

## VMmark® 3.1 Results

**Server Vendor & Model: HPE ProLiant DL385 Gen10**  
**Storage Vendor & Model: HPE Nimble Storage AF80**  
**Hypervisor: VMware ESXi 6.7 + AMD EPYC™ 7002 Series support**  
**Datacenter Management Software: VMware vCenter 6.7 U3 Build 14002879**

**VMmark 3.1 Score =**  
**12.78 @ 14 Tiles**

Number of Hosts: 2	Uniform Hosts [yes/no]: yes	Total sockets/cores/threads in test: 4/256/512
Tested By: Hewlett Packard Enterprise		Test Date: 07-18-2019
<b>Performance Section</b> <a href="#">Performance</a>	<b>Configuration Section</b> <a href="#">Configuration</a>	<b>Notes Section</b> <a href="#">Notes for Workload</a>

### Performance

	weathervane			weathervaneE			dvdstoreA			dvdstoreB			dvdstoreC			
TILE_0	Actual	Ratio	QoS(nRTI MaxPctF)	Actual	Ratio	QoS(nRTI MaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
p0	3579.40	0.99	0.26   0.00	567.45	0.99	0.48   0.18	938.02	1.28	831.06	645.00	1.29	1008.08	447.55	1.29	1138.47	1.16
p1	3565.82	0.99	0.26   0.00	563.38	0.98	0.60   0.27	930.02	1.27	854.08	668.30	1.34	1013.26	463.80	1.34	1161.62	1.17
p2	3552.06	0.99	0.24   0.00	564.13	0.99	0.32   0.06	840.50	1.14	1252.55	560.92	1.12	1530.85	396.27	1.14	1762.60	1.07
TILE_1	Actual	Ratio	QoS(nRTI MaxPctF)	Actual	Ratio	QoS(nRTI MaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
p0	3580.84	1.00	0.20   0.00	561.79	0.98	0.33   0.11	885.65	1.21	1062.45	594.77	1.19	1304.39	402.25	1.16	1511.23	1.10
p1	3575.98	0.99	0.19   0.00	560.94	0.98	0.32   0.07	918.98	1.25	901.63	652.83	1.30	1075.11	452.20	1.30	1232.94	1.16
p2	3565.06	0.99	0.24   0.01	557.94	0.98	0.36   0.17	923.58	1.26	888.50	630.33	1.26	1092.63	451.20	1.30	1245.57	1.15
TILE_2	Actual	Ratio	QoS(nRTI MaxPctF)	Actual	Ratio	QoS(nRTI MaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
p0	3590.09	1.00	0.27   0.00	571.33	1.00	0.71   0.47	907.40	1.24	931.44	615.62	1.23	1146.19	422.73	1.22	1295.48	1.13
p1	3572.92	0.99	0.24   0.00	569.62	1.00	0.70   0.43	894.60	1.22	984.60	632.85	1.26	1177.33	431.73	1.24	1363.93	1.14
p2	3557.84	0.99	0.22   0.00	563.59	0.98	0.63   0.22	909.52	1.24	960.42	614.50	1.23	1155.72	416.55	1.20	1343.14	1.12
TILE_3	Actual	Ratio	QoS(nRTI MaxPctF)	Actual	Ratio	QoS(nRTI MaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
p0	3563.38	0.99	0.19   0.00	561.53	0.98	0.39   0.15	870.95	1.19	1129.21	579.27	1.16	1392.32	372.38	1.07	1606.71	1.07
p1	3556.83	0.99	0.19   0.00	559.05	0.98	0.32   0.09	742.50	1.01	1674.89	500.93	1.00	2000.59	347.32	1.00	2325.58	1.00
p2	3548.01	0.99	0.19   0.00	555.46	0.97	0.42   0.21	762.83	1.04	1604.51	469.45	0.94	2007.30	317.93	0.92	2336.10	0.97
TILE_4	Actual	Ratio	QoS(nRTI MaxPctF)	Actual	Ratio	QoS(nRTI MaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
p0	3587.84	1.00	0.23   0.00	564.16	0.99	0.41   0.22	938.08	1.28	853.79	622.77	1.24	1033.52	439.25	1.27	1193.51	1.15
p1	3575.15	0.99	0.24   0.00	557.52	0.97	0.42   0.12	925.48	1.26	872.21	664.58	1.33	1014.21	484.27	1.40	1162.08	1.18
p2	3557.68	0.99	0.27   0.00	553.63	0.97	0.40   0.16	941.58	1.28	846.20	642.92	1.28	1036.75	433.73	1.25	1239.05	1.15
TILE_5	Actual	Ratio	QoS(nRTI MaxPctF)	Actual	Ratio	QoS(nRTI MaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM

<b>p0</b>	3575.60	0.99	0.20   0.00	569.40	1.00	0.54   0.43	923.77	1.26	909.73	627.17	1.25	1113.17	427.18	1.23	1285.28	1.14
<b>p1</b>	3565.66	0.99	0.20   0.00	568.21	0.99	0.55   0.31	931.33	1.27	856.01	671.90	1.34	1004.11	486.98	1.40	1146.93	1.19
<b>p2</b>	3550.66	0.99	0.19   0.00	559.26	0.98	0.41   0.22	871.00	1.19	1114.52	581.95	1.16	1358.83	391.23	1.13	1590.20	1.08
<b>TILE_6</b>	Actual	Ratio	QoS(nRTI MaxPctF)	Actual	Ratio	QoS(nRTI MaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
<b>p0</b>	3580.20	1.00	0.24   0.00	562.61	0.98	0.46   0.24	894.95	1.22	985.89	607.00	1.21	1209.50	406.68	1.17	1408.42	1.11
<b>p1</b>	3565.06	0.99	0.28   0.00	561.11	0.98	0.33   0.11	892.92	1.22	985.08	628.92	1.26	1190.53	453.05	1.31	1344.42	1.14
<b>p2</b>	3542.94	0.98	0.22   0.00	561.15	0.98	0.45   0.23	906.15	1.23	957.36	614.65	1.23	1171.92	393.20	1.13	1379.95	1.11
<b>TILE_7</b>	Actual	Ratio	QoS(nRTI MaxPctF)	Actual	Ratio	QoS(nRTI MaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
<b>p0</b>	3579.56	0.99	0.19   0.00	566.81	0.99	0.56   0.26	884.88	1.21	1043.52	605.67	1.21	1221.61	407.40	1.17	1417.86	1.11
<b>p1</b>	3557.25	0.99	0.20   0.00	558.67	0.98	0.34   0.16	904.77	1.23	960.90	635.45	1.27	1163.14	436.90	1.26	1341.50	1.14
<b>p2</b>	3534.25	0.98	0.19   0.00	553.75	0.97	0.39   0.15	858.48	1.17	1199.19	551.50	1.10	1478.91	380.32	1.10	1709.36	1.06
<b>TILE_8</b>	Actual	Ratio	QoS(nRTI MaxPctF)	Actual	Ratio	QoS(nRTI MaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
<b>p0</b>	3576.48	0.99	0.48   0.45	572.87	1.00	0.57   0.48	936.58	1.28	845.12	654.40	1.31	992.16	465.70	1.34	1153.82	1.17
<b>p1</b>	3567.41	0.99	0.21   0.00	568.75	0.99	0.61   0.36	944.45	1.29	828.90	651.73	1.30	992.56	464.57	1.34	1156.57	1.17
<b>p2</b>	3553.06	0.99	0.25   0.00	570.49	1.00	0.47   0.36	942.92	1.28	836.36	645.90	1.29	1017.01	442.02	1.27	1166.70	1.16
<b>TILE_9</b>	Actual	Ratio	QoS(nRTI MaxPctF)	Actual	Ratio	QoS(nRTI MaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
<b>p0</b>	3579.39	0.99	0.23   0.00	562.87	0.98	0.28   0.14	851.55	1.16	1163.45	587.80	1.17	1416.02	394.90	1.14	1665.20	1.09
<b>p1</b>	3569.52	0.99	0.19   0.00	559.31	0.98	0.34   0.15	847.55	1.15	1202.26	558.08	1.12	1477.76	390.57	1.13	1717.32	1.07
