

VMware® VMmark® V2.1 Results

Vendor and Hardware Platform: HP ProLiant BL490c G7
Virtualization Platform: VMware ESX 4.1.0 Build 260247

VMmark V2.1 Score =
6.86 @ 7 Tiles

Number of Hosts: 2

Uniform Hosts [yes/no]: yes

Total sockets/core/threads in test: 4/24/48

Tested By: Hewlett-Packard

Test Date: 03-14-2011

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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	327.02	0.99	84.75	4677.30	1.01	174.17	2776.07	1.26	134.67	2045.25	1.35	150.54	1461.80	1.38	160.61	1.19
p1	333.25	1.01	83.47	4650.85	1.00	181.35	2817.28	1.28	130.88	1916.92	1.26	150.27	1407.10	1.33	159.38	1.17
p2	323.07	0.98	75.75	4640.23	1.00	215.09	2779.90	1.26	134.93	1890.25	1.24	154.28	1296.90	1.23	168.92	1.14
TILE_1	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0	330.65	1.00	73.62	4687.00	1.01	160.20	3045.20	1.38	112.65	2288.32	1.51	118.37	1683.60	1.59	128.24	1.27
p1	326.65	0.99	74.00	4667.25	1.01	178.97	3040.22	1.38	114.04	2207.90	1.45	118.66	1534.35	1.45	129.15	1.24
p2	329.95	1.00	74.00	4678.18	1.01	173.98	2957.40	1.34	119.47	2246.82	1.48	122.51	1571.30	1.49	134.12	1.24
TILE_2	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0	325.38	0.99	74.00	4663.00	1.00	177.26	2871.55	1.31	126.41	2040.10	1.34	135.92	1485.03	1.40	146.79	1.20
p1	330.00	1.00	74.00	4632.70	1.00	206.62	2866.47	1.30	125.26	2081.15	1.37	131.54	1431.60	1.35	144.39	1.19
p2	321.62	0.97	74.00	4656.43	1.00	189.46	2806.43	1.28	130.68	2106.43	1.39	136.33	1540.97	1.46	148.38	1.20
TILE_3	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0	324.55	0.98	78.88	4664.23	1.00	176.57	3122.68	1.42	107.47	2253.50	1.48	114.33	1573.15	1.49	123.36	1.25
p1	324.48	0.98	74.00	4664.32	1.00	183.20	3127.95	1.42	107.84	2350.57	1.55	112.23	1674.15	1.58	119.96	1.28
p2	324.80	0.98	74.00	4669.68	1.01	184.08	3104.40	1.41	109.55	2231.20	1.47	116.14	1643.53	1.55	123.88	1.26
TILE_4	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0	328.35	0.99	76.00	4658.93	1.00	176.57	2669.70	1.21	143.71	1837.53	1.21	160.26	1287.40	1.22	170.60	1.12
p1	329.45	1.00	74.00	4658.12	1.00	195.19	2540.15	1.16	155.66	1798.40	1.18	174.98	1346.67	1.27	181.89	1.12
p2	324.95	0.98	74.00	4637.45	1.00	192.85	2637.62	1.20	146.83	1796.85	1.18	166.34	1265.72	1.20	175.52	1.11
TILE_5	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0	322.70	0.98	63.58	4677.38	1.01	168.16	2759.45	1.25	134.10	2007.42	1.32	147.09	1436.00	1.36	154.64	1.17
p1	325.85	0.99	64.00	4662.15	1.00	171.86	2748.22	1.25	136.68	1909.38	1.26	150.82	1412.30	1.33	158.80	1.16

p2	325.15	0.98	64.00	4666.48	1.01	174.77	2746.03	1.25	137.02	1895.25	1.25	152.58	1338.30	1.26	160.98	1.14
TILE_6	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0	329.30	1.00	91.85	4668.38	1.01	177.85	2810.97	1.28	131.05	2012.40	1.33	146.75	1507.12	1.42	152.97	1.19
p1	329.00	1.00	83.62	4643.55	1.00	195.49	2858.32	1.30	128.97	1945.67	1.28	147.17	1381.40	1.31	153.93	1.17
p2	326.23	0.99	83.75	4674.35	1.01	185.74	2804.22	1.28	132.98	1979.45	1.30	150.90	1426.92	1.35	156.54	1.17
p0_score:	8.40															
p1_score:	8.32															
p2_score:	8.27															

