VMmark® 3.0 Results

Vendor and Hardware Platform: Fujitsu Server PRIMEQUEST 3800E Virtualization Platform: VMware ESXi 6.7.0 EP 02a Build 9214924 VMware vCenter Server : VMware vCenter Server 6.7.0d Build 9451876	VMmark 3.0 Score = 28.11 @ 29 Tiles

Number of Hosts: 4	Uniform Hosts [yes/no]: yes	Total sockets/cores/threads in test: 16/448/896

Tested By: Fujitsu	Test Date: 11-19-2018

Performance Section	Configuration Section	Notes Section
Performance	Configuration	Notes for Workload

Performance

	weathervane			weathervaneE			dvdstoreA			dvdstoreB			dvdstoreC			
TILE_0	Actual	Ratio	QoS(nRT|MaxPctF)	Actual	Ratio	QoS(nRT|MaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
p0	3602.12	1.00	0.35 | 0.00	572.23	1.00	0.70 | 0.33	920.70	1.25	927.36	658.10	1.31	1085.46	458.40	1.32	1236.41	1.17
p1	3598.68	1.00	0.35 | 0.00	571.85	1.00	0.71 | 0.30	921.05	1.25	926.07	634.45	1.27	1108.88	459.20	1.32	1233.99	1.16
p2	3600.00	1.00	0.35 | 0.00	572.52	1.00	0.63 | 0.22	929.23	1.27	904.95	639.85	1.28	1080.18	437.80	1.26	1240.00	1.15
TILE_1	Actual	Ratio	QoS(nRT|MaxPctF)	Actual	Ratio	QoS(nRT|MaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
p0	3594.59	1.00	0.25 | 0.00	574.11	1.00	0.62 | 0.36	907.95	1.24	977.09	648.88	1.30	1143.82	442.43	1.28	1352.96	1.15
p1	3596.57	1.00	0.24 | 0.03	572.47	1.00	0.47 | 0.24	911.65	1.24	963.98	626.75	1.25	1147.75	447.95	1.29	1306.73	1.15
p2	3601.18	1.00	0.25 | 0.00	571.04	1.00	0.61 | 0.28	916.65	1.25	964.29	623.92	1.25	1159.38	422.40	1.22	1351.13	1.14
TILE_2	Actual	Ratio	QoS(nRT|MaxPctF)	Actual	Ratio	QoS(nRT|MaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
p0	3598.37	1.00	0.32 | 0.00	573.14	1.00	0.60 | 0.23	966.83	1.32	796.93	701.95	1.40	927.52	489.10	1.41	1066.28	1.21
p1	3603.07	1.00	0.33 | 0.00	571.84	1.00	0.66 | 0.23	981.12	1.34	761.17	685.80	1.37	902.22	496.18	1.43	1021.34	1.21
p2	3599.71	1.00	0.32 | 0.00	572.99	1.00	0.60 | 0.25	976.42	1.33	769.95	685.52	1.37	906.35	470.15	1.36	1039.90	1.20
TILE_3	Actual	Ratio	QoS(nRT|MaxPctF)	Actual	Ratio	QoS(nRT|MaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
p0	3599.96	1.00	0.32 | 0.00	572.88	1.00	0.68 | 0.30	980.30	1.33	747.78	718.80	1.44	867.21	525.08	1.51	984.98	1.24
p1	3595.84	1.00	0.31 | 0.00	572.47	1.00	0.69 | 0.33	997.08	1.36	710.93	673.42	1.35	845.77	486.25	1.40	955.60	1.21
p2	3600.18	1.00	0.33 | 0.00	572.81	1.00	0.53 | 0.26	986.62	1.34	739.40	720.27	1.44	851.38	509.20	1.47	959.25	1.23
TILE_4	Actual	Ratio	QoS(nRT|MaxPctF)	Actual	Ratio	QoS(nRT|MaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
p0	3599.56	1.00	0.27 | 0.00	570.16	1.00	0.61 | 0.24	926.05	1.26	921.80	659.30	1.32	1094.61	482.95	1.39	1213.12	1.18
p1	3600.40	1.00	0.27 | 0.00	571.43	1.00	0.59 | 0.11	932.35	1.27	904.14	641.00	1.28	1087.79	438.48	1.26	1255.13	1.15
p2	3598.72	1.00	0.27 | 0.00	571.42	1.00	0.67 | 0.28	926.02	1.26	918.23	663.42	1.33	1069.58	462.10	1.33	1229.80	1.17
TILE_5	Actual	Ratio	QoS(nRT|MaxPctF)	Actual	Ratio	QoS(nRT|MaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM

