwork -Name Vnet2 -ResourceGroupName RGFORVNET2 -Location 'Japan East' -AddressPrefix 10.2.0.0/16 -Subnet $subnet, $subnet1

1. Request for public IP address. This public IP shall be associated with the gateway configuration which should be publicly accessible for the VPN connectivity.

$gwpipRG2= New-AzureRmPublicIpAddress -Name gwpip1RG2 -ResourceGroupName RGFORVNET2 -Location ‘Japan East’ -AllocationMethod Dynamic

1. Create the gateway configuration with the above public IP and gateway subnet.

$vnet = Get-AzureRmVirtualNetwork -Name Vnet2 -ResourceGroupName RGFORVNET2

$subnet = Get-AzureRmVirtualNetworkSubnetConfig -Name 'GatewaySubnet' -VirtualNetwork $vnet

$gwipconfigRG2 = New-AzureRmVirtualNetworkGatewayIpConfig -Name gwipconfig1RG2 -SubnetId $subnet.Id -PublicIpAddressId $gwpipRG2.Id

1. Create the gateway itself using the gateway configuration from step 14 above.

New-AzureRmVirtualNetworkGateway -Name vnetgw2 -ResourceGroupName RGFORVNET2 -Location 'Japan East' -IpConfigurations $gwipconfigRG2 -GatewayType Vpn -VpnType RouteBased

## Exercise 3: Connect the gateways

For communication from VNet1 to VNet2 execute the steps below.

$vnetgw1 = Get-AzureRmVirtualNetworkGateway -Name vnetgw1 -ResourceGroupName RGFORVNET1

$vnetgw2 = Get-AzureRmVirtualNetworkGateway -Name vnetgw2 -ResourceGroupName RGFORVNET2

New-AzureRmVirtualNetworkGatewayConnection -Name conn1 -ResourceGroupName RGFORVNET1 -VirtualNetworkGateway1 $vnetgw1 -VirtualNetworkGateway2 $vnetgw2 -Location 'West US' -ConnectionType Vnet2Vnet -SharedKey 'abc123'

For communication from Vnet2 to Vnet1 execute the steps below.

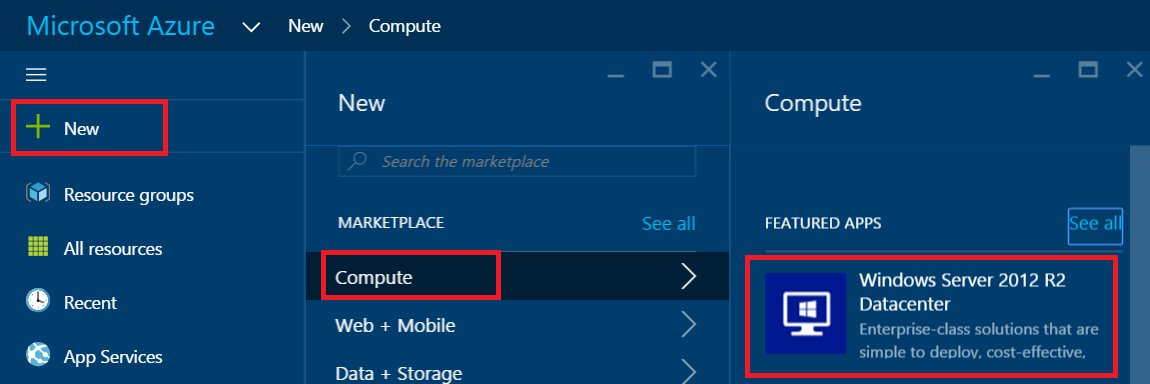
$vnetgw1 = Get-AzureRmVirtualNetworkGateway -Name vnetgw2 -ResourceGroupName RGFORVNET2

$vnetgw2 = Get-AzureRmVirtualNetworkGateway -Name vnetgw1 -ResourceGroupName RGFORVNET1

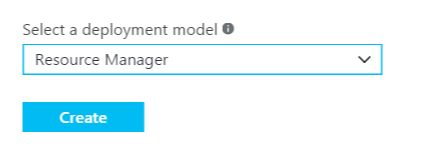
New-AzureRmVirtualNetworkGatewayConnection -Name conn2 -ResourceGroupName RGFORVNET2 -VirtualNetworkGateway1 $vnetgw1 -VirtualNetworkGateway2 $vnetgw2 -Location 'Japan East' -ConnectionType Vnet2Vnet -SharedKey 'abc123'

## Exercise 4: Verify the connections

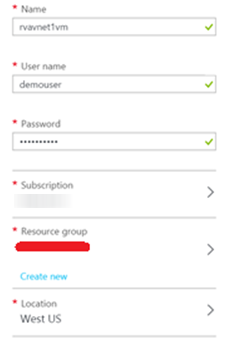
1. Let us create a virtual machine in resource group RGFORVNET1 from the portal. Login to the <https://portal.azure.com> and select a Windows 2012 image as below.



