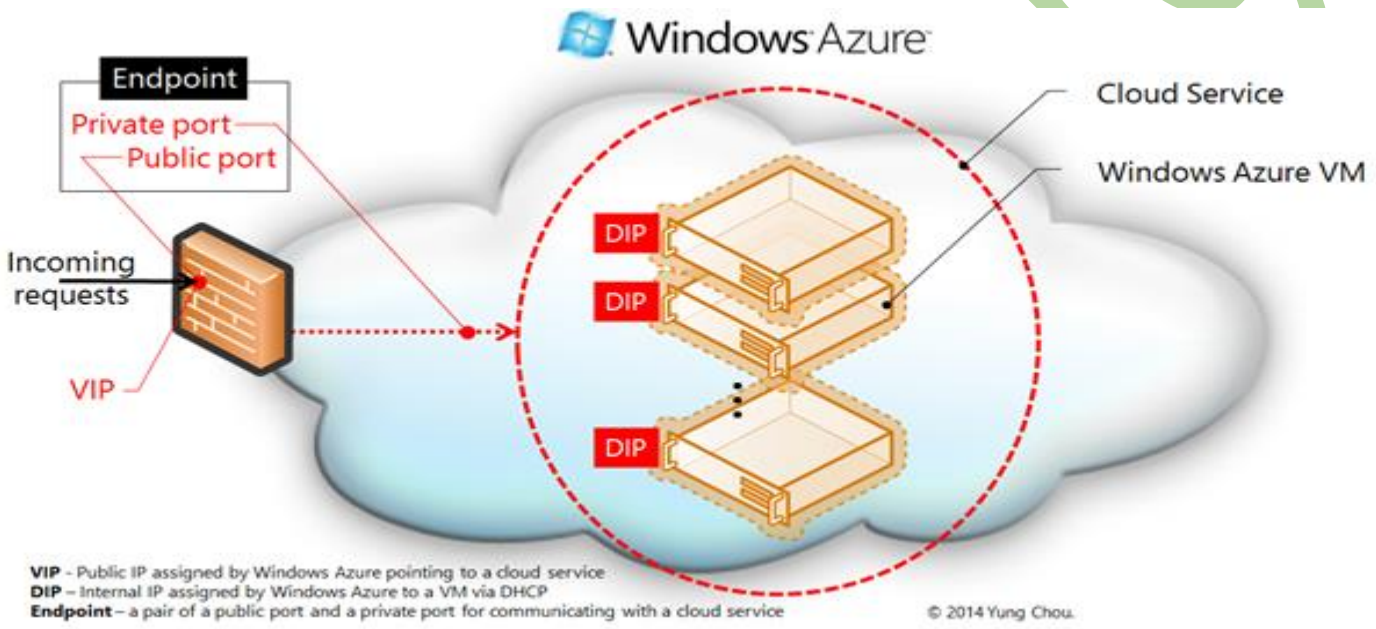
Prepare Azure Tenant for IaaS (EMS)

In this part we will prepare windows azure to host some Virtual machine where we will start build our EMS lab on it like “Active Directory, ADFS Server, Azure RMS Connector, File Server”.

But before starting the implementation we need to know some terminologies like: Cloud Service, Endpoint, VIP, DIP.



Terminologies

VIP

A VIP is the public IP address associated with a VM. Every Azure VM has a VIP, with all the VMs in a cloud service having the same VIP.

Notice that a VIP once assigned is not released from a cloud service till every VM instance in the cloud services has either a “Stopped (Deallocated)” status or deleted.

The VIP is allocated at random from a pool of IP addresses managed by Microsoft. However, it is possible to reserve an IP address from the Microsoft pool and allocate that reserved IP address as a VIP.

There is a limit of 5 reserved IPs for a subscription. Unless a reserved IP address is used, the VIP is given up and returned to the Microsoft pool once the last VM with that VIP is deallocated or deleted. Internet-bound traffic coming from the VM is SNATted to have the VIP be its source address

DIP

A DIP (an internal IP assigned by Windows Azure with DHCP) is the IP address assigned to the VM for communicating within Windows Azure. Notice that a DIP once assigned is not released from a VM till the VM has a "Stopped (Deallocated)" status.

Endpoint

Endpoint is a pair of two ports associated with the VIP of the cloud service. **The public port** of an endpoint is the one facing Internet, while within Windows Azure the corresponding port is **the private port**.

IP Assignments in Windows Azure Virtual Network (VNET)

When deploying VMs to a VNET, the DIPs (i.e. internal IP addresses) of VMs are allocated from a configured address pool (as defined in VNET) in the order of each VM is deployed. Therefore, deploying the same VMs in a different order to the VNET or deallocating then redeploying VMs in a VNET will likely result in different internal IP addresses assigned.

For example, two VMs in a VNET had had a Stopped Deallocated state and then both were restarted in a random order. The new internal IP addresses assigned to the two VMs will likely be different than those IP addresses previously assigned before deallocation.

This behavior is most noticeable after restarting those VMs with a Stopped Deallocated state which as addressed earlier releases the internal IP address. And it is an issue for a deployment expecting VMs with persistent IP addresses throughout the lifetime of an associated service. However, if static IP addresses were assigned to VMs, the same predictable IP address will be in the VM upon.

Install Azure PowerShell

If you haven't done so already, use the instructions in How to install and configure Azure PowerShell to install Azure PowerShell on your local computer. Then, open an Azure PowerShell command prompt.

https://azure.microsoft.com/en-us/documentation/articles/powershell-install-configure/

Create a Cloud Service by Azure PowerShell

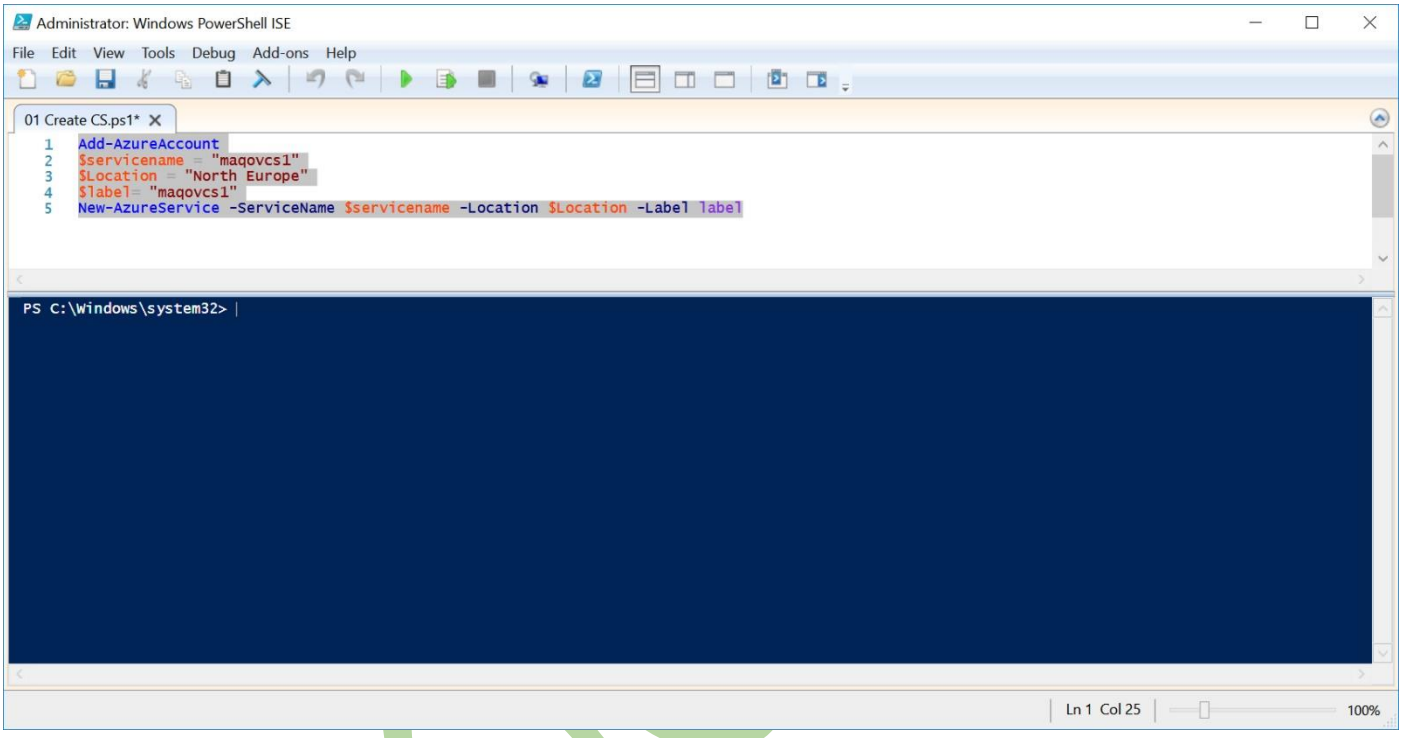
We will use the cloud service to access our VMS hosted inside over the internet, however we need to some tricks to make the **VIP** reserved after restarting the VM or shutdown it.