p0	3597.10	1.00	0.34 | 0.04	572.25	1.00	0.64 | 0.24	935.52	1.27	882.15	671.60	1.34	1045.49	491.35	1.42	1169.11	1.19
p1	3599.12	1.00	0.33 | 0.00	571.50	1.00	0.65 | 0.23	941.27	1.28	863.92	653.65	1.31	1020.36	450.18	1.30	1169.86	1.17
p2	3598.27	1.00	0.33 | 0.00	571.67	1.00	0.58 | 0.31	934.90	1.27	888.51	669.62	1.34	1049.72	467.12	1.35	1184.73	1.18
TILE_6	Actual	Ratio	QoS(nRT|MaxPctF)	Actual	Ratio	QoS(nRT|MaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
p0	3598.04	1.00	0.24 | 0.00	572.20	1.00	0.42 | 0.21	963.77	1.31	803.48	697.05	1.39	942.27	515.17	1.49	1054.28	1.22
p1	3598.58	1.00	0.24 | 0.00	572.61	1.00	0.53 | 0.14	974.98	1.33	778.80	678.85	1.36	936.20	448.27	1.29	1067.05	1.18
p2	3599.85	1.00	0.25 | 0.00	572.37	1.00	0.61 | 0.28	957.80	1.30	826.69	692.50	1.38	956.65	505.30	1.46	1104.53	1.21
TILE_7	Actual	Ratio	QoS(nRT|MaxPctF)	Actual	Ratio	QoS(nRT|MaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
p0	3600.36	1.00	0.30 | 0.00	570.79	1.00	0.55 | 0.13	920.00	1.25	945.83	630.23	1.26	1131.04	451.12	1.30	1287.04	1.15
p1	3596.59	1.00	0.31 | 0.00	572.87	1.00	0.60 | 0.20	921.60	1.26	939.82	634.98	1.27	1097.32	439.25	1.27	1240.25	1.15
p2	3597.17	1.00	0.30 | 0.00	571.97	1.00	0.66 | 0.29	911.08	1.24	970.47	649.17	1.30	1146.22	466.95	1.35	1313.08	1.17
TILE_8	Actual	Ratio	QoS(nRT|MaxPctF)	Actual	Ratio	QoS(nRT|MaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
p0	3599.38	1.00	0.37 | 0.00	571.78	1.00	0.69 | 0.29	910.88	1.24	958.23	650.25	1.30	1132.99	471.27	1.36	1281.38	1.17
p1	3600.73	1.00	0.35 | 0.00	571.00	1.00	0.69 | 0.27	929.90	1.27	910.29	638.55	1.28	1096.81	415.25	1.20	1273.75	1.14
p2	3596.85	1.00	0.36 | 0.00	572.15	1.00	0.60 | 0.32	922.05	1.26	929.00	664.00	1.33	1085.65	476.77	1.37	1247.20	1.18
TILE_9	Actual	Ratio	QoS(nRT|MaxPctF)	Actual	Ratio	QoS(nRT|MaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
p0	3597.97	1.00	0.28 | 0.00	571.99	1.00	0.69 | 0.34	998.45	1.36	721.47	695.10	1.39	866.27	507.48	1.46	971.69	1.23
