

# Migration Assessment Report

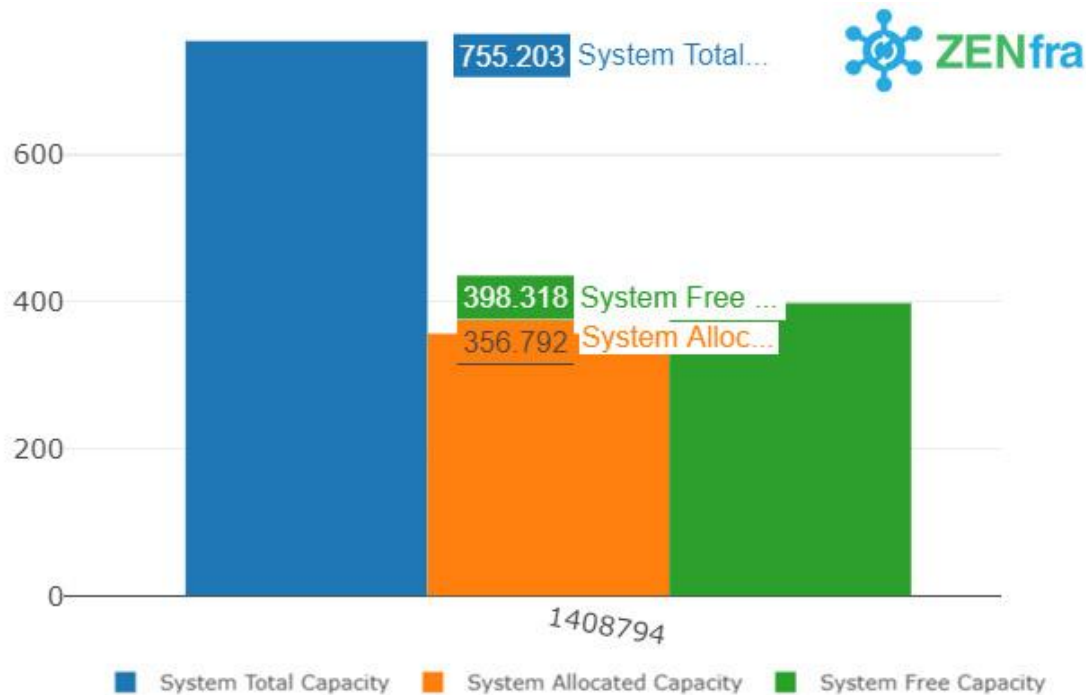
## Customer-Name



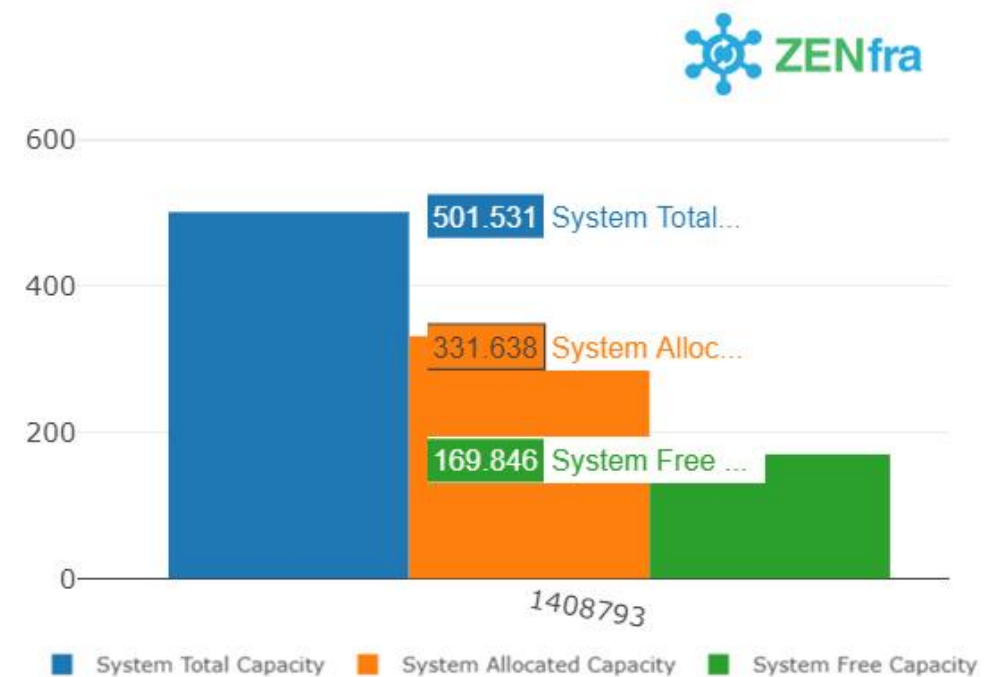
# Array Summary

| Account Name            | Customer Name     |                                |
|-------------------------|-------------------|--------------------------------|
| Data Center Location    | LOCATION          |                                |
| Source Storage Array(s) | 2 x HP 3PAR 10800 | (DC-1 - Serial, DC-2 - Serial) |
| Target Storage Array(s) | 2 x FA-X70R3-2A   | (Serial, Serial)               |

## Source Array Summary (TB)



DC-1



DC-2

# Host Summary

| Host Type            |                    | Total Count |
|----------------------|--------------------|-------------|
| Total Physical Hosts |                    | 145         |
| Linux                | (Physicals)        | 6           |
| Hyper- V             | (Hosts)            | 27          |
| Hyper- V             | (Virtual Machines) | 137         |
| VMware               | (Hosts)            | 43          |
| VMware               | (BootLUNs)         | 15          |
| VMware               | (Virtual Machines) | 685         |
| Windows              | (Physicals)        | 50          |
| Solaris              | (Physicals)        | 4           |

