

VMware® VMmark® V2.5.2 Results

Vendor and Hardware Platform: HP ProLiant BL660c Gen8
 Virtualization Platform: VMware ESXi 5.5.0 Build 1331820
 VMware vCenter Server : VMware vCenter Server 5.5.0 Build 1312298

**VMmark V2.5 Score =
27.25 @ 24 Tiles**

Number of Hosts: 2

Uniform Hosts [yes/no]: yes

Total sockets/cores/threads in test: 8/96/192

Tested By: Hewlett-Packard

Test Date: 03-30-2014

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Performance

	mailserver			olio			dvdstoreA			dvdstoreB			dvdstoreC			
TILE_0	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0	322.55	0.98	94.00	4692.15	1.01	147.80	3803.85	1.73	73.08	2823.30	1.86	79.41	2048.57	1.94	82.72	1.44
p1	327.68	0.99	99.05	4682.20	1.01	155.40	3709.43	1.69	77.55	2711.30	1.79	86.03	2056.85	1.94	89.50	1.42
p2	330.73	1.00	110.20	4671.77	1.01	168.49	3525.15	1.60	86.67	2489.07	1.64	96.03	1772.83	1.68	100.91	1.35
TILE_1	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0	325.70	0.99	99.25	4690.30	1.01	151.24	3690.00	1.68	78.38	2817.90	1.86	85.14	2065.55	1.95	88.95	1.43
p1	325.10	0.98	106.25	4684.25	1.01	161.36	3650.45	1.66	80.26	2582.32	1.70	88.97	1933.58	1.83	93.06	1.39
p2	324.38	0.98	117.15	4659.38	1.00	177.41	3447.43	1.57	90.77	2432.10	1.60	100.31	1731.55	1.64	105.13	1.32
TILE_2	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0	325.38	0.99	97.90	4673.10	1.01	153.48	3748.70	1.70	76.17	2758.78	1.82	83.63	2083.68	1.97	87.21	1.43
p1	328.62	1.00	104.00	4691.35	1.01	159.31	3693.25	1.68	78.48	2610.47	1.72	87.08	1862.42	1.76	91.77	1.39
p2	329.57	1.00	112.00	4686.48	1.01	171.74	3518.85	1.60	86.63	2592.32	1.71	94.05	1874.45	1.77	98.68	1.37
TILE_3	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0	327.85	0.99	98.75	4691.85	1.01	155.50	3710.50	1.69	77.61	2625.90	1.73	85.91	1982.60	1.87	88.71	1.41
p1	329.23	1.00	104.50	4693.10	1.01	161.87	3690.88	1.68	78.59	2625.85	1.73	86.27	1880.28	1.78	90.32	1.39
p2	325.85	0.99	114.00	4686.00	1.01	169.55	3542.07	1.61	85.48	2602.05	1.71	93.45	1971.22	1.86	97.43	1.39
TILE_4	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0	325.05	0.98	88.50	4692.98	1.01	153.44	3778.90	1.72	74.47	2692.12	1.77	82.06	1926.78	1.82	85.68	1.41
p1	327.40	0.99	94.00	4684.62	1.01	153.90	3746.72	1.70	75.77	2777.72	1.83	82.18	2017.65	1.91	85.46	1.43
p2	326.48	0.99	101.50	4692.40	1.01	158.23	3667.62	1.67	79.63	2602.18	1.71	87.65	1954.95	1.85	91.30	1.39
TILE_5	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0	326.80	0.99	102.67	4661.65	1.00	162.66	3566.07	1.62	84.22	2545.20	1.68	91.59	1821.88	1.72	95.83	1.36