<b>p2</b>	3559.31	0.99	0.19   0.00	557.99	0.98	0.63   0.31	838.75	1.14	1230.55	554.23	1.11	1517.38	369.02	1.06	1749.06	1.05
<b>TILE_10</b>	Actual	Ratio	QoS(nRTI MaxPctF)	Actual	Ratio	QoS(nRTI MaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
<b>p0</b>	3576.42	0.99	0.23   0.00	565.32	0.99	0.38   0.17	898.02	1.22	972.53	633.73	1.27	1162.39	435.30	1.26	1335.28	1.14
<b>p1</b>	3561.30	0.99	0.27   0.00	563.84	0.99	0.37   0.18	898.02	1.22	959.20	612.92	1.22	1163.29	436.32	1.26	1320.72	1.13
<b>p2</b>	3547.71	0.99	0.21   0.00	558.12	0.98	0.31   0.04	906.00	1.23	956.67	613.30	1.23	1172.92	412.20	1.19	1371.75	1.12
<b>TILE_11</b>	Actual	Ratio	QoS(nRTI MaxPctF)	Actual	Ratio	QoS(nRTI MaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
<b>p0</b>	3575.22	0.99	0.21   0.00	567.81	0.99	0.51   0.25	847.40	1.15	1209.98	596.95	1.19	1421.66	401.23	1.16	1678.66	1.09
<b>p1</b>	3559.91	0.99	0.19   0.00	565.48	0.99	0.45   0.22	775.33	1.06	1579.60	486.93	0.97	1993.79	318.43	0.92	2330.34	0.98
<b>p2</b>	3549.32	0.99	0.19   0.00	557.73	0.97	0.36   0.20	753.52	1.03	1645.62	489.93	0.98	2002.81	334.98	0.97	2311.41	0.99
<b>TILE_12</b>	Actual	Ratio	QoS(nRTI MaxPctF)	Actual	Ratio	QoS(nRTI MaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
<b>p0</b>	3580.84	1.00	0.26   0.00	566.85	0.99	0.40   0.18	868.38	1.18	1074.84	636.85	1.27	1253.60	441.30	1.27	1440.43	1.14
<b>p1</b>	3561.53	0.99	0.26   0.00	562.74	0.98	0.34   0.08	882.35	1.20	1047.45	568.38	1.14	1296.31	396.23	1.14	1509.66	1.09
<b>p2</b>	3544.51	0.99	0.28   0.00	562.71	0.98	0.42   0.14	768.45	1.05	1611.96	522.73	1.04	1918.45	349.98	1.01	2234.25	1.01
<b>TILE_13</b>	Actual	Ratio	QoS(nRTI MaxPctF)	Actual	Ratio	QoS(nRTI MaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
<b>p0</b>	3580.20	1.00	0.20   0.00	565.12	0.99	0.43   0.30	834.92	1.14	1268.87	577.88	1.15	1517.50	411.35	1.19	1734.34	1.09
<b>p1</b>	3567.24	0.99	0.20   0.00	564.31	0.99	0.35   0.13	907.58	1.24	947.52	613.98	1.23	1164.54	416.10	1.20	1352.76	1.12
<b>p2</b>	3546.04	0.99	0.20   0.00	559.84	0.98	0.40   0.19	904.98	1.23	961.86	643.05	1.28	1138.54	442.25	1.28	1313.41	1.14

