VMware® VMmark® V2.5.2 Results

Vendor and Hardware Platform: HPE ProLiant DL580 Gen9 Virtualization Platform: VMware ESXi 6.0.0 U2 Build 3620759 VMware vCenter Server : VMware vCenter Server 6.0.0 U1 Build-3018524	VMmark V2.5.2 Score = 57.87 @ 50 Tiles

Number of Hosts: 2	Uniform Hosts [yes/no]: yes	Total sockets/cores/threads in test: 8/192/384

Tested By: Hewlett Packard Enterprise	Test Date: 05-21-2016

Performance Section	Configuration Section	Notes Section
Performance	Configuration	Notes for Workload

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	322.90	0.98	84.00	4594.15	0.99	249.12	3813.10	1.73	71.08	2742.05	1.81	77.39	1988.28	1.88	79.62	1.42
p1	324.88	0.98	84.00	4585.88	0.99	261.15	3741.65	1.70	74.45	2802.12	1.85	79.24	2177.03	2.06	78.94	1.44
p2	327.38	0.99	84.00	4529.38	0.98	314.05	3770.95	1.71	72.85	2722.72	1.79	78.49	2032.60	1.92	75.89	1.42
TILE_1	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0	325.95	0.99	94.00	4559.82	0.98	280.44	3738.35	1.70	72.35	2711.50	1.79	77.37	1951.53	1.84	80.31	1.40
p1	326.15	0.99	101.50	4547.73	0.98	318.15	3493.60	1.59	72.38	2690.95	1.77	78.08	2061.22	1.95	78.75	1.40
p2	332.48	1.01	104.00	4520.93	0.97	328.10	2792.10	1.27	62.68	2746.32	1.81	75.56	2048.10	1.94	73.49	1.34
TILE_2	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0	325.45	0.99	102.25	4613.15	0.99	240.30	3904.28	1.78	66.48	2913.40	1.92	72.48	2056.15	1.94	81.66	1.45
p1	326.18	0.99	108.50	4578.62	0.99	272.17	3886.93	1.77	67.94	2843.20	1.87	71.13	2064.97	1.95	80.73	1.44
p2	329.12	1.00	112.25	4544.68	0.98	307.86	3753.45	1.71	73.65	2736.10	1.80	77.61	1953.22	1.85	82.46	1.41
TILE_3	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0	327.82	0.99	107.62	4599.43	0.99	253.29	3880.10	1.76	67.66	2885.95	1.90	73.53	2054.15	1.94	80.64	1.45
p1	331.20	1.00	114.00	4576.70	0.99	272.55	3807.20	1.73	70.58	2642.28	1.74	77.29	2029.58	1.92	82.78	1.42
p2	328.05	0.99	114.00	4572.10	0.99	291.75	3775.82	1.72	72.55	2824.70	1.86	77.48	1954.05	1.85	81.56	1.42
TILE_4	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0	328.60	1.00	78.05	4583.70	0.99	233.65	3987.18	1.81	63.79	2844.28	1.87	76.82	2270.53	2.15	71.78	1.48
p1	327.68	0.99	83.00	4588.93	0.99	275.93	3902.75	1.77	67.43	2683.30	1.77	81.25	2041.15	1.93	75.05	1.43
p2	324.88	0.98	88.33	4539.30	0.98	309.85	3784.22	1.72	72.02	2818.05	1.86	78.54	2048.47	1.94	81.67	1.43
TILE_5	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0	329.73	1.00	86.25	4607.73	0.99	249.30	3908.10	1.78	66.45	2845.22	1.87	76.53	2238.20	2.12	74.30	1.47
p1	326.82	0.99	94.00	4589.82	0.99	263.54	3884.43	1.77	67.85	2734.75	1.80	78.02	1997.42	1.89	78.48	1.43

p2	324.45	0.98	94.00	4569.20	0.98	284.44	3783.10	1.72	72.01	2761.43	1.82	75.39	2036.50	1.92	78.67	1.42
TILE_6	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0	332.73	1.01	78.25	4601.45	0.99	239.63	3897.07	1.77	66.78	2866.47	1.89	70.18	2183.12	2.06	70.98	1.47
p1	325.52	0.99	84.00	4593.52	0.99	262.71	3844.93	1.75	69.47	2822.47	1.86	72.68	2009.83	1.90	77.11	1.43
p2	333.57	1.01	84.00	4567.98	0.98	288.38	3778.97	1.72	72.23	2815.12	1.85	78.04	2149.22	2.03	80.92	1.45
TILE_7	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0	327.45	0.99	77.75	4614.20	0.99	238.90	3919.40	1.78	66.52	2856.25	1.88	70.91	2160.68	2.04	72.69	1.46
p1	327.00	0.99	84.00	4597.75	0.99	254.00	3893.10	1.77	67.39	2814.50	1.85	73.13	2048.40	1.94	74.33	1.44
p2	328.43	0.99	84.00	4570.12	0.98	278.94	3838.97	1.75	69.98	2857.43	1.88	76.10	2179.55	2.06	78.65	1.46
TILE_8	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0	325.90	0.99	74.00	4592.25	0.99	247.06	3950.45	1.80	64.76	2916.43	1.92	68.09	2104.72	1.99	70.08	1.46
p1	323.82	0.98	74.00	4578.57	0.99	258.43	3870.20	1.76	68.73	2923.80	1.93	72.35	2132.50	2.02	75.36	1.46
p2	322.98	0.98	82.50	4570.52	0.98	289.51	3754.20	1.71	73.25	2746.40	1.81	77.00	2086.75	1.97	78.62	1.42
TILE_9	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0	328.98	1.00	74.00	4596.50	0.99	254.12	3943.05	1.79	65.10	2870.07	1.89	69.81	2073.43	1.96	72.27	1.46
p1	322.80	0.98	83.75	4580.57	0.99	259.00	3882.88	1.77	67.80	2936.35	1.93	71.73	2139.20	2.02	74.27	1.46
p2	322.93	0.98	84.00	4572.82	0.99	273.23	3740.90	1.70	73.87	2750.90	1.81	76.93	2077.45	1.96	79.12	1.42
TILE_10	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0	329.40	1.00	83.00	4619.90	1.00	235.87	3906.95	1.78	66.61	2856.97	1.88	70.91	2065.82	1.95	73.09	1.45
p1	328.65	1.00	88.17	4573.25	0.99	261.09	3875.28	1.76	68.38	2915.47	1.92	72.85	2242.32	2.12	73.71	1.48
p2	328.38	0.99	94.00	4555.43	0.98	307.47	3729.38	1.70	71.62	2747.50	1.81	76.78	1992.10	1.88	78.55	1.41
TILE_11	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0	325.68	0.99	84.00	4607.82	0.99	236.77	3947.47	1.79	65.53	2869.38	1.89	69.82	2070.85	1.96	72.44	1.45
p1	327.93	0.99	84.25	4581.93	0.99	255.48	3889.15	1.77	68.01	2930.57	1.93	71.44	2231.10	2.11	74.27	1.48
p2	324.62	0.98	94.00	4551.75	0.98	305.50	3815.72	1.74	70.18	2784.22	1.83	74.83	1983.83	1.87	79.23	1.42
TILE_12	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0	322.85	0.98	84.00	4593.85	0.99	254.36	3951.47	1.80	65.63	2973.35	1.96	69.72	2127.22	2.01	75.13	1.47
p1	326.65	0.99	90.75	4585.20	0.99	273.72	3837.72	1.75	69.93	2811.62	1.85	73.32	2101.95	1.99	76.92	1.44
p2	326.25	0.99	94.00	4557.73	0.98	300.29	3741.82	1.70	74.20	2730.28	1.80	77.84	1937.58	1.83	83.11	1.40
TILE_13	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0	330.75	1.00	93.10	4603.62	0.99	257.79	3924.05	1.78	66.50	2970.30	1.96	69.72	2148.38	2.03	73.59	1.48
p1	327.20	0.99	93.00	4554.38	0.98	283.09	3837.55	1.74	69.42	2794.85	1.84	73.73	2108.53	1.99	76.02	1.44
p2	326.40	0.99	93.00	4550.52	0.98	316.33	3645.47	1.66	73.48	2679.35	1.76	80.16	1944.22	1.84	81.99	1.39
TILE_14	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0	330.18	1.00	82.75	4566.93	0.98	296.53	3956.47	1.80	65.20	3059.18	2.01	70.12	2251.65	2.13	73.10	1.50
p1	325.15	0.98	84.00	4569.88	0.98	313.22	3937.35	1.79	65.88	2767.53	1.82	70.43	2042.22	1.93	74.65	1.44