Infrastructure_Operations_Scores:	vmotion	svmotion	deploy
Completed_Ops_PerHour	15.50	9.00	4.50
Avg_Seconds_To_Complete	34.67	35.25	429.32
Failures	0.00	2.00	0.00
Ratio	0.97	1.00	1.12
Number_Of_Threads	1	1	1

Summary	Run_Is_Compliant	Number_Of_Compliance_Issues(0)*	Median_Phase(p1)
Unreviewed_VMmark2_Applications_Score	8.32		
Unreviewed_VMmark2_Infrastructure_Score	1.03		
Unreviewed_VMmark2_Score	6.86		

Configuration

Virtualization Software	
Hypervisor Vendor, Product, Version, and Build / Availability Date (MM-DD-YYYY)	VMware ESX 4.1.0 Build 260247/ 07-13-2010
Datacenter Management Software Vendor, Product, Version, and Build / Availability Date (MM-DD-YYYY)	VMware vCenter Server 4.1.0 Build 258902 / 07-13-2010
Supplemental Software	none
Servers	
Quantity	2
Server Manufacturer and Model	HP ProLiant BL490c G7
Processor Vendor and Model	Intel Xeon X5675
Processor Speed (GHz)	3.06

Total Sockets/Total Cores/Total Threads	2 Sockets / 12 Cores / 24 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	12 MB I+D on chip per chip L3
BIOS Version	I28 09/30/2010
Memory Size (in GB, Number of DIMMs)	96 GB, 12 x 8 GB DIMMs
Memory Type and Speed	dual rank PC3-10600 Registered DDR3
Disk Subsystem Type	FC SAN
Number of Disk Controllers	1
Disk Controller Vendors and Models	HP Embedded SATA RAID Controller
Number of Host Bus Adapters	1
Host Bus Adapter Vendors and Models	LPe1205 dual port 8Gb Fibre HBA
Number of Network Controllers	2
Network Controller Vendors and Models	Integrated NC553i DualPort FlexFabric 10GbE Adapter, HP NC542m Dual Port Flex-10 10GbE BI-C Adapter
Other Hardware	none
Other Software	none
Hardware Availability Date (MM-DD-YYYY)	02-14-2011
Software Availability Date (MM-DD-YYYY)	07-13-2010
Network	
Network Switch Vendors and Models	HP ProCurve 2910-al-24G
Network Speed	1 GbE with 10GbE uplinks
Storage	
Array Vendors, Models, and Firmware Versions	6xHP StorageWorks P2000
Fibre Channel Switch Vendors and Models	2xHP B-series 8/24c SAN Switch BladeSystem c-Class
Disk Space Used	10.1 TB
Array Cache Size	2GB
Total Number of Physical Disks Used	144
Total Number of Enclosures/Pods/Shelves Used	6

Number of Physical Disks Used per Enclosure/Pod/Shelf	Internal: 1 disks 6 enclosures: 12 disks
Total Number of Storage Groups Used	2
Number of LUNs Used	20
LUN Size and Number of Disks Per LUN	12 LUNs: 544.75GB on 8 disks 8 LUNs: 400.75 GB on 6 disks
RAID Type	RAID0
Number of Members per RAID Set	8 or 6
Disk Vendors, Models, and Speeds	144 HP 72GB 15K RPM SAS SFF

Datacenter Management Server

System Model	HP ProLiant BL465c G7
Processor Vendor and Model	AMD Opteron 6134
Processor Speed (GHz)	2.30
Total Sockets/Total Cores/Total Threads	2 Sockets / 16 Cores / 16 Threads
Memory	8 GB
Network Controller(s) Vendors and Models	Integrated NC551i DualPort FlexFabric 10Gb Converged Network Adapter
Operating System, Version, and Service Pack	Microsoft® Windows® 2008 R2 Enterprise (64-bit)
Other Hardware	none
Other Software	none

Clients

Number of Clients	1 Prime Client 4 other clients
System Model(s)	Prime Client and Clients 0-3: HP ProLiant DL360 G5
Processor Vendor(s) and Model(s)	Prime Client: Intel Xeon E5440 Clients 0-3: Intel Xeon E5450
Processor Speed(s) (GHz)	Prime Client: 2.83 Clients 0-3: 3.00
Total Sockets/Total Cores/Total Threads	Prime Client and Clients 0-3: 2 Sockets / 8 Cores / 8 Threads
Memory per Client	Prime Client: 4 GB Clients 0-3: 16 GB
Network Controller(s) Vendors and Models	Prime Client: 2 x HP NC373i embedded Gigabit adapters Clients 0-3: 2 x HP NC373i embedded Gigabit adapters, 1 x HP NC360T dual port Gigabit adapter