<b>p0_score:</b>	15.69
<b>p1_score:</b>	15.67
<b>p2_score:</b>	15.18

<b>Infrastructure_Operations_Scores:</b>	vMotion	SVMotion	XVMotion	Deploy
<b>Completed_Ops_PerHour</b>	28.00	27.00	22.00	9.50
<b>Avg_Seconds_To_Complete</b>	5.78	74.42	99.28	324.27
<b>Failures</b>	0.00	0.00	0.00	0.00
<b>Ratio</b>	1.08	1.50	1.22	1.19
<b>Number_Of_Threads</b>	1	1	1	1

<b>Summary</b>	Run_Is_Compliant	Turbo_Setting:0
	Number_Of_Compliance_Issues(0)*	Median_Phase(p1)
<b>Unreviewed_VMmark3_Applications_Score</b>	15.67	
<b>Unreviewed_VMmark3_Infrastructure_Score</b>	1.24	
<b>Unreviewed_VMmark3_Score</b>	12.78	

## Configuration

<b>Virtualization Software</b>	
Hypervisor Vendor, Product, Version, and Build / Availability Date (MM-DD-YYYY)	VMware ESXi 6.7 + AMD EPYC™ 7002 Series support / 10-15-2019
Datacenter Management Software Vendor, Product, Version, and Build / Availability Date (MM-DD-YYYY)	VMware vCenter 6.7 + AMD EPYC™ 7002 Series support / 10-15-2019
Supplemental Software	None
<b>Servers</b>	
Number of Servers in System Under Test (all subsequent fields in this section are per server)	2
Server Manufacturer and Model	HPE ProLiant DL385 Gen10
Processor Vendor and Model	AMD EPYC 7702
Processor Speed (GHz) / Turbo Boost Speed (GHz)	2.0 / 3.35

Total Sockets/Total Cores/Total Threads	2 Sockets / 128 Cores / 256 Threads
Primary CPU Cache	32 KB I + 32 KB D on chip per core
Secondary CPU Cache	512 KB I+D on chip per core
Other CPU Cache	256 MB I+D on chip per chip, 16 MB shared / 4 cores
BIOS Version	A40 v2.00 (07/04/2019)
Memory Size (in GB, Number of DIMMs)	1024, 16
Memory Type and Speed	64 GB 2Rx4 PC4-2933 MHz RDIMM
Disk Subsystem Type	FC SAN
Number of Disk Controllers	2
Disk Controller Vendors and Models	HPE Smart Array P408i-a SR Gen10 (disabled in BIOS) HPE Smart Array P408i-p SR Gen10 (disabled in BIOS)
Total Number of Physical Disks for Hypervisor	Details in Storage Notes
Disk Vendors, Models, Capacities, and Speeds	Details in Storage Notes
Number of Host Bus Adapters	1
Host Bus Adapter Vendors and Models	HPE StoreFabric SN1100Q 16Gb dual port FC HBA
Number of Network Controllers	2
Network Controller Vendors and Models	HPE Ethernet 10/25Gb 2-port 640FLR-SFP28 Adapter HPE Ethernet 1Gb 4-port 331i Adapter (disabled in BIOS)
Other Hardware	None
Other Software	None
Hardware Availability Date (MM-DD-YYYY)	08-29-2019
BIOS Availability Date (MM-DD-YYYY)	08-29-2019
Software Availability Date (MM-DD-YYYY)	10-14-2019
<b>Network</b>	
Network Switch Vendors and Models	Mellanox SN2700 32-port 100GbE Open Ethernet Switch
Network Speed	25 Gbps
<b>Primary Storage</b>	
Storage Category	FC SAN Storage

Storage Vendors, Models, and Firmware Versions	HPE Nimble Storage AF80-2QF-46T, NimbleOS 5.0.7.200
Storage Configuration Summary	<p>FC SAN switches:</p> <ul style="list-style-type: none"> <li>• HPE SN6000B 48 port FC SAN Switch</li> </ul> <p>HPE Nimble Storage AF80</p> <ul style="list-style-type: none"> <li>• 2 controller nodes</li> <li>• 1 disk enclosure</li> <li>• 24 x HPE Nimble Storage 1.92TB SFF (2.5in) SSD</li> <li>• 27 LUNs (Triple+ Parity RAID)</li> </ul>

#### Datacenter Management Server

System Model	HPE ProLiant DL385 Gen10
Processor Vendor and Model	AMD EPYC 7601
Processor Speed (GHz)	2.2 GHz
Total Sockets/Total Cores/Total Threads	2 Sockets / 64 Cores / 128 Threads
Memory Size (in GB, Number of DIMMs)	256 GB
Network Controller(s) Vendors and Models	1 x Mellanox ConnectX-5 EN 100Gb/s Ethernet Adapter (dual port)
Operating System, Version, Bitness, and Service Pack	VMware ESXi 6.7 U2 build 13006603
Virtual Center VM Number of vCPUs	16
Virtual Center VM Virtual Memory (in GB)	32
Virtual Center VM Operating System, Version, Bitness, and Service Pack	VMware vCenter Appliance 6.7 + AMD EPYC™ 7002 Series support
Other Hardware	Details in Client Notes and Other Notes
Other Software	None