p2	323.38	0.98	89.70	4557.60	0.98	286.35	3831.90	1.74	70.20	2922.75	1.92	72.72	2075.03	1.96	79.46	1.45
TILE_15	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0	324.55	0.98	83.80	4574.80	0.99	277.63	3879.80	1.76	67.86	2863.78	1.89	72.09	2214.03	2.09	75.28	1.46
p1	321.98	0.97	88.60	4570.93	0.98	300.49	3812.28	1.73	69.95	2783.38	1.83	73.77	1995.45	1.89	78.74	1.42
p2	328.25	0.99	93.80	4556.23	0.98	284.98	3774.10	1.72	72.68	2893.88	1.91	73.99	2056.07	1.94	80.59	1.44
TILE_16	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0	329.55	1.00	84.00	4586.68	0.99	253.29	3790.53	1.72	72.41	2756.82	1.82	76.89	2049.85	1.94	81.46	1.43
p1	322.40	0.98	84.00	4580.10	0.99	271.01	3753.35	1.71	73.95	2730.57	1.80	78.63	1944.62	1.84	83.06	1.40
p2	329.60	1.00	85.75	4539.88	0.98	301.84	3744.00	1.70	72.86	2815.53	1.85	77.46	2182.80	2.06	78.42	1.45
TILE_17	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0	324.82	0.98	77.00	4576.68	0.99	252.27	3839.47	1.75	70.42	2810.55	1.85	73.85	2082.62	1.97	79.28	1.44
p1	327.88	0.99	83.97	4572.38	0.99	285.64	3828.30	1.74	70.85	2791.72	1.84	74.74	1963.67	1.86	81.26	1.42
p2	324.48	0.98	84.00	4559.90	0.98	303.67	3804.88	1.73	70.81	2850.25	1.88	76.81	2170.85	2.05	78.98	1.45
TILE_18	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0	328.18	0.99	112.75	4599.45	0.99	245.02	3905.07	1.78	67.19	2776.40	1.83	70.01	1999.03	1.89	78.08	1.43
p1	332.77	1.01	114.00	4580.85	0.99	271.19	3874.10	1.76	67.93	2989.00	1.97	69.13	2086.68	1.97	78.78	1.47
p2	326.18	0.99	114.00	4567.32	0.98	289.68	3706.38	1.69	75.67	2767.43	1.82	75.96	2047.38	1.94	81.46	1.42
TILE_19	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0	328.55	0.99	94.00	4602.05	0.99	234.90	3926.60	1.79	66.39	2869.40	1.89	70.51	2027.55	1.92	76.33	1.45
p1	321.62	0.97	94.00	4587.18	0.99	260.87	3477.22	1.58	65.69	2934.90	1.93	71.96	2096.47	1.98	77.75	1.42
p2	330.50	1.00	94.00	4570.55	0.98	286.09	3163.50	1.44	65.80	2826.75	1.86	72.65	2118.57	2.00	76.02	1.40
TILE_20	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0	327.27	0.99	73.30	4599.35	0.99	241.82	3965.32	1.80	64.66	2783.30	1.83	75.07	2133.12	2.02	68.17	1.46
p1	324.07	0.98	82.20	4570.18	0.98	275.73	3910.22	1.78	67.22	2827.32	1.86	78.22	2183.78	2.06	71.14	1.46
p2	331.65	1.00	84.00	4555.73	0.98	306.16	3825.68	1.74	70.41	2743.68	1.81	77.08	2103.43	1.99	77.17	1.44
TILE_21	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0	332.15	1.01	84.00	4600.62	0.99	246.68	3902.90	1.77	66.34	2794.82	1.84	74.59	2092.68	1.98	70.90	1.45
p1	321.65	0.97	92.00	4588.27	0.99	266.38	3863.32	1.76	68.82	2870.47	1.89	75.49	2258.70	2.13	72.38	1.47
p2	332.32	1.01	94.00	4568.48	0.98	277.86	3834.50	1.74	70.22	2766.32	1.82	76.12	2032.40	1.92	75.52	1.43
TILE_22	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0	325.75	0.99	84.00	4595.12	0.99	242.02	3749.00	1.70	72.75	2886.25	1.90	69.16	2121.45	2.01	68.61	1.45
p1	325.45	0.99	85.12	4598.85	0.99	263.10	3696.12	1.68	76.28	2828.82	1.86	72.23	2157.32	2.04	73.19	1.44
p2	331.25	1.00	92.33	4549.98	0.98	296.80	3772.70	1.72	73.18	2751.00	1.81	76.89	2022.72	1.91	76.59	1.42
TILE_23	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0	324.68	0.98	83.10	4582.62	0.99	250.55	3799.60	1.73	70.90	2971.97	1.96	69.54	2210.53	2.09	68.79	1.47
p1	326.23	0.99	83.45	4613.30	0.99	256.09	3813.30	1.73	71.03	2818.47	1.86	73.09	2192.18	2.07	70.70	1.46

