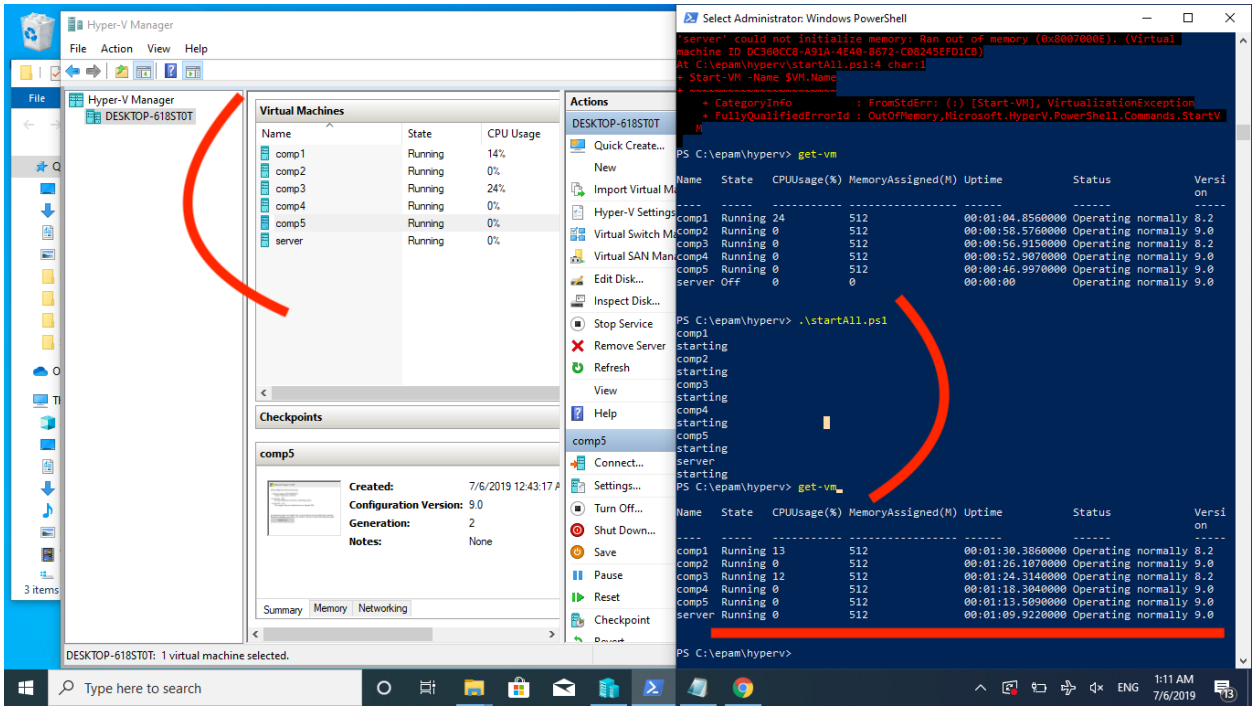
Dennis Tikhomirov. DevOps Spring'19.

Task 3. Hyper-V

1. Using the GUI, create the following VM without a network connection:
   - Windows 7 (comp1)
   - Windows Server 2016 (server)
   - Ubuntu 18.04 (comp2)
2. Using the PowerShell, create the following VM without a network connection:
   - Windows 7 (comp3)
   - Windows 10 (comp4)
   - Ubuntu 19.04 (comp5)

Screenshot #1. Hyper-V manager, deployed VMs



I have created bunch of scripts for managing VMs on Hyper-V host.