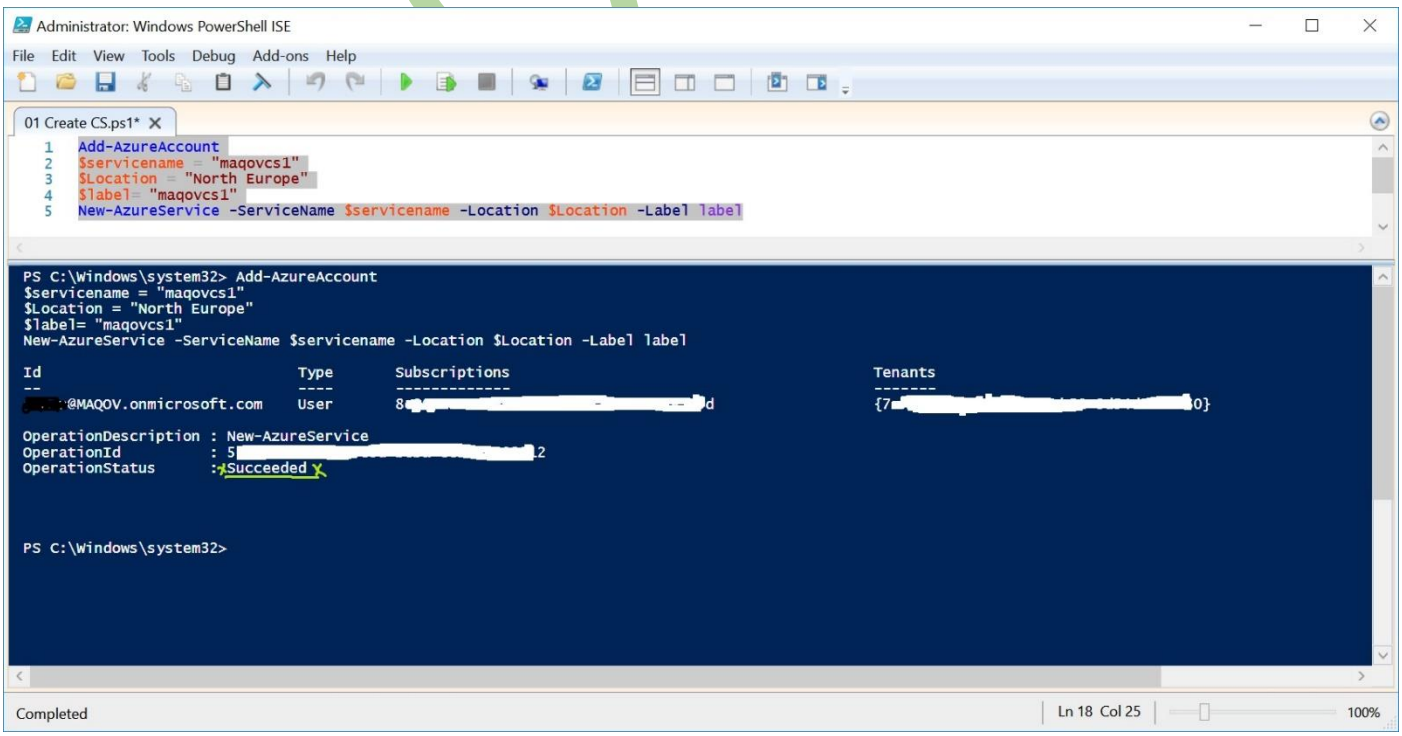
The Cloud service is required to create a public IP address through which our VM's can be accessible over the internet.

To ensure the "Public Virtual IP (**VIP**) Address" is maintained even after all Virtual Machines are turned off and de-allocated (to prevent cost) a reserved IP address can be set for the Cloud Service. This can only be done through creating the VM by PowerShell.

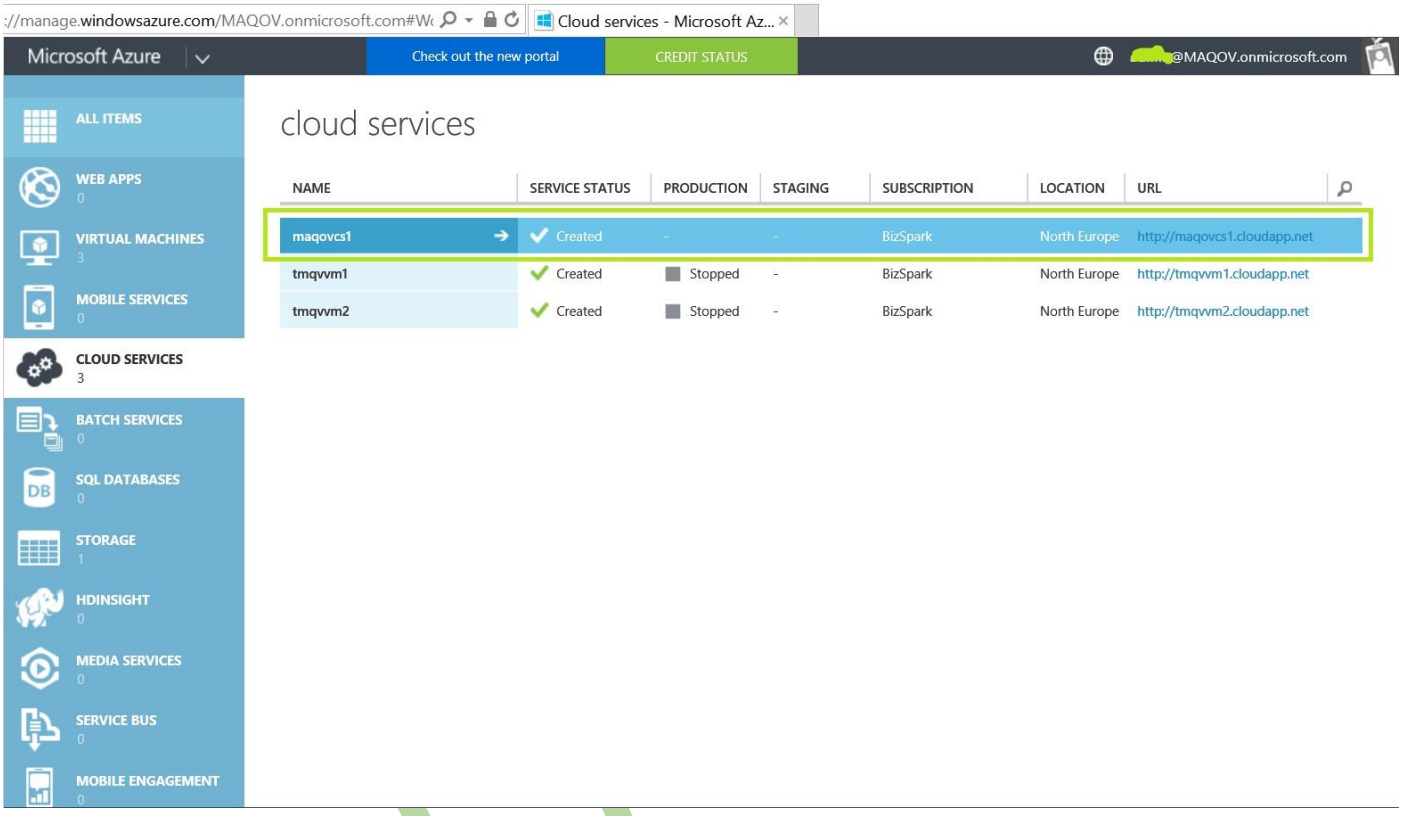
First open **Microsoft Azure PowerShell**, then write the below commands accordingly.

```
Add-AzureAccount
$servicename = "maqovcs1"
$Location = "North Europe"
$label= "maqovcs1"
New-AzureService -ServiceName $servicename -Location $Location -Label label
```





