# VMware Migration Plan

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## Reviewers

| Date | Rev | Author | Comments | Reviewer |
|---|---|---|---|---|
| **2-March-2019** | **v0.1** | **Nawal Singh** | **V2V Migration plan** | |
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# 1 Introduction

## 1.1 Purpose

The tasks and procedures contained within this document are focused on the migration of *xyzCompany* Cluster 01 and Cluster 02 existing virtual servers from *CompanyName* owned Virtual platform to the *CompanyName* owned Virtual Platform as part of 2019 refreshment program.

## 1.2 Audience

The following document is intended for:

- IT & Application Team
- VMware Team
- Wintel Team
- SQL Team

## 1.3 Scope

The scope covers the following areas as example.

- Migration of (cluster 01 and Cluster 02) virtual machines from existing Virtual platform to another Virtual Platform.
- Upgrading of all virtual machines to the latest VMware Tools Version If required.
- Upgrading of all virtual machines to the latest VM hardware Version if required.
- Decommission Cluster 02 and Cluster 02
- Storage reclamation from cluster 01 and Cluster 02
- Configure SDRS on new virtual platform to balance the capacity.
- SAN Team will provision LUNs xyz TB for Cluster 01 and xyz TB for cluster 02 in virtual platform.

## 1.4 Assumptions

| ID | Assumption |
|---|---|
| A001 | VMware Converter will be the primary tool used for the migration of virtual machines from one virtual platform to another VMware virtual platform environments. |
| A002 | Virtual machines will be powered off for the duration of the migration. |

## 1.5 Constraints

If any you can write here……

## 1.6 Risks

If have any risk you can write here……

# 2 Migration Plan

## 2.1 Virtual Machines (V2V)

Virtual machines will be migrated from existing virtual platform to another virtual platform using VMware Standalone vCenter Converter. To maintain backward compatibility between exiting virtual platform and new virtual platform. VMware Converter 5.5 and 6.0 will be used to migrate the virtual machines from xyz owned to xyz owned VMware virtual platform.

When using VMware Converter 5.5 or 6.0, additional steps will be including to upgrade VMware Tools and VMware Virtual Hardware to the latest versions if required. These procedures are outlined in the sections below.

### 2.1.1 Backup

A full VM based backup should be performed prior to migration to allow the restoration of virtual machines to their original source environment should a rollback be required.

### 2.1.2 Resizing Virtual Machines

Right-sizing is not part of this program nor in scope. If have part of scope you can write here.

### 2.1.3 VMware Tools

Virtual machines migrated from the existing virtual platform 5.5 or 6.x environment will be set to power-on at destination and will upgrade VMware tools if required.

### 2.1.4 VMware Virtual Hardware

Virtual machines configured with VM Hardware version 7, 8 ,10 and 11 will lose their network settings when upgraded to new virtual hardware. As a work around to this issue, a scripted procedure will be performed prior to upgrade to backup of the existing NIC configuration to a local text file. After upgrading the virtual hardware, the legacy NIC will be removed and the NIC configuration restored to the new NIC.

Virtual machines configured with VM Hardware version 10 or later are not impacted by the NIC configuration changes.

### 2.1.5 Resizing Local Disk Storage

Right-sizing is not part of this program nor in scope. If have part of scope you can write here.

### 2.1.6 MAC Address Change

In the VMware Infrastructure running any applications based on MAC binding will required to get new licence file from vendor with new MAC address (post migration) to get the license tool work correctly. Why VM MAC address change at destination site as where the network labels will not match between the old and new environment, you will need to manually re-IP the VM because it treat the VM in the new environment connection to the switch as a new vNIC

# 3 Migration Procedures

## 3.1 Virtual Machines (V2V)

### 3.1.1 VMware vCenter Standalone Converter

#### 3.1.1.1 VMware vSphere 5.x and 6.x

The following table outlines the steps to perform a virtual machine migration from one virtual platform to another virtual platform using VMware vCenter Standalone Converter.

| Step | Task | Completed |
|---|---|---|
| 1. | Ensure full VM backup has completed successfully. | |
| 2. | Open command prompt and run the command netsh interface ip dump > c:\netdetails.txt<br>Also dump the ipconfig /all > c:\ipconfig.txt (as a backup of all the IPs) | |
| 3. | Before proceeding to migrate, login with elevated account and add a local admin account called “vmwareadmin” (password: Vmware@dmin)<br><br>We will need this account to re-IP the VM (if you cannot login with local admin account)<br><br>Everything good post migration will delete the “vmwareadmin” account | |
| 4. | Shutdown source virtual machines. | |
| 5. | Log on to the VMware Converter 5.5 or 6.x console and select **‘Convert machine’** | |
| 6. | Select source type **‘VMware Infrastructure virtual machine’**<br>Enter the server name or IP address of the source system.<br>**VCS01.domain. local / 192.168.1.1**<br>Enter administrator credentials to connect to the source system. | |
| 7. | Select the Source virtual machine | |
| 8. | Select destination type **‘VMware Infrastructure virtual machine’**<br>Enter the server name or IP address of the destination system.<br>**VCS02.domain.local / 192.168.1.2**<br>Enter administrator credentials to connect to the destination system. | |
| 9. | Select the destination datacentre or folder for the virtual machine | |
| 10. | Select the destination cluster and datastore for the virtual machine.<br>Keep **‘Virtual Machine version’ Default** | |
| 11. | Select **Data to Copy** Option and Click **Edit**, under virtual disk type select **Thin** along with the destination datastore (previously selected). | |

