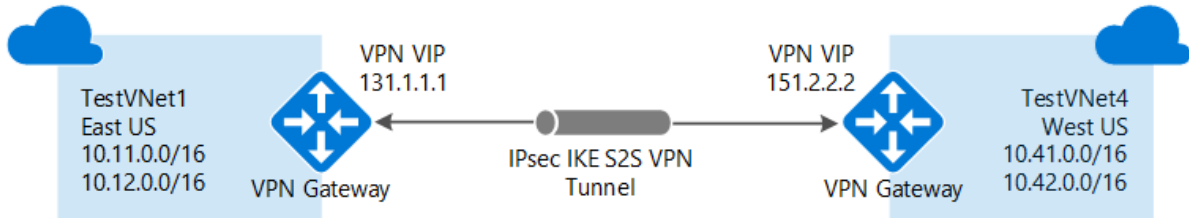


## VNET to VNET connectivity using Portal

**Note:** When you use the Azure portal to connect virtual networks, the *VNets must be in the same subscription*. If your virtual networks are in different subscriptions, you can still connect them by using the PowerShell.



### VNet peering

*It's also possible to connect VNets without using a VPN gateway.* If your VNets are in the same region, you may want to consider connecting them by using VNet peering.

### VNET to VNET connections


Connecting a virtual network to another virtual network (VNet-to-VNet) is similar to connecting a VNet to an on-premises site location. Both connectivity types use an Azure VPN gateway to provide a secure tunnel using IPsec/IKE. The VNets you connect can be in different regions, or in different subscriptions.




#### Why to connect VNET to VNET?

- **Cross region geo-redundancy**  
You can set up your own geo-replication or synchronization with secure connectivity without going over Internet-facing endpoints.
- **Geo-presence**  
With Azure Traffic Manager and Load Balancer, you can set up highly available workload with geo-redundancy across multiple Azure regions. One important example is to set up SQL Always On with Availability Groups spreading across multiple Azure regions.
- **Regional multi-tier applications with isolation or administrative boundary**  
Within the same region, you can set up multi-tier applications with multiple virtual networks connected together due to isolation or administrative requirements.

## Steps to Create VNET to VNET Connection

- 1) Create a new Resource group  
Name: **HybridCloudResourceGroup**  
Location: **SouthEast Asia**

Open Azure Portal click on the  icon. Click on the Add button to add a new resource group

<div> <div>+ Add</div> <div>Columns</div> <div>Refresh</div> </div>	
<b>Subscriptions:</b> Developer Program Benefit – Don't see a subscription? <a href="#">Switch directories</a>	
<div>Filter by name...</div>	
3 items	
NAME	SUBSCRIPTION
 [Redacted Name]	Developer Program Benefit
 [Redacted Name]	Developer Program Benefit
 [Redacted Name]	Developer Program Benefit

Enter the name, subscription and location and click on the create button.