p1	3599.20	1.00	0.28 | 0.00	573.46	1.00	0.64 | 0.33	995.83	1.36	726.05	702.92	1.40	850.37	485.88	1.40	964.80	1.22
p2	3597.62	1.00	0.29 | 0.10	572.71	1.00	0.53 | 0.37	987.00	1.34	735.36	717.20	1.43	868.47	528.58	1.52	963.58	1.24
TILE_10	Actual	Ratio	QoS(nRT|MaxPctF)	Actual	Ratio	QoS(nRT|MaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
p0	3595.72	1.00	0.24 | 0.00	572.17	1.00	0.54 | 0.10	976.67	1.33	777.26	678.45	1.36	930.59	491.95	1.42	1053.67	1.21
p1	3598.34	1.00	0.25 | 0.03	572.93	1.00	0.60 | 0.26	984.40	1.34	761.83	686.40	1.37	909.34	471.93	1.36	1046.58	1.20
p2	3600.23	1.00	0.26 | 0.02	572.78	1.00	0.57 | 0.20	969.00	1.32	789.50	702.75	1.40	924.52	491.60	1.42	1056.96	1.21
TILE_11	Actual	Ratio	QoS(nRT|MaxPctF)	Actual	Ratio	QoS(nRT|MaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
p0	3597.39	1.00	0.31 | 0.00	573.37	1.00	0.58 | 0.18	969.98	1.32	787.52	671.92	1.34	947.88	464.48	1.34	1081.18	1.19
p1	3595.71	1.00	0.31 | 0.00	572.28	1.00	0.63 | 0.22	959.88	1.31	818.64	671.08	1.34	959.15	485.95	1.40	1089.01	1.20
p2	3602.07	1.00	0.32 | 0.00	570.42	1.00	0.57 | 0.25	955.98	1.30	822.88	663.02	1.32	996.01	480.07	1.38	1113.17	1.19
TILE_12	Actual	Ratio	QoS(nRT|MaxPctF)	Actual	Ratio	QoS(nRT|MaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
p0	3598.10	1.00	0.36 | 0.00	572.58	1.00	0.79 | 0.44	933.50	1.27	898.10	643.70	1.29	1074.87	442.15	1.27	1211.05	1.16
p1	3597.66	1.00	0.36 | 0.03	572.67	1.00	0.85 | 0.59	914.38	1.25	935.19	655.55	1.31	1108.97	457.95	1.32	1249.39	1.17
p2	3594.40	1.00	0.36 | 0.03	572.13	1.00	0.83 | 0.54	919.33	1.25	928.69	631.00	1.26	1119.63	455.75	1.31	1252.06	1.16
TILE_13	Actual	Ratio	QoS(nRT|MaxPctF)	Actual	Ratio	QoS(nRT|MaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
p0	3594.30	1.00	0.23 | 0.00	575.42	1.01	0.57 | 0.11	986.40	1.34	750.80	686.48	1.37	910.01	469.43	1.35	1048.14	1.20
p1	3598.48	1.00	0.24 | 0.00	570.88	1.00	0.62 | 0.23	978.85	1.33	770.66	708.58	1.42	907.89	493.15	1.42	1028.51	1.22