p1	330.07	1.00	114.00	4692.15	1.01	166.72	3530.25	1.61	86.17	2587.97	1.70	94.27	1968.60	1.86	97.39	1.39
p2	325.30	0.99	122.50	4648.38	1.00	172.48	3399.07	1.55	92.60	2411.90	1.59	101.19	1741.55	1.65	103.98	1.32
TILE_6	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0	328.27	0.99	98.00	4682.65	1.01	154.26	3669.85	1.67	79.12	2717.05	1.79	85.82	1976.85	1.87	88.99	1.41
p1	326.02	0.99	104.00	4673.45	1.01	156.70	3730.22	1.70	76.56	2642.72	1.74	84.66	1990.90	1.88	87.65	1.41
p2	323.35	0.98	110.25	4662.32	1.00	169.70	3485.30	1.58	88.39	2461.88	1.62	97.69	1761.92	1.67	102.23	1.33
TILE_7	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0	328.27	0.99	106.20	4684.45	1.01	159.81	3636.70	1.65	81.10	2660.18	1.75	89.56	2019.03	1.91	92.72	1.41
p1	325.80	0.99	114.00	4696.45	1.01	163.13	3671.62	1.67	79.35	2600.30	1.71	87.70	1865.92	1.76	91.41	1.38
p2	320.57	0.97	118.75	4666.95	1.01	171.39	3435.43	1.56	91.28	2510.40	1.65	100.21	1803.10	1.70	105.48	1.34
TILE_8	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0	329.35	1.00	94.50	4673.98	1.01	142.39	3789.32	1.72	73.32	2781.90	1.83	76.41	2135.93	2.02	76.31	1.45
p1	322.30	0.98	104.00	4693.50	1.01	153.60	3699.28	1.68	77.25	2719.70	1.79	80.52	1996.92	1.89	80.63	1.41
p2	322.52	0.98	110.25	4655.18	1.00	160.50	3498.28	1.59	86.91	2657.75	1.75	90.32	2057.35	1.94	90.50	1.40
TILE_9	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0	325.32	0.99	104.00	4679.15	1.01	156.86	3729.50	1.70	76.14	2737.80	1.80	79.18	2010.30	1.90	79.52	1.42
p1	325.50	0.99	104.00	4670.75	1.01	162.47	3676.55	1.67	78.53	2795.05	1.84	81.28	2085.80	1.97	80.64	1.43
p2	327.32	0.99	113.25	4662.93	1.00	170.95	3477.10	1.58	88.37	2539.20	1.67	92.99	1951.12	1.84	92.83	1.37
TILE_10	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0	322.05	0.98	99.00	4682.48	1.01	150.51	3773.07	1.72	74.38	2759.30	1.82	77.98	2036.28	1.92	77.25	1.43
p1	323.90	0.98	104.00	4688.55	1.01	159.08	3698.65	1.68	77.75	2808.47	1.85	80.95	2179.22	2.06	80.60	1.45
p2	324.30	0.98	112.25	4677.43	1.01	165.03	3557.47	1.62	84.01	2596.50	1.71	88.62	1911.95	1.81	88.51	1.38
TILE_11	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0	327.85	0.99	99.50	4683.07	1.01	161.20	3687.22	1.68	77.85	2804.28	1.85	80.70	2087.18	1.97	80.83	1.44
p1	326.80	0.99	107.00	4683.73	1.01	162.38	3678.78	1.67	78.37	2696.60	1.78	82.04	2073.35	1.96	81.87	1.42
p2	326.38	0.99	114.00	4664.95	1.01	167.87	3556.75	1.62	83.65	2603.35	1.71	87.69	1918.83	1.81	87.05	1.38
TILE_12	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0	326.60	0.99	97.50	4684.02	1.01	147.79	3728.47	1.70	76.18	2817.88	1.86	79.49	2180.55	2.06	80.06	1.45
p1	329.75	1.00	104.00	4677.45	1.01	154.49	3730.45	1.70	75.79	2731.45	1.80	79.39	2007.60	1.90	79.38	1.42
p2	325.10	0.98	105.25	4690.43	1.01	159.36	3638.72	1.65	80.10	2758.07	1.82	83.38	2044.03	1.93	83.84	1.42
TILE_13	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0	324.95	0.98	117.50	4680.15	1.01	157.41	3543.28	1.61	84.80	2586.93	1.70	88.92	1979.17	1.87	89.38	1.38
p1	325.52	0.99	124.00	4676.10	1.01	165.83	3522.95	1.60	85.40	2579.85	1.70	89.15	1892.15	1.79	89.52	1.37
p2	325.88	0.99	131.75	4679.65	1.01	178.57	3371.82	1.53	93.56	2551.55	1.68	97.29	1961.17	1.85	98.88	1.37
TILE_14	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM

p0	323.40	0.98	103.88	4701.60	1.01	150.16	3699.47	1.68	77.41	2714.88	1.79	80.70	1996.05	1.89	80.52	1.41
p1	329.00	1.00	104.00	4708.12	1.01	152.86	3733.93	1.70	75.72	2834.85	1.87	78.87	2108.12	1.99	78.72	1.45
p2	329.75	1.00	113.50	4687.30	1.01	158.37	3496.32	1.59	86.93	2564.22	1.69	90.66	1970.30	1.86	90.80	1.38
TILE_15	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0	324.07	0.98	109.75	4681.05	1.01	161.35	3660.47	1.66	79.08	2683.97	1.77	82.87	1966.47	1.86	83.01	1.40
p1	328.57	0.99	114.00	4677.48	1.01	163.54	3667.62	1.67	78.96	2786.60	1.84	82.27	2148.45	2.03	82.99	1.44
p2	321.40	0.97	121.25	4654.82	1.00	181.95	3466.93	1.58	88.50	2553.95	1.68	91.77	1872.53	1.77	91.66	1.36
TILE_16	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0	327.25	0.99	104.25	4677.05	1.01	153.03	3801.30	1.73	73.47	2824.78	1.86	79.58	2039.53	1.93	83.86	1.44
p1	327.48	0.99	104.00	4692.88	1.01	166.03	3732.32	1.70	77.05	2656.85	1.75	84.41	1977.30	1.87	89.03	1.41
p2	328.90	1.00	114.00	4660.12	1.00	181.20	3545.03	1.61	85.99	2522.28	1.66	93.98	1779.28	1.68	100.42	1.35
TILE_17	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0	323.18	0.98	111.47	4692.50	1.01	157.76	3705.25	1.68	78.13	2738.57	1.80	85.11	2057.07	1.94	89.76	1.42
p1	327.35	0.99	111.70	4688.73	1.01	163.45	3671.85	1.67	79.75	2615.47	1.72	87.28	1848.55	1.75	93.38	1.38
p2	331.40	1.00	116.12	4666.60	1.01	178.16	3457.70	1.57	90.18	2540.97	1.67	98.46	1815.67	1.72	105.02	1.35
TILE_18	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0	325.00	0.98	144.43	4680.45	1.01	156.27	3754.10	1.71	75.80	2683.07	1.77	82.95	1996.67	1.89	87.70	1.41
p1	327.50	0.99	126.00	4679.93	1.01	161.33	3706.18	1.69	78.06	2643.57	1.74	85.22	1874.12	1.77	90.86	1.39
p2	324.75	0.98	124.00	4673.73	1.01	174.95	3539.57	1.61	86.01	2706.47	1.78	92.67	1958.70	1.85	98.61	1.39
TILE_19	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0	326.00	0.99	160.10	4665.80	1.01	155.92	3692.82	1.68	78.28	2646.68	1.74	85.24	1874.33	1.77	91.08	1.39
p1	326.00	0.99	132.57	4677.75	1.01	163.82	3680.03	1.67	79.31	2738.47	1.80	85.30	1951.22	1.84	91.88	1.41
p2	324.80	0.98	127.50	4678.85	1.01	167.34	3540.32	1.61	85.69	2616.25	1.72	92.90	1954.62	1.85	98.60	1.38
TILE_20	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0	323.52	0.98	105.25	4674.85	1.01	151.80	3758.43	1.71	75.51	2694.93	1.77	81.81	1924.35	1.82	86.46	1.40
p1	325.43	0.99	104.25	4665.95	1.01	155.27	3718.05	1.69	77.09	2854.75	1.88	82.82	2085.53	1.97	87.19	1.44
p2	322.57	0.98	111.50	4680.32	1.01	161.57	3655.00	1.66	80.05	2607.43	1.72	87.36	1946.60	1.84	91.93	1.39
TILE_21	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0	326.43	0.99	172.78	4680.32	1.01	156.70	3515.32	1.60	86.75	2608.70	1.72	93.45	1877.47	1.77	98.30	1.37
p1	329.70	1.00	152.25	4681.73	1.01	165.43	3487.97	1.59	88.18	2558.80	1.69	96.78	1919.17	1.81	101.85	1.37
p2	324.70	0.98	151.75	4655.30	1.00	168.78	3360.47	1.53	94.90	2398.82	1.58	102.85	1699.75	1.61	108.33	1.31
TILE_22	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0	327.52	0.99	127.25	4675.77	1.01	151.46	3673.97	1.67	79.08	2816.07	1.85	85.55	2050.57	1.94	89.97	1.43
p1	324.50	0.98	114.75	4681.23	1.01	155.49	3738.07	1.70	76.38	2645.72	1.74	84.56	1981.70	1.87	88.35	1.41
p2	329.77	1.00	122.00	4651.25	1.00	172.64	3504.62	1.59	87.41	2490.80	1.64	95.80	1764.45	1.67	101.34	1.34