#1. List of VMs https://github.com/dennis00010011b/epam-devops-training/blob/master/Task3HyperV/VMs.xml

```
<?xml version="1.0"?>
<VMs>
    <VM>
        <Name>comp1</Name>
        <SourcePath>C:\ISOs\IE11.Win7.HyperV\Virtual Machines\106A06B0-0DE9-4997-A87C-
3760FFBEC837.vmcx</SourcePath>
        <IsImport>true</IsImport>
        <Memory>536870912</Memory>
        <VHDPath>./</VHDPath>
        <OS>Wni7</OS>
    </VM>

    <VM>
        <Name>comp2</Name>
        <SourcePath>C:\ISOs\ubuntu-18.04.2-desktop-amd64.iso</SourcePath>
        <Memory>536870912</Memory>
        <VHDPath>./</VHDPath>
        <OS>Ubuntu18.04</OS>
    </VM>

    <VM>
        <Name>comp3</Name>
        <SourcePath>C:\ISOs\IE11.Win7.HyperV\Virtual Machines\106A06B0-0DE9-4997-A87C-
3760FFBEC837.vmcx</SourcePath>
        <IsImport>true</IsImport>
        <Memory>536870912</Memory>
        <VHDPath>./</VHDPath>
        <OS>Wni7</OS>
    </VM>

    <VM>
        <Name>comp4</Name>
        <SourcePath>C:\ISOs\Win10_1809Oct_v2_English_x64.iso</SourcePath>
        <Memory>536870912</Memory>
        <VHDPath>./</VHDPath>
        <OS>Wni10</OS>
    </VM>

    <VM>
        <Name>comp5</Name>
        <SourcePath>C:\ISOs\ubuntu-19.04-desktop-amd64.iso</SourcePath>
        <Memory>536870912</Memory>
        <VHDPath>./</VHDPath>
        <OS>Ubuntu19.04</OS>
    </VM>

    <VM>
        <Name>server</Name>
        <SourcePath>C:\ISOs\Windows_Server_2016_Datacenter_EVAL_en-
us_14393_refresh.ISO</SourcePath>
        <Memory>1036870912</Memory>
        <VHDPath>./</VHDPath>
        <OS>Ubuntu19.04</OS>
    </VM>
</VMs>
```

#2. PS script for creating VMs https://github.com/dennis00010011b/epam-devops-training/blob/master/Task3HyperV/createVM.ps1

```
$VMName = $args[0]
$ISO = $args[1]
$Memory = $args[2]
$VHDPath = $args[3]
 $VM = @{
     Name = $VMName
     MemoryStartupBytes = $Memory
     Generation = 2
     NewVHDPath = "$VHDPath$VMName.vhdx"
     NewVHDSizeBytes = 53687091200

 }
 echo Creating $VMName $ISO $Memory $VHDPath
 New-VM @VM

 Add-VMDvdDrive -VMName $VMName -Path $ISO

 $firmw = Get-VMFirmvare $VMName
 Set-VMFirmvare -VMName $VMName -BootOrder $firmw.BootOrder[2]
```

#3. PS script for deploying VMs https://github.com/dennis00010011b/epam-devops-training/blob/master/Task3HyperV/deploy.ps1

```
[xml]$XmlDoc = Get-Content VMs.xml

foreach ($VM in $XmlDoc.VMs.VM) {
    if ($VM.isImport) {
    Import-VM -Path $VM.SourcePath -VhdDestinationPath $VM.VHDPath -Copy -
GenerateNewId
    }
    else{
   .\createVM.ps1 $VM.Name $VM.SourcePath $VM.Memory $VM.VHDPath
    }
}
```

#4. PS script for removing VMs https://github.com/dennis00010011b/epam-devops-training/blob/master/Task3HyperV/removeAll.ps1