p2	3597.16	1.00	0.24 | 0.03	571.58	1.00	0.63 | 0.20	980.95	1.34	770.20	681.27	1.36	915.34	491.57	1.42	1051.93	1.21
TILE_14	Actual	Ratio	QoS(nRT|MaxPctF)	Actual	Ratio	QoS(nRT|MaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
p0	3598.45	1.00	0.37 | 0.00	572.00	1.00	0.55 | 0.18	901.73	1.23	994.69	615.50	1.23	1197.96	415.40	1.20	1396.48	1.13
p1	3601.88	1.00	0.37 | 0.00	573.75	1.00	0.50 | 0.37	889.17	1.21	1026.68	635.33	1.27	1193.84	439.40	1.27	1363.42	1.14
p2	3601.12	1.00	0.38 | 0.00	572.67	1.00	0.36 | 0.18	897.88	1.22	999.19	614.27	1.23	1202.79	440.25	1.27	1349.60	1.14
TILE_15	Actual	Ratio	QoS(nRT|MaxPctF)	Actual	Ratio	QoS(nRT|MaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
p0	3597.91	1.00	0.34 | 0.00	572.10	1.00	0.66 | 0.28	985.40	1.34	739.95	696.23	1.39	867.24	461.05	1.33	984.10	1.20
p1	3594.85	1.00	0.36 | 0.01	571.32	1.00	0.86 | 0.45	983.05	1.34	751.46	719.92	1.44	854.65	529.23	1.53	971.65	1.24
p2	3595.87	1.00	0.35 | 0.00	572.06	1.00	0.67 | 0.38	988.85	1.35	733.69	695.00	1.39	859.61	484.90	1.40	969.02	1.21
TILE_16	Actual	Ratio	QoS(nRT|MaxPctF)	Actual	Ratio	QoS(nRT|MaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
p0	3595.33	1.00	0.28 | 0.00	571.99	1.00	0.77 | 0.46	928.42	1.26	912.95	639.73	1.28	1093.91	439.57	1.27	1247.70	1.15
p1	3594.93	1.00	0.29 | 0.03	571.74	1.00	0.82 | 0.51	920.92	1.25	929.47	659.62	1.32	1093.78	479.90	1.38	1237.62	1.18
p2	3602.31	1.00	0.27 | 0.00	573.93	1.00	0.74 | 0.41	929.42	1.27	924.84	632.65	1.26	1114.03	435.30	1.26	1272.86	1.15
TILE_17	Actual	Ratio	QoS(nRT|MaxPctF)	Actual	Ratio	QoS(nRT|MaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
p0	3599.78	1.00	0.34 | 0.00	571.90	1.00	0.65 | 0.24	936.12	1.27	892.63	641.38	1.28	1077.58	439.43	1.27	1235.23	1.16
p1	3594.70	1.00	0.35 | 0.00	573.17	1.00	0.67 | 0.27	920.42	1.25	929.05	659.52	1.32	1084.14	481.50	1.39	1232.51	1.18
p2	3599.19	1.00	0.33 | 0.02	572.55	1.00	0.57 | 0.25	936.70	1.28	897.83	643.75	1.29	1067.01	442.62	1.28	1221.84	1.16
TILE_18	Actual	Ratio	QoS(nRT|MaxPctF)	Actual	Ratio	QoS(nRT|MaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
p0	3596.77	1.00	0.33 | 0.00	571.72	1.00	0.69 | 0.37	966.70	1.32	793.73	672.95	1.34	937.01	467.20	1.35	1062.16	1.19
p1	3598.89	1.00	0.34 | 0.02	572.31	1.00	0.67 | 0.30	954.73	1.30	814.13	695.83	1.39	942.95	508.98	1.47	1067.85	1.22
p2	3602.53	1.00	0.35 | 0.00	570.93	1.00	0.62 | 0.32	965.08	1.31	796.50	670.95	1.34	950.58	442.18	1.28	1072.89	1.18
TILE_19	Actual	Ratio	QoS(nRT|MaxPctF)	Actual	Ratio	QoS(nRT|MaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
p0	3600.36	1.00	0.26 | 0.00	573.62	1.00	0.58 | 0.21	912.92	1.24	967.95	625.12	1.25	1173.43	426.20	1.23	1334.22	1.14
p1	3604.82	1.00	0.25 | 0.00	574.26	1.00	0.53 | 0.05	913.65	1.24	966.33	649.17	1.30	1157.22	446.55	1.29	1327.85	1.16
p2	3599.76	1.00	0.25 | 0.00	571.32	1.00	0.62 | 0.19	918.35	1.25	942.72	632.67	1.26	1121.82	433.23	1.25	1284.31	1.15
TILE_20	Actual	Ratio	QoS(nRT|MaxPctF)	Actual	Ratio	QoS(nRT|MaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
p0	3599.67	1.00	0.29 | 0.00	573.23	1.00	0.58 | 0.13	961.95	1.31	843.32	659.05	1.32	1020.27	448.62	1.29	1192.20	1.17
p1	3595.95	1.00	0.29 | 0.00	573.67	1.00	0.58 | 0.15	942.48	1.28	884.52	674.83	1.35	1036.50	486.35	1.40	1199.87	1.19
p2	3597.56	1.00	0.28 | 0.01	571.42	1.00	0.62 | 0.24	956.50	1.30	844.98	658.33	1.32	1011.59	445.98	1.29	1189.92	1.17
TILE_21	Actual	Ratio	QoS(nRT|MaxPctF)	Actual	Ratio	QoS(nRT|MaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
p0	3595.22	1.00	0.21 | 0.00	573.29	1.00	0.52 | 0.18	975.52	1.33	794.21	701.30	1.40	953.03	485.32	1.40	1095.57	1.21
p1	3601.71	1.00	0.23 | 0.00	573.23	1.00	0.53 | 0.06	973.85	1.33	797.51	674.60	1.35	963.20	487.05	1.40	1095.82	1.20
p2	3603.50	1.00	0.23 | 0.11	571.35	1.00	0.51 | 0.06	980.05	1.33	794.39	677.17	1.35	955.24	462.70	1.33	1112.30	1.19
TILE_22	Actual	Ratio	QoS(nRT|MaxPctF)	Actual	Ratio	QoS(nRT|MaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM

p0	3597.19	1.00	0.28 | 0.00	572.56	1.00	0.58 | 0.26	1040.95	1.42	618.44	767.55	1.53	716.20	542.88	1.57	807.69	1.28
p1	3595.44	1.00	0.28 | 0.02	569.28	0.99	0.46 | 0.03	1038.60	1.41	624.64	740.65	1.48	729.16	538.15	1.55	827.88	1.26
p2	3597.44	1.00	0.28 | 0.00	571.43	1.00	0.57 | 0.20	1042.58	1.42	623.46	739.83	1.48	726.84	516.27	1.49	826.71	1.26
TILE_23	Actual	Ratio	QoS(nRT|MaxPctF)	Actual	Ratio	QoS(nRT|MaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
p0	3601.89	1.00	0.24 | 0.00	571.39	1.00	0.70 | 0.38	975.80	1.33	792.74	710.75	1.42	916.47	493.40	1.42	1057.43	1.22
p1	3598.52	1.00	0.24 | 0.00	572.21	1.00	0.73 | 0.39	1000.62	1.36	725.70	696.98	1.39	877.96	481.25	1.39	998.51	1.21
p2	3599.33	1.00	0.24 | 0.03	570.90	1.00	0.74 | 0.39	984.38	1.34	771.20	685.80	1.37	916.06	492.70	1.42	1053.88	1.21
TILE_24	Actual	Ratio	QoS(nRT|MaxPctF)	Actual	Ratio	QoS(nRT|MaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
p0	3600.44	1.00	0.30 | 0.00	571.88	1.00	0.63 | 0.25	950.77	1.29	861.95	712.40	1.42	997.01	496.50	1.43	1154.14	1.21
p1	3600.00	1.00	0.31 | 0.00	572.54	1.00	0.56 | 0.11	967.45	1.32	812.44	645.75	1.29	990.48	458.73	1.32	1134.86	1.18
p2	3595.21	1.00	0.29 | 0.00	573.17	1.00	0.62 | 0.24	956.83	1.30	846.43	687.23	1.37	996.11	473.98	1.37	1152.34	1.20
TILE_25	Actual	Ratio	QoS(nRT|MaxPctF)	Actual	Ratio	QoS(nRT|MaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
p0	3602.46	1.00	0.24 | 0.00	572.86	1.00	0.52 | 0.31	1010.00	1.38	701.62	733.45	1.47	839.38	534.02	1.54	949.29	1.25
p1	3602.66	1.00	0.24 | 0.00	572.12	1.00	0.56 | 0.32	1026.88	1.40	665.29	721.55	1.44	796.72	497.07	1.43	924.67	1.24
p2	3595.50	1.00	0.23 | 0.00	572.86	1.00	0.50 | 0.27	1010.98	1.38	701.55	735.92	1.47	832.01	513.48	1.48	953.43	1.25
TILE_26	Actual	Ratio	QoS(nRT|MaxPctF)	Actual	Ratio	QoS(nRT|MaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
p0	3599.75	1.00	0.21 | 0.00	572.11	1.00	0.50 | 0.08	972.00	1.32	797.58	700.77	1.40	947.14	501.90	1.45	1096.89	1.22
p1	3595.38	1.00	0.21 | 0.00	572.95	1.00	0.38 | 0.11	986.05	1.34	763.02	689.90	1.38	912.80	467.07	1.35	1073.91	1.20
p2	3600.82	1.00	0.22 | 0.00	572.97	1.00	0.51 | 0.12	970.45	1.32	799.80	698.92	1.40	946.81	481.50	1.39	1116.59	1.21
TILE_27	Actual	Ratio	QoS(nRT|MaxPctF)	Actual	Ratio	QoS(nRT|MaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
p0	3603.08	1.00	0.26 | 0.00	571.72	1.00	0.66 | 0.40	956.48	1.30	835.93	680.40	1.36	1008.54	491.93	1.42	1143.51	1.20
p1	3596.52	1.00	0.56 | 0.28	571.63	1.00	0.66 | 0.30	962.30	1.31	809.00	669.30	1.34	962.95	435.15	1.25	1117.17	1.17
p2	3594.32	1.00	0.28 | 0.29	571.48	1.00	0.64 | 0.30	939.75	1.28	865.22	680.38	1.36	1007.40	491.75	1.42	1167.44	1.20
TILE_28	Actual	Ratio	QoS(nRT|MaxPctF)	Actual	Ratio	QoS(nRT|MaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
p0	3595.28	1.00	0.29 | 0.00	572.31	1.00	0.62 | 0.18	965.10	1.31	786.76	693.35	1.39	938.77	482.90	1.39	1076.70	1.20
p1	3600.30	1.00	0.30 | 0.00	572.76	1.00	0.58 | 0.18	984.75	1.34	738.51	663.08	1.32	877.91	473.45	1.37	1011.36	1.19
p2	3597.46	1.00	0.27 | 0.03	571.90	1.00	0.65 | 0.25	959.73	1.31	877.87	690.95	1.38	1112.07	497.07	1.43	1162.13	1.21

