

VMmark[®] 4.0.1 Disclosure

Server Vendor & Model: Dell PowerEdge R7725
Storage Vendor & Model: Dell PowerStore 5000T
Hypervisor: VMware ESXi 8.0 Update 3, Build 24022510
Server Management Software: VMware vCenter Server 8.0 Update 3, Build 24022515

**VMmark 4.0.1 Score =
4.53 @ 5 Tiles**

Number of Hosts: 2	Uniform Hosts: yes	Total sockets/cores/threads in test: 4/512/1024
Tested By: Dell Technologies	Test Date: 09-13-2024	SUT Availability Date: 11-19-2024
Performance Section Performance	Configuration Section Configuration	Notes Section Notes for Workload
Virtual Machines Section Virtual Machines		

Performance

TILE_0_Scores	WVAuctionVM	WVAuctionK8S	DVDStoreA	DVDStoreB	DVDStoreC	NoSQLBenchA	NoSQLBenchB	NoSQLBenchC	SocialNetwork	Standby	
p0	14102.03	9242.74	3260.60	2353.50	1701.15	65418.79	65417.55	65419.26	71.99	1.00	
p1	14065.89	9207.16	3248.62	2514.07	1948.10	61142.50	61142.27	61143.79	71.95	1.00	
p2	14079.94	9237.18	3247.78	2346.32	1709.78	57847.35	57846.97	57847.34	71.93	1.00	
TILE_0_Ratios	WVAuctionVM	WVAuctionK8S	DVDStoreA	DVDStoreB	DVDStoreC	NoSQLBenchA	NoSQLBenchB	NoSQLBenchC	SocialNetwork	Standby	Geo.Mean
p0	1.01	1.00	1.12	1.09	1.11	1.16	1.16	1.16	1.00	1.00	1.09
p1	1.00	1.00	1.12	1.17	1.27	1.08	1.08	1.08	1.00	1.00	1.09
p2	1.01	1.00	1.12	1.09	1.12	1.02	1.02	1.02	1.00	1.00	1.04
TILE_0_QoS	WVAuctionVM%	WVAuctionK8S%	DVDStoreA	DVDStoreB	DVDStoreC	NoSQLBenchA	NoSQLBenchB	NoSQLBenchC			
p0	0.55 0.07	0.36 0.00	231.69	232.67	237.71	0.53	0.53	0.53			
p1	0.56 0.11	0.36 0.00	231.97	237.73	236.03	0.56	0.56	0.56			
p2	0.64 0.33	0.41 0.01	235.00	239.07	234.34	0.58	0.58	0.58			
TILE_1_Scores	WVAuctionVM	WVAuctionK8S	DVDStoreA	DVDStoreB	DVDStoreC	NoSQLBenchA	NoSQLBenchB	NoSQLBenchC	SocialNetwork	Standby	
p0	14114.83	9237.58	3256.70	2430.40	1783.67	69819.90	69819.32	69819.97	72.00	1.00	
p1	14075.45	9244.89	3253.00	2432.75	1858.22	63336.90	63336.57	63336.76	71.99	1.00	
p2	14072.52	9242.08	3250.35	2441.07	1776.45	58098.86	58099.64	58099.34	71.97	1.00	
TILE_1_Ratios	WVAuctionVM	WVAuctionK8S	DVDStoreA	DVDStoreB	DVDStoreC	NoSQLBenchA	NoSQLBenchB	NoSQLBenchC	SocialNetwork	Standby	Geo.Mean
p0	1.01	1.00	1.12	1.13	1.17	1.24	1.24	1.24	1.00	1.00	1.12
p1	1.01	1.00	1.12	1.13	1.21	1.12	1.12	1.12	1.00	1.00	1.09
p2	1.01	1.00	1.12	1.14	1.16	1.03	1.03	1.03	1.00	1.00	1.06
TILE_1_QoS	WVAuctionVM%	WVAuctionK8S%	DVDStoreA	DVDStoreB	DVDStoreC	NoSQLBenchA	NoSQLBenchB	NoSQLBenchC			
p0	0.47 0.06	0.34 0.00	228.47	240.46	239.93	0.49	0.49	0.49			