Resource group

Create an empty resource group

\* Resource group name

HybridCloudResourceGroup

\* Subscription

Developer Program Benefit

\* Resource group location

Southeast Asia

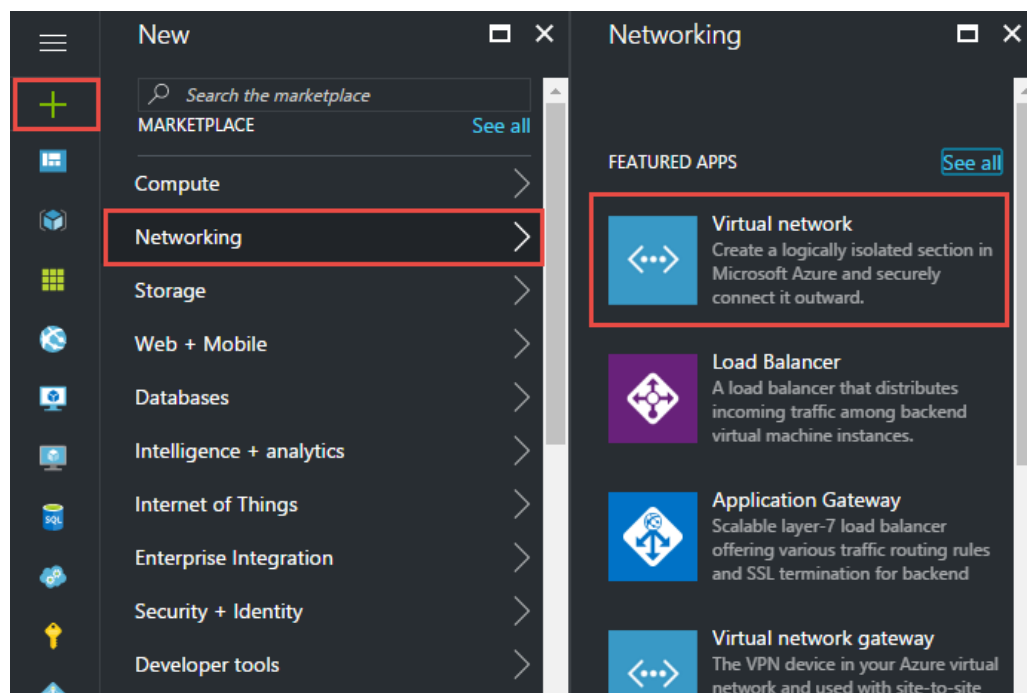
☒ Pin to dashboard

Create

- 2) Create your first VNET in the resource group with one or more subnets, in this demo we are going to create two subnets in each Virtual network.

Virtual Network Name	FirstVNET	
VNET Address space	10.30.0.0/16	
Location	SouthEast Asia	
Subnet 1	Name	FrontEnd
	Subnet address range	10.30.0.0/24
Subnet 2	Name	BackEnd
	Subnet address range	10.30.1.0/24
Gateway subnet	Name	Gateway subnet(default)
	Address range	10.30.2.0/27

To create the virtual network, click on the  icon and select '**Virtual network**' from the '**Networking**' services category



Specify the Virtual network name, Address space, subnet name, Subnet address range, subscription, resource group and location. Click on the 'Pin to Dashboard' check box to add the shortcut to the dashboard.

**Create virtual network**

\* Name  
FirstVNET ✓

\* Address space ⓘ  
10.30.0.0/16 ✓  
10.30.0.0 - 10.30.255.255 (65536 addresses)

\* Subnet name  
FrontEnd ✓

\* Subnet address range ⓘ  
10.30.0.0/24 ✓  
10.30.0.0 - 10.30.0.255 (256 addresses)

\* Subscription  
Developer Program Benefit ▼

\* Resource group ⓘ  
☐ Create new ☒ Use existing  
HybridCloudResourceGroup ▼

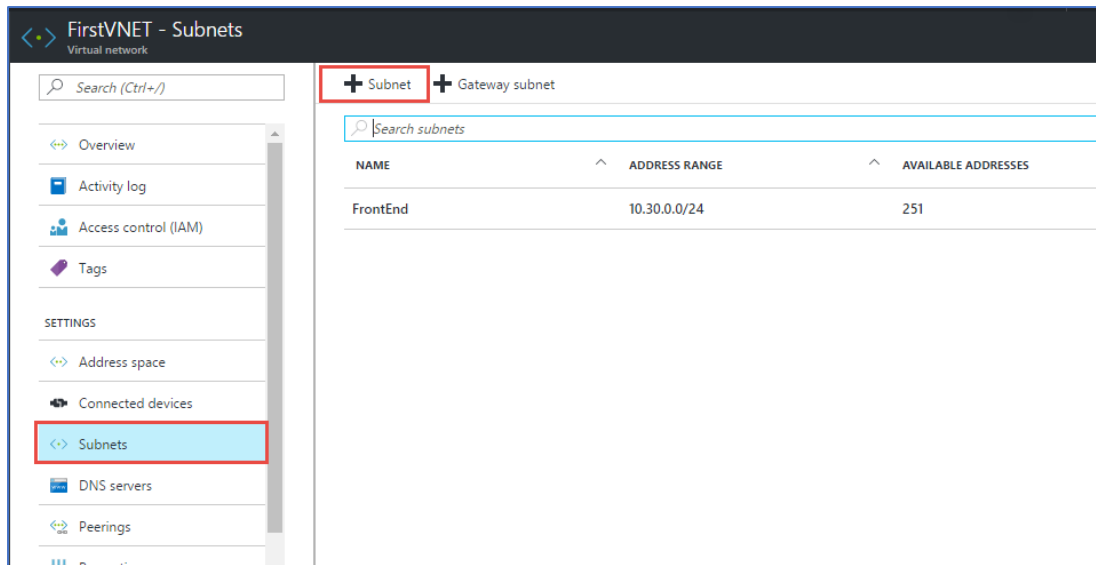
\* Location  
Southeast Asia ▼

☒ Pin to dashboard

**Create** Automation options

It creates your '**FirstVNET**' with a subnet named '**FrontEnd**'.