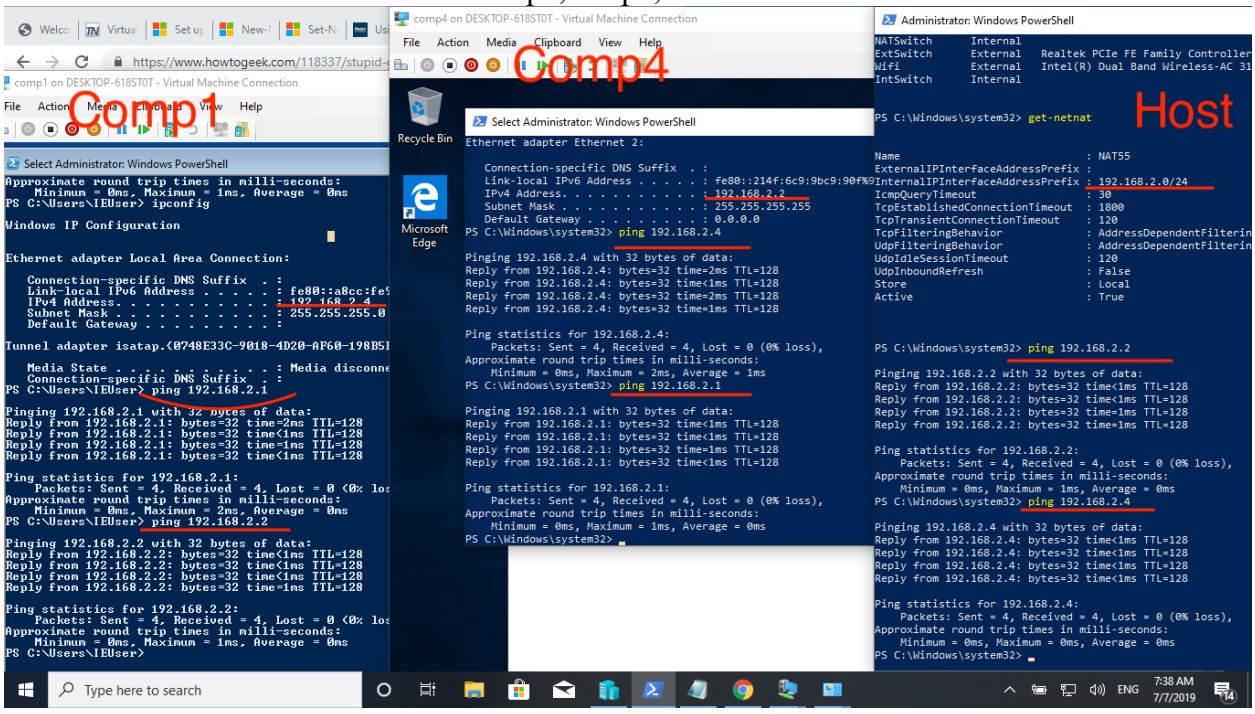
```
[xml]$XmlDoc = Get-Content VMs.xml
foreach ($VM in $XmlDoc.VMs.VM) {
    remove-vm $VM.Name -force
    if (-Not($VM.isImport)) {
        remove-item "$(Join-Path $VM.VHDPath $VM.Name).vhdx"
    }
}
```