1. On the screen that comes up, select “Resource Manager” deployment model and click “Create”.



1. Provide the ‘basic settings’ as follows:



Name of the VM: rvavnet1vm

User name: demouser

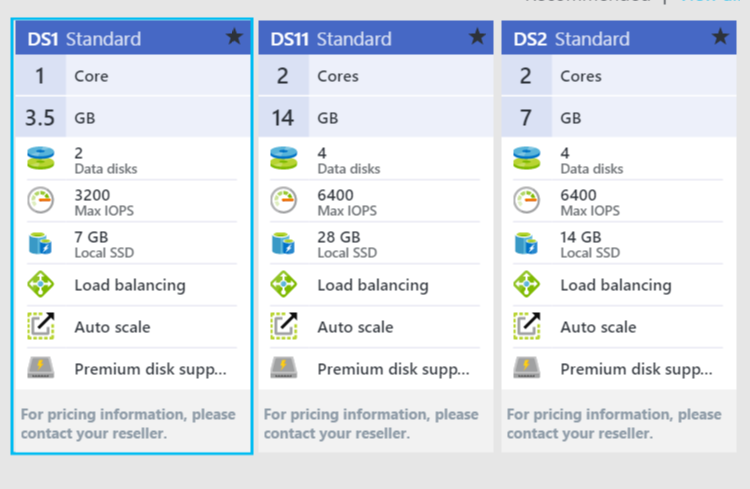
Password: demo@pass1

Subscription: Select the relevant subscription

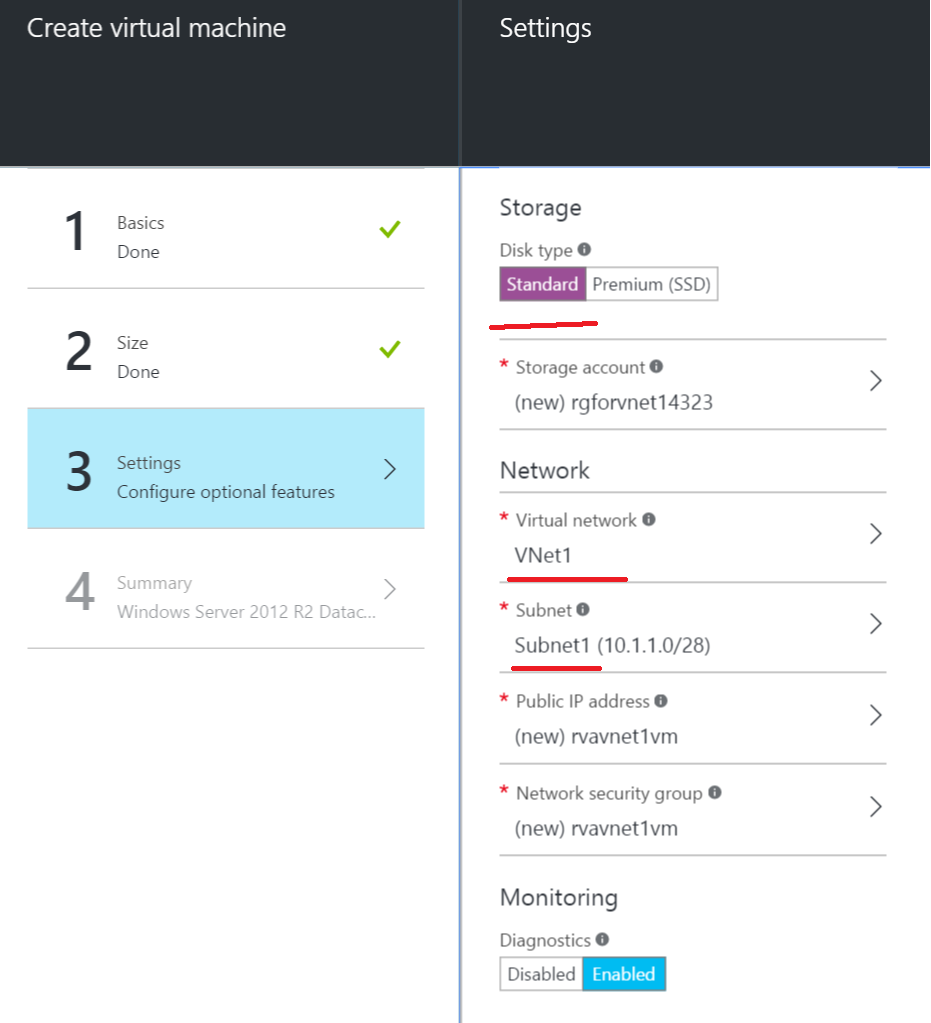
Resource group: select RGFORVNET1

Location: West US

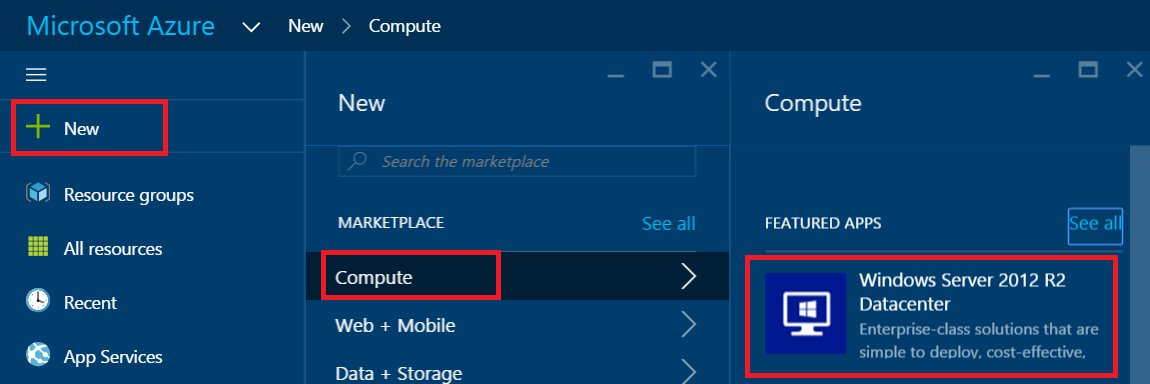
1. Choose DS1 as the size of VM.



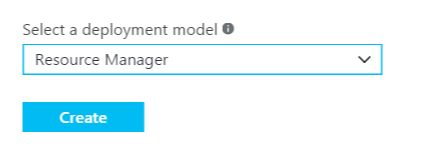
1. On the settings blade, select the 1st virtual network created above and the subnet with name ‘Subnet1’:



1. Click OK on the ‘Settings’ blade and on the ‘Summary’ blade. This will create the virtual machine in VNET1.
2. Let us create a virtual machine in resource group RGFORVNET2 from the portal. Login to the <https://portal.azure.com> and select a Windows 2012 image as below.