- 3) We can add one more subnet to the '**FirstVNET**'. To do so open the '**FirstVNET**' virtual network and navigate to the settings blade. In the settings blade select '**subnets**'. It lists all subnets created under the FirstVNET. To add a new subnet, click on the '**+Subnet**' button in the top bar.



Enter the details for the 'BackEnd' subnet.

Add subnet

FirstVNET

\* Name

BackEnd ✓

\* Address range (CIDR block) ⓘ

10.30.1.0/24

10.30.1.0 - 10.30.1.255 (256 addresses)

Network security group

None >

Route table

None >

OK

It creates the **BackEnd** subnet. You can now see two subnets under the *FirstVNET* > *Subnets*

<div> <div>+ Subnet</div> <div>+ Gateway subnet</div> </div>		
<div> <div>Search subnets</div> </div>		
NAME	ADDRESS RANGE	AVAILABLE ADDRESSES
FrontEnd	10.30.0.0/24	251
BackEnd	10.30.1.0/24	251

- 4) Now you need to add a **Gateway subnet** for the 'FirstVNET'. To do so click on the '+GateWay Subnet' button in the Subnets blade.

<div> <div>+ Subnet</div> <div>+ Gateway subnet</div> </div>		
<div> <div>Search subnets</div> </div>		
NAME	ADDRESS RANGE	AVAILABLE ADDRESSES
FrontEnd	10.30.0.0/24	251
BackEnd	10.30.1.0/24	251

It takes the name as 'Gateway subnet' by default. You need to specify the Address range for the gateway subnet. No need to specify the '**Route Table**' value.

Add subnet

FirstVNET

\* Name

GatewaySubnet

\* Address range (CIDR block) ⓘ

10.30.2.0/27

10.30.2.0 - 10.30.2.31 (32 addresses)