p2	327.45	0.99	84.00	4544.73	0.98	318.08	3814.15	1.73	71.22	2774.47	1.83	75.32	2043.97	1.93	74.48	1.43
TILE_24	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0	323.55	0.98	94.00	4590.38	0.99	263.77	3910.38	1.78	66.28	2971.05	1.96	68.87	2190.12	2.07	69.91	1.47
p1	324.52	0.98	95.25	4564.05	0.98	285.80	3843.30	1.75	68.48	2691.47	1.77	73.31	2022.25	1.91	74.77	1.42
p2	326.27	0.99	104.00	4548.88	0.98	300.23	3684.30	1.68	74.70	2765.10	1.82	78.27	2041.50	1.93	79.22	1.42
TILE_25	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0	328.38	0.99	104.25	4583.93	0.99	269.41	3872.20	1.76	68.00	2945.03	1.94	70.33	2271.45	2.15	71.28	1.48
p1	326.77	0.99	104.50	4559.65	0.98	300.29	3736.82	1.70	71.75	2766.85	1.82	73.63	2034.30	1.92	73.73	1.42
p2	324.30	0.98	114.00	4537.68	0.98	293.29	3677.10	1.67	74.88	2772.68	1.83	78.54	2040.70	1.93	79.46	1.41
TILE_26	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0	327.20	0.99	93.00	4624.70	1.00	236.48	3937.50	1.79	65.85	2892.78	1.90	70.23	2292.28	2.17	70.60	1.49
p1	326.23	0.99	93.28	4592.10	0.99	259.40	3920.88	1.78	66.82	2747.57	1.81	71.67	2112.05	2.00	69.52	1.44
p2	323.32	0.98	96.85	4567.50	0.98	285.36	3820.20	1.74	71.17	2965.45	1.95	75.19	2159.18	2.04	73.09	1.46
TILE_27	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0	325.70	0.99	93.70	4613.57	0.99	241.24	3905.43	1.78	66.78	2858.45	1.88	70.21	2193.07	2.07	70.36	1.47
p1	330.05	1.00	93.00	4596.60	0.99	268.91	3902.25	1.77	67.35	2851.30	1.88	70.67	2086.30	1.97	71.02	1.45
p2	327.15	0.99	93.00	4542.15	0.98	293.72	3814.72	1.73	70.73	2885.43	1.90	74.17	2224.22	2.10	75.01	1.46
TILE_28	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0	329.80	1.00	84.00	4589.98	0.99	242.28	3988.07	1.81	64.06	2928.00	1.93	66.91	2227.70	2.11	68.09	1.49
p1	326.30	0.99	84.00	4572.93	0.99	253.56	3887.62	1.77	68.11	2869.97	1.89	70.03	2110.28	1.99	69.92	1.45
p2	322.88	0.98	87.50	4547.85	0.98	295.52	3762.68	1.71	72.43	2770.32	1.82	75.66	2142.18	2.02	74.14	1.43
TILE_29	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0	327.62	0.99	83.25	4600.77	0.99	243.70	3976.95	1.81	64.50	2915.82	1.92	67.72	2139.62	2.02	67.67	1.47
p1	326.65	0.99	83.00	4582.15	0.99	272.20	3932.18	1.79	66.44	2945.40	1.94	69.94	2190.82	2.07	69.14	1.48
p2	326.48	0.99	86.58	4537.35	0.98	299.23	3779.28	1.72	71.43	2747.40	1.81	77.22	2136.10	2.02	74.57	1.43
TILE_30	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0	328.77	1.00	90.10	4560.65	0.98	287.47	3966.85	1.80	64.02	2867.28	1.89	70.29	2132.50	2.02	67.64	1.46
p1	324.82	0.98	93.00	4557.95	0.98	312.62	3947.28	1.79	65.64	2979.07	1.96	69.22	2215.38	2.09	68.93	1.48
p2	330.38	1.00	93.00	4584.50	0.99	273.11	3855.90	1.75	69.41	2816.05	1.85	73.02	2149.10	2.03	73.85	1.46
TILE_31	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0	325.18	0.98	88.00	4581.32	0.99	270.05	3951.90	1.80	64.94	2860.88	1.88	70.48	2113.70	2.00	68.80	1.46
p1	325.95	0.99	84.00	4575.38	0.99	291.05	3911.65	1.78	67.29	2942.45	1.94	71.40	2288.03	2.16	70.77	1.49
p2	324.27	0.98	90.50	4593.90	0.99	271.65	3852.35	1.75	69.75	2709.43	1.78	70.95	2061.28	1.95	73.43	1.43
TILE_32	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0	327.25	0.99	84.00	4601.15	0.99	250.53	3775.72	1.72	72.76	2739.43	1.80	77.98	1979.55	1.87	80.30	1.42
p1	329.40	1.00	84.50	4562.12	0.98	268.66	3766.68	1.71	73.25	2785.53	1.83	80.20	2160.95	2.04	80.03	1.44