#### Clients

Total Number of Virtual Clients / Virtual Client Hosts	15 / 2
System Model(s)	HPE ProLiant DL385 Gen10
Processor Vendor(s) and Model(s)	AMD EPYC 7702
Processor Speed(s) (GHz)	2.0 GHz

Total Sockets/Total Cores/Total Threads	2 Sockets / 128 Cores / 256 Threads
Memory per Virtual Client Host	512 GB
Network Controller(s) Vendors and Models	HPE Ethernet 10/25Gb 2-port 640FLR-SFP28 Adapter
Virtual Client Networking Notes	Details in Other Notes
Virtual Client Storage Notes	Details in Client Notes
Other Hardware	<ul style="list-style-type: none"> <li>• 1 x HPE 1.6TB NVMe (P/N P10222-B21)</li> <li>• 1 x HPE Smart Array P408i-a SR Gen10</li> <li>• 1 x HPE Smart Array P408i-p SR Gen10</li> </ul>
Other Software	VMware ESXi 6.7 + AMD EPYC™ 7002 Series support

#### Security Mitigations

Vulnerability	CVE	Exploit Name	Public Vulnerability Name	Mitigated		
				Server Firmware	ESXi	Guest OS
Spectre	2017-5753	Variant 1	Bounds Check Bypass	N/A	Not Vulnerable	Not Vulnerable
Spectre	2017-5715	Variant 2	Branch Target Injection	Not Vulnerable	Not Vulnerable	Not Vulnerable
Meltdown	2017-5754	Variant 3	Rogue Data Cache Load	N/A	Not Vulnerable	Not Vulnerable
Spectre-NG	2018-3640	Variant 3a	Rogue System Register Read	Not Vulnerable	N/A	N/A
Spectre-NG	2018-3639	Variant 4	Speculative Store Bypass	N/A	Not Vulnerable	Not Vulnerable
Foreshadow	2018-3615	Variant 5	L1 Terminal Fault - SGX	N/A	N/A	N/A
Foreshadow-NG	2018-3620	Variant 5	L1 Terminal Fault - OS	N/A	N/A	Not Vulnerable
Foreshadow-NG	2018-3646	Variant 5	L1 Terminal Fault - VMM	N/A	Not Vulnerable	N/A

## Notes for Workload

Template deployed with disk type: Thick Provision Eager Zeroed

### Virtualization Software Notes

- vSphere DRS Migration Threshold level set to 2
- Logging was disabled for all SUT VMs ( Default is Enabled )
- CDROM & Floppy removed for all SUT VMs ( Default is Enabled )
- CPU and Memory shares set to high for all DS3DB VMs ( Default is Normal )
- sched.mem.pin set to TRUE for all DS3DB VMs (Default FALSE)
- Disk shares set to high for all DS3DB VMs ( Default is Normal )
- All Memory Reserved for DS3DB VMs ( Default is Not reserved )
- CPU shares set to Low for all Standby VMs ( Default is Normal )

- Third virtual disk removed from DS3DB0 before cloning DS3DB VMs for other tiles.

Advanced settings:

- Numa.LocalityWeightActionAffinity = 0 (default 130)
- Numa.PreferHT = 1 (default 0)
- Power.CpuPolicy = High Performance (default Balanced)
- VMkernel.ipmiEnabled = false (default true)
- UserVars.HostClientCEIPOptin = 2 (default 0)
- UserVars.SuppressShellWarning = 1 (default 1)

## Server Notes

Server BIOS Settings

- HPE Workload Profile set to 'Virtualization Max Performance' ( default : General Power Efficient Compute )
  - After changing to 'Virtualization Max Performance' which modifies other settings, changed to 'Custom' to unlock settings to allow for modifications
- Performance Determinism set to Power Deterministic ( default : Performance Deterministic )
- Maximum Memory Bus Frequency set to 2667 MHz ( default : Auto )
- Last-Level Cache (LLC) as NUMA Node set to Enabled ( default : disabled )
- HPE Smart Array P408i-a SR Gen10 Device Disabled
- HPE Smart Array P408i-p SR Gen10 Device Disabled
- HPE Ethernet 1Gb 4-port 331i Adapter Device Disabled
- Thermal configuration set to Enhanced CPU Cooling ( default : Optimal Cooling )