Route table


None

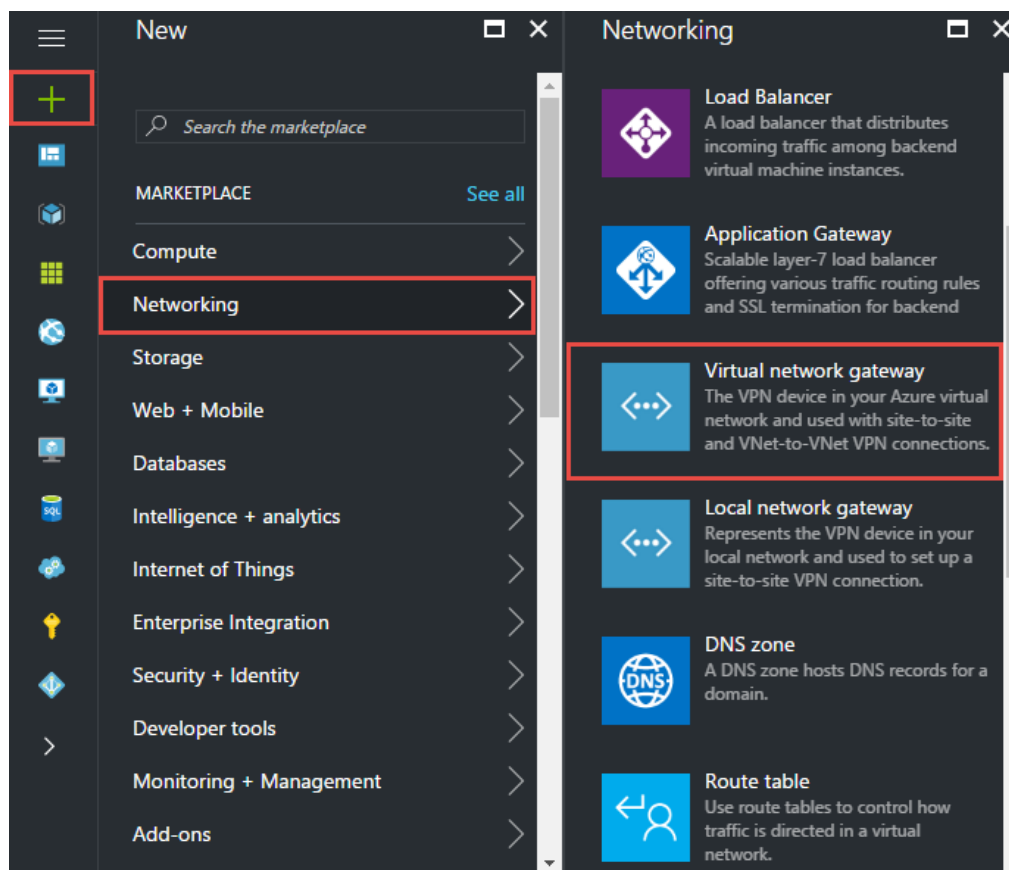
>

OK

After creating the Gateway subnet its lists all subnets under the Subnets blade.

+ Subnet + Gateway subnet		
Search subnets		
NAME	ADDRESS RANGE	AVAILABLE ADDRESSES
FrontEnd	10.30.0.0/24	251
BackEnd	10.30.1.0/24	251
GatewaySubnet	10.30.2.0/27	27

- 5) Now we need to create a '**Virtual Network Gateway**' for the '**FirstVNET**'. To create a 'Virtual network gateway' Click on the  icon and select 'Virtual Network Gateway' from the 'Networking' services.



- 6) Enter the name, Gateway type, VPN type, SKU, Virtual Network, Public IP Address, Subscription and Location for the Virtual Network Gateway.

Name	FirstVNETGateway
Gateway type	VPN

VPN type	Route-based
SKU	Standard
Virtual Network	FirstVNET
Public IP	Create New [Name: FirstVNETGatewayPublicIP]
Subscription	[Your current subscription]
Location	SouthEast Asia

‘Virtual Network Gateway’ creation may take 45 minutes. We can go ahead and create second Virtual network.

- 7) Create the Second Virtual Network with the following configurations. [Use the above-mentioned steps used for creating First Virtual Network.]

Virtual Network Name	SecondVNET	
VNET Address space	10.40.0.0/16	
Location	East US	
Subnet 1	Name	Dev
	Subnet address range	10.40.0.0/24

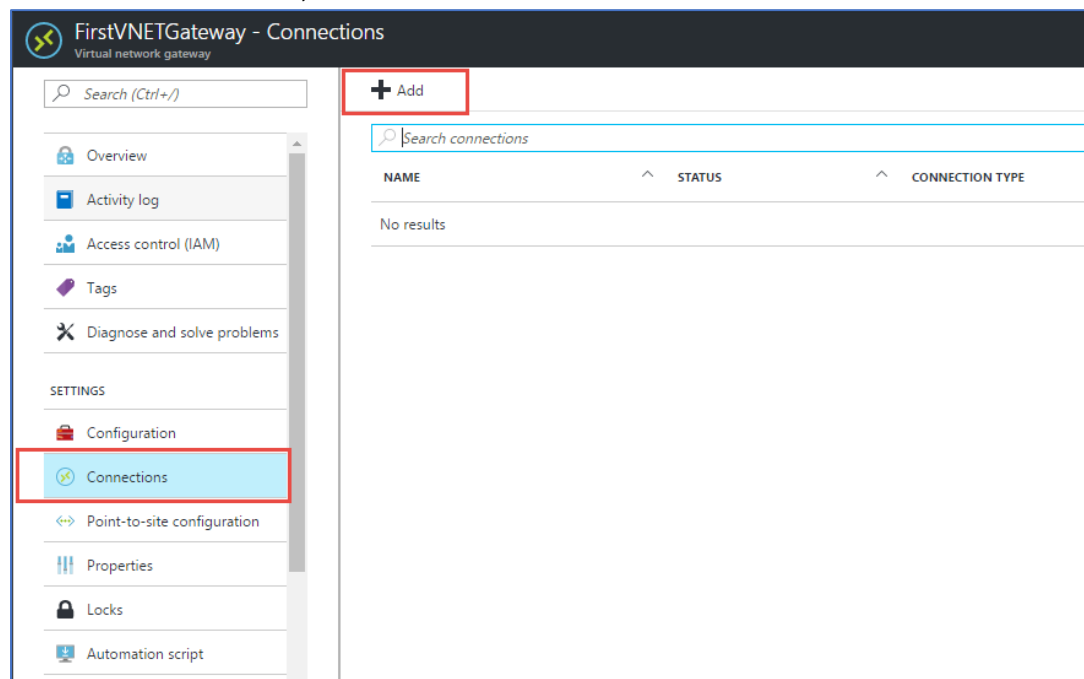


Subnet 2	Name	Test
	Subnet address range	10.40.1.0/24
Gateway subnet	Name	Gateway subnet(default)
	Address range	10.40.2.0/27