p2	322.48	0.98	84.00	4574.18	0.99	288.96	3824.80	1.74	70.90	2704.80	1.78	79.40	2021.03	1.91	76.56	1.42
TILE_33	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0	326.98	0.99	84.00	4593.23	0.99	253.67	3846.75	1.75	69.84	2863.53	1.89	75.11	2092.18	1.98	77.60	1.45
p1	326.70	0.99	84.00	4559.02	0.98	292.92	3830.12	1.74	70.35	2756.18	1.82	76.46	2104.78	1.99	77.19	1.44
p2	328.35	0.99	91.75	4562.32	0.98	301.08	3861.30	1.76	69.27	2719.22	1.79	78.57	2024.35	1.91	76.42	1.43
TILE_34	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0	329.57	1.00	117.25	4617.93	0.99	235.03	3904.80	1.78	67.21	2913.22	1.92	72.89	2041.65	1.93	82.51	1.46
p1	324.23	0.98	114.00	4578.98	0.99	261.16	3927.62	1.79	66.78	2840.45	1.87	71.62	2046.15	1.93	81.93	1.44
p2	325.02	0.98	105.75	4572.75	0.99	290.66	3757.62	1.71	74.04	2737.00	1.80	77.90	1947.47	1.84	83.24	1.41
TILE_35	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0	330.02	1.00	124.25	4615.77	0.99	235.36	3906.40	1.78	66.92	2896.22	1.91	73.83	2150.97	2.03	80.47	1.47
p1	327.98	0.99	111.50	4601.65	0.99	263.98	3858.35	1.75	69.75	2750.53	1.81	76.95	1947.17	1.84	82.66	1.42
p2	326.38	0.99	104.00	4572.32	0.99	268.24	3784.12	1.72	72.93	2839.15	1.87	77.27	2056.47	1.94	81.05	1.44
TILE_36	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0	328.43	0.99	119.35	4619.95	1.00	243.68	3939.03	1.79	66.13	2822.25	1.86	78.19	2254.90	2.13	72.84	1.48
p1	324.32	0.98	106.50	4568.73	0.98	287.63	3892.55	1.77	67.69	2652.95	1.75	82.67	2020.97	1.91	76.32	1.42
p2	325.55	0.99	104.00	4557.55	0.98	279.25	3805.53	1.73	71.45	2792.00	1.84	79.69	2037.15	1.93	82.49	1.43
TILE_37	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0	327.45	0.99	113.95	4581.40	0.99	254.22	3887.55	1.77	67.91	2843.38	1.87	76.81	2231.93	2.11	74.42	1.47
p1	325.18	0.98	108.50	4574.98	0.99	286.64	3789.25	1.72	70.81	2589.25	1.71	80.04	1877.62	1.77	80.25	1.38
p2	326.55	0.99	114.00	4549.00	0.98	294.97	3751.20	1.71	72.56	2788.78	1.84	78.35	2126.72	2.01	81.40	1.44
TILE_38	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0	332.30	1.01	93.50	4613.57	0.99	233.27	3768.53	1.71	72.96	2871.95	1.89	69.65	2183.93	2.06	71.04	1.46
p1	324.50	0.98	93.00	4588.50	0.99	259.62	3683.93	1.68	76.90	2819.25	1.86	72.91	2011.58	1.90	77.23	1.42
p2	324.12	0.98	93.00	4574.98	0.99	277.99	3751.25	1.71	73.92	2806.68	1.85	78.82	2137.65	2.02	81.42	1.44
TILE_39	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0	326.02	0.99	105.75	4617.15	0.99	240.88	3785.47	1.72	71.66	2752.82	1.81	71.63	2061.20	1.95	73.42	1.43
p1	328.77	1.00	97.50	4605.55	0.99	256.31	3786.65	1.72	72.20	2892.90	1.91	74.17	2128.12	2.01	74.92	1.45
p2	327.05	0.99	94.00	4553.30	0.98	283.43	3773.90	1.72	72.80	2751.95	1.81	77.03	2082.95	1.97	78.78	1.43
TILE_40	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0	328.80	1.00	93.03	4609.85	0.99	244.88	3973.75	1.81	64.78	2930.25	1.93	67.05	2114.50	2.00	69.20	1.47
p1	322.80	0.98	93.00	4562.12	0.98	269.72	3906.22	1.78	67.28	2941.03	1.94	71.37	2128.93	2.01	75.31	1.46
p2	328.65	1.00	100.15	4560.60	0.98	279.89	3746.45	1.70	73.23	2753.20	1.81	76.56	2084.65	1.97	78.67	1.43
TILE_41	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0	332.48	1.01	103.55	4591.25	0.99	245.19	3879.43	1.76	67.01	2859.88	1.88	70.07	1968.20	1.86	72.83	1.44
p1	327.73	0.99	104.00	4587.43	0.99	268.38	3809.68	1.73	70.86	2923.50	1.93	71.90	2226.00	2.10	74.80	1.47

p2	325.12	0.98	104.00	4586.93	0.99	261.84	3763.25	1.71	73.14	2658.40	1.75	76.84	1991.15	1.88	79.00	1.41
TILE_42	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0	332.27	1.01	96.50	4610.12	0.99	242.57	3896.90	1.77	66.69	2851.75	1.88	71.17	2055.57	1.94	73.56	1.45
p1	324.90	0.98	94.00	4594.82	0.99	257.06	3849.70	1.75	69.18	2900.85	1.91	73.46	2220.62	2.10	74.83	1.47
p2	325.10	0.98	94.00	4534.77	0.98	301.10	3776.43	1.72	72.44	2751.10	1.81	76.72	1987.10	1.88	79.52	1.41
TILE_43	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0	323.48	0.98	103.00	4613.40	0.99	231.75	3950.47	1.80	65.38	2878.47	1.90	69.52	2071.78	1.96	72.67	1.45
p1	326.90	0.99	97.75	4604.18	0.99	250.12	3880.25	1.76	68.14	2937.68	1.93	71.55	2193.20	2.07	74.52	1.47
p2	326.20	0.99	102.75	4566.70	0.98	286.92	3832.85	1.74	70.23	2708.85	1.78	73.50	1872.12	1.77	78.95	1.40
TILE_44	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0	325.50	0.99	194.65	4595.15	0.99	234.70	3958.43	1.80	65.27	2991.28	1.97	68.86	2129.82	2.01	75.46	1.47
p1	328.07	0.99	145.75	4588.50	0.99	261.90	3847.93	1.75	69.84	2820.43	1.86	73.03	2097.90	1.98	77.39	1.45
p2	327.25	0.99	134.00	4582.70	0.99	266.67	3744.22	1.70	74.03	2741.40	1.81	77.53	1944.30	1.84	83.07	1.41
TILE_45	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0	326.57	0.99	170.25	4591.50	0.99	257.61	3902.53	1.77	66.85	2960.97	1.95	69.78	2138.82	2.02	73.96	1.47
p1	325.98	0.99	131.75	4557.95	0.98	290.88	3844.18	1.75	69.35	2796.85	1.84	73.72	2110.45	1.99	76.46	1.44
p2	325.75	0.99	123.75	4568.80	0.98	281.77	3746.57	1.70	73.40	2687.93	1.77	80.23	1955.17	1.85	81.83	1.40
TILE_46	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0	329.95	1.00	125.40	4577.27	0.99	283.09	3957.82	1.80	65.32	2956.45	1.95	70.80	2247.72	2.12	73.38	1.49
p1	327.93	0.99	106.70	4546.52	0.98	315.93	3926.38	1.79	66.20	2870.10	1.89	69.98	2016.28	1.91	73.73	1.44
p2	323.43	0.98	106.75	4556.77	0.98	283.93	3820.53	1.74	70.28	2907.68	1.91	73.42	2078.65	1.96	79.14	1.44
TILE_47	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0	320.98	0.97	179.43	4567.65	0.98	277.58	3262.50	1.48	61.34	2966.70	1.95	70.05	2258.72	2.13	72.71	1.43
p1	326.88	0.99	137.00	4584.43	0.99	275.69	3232.25	1.47	62.01	2847.62	1.88	71.42	2025.60	1.91	75.91	1.39
p2	325.35	0.99	125.00	4540.30	0.98	303.82	3160.35	1.44	64.74	2931.88	1.93	71.38	2089.00	1.97	78.37	1.39
TILE_48	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0	329.52	1.00	293.85	4620.95	1.00	238.03	3773.72	1.72	73.01	2761.53	1.82	76.66	2055.18	1.94	81.02	1.43
p1	327.25	0.99	192.00	4600.85	0.99	259.60	3742.82	1.70	74.13	2724.15	1.79	78.86	1940.60	1.83	83.30	1.41
p2	325.07	0.98	161.22	4573.07	0.99	291.03	3776.60	1.72	72.58	2844.45	1.87	77.13	2175.88	2.06	78.75	1.45
TILE_49	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	Actual	Ratio	QoS	GM
p0	328.32	0.99	130.47	4588.55	0.99	245.48	3831.47	1.74	70.33	2817.62	1.86	73.35	2083.00	1.97	78.72	1.44
p1	330.77	1.00	116.50	4556.52	0.98	290.80	3783.35	1.72	71.43	2773.20	1.83	75.01	1950.47	1.84	81.14	1.42
p2	325.05	0.98	115.50	4563.52	0.98	295.93	3784.95	1.72	71.25	2840.35	1.87	76.33	2173.30	2.05	78.19	1.45