p1	0.50 0.07	0.34 0.00	230.57	239.21	243.08	0.52	0.53	0.52			
p2	0.66 0.33	0.34 0.01	232.06	236.85	240.70	0.56	0.56	0.56			
TILE_2_Scores	WVAuctionVM	WVAuctionK8S	DVDStoreA	DVDStoreB	DVDStoreC	NoSQLBenchA	NoSQLBenchB	NoSQLBenchC	SocialNetwork	Standby	
p0	14099.44	9242.70	3248.93	2522.65	1862.28	68022.13	68020.45	68023.05	72.03	1.00	
p1	14101.37	9315.37	3250.00	2353.12	1779.42	62511.48	62510.27	62510.40	72.02	1.00	
p2	14066.60	9218.28	3236.68	2503.88	1856.85	57312.64	57312.17	57312.69	71.97	1.00	
TILE_2_Ratios	WVAuctionVM	WVAuctionK8S	DVDStoreA	DVDStoreB	DVDStoreC	NoSQLBenchA	NoSQLBenchB	NoSQLBenchC	SocialNetwork	Standby	Geo.Mean
p0	1.01	1.00	1.12	1.17	1.22	1.20	1.20	1.20	1.00	1.00	1.12
p1	1.01	1.01	1.12	1.09	1.16	1.11	1.11	1.11	1.00	1.00	1.08
p2	1.00	1.00	1.12	1.16	1.21	1.01	1.01	1.01	1.00	1.00	1.06
TILE_2_QoS	WVAuctionVM%	WVAuctionK8S%	DVDStoreA	DVDStoreB	DVDStoreC	NoSQLBenchA	NoSQLBenchB	NoSQLBenchC			
p0	0.50 0.04	0.34 0.00	228.97	234.84	239.19	0.49	0.49	0.49			
p1	0.61 0.20	0.33 0.01	232.44	237.87	245.55	0.53	0.53	0.53			
p2	0.78 0.40	0.32 0.00	237.17	243.06	242.19	0.57	0.56	0.56			
TILE_3_Scores	WVAuctionVM	WVAuctionK8S	DVDStoreA	DVDStoreB	DVDStoreC	NoSQLBenchA	NoSQLBenchB	NoSQLBenchC	SocialNetwork	Standby	
p0	14103.23	9244.03	3261.32	2524.93	1942.83	70317.96	70317.19	70315.91	71.99	1.00	
p1	14082.09	9326.87	3264.50	2349.00	1696.83	65479.16	65479.27	65478.86	71.96	1.00	
p2	14079.56	9227.48	3246.72	2501.03	1931.97	61563.05	61562.23	61562.19	71.93	1.00	
TILE_3_Ratios	WVAuctionVM	WVAuctionK8S	DVDStoreA	DVDStoreB	DVDStoreC	NoSQLBenchA	NoSQLBenchB	NoSQLBenchC	SocialNetwork	Standby	Geo.Mean
p0	1.01	1.00	1.12	1.17	1.27	1.24	1.24	1.24	1.00	1.00	1.14
p1	1.01	1.01	1.13	1.09	1.11	1.16	1.16	1.16	1.00	1.00	1.09
p2	1.01	1.00	1.12	1.16	1.26	1.09	1.09	1.09	1.00	1.00	1.09
TILE_3_QoS	WVAuctionVM%	WVAuctionK8S%	DVDStoreA	DVDStoreB	DVDStoreC	NoSQLBenchA	NoSQLBenchB	NoSQLBenchC			
p0	0.46 0.05	0.35 0.00	226.75	232.19	241.63	0.48	0.48	0.48			
p1	0.52 0.10	0.35 0.00	228.80	242.11	244.21	0.51	0.51	0.51			
p2	0.57 0.15	0.37 0.00	235.25	244.19	246.30	0.53	0.53	0.53			
TILE_4_Scores	WVAuctionVM	WVAuctionK8S	DVDStoreA	DVDStoreB	DVDStoreC	NoSQLBenchA	NoSQLBenchB	NoSQLBenchC	SocialNetwork	Standby	
p0	14075.98	9242.74	3268.78	2445.07	1868.20	66118.75	66119.57	66121.53	72.02	1.00	
p1	14083.03	9227.50	3252.47	2435.82	1782.00	60827.03	60826.48	60827.08	71.98	1.00	
p2	14069.59	9221.27	3251.97	2435.18	1859.00	56922.10	56922.07	56922.71	71.96	1.00	
TILE_4_Ratios	WVAuctionVM	WVAuctionK8S	DVDStoreA	DVDStoreB	DVDStoreC	NoSQLBenchA	NoSQLBenchB	NoSQLBenchC	SocialNetwork	Standby	Geo.Mean
p0	1.01	1.00	1.13	1.14	1.22	1.17	1.17	1.17	1.00	1.00	1.11
p1	1.01	1.00	1.12	1.13	1.16	1.08	1.08	1.08	1.00	1.00	1.07
p2	1.00	1.00	1.12	1.13	1.22	1.01	1.01	1.01	1.00	1.00	1.05
TILE_4_QoS	WVAuctionVM%	WVAuctionK8S%	DVDStoreA	DVDStoreB	DVDStoreC	NoSQLBenchA	NoSQLBenchB	NoSQLBenchC			

p0	0.68 0.35	0.41 0.02	222.94	230.10	236.28	0.52	0.52	0.52
p1	0.70 0.29	0.39 0.00	230.33	233.93	244.14	0.56	0.55	0.55
p2	0.76 0.37	0.42 0.00	228.83	235.27	240.70	0.57	0.56	0.56
p0_score:	5.58							
p1_score:	5.42							
p2_score:	5.30							

Infrastructure_Operations_Scores:	vMotion	SVMotion	XVMotion	Deploy
Completed_Ops_PerHour	29.00	13.00	14.00	11.50
Avg_Seconds_To_Complete	2.12	69.92	49.68	274.00
Failures	0.00	0.00	0.00	0.00
Ratio	0.98	1.00	1.08	0.79
Number_Of_Threads	1	1	1	1
Summary		Run_Is_Compliant		Median_Phase(p1)
Unreviewed_VMmark4_Applications_Score		5.42		
Unreviewed_VMmark4_Infrastructure_Score		0.96		
Unreviewed_VMmark4_Score		4.53 @ 5 Tiles		

Configuration

Virtualization Software	
Hypervisor Vendor, Product, Version, and Build / Availability Date (MM-DD-YYYY)	VMware ESXi 8.0 Update 3, Build 24022510 / 06-25-2024
Server Management Software Vendor, Product, Version, and Build / Availability Date (MM-DD-YYYY)	VMware vCenter Server 8.0 Update 3, Build 24022515 / 06-25-2024
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 PowerEdge R7725
Processor Vendor and Model	AMD EPYC 9755
Processor Speed (GHz) / Turbo	