Once the operation is succeeded we can check the cloud service at azure management portal

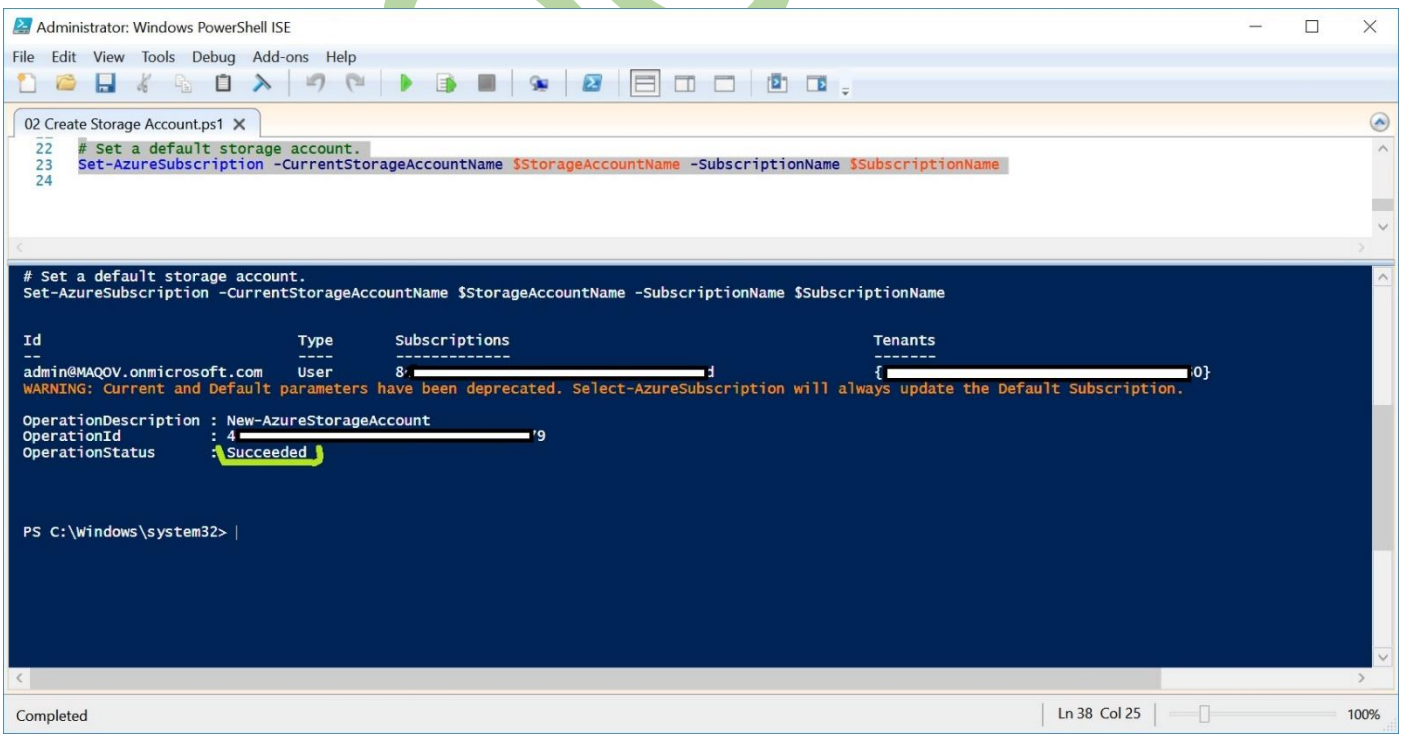


Create Storage Account by Azure PowerShell

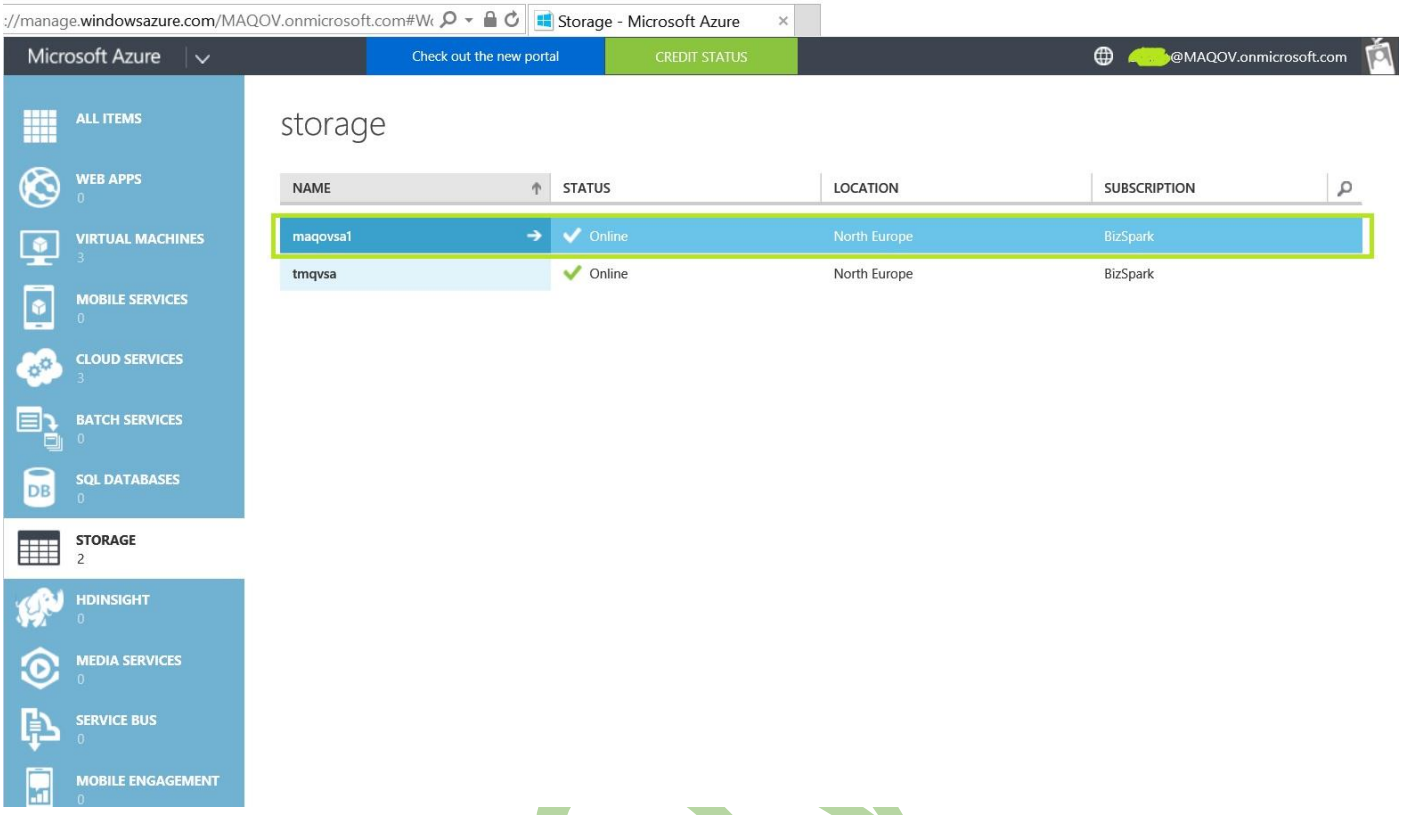
The Storage will be used to store all your Virtual Machines including the vhd's. If you don't create a Storage Account, these can be created automatically when Virtual Machines are created.