| | | |
|---|---|---|
| 12. | For virtual machines NIC setting as follows;<br>Select **Networks Option**<br>Click **Edit** and assign amount of vNICs, appropriate VLANs under Network Type and assigned to them, for the VM and change Controller Type **VMXNET3** | |
| 13. | Select Advanced Options<br>Select **'Power on destination machine'**<br>Select **'Upgrade VMware tools'** if needed | |
| 14. | Review the Summary and click on **Finish** | |
| 15. | Track the job progress in vCenter converter Console | |
| 16. | Verify Completion. | |
| 17. | Once the migration has completed and the VM has been powered on;<br>Right click the VM and select **'Open Console'**<br>Log on to the VM as the Local Administrator or either vmwareadmin | |
| 18. | Remove Ghost NIC<br>Open a command window (as Administrator) and run the following; make the ghosted network adapter visible in the Device Manager and uninstall the ghosted network adapter<br>**set devmgr_show_nonpresent_devices=1**<br>**start devmgmt.msc** | |
| 19. | From the Device Manager menu select **'View > Show Hidden Devices'**<br>Expand **Network Adapters**<br>Right click the greyed-out network adapters and select **Uninstall**<br>Once all the grayed out NICs are uninstalled, assign the IP address to the virtual NIC. | |
| 20. | For restoring the IP address back, login with the local admin account and type the below in command prompt<br>**netsh -c interface -f c:\netdetails.txt**<br>Note – After replacing the VMXNET3 adaptor, please ensure the Network adapter interface name (Local area Connection 4) should match as in step 2. If NOT, modify the netdetails.txt to match the adaptor type. | |
| 21. | Validate the IP setting of all NICs with the "ipconfig.txt" to confirm all IPs are configured correctly. | |
| 22. | Rename the NICs to Prod and (Backup) | |
| 23. | Confirm the NIC binding. Prod NIC must be the first in the list and (Backup) must be second | |
| 24. | | |

### 3.1.2 LUNs Allocation & VMware Datastores Creation

The following table outlines the steps to perform for storage allocation and datastores creation.

| Step | Task | Completed |
|---|---|---|
| 1. | **From VMAX**: SAN team will allocate LUNs to Cluster (Cluster name) | |
| 2. | Create THIN devices | |
| 3. | Add devices into meta data devices | |
| 4. | Bind meta devices of to THIN POOL (TIER1_2TB) | |
| 5. | Add meta devices to storage group (SG_01) | |
| 6. | Add meta devices to FAST Pool (FastVP_SG_01) | |
| 7. | Open the vSphere Web Client and connect to **VCS01.domain. local** and **VCS02.domain. local** | |
| 8. | Connect to the **CLUSTER_01 and CLUSTER_02** cluster within the Datacentre | |
| 9. | Right click the cluster and select **Rescan for Datastores** | |
| 10. | Check **Scan for New Storage Devices** and **Scan for New VMFS Volumes** | |
| 11. | Select a host within the cluster and click on the **Configuration** tab | |
| 12. | Select **Storage** > **Add Storage** | |
| 13. | Select **Disk/LUN** | |
| 14. | Select the desired LUN | |
| 15. | Select **VMFS-5** or **VMFS-6** as the file system version | |
| 16. | Provide a name for each datastore. Datastore names according to company standard | |
| 17. | Once formatted, Storage vMotion the virtual machines to the new datastore(s). | |

### 3.1.3 Post Implementation

| Step | Task | Completed |
|---|---|---|
| 1. | Login to each VM and review the VM configurations | |
| 2. | Ensure VM tools are up to date on target | |
| 3. | Ensure VMware Hardware up to date | |

| | | |
|---|---|---|
| 4. | Review the VM network configurations | |
| 5. | Intel team test network connectivity to ensure the migrated VMs working as expected. | |
| 6. | Intel team Check the RDP connection to make sure VMs are accessible. | |
| 7. | SQL Team validate the SQL database VMs | |
| 8. | Application team validate the servers from application prospective. | |
| 9. | Middle ware team validate the supported servers and application if applicable. | |
| 10. | Will send email for each group of VMs that migrated successfully. | |
| 11. | Remove the vmwareadmin account post completion. | |

## 4 Appendix A: Virtual Machines Target List as Example

| Group Name | VM | CPUs | Memory | NICs | Disks |
|---|---|---|---|---|---|
| Group A | VM01 | 4 | 20480 | 2 | 6 |
| | VM02 | 2 | 16384 | 2 | 5 |
| | VM03 | 6 | 20480 | 2 | 5 |
| | VM04 | 4 | 16384 | 2 | 6 |
| | VM05 | 6 | 20480 | 2 | 3 |
| | VM06 | 2 | 16384 | 2 | 3 |
| | VM07 | 2 | 16384 | 2 | 3 |
| | VM08 | 2 | 16384 | 2 | 5 |
| | VM09 | 2 | 16384 | 2 | 3 |