p0_score:	72.90
p1_score:	72.05
p2_score:	71.26

Infrastructure_Operations_Scores:	vmotion	svmotion	deploy
Completed_Ops_PerHour	17.00	11.00	5.00
Avg_Seconds_To_Complete	31.47	15.92	365.10
Failures	0.00	0.00	0.00
Ratio	1.06	1.22	1.25
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	72.05	
Unreviewed_VMmark2_Infrastructure_Score	1.18	
Unreviewed_VMmark2_Score	57.87	

Configuration

Virtualization Software	
Hypervisor Vendor, Product, Version, and Build / Availability Date (MM-DD-YYYY)	VMware ESXi 6.0.0 U2 Build 3620759/ 04-07-2016
Datacenter Management Software Vendor, Product, Version, and Build / Availability Date (MM-DD-YYYY)	VMware vCenter Server 6.0.0 U1 Build 3018524 / 03-22-2016
Supplemental Software	none
Servers	
Quantity	2
Server Manufacturer and Model	HPE ProLiant DL580 Gen9
Processor Vendor and Model	Intel(R) Xeon(R) E7-8890 v4
Processor Speed (GHz)	2.20
Total Sockets/Total Cores/Total Threads	4 Sockets / 96 Cores / 192 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	60 MB I+D on chip per chip
BIOS Version	U17 v2.20 05/16/2016
Memory Size (in GB, Number of DIMMs)	1024 GB, 32
Memory Type and Speed	32 GB DDR4 2400 MHz RDIMM
Disk Subsystem Type	FC SAN
Number of Disk Controllers	1

Disk Controller Vendors and Models	HPE Smart Array P830i
Number of Host Bus Adapters	2
Host Bus Adapter Vendors and Models	2 x HPE SN1100E PCIe dual port 16 Gb Fibre Channel HBA
Number of Network Controllers	3
Network Controller Vendors and Models	HPE Ethernet 1 Gb 4-port 331FLR Adapter, 2 x HPE Ethernet 10Gb 2-port 560SFP+ Adapter
Other Hardware	none
Other Software	none
Hardware Availability Date (MM-DD-YYYY)	06-06-2016
Software Availability Date (MM-DD-YYYY)	04-07-2016
Network	
Network Switch Vendors and Models	1 x H3C S5820X-28S
Network Speed	H3C S5820X-28S - 24 x 10 GbE ports, 4 x 1 GbE ports
Storage	
Array Vendors, Models, and Firmware Versions	SanDisk ION Data Accelerator, FW version 2.5.0
Fibre Channel Switch Vendors and Models	HPE SN6000B 16Gb 48-port Fibre Channel Switch
Disk Space Used	29.4 TB
Array Cache Size	N/A
Total Number of Physical Disks Used	12 (2 per SUT OS, 2 for Fusion ION OS per storage system), 12 x PCI-e flash
Total Number of Enclosures/Pods/Shelves Used	4
Number of Physical Disks Used per Enclosure/Pod/Shelf	Internal: 2 disks per host Enclosure: 2 disks and 3 x PCI-e flash for Fusion ION OS per storage system (4 systems total)
Total Number of Storage Groups Used	0
Number of LUNs Used	43
LUN Size and Number of Disks Per LUN	All LUNs used a single PCI-e flash card in Direct Access Mode under the control of the SanDisk ION Data Accelerator software 34 LUNs: 450 GB 9 LUNs: 540 GB
RAID Type	RAID 0 for enclosures, RAID 1 for OS drives
Number of Members per RAID Set	RAID 1: 2 RAID 0: 1
Disk Vendors, Models, and Speeds	12 x HPE 146GB 15K RPM SAS SFF (P/N 652605-B21) 9 x HPE 2410GB Multi Level Cell G2 PCIe ioDrive2 Duo 3 x HPE 2.6TB HH/HL Light Endurance (LE) PCIe Workload Accelerator
Datacenter Management Server	

System Model	HPE ProLiant BL685c G7
Processor Vendor and Model	AMD Opteron 6380
Processor Speed (GHz)	2.50
Total Sockets/Total Cores/Total Threads	4 Sockets / 64 Cores / 64 Threads
Memory	256 GB
Network Controller(s) Vendors and Models	2 x Integrated NC551i Dual Port FlexFabric 10Gb Converged Network Adapter
Operating System, Version, Bitness, and Service Pack	VMware ESXi 5.1.0 U2 Build 1483097
Other Hardware	none
Other Software	Microsoft® Windows® 2008 R2 Enterprise (64-bit)

