**Lab Number: 9 Hyper-V VM’s**

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| **Section**  **Summary** | Section 9: Managing VMsGoals  * Create a Linux virtual machine (VM) using Hyper-V manager * Create a VM Checkpoint * Replicate the VM * Configure and perform a Live Migration of a VM * Create a VM template using Sys prep utility  Implementation steps  1. Ensure your Virtual machine settings have Intel-VT or AMD-V Virtualisation extensions enabled 2. Use Server Manager to install the Hyper-V server role on both servers    * Link to physical network adapter 3. May need to reset manual IP addresses of servers after Hpyer-V manager installation 4. Create an external virtual switch that is bridged to the physical network card using Hyper-v manager if not done by default 5. Create a Generation 2 virtual machine (VM) using Hyper-v manager    * Connect to your external virtual switch    * Use a Linux ISO file (free download) e.g. Tiny core or Ubuntu 6. Change some settings on the Linux VM and create a VM Checkpoint using Hyper-v manager 7. Replicate the VM on to the other server WS1 using Hyper-v manager    * Enable WS2 as a Replica server in the Hyper-V settings of the VM (Replication configuration)      1. User Kerberos (HTTP) authentication on port 80      2. Use default path to specify a location to store replica files    * On WS1:      1. Select enable replication on the VM in Hyper-V manager      2. Choose the WS2 replica server      3. Specify the replication frequency to be 15 minutes      4. Maintain only the latest recovery point (24 hours)      5. Send initial copy over the network 8. Configure and perform a Live Migration of a VM from WS2 to WS1    * Start the VM on WS2    * Add the Microsoft Virtual System Migration Service to the AD computer properties of WS2    * Enable incoming and outgoing live migrations in the Hyper-V settings of the VM    * Add IP address of both servers    * Ensure the firewall allows this service    * Create folder on WS1 where the VM will be transferred to    * Restart WS1    * On WS1 choose the Move option and choose the option to move to a single location 9. Create a VM template    * Install Sys prep utility (out of box experience, reboot)    * Export the VM in Hyper-V manager and save template to specific location    * Create a VM based on that template |
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| 1 | Cannot configure nested Virtualization for the VM. We must make sure nested virtualization is enabled before configuration.    Now that nested virtualization is enabled using the powershell command in the problems section, we can continue to install Hyper-V feature on the server. |
| 2 | Make sure the server is connected to the physical network adaptor for the network to communicate between the windows server and the VM. This the virtual switch vSwitch (VM use Only) we configured at the start of LAB 1. |
| 3 | Some NIC’s may be affected by the installation of Hyper-V and must be reconfigured. |
| 4 | Bridged switch created automatically by Hyper-V on installation. |
| 5 | Create a new generation 5 virtual machine using hyper v    Connect the VM to the bridged switch    VM is created without OS, we will deploy it with a Linux OS. |
| 6 | Unfortunately the laptop does not have enough memory to sustain WS1, WS2 and nested virtual machines. We will have to increase the memory on WS1 to allow the VM to start. We will skip the configuration of the image, but we can still continue to replicate the VM by creating a checkpoint and replicating it to WS2.    Lets create the checkpoint for the nested virtual machine on WS1, and then install Hyper-V on WS2. |
| 7 | We setup Hyper-V on WS2 and can now add now point both servers at each other in Hyper-V.    Configure WS2 as a replication server with Kerberos authentication over http port 80.    Allow replica from ws1.raine.com    Enable replication for Nested Virtual Machine to the WS2 server.    Replication has been enabled successfully.    The VM is immediately replicated, this is a good way to provide High Availability and Risk Management. |

List At the three most useful Internet resources that you used (provided by the tutor)

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| * Create virtual switch * <https://www.youtube.com/watch?v=cGlrw4P-VUQ> |
| * Create VM in Hyper-V manager * <https://www.youtube.com/watch?v=_liDPu7zz3I> |
| * Create Checkpoint * <https://www.youtube.com/watch?v=ZioPE02_j1w> |

List all (at least three) Internet resources that you found and used that were not provided by the tutor)

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| <https://www.youtube.com/watch?v=HyAmfRXp6hc> |
| <https://www.youtube.com/watch?v=zD1ua3wQlRs> |
| <https://www.youtube.com/watch?v=mPQF2PhkA_0> |

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| Problem | Solution |
| Nested virtualization is not configured | Running the command on the VM for Hyper-V to enable nested virtualization. |
| Some virtual NIC’s will be reset when Hyper-V is installed | Reconfigure the static IP addresses of each virtual switch / NIC to repair the network. |