3. Using the PowerShell for computers “comp1”, “comp4”, “comp5” configure NAT and Internet access

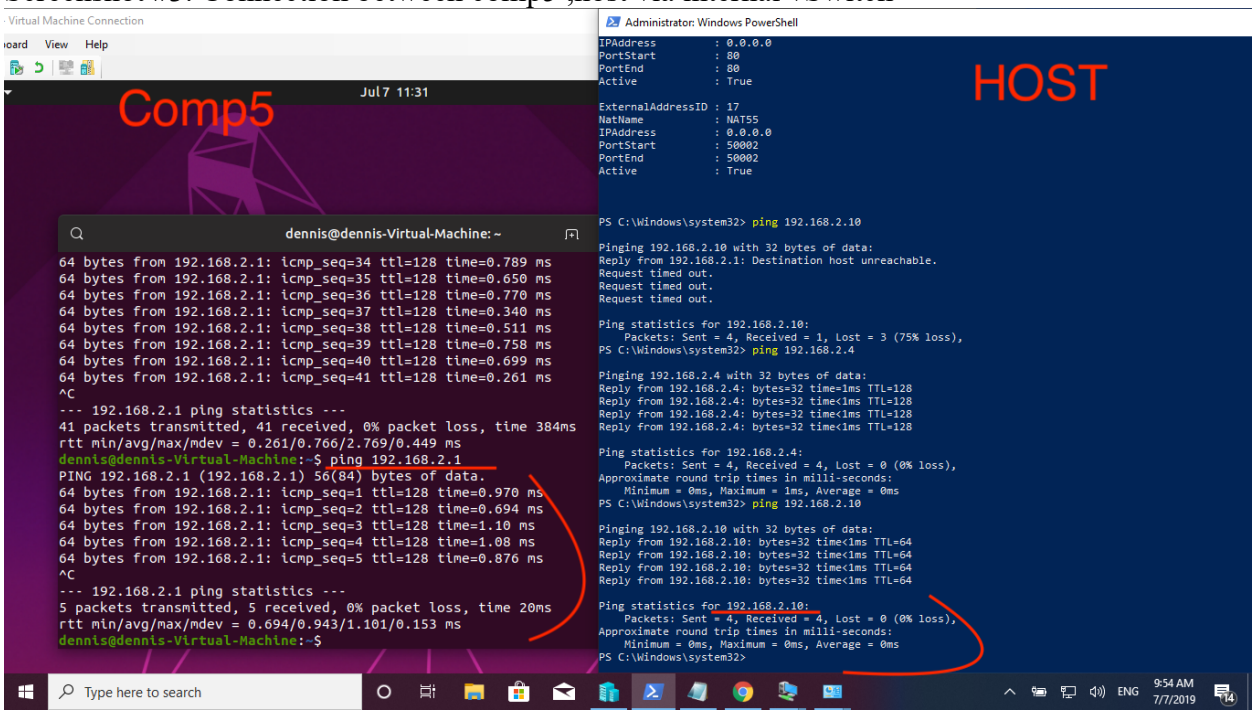
```
# Create internal vSwitch
new-vmswitch -SwitchName "IntSwitch" -SwitchType Internal

# Create IPGateway
new-netipaddresstIPAddress 192.168.2.1 -PrefixLength 24 -InterfaceAlias "vEthernet
(IntSwitch)"

#Create NAT network
new-netnat -name "NAT55" -InternalIPInterfaceAddressPrefix 192.168.2.0/24

#Connect VMs to vSwitch
connect-vmnetworkadapter -VMName comp1,comp4,comp5  -SwitchName IntSwitch

# set manually IPAdress on each VM
# for comp#4
new-netipaddress 192.168.2.2 -InterfaceAlias "Ethernet"

# for comp#1 (Windows7)
$adapter = Get-WmiObject win32_networkadapterconfiguration -filter “ipenabled =
‘true'”
$adapter.EnableStatic(“192.168.2.4”, “255.255.255.0”)

#for comp#5 (Ubuntu 19.04)
sudo ifconfig eth0 add 192.168.2.10 netmask 255.255.255.0
```