Clients	
Total Number of Clients / Total Physical Clients / Total Virtual Client Hosts	51 / 1 / 12
System Model(s)	HPE ProLiant BL465c G7
Processor Vendor(s) and Model(s)	AMD Opteron 6174
Processor Speed(s) (GHz)	2.20
Total Sockets/Total Cores/Total Threads	2 Sockets / 24 Cores / 24 Threads
Memory per Physical Client	64 GB
Network Controller(s) Vendors and Models	Prime Client: HPE 551i embedded dual port FlexFabric 10Gb adapter, 1xHPE NC542m dual port Flex-10 10 GbE adapter Virtual Client Hosts 0-11: HPE NC551i embedded dual port FlexFabric 10Gb Adapter, 1xHPE NC542m dual port Flex-10 10 GbE adapter
Operating System, Version, Bitness, and Service Pack	Prime Client: Microsoft® Windows® 2008 R2 (64-bit) Virtual Client Hosts 0-11: VMware ESXi 5.5 U1 (Build 1623387) Virtual Clients 0-49: Microsoft® Windows® 2008 R2 Enterprise (64-bit)
Number of Virtual Clients	50
Number of vCPUs Per Virtual Client	4
Number of vMem (GB) Per Virtual Client	12
Virtual Client Networking Notes	All client VMs attached to port 1 of NC542m card running at speed of 10 Gb/s
Virtual Client Storage Notes	See client notes for details.
Other Hardware	HPE BladeSystem c7000 Enclosure, 4xHPE VC Flex-10 Ethernet Modules, 2xHPE B-series 8/24c SAN Switch BladeSystem c-Class
Other Software	HPE BladeSystem c7000 Onboard Administrator Version 4.30, HPE Virtual Connect Manager Version 4.10

Notes for Workload

Virtualization Software Notes

- All VMs used virtual hardware V8 except Deploy VMs .Virtual hardware for Deploy VMs was V7.
- All VMs (except for Deploy Template) had VMware tools version 9536 installed and running

- Ethernet adapter type set to vmxnet3 for all VMs (default vmxnet2)
- Logging was disabled for all VMs (default enabled)
- CD and floppy devices were removed on all VMs (default enabled)
- All VMs besides standby and deploy template used Paravirtual Controller (default LSI Logic)
- Cluster DRS Automation Level set to Fully Automated
- DrsMigrationThreshold set to level 2
- Logical CPU layout changed for all multiprocessor VMs except mailserver VMs to 1 socket with multiple cores. (default Single core per socket)
- Mailserver VMs had 4 sockets and 1 core per socket Logical CPU layout .
- All ds2db VMs had CPU shares set to Custom with value 11500 (default Normal)
- All mailserver VMs had CPU shares set to Custom with value 3300 (default Normal)
- All olioweb VMs had CPU shares set to Custom with value 3000 (default Normal)
- All standby VMs had CPU shares set to Custom with value 10 (default Normal)
- All ds2db VMs had disk shares set to High (default Normal)
- sched.mem.min and sched.mem.minsize were set to the VMs memory size for all VMs except deploy template (default 0)
- sched.mem.pin = TRUE set for all VMs except deploy template VM (default FALSE)
- sched.mem.maxmemctl=0 set for all VMs except deploy template VM(default enabled)
- ethernet0.coalescingScheme = static for all OlioWeb VMs
- monitor_control.disable_flexpriority = "FALSE" added to /etc/vmware/config
- Syslog.global.defaultSize set to 112 (default 1024)
- Vpx.Vpxa.config.log.level and Config.HostAgent.log.level set to warning (default verbose)

Advanced Settings:

- Cpu.CreditAgePeriod = 1383 (default 3000)
- Cpu.HTWholeCoreThreshold = 0 (default 200)
- DataMover.HardwareAcceleratedInit = 0 (default 1)
- DataMover.HardwareAcceleratedMove = 0 (default 1)
- /Disk/ReqCallThreshold = 1 (default 8)
- /Disk/UseIOWorlds = 1 (default 0)
- /Mem/CtlMaxPercent = 0 (default 65)
- Mem.ShareScanGHz = 0 (default 4)
- Net.MaxNetifRxQueueLen = 500 (default 100)
- Net.MaxNetifTxQueueLen = 1000 (default 500)
- Numa.LTermFairnessInterval = 0 (default 5)
- Numa.MigImbalanceThreshold = 57 (default 10)
- Numa.PageMigEnable = 0 (default 1)
- Numa.RebalancePeriod = 60000 (default 2000)
- Numa.SwapLoadEnable = 0 (default 1)
- Numa.SwapLocalityEnable = 0 (default 1)
- VMFS3.HardwareAcceleratedLocking = 0 (default 1)
- Power.CpuPolicy = static (default balanced)

Server OS (ESXi 6.0.0 U2 Build 3620759) was installed using VMware-ESXi-6.0.0-Update2-3620759-HPE-600.9.5.0.48-Apr2016.iso, which was preloaded with HPE device drivers. No driver upgrades were made after the OS was installed.

Server Notes

Server BIOS settings:

- Power Management set to Maximum Performance (default: Balanced Power and Performance)
- QPI snoop mode set to cluster on die (default: Home Snoop)
- Thermal Configuration set to Maximum Cooling (default: Optimal Cooling)
- Intel Turbo Boost Enabled (frequency boost to 3.4 GHz) (default: Enabled)

Networking Notes

- vSwitch0 for the Service Console on vmnic0 at 1Gb/s
- vSwitch1 defined as vmkernel vMotion connection on vmnic1 at 1Gb/s
- vSwitch2 for the DS2* workload on vmnic4 at 10Gb/s
- vSwitch4 for the Mailserver, Olio* and Standby workload on vmnic5 at 10 Gb/s

Storage Notes

- ESXi was installed on two disks configured as RAID1 in the internal server storage bay
- All LUNs were configured as block devices and no system memory was used for write caching
- Storage box #1
    - Hardware Configuration
        - HPE ProLiant DL380p Gen8
            - 2 x Intel Xeon E5-2643 3.30 GHz processors
            - 128 GB Memory (16 x 8 GB DIMMs dual rank PC3-12800 Registered DDR3)
            - 3 x HPE 2410GB Multi Level Cell G2 PCIe ioDrive2 Duo flash cards
            - 2 x HPE SN1000Q dual port 16 GB fibre HBAs
            - 1 x HPE Smart Array 420i controller for ION OS
            - 2 x 146 GB 15K RPM SAS SFF for ION OS
            - SanDisk ION Accelerator version 2.5.0
    - Software Configuration
        - Each HPE 2410GB Multi Level Cell G2 PCIe ioDrive2 Duo flash card is recognized as 2 x 1205 GB devices.
        - Storage Pools were created using Direct Access storage profile.
            - one storage pool per device
            - total of 6 storage pools
        - Two RAID0 volumes was created for each storage pool.
            - Total: 12 x 450 GB volumes
            - each volume was exported as LUNs
        - HPE 2410GB Multi Level Cell G2 PCIe ioDrive2 Duo flash card #1
            - Storage Pool #1, Volume #1, LUN #1
            - Storage Pool #1, Volume #2, LUN #2
            - Storage Pool #2, Volume #1, LUN #3
            - Storage Pool #2, Volume #2, LUN #4
        - HPE 2410GB Multi Level Cell G2 PCIe ioDrive2 Duo flash card #2
            - Storage Pool #3, Volume #1, LUN #5
            - Storage Pool #3, Volume #2, LUN #6
            - Storage Pool #4, Volume #1, LUN #7
            - Storage Pool #4, Volume #2, LUN #8
        - HPE 2410GB Multi Level Cell G2 PCIe ioDrive2 Duo flash card #3
            - Storage Pool #5, Volume #1, LUN #9
            - Storage Pool #5, Volume #2, LUN #10
            - Storage Pool #6, Volume #1, LUN #11