1. On the screen that comes up, select “Resource Manager” deployment model and click “Create”.



1. Provide the ‘basic settings’ as follows:

Name of the VM: rvavnet**2**vm

User name: demouser

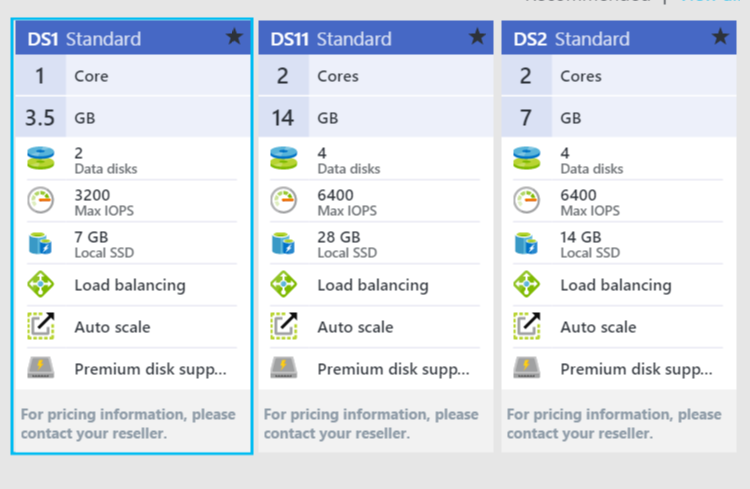
Password: demo@pass1

Subscription: Select the relevant subscription

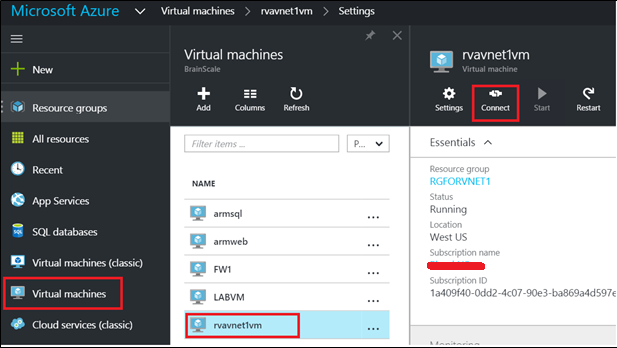
Resource group: select RGFORVNET**2**

Location: Japan East

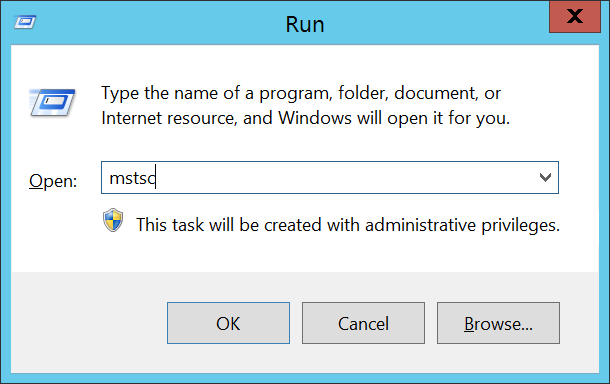
1. Choose DS1 as the size of VM.



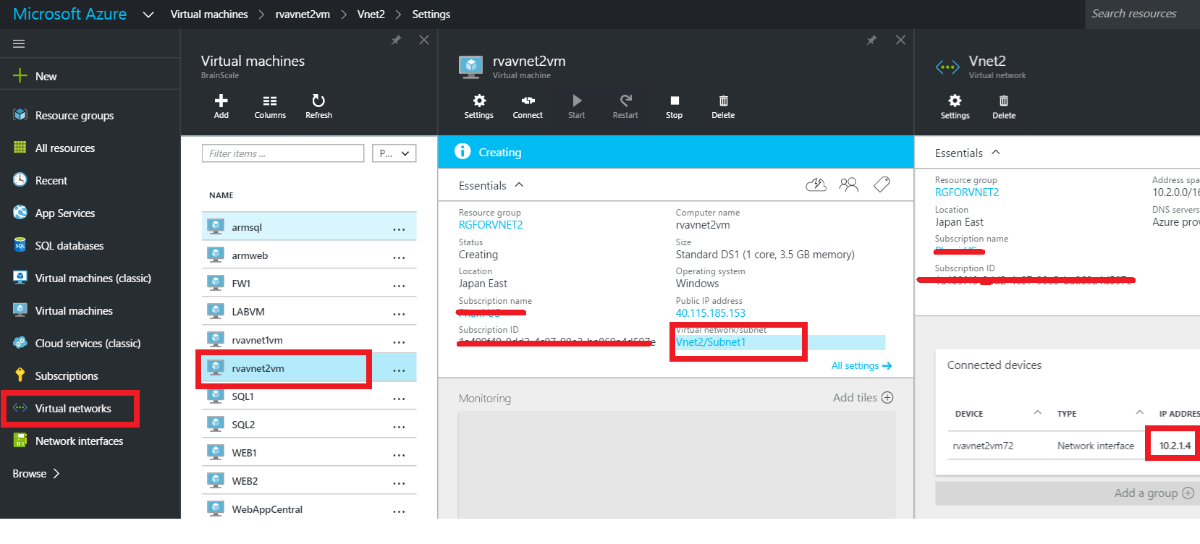
1. On the settings blade, select disk type as standard, select the VNET2 and Subnet 1.
2. Click OK on the ‘Settings’ blade and on the ‘Summary’ blade. This will create the virtual machine in VNET2.