4. Check your settings from the command line (terminal)

Screenshot #2. Connection between comp1,comp2,host via internal vSwitch



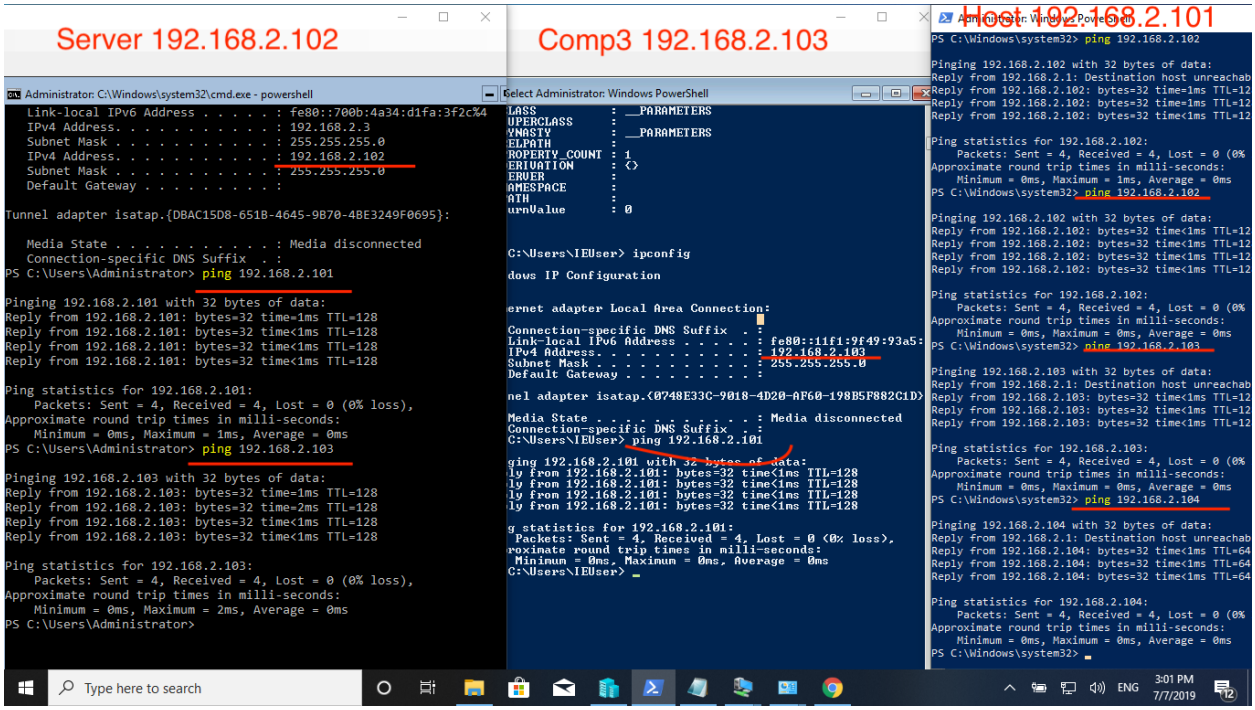
Screenshot #3. Connection between comp5 ,host via internal vSwitch



5. Using the PowerShell, add the remaining VM into a network by creating a new vSwitch New internal vSwitch is created, 192.168.2.101

```
# One more vSwitch
new-vmswitch -SwitchName "IntSwitch2" -SwitchType Internal
new-netipaddress -IPaddress 192.168.2.101 -PrefixLength 24 -InterfaceAlias "vEthernet
(IntSwitch2)"
connect-vmnetworkadapter -VMName comp2,comp3,server -SwitchName IntSwitch2

# set manually IPAdress on each VM
# for 'server' (Windows Server 2016)
new-netipaddress 192.168.2.102 -PrefixLength 24 -InterfaceAlias "Ethernet"

#for comp#2 (Ubuntu 18.04)
sudo ifconfig eth0 add 192.168.2.104 netmask 255.255.255.0

# for comp#3 (Windows7)
$adapter = Get-WmiObject win32_networkadapterconfiguration -filter “ipenabled =
‘true'”
$adapter.EnableStatic(“192.168.2.103”, “255.255.255.0”)
```