        - Storage Pool #6, Volume #2, LUN #12
    - LUN/VM layout
        - LUN1: All mailserver, OlioDB, OlioWeb and standby VMs from tiles 0, 24
        - LUN2: All mailserver, OlioDB, OlioWeb and standby VMs from tiles 1, 36
        - LUN3: All mailserver, OlioDB, OlioWeb and standby VMs from tiles 2, 25
        - LUN4: All mailserver, OlioDB, OlioWeb and standby VMs from tiles 3, 37
        - LUN5: All mailserver, OlioDB, OlioWeb and standby VMs from tiles 4, 26
        - LUN6: All mailserver, OlioDB, OlioWeb and standby VMs from tiles 5, 48
        - LUN7: All mailserver, OlioDB, OlioWeb and standby VMs from tiles 6, 27
        - LUN8: All mailserver, OlioDB, OlioWeb and standby VMs from tiles 7
        - LUN9: All mailserver, OlioDB, OlioWeb and standby VMs from tiles 8, 28
        - LUN10: All mailserver, OlioDB, OlioWeb and standby VMs from tiles 9
        - LUN11: All mailserver, OlioDB, OlioWeb and standby VMs from tiles 10, 29
        - LUN12: All mailserver, OlioDB, OlioWeb and standby VMs from tiles 11, 49
- Storage box #2
    - Hardware Configuration
        - HPE ProLiant DL380p Gen8
            - 2 x Intel Xeon E5-2690 2.90 GHz processors
            - 128 GB Memory (16 x 8 GB DIMMs dual rank PC3-12800 Registered DDR3)
            - 3 x HPE 2.6TB HH/HL Light Endurance (LE) PCIe Workload Accelerator flash cards configured in RAID 0
            - 2 x HPE SN1000Q dual port 16 GB fibre HBAs
            - 1 x HPE Smart Array 420i controller for ION OS
            - 2 x 146 GB 15K RPM SAS SFF for ION OS
            - SanDisk ION Accelerator version 2.5.0
    - Software Configuration
        - Each HPE 2.6TB HH/HL Light Endurance (LE) PCIe Workload Accelerator flash card is recognized as a 2600 GB device.
        - Storage Pools were created using Direct Access storage profile.
            - one storage pool per device
            - total of 3 storage pools
        - Three RAID0 volumes were created for each storage pool.
            - each storage pool had:
                - 3 x 540 GB volumes
        - HPE 2.6TB HH/HL Light Endurance (LE) PCIe Workload Accelerator flash card #1
            - Storage Pool #1
                - Volume #1, LUN #1
                - Volume #2, LUN #2
                - Volume #3, LUN #3
        - HPE 2.6TB HH/HL Light Endurance (LE) PCIe Workload Accelerator flash card #2
            - Storage Pool #2
                - Volume #4, LUN #3
                - Volume #5, LUN #4
                - Volume #6, LUN #5
        - HPE 2.6TB HH/HL Light Endurance (LE) PCIe Workload Accelerator flash card #3
            - Storage Pool #4
                - Volume #7, LUN #6
                - Volume #8, LUN #7
                - Volume #9, LUN #8
    - LUN/VM layout

        - LUN1: All DS2 VMs from tiles 0, 9, 18, 27, 36
        - LUN2: All DS2 VMs from tiles 1, 10, 19, 28, 39
        - LUN3: All DS2 VMs from tiles 2, 11, 20, 29
        - LUN4: All DS2 VMs from tiles 3, 12, 21, 30, 37
        - LUN5: All DS2 VMs from tiles 4, 13, 22, 31
        - LUN6: All DS2 VMs from tiles 5, 14, 23, 32
        - LUN7: All DS2 VMs from tiles 6, 15, 24, 33, 38
        - LUN8: All DS2 VMs from tiles 7, 16, 25, 34
        - LUN9: All DS2 VMs from tiles 8, 17, 26, 35 and target LUN for both deploy and SVmotion workloads
- Storage box #3
    - Hardware Configuration
        - HPE ProLiant DL380p Gen8
            - 2 x Intel Xeon E5-2690 2.90 GHz processors
            - 256 GB Memory (16 x 16 GB DIMMs dual rank PC3-12800 Registered DDR3)
            - 3 x HPE 2410GB Multi Level Cell G2 PCIe ioDrive2 Duo flash cards
            - 2 x HPE SN1000Q dual port 16 GB fibre HBAs
            - 1 x HPE Smart Array 420i controller for ION OS
            - 2 x 146 GB 15K RPM SAS SFF for ION OS
            - SanDisk ION Accelerator version 2.5.0
    - Software Configuration
        - Each HPE 2410GB Multi Level Cell G2 PCIe ioDrive2 Duo flash card is recognized as 2 x 1205 GB devices.
        - Storage Pools were created using Direct Access storage profile.
            - one storage pool per device
            - total of 6 storage pools
        - Two RAID0 volumes were created for each storage pool.
            - Total: 12 x 450 GB volumes
            - each volume was exported as LUNs
        - HPE 2410GB Multi Level Cell G2 PCIe ioDrive2 Duo flash card #1
            - Storage Pool #1, Volume #1, LUN #1
            - Storage Pool #1, Volume #2, LUN #2
            - Storage Pool #2, Volume #1, LUN #3
            - Storage Pool #2, Volume #2, LUN #4
        - HPE 2410GB Multi Level Cell G2 PCIe ioDrive2 Duo flash card #2
            - Storage Pool #3, Volume #1, LUN #5
            - Storage Pool #3, Volume #2, LUN #6
            - Storage Pool #4, Volume #1, LUN #7
            - Storage Pool #4, Volume #2, LUN #8
        - HPE 2410GB Multi Level Cell G2 PCIe ioDrive2 Duo flash card #3
            - Storage Pool #5, Volume #1, LUN #9
            - Storage Pool #5, Volume #2, LUN #10
            - Storage Pool #6, Volume #1, LUN #11
            - Storage Pool #6, Volume #2, LUN #12
    - LUN/VM layout
        - LUN1: All mailserver, OlioDB, OlioWeb, standby VMs from tiles 12, 30
        - LUN2: All mailserver, OlioDB, OlioWeb, standby VMs from tiles 13, 38
        - LUN3: All mailserver, OlioDB, OlioWeb, standby VMs from tiles 14, 31
        - LUN4: All mailserver, OlioDB, OlioWeb, standby VMs from tiles 15, 39
        - LUN5: All mailserver, OlioDB, OlioWeb, standby VMs from tiles 16, 32