TILE_23	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0	320.85	0.97	178.97	4683.30	1.01	152.05	3622.38	1.65	81.51	2666.82	1.76	89.07	2006.72	1.90	94.01	1.40
p1	331.07	1.00	150.25	4668.35	1.01	153.72	3658.85	1.66	79.95	2617.35	1.72	87.04	1856.08	1.75	92.42	1.38
p2	326.77	0.99	144.00	4666.85	1.01	170.98	3428.15	1.56	91.67	2528.43	1.67	98.95	1802.60	1.70	106.09	1.34
p0_score:	33.95															
p1_score:	33.78															
p2_score:	32.73															
Infrastructure_Operations_Scores:										vmotion	svmotion	deploy				
Completed_Ops_PerHour										17.50	11.00	4.50				
Avg_Seconds_To_Complete										23.13	20.98	422.24				
Failures										0.00	0.00	0.00				
Ratio										1.09	1.22	1.12				
Number_Of_Threads										1	1	1				
Summary							Run_Is_Compliant					Turbo_Setting:0				
							Number_Of_Compliance_Issues(0)*					Median_Phase(p1)				
Unreviewed_VMmark2_Applications_Score							33.78									
Unreviewed_VMmark2_Infrastructure_Score							1.15									
Unreviewed_VMmark2_Score							27.25									

Configuration

Virtualization Software	
Hypervisor Vendor, Product, Version, and Build / Availability Date (MM-DD-YYYY)	VMware ESXi 5.5.0 Build 1331820/ 09-22-2013
Datacenter Management Software Vendor, Product, Version, and Build / Availability Date (MM-DD-YYYY)	VMware vCenter Server 5.5.0 Build 1312298 / 09-19-2013
Supplemental Software	none
Servers	
Quantity	2
Server Manufacturer and Model	HP ProLiant BL660c Gen8
Processor Vendor and Model	Intel Xeon E5-4657L v2

Processor Speed (GHz)	2.40
Total Sockets/Total Cores/Total Threads	4 Sockets / 48 Cores / 96 Threads
Primary Cache	32 KB I + 32 KB D on chip per core
Secondary Cache	256 KB I+D on chip per core
Other Cache	30 MB I+D on chip per chip L3
BIOS Version	I32 02/02/2014
Memory Size (in GB, Number of DIMMs)	512 GB, 16 x 32 GB DIMMs
Memory Type and Speed	Quad Rank PC3-14900 ECC DDR3 1866 MHz LRDIMM
Disk Subsystem Type	FC SAN
Number of Disk Controllers	1
Disk Controller Vendors and Models	HP Smart Array P220i
Number of Host Bus Adapters	2
Host Bus Adapter Vendors and Models	HP QMH2572 8Gb Fibre HBA
Number of Network Controllers	3
Network Controller Vendors and Models	2 x HP FlexFabric 10Gb 2-port 554FLB Adapter, 1 x HP Flex-10 10Gb 2-port 530M Adapter
Other Hardware	none
Other Software	VMware-ESXi-5.5.0-1331820-HP-5.72.27-Feb2014.iso
Hardware Availability Date (MM-DD-YYYY)	03-03-2014
Software Availability Date (MM-DD-YYYY)	09-22-2013
Network	
Network Switch Vendors and Models	4 x HP Virtual Connect Flex-10 10Gb Ethernet Module for BladeSystem
Network Speed	HP Virtual Connect Flex-10 - 10 GbE
Storage	
Array Vendors, Models, and Firmware Versions	HP 3PAR StoreServ 7450 four-controller system, with 3PAR OS 3.1.2 (MU3)
Fibre Channel Switch Vendors and Models	4 x HP B-Series 8/24c SAN switch Blade System C-class
Disk Space Used	8.5 TB (usable)
Array Cache Size	128 GB