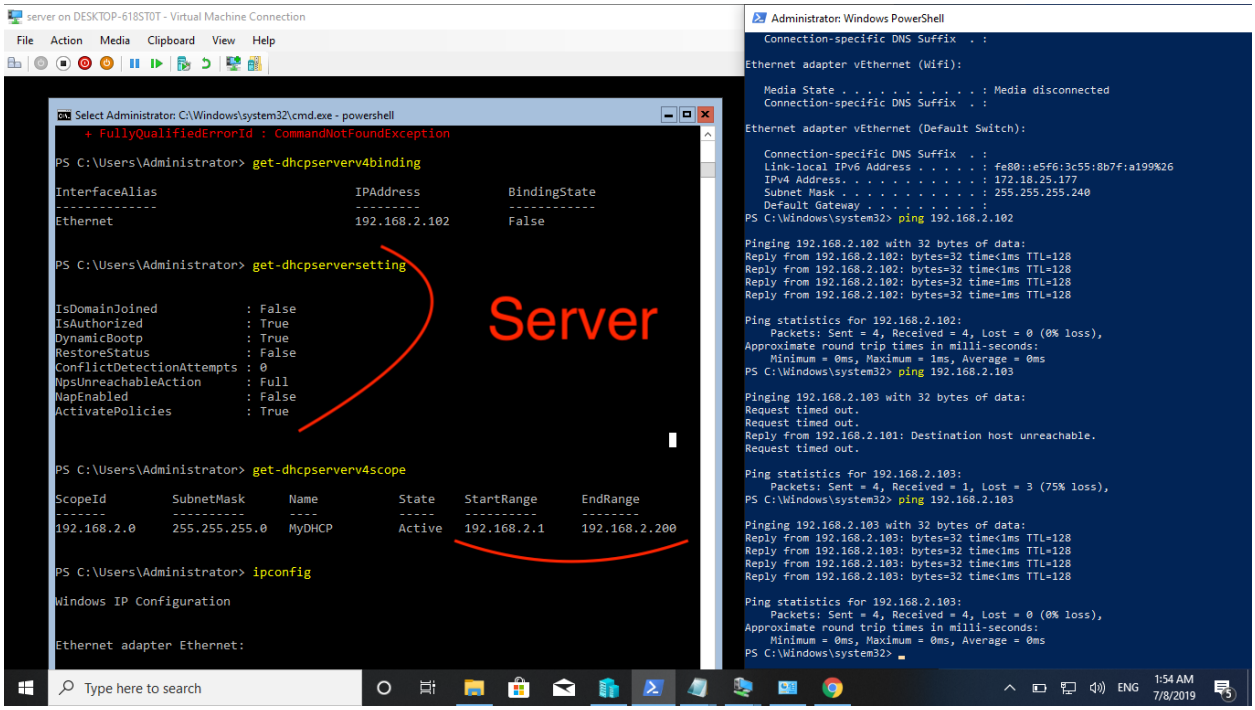
Screenshot #4. Connection between comp3,server, host via internal vSwitch



6. Configure DHCP on “server”

Screenshot #5. DHCP server configuration

```
# Install DHCP

Import-Module ServerManager
Add-WindowsFeature -name DHCP -IncludeManagmentTools

#Add Scope
Add-DHCPServerV4Scope -Name Pool1 -StartRange 192.168.2.1 -EndRange 192.168.2.200 -
SubnetMask 255.255.255.0 -State Active
```



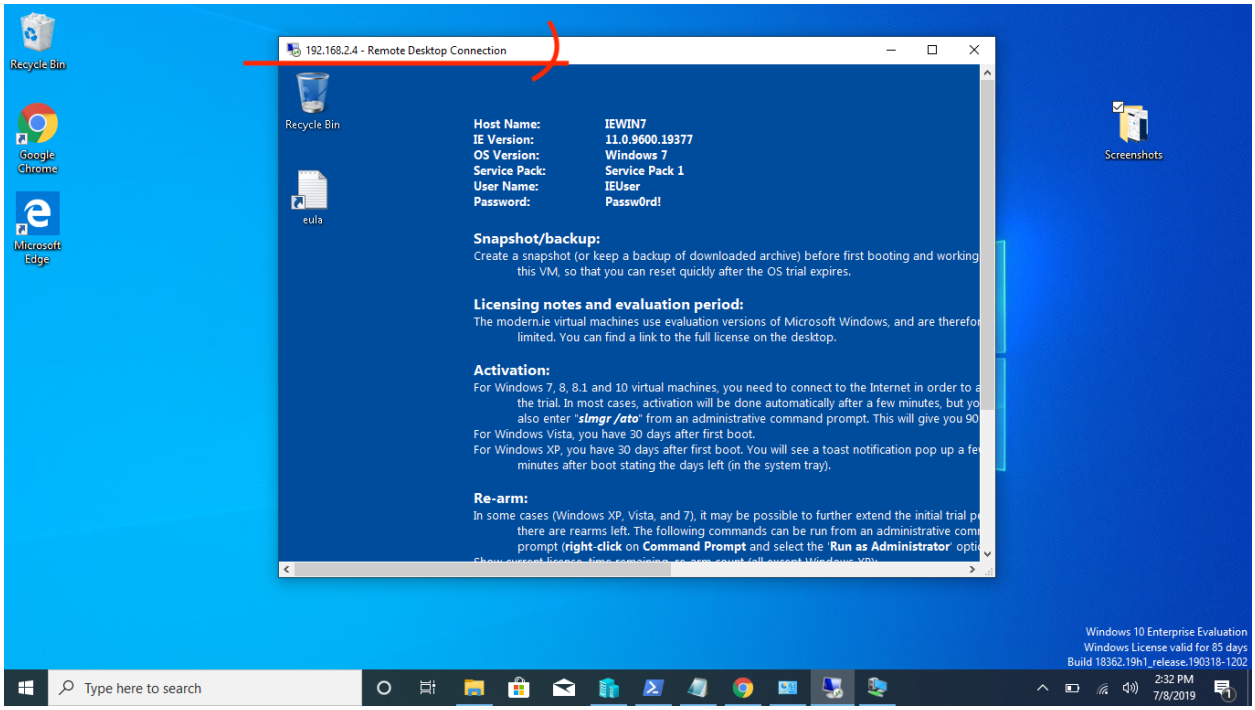
7. Configure the LAN and Internet access