## Networking Notes

vSwitch Configuration

- vSwitch0 on vmnic0 for Management Network, vMotion, and Standby and Deploy VMs
  - MTU 9000 configured on vSwitch0, vmnic0 and vmk0
- vSwitch1 on vmnic1 for all Auction, DS3, and Elastic VMs
  - Auction, DS3, and Elastic VMs all had an exclusive portgroup
- Each physical NIC is connected to the switch at 25Gbps

## Storage Notes

OS storage (SUT hosts):

HPE Nimble Storage

- HPE Nimble Storage AF80-2QF-46T
- Physical Configuration
  - NimbleOS 5.0.7.200
  - 2 x HPE Nimble Storage Controller Nodes
  - 4 x HPE Nimble Storage 4-port 16Gb Fibre Channel Host Bus Adapters
  - 24 x HPE Nimble Storage 1.92TB SFF (2.5in) SSD
  - Compression was enabled across the entire array
  - Deduplication was disabled across the entire array
  - Each LUN
    - configured with a 4K Storage Block Size Performance Policy

- Triple+ Parity RAID
    - striped across all SSDs
  - The HPE Nimble Storage is VAAI capable and enabled
- Virtual Configuration
  - VMware ESXi was installed on a 32GB Boot LUN for each host
  - 14 x 1TB LUNs were configured for the VMs on each tile except where specified below
  - 7 x 800GB LUNs were configured for the AuctionNoSQL VMs, 2 VMs per LUN
  - 1 x 512GB LUN was configured for the DS3WebA VMs
  - 1 x 512GB LUN was configured for the Standby VMs
  - 1 x 32GB LUN was configured for the Template VM
  - 3 x 256GB LUNs were configured to be used as infrastructure operation targets
    - 1 LUN was used exclusively for Standby VM Storage vMotion operations
    - 1 LUN was used exclusively for DS3WebA VM XvMotion operations
    - 1 LUN was used exclusively for Deploy VM operations
- All LUNs were configured with
  - Round Robin Path Policy ( Default : Most Recently Used )
  - IO Operations Limit 1 ( Default : 1000 )

## **Datacenter Management Server Notes**

VMware vCenter Appliance 6.7 + AMD EPYC™ 7002 Series support was hosted on a HPE ProLiant DL385 Gen10 system that was not part of the client or SUT clusters.

## **Operating System Notes**

All Client and SUT hosts were installed with VMware ESXi 6.7 + AMD EPYC™ 7002 Series support and were updated with the HPE Gen9 Plus Custom Image for ESXi 6.7 + AMD EPYC™ 7002 Series support offline bundle.

## **Software Notes**

None

## **Client Notes**

VMware ESXi 6.7 was installed to an HPE 1.6TB NVMe on each Client Host and used for primary storage for the Prime Client VM and all Client VMs

Advanced ESXi Settings:

- VMkernel.ipmiEnabled = false (default true)
- VMkernel.disableHwrng = true (default false)
- UserVars.SuppressShellWarning = 1 (default 1)
- UserVars.HostClientCEIPOptim = 2 (default 0)

The client VMs were modified as follows:

- Total memory set to 32 GB (default 20 GB)
- Total vCPUs set to 16 (default 12)

The Client VMs were distributed across the client hosts as follows:



- Client Host 1 : PrimeClient, Client0, Client2, Client4, Client6, Client8, Client10, Client12
- Client Host 2 : Client1, Client3, Client5, Client7, Client9, Client11, Client13

The PrimeClient virtual machine was modified to have a 400GB second virtual disk

Client hosts vSwitch configuration:

- vSwitch0 on vmnic4 for Management Network and the VM Network portgroup
  - PrimeClient, Client0, Client1, Client4, Client5, Client8, Client9, Client 12, and Client13 were connected to the VM Network portgroup
- vSwitch1 on vmnic5 for the VM Network 2 portgroup
  - Client2, Client3, Client6, Client7, Client10, Client11 were connected to the VM Network 2 portgroup
- Each physical NIC is connected to the switch at 25Gbps

Client hosts' storage configuration:

- All client VMs were stored on the local boot drive default datastore.

## Other Notes

VMmark3.properties changes:

- TileDelay was set to 15 (default 60).
- ScrubConfigFile was set to true (default false).
- ErrorImmediate was set to true (default false).

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