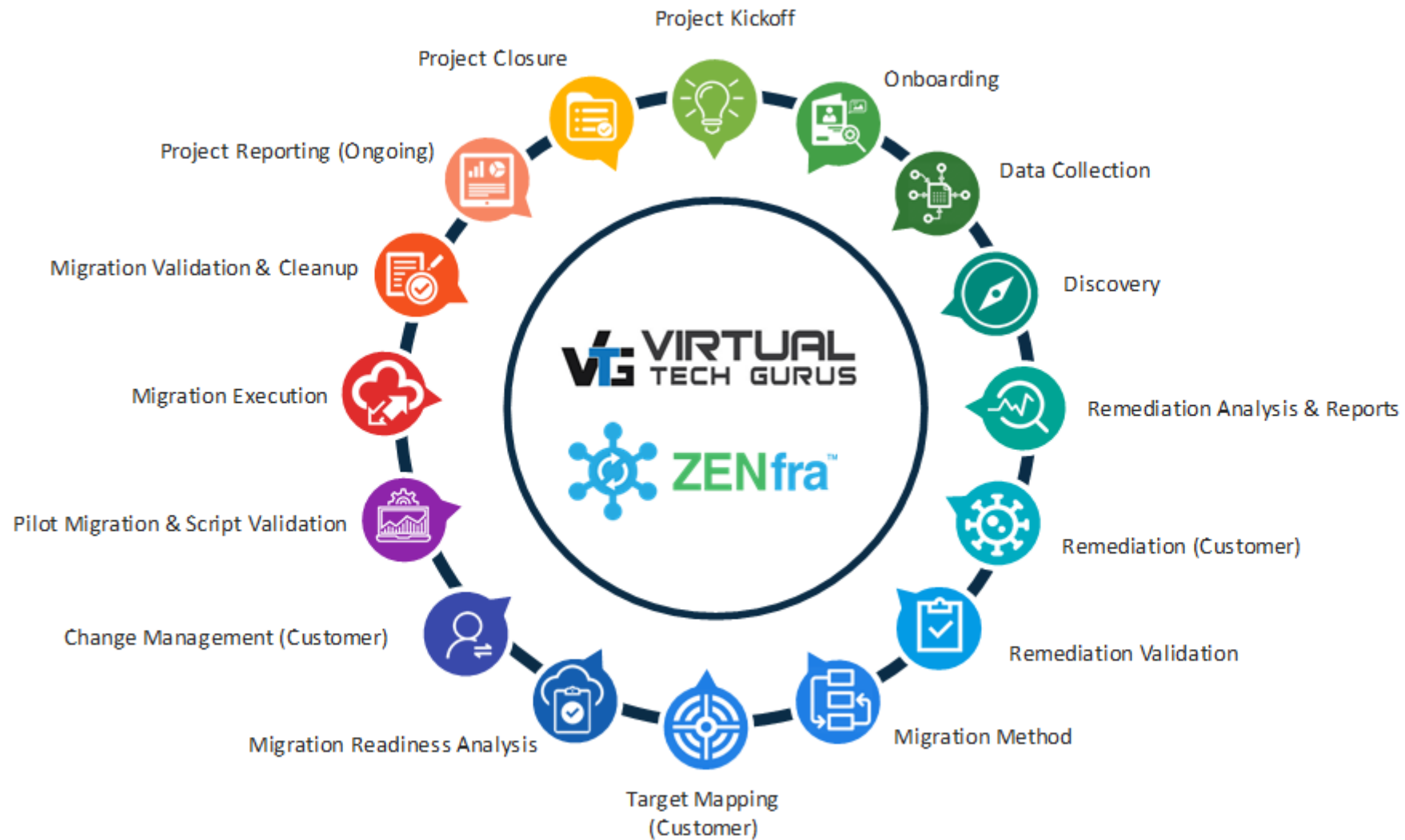
# SAN Switch Summary

| Account Name          | Customer Name  |             |                      |             |
|-----------------------|--|-------------|----------------------|-------------|
| SAN Switches          | 4 SAN Switches in <b>DC-1</b><br>2 SAN Switches in <b>DC-2</b> |             |                      |             |
| SAN Switch Names      | <b>Fabric A</b>  |             | <b>Fabric B</b>      |             |
|                       | <b>DC-1</b>  | <b>DC-2</b> | <b>DC-1</b>          | <b>DC-2</b> |
|                       | Switch1a<br>Switch1b   | Switch2a    | Switch1c<br>Switch1d | Switch2b    |
| SAN Fabric OS version | v7.4.2d  |             |                      |             |
| SAN Kernel version    | 2.6.14.2   |             |                      |             |