p0_score:	34.61
p1_score:	34.50
p2_score:	34.51

Infrastructure_Operations_Scores:	vMotion	SVMotion	XVMotion	Deploy
Completed_Ops_PerHour	56.00	52.00	42.00	21.00
Avg_Seconds_To_Complete	7.22	78.37	106.37	276.76

Failures	0.00	0.00	0.00	0.00
Ratio	2.15	2.89	2.33	2.62
Number_Of_Threads	2	2	2	2

Summary	Run_Is_Compliant	Turbo_Setting:0
	Number_Of_Compliance_Issues(0)*	Median_Phase(p2)
Unreviewed_VMmark3_Applications_Score	34.51	
Unreviewed_VMmark3_Infrastructure_Score	2.48	
Unreviewed_VMmark3_Score	28.11	

Configuration

Virtualization Software	
Hypervisor Vendor, Product, Version, and Build / Availability Date (MM-DD-YYYY)	VMware ESXi 6.7.0 EP 02a, Build 9214924 / 07-26-2018
Datacenter Management Software Vendor, Product, Version, and Build / Availability Date (MM-DD-YYYY)	VMware vCenter Server 6.7.0d, Build 9451876 / 08-14-2018
Supplemental Software	None
Servers	
Number of Servers in System Under Test (all subsequent fields in this section are per server)	4 (realized as completely independent system partitions in two PRIMEQUEST 3800E systems)
Server Manufacturer and Model	Fujitsu Server PRIMEQUEST 3800E
Processor Vendor and Model	Intel Xeon Platinum 8180M
Processor Speed (GHz)	2.5
Total Sockets/Total Cores/Total Threads	4 Sockets / 112 Cores / 224 Threads
Primary CPU Cache	32 KB I + 32 KB D on chip per core
Secondary CPU Cache	1 MB I+D on chip per core
Other CPU Cache	38.5 MB I+D on chip per chip
BIOS Version	V1.0.0.0 R1.68.0 for D3858-A1x