        - LUN6: All mailserver, OlioDB, OlioWeb, standby VMs from tiles 17
        - LUN7: All mailserver, OlioDB, OlioWeb, standby VMs from tiles 18, 33
        - LUN8: All mailserver, OlioDB, OlioWeb, standby VMs from tiles 19
        - LUN9: All mailserver, OlioDB, OlioWeb, standby VMs from tiles 20, 34
        - LUN10: All mailserver, OlioDB, OlioWeb, standby VMs from tiles 21
        - LUN11: All mailserver, OlioDB, OlioWeb, standby VMs from tiles 22, 35
        - LUN12: All mailserver, OlioDB, OlioWeb, standby VMs from tiles 23 and the Deploy Template
- Storage box #4
    - Hardware Configuration
        - HPE ProLiant DL380p Gen8
            - 2 x Intel Xeon E5-2680 2.70 GHz processors
            - 512 GB Memory (16 x 32 GB LRDIMMs dual rank PC3-12800 Registered DDR3)
            - 3 x HPE 2410GB Multi Level Cell G2 PCIe ioDrive2 Duo flash cards
            - 2 x HPE SN1000Q dual port 16 GB fibre HBAs
            - 1 x HPE Smart Array 420i controller for ION OS
            - 2 x 146 GB 15K RPM SAS SFF for ION OS
            - SanDisk ION Accelerator version 2.5.0
    - Software Configuration
        - Each HPE 2410GB Multi Level Cell G2 PCIe ioDrive2 Duo flash card is recognized as 2 x 1205 GB devices.
        - Storage Pools were created using Direct Access storage profile.
            - one storage pool per device
            - total of 6 storage pools
        - Two RAID0 volumes were created for 4 storage pools and 1 RAID0 volume was created for 2 storage pools.
            - Total: 10 x 450 GB volumes
            - each volume was exported as LUNs
        - HPE 2410GB Multi Level Cell G2 PCIe ioDrive2 Duo flash card #1
            - Storage Pool #1, Volume #1, LUN #1
            - Storage Pool #1, Volume #2, LUN #2
            - Storage Pool #2, Volume #1, LUN #3
            - Storage Pool #2, Volume #2, LUN #4
        - HPE 2410GB Multi Level Cell G2 PCIe ioDrive2 Duo flash card #2
            - Storage Pool #3, Volume #1, LUN #5
            - Storage Pool #3, Volume #2, LUN #6
            - Storage Pool #4, Volume #1, LUN #7
        - HPE 2410GB Multi Level Cell G2 PCIe ioDrive2 Duo flash card #3
            - Storage Pool #5, Volume #1, LUN #9
            - Storage Pool #5, Volume #2, LUN #9
            - Storage Pool #6, Volume #1, LUN #10
    - LUN/VM layout
        - LUN1: All mailserver, OlioDB, OlioWeb, standby VMs from tiles 40, 45
        - LUN2: All mailserver, OlioDB, OlioWeb, standby VMs from tiles 41, 44
        - LUN3: All mailserver, OlioDB, OlioWeb, standby VMs from tiles 42, 47
        - LUN4: All mailserver, OlioDB, OlioWeb, standby VMs from tiles 43, 46
        - LUN5: All DS2 VMs from tiles 40, 49
        - LUN6: All DS2 VMs from tiles 41, 45
        - LUN7: All DS2 VMs from tiles 42
        - LUN8: All DS2 VMs from tiles 43, 47
        - LUN9: All DS2 VMs from tiles 44

        - LUN10: All DS2 VMs from tiles 46

Datacenter Management Server Notes

- HPE ProLiant BL685c G7 running ESXi 5.1.0 U2 Build 1483097 with one virtual machine for vCenter for SUT
    - vCenter for SUT
        - 2 virtual CPUs
        - 8 GB virtual memory
        - Microsoft® Windows® 2008 R2 Enterprise (64-bit)
        - VMware vCenter Server 6.0.0 Build 3018524

Operating System Notes

- All mailserver VMs running Microsoft® Windows® 2008 R2 Enterprise SP1 (64-bit)
- All standby VMs running Microsoft® Windows® 2003 Enterprise SP2 (32-bit)
- All DS2DB, DS2WebA, DS2WebB, DS2WebC, OlioDB and OlioWeb VMs 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 2 Build 1671586
- All client drivers were run on virtual machines that were each defined with 4 virtual CPUs, 12 GB of memory, 1 vmxnet3 network, and 32 GB of disk space.
- Each client host has 1 x HPE LPe1205A 8Gb Fibre Channel Host Bus Adapter for BladeSystem c-Class.
- All client VMs are stored on 2 x HPE P2000 G3 MSA storage arrays.
    - Each HPE P2000 G3 MSA storage array has the following configuration:
        - 24 x 146 GB SFF SAS disk drives
        - Two RAID 5 volumes striped across 11 disk drives with 1 additional disk drive configured as an online spare.
        - Each volume is exported as a LUN.
    - Each client host has a fiber connection to each exported LUN.
- Twelve HPE ProLiant BL465c G7 clients ran the 50 client virtual machines as follows:
    - system 1: hosted vclients: 0, 12, 24, 36, 48
    - system 2: hosted vclients: 1, 13, 25, 37, 49
    - system 3: hosted vclients: 2, 14, 26, 38
    - system 4: hosted vclients: 3, 15, 27, 39
    - system 5: hosted vclients: 4, 16, 28, 40
    - system 6: hosted vclients: 5, 17, 29, 41
    - system 7: hosted vclients: 6, 18, 30, 42
    - system 8: hosted vclients: 7, 19, 31 ,43
    - system 9: hosted vclients: 8, 20, 32, 44
    - system 10: hosted vclients: 9, 21, 33, 45
    - system 11: hosted vclients: 10, 22, 34, 46
    - system 12: hosted vclients: 11, 23, 35, 47
- All client operating systems were updated via Windows Update.

Other Notes

- TILEDELAY set to 30 (default 60)

This is a full disclosure report for a VMmark benchmark result. All published VMmark results must be from fully-compliant tests for which a full disclosure report is publicly available.

For information about VMmark and the rules regarding its usage visit www.vmware.com/products/vmmark.