Boost Speed (GHz)	2.7 GHz / 4.1 GHz						
Total Sockets/Total Cores/Total Threads	2 Sockets / 256 Cores / 512 Threads						
NUMA Nodes	2						
BIOS Version	0.2.4 [X-REV]						
Memory Size (in GB, Number of DIMMs)	Physical Memory (BIOS): 2304 GB Physical Memory (ESXi): 2304 GB Number of DIMMs: 24						
Memory Type and Speed	Location	Size	Speed	Max Speed	Rank	Type	Detail
	A1	96 GB	6000 MT/s	6400 MT/s	2	DDR5	Synchronous, Registered
	A2	96 GB	6000 MT/s	6400 MT/s	2	DDR5	Synchronous, Registered
	A3	96 GB	6000 MT/s	6400 MT/s	2	DDR5	Synchronous, Registered
	A4	96 GB	6000 MT/s	6400 MT/s	2	DDR5	Synchronous, Registered
	A5	96 GB	6000 MT/s	6400 MT/s	2	DDR5	Synchronous, Registered
	A6	96 GB	6000 MT/s	6400 MT/s	2	DDR5	Synchronous, Registered
	A7	96 GB	6000 MT/s	6400 MT/s	2	DDR5	Synchronous, Registered
	A8	96 GB	6000 MT/s	6400 MT/s	2	DDR5	Synchronous, Registered
	A9	96 GB	6000 MT/s	6400 MT/s	2	DDR5	Synchronous, Registered
	A10	96 GB	6000 MT/s	6400 MT/s	2	DDR5	Synchronous, Registered
	A11	96 GB	6000 MT/s	6400 MT/s	2	DDR5	Synchronous, Registered
	A12	96 GB	6000 MT/s	6400 MT/s	2	DDR5	Synchronous, Registered
	B1	96 GB	6000 MT/s	6400 MT/s	2	DDR5	Synchronous, Registered
	B2	96 GB	6000 MT/s	6400 MT/s	2	DDR5	Synchronous, Registered
	B3	96 GB	6000 MT/s	6400 MT/s	2	DDR5	Synchronous, Registered
	B4	96 GB	6000 MT/s	6400 MT/s	2	DDR5	Synchronous, Registered
	B5	96 GB	6000 MT/s	6400 MT/s	2	DDR5	Synchronous, Registered
	B6	96 GB	6000 MT/s	6400 MT/s	2	DDR5	Synchronous, Registered
	B7	96 GB	6000 MT/s	6400 MT/s	2	DDR5	Synchronous, Registered
	B8	96 GB	6000 MT/s	6400 MT/s	2	DDR5	Synchronous, Registered
	B9	96 GB	6000 MT/s	6400 MT/s	2	DDR5	Synchronous, Registered
	B10	96 GB	6000 MT/s	6400 MT/s	2	DDR5	Synchronous, Registered
	B11	96 GB	6000 MT/s	6400 MT/s	2	DDR5	Synchronous, Registered
B12	96 GB	6000 MT/s	6400 MT/s	2	DDR5	Synchronous, Registered	
Number of SAS Devices	0						
SAS Device Vendors and	None						

Models	
Number of Virtual Host Bus Adapters	0
Virtual Host Bus Adapter Vendors and Models	None
Power Supply Quantity, Name/Part Number, Wattage, Firmware, and Type (Voltage, AC/DC)	2, Dell Technologies, 1PKMH, 1500W, 1308, 230V, AC
Cooling Type (Air Cooling, Closed Loop Cooling, Direct Liquid Cooling, or Other)	Air Cooling
Other Hardware	None
Other Software	None
BIOS Availability Date (MM-DD-YYYY)	11-19-2024
Hardware Availability Date (MM-DD-YYYY)	11-19-2024
Software Availability Date (MM-DD-YYYY)	06-25-2024

Network

Number of Virtual Network Controllers	6
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Virtual Network Controllers, Speeds, MTUs, Firmware, Drivers, Vendors, and Models	Device	Speed	Duplex	MTU	Firmware	Driver	Description
	vmnic0	100 Gbps	Full	9000	229.2.62.0 /pkg 22.92.07.50	bnxtnet	Broadcom NetXtreme-E P2100D BCM57508 2x100G QSFP PCIE Ethernet
	vmnic1	100 Gbps	Full	9000	229.2.62.0 /pkg 22.92.07.50	bnxtnet	Broadcom NetXtreme-E P2100D BCM57508 2x100G QSFP PCIE Ethernet
	vmnic2	25 Gbps	Full	9000	229.2.62.0 /pkg 22.92.07.50	bnxtnet	Broadcom NetXtreme E-Series Quad-port 25Gb OCP 3.0 Ethernet Adapter
	vmnic3	25 Gbps	Full	9000	229.2.62.0 /pkg 22.92.07.50	bnxtnet	Broadcom NetXtreme E-Series Quad-port 25Gb OCP 3.0 Ethernet Adapter
	vmnic4	25 Gbps	Full	9000	229.2.62.0 /pkg 22.92.07.50	bnxtnet	Broadcom NetXtreme E-Series Quad-port 25Gb OCP 3.0 Ethernet Adapter
	vmnic5	25 Gbps	Full	9000	229.2.62.0 /pkg 22.92.07.50	bnxtnet	Broadcom NetXtreme E-Series Quad-port 25Gb OCP 3.0 Ethernet Adapter

Number of Virtual Switches	3
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Virtual Switches, Ports, Port Groups, MTUs, and Uplinks	Switch	Ports	Configured Ports	MTU	Uplinks
	vSwitch0	9216	128	9000	vmnic0
	vSwitch1	9216	128	9000	vmnic1
	vSwitch2	9216	128	9000	vmnic2, vmnic3, vmnic4, vmnic5

Switch	Port Group	VLAN ID	Uplinks
vSwitch0	Management Network	0	vmnic0

vSwitch0	VMNetwork	0	vmnic0
vSwitch0	vMotion	0	vmnic0
vSwitch1	NVMe over TCP	0	vmnic1
vSwitch2	VMNetwork2	0	vmnic2, vmnic3, vmnic4, vmnic5

VMkernel Network Adapters, Port Groups, MTUs, TCP/IP Stacks, and Services

Device	Port Group/DVPort	MTU	TCP/IP Stack	Services
vmk0	Management Network	9000	Default	Management
vmk1	vMotion	9000	Default	vMotion
vmk2	NVMe over TCP	9000	Default	NVMeTCP

Physical Switch Vendors, Models, and Speeds

Dell PowerSwitch Z9264F-ON 100Gb

Primary Storage

Storage Category

NVMe over TCP

Datstores

Datstores	Type	Size	Storage Device
Deploy	VMFS-6	2.2 TB	NVMe TCP Disk
OSDATA-66da37ca-bc7dd97c-4b27-00620b21fc50	VMFSOS	128.6 GB	Local NVMe Disk
Tile0	VMFS-6	3.3 TB	NVMe TCP Disk
Tile1	VMFS-6	3.3 TB	NVMe TCP Disk
Tile2	VMFS-6	3.3 TB	NVMe TCP Disk
Tile3	VMFS-6	3.3 TB	NVMe TCP Disk
Tile4	VMFS-6	3.3 TB	NVMe TCP Disk
svmotion	VMFS-6	2.2 TB	NVMe TCP Disk
xvmotion	VMFS-6	2.2 TB	NVMe TCP Disk