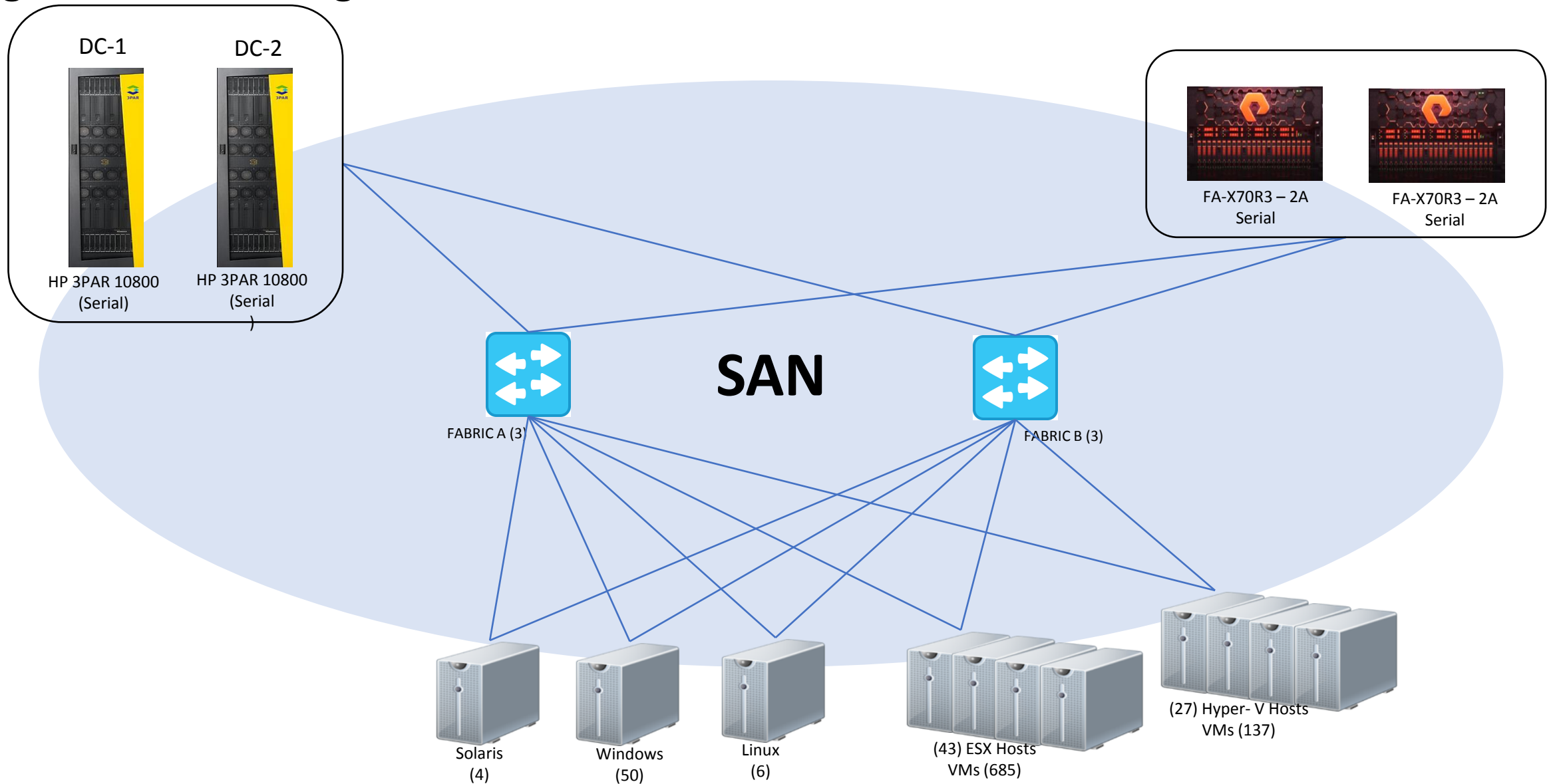
## Port Summary

| Switch Name        | Total # of Ports | Total # of Online Ports | Total # of Unused Ports |
|--------------------|------------------|-------------------------|-------------------------|
| xxxx               | 224              | 86                      | 138                     |
| xxxx               | 224              | 94                      | 130                     |
| xxxx               | 224              | 57                      | 167                     |
| xxxx               | 224              | 59                      | 165                     |
| xxxx               | 224              | 99                      | 125                     |
| xxxx               | 224              | 102                     | 122                     |
| <b>Grand Total</b> | <b>1344</b>      | <b>497</b>              | <b>847</b>              |