Memory Size (in GB, Number of DIMMs)	1536, 48
Memory Type and Speed	32GB 2Rx4 DDR4 2666MHz RDIMM
Disk Subsystem Type	FC SAN
Number of Disk Controllers	1
Disk Controller Vendors and Models	Fujitsu PRAID EP420i
Total Number of Physical Disks for Hypervisor	1
Disk Vendors, Models, Capacities, and Speeds	Toshiba, PX04SMB160, 1.6TB, SAS 12Gb/S
Number of Host Bus Adapters	2
Host Bus Adapter Vendors and Models	Emulex LightPulse LPe31002-M6 2-Port 16Gb
Number of Network Controllers	3
Network Controller Vendors and Models	Emulex OneConnect Oce14000 Dual Port 10GbE Adapter Intel(R) Ethernet Controller X710 for 10GbE SFP+ Intel(R) Ethernet Controller 10G X550
Other Hardware	None
Other Software	None
Hardware Availability Date (MM-DD-YYYY)	11-08-2018
BIOS Availability Date (MM-DD-YYYY)	08-16-2018
Software Availability Date (MM-DD-YYYY)	08-31-2018
Network	
Network Switch Vendors and Models	1 x Fujitsu SR-X340TR1 1 x Fujitsu ET-7648BFERA-FOS
Network Speed	1Gbps for SUT management, 10Gbps for VMotion, Clients and VMs
Storage	
Array Vendors, Models, and Firmware Versions	3 x Fujitsu Server PRIMERGY RX2540 M2, Firmware V5.0.0.11 R1.13.0 for D3289-B1x 2 x Fujitsu Server PRIMERGY RX2530 M2, Firmware V5.0.0.11 R1.13.0 for D3279-B1x 5 x Fujitsu Server PRIMERGY RX2540 M4, Firmware V5.0.0.12 R1.22.0 for D3384-A1x
Fibre Channel Switch Vendors and Models	Brocade 6510
Disk Space Used	45.9TB
Array Cache Size	1GB for storage server OS; no cache used for SUT datastores

Total Number of Physical Disks Used	3 x SAS-SSD(1 per PRIMERGY RX2540M2 OS), 2 x SAS-SSD(1 per PRIMERGY RX2530M2 OS), 10 x SAS-SSD(2 per PRIMERGY RX2540M4 OS), 34 x PCIe-SSD
Total Number of Enclosures/Pods/Shelves Used	10
Number of Physical Disks Used per Enclosure/Pod/Shelf	3 x Enclosure(PRIMERGY RX2540 M2): 1 x SAS-SSD and 4 x PCIe-SSD 2 x Enclosure(PRIMERGY RX2530 M2): 1 x SAS-SSD and 1 x PCIe-SSD 5 x Enclosure(PRIMERGY RX2540 M4): 1 x SAS-SSD and 4 x PCIe-SSD
Total Number of Storage Groups Used	0
Number of LUNs Used	124
LUN Size and Number of Disks Per LUN	Details in section Storage Notes
RAID Type	RAID 0 for OS drives(PRIMERGY RX2540 M2) RAID 0 for OS drives(PRIMERGY RX2530 M2) RAID 1 for OS drives(PRIMERGY RX2540 M4)
Number of Members per RAID Set	1 (PRIMERGY RX2540 M2) 1 (PRIMERGY RX2530 M2) 2 (PRIMERGY RX2540 M4)
Disk Vendors, Models, and Speeds	3 x Toshiba PX02SMF040 400GB SAS SSD 2 x Toshiba AL14SEB03EN 400GB SAS-SSD 10 x Micro MTFDDAK480TDC 480GB SATA-SSD 3 x Fusion ioMemory PX600 1.3TB PCIe SSD 11 x Fusion ioMemory PX600 2.6TB PCIe SSD 10 x Intel P4800X 750GB PCIe SSD 5 x Intel P4600 2TB PCIe SSD 5 x Intel P4600 4TB PCIe SSD

Datacenter Management Server	
System Model	Fujitsu Server PRIMERGY RX2530 M2
Processor Vendor and Model	Intel Xeon E5-2698 v4
Processor Speed (GHz)	2.2
Total Sockets/Total Cores/Total Threads	1 Sockets / 20 Cores / 40 Threads
Memory Size (in GB, Number of DIMMs)	Hypervisor: 64GB, 8
Network Controller(s) Vendors and Models	Emulex OneConnect Oce14000 1GbE Dual Port Adapter
Operating System, Version, Bitness, and Service Pack	Hypervisor: VMware ESXi 6.7 EP 02a Build 9214924
Virtual Center VM Number of vCPUs	4