Number of Storage Devices

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Storage Device Names, Sizes, Types, Vendors, Models, and Revisions

Storage Device	Size	Type	Vendor	Model	Revision	Path Selection Policy	Path Selection Policy Config	# Working Paths
NVMe TCP Disk	2.2 TB	Direct-Access	NVMe	dellemc-powerstore	3.6.0.0	LB-IOPS	iops=1	1
NVMe TCP Disk	2.2 TB	Direct-Access	NVMe	dellemc-powerstore	3.6.0.0	LB-IOPS	iops=1	1
NVMe TCP Disk	2.2 TB	Direct-Access	NVMe	dellemc-powerstore	3.6.0.0	LB-IOPS	iops=1	1
Local NVMe Disk (Boot Device)	3.2 TB	Direct-Access	NVMe	Dell NVMe PM1745 MU E3.S 3.2TB	1.0.1	FIXED	preferred=none	1
NVMe TCP Disk	3.3 TB	Direct-Access	NVMe	dellemc-powerstore	3.6.0.0	LB-IOPS	iops=1	1
NVMe TCP Disk	3.3 TB	Direct-Access	NVMe	dellemc-powerstore	3.6.0.0	LB-IOPS	iops=1	1
NVMe TCP Disk	3.3 TB	Direct-Access	NVMe	dellemc-powerstore	3.6.0.0	LB-IOPS	iops=1	1
NVMe TCP Disk	3.3 TB	Direct-Access	NVMe	dellemc-powerstore	3.6.0.0	LB-IOPS	iops=1	1
NVMe TCP Disk	3.3 TB	Direct-Access	NVMe	dellemc-powerstore	3.6.0.0	LB-IOPS	iops=1	1

How Datastores Map to Storage Devices	See detailed storage notes
VMware vSAN Configuration (if used)	None
RAID Configuration (if used)	None

Server Management

VMware vCenter Server Number of vCPUs	8
VMware vCenter Server Virtual Memory (in GB)	30

Clients

Total Client VMs (including Prime Client)	6
Number of Client Hosts (all subsequent fields in this section are per Client Host)	2

System Model(s)	<ul style="list-style-type: none"> Client Host 1: Dell PowerEdge R7625 Client Host 2: Dell PowerEdge R7625
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Processor Vendor(s) and Model(s)	<ul style="list-style-type: none"> Client Host 1: AMD EPYC 9754 Client Host 2: AMD EPYC 9754
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Processor Speed(s) (GHz)	<ul style="list-style-type: none"> Client Host 1: 2.25 GHz Client Host 2: 2.25 GHz
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Total Sockets/Total Cores/Total Threads	Client Host	Sockets	Cores	Threads
	Client Host 1	2	256	512
	Client Host 2	2	256	512
	Total	4	512	1024

NUMA Nodes	<ul style="list-style-type: none"> Client Host 1: 2 Client Host 2: 2
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Memory Size (in GB) per Client Host	Client Host	BIOS	ESXi
	Client Host 1	3072 GB	3072 GB
	Client Host 2	3072 GB	3072 GB

	Client Host	Device	Speed	Duplex	MTU	Firmware	Driver	Description
		vmnic0	1 Gbps	Full	1500	bc 1.39 ncsi 1.5.53.0	ntg3	Broadcom Corporation NetXtreme BCM5720 Gigabit Ethernet

Virtual Network Controllers, Speeds, MTUs, Firmware, Drivers, Vendors, and Models

Client Host 1	vmnic2	25 Gbps	Full	9000	229.2.52.0 /pkg 22.92.06.10	bnxtnet	Broadcom NetXtreme E-Series Advanced Dual-port 25Gb SFP28 Ethernet OCP 3.0 Adapter
	vmnic3	25 Gbps	Full	9000	229.2.52.0 /pkg 22.92.06.10	bnxtnet	Broadcom NetXtreme E-Series Advanced Dual-port 25Gb SFP28 Ethernet OCP 3.0 Adapter
	vmnic4	100 Gbps	Full	9000	229.2.54.0 /pkg 22.92.06.10	bnxtnet	Broadcom NetXtreme-E P2100D BCM57508 2x100G QSFP PCIE Ethernet
	vmnic5	100 Gbps	Full	9000	229.2.54.0 /pkg 22.92.06.10	bnxtnet	Broadcom NetXtreme-E P2100D BCM57508 2x100G QSFP PCIE Ethernet
Client Host 2	vmnic0	1 Gbps	Full	1500	bc 1.39 ncsi 1.5.53.0	ntg3	Broadcom Corporation NetXtreme BCM5720 Gigabit Ethernet
	vmnic2	25 Gbps	Full	9000	229.2.52.0 /pkg 22.92.06.10	bnxtnet	Broadcom NetXtreme E-Series Advanced Dual-port 25Gb SFP28 Ethernet OCP 3.0 Adapter
	vmnic3	25 Gbps	Full	9000	229.2.52.0 /pkg 22.92.06.10	bnxtnet	Broadcom NetXtreme E-Series Advanced Dual-port 25Gb SFP28 Ethernet OCP 3.0 Adapter
	vmnic4	100 Gbps	Full	9000	229.2.54.0 /pkg 22.92.06.10	bnxtnet	Broadcom NetXtreme-E P2100D BCM57508 2x100G QSFP PCIE Ethernet
	vmnic5	100 Gbps	Full	9000	229.2.54.0 /pkg 22.92.06.10	bnxtnet	Broadcom NetXtreme-E P2100D BCM57508 2x100G QSFP PCIE Ethernet