You also need to create a '**Virtual Network Gateway**' to connect to the FirstVNET. Create a virtual network gateway using the following configurations.

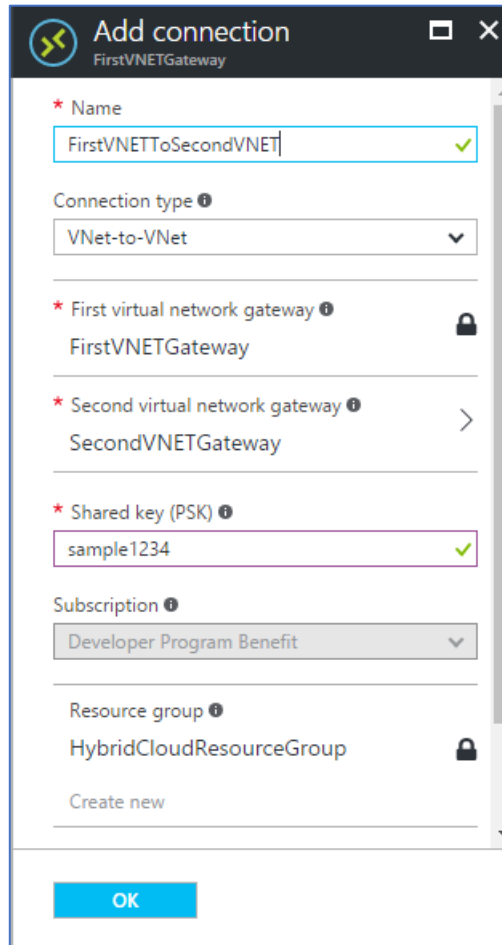
Name	SecondVNETGateway
Gateway type	VPN
VPN type	Route-based
SKU	Standard
Virtual Network	SecondVNET
Public IP	Create New [Name: SecondVNETGatewayPublicIP]
Subscription	[Your current subscription]
Location	East US

- 8) Now we have done with the VNET and Virtual Network Gateway. We need to establish the connection between **FirstVNET** and **SecondVNET**.
- 9) Click on the **FirstVNETGateway** and open it.
- 10) Click on the **Connections** in **Settings** blade. Currently no active connections are made. To create a new connection, click on the '**Add**' button.



- 11) In the Add connection blade fill the following details
  - Name: FirstVNETToSecondVNET
  - Connection type: VNET-to-VNET
  - First Virtual network Gateway: FirstVNETGateway (not modifiable)
  - Second virtual network gateway: SecondVNETGateway
  - Shared key: [any key text that need to be shared with secondvnetgateway, eg: sample1234]
  - Resource Group: HybridCloudResourceGroup

Location: SouthEast Asia.



The screenshot shows a Windows-style dialog box titled "Add connection" with a subtitle "FirstVNETGateway". It contains several fields for configuring a connection:

- Name:** A text box containing "FirstVNETToSecondVNET" with a green checkmark icon to its right.
- Connection type:** A dropdown menu showing "VNet-to-VNet" with a downward arrow.
- First virtual network gateway:** A field showing "FirstVNETGateway" with a lock icon to its right.
- Second virtual network gateway:** A field showing "SecondVNETGateway" with a right-pointing arrow icon to its right.
- Shared key (PSK):** A text box containing "sample1234" with a green checkmark icon to its right.
- Subscription:** A dropdown menu showing "Developer Program Benefit" with a downward arrow.
- Resource group:** A field showing "HybridCloudResourceGroup" with a lock icon to its right. Below this field is a link that says "Create new".

At the bottom of the dialog is a blue button labeled "OK".

12) It creates a connection to second VNET.

13) Follow the same step in the SecondVNETGateway to create a connection to FirstVNET.

