**Azure Lab 2 – Building Workloads**

**Description:**  Azure virtual machines give you the flexibility of virtualization without spending the time and money to buy and maintain the hardware that hosts the virtual machine. However, you do need to maintain the virtual machine -- configuring, patching, and maintaining the operating system and any other software that runs on the virtual machine. In this lab you are going to deploy 2 virtual machines into Azure for the two workloads of identity and client. You will create these two virtual machines:

* A Domain Controller (DC01)
* Windows 10 desktop

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| Create DC01 Virtual Machine | |
|  | 1. On the Resource Groups blade, Click on your resource Group (WSUG-RG). 2. On the WSUG-RG resource group blade, Click the **Add** button. This will load the “Market Place”. 3. Search for or find Windows Server 2016 DataCenter. 4. Click on the Windows Server 2016 Datacenter then click Create. |
| **Basics** | 1. Name DC01 2. Username WSUGAdmin 3. Password Th!s!sMYPassW0rd |
| **Size** | 1. Click View all and choose **DS1\_V2 Standard.** 2. Then Click the **Select** button. |
| **Settings** | 1. Leave the defaults and Click **OK**. |
| **Summary** | 1. Click **OK**. |

Create DC01 Virtual Machine using PowerShell

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| PowerShell | |
| $VMName = "DC01ps"  $Cred = Get-Credential -Message "VM Admin Credentials" -UserName 'WSUGAdmin'  $VM = New-AzureRmVMConfig -VMName $VMName -VMSize "Standard\_DS1\_V2"  $VM = Set-AzureRMVMOperatingSystem -VM $VM -Windows `  -ComputerName $VMName -Credential $Cred `  -ProvisionVMAgent <# Install the VM Agent #>  $VM = Set-AzureRMVMSourceImage -VM $VM `  -PublisherName "MicrosoftWindowsServer" `  -Offer "WindowsServer" -SKUs "2016-Datacenter" `  -Version "latest"  $NICName = "DC01psNic01"  $PublicIP = New-AzureRmPublicIpAddress -Name $NICName `  -ResourceGroupName “WSUG-RGps” `  -Location “EAST US” -AllocationMethod Dynamic  $NIC = New-AzureRmNetworkInterface -Name $NICName `  -ResourceGroupName “WSUG-RGps” `  -Location “EAST US” -SubnetId $VNet.Subnets[0].Id `  -PublicIpAddressId $PublicIP.Id  $VM = Add-AzureRmVMNetworkInterface -VM $VM -Id $NIC.Id  $DiskName = "Server01Disk01"  $DiskURI = "{0}vhds/{1}.vhd" -f `  $StorageAccount.PrimaryEndpoints.Blob.ToString(), $DiskName  $VM = Set-AzureRmVMOSDisk -VM $VM -Name $DiskName -VhdUri $DiskURI `  -CreateOption FromImage  New-AzureRmVM -ResourceGroupName “WSUG-RGps” -Location “EAST US” -vm $VM | |
| Connect to your virtual Machine | | |
|  | 1. On the Resource Groups blade, Click on your resource Group (WSUG-RG). 2. Click on the Virtual Machine you created above. 3. On the upper menu click **connect**. This will download a .rdp file that you can save on your desktop. Launch this file and enter the username and password from above. | |

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| Setting up the Domain Controller – Adding Roles and DC Promo | |
| Add the AD DS role | 1. From Server manager, in the Configure this local server section, Choose **Add roles and features**. 2. Click **Next** of the “before you begin” page. 3. Click **Next** on the “Select installation type” page. 4. Click **Next** for the “Select Destination server”. 5. Place checkmark in front of **Active Directory Domain Services**. 6. On the Add Features… Page, Press the **Add Features** button. 7. Click **Next** on the Select server roles page. 8. Click **Next** on the Select Features Page. 9. Click **Next** on the Active Directory Domain Services page. 10. Click **Install** on the confirmation Page. 11. On the Installation progress screen. Press **Close.**   **Restart your Server** |
| DC Promo  Entering in “dcpromo” in a command prompt. Launches a “relocated message”.  ??  Why not just launch the Installation Wizard? | 1. Click on the Flag in the Toolbar. 2. Then click on **“Promote this server to a domain controller”** link. |
| Active Directory Domain Services Configuration Wizard.  The machine will automatically restart after the DCPromo. | 1. Choose “**Add a new Forest**”. 2. For the Root Domain name, Enter **Contoso.com.** 3. Leave the Functional Levels at the default and Enter **P@ssW0rd** for the DSRM password. 4. Press **Next.** 5. On the DNS options page, Click **Next**… (an error… “A delegation for this DNS server…” can be ignored. 6. Click **next** after verifiing the Netbios domain name. (CONTOSO). 7. Leave the folder locations alone…. And press **Next.** 8. Review the options and click **next**. 9. After the Prerequisites Check . Press **Install.**   After the machine reboots.. you will have a domain. |

