VMmark® 3.0 Results

Vendor and Hardware Platform: Dell EMC PowerEdge R740xd Virtualization Platform: VMware ESXi 6.5.0 U1, (Build 5969303) VMware vCenter Server : VMware vCenter Server 6.5 U1b (Build 6816762)	**VMmark 3.0 Score =** **1.22 @ 1 Tiles**

Number of Hosts: 2	Uniform Hosts [yes/no]: yes	Total sockets/cores/threads in test: 4/64/128

Tested By: StorageReview.com	Test Date: 12-18-2017

Performance Section Performance	Configuration Section Configuration	Notes Section Notes for Workload

Performance

TILE_0	weathervane			weathervaneE			dvdstoreA			dvdstoreB			dvdstoreC			
	Actual	Ratio	QoS(nRT|MaxPctF)	Actual	Ratio	QoS(nRT|MaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
p0	3601.32	1.00	0.23 | 0.00	571.67	1.00	0.43 | 0.02	991.20	1.35	734.95	716.75	1.43	853.49	503.27	1.45	974.30	1.23
p1	3594.66	1.00	0.23 | 0.00	572.18	1.00	0.37 | 0.00	1002.73	1.37	697.69	682.77	1.36	805.91	485.43	1.40	945.38	1.21
p2	3597.66	1.00	0.22 | 0.00	571.47	1.00	0.34 | 0.01	1037.10	1.41	602.40	767.10	1.53	682.27	563.98	1.63	774.48	1.29

p0_score:	1.23
p1_score:	1.21
p2_score:	1.29

Infrastructure_Operations_Scores:	vMotion	SVMotion	XVMotion	Deploy
Completed_Ops_PerHour	28.50	24.00	20.00	10.00
Avg_Seconds_To_Complete	5.11	102.15	129.88	322.95
Failures	0.00	0.00	0.00	0.00
Ratio	1.10	1.33	1.11	1.25
Number_Of_Threads	1	1	1	1

Summary	Run_Is_Compliant	Turbo_Setting:0
	Number_Of_Compliance_Issues(0)*	Median_Phase(p0)

Unreviewed_VMmark3_Applications_Score	1.23
Unreviewed_VMmark3_Infrastructure_Score	1.19
Unreviewed_VMmark3_Score	1.22

Configuration

Virtualization Software

Hypervisor Vendor, Product, Version, and Build / Availability Date (MM-DD-YYYY)	VMware ESXi 6.5.0 U1, Build 5969303 / 07-27-2017
Datacenter Management Software Vendor, Product, Version, and Build / Availability Date (MM-DD-YYYY)	VMware vCenter Server 6.5 U1b, Build 6816762 / 10-26-2017
Supplemental Software	None

Servers

Number of Servers in System Under Test (all subsequent fields in this section are per server)	2
Server Manufacturer and Model	Dell EMC PowerEdge R740xd
Processor Vendor and Model	Intel Xeon Gold 6130
Processor Speed (GHz)	2.1
Total Sockets/Total Cores/Total Threads	2 Sockets / 32 Cores / 64 Threads
Primary CPU Cache	32 KB I + 32 KB D on chip per core
Secondary CPU Cache	1MB I+D on chip per core
Other CPU Cache	22 MB MB I+D on chip per chip L3
BIOS Version	1.2.11
Memory Size (in GB, Number of DIMMs)	256, 16
Memory Type and Speed	16 GB 2Rx4 PC4-2666
Disk Subsystem Type	FC SAN
Number of Disk Controllers	1
Disk Controller Vendors and Models	Dell PERC H730P
Total Number of Physical Disks for Hypervisor	1
Disk Vendors, Models, Capacities, and Speeds	Dell, HUC156030CSS204, 300GB 15K RPM SAS
Number of Host Bus Adapters	1
Host Bus Adapter Vendors and Models	Emulex LightPulse LPe16002B-M6

Number of Network Controllers	1
Network Controller Vendors and Models	Mellanox 25GbE 2P ConnectX4LX RNDC
Other Hardware	None
Other Software	None
Hardware Availability Date (MM-DD-YYYY)	07-11-2017
BIOS Availability Date (MM-DD-YYYY)	10-19-2017
Software Availability Date (MM-DD-YYYY)	07-11-2017
Network	
Network Switch Vendors and Models	2 x Dell EMC Networking Z9100-ON
Network Speed	25Gbps for VM traffic, vMotion and Management
Storage	
Array Vendors, Models, and Firmware Versions	Seagate AssuredSAN 4824, GL222R050
Fibre Channel Switch Vendors and Models	Brocade 6510
Disk Space Used	37.3TB: See Storage Notes
Array Cache Size	12GB
Total Number of Physical Disks Used	4 SAS SSD
Total Number of Enclosures/Pods/Shelves Used	1
Number of Physical Disks Used per Enclosure/Pod/Shelf	4
Total Number of Storage Groups Used	1
Number of LUNs Used	7: See Storage Notes
LUN Size and Number of Disks Per LUN	2 x 1200GB / 2, 3 x 100GB / 2, 1 x 17TB / 24: See Storage Notes
RAID Type	RAID-1: See Storage Notes
Number of Members per RAID Set	2
Disk Vendors, Models, and Speeds	1600 GB Seagate 1200.2 SSD, 12Gbps