Virtual Switches, Ports, Port Groups, MTUs, and Uplinks

Client Host	Switch	Ports	Configured Ports	MTU	Uplinks
Client Host 1	vSwitch0	9216	128	9000	vmnic4
	vSwitch1	9216	128	9000	vmnic5
	vSwitch2	9216	128	1500	vmnic0
	vSwitch3	9216	128	9000	vmnic2, vmnic3
Client Host 2	vSwitch0	9216	128	9000	vmnic4
	vSwitch1	9216	128	9000	vmnic5
	vSwitch2	9216	128	9000	vmnic2, vmnic3

Client Host	Switch	Port Group	VLAN ID	Uplinks
Client Host 1	vSwitch0	Management Network	0	vmnic4
	vSwitch0	VMNetwork	0	vmnic4
	vSwitch1	NVMe over TCP	0	vmnic5
	vSwitch2	VAAI	0	vmnic0
	vSwitch3	VMNetwork2	0	vmnic2, vmnic3
Client Host 2	vSwitch0	Management Network	0	vmnic4
	vSwitch0	VMNetwork	0	vmnic4
	vSwitch1	NVMe over TCP	0	vmnic5
	vSwitch2	VMNetwork2	0	vmnic2, vmnic3

VMkernel Network Adapters, Port Groups, MTUs, TCP/IP Stacks, and Services

Client Host	Device	Port Group/DVPort	MTU	TCP/IP Stack	Services
Client Host 1	vmk0	Management Network	9000	Default	Management
	vmk1	NVMe over TCP	9000	Default	NVMeTCP
Client Host 2	vmk0	Management Network	9000	Default	Management
	vmk1	NVMe over TCP	9000	Default	NVMeTCP

Client Storage Notes

See Client Notes Section

Other Hardware	None
Other Software	VMware ESXi 8.0 Update 3, Build 24022510

Notes for Workload

Template deployed with disk type: Thick Eager

Virtualization Software Notes

- vSphere DRS Enabled
- vSphere DRS Automation Level set to Fully Automated
- vSphere DRS Migration Threshold set to 2
- Logical CPU layout changed for all multi-CPU VMs to 1 socket with multiple cores (default single core per socket) except Prime Client, Template, Client and AuctionK* VMs
- Logging was disabled for all VMs except Prime Client (default enabled)
- All DS35DB VMs had CPU shares set to High (default Normal)
- All DS35DB VMs had Memory shares set to High (default Normal)
- All memory reserved (LockedToMax) for all DS35DB VMs
- All Standby VMs had CPU shares set to Low (default Normal)
- sched.mem.lpage.enable1GPage set to TRUE for all DS35DB VMs (default FALSE)
- CD/DVD device was removed from all VMs except Prime Client (default present)

SUT Host ESXi Advanced Settings:

Advanced Setting	Host 1	Host 2	Default
Cpu.CreditAgePeriod	1000	1000	3000
Cpu.HTWholeCoreThreshold	0	0	800
DataMover.HardwareAcceleratedInit	0	0	1
DataMover.HardwareAcceleratedMove	0	0	1
Disk.IdleCredit	64	64	32
Disk.ReqCallThreshold	1	1	8
Mem.CtlMaxPercent	0	0	65
Mem.ShareScanGHz	0	0	4
Numa.LTermFairnessInterval	0	0	5
Numa.LocalityWeightActionAffinity	0	0	130
Numa.MigImbalanceThreshold	57	57	10
Numa.PageMigEnable	0	0	1
Numa.RebalancePeriod	60000	60000	2000
Numa.SwapLoadEnable	0	0	1
Numa.SwapLocalityEnable	0	0	1
Power.CpuPolicy	Performance	Performance	Balanced
UserVars.HostClientCEIPOptIn	2	2	0

UserVars.SuppressShellWarning	1	1	0
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SUT Host ESXi Module Options:

Module	Host 1	Host 2	Default
tcpip4	ipv6=1	ipv6=1	ipv6=1

Server Notes

Server BIOS Settings:

- System Profile Settings : Performance (default Performance per Watt(OS))
- Thermal Profile : Max Performance (default Default Thermal Profile Settings)
- Multi-segment Enable : Disabled (default Enabled)

Networking Notes

SUTs:

- vSwitch0 : Management Network (vmk0) and vMotion (vmk1) using vmnic0
- vSwitch1 : NVMe over TCP (vmk2) using vmnic 1
- vSwitch2 : VMNetwork2 for VM traffic using vmnic2, vmnic3, vmnic4 and vmnic5
All vSwitches vmk0, vmk1, vmk2 and vmnic0-vmnic5 set to MTU 9000

ClientHost1:

- vSwitch0 : Management Network (vmk0) and VMNetwork using vmnic4
- vSwitch1 : NVMe over TCP (vmk1) using vmnic 5
- vSwitch2 : VAAI to connect to PowerStore using vmnic0
- vSwitch3 : VMNetwork2 using vmnic2 and vmnic3
All vSwitches (except vSwitch2) vmk0, vmk1 and vmnic0, vmnic2-vmnic5 set to MTU 9000

ClientHost2:

- vSwitch0 : Management Network (vmk0) and VMNetwork using vmnic4
- vSwitch1 : NVMe over TCP (vmk2) using vmnic 5
- vSwitch2 : VMNetwork2 using vmnic2 and vmnic3
All vSwitches, vmk0, vmk1 and vmnic2-vmnic5 set to MTU 9000

Storage Notes

- Primary Storage : Dell PowerStore 5000T, Software Version :3.6.0.0, Build 2145637
- Drives used in Dell PowerStore 5000T : 16 x 7.7TB NVMe SSD + 5 x 3.84TB NVMe SSD
- NVMe over TCP was used for connectivity to the LUNs in Powerstore 5000T
- Claim rules were used to change the Path Selection Policy to LB-IOPS and iops=1
- Template was located on the Deploy Datastore which was created on the PowerStore for Deploy operations (Deploy : 2TB)
- On both SUT hosts Dell Customized VMware ESXi 8.0 Update 3 was installed on Dell NVMe PM1745 MU E3.S 3.2TB
- On both Client hosts, VMware ESXi 8.0 Update 3 was installed on Dell NVMe PE8010 RI M.2 960GB (RAID 1)

Server Management Notes

VMware vCenter Server 8.0 Update 3, Build 24022515 was hosted as a VM on ClientHost1