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| PowerShell |
| Install-WindowsFeature AD-Domain-Services  Import-Module ADDSDeployment  Install-ADDSForest `  -CreateDnsDelegation:$false `  -DatabasePath "C:\Windows\NTDS" `  -DomainMode "WinThreshold" `  -DomainName "contoso.com" `  -DomainNetbiosName "CONTOSO" `  -ForestMode "WinThreshold" `  -InstallDns:$true `  -LogPath "C:\Windows\NTDS" `  -NoRebootOnCompletion:$false `  -SysvolPath "C:\Windows\SYSVOL" `  -Force:$true |

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| Create Windows 10 Virtual Machine | |
|  | 1. On the Resource Groups blade, Click on your resource Group (WSUG-RG). 2. On the WSUG-RG resource group blade, Click the **Add** button. 3. This will load the “Market Place” . 4. Search for or find Windows Server 2016 Technical Preview 5. |
| **Basics** | 1. Name WIN10 2. Username WSUGAdmin 3. Password Passw0rd! |
| **Size** | 1. Click View all and choose **D1\_V2 Standard**. 2. Then Click the **Select** button. |
| **Settings** | 1. Leave the defaults and Click **Next**. |
| **Summary** | 1. Click **OK**. |

When you created the Virtual machine above. There were three other objects created

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|  | Network Interface | this is the network interface for this machine that connects to the Virtual Network |
|  | Network Security Group | this is a firewall type object. You can create or modify rules just like a firewall. |
|  | Public IP Address | this is a public IP address, exposed to the internet |

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| PowerShell |
| $VMName = "WIN10ps"  $Cred = Get-Credential -Message "VM Admin Credentials" -UserName 'WSUGAdmin'  $VM = New-AzureRmVMConfig -VMName $VMName -VMSize "Standard\_DS1\_V2"  $VM = Set-AzureRMVMOperatingSystem -VM $VM -Windows `  -ComputerName $VMName -Credential $Cred `  -ProvisionVMAgent <# Install the VM Agent #>  $VM = Set-AzureRMVMSourceImage -VM $VM `  -PublisherName "microsoftvisualstudio" `  -Offer "windows" -SKUs "Windows-10-N-x64" `  -Version "latest"  $NICName = "WIN10psNic01"  $PublicIP = New-AzureRmPublicIpAddress -Name $NICName `  -ResourceGroupName “WSUG-RGps” `  -Location “EAST US” -AllocationMethod Dynamic  $NIC = New-AzureRmNetworkInterface -Name $NICName `  -ResourceGroupName “WSUG-RGps” `  -Location “EAST US” -SubnetId $VNet.Subnets[0].Id `  -PublicIpAddressId $PublicIP.Id  $VM = Add-AzureRmVMNetworkInterface -VM $VM -Id $NIC.Id  $DiskName = "WIN10ps"  $DiskURI = "{0}vhds/{1}.vhd" -f `  $StorageAccount.PrimaryEndpoints.Blob.ToString(), $DiskName  $VM = Set-AzureRmVMOSDisk -VM $VM -Name $DiskName -VhdUri $DiskURI `  -CreateOption FromImage  New-AzureRmVM -ResourceGroupName “WSUG-RGps” -Location “EAST US” -vm $VM |

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| Set up a custom DNS | |
| You can find the internal IP address for your domain controller on its network interface object | 1. On the Resource Groups blade, Click on your resource Group (WSUG-RG). 2. Click on the Network Interface for the machine you created above. 3. This will expand the Network interface blade, and a settings blade. 4. On the Settings blade, Select **DNS Servers**. 5. This will expand a DNS Servers blade. 6. Choose Custom DNS and enter your domain Controllers IP address as the Primary DNS Server. (10.0.0.4) 7. Click into the secondary DNS Server for the Save button to light. Click on the **Save** button on the upper menu.   **Note: When I closed this blade…. I kept getting errors saying “unsaved edits will be discarded”.**   1. Close blades until you are back to your resource Group. |

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| PowerShell |
| $DCIP = (Get-AzureRmNetworkInterface -ResourceGroupName 'WSUG-RGps' `  -name DC01psNic01 | Get-AzureRmNetworkInterfaceIpConfig).PrivateIpAddress  $nic = Get-AzureRmNetworkInterface -name win10psnic01 `  -ResourceGroupName wsug-rgps  $nic.dnssettings.dnsservers.add($DCIP)  $nic | set-azurermnetworkInterface |

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| Restart your Windows 10 Virtual Machine | |
|  | 1. On the Resource Groups blade, Click on your resource Group (WSUG-RG). 2. Click on the Virtual Machine you created above. (Win10) 3. On the upper menu click **restart**. |

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| Connect to your Windows 10 virtual Machine | |
|  | 1. On the Resource Groups blade, Click on your resource Group (WSUG-RG). 2. Click on the Virtual Machine you created above. (Win10) 3. On the upper menu click **connect**. This will download a .rdp file that you can save on your desktop. Launch this file and enter the username and password from above. |

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| Join Windows 10 machine to the domain | |
|  | 1. Start ->Settings->System->About. 2. Click on Join a Domain. 3. Enter the name of the domain you want to join (Contoso.com) and click **Next**. 4. Enter the account information to authenticate the user on the domain. 5. Click **ok.** 6. Click **Next**. 7. Click **Restart Now**. |