# Migration Project Flow



# High Level SAN Diagram



# VMware Discovery

| Environment                            | Storage Statistics  |
|--|---|
| Number of vCenters                     | 4   |
| Number of ESX Clusters                 | 9   |
| Number of ESX Hosts                    | 43  |
| Number of ESX BOOTLUNs                 | 15  |
| Number of VMs                          | 685   |
| Number of Powered On VMs               | 637   |
| Number of Powered Off VMs              | 48  |
| Storage Provisioned in TB              | ~272 TB   |
| Average hosts per ESX cluster          | 4   |
| Consolidated Ratio VM to Physical Host | 17:1  |
| ESX Version(s)                         | 38 * VMware ESXi 6.0.0<br>2 * VMware ESXi 6.5.0<br>2 * VMware ESXi 5.1<br>1 * VMware ESXi 5.5 |

## Compatibility

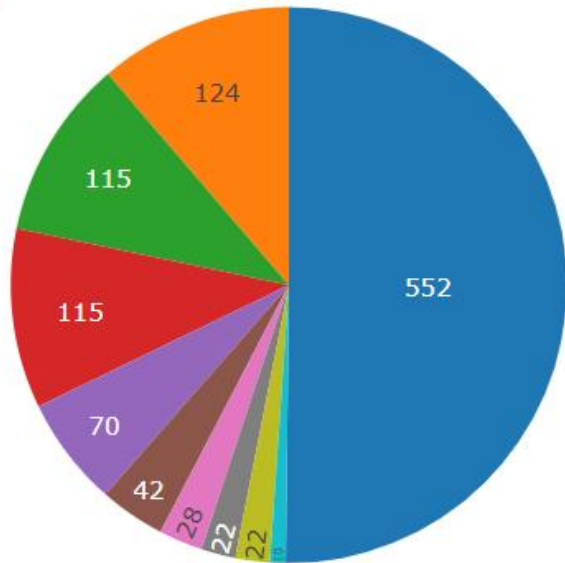
- Supported ESX Versions are 5.5, 6.0 and above