Operating System, Version, and Service Pack	Prime Client: Microsoft® Windows® 2003 Enterprise SP2 (32-bit) Client0-3: Microsoft® Windows® 2008 R2 Enterprise (64-bit)
Other Hardware	none
Other Software	Prime Client: None Client0-3: VMware ESX 4.1.0 (Build 260247)

Notes for Workload

Virtualization Software Notes

- all VMs used virtual hardware V7
- ethernet adapter type set to vmxnet3 for all VMs
- logging was disabled for all VMs
- IDE & floppy devices were removed on all VMs (default enabled)
- firewall was disabled in the console os (default enabled)
- All Mailserver VMs used Hard Disk 1 on LSI Logic SAS controller, Hard Disk 2 on Paravirtual controller
- MEL-mlx4_en-1.5.5-436 mlx4_en drivers installed on both servers
- SVE-be2net-2.102.518.0 ServerEngines BladeEngine NIC Driver installed on both servers

Advanced Settings:

- Cpu.HaltingIdleMsecPenalty = 0 (default 100)
- Disk.SchedNumReqOutstanding = 128 (default 32)
- Irq.RoutingPolicy = 0 (default 2)
- Mem.BalancePeriod = 0 (default 15)
- Mem.SamplePeriod = 0 (default 60)
- Mem.ShareScanGHz = 0 (default 4)
- Misc.TimerMaxHardPeriod = 4000 (default 100000)
- Misc.TimerMinHardPeriod = 2000 (default 100)
- Net.MaxNetifRxQueueLen = 500 (default 100)
- Net.MaxNetifTxQueueLen = 1000 (default 500)
- Net.NefTxWorldlet = 1 (default 2)
- Numa.PageMigEnable = 0 (default 1)
- Numa.LTermFairnessInterval = 0 (default 5)

Driver Options:

- /vmkernel/module/lpfc820.o/options = "lpfc_lun_queue_depth=128 lpfc_cr_count=5 lpfc_cr_delay=1" (default 31,1, and 0)

Server Notes

Server BIOS settings:

- HP Power Profile set to Maximum Performance (default: Balanced Performance)
- Collaborative Power Control disabled (default enabled)
- Thermal Configuration set to Increased Cooling (default: Optimal Cooling)
- Adjacent Cache Line Prefetch: Disabled (default: enabled)

- Hardware Prefetch: Disabled (default: enabled)
- DCU Streamer Disabled (default enabled)
- Data Reuse Optimizations: Disabled (default enabled)

Networking Notes

vSwitch Configuration:

- vSwitch0 for the Service Console on vmnic0 at 10Gb/s
- vSwitch1 for all VMs except Olio. on vmnic1 at 10Gb/s
- vSwitch2 defined as vmkernel vMotion connection on vmnic9.P1 at 10Gb/s
- vSwitch3 for all Olio VMs on vmnic9.P2 at 10Gb/s

Storage Notes

- All standby VMs were on a single LUN (8 disk)
- DeployTemplate was on a single LUN (8 disk)
- The VMs for each tile (except standby) were grouped together on two LUN for each tile. First LUN (8 disks) held the DS2DB and OlioDB VM. Second LUN (6 disks) held the rest of the VMs.
- The target for the sVMotion was on a single LUN (8 disk)
- The target for Deploy operations was a single dedicated LUN (8 disk).

Datacenter Management Server Notes

None

Operating System Notes

- All mailserver VMs running Microsoft® Windows® 2008 R2 Enterprise
- All standby VMs running Microsoft® Windows® 2003 Enterprise SP2

Software Notes

None

Client Notes

- Prime client functionality was split from the client0 driver and was run on a non-virtualized copy of Microsoft® Windows® 2003 Enterprise SP2 (32 bit).
- Prime client was running VMware vSphere PowerCLI 4.1 U1 build 332441.
- All client drivers were run on virtual machines that were each defined with 4 virtual cpus, 4GB of memory, 1 vmxnet3 network, and 32GB of disk space.
- Each virtual machine was running Microsoft® Windows® 2008 R2 Enterprise (64-bit).
- All HP ProLiant DL360 G5 client machines were installed with VMware ESX 4.1
- three HP ProLiant DL360 G5 clients ran two client virtual machines.
- One HP ProLiant DL360 G5 client ran one client virtual machine.

Other Notes

None

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