8. Check your settings from the command line (terminal)

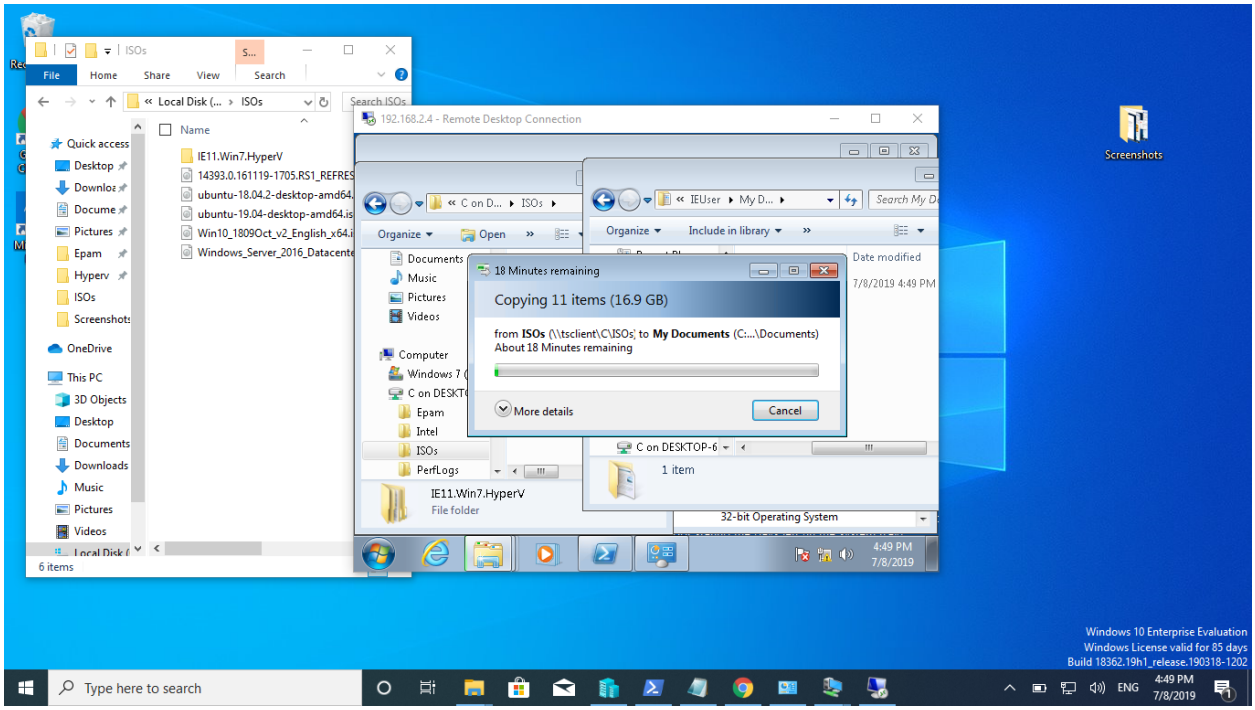
See screenshots above

9. Configure remote desktop connection to each VM

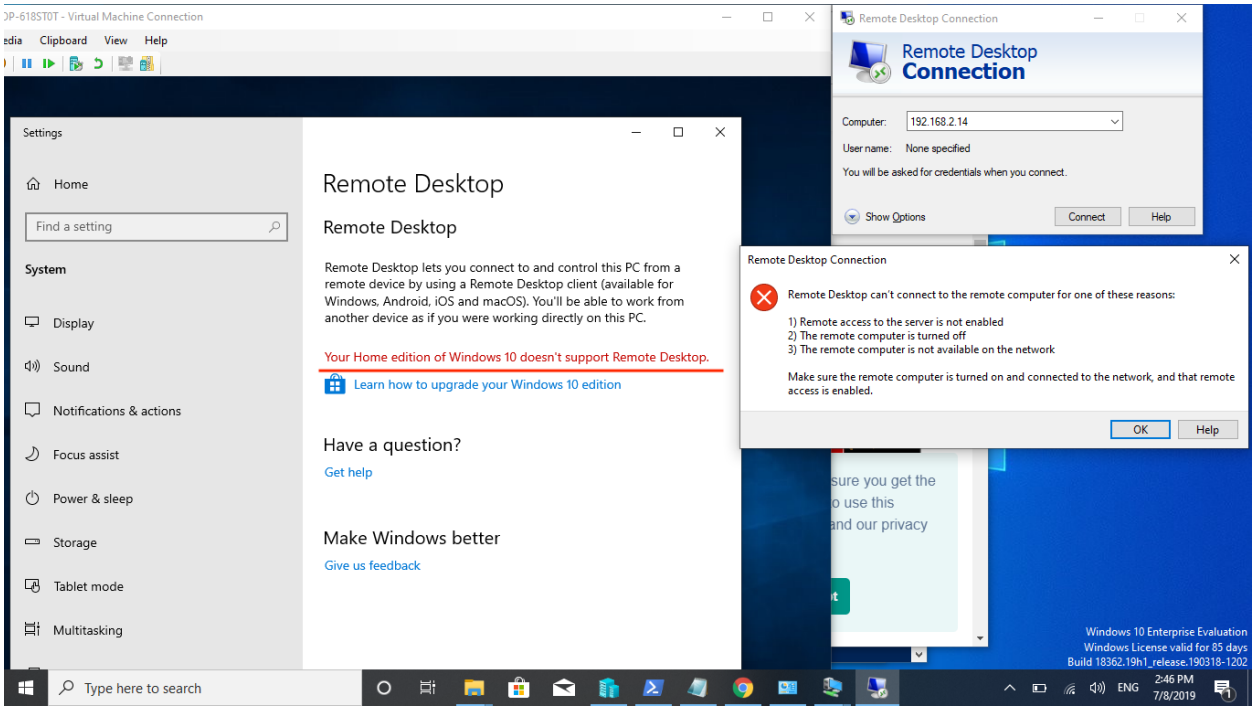
#Screenshot 6. Remote desktop connection to comp1 (Windows 7)



#Screenshot 7. File transfer via RDP between shared host's drive C and guest comp 1 (Windows 7)



#Screenshot 8. RDP is not supported for Windows10 Home(comp4)



10. On the VM "server" install Hyper-V, which install 2 VM with Windows 7 ("comp6" and "comp7")

I have no enough recourses for that

11. Demonstrate file transfer and editing from Host to Guest and back

See screenshot #7 above

12. Create a report with screenshots and attach script files that demonstrate the solution of tasks

See report above