## Remediation Required

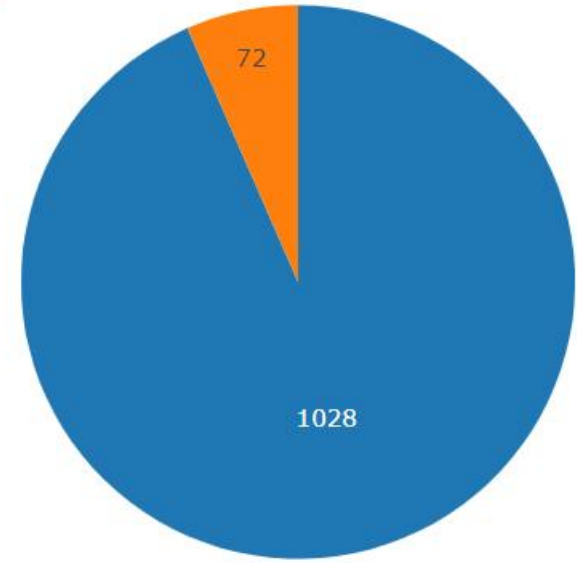
- 3 ESX Hosts were not in VTG Scope since it has no 3Par Array Connected Host Names are attached here
- No Host Remediation Required
- No HBA Remediation Required

# VMware Discovery Summary

Clusters

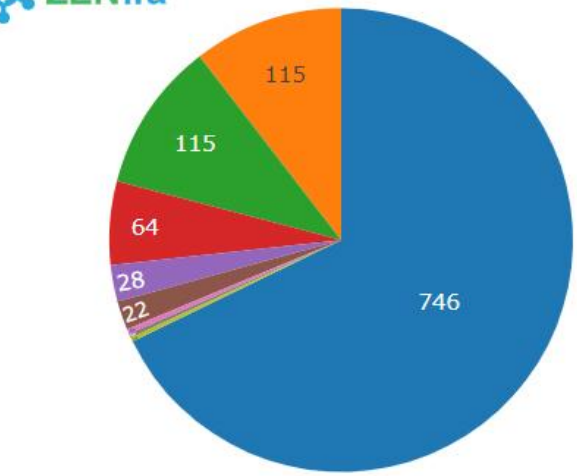


Power State of VMs



■ poweredOn ■ poweredOff

ESX Host Versions



- VMware ESXi 6.0.0 build-6921384
- VMware ESXi 6.0.0 build-10719132
- VMware ESXi 6.0.0 build-7967664
- VMware ESXi 5.5.0 build-2456374
- VMware ESXi 5.1.0 build-1612806
- VMware ESXi 6.0.0 build-3620759
- VMware ESXi 6.5.0 build-14320405
- VMware ESXi 5.1.0 build-1483097

Migration Method(s)

| Migration Method                          | VM counts | Service Impact | Description  |
|---|-----------|----------------|--|
| Storage vMotion                           | 650       | Non-Intrusive  | A component of VMware vSphere that allows the live migration of a running virtual machine's (VM) file system from one storage system to another, with no downtime for the VM or service disruption for end users. This migration occurs while maintaining data integrity |
| Offline Storage Migration (RDM Migration) | 35        | Intrusive      | The Raw LUN can be migrated or converted to VMDK if the account accepted the conversion approach. We can also use host-based migration methods to migrate Raw-Raw LUN Migration. The migration method vary based on host/VM Guest operating system                       |



| Environment              | Overall Statistics   | Summary Charts |
|--------------------------|--|----------------|
| Windows                  | <b>989</b><br><b>Windows</b><br>456 Microsoft Windows Server 2012 (64-bit)<br>261 Microsoft Windows Server 2008 R2 (64-bit)<br>219 Microsoft Windows Server 2016 (64-bit)<br>22 Microsoft Windows Server 2003 Standard (64-bit)<br>10 Microsoft Windows 7 (64-bit)<br>8 Microsoft Windows Server 2003 Standard (32-bit)<br>8 Microsoft Windows Server 2008 (32-bit)<br>2 Microsoft Windows 2000 Server<br>2 Microsoft Windows Server 2003 Web Edition (32-bit)<br>1 Microsoft Windows Server 2008 (64-bit) |                |
| Linux                    | <b>74</b><br><b>Linux</b><br>21 Red Hat Enterprise Linux 6 (64-bit)<br>21 Red Hat Enterprise Linux 7 (64-bit)<br>8 Other Linux (64-bit)<br>6 Red Hat Enterprise Linux 5 (64-bit)<br>5 SUSE Linux Enterprise 11 (64-bit)<br>3 Other 3.x or later Linux (64-bit)<br>3 Ubuntu Linux (64-bit)<br>2 Red Hat Enterprise Linux 5 (32-bit)<br>2 Debian GNU/Linux 6 (64-bit)<br>2 Other 2.6.x Linux (64-bit)<br>1 Other Linux (32-bit)  |                |
| Raw disk attached server | <b>35 Total Windows Servers - 78 TB</b><br>27 Microsoft Windows Server 2012 (64-bit)<br>6 Microsoft Windows Server 2008 R2 (64-bit)<br>2 Microsoft Windows Server 2016 (64-bit)  |                |