Datacenter Management Server

System Model	Dell PowerEdge R730
Processor Vendor and Model	Intel Xeon E5-2699 v4
Processor Speed (GHz)	2.2
Total Sockets/Total Cores/Total Threads	2 Sockets / 44 Cores / 88 Threads
Memory Size (in GB, Number of DIMMs)	256GB / 16
Network Controller(s) Vendors and Models	Mellanox 25GbE 2P ConnectX4LX
Operating System, Version, Bitness, and Service Pack	VMware ESXi 6.5.0 U1, Build 5969303
Virtual Center VM Number of vCPUs	8
Virtual Center VM Virtual Memory (in GB)	24.6GB
Virtual Center VM Operating System, Version, Bitness, and Service Pack	VMware vCenter Server 6.5 U1b, Build 6816762
Other Hardware	Emulex LightPulse LPe16002B-M6
Other Software	None

Clients

Total Number of Virtual Clients / Virtual Client Hosts	2 / 1
System Model(s)	Dell PowerEdge R730
Processor Vendor(s) and Model(s)	Intel Xeon E5-2690 v3
Processor Speed(s) (GHz)	2.6
Total Sockets/Total Cores/Total Threads	2 Sockets / 24 Cores / 48 Threads
Memory per Virtual Client Host	256GB
Network Controller(s) Vendors and Models	Mellanox 25GbE 2P ConnectX4LX RNDC
Virtual Client Networking Notes	1 virtual adapter for management, workload traffic and vMotion
Virtual Client Storage Notes	All virtual clients hosted on Seagate AssuredSAN 6004 / Refer Section: Storage Notes
Other Hardware	Emulex LightPulse LPe16002B-M6 / Refer Section: DataCenter Management Notes

| Other Software | VMware ESXi 6.5.0 U1, Build 5969303 |

Notes for Workload

Virtualization Software Notes

Server OS was installed using VMware-VMvisor-Installer-6.5.0.update01-5969303.x86_64-DellEMC_Customized-A01.iso. This is a publicly available Dell Customized ISO that is based on VMware ESXi 6.5 U1.

Cluster DRS Automation Level set to "Fully Automated"; Level 2

/adv/UserVars/SuppressShellWarning = 1 (default 0)

Logging was disabled for all VMs except PrimeClient (default enabled)

Power Management Policy set to High Performance: Default Balanced

EVC mode set to Intel Broadwell on SUT Cluster

Mellanox ConnectX-4 Driver Updated to nmlx5-core-4.16.8.8

/adv/UserVars/HostClientCEIPOptIn was set to 2 (default 0) only on one host (hostname r7401)

Server Notes

Dell Controlled Turbo Boost Enabled (frequency boost to 3.7 GHz): Default Disabled

Server Power Profile set to Performance: Default Performance Per Watt DAPC

Networking Notes

vSwitch0 on vmnic0 for Service Console and all VMs (25Gb/s)

vSwitch1 on vmnic1 for vMotion (25Gb/s)

vMotion vmKernel and vSwitch1 MTU set to 9000 (default 1500)

Storage Notes

SUT Host OS installed on 1 x 300GB 15K RPM SAS HDD, for each host

All LUNS configured as block devices and no system memory used for write caching

Seagate AssuredSAN 4824 configured in two RAID1 pools, each with two SSDs

LUN Layout for Seagate AssuredSAN 4824

- LUN 00 in PoolB: Deploy1 / 100GB
- LUN 01 in PoolA: Tile 0 (All Except DS3WebA and Standby) / 1200GB
- LUN 02 in PoolB: Tile 0 (DS3WebA and Standby / 1200GB
- LUN 03 in PoolB: SVMotion 1 / 100GB

- LUN 04 in PoolB: XVMotion 1 / 100GB

Template storage located on Seagate AssuredSAN 6004: See Client Notes

Datacenter Management Server Notes

DataCenter Management Host OS installed on 1 x 300GB 10K RPM SAS HDD

vCenter VCSA storage located on Seagate AssuredSAN 6004: See Client Notes

Operating System Notes

None

Software Notes

None

Client Notes

Power Management Policy set to High Performance: Default Balanced

/adv/UserVars/SuppressShellWarning = 1 (default 0)

Mellanox ConnectX-4 Driver Updated to nmlx5-core-4.16.8.8

Client Host OS installed on 1 x 300GB 10K RPM SAS HDD, for each host

1 Clients, PrimeClient and VCSA storage located on Seagate AssuredSAN 6004

- 48 960GB PX04SV SAS 12Gbps SSDs
- 2 Pools, 24 SSDs per pool / Four diskgroups per pool, each with 6 SSDs in RAID5
- 17TB LUN on PoolA / Clients 0, PrimeClient, Template 1
- 17TB LUN on PoolB / VCSA

1 Client on one Client Hosts

- Client Host 1: PrimeClient, Client 1

Other Notes

None

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