Total Number of Physical Disks Used	76 (2 per SUT OS, 72 for 3PAR)
Total Number of Enclosures/Pods/Shelves Used	4 (including node and disk enclosures)
Number of Physical Disks Used per Enclosure/Pod/Shelf	Internal: 2 disks per SUT host HP 3PAR StoreServ 7450: 18 SSDs per enclosure
Total Number of Storage Groups Used	6
Number of LUNs Used	24
LUN Size and Number of Disks Per LUN	20 LUNs spread across 4 sets of 18 SSDs; 4 LUNs spread across 2 sets of 36 SSDs Details in section Storage Notes
RAID Type	RAID1
Number of Members per RAID Set	for SUT host: 2 for HP 3PAR StoreServ 7450: 4 sets of 18, 2 sets of 36
Disk Vendors, Models, and Speeds	4 x HP 146GB 15K RPM SAS SFF (P/N 652605-B21) 48 x HP M6710 200GB 6Gb SAS 2.5IN SLC SSD 24 x HP M6710 400GB 6Gb SAS 2.5IN MLC SSD

Datacenter Management Server

System Model	HP ProLiant BL465c G7
Processor Vendor and Model	AMD Opteron(TM) Processor 6174
Processor Speed (GHz)	2.2
Total Sockets/Total Cores/Total Threads	2 Sockets / 24 Cores / 24 Threads
Memory	64 GB
Network Controller(s) Vendors and Models	1 x HP NC551i Dual Port FlexFabric 10GbE Adapter, 1 x HP NC542m Dual Port Flex-10 10GbE BL-c Adapter
Operating System, Version, Bitness, and Service Pack	VMware ESXi 4.1.0 Build 348481
Other Hardware	none
Other Software	Microsoft® Windows® 2008 R2 Enterprise (64-bit)

Clients

Total Number of Clients / Total Physical Clients / Total Virtual Client Hosts	25 / 1 / 6
System Model(s)	HP ProLiant BL460c G7 (prime client) Virtual Client Hosts 0-2: HP ProLiant BL465c G7 (virtual client hosts) Virtual Client Hosts 3-5: HP ProLiant BL460c G6 (virtual client hosts)
Processor Vendor(s) and Model(s)	Prime client: Intel Xeon X5675 Virtual Client Hosts 0-2: AMD Opteron 6174

	Virtual Client Hosts 3-5: Intel Xeon X5670
Processor Speed(s) (GHz)	Prime Client: 3.06 Virtual Client Hosts 0-2: 2.2 Virtual Client Hosts 3-5: 2.93
Total Sockets/Total Cores/Total Threads	Prime Client: 2 Sockets / 12 Cores / 24 Threads Virtual Client Hosts 0-2: 2 Sockets / 24 Cores / 24 Threads Virtual Client Hosts 3-5: 2 Sockets / 12 Cores / 24 Threads
Memory per Physical Client	Prime Client: 24 GB Virtual Client Hosts 0-2: 64 GB Virtual Client Hosts 3-5: 32 GB
Network Controller(s) Vendors and Models	Prime Client: 1 x HP NC553i Dual Port FlexFabric 10GbE Adapter Virtual Client Hosts 0-2: 1 x HP NC551i Dual Port FlexFabric 10GbE Adapter, 1 x HP NC542m Dual Port Flex-10 10GbE BL-c Adapter Virtual Client Hosts 3-5: 1 x HP NC532i Dual Port FlexFabric 10GbE Adapter, 1 x HP NC542m Dual Port Flex-10 10GbE BL-c Adapter
Operating System, Version, Bitness, and Service Pack	Prime Client: Microsoft® Windows® 2008 R2 (64-bit) Virtual Client Hosts 0-5: VMware ESXi 5.1 U1 (Build 1065491) Virtual Clients 0-23: Microsoft® Windows® 2008 R2 Enterprise (64-bit)
Number of Virtual Clients	24
Number of vCPUs Per Virtual Client	4
Number of vMem (GB) Per Virtual Client	4
Virtual Client Networking Notes	none
Virtual Client Storage Notes	Client VMs stored on local media respective to their ESXi host. 2x300GB 6G 10K rpm SFF SAS disk configured in a RAID1 volume per Physical Client
Other Hardware	HP BladeSystem c7000 Enclosure, 4xHP Virtual Connect Flex-10 10Gb Ethernet Module
Other Software	HP BladeSystem c7000 Onboard Administrator Version 4.00, HP Virtual Connect Manager Version 4.10