# Physical Linux Discovery

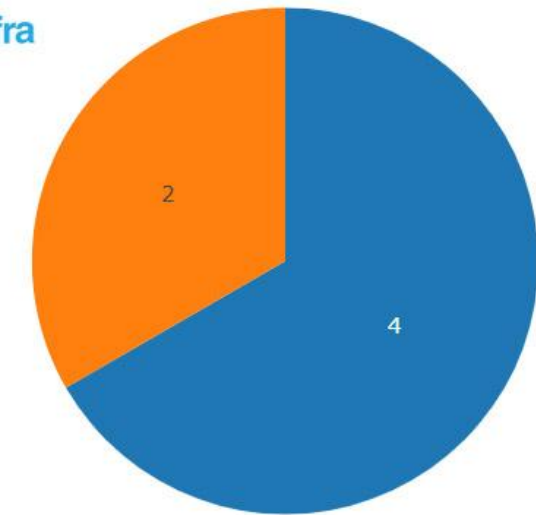
| Environment             | Storage Statistics |                                      |
|-------------------------|--------------------|--------------------------------------|
| Host Count              | 6                  |                                      |
| OS Version              | 4                  | Red Hat Enterprise Linux Server 5.11 |
|                         | 2                  | Oracle VM server 3.4.6               |
| Total Assigned Capacity | ~55 TB             |                                      |

## Compatibility

- Supported Linux Version Oracle Enterprise Linux 5.6, 5.8, 5.11, 6.5, 6.7, 6.8,6.9,7.1, 7.2, 7.3 ,7.4
- Debian 7.5.0(With Linux Kernel3.2)
- RHEL 5.5 x64, RHEL 5.6 x64, RHEL 5.7 x64, RHEL 5.8 x64, RHEL 5.9 x64, RHEL 5.10 x64, RHEL 5.11 x64, RHEL 6.xx X64, RHEL 7.xx X64
- Ubuntu 16.04
- SLES 10 SP3, SLES 11 SP3 x64, SLES 11 SP4 x64 / ppc, SLES 12, 12.1, 12.2, 12.3

## Remediation Required

- 4 RHEL 5.11 Servers is beyond OEM Support, but the OEM extended Support option is available
- No OS Remediation Required
- No HBA Remediation Required



■ Red Hat Enterprise Linux Server ■ Oracle VM server

## Migration Method(s)

| Migration Method | Host Count | Service Impact | Description  |
|------------------|------------|----------------|--|
| LV Mirroring     | 6          | Non-Intrusive  | Logical volume manager (LVM) mirroring provides the ability to allocate more than one copy of a physical partition to increase the availability of the data. When a disk fails and its physical partitions become unavailable, you still have access to mirrored data on an available disk. The LVM performs mirroring within the logical volume |

# Physical Windows Discovery

| Environment                        | Overall Statistics      |  |
|------------------------------------|-------------------------|--|
| Total Host Count                   | 77                      |  |
| Number of Windows Servers          | 50                      |  |
| Number of Windows Hyper- V Servers | 27                      |  |
| Windows Hyper- V OS Versions       | 24<br>3                 | Microsoft Windows Server 2012 Standard 6.2.9200 N/A Build 9200<br>Microsoft Windows Server 2012 R2 Standard 6.3.9600 N/A Build 9600  |
| Windows Servers OS Versions        | 12<br>18<br>9<br>7<br>4 | Microsoft Windows Server 2012 Standard 6.2.9200 N/A Build 9200<br>Microsoft Windows Server 2008 R2 Enterprise 6.1.7601 Service Pack 1 Build 7601<br>Microsoft Windows Server 2012 R2 Standard 6.3.9600 N/A Build 9600<br>Microsoft Windows Server 2016 Standard 10.0.14393 N/A Build 14393<br>Microsoft Windows Server 2008 R2 Standard 6.1.7601 Service Pack 1 Build 7601 |
| Total Assigned Capacity            | ~473 TB                 |  |

**Notes : 2 Windows Hosts is connected to 3Par, But provisioned size is zero**

## Compatibility



- Supported Windows Versions are Windows server 2012, Windows Server 2012 R2, Windows Server 2016 x64