3. We will now try to login to “rvavnet2vm” (VM in Japan East) from a virtual machine “rvavnet1vm” from US West using rvanet2vm’s private IP.
   1. Login to rvanet1vm- VM in the US West-



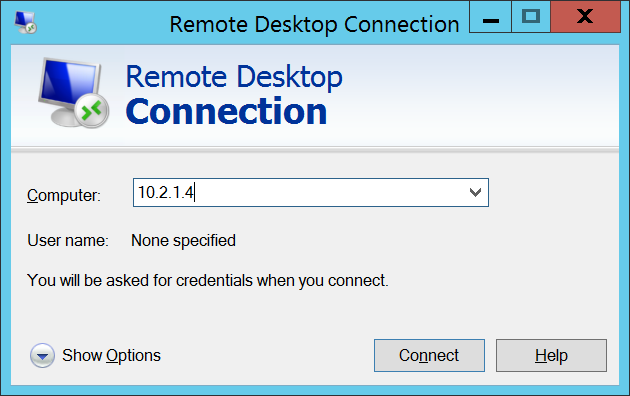
* 1. Once in the VM, go to Windows+R -> mstsc



* 1. In the computer name for ‘remote desktop connection’ enter the IP for the VM in J
  2. apan East- rvavnet2vm. You can get the private IP this from the portal as below:



* 1. Enter that IP at the computer name and click ‘Connect’. That should log you in to the Japan East virtual machine over site-to-site VPN connection. Please note that in your case this IP may be different.



* 1. Connect to the computer and try to ping a machine in other Vnet and you must see a response.

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