Operating System Notes

SUT Host ESXi Image Profile: DEL-ESXi_803.24022510-X71

Software Notes

None

Client Notes

- vSphere DRS Disabled

Client Host BIOS settings:

- L2 Prefetcher : Disabled (default Enabled)
- L2 Up/Down Prefetcher : Disabled (default Enabled)
- System Profile Settings : Performance (default Performance per Watt(OS))
- Thermal Profile : Max Performance (default Default Thermal Profile Settings)

Client Host ESXi Advanced Settings:

Advanced Setting	Host 1	Host 2	Default
Cpu.CreditAgePeriod	1000	1000	3000
Cpu.HTWholeCoreThreshold	0	0	800
DataMover.HardwareAcceleratedInit	0	0	1
DataMover.HardwareAcceleratedMove	0	0	1
Disk.IdleCredit	64	64	32
Disk.ReqCallThreshold	1	1	8
Mem.CtlMaxPercent	0	0	65
Mem.ShareScanGHz	0	0	4
Numa.LTermFairnessInterval	0	0	5
Numa.LocalityWeightActionAffinity	0	0	130
Numa.MigImbalanceThreshold	57	57	10
Numa.PageMigEnable	0	0	1
Numa.RebalancePeriod	60000	60000	2000
Numa.SwapLoadEnable	0	0	1
Numa.SwapLocalityEnable	0	0	1
Power.CpuPolicy	Performance	Performance	Balanced
UserVars.HostClientCEIPOptIn	2	2	0
UserVars.SuppressShellWarning	1	1	0

Client Host ESXi Module Options:

Module	Host 1	Host 2	Default
tcpip4	ipv6=1	ipv6=1	ipv6=1

Client Host ESXi Image Profile: DEL-ESXi_803.24022510-A00

Client Host VMs:

- Client Host 1: Client0, Client2, Client4, VMware vCenter Server
- Client Host 2: Client1, Client3, Prime Client

Other Notes

None

VMmark4.properties Settings

- Default Settings

Virtual Machines

SUT Host Virtual Machines

VM	vCPUs	Cores Per Socket	Memory (MB)	Sync Time	Logging	CD/DVD	CPU Res	CPU Limit	CPU Shares	Mem Res	Mem Limit	Mem Shares	Mem Pin	Mem 1G Page	Disk Shares	Datastore	Port Group	vHW Version	Tools Version
AuctionAppA0	4	4	8192	TRUE	FALSE	Removed	0	Unlimited	normal	0	Unlimited	normal	FALSE	FALSE	normal	Tile0	VMNetwork2	17	12325
AuctionAppA1	4	4	8192	TRUE	FALSE	Removed	0	Unlimited	normal	0	Unlimited	normal	FALSE	FALSE	normal	Tile1	VMNetwork2	17	12325
AuctionAppA2	4	4	8192	TRUE	FALSE	Removed	0	Unlimited	normal	0	Unlimited	normal	FALSE	FALSE	normal	Tile2	VMNetwork2	17	12325
AuctionAppA3	4	4	8192	TRUE	FALSE	Removed	0	Unlimited	normal	0	Unlimited	normal	FALSE	FALSE	normal	Tile3	VMNetwork2	17	12325
AuctionAppA4	4	4	8192	TRUE	FALSE	Removed	0	Unlimited	normal	0	Unlimited	normal	FALSE	FALSE	normal	Tile4	VMNetwork2	17	12325
VM	vCPUs	Cores Per Socket	Memory (MB)	Sync Time	Logging	CD/DVD	CPU Res	CPU Limit	CPU Shares	Mem Res	Mem Limit	Mem Shares	Mem Pin	Mem 1G Page	Disk Shares	Datastore	Port Group	vHW Version	Tools Version
AuctionAppB0	4	4	8192	TRUE	FALSE	Removed	0	Unlimited	normal	0	Unlimited	normal	FALSE	FALSE	normal	Tile0	VMNetwork2	17	12325
AuctionAppB1	4	4	8192	TRUE	FALSE	Removed	0	Unlimited	normal	0	Unlimited	normal	FALSE	FALSE	normal	Tile1	VMNetwork2	17	12325
AuctionAppB2	4	4	8192	TRUE	FALSE	Removed	0	Unlimited	normal	0	Unlimited	normal	FALSE	FALSE	normal	Tile2	VMNetwork2	17	12325
AuctionAppB3	4	4	8192	TRUE	FALSE	Removed	0	Unlimited	normal	0	Unlimited	normal	FALSE	FALSE	normal	Tile3	VMNetwork2	17	12325
AuctionAppB4	4	4	8192	TRUE	FALSE	Removed	0	Unlimited	normal	0	Unlimited	normal	FALSE	FALSE	normal	Tile4	VMNetwork2	17	12325
VM	vCPUs	Cores Per Socket	Memory (MB)	Sync Time	Logging	CD/DVD	CPU Res	CPU Limit	CPU Shares	Mem Res	Mem Limit	Mem Shares	Mem Pin	Mem 1G Page	Disk Shares	Datastore	Port Group	vHW Version	Tools Version
AuctionAppC0	4	4	8192	TRUE	FALSE	Removed	0	Unlimited	normal	0	Unlimited	normal	FALSE	FALSE	normal	Tile0	VMNetwork2	17	12325
AuctionAppC1	4	4	8192	TRUE	FALSE	Removed	0	Unlimited	normal	0	Unlimited	normal	FALSE	FALSE	normal	Tile1	VMNetwork2	17	12325
AuctionAppC2	4	4	8192	TRUE	FALSE	Removed	0	Unlimited	normal	0	Unlimited	normal	FALSE	FALSE	normal	Tile2	VMNetwork2	17	12325