## Remediation Required

- 22 Hosts Require OS Remediation
- 48 Windows 2012 and 2012 R2 Servers is beyond OEM Support, but the OEM extended Support option is available
- 2 Windows 2016 and 2012 server has 4GB HBA Speed is outside of GMO requirement for 8GB HBA

# Physical Windows Discovery (Contd.)

## Migration Method(s)

| Migration Method                | Host Count | Service Impact | Description   |
|---------------------------------|------------|----------------|---|
| Robocopy(Non-SQL Servers)       | 28         | Intrusive      | A powerful and flexible tool to migrate files extremely fast.   |
| Carbonite Migrate/ DB Migration | 22         | Intrusive      | Carbonite Migrate is a comprehensive migration solution. It allows you to move an entire server, known as a source, by mirroring an image of that source to another server, known as the target. The source and target servers can be physical or virtual   |
| Hyper - V                       | 27         | Non-Intrusive  | Hyper-V live migration moves running virtual machines from one physical server to another with no. impact on virtual machine availability to users. By pre-copying the memory of the migrating virtual. machine to the destination server, live migration minimizes the transfer time of the virtual machine. |

# Remediation Summary

| Types                | Green      | Purple    | Yellow    | Red       | Grand Total |
|----------------------|------------|-----------|-----------|-----------|-------------|
| <b>Physical</b>      | <b>63</b>  | <b>53</b> |           | <b>22</b> | <b>138</b>  |
| ESX-Host             | 40         |           |           |           | 40          |
| Linux                | 2          | 4         |           |           | 6           |
| Windows              | 6          | 22        |           | 22        | 50          |
| Hyper - V            |            | 27        |           |           | 27          |
| ESX BootLUNs         | 15         |           |           |           | 15          |
| <b>Virtual – VMs</b> | <b>637</b> |           | <b>48</b> |           | <b>685</b>  |
| Powered Off          |            |           | 48        |           | 48          |
| Powered On           | 637        |           |           |           | 637         |
| <b>Grand Total</b>   | <b>700</b> | <b>53</b> | <b>48</b> | <b>22</b> | <b>823</b>  |

|               |  |
|---------------|--|
| <b>Green</b>  | Software and hardware are at OEM supportable versions.   |
| <b>Purple</b> | Software (OS, multipathing) and hardware (HBA, firmware) is beyond OEM support but the OEM extended support option is available.     |
| <b>Yellow</b> | Software and hardware are still under support, but firmware or OS version updates are needed (I.e. OS going end-of-life soon)        |
| <b>Red</b>    | Software (OS, multipathing) and hardware (HBA, firmware) is beyond OEM support and the OEM extended support option is not available. |

# Overall Summary

| Data Center  | Source Storage Array Serial # | OS Type          | Total Host/VM Count | Migration Methods                         | Host Remediation Required | Beyond OEM Support | HBA Remediation Required | Size (in TB) |
|--------------|-------------------------------|------------------|---------------------|---|---------------------------|--------------------|--------------------------|--------------|
| DC-1<br>DC-2 | Serial<br>Serial              | ESX              | 43                  | ----                                      | ----                      | ----               | ----                     | ----         |
|              |                               | ESX-VM           | 650                 | Storage vMotion                           | ----                      | ----               | ----                     | ~194         |
|              |                               |                  | 35                  | Offline Storage Migration (RDM Migration) | ----                      | ----               | ----                     | ~78          |
|              |                               | Hyper- V (Hosts) | 27                  | ----                                      | ----                      | 27                 | 1                        | ~11.23       |
|              |                               | Hyper- V VMs     | 137                 | Hyper – V                                 | ----                      | ----               | ----                     | ~6.75        |
|              |                               | LINUX            | 6                   | LVMirroring                               | ----                      | 4                  | ----                     | ~55          |
|              |                               | WINDOWS          | 28                  | RoboCopy                                  | 4                         | 19                 | 1                        | ~461         |
|              |                               |                  | 22                  | Carbonite Migrate / Others                | 18                        | 2                  | ----                     |              |
|              |                               | Solaris          | 4                   | Host Mirror                               | ----                      | ----               | ----                     | ----         |

## Next Step(s)

- Perform Host Remediation
- Perform Host Remediation Validation
- Migration Planning
- Pilot Migration.
- Migration Execution

# Thank You