First open Microsoft Azure PowerShell, then write the below commands accordingly.

```
#begin
# Update with the name of your subscription.

$SubscriptionName= "BizSpark"

# Give a name to your new storage account. It must be lowercase!
$StorageAccountName="maqovsa1"

# Choose "West US" as an example.
$Location = "North Europe"


# Add your Azure account to the local PowerShell environment.
Add-AzureAccount

# Set a default Azure subscription.
Select-AzureSubscription -SubscriptionName $SubscriptionName -Default

# Create a new storage account.
New-AzureStorageAccount -StorageAccountName $StorageAccountName -Location $Location

# Set a default storage account.
Set-AzureSubscription -CurrentStorageAccountName $StorageAccountName -SubscriptionName
$SubscriptionName
```

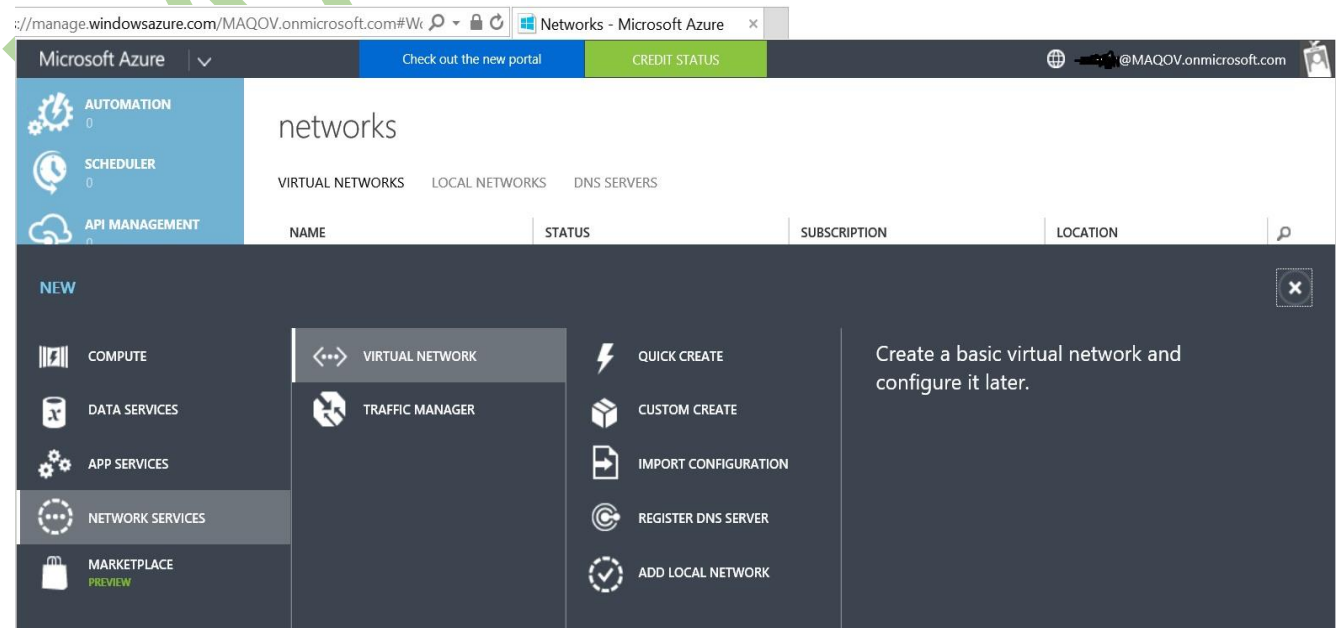


Once the operation is succeeded we can check the Storage at azure management portal