Name: SecondVNETToFirstVNET

Connection type: VNET-to-VNET

First Virtual network Gateway: SecondVNETGateway (not modifiable)

Second virtual network gateway: FirstVNETGateway

Shared key: [Enter the same key used in the FirstVNETGateway , eg: sample1234]

Resource Group: HybridCloudResourceGroup

Location: East US.

14) After the Connections are made. It shows the status as '**connected**' for both connections.

+ Add				
Search connections				
NAME	STATUS	CONNECTION TYPE	PEER	
SecondVNETToFirstVNET	Connected	VNet-to-VNet	FirstVNETGateway	
FirstVNETToSecondVNET	Connected	VNet-to-VNet	FirstVNETGateway	


## Test the VNET-to-VNET Connectivity

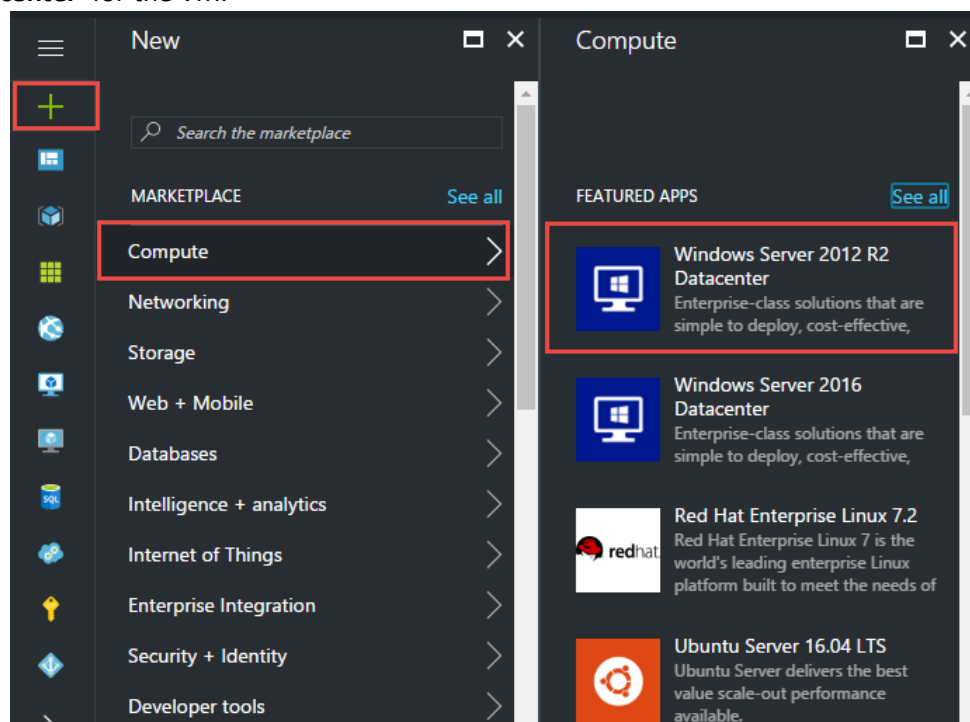
To test the connectivity, we can create two virtual machines in each VNETs and access one from another. To do so we need to create a Virtual Machine in the '**FrontEnd**' subnet of the '**FirstVNET**' and another Virtual Machine in the '**Dev**' Subnet of the '**SecondVNET**'.

### Create a VM in FrontEnd Subnet of FirstVNET

Basic	
Name	WebServerVM
VM Disk type	HDD

User name	[your username]
Password/Confirm Password	[Your password]
Subscription	[Your Active subscription]
Resource group	HybridCloudResourceGroup [You created above]
Location	Southeast Asia
<b>Size</b>	
VM Size	A2 Basic
<b>Settings</b>	
Storage: Use managed disks	No
Storage account	Choose existing storage account or Create New
Network	
Virtual Network	FirstVNET
Subnet	FrontEnd
Public IP	Create new public IP [Name: WebServerVMPublicIP]
NSG	None
Extensions	No extensions
High Availability	Availability set:None
Boot diagnostics	Disabled
Guest OS Diagnostics	Disabled

- 1) Click on the  icon and select '**Compute**' services and then choose '**Windows Server 2012 R2 Datacenter**' for the VM.