AuctionWebB3	4	4	12288	TRUE	FALSE	Removed	0	Unlimited	normal	0	Unlimited	normal	FALSE	FALSE	normal	Tile3	VMNetwork2	17	12325
AuctionWebB4	4	4	12288	TRUE	FALSE	Removed	0	Unlimited	normal	0	Unlimited	normal	FALSE	FALSE	normal	Tile4	VMNetwork2	17	12325
VM	vCPUs	Cores Per Socket	Memory (MB)	Sync Time	Logging	CD/DVD	CPU Res	CPU Limit	CPU Shares	Mem Res	Mem Limit	Mem Shares	Mem Pin	Mem 1G Page	Disk Shares	Datastore	Port Group	vHW Version	Tools Version
AuctionWebC0	4	4	12288	TRUE	FALSE	Removed	0	Unlimited	normal	0	Unlimited	normal	FALSE	FALSE	normal	Tile0	VMNetwork2	17	12325
AuctionWebC1	4	4	12288	TRUE	FALSE	Removed	0	Unlimited	normal	0	Unlimited	normal	FALSE	FALSE	normal	Tile1	VMNetwork2	17	12325
AuctionWebC2	4	4	12288	TRUE	FALSE	Removed	0	Unlimited	normal	0	Unlimited	normal	FALSE	FALSE	normal	Tile2	VMNetwork2	17	12325
AuctionWebC3	4	4	12288	TRUE	FALSE	Removed	0	Unlimited	normal	0	Unlimited	normal	FALSE	FALSE	normal	Tile3	VMNetwork2	17	12325
AuctionWebC4	4	4	12288	TRUE	FALSE	Removed	0	Unlimited	normal	0	Unlimited	normal	FALSE	FALSE	normal	Tile4	VMNetwork2	17	12325
VM	vCPUs	Cores Per Socket	Memory (MB)	Sync Time	Logging	CD/DVD	CPU Res	CPU Limit	CPU Shares	Mem Res	Mem Limit	Mem Shares	Mem Pin	Mem 1G Page	Disk Shares	Datastore	Port Group	vHW Version	Tools Version
AuctionWebDNosql0	4	4	20480	TRUE	FALSE	Removed	0	Unlimited	normal	0	Unlimited	normal	FALSE	FALSE	normal	Tile0	VMNetwork2	17	12325
AuctionWebDNosql1	4	4	20480	TRUE	FALSE	Removed	0	Unlimited	normal	0	Unlimited	normal	FALSE	FALSE	normal	Tile1	VMNetwork2	17	12325
AuctionWebDNosql2	4	4	20480	TRUE	FALSE	Removed	0	Unlimited	normal	0	Unlimited	normal	FALSE	FALSE	normal	Tile2	VMNetwork2	17	12325
AuctionWebDNosql3	4	4	20480	TRUE	FALSE	Removed	0	Unlimited	normal	0	Unlimited	normal	FALSE	FALSE	normal	Tile3	VMNetwork2	17	12325
AuctionWebDNosql4	4	4	20480	TRUE	FALSE	Removed	0	Unlimited	normal	0	Unlimited	normal	FALSE	FALSE	normal	Tile4	VMNetwork2	17	12325
VM	vCPUs	Cores Per Socket	Memory (MB)	Sync Time	Logging	CD/DVD	CPU Res	CPU Limit	CPU Shares	Mem Res	Mem Limit	Mem Shares	Mem Pin	Mem 1G Page	Disk Shares	Datastore	Port Group	vHW Version	Tools Version
AuctionWebEDB0	4	4	16384	TRUE	FALSE	Removed	0	Unlimited	normal	0	Unlimited	normal	FALSE	FALSE	normal	Tile0	VMNetwork2	17	12325
AuctionWebEDB1	4	4	16384	TRUE	FALSE	Removed	0	Unlimited	normal	0	Unlimited	normal	FALSE	FALSE	normal	Tile1	VMNetwork2	17	12325
AuctionWebEDB2	4	4	16384	TRUE	FALSE	Removed	0	Unlimited	normal	0	Unlimited	normal	FALSE	FALSE	normal	Tile2	VMNetwork2	17	12325
AuctionWebEDB3	4	4	16384	TRUE	FALSE	Removed	0	Unlimited	normal	0	Unlimited	normal	FALSE	FALSE	normal	Tile3	VMNetwork2	17	12325
AuctionWebEDB4	4	4	16384	TRUE	FALSE	Removed	0	Unlimited	normal	0	Unlimited	normal	FALSE	FALSE	normal	Tile4	VMNetwork2	17	12325
VM	vCPUs	Cores Per Socket	Memory (MB)	Sync Time	Logging	CD/DVD	CPU Res	CPU Limit	CPU Shares	Mem Res	Mem Limit	Mem Shares	Mem Pin	Mem 1G Page	Disk Shares	Datastore	Port Group	vHW Version	Tools Version
AuctionWebF0	2	2	8192	TRUE	FALSE	Removed	0	Unlimited	normal	0	Unlimited	normal	FALSE	FALSE	normal	Tile0	VMNetwork2	17	12325
AuctionWebF1	2	2	8192	TRUE	FALSE	Removed	0	Unlimited	normal	0	Unlimited	normal	FALSE	FALSE	normal	Tile1	VMNetwork2	17	12325
AuctionWebF2	2	2	8192	TRUE	FALSE	Removed	0	Unlimited	normal	0	Unlimited	normal	FALSE	FALSE	normal	Tile2	VMNetwork2	17	12325
AuctionWebF3	2	2	8192	TRUE	FALSE	Removed	0	Unlimited	normal	0	Unlimited	normal	FALSE	FALSE	normal	Tile3	VMNetwork2	17	12325
AuctionWebF4	2	2	8192	TRUE	FALSE	Removed	0	Unlimited	normal	0	Unlimited	normal	FALSE	FALSE	normal	Tile4	VMNetwork2	17	12325
VM	vCPUs	Cores Per Socket	Memory (MB)	Sync Time	Logging	CD/DVD	CPU Res	CPU Limit	CPU Shares	Mem Res	Mem Limit	Mem Shares	Mem Pin	Mem 1G Page	Disk Shares	Datastore	Port Group	vHW Version	Tools Version
DS35DB0	24	24	49152	TRUE	FALSE	Removed	0	Unlimited	high	49152	Unlimited	high	TRUE	TRUE	normal	Tile0	VMNetwork2	17	12325
DS35DB1	24	24	49152	TRUE	FALSE	Removed	0	Unlimited	high	49152	Unlimited	high	TRUE	TRUE	normal	Tile1	VMNetwork2	17	12325
DS35DB2	24	24	49152	TRUE	FALSE	Removed	0	Unlimited	high	49152	Unlimited	high	TRUE	TRUE	normal	Tile2	VMNetwork2	17	12325
DS35DB3	24	24	49152	TRUE	FALSE	Removed	0	Unlimited	high	49152	Unlimited	high	TRUE	TRUE	normal	Tile3	VMNetwork2	17	12325
DS35DB4	24	24	49152	TRUE	FALSE	Removed	0	Unlimited	high	49152	Unlimited	high	TRUE	TRUE	normal	Tile4	VMNetwork2	17	12325
VM	vCPUs	Cores Per Socket	Memory (MB)	Sync Time	Logging	CD/DVD	CPU Res	CPU Limit	CPU Shares	Mem Res	Mem Limit	Mem Shares	Mem Pin	Mem 1G Page	Disk Shares	Datastore	Port Group	vHW Version	Tools Version
DS35WebA0	6	6	512	TRUE	FALSE	Removed	0	Unlimited	normal	0	Unlimited	normal	FALSE	FALSE	normal	Tile0	VMNetwork2	17	12325
DS35WebA1	6	6	512	TRUE	FALSE	Removed	0	Unlimited	normal	0	Unlimited	normal	FALSE	FALSE	normal	Tile1	VMNetwork2	17	12325
DS35WebA2	6	6	512	TRUE	FALSE	Removed	0	Unlimited	normal	0	Unlimited	normal	FALSE	FALSE	normal	Tile2	VMNetwork2	17	12325