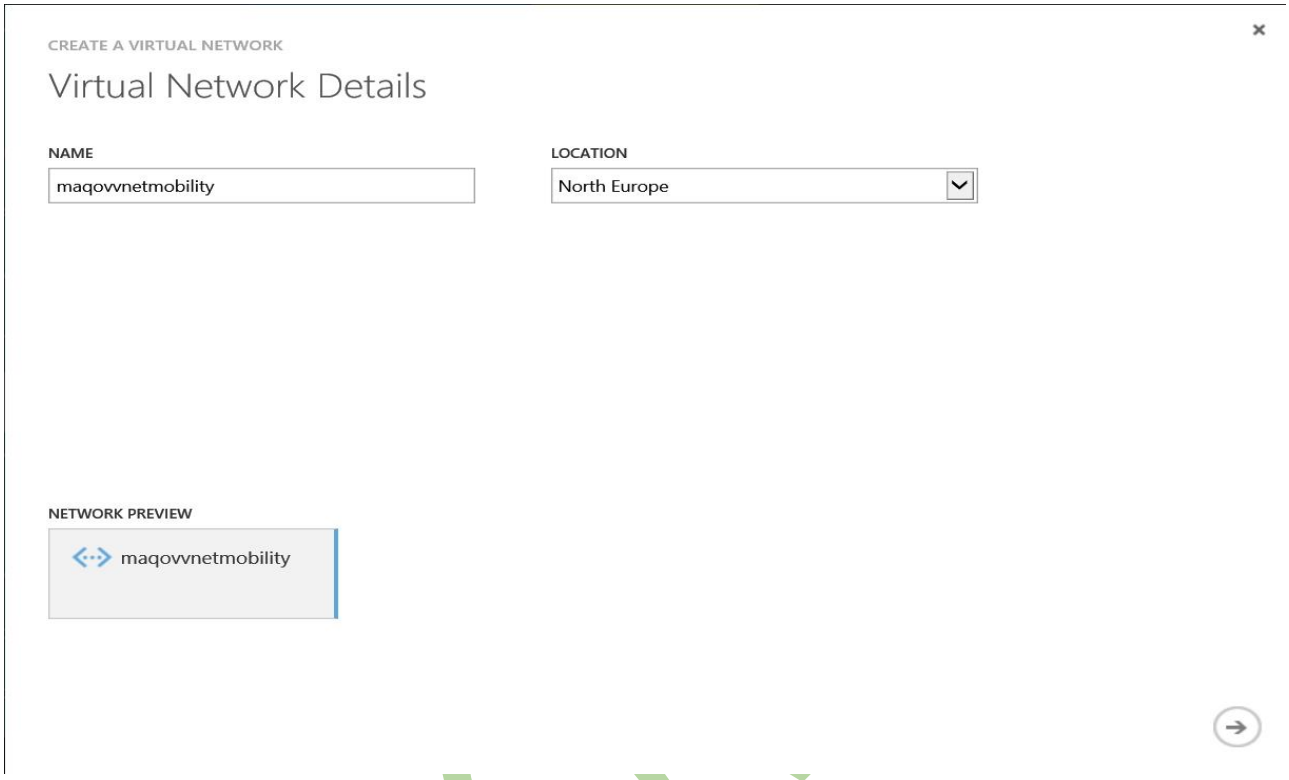


Create Virtual Network

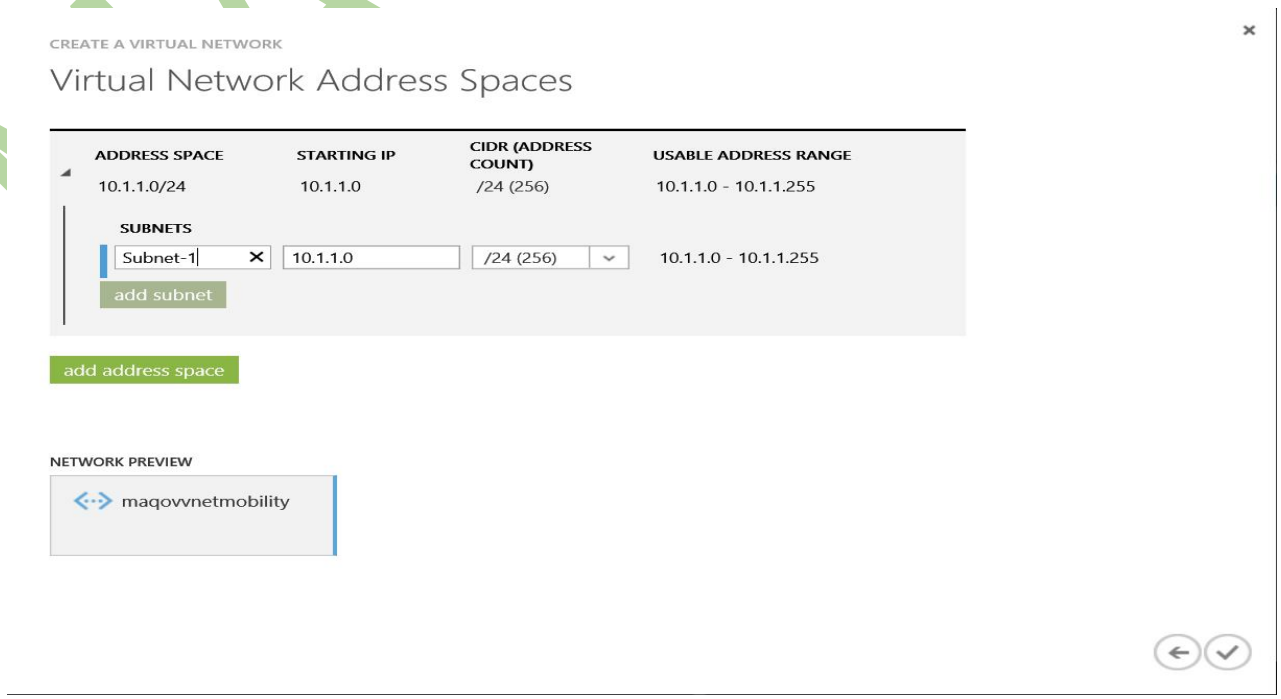
1. Create Azure Virtual Network
   a. Select "**Networks**"
   b. Select "**+ NEW**" in the bottom left.
   c. Select **Custom Create**.



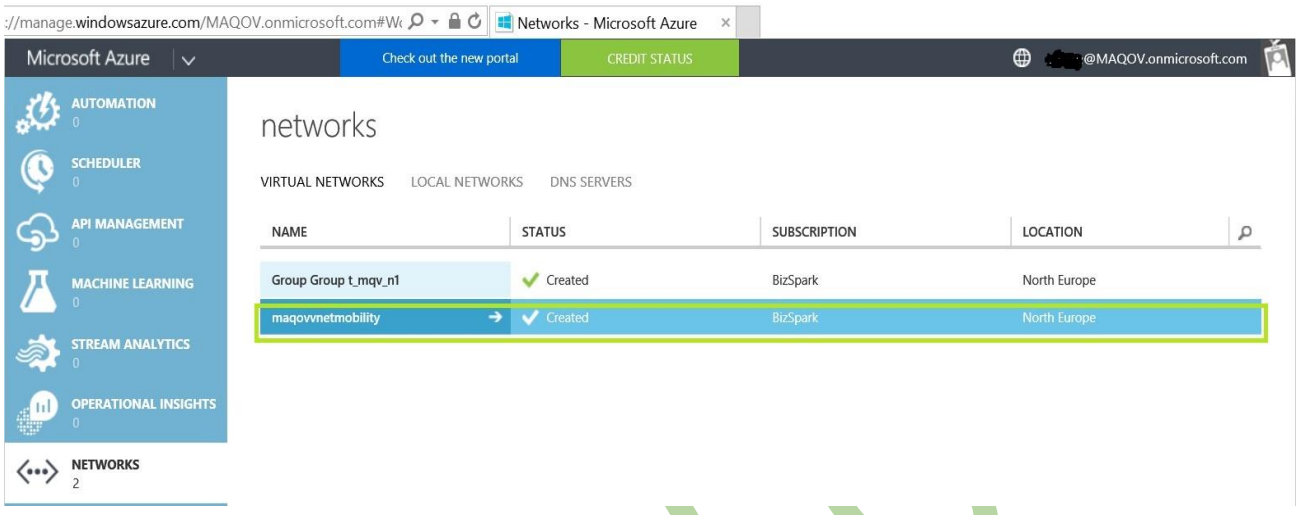
d. Enter the Name "**maqovvnetmobility**" of your Virtual Network and select the Location closest to you. This must be the same as the location as the location specified in Hydration.



e. Go to the next screen by selecting the arrow "**->**".
f. Skip the "**DNS Servers and VPN Connectivity**" screen. You will come back to this later after a DNS server is configured.
g. Go to the next screen by selecting the arrow "**->**".
h. Under the CDIR (Address Count) for the Address Space select /24 (256).
i. Under CDIR (Address Count) in the Subnet line also select /24 (256).