Notes for Workload

Virtualization Software Notes

- All VMs used virtual hardware V7
- All VMs (except for Deploy Template) had VMware tools version 8305 installed and running
- Ethernet adapter type set to vmxnet3 for all VMs (default vmxnet2)
- Logging was disabled for all VMs (default enabled)
- CD & floppy devices were removed on all VMs (default enabled)
- Firewall was disabled in the console OS (default enabled)
- All VMs besides standbys: Paravirtual Controller
- Cluster DRS Automation Level set to Fully Automated
- DrsMigrationThreshold set to level 1
- Logical CPU layout changed for all multi-cpu VMs to 1 socket with multiple cores. (default Single core per socket)
- All DS2DB VMs had CPU shares set to High (default Normal)

- Multiqueue is disabled in the vmxnet3 driver on all Linux VMs

Advanced Settings:

- Cpu.CoschedCrossCall = 0 (default 1)
- Cpu.CreditAgePeriod = 1000 (default 3000)
- Cpu.HTWholeCoreThreshold = 0 (default 200)
- DataMover.HardwareAcceleratedInit = 0 (default 1)
- DataMover.HardwareAcceleratedMove = 0 (default 1)
- Irq.BestVcpuRouting = 1 (default 0)
- Mem.BalancePeriod = 0 (default 15)
- Mem.SamplePeriod = 0 (default 60)
- Mem.ShareScanGHz = 0 (default 4)
- Misc.TimerMaxHardPeriod = 4000 (default 100000)
- Net.MaxNetifRxQueueLen = 500 (default 100)
- Net.MaxNetifTxQueueLen = 1000 (default 500)
- Net.NetTxCompletionWorldlet = 0 (default 1)
- Net.NetTxWorldlet = 1 (default 2)
- Numa.LargeInterleave = 0 (default 1)
- Numa.LTermFairnessInterval = 0 (default 5)
- Numa.MigImbalanceThreshold = 57 (default 10)
- Numa.MonMigEnable = 0 (default 1)
- Numa.PageMigEnable = 0 (default 1)
- Numa.PreferHT = 1 (default 0)
- Numa.RebalancePeriod = 60000 (default 2000)
- Numa.SwapInterval = 1 (default 3)
- Numa.SwapLoadEnable = 0 (default 1)
- Numa.SwapLocalityEnable = 0 (default 1)
- Power.CpuPolicy = static (default balanced)
- VMFS3.HardwareAcceleratedLocking = 0 (default 1)

Driver Options:

- /vmkernel/module/qlnativefc/options = "ql2xmaxqdepth=256 ql2xintrdelaytimer=2 ql2xenablesix=1"
- The VMkernel limit for all the LUNs at set to 256.