SocialNetwork2	36	36	16384	TRUE	FALSE	Removed	0	Unlimited	normal	0	Unlimited	normal	FALSE	FALSE	normal	Tile2	VMNetwork2	17	12325
SocialNetwork3	36	36	16384	TRUE	FALSE	Removed	0	Unlimited	normal	0	Unlimited	normal	FALSE	FALSE	normal	Tile3	VMNetwork2	17	12325
SocialNetwork4	36	36	16384	TRUE	FALSE	Removed	0	Unlimited	normal	0	Unlimited	normal	FALSE	FALSE	normal	Tile4	VMNetwork2	17	12325
VM	vCPUs	Cores Per Socket	Memory (MB)	Sync Time	Logging	CD/DVD	CPU Res	CPU Limit	CPU Shares	Mem Res	Mem Limit	Mem Shares	Mem Pin	Mem 1G Page	Disk Shares	Datastore	Port Group	vHW Version	Tools Version
Standby0	1	1	2048	TRUE	FALSE	Removed	0	Unlimited	low	0	Unlimited	normal	FALSE	FALSE	normal	Tile0	VMNetwork2	17	12325
Standby1	1	1	2048	TRUE	FALSE	Removed	0	Unlimited	low	0	Unlimited	normal	FALSE	FALSE	normal	Tile1	VMNetwork2	17	12325
Standby2	1	1	2048	TRUE	FALSE	Removed	0	Unlimited	low	0	Unlimited	normal	FALSE	FALSE	normal	Tile2	VMNetwork2	17	12325
Standby3	1	1	2048	TRUE	FALSE	Removed	0	Unlimited	low	0	Unlimited	normal	FALSE	FALSE	normal	Tile3	VMNetwork2	17	12325
Standby4	1	1	2048	TRUE	FALSE	Removed	0	Unlimited	low	0	Unlimited	normal	FALSE	FALSE	normal	Tile4	VMNetwork2	17	12325
VM	vCPUs	Cores Per Socket	Memory (MB)	Sync Time	Logging	CD/DVD	CPU Res	CPU Limit	CPU Shares	Mem Res	Mem Limit	Mem Shares	Mem Pin	Mem 1G Page	Disk Shares	Datastore	Port Group	vHW Version	Tools Version
VMmark-4.0.1-208	4	1	32768	TRUE	FALSE	Removed	0	Unlimited	normal	0	Unlimited	normal	FALSE	FALSE	normal	Deploy	VMNetwork2	17	12325

Client Host Virtual Machines

VM	vCPUs	Cores Per Socket	Memory (MB)	Sync Time	Logging	CD/DVD	CPU Res	CPU Limit	CPU Shares	Mem Res	Mem Limit	Mem Shares	Mem Pin	Mem 1G Page	Disk Shares	Datastore	Port Group	vHW Version	Tools Version
Client0	64	1	98304	TRUE	FALSE	Removed	0	Unlimited	normal	0	Unlimited	normal	FALSE	FALSE	normal	Client_Datastore	VMNetwork2	17	12325
Client1	64	1	98304	TRUE	FALSE	Removed	0	Unlimited	normal	0	Unlimited	normal	FALSE	FALSE	normal	Client_Datastore	VMNetwork2	17	12325
Client2	64	1	98304	TRUE	FALSE	Removed	0	Unlimited	normal	0	Unlimited	normal	FALSE	FALSE	normal	Client_Datastore	VMNetwork2	17	12325
Client3	64	1	98304	TRUE	FALSE	Removed	0	Unlimited	normal	0	Unlimited	normal	FALSE	FALSE	normal	Client_Datastore	VMNetwork2	17	12325
Client4	64	1	98304	TRUE	FALSE	Removed	0	Unlimited	normal	0	Unlimited	normal	FALSE	FALSE	normal	Client_Datastore	VMNetwork2	17	12325
Prime Client	4	1	32768	TRUE	TRUE	Present	0	Unlimited	normal	0	Unlimited	normal	FALSE	FALSE	normal	Client_Datastore	VMNetwork, VMNetwork2	17	12325
VMware vCenter Server	8	1	30720	FALSE	TRUE	Present	0	Unlimited	normal	0	Unlimited	normal	FALSE	FALSE	normal	Client_Datastore	VMNetwork, VMNetwork, VAAI	10	12389

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