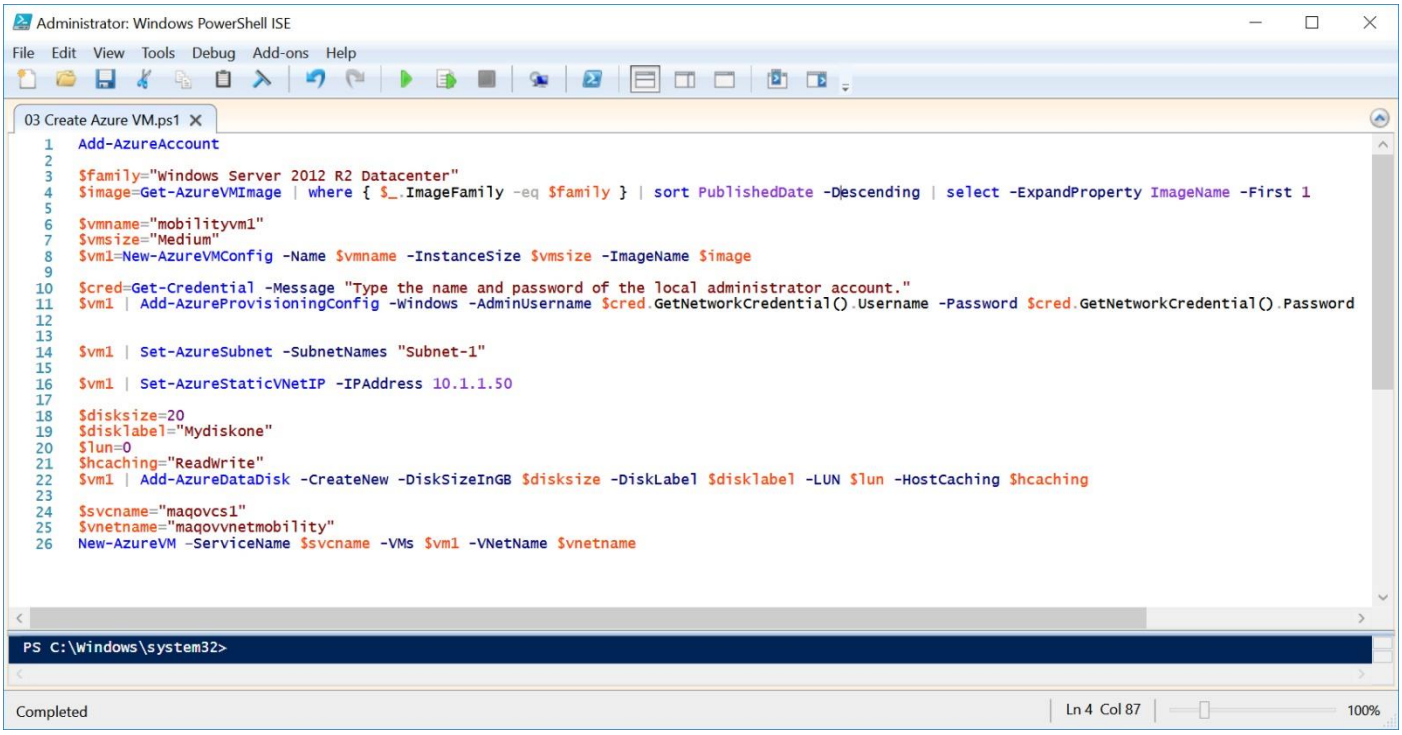


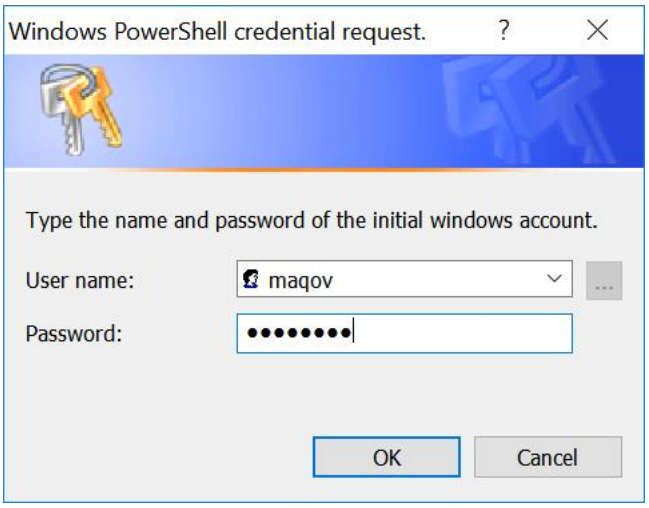
j. Accept the remaining settings in Virtual Network Address Spaces and select to complete the wizard by clicking “tick symbol” in the bottom right of the screen.

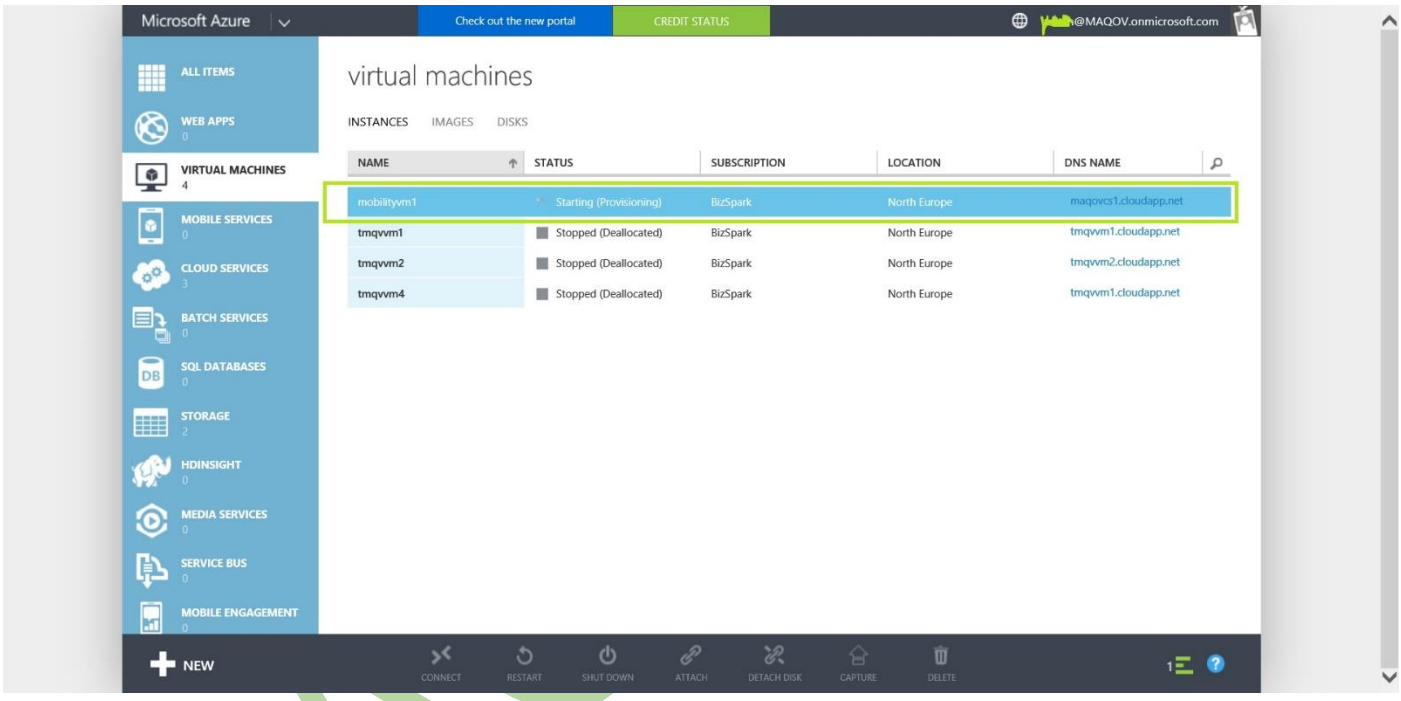


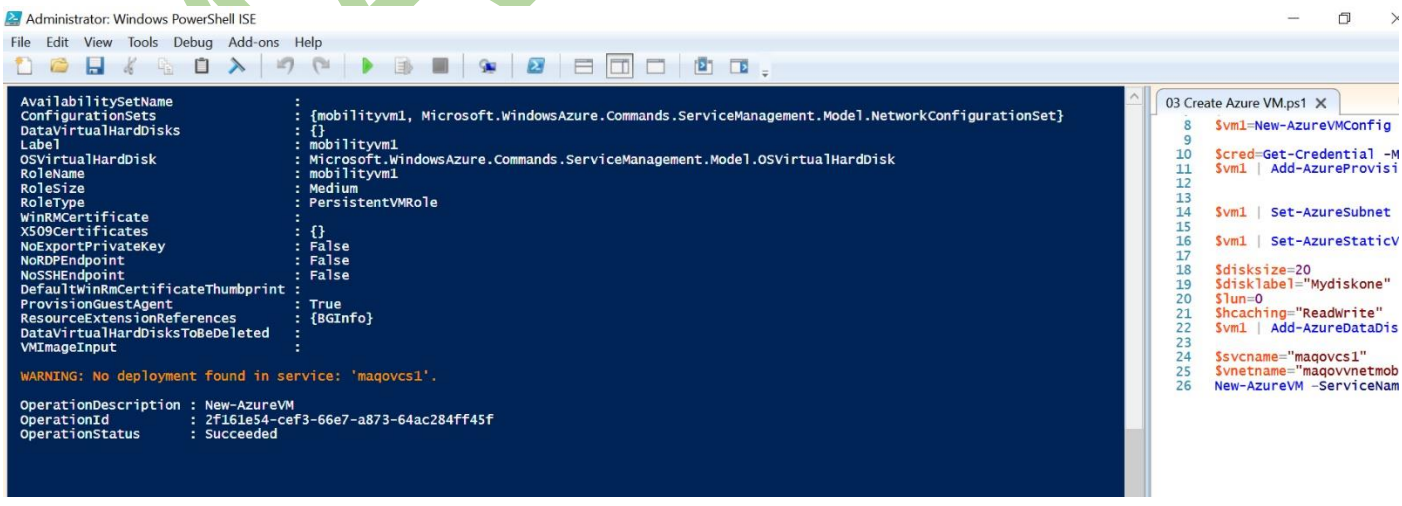
Create Virtual Machine by Azure PowerShell