Server Notes

Server BIOS settings:

- HP Power Profile set to Maximum Performance (default: Balanced Power and Performance)
- Thermal Configuration set to Maximum Cooling (default: Optimal Cooling)
- HW Prefetcher set to Disabled (default: Enabled)
- Adjacent Sector Prefetcher set to Disabled: (default: Enabled)
- Processor Power and Utilization Monitoring set to Disabled: (default: Enabled)
- Memory Pre-Failure Notification set to Disabled: (default: Enabled)
- Memory Refresh Rate set to 1x Refresh (default: 2x Refresh)
- Intel Turbo Boost Enabled (frequency boost to 2.9 GHz) (default Enabled)

Networking Notes

- vSwitch0 for the Service Console on vmnic0 at 10Gb/s
- vSwitch1 defined as vmkernel vMotion connection on vmnic6 at 10Gb/s
- vSwitch2 for the DVD store workload on vmnic2 at 10Gb/s
- vSwitch3 for the Olio workload on vmnic4 at 10Gb/s
- vSwitch4 for the Mail server workload on vmnic5 at 10Gb
- vSwitch5 for the standby and deploy workloads on vmnic3 at 10Gb/s

Storage Notes

- ESXi was installed on two disks configured as RAID1 in the internal server storage bay on each SUT
- Physical Configuration for HP 3PAR StoreServ 7450:
 - 4 x HP 3PAR StoreServ 7450 Controller Nodes
 - 4 x HP 3PAR Gen4 ASICS
 - 128GB of cache
 - 72 x SSDs
 - 3PAR Operating System 3.1.2 MU3 that includes:
 - Zero-block Deduplication
 - Persistent Cache
 - Persistent Ports
 - Autonomic Groups
 - VAAI support
 - Full Copy
 - Thin Provisioning, Thin Conversion, Thin Persistence, Thin Copy Reclamation
- Virtual Configuration for 3PAR StoreServ 7450:
 - All LUNs are RAID1
 - 20 LUNs allocated across 4 sets of 18 SSDs
 - 4 LUNs allocated across 2 sets of 36 SSDs
 - 12 x 500GB volumes, each hosting 2 tiles except for the standby VMs and 1 mailserver VM
 - 4 x 100GB volumes, each hosting 6 standby VMs
 - 2 x 300GB volumes, each hosting 3 mailserver VMs
 - 3 x 250GB volumes, each hosting 1 mailserver VM
 - 1 x 250GB volume, hosting 2 mailserver VMs
 - 1 x 100GB volume, hosting 1 mailserver VM
 - 1 x 100GB volume, for Deploy Template, Deploy target and SVmotion target

Datacenter Management Server Notes

- HP ProLiant BL465c G7 running ESXi 4.1.0 Build 348481 with one virtual machine for vCenter for SUT
 - vCenter for SUT
 - 4 virtual CPUs
 - 8 GB virtual memory
 - Microsoft® Windows® 2008 R2 Enterprise (64-bit)

Operating System Notes

- All mailserver VMs running Microsoft® Windows® 2008 R2 Enterprise (64-bit)
- All standby VMs running Microsoft® Windows® 2003 Enterprise SP2 (32-bit)
- All DS2DB, DS2WebA, DS2WebB, DS2WebC, OlioDB and OlioWeb running SUSE® Linux Enterprise Server 11 SP2 (64-bit)

Software Notes

- Microsoft® Exchange Server 2007 Enterprise SP3 (64-bit) was installed on each mailserver VM

Client Notes

- Prime client functionality was split from the client0 driver and was run on a non-virtualized copy of Microsoft® Windows® 2008 R2 Enterprise (64-bit).
- Prime client was running VMware vSphere PowerCLI 5.5 Release 1 build 1295336
- Three HP ProLiant BL465c G7 and three HP ProLiant BL460c G6 host 24 virtual machines combined as follows:
 - HP ProLiant BL465c G7
 - system 1: hosted vclients 0,6,12,15,18,21
 - system 2: hosted vclients 1,7,13,16,19,22
 - system 3: hosted vclients 2,8,14,17,20,23
 - HP ProLiant BL460c G6
 - system 4: hosted vclients 3,10
 - system 5: hosted vclients 4,9
 - system 6: hosted vclients 5,11
- All client operating systems were updated via Windows Update.
- SPP Notification Service was running only on clients 9,10,11 and 14-17.
- Software Protection was running only on clients 9,10,11 and 14-17.

Other Notes

None

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