- 2) Fill the basic details for the VM

**Create virtual machine** Basics

1 Basics  
Configure basic settings

2 Size  
Choose virtual machine size

3 Settings  
Configure optional features

4 Summary  
Windows Server 2012 R2 Datac...

\* Name  
WebServerVM ✓

VM disk type ⓘ  
HDD ▼

\* User name  
sonusathyadas ✓

\* Password  
..... ✓

\* Confirm password  
..... ✓

Subscription  
Developer Program Benefit ▼

\* Resource group ⓘ  
☐ Create new ☒ Use existing  
HybridCloudResourceGroup ▼

Location  
Southeast Asia ▼

OK

3) Click OK to move to next step. In the next step select VM Size as 'Basic A2'

**Create virtual machine** Choose a size  
Browse the available sizes and their features

1 Basics  
Done ✓

2 Size  
Choose virtual machine size

3 Settings  
Configure optional features

4 Summary  
Windows Server 2012 R2 Datac...

15,736.20 INR/MONTH (ESTIMATED)		31,472.39 INR/MONTH (ESTIMATED)		885.16 INR/MONTH (ESTIMATED)	
<b>A1 Basic</b>	<b>A2 Basic</b>	<b>A3 Basic</b>			
1 Core	2 Cores	4 Cores			
1.75 GB	3.5 GB	7 GB			
2 Data disks	4 Data disks	8 Data disks			
2x300 Max IOPS	4x300 Max IOPS	8x300 Max IOPS			
1,917.85 INR/MONTH (ESTIMATED)	6,737.06 INR/MONTH (ESTIMATED)	17,113.11 INR/MONTH (ESTIMATED)			
<input type="button" value="Select"/>					

4) Click select and move to Settings blade. You can enter Network and extensions detail in settings. Use the above-mentioned configurations.

5) Click OK to go to summary blade. Validate the configurations and Click OK to create.

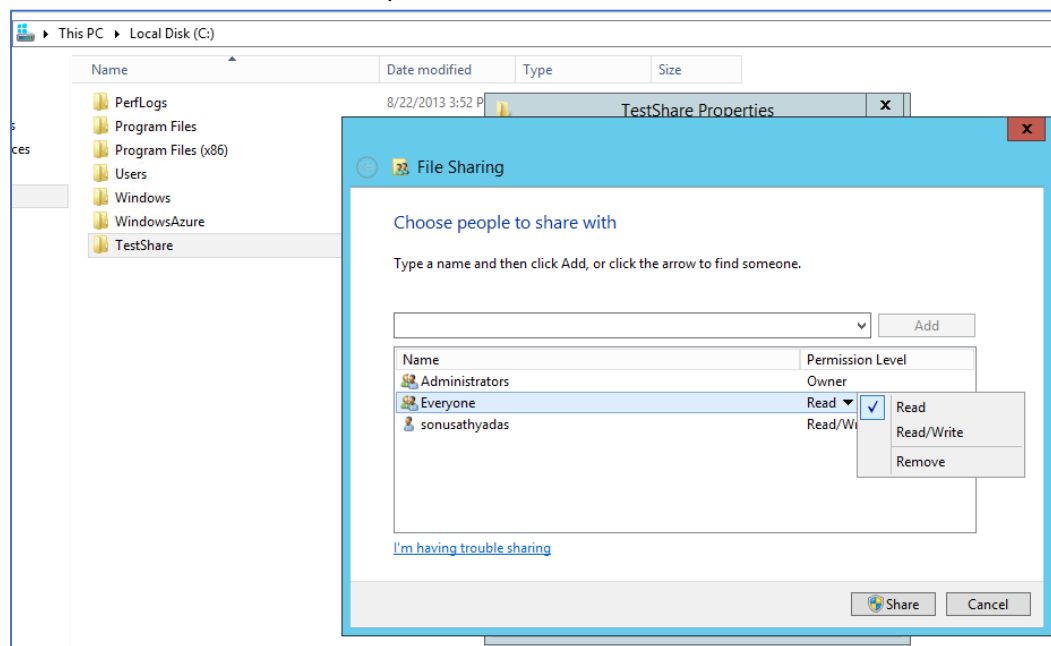
### Create a VM in Dev Subnet of SecondVNET

Create a new VM in the second VNET using the following configurations. You can follow the steps used to create **WebServerVM** in the **FrontEnd** subnet of **FirstVNET**.