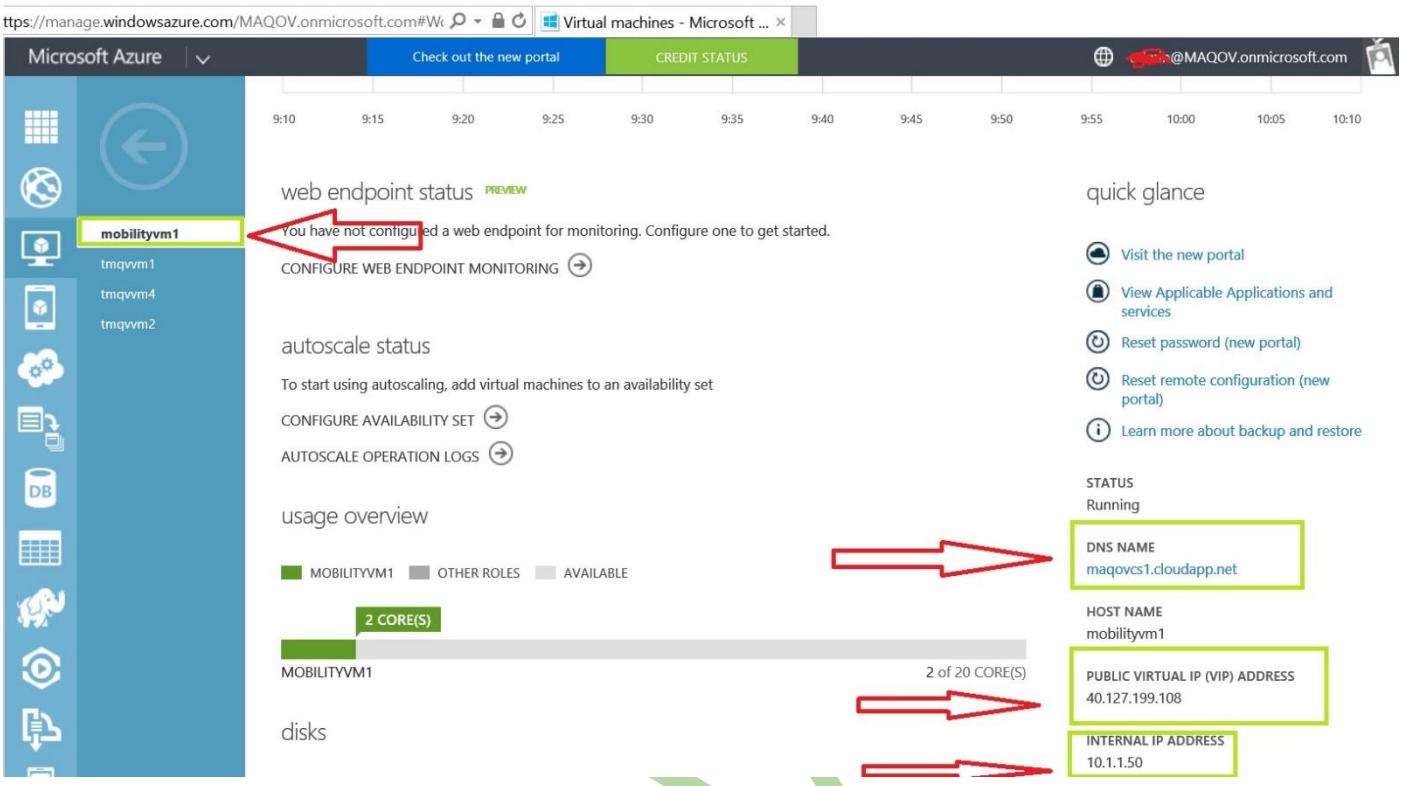
```
Add-AzureAccount

$family="Windows Server 2012 R2 Datacenter"
$image=Get-AzureVMImage | where { $_.ImageFamily -eq $family } | sort PublishedDate -Descending
| select -ExpandProperty ImageName -First 1

$vmname="mobilityvm1"
$vmsize="Medium"
$vm1=New-AzureVMConfig -Name $vmname -InstanceSize $vmsize -ImageName $image

$cred=Get-Credential -Message "Type the name and password of the local administrator account."
$vm1 | Add-AzureProvisioningConfig -Windows -AdminUsername $cred.GetNetworkCredential().Username
-Password $cred.GetNetworkCredential().Password


$vm1 | Set-AzureSubnet -SubnetNames "Subnet-1"

$vm1 | Set-AzureStaticVNetIP -IPAddress 10.1.1.50

$disksize=20
$disklabel="Mydiskone"
$lun=0
$hcaching="ReadWrite"
$vm1 | Add-AzureDataDisk -CreateNew -DiskSizeInGB $disksize -DiskLabel $disklabel -LUN $lun -
HostCaching $hcaching

$svcname="maqovcs1"
$vnetname="maqovvnetmobility"
New-AzureVM -ServiceName $svcname -VMs $vm1 -VNetName $vnetname
```

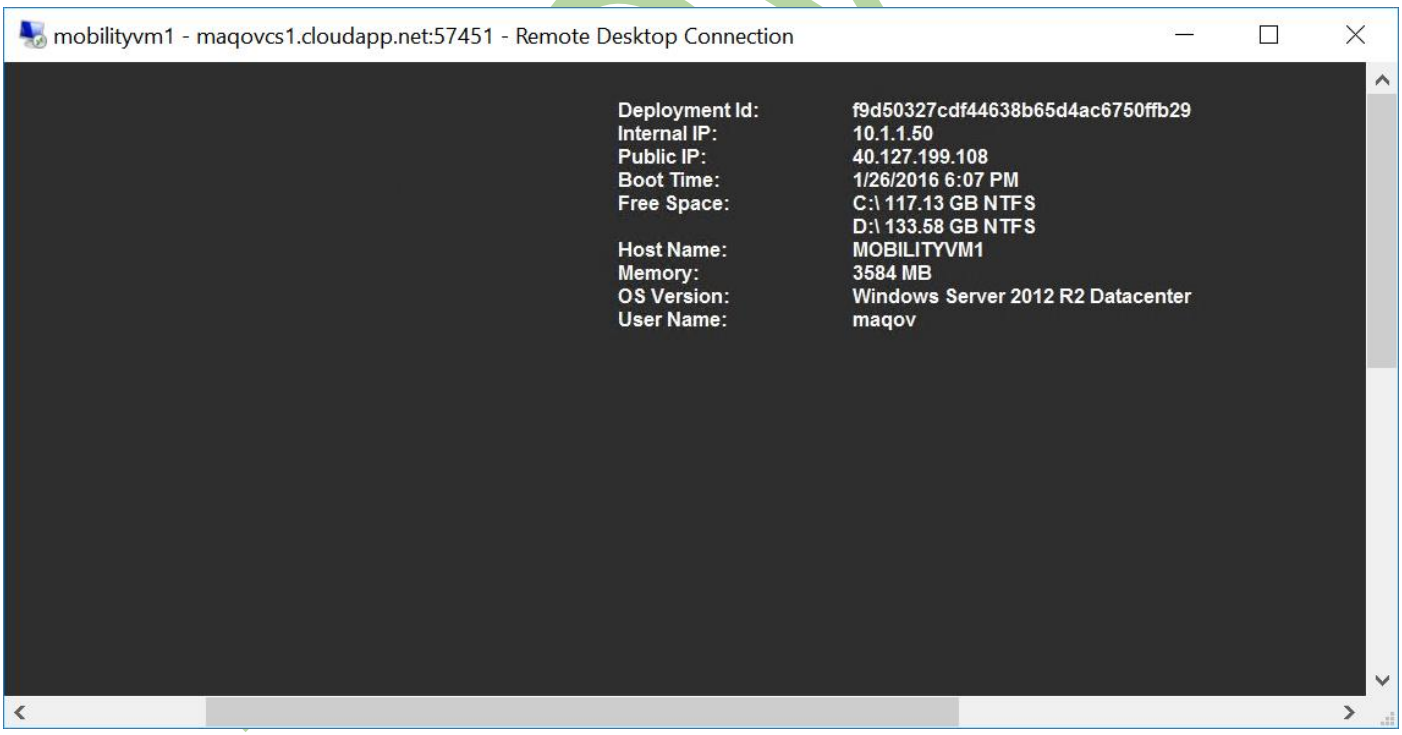



Windows PowerShell credential request.
Type the name and password of the initial windows account.
User name:
maqov
Password:
OK
Cancel