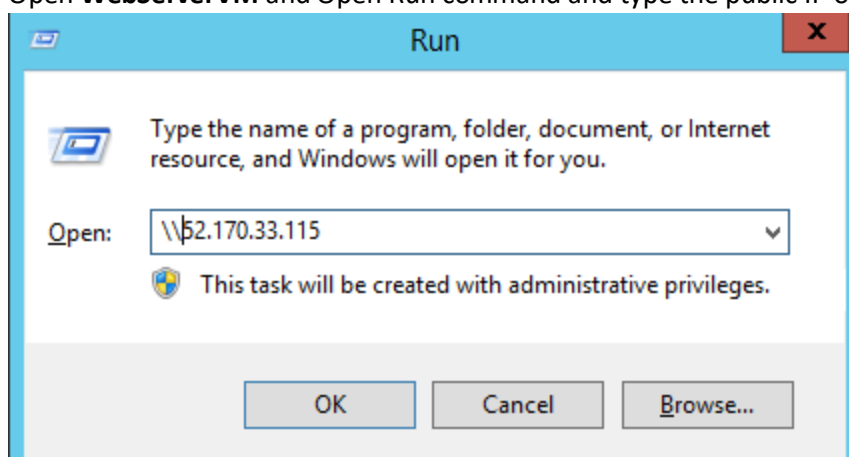
Basic	
Name	DevServerVM
VM Disk type	HDD
User name	[your username]
Password/Confirm Password	[Your password]
Subscription	[Your Active subscription]
Resource group	HybridCloudResourceGroup [You created above]
Location	East US
Size	
VM Size	A2 Basic
Settings	
Storage: Use managed disks	No
Storage account	Choose existing storage account or Create New
Network	
Virtual Network	SecondVNET

Subnet	Dev
Public IP	Create new public IP [Name: DevServerVMPublicIP]
NSG	None
Extensions	No extensions
High Availability	Availability set:None
Boot diagnostics	Disabled
Guest OS Diagnostics	Disabled

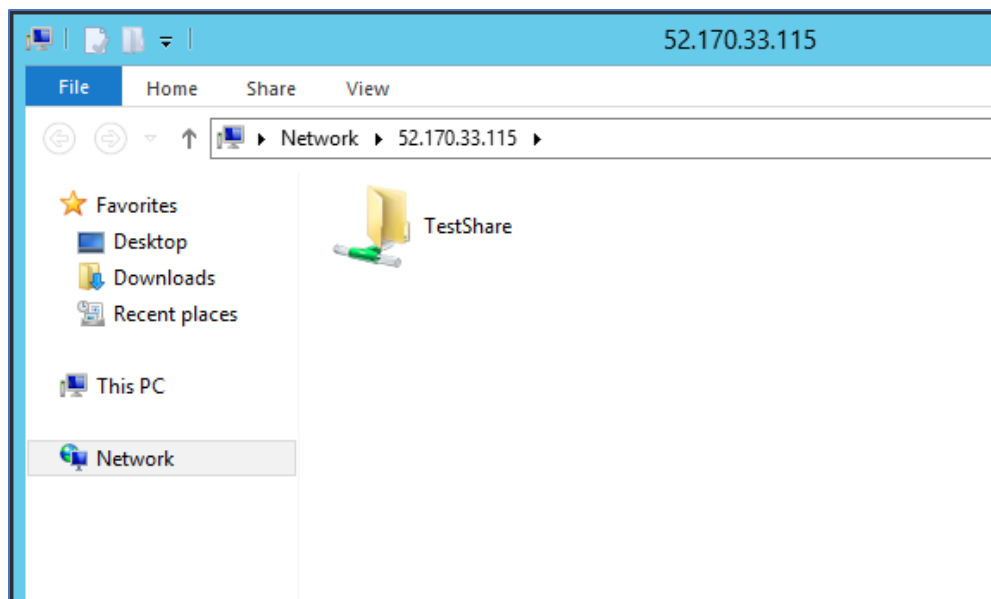
- 6) Connect to both VMs using Remote connection (RDP).
- 7) Create a shared folder in the C:\ drive of the '**DevServerVM**'.



- 8) Open **WebServerVM** and Open Run command and type the public IP of the **DevServerVM**.



- 9) It opens the shared folder of the DevServerVM



10) You have completed the workshop successfully, Thanks