Microsoft Azure
Check out the new portal
CREDIT STATUS
@MAQOV.onmicrosoft.com
ALL ITEMS
WEB APPS
VIRTUAL MACHINES
MOBILE SERVICES
CLOUD SERVICES
BATCH SERVICES
SQL DATABASES
STORAGE
HDINSIGHT
MEDIA SERVICES
SERVICE BUS
MOBILE ENGAGEMENT
virtual machines
INSTANCES
IMAGES
DISKS
NAME
STATUS
SUBSCRIPTION
LOCATION
DNS NAME
mobilityvm1
Starting (Provisioning)
BizSpark
North Europe
maqovcs1.cloudapp.net
tmqvvm1
Stopped (Deallocated)
BizSpark
North Europe
tmqvvm1.cloudapp.net
tmqvvm2
Stopped (Deallocated)
BizSpark
North Europe
tmqvvm2.cloudapp.net
tmqvvm4
Stopped (Deallocated)
BizSpark
North Europe
tmqvvm1.cloudapp.net
NEW
CONNECT
RESTART
SHUT DOWN
ATTACH
DETACH DISK
CAPTURE
DELETE


Administrator: Windows PowerShell ISE
File Edit View Tools Debug Add-ons Help
AvailabilitySetName :
ConfigurationSets : {mobilityvm1, Microsoft.WindowsAzure.Commands.ServiceManagement.Model.NetworkConfigurationSet}
DataVirtualHardDisks : {}
Label : mobilityvm1
OSVirtualHardDisk : Microsoft.WindowsAzure.Commands.ServiceManagement.Model.OSVirtualHardDisk
RoleName : mobilityvm1
RoleSize : Medium
RoleType : PersistentVMRole
WinRMCertificate :
X509Certificates : {}
NoExportPrivateKey : False
NoRDPEndpoint : False
NoSSHEndpoint : False
DefaultWinRmCertificateThumbprint :
ProvisionGuestAgent : True
ResourceExtensionReferences : {BGInfo}
DataVirtualHardDisksToBeDeleted :
VMImageInput :
WARNING: No deployment found in service: 'maqovcs1'.
OperationDescription : New-AzureVM
OperationId : 2f161e54-cef3-66e7-a873-64ac284ff45f
OperationStatus : Succeeded
03 Create Azure VM.ps1
$vm1=New-AzureVMConfig
$cred=Get-Credential -M
$vm1 | Add-AzureProvisi
$vm1 | Set-AzureSubnet
$vm1 | Set-AzureStaticV
$disksize=20
$disklabel="Mydiskone"
$lun=0
$hcaching="ReadWrite"
$vm1 | Add-AzureDataDis
$svcname="maqovcs1"
$vnetname="maqovvnetmob
New-AzureVM -ServiceNam





Now we will find that our new VM is created with right configuration

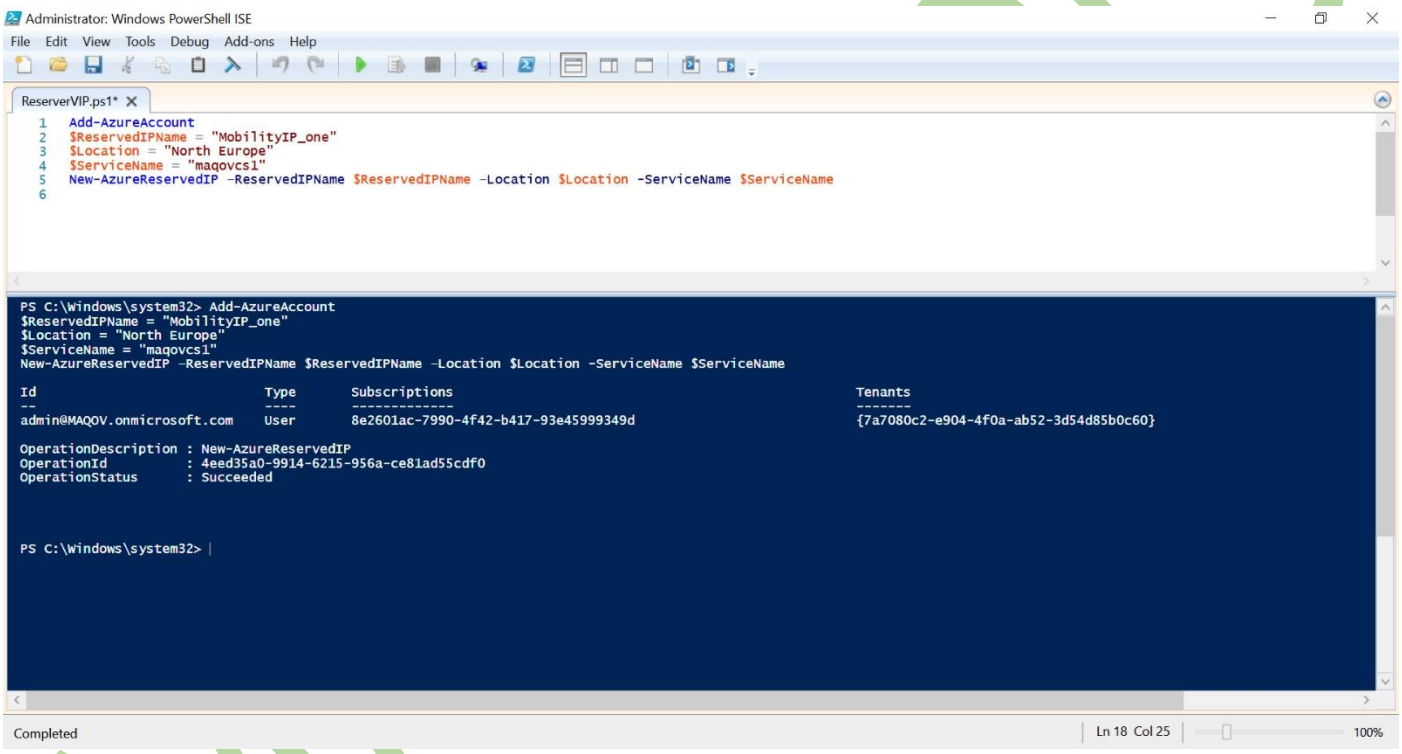
The exact cloud service, storage account, and virtual network with a static DIP.

So the next challenge is to reserve the current VIP to the running cloud service.

New Reserved IP to Existing Cloud Service

You can own these IP addresses for as long as you want in your subscription and also associate them with your Cloud Service Deployments in the region of the Reserved IP addresses. This new announcement is specifically focusing public facing IP addresses. The platform already supports reserving internal IPs, as described

```
Add-AzureAccount
$ReservedIPName = "MobilityIP_one"
$Location = "North Europe"
$ServiceName = "maqovcs1"
New-AzureReservedIP -ReservedIPName $ReservedIPName -Location $Location -ServiceName
$ServiceName
```



Congratulations now you can Shut down all the VMs inside this cloud service without losing the public IP.

Reference Links

https://azure.microsoft.com/en-us/documentation/articles/powershell-install-configure/

https://azure.microsoft.com/en-us/documentation/articles/cloud-services-powershell-create-cloud-container/

https://azure.microsoft.com/en-us/documentation/articles/storage-powershell-guide-full/

https://azure.microsoft.com/en-us/documentation/articles/virtual-machines-ps-create-preconfigure-windows-vms/

http://www.aidanfinn.com/?p=18951