Virtual Center VM Virtual Memory (in GB)	16
Virtual Center VM Operating System, Version, Bitness, and Service Pack	VMware vCenter Server Appliance 6.7.0d Build 9451876
Other Hardware	None
Other Software	None

Clients	
Total Number of Virtual Clients / Virtual Client Hosts	30 / 7
System Model(s)	ClientHost1-6: Fujitsu PRIMERGY RX2530 M2 ClientHost7: Fujitsu PRIMERGY RX4770 M4
Processor Vendor(s) and Model(s)	ClientHost1-3,6: Intel Xeon E5-2699 v4 ClientHost4-5: Intel Xeon E5-2699A v4 ClientHost7: Intel Xeon Platinum 8180
Processor Speed(s) (GHz)	ClientHost1-3,6: 2.2 ClientHost4-5: 2.4 ClientHost7: 2.5
Total Sockets/Total Cores/Total Threads	ClientHost1-6: 2 Sockets / 44 Cores / 88 Threads ClientHost7: 2 Sockets / 56 Cores / 112 Threads
Memory per Virtual Client Host	ClientHost1-6: 256 GB ClientHost7: 192 GB
Network Controller(s) Vendors and Models	ClientHost1-6: Emulex OneConnect Oce14000 1GbE Dual Port Adapter Emulex OneConnect Oce14000 10GbE Dual Port Adapter ClientHost7: 3 x Emulex OneConnect Oce14000 10GbE Dual Port Adapter
Virtual Client Networking Notes	1 virtual adapter for management, 2 virtual adapter for workload traffic
Virtual Client Storage Notes	1 x 300GB SAS 10K TOSHIBA AL14SEB03EN HDD with RAID 0 for Client Host OS ClientHost1-6: 2 x 400GB SAS 12G TOSHIBA PX02SMF040 SSD with RAID 0 for Client VMs ClientHost7: 4 x 400GB SAS 12G TOSHIBA PX02SMF040 SSD with RAID 0 for Client VMs
Other Hardware	None
Other Software	VMware ESXi 6.7 EP 02a Build 9214924

Notes for Workload

Virtualization Software Notes

- CPU and Memory shares set to high for all DS3DB VMs (default normal)
- Logging disabled for all VMs (default enabled)
- Logical CPU configuration changed for multi-cpu VMs to 1 socket with multiple cores (default: Single core per socket)
- All memory reserved for DS3DB VMs (default non-reserved)

- CPU shares set to low for all Standby VMs (default normal)
- vSphere DRS Migration Threshold set to Fully Automated level 2

  Changes in esx.conf:

- /adv/Cpu/CreditAgePeriod = 1000 (default 3000)
- /adv/Cpu/HTWholeCoreThreshold = 0 (default 800)
- /adv/DataMover/HardwareAcceleratedInit = 0 (default 1)
- /adv/DataMover/HardwareAcceleratedMove = 0 (default 1)
- /adv/Mem/CtlMaxPercent = 0 (default 65)
- /adv/Mem/ShareScanGHz = 0 (default 4)
- /adv/Mem/VMOverheadGrowthLimit = 0 (default 4294967295)
- /adv/Numa/LTermFairnessInterval = 0 (default 5)
- /adv/Numa/MigImbalanceThreshold = 57 (default 10)
- /adv/Numa/PageMigEnable = 0 (default 1)
- /adv/Numa/RebalancePeriod = 60000 (default 2000)
- /adv/Numa/SwapLoadEnable = 0 (default 1)
- /adv/Numa/SwapLocalityEnable = 0 (default 1)
- /adv/Disk/ReqCallThreshold = 1 (default 8)
- /adv/Disk/IdleCredit = 64 (default 32)
- /adv/Power/CpuPolicy = High Performance (default balanced)
- /adv/VMFS3/HardwareAcceleratedLocking = 0 (default 1)
- /adv/UserVars/HostClientCEIPOptIn = 1 (default 0)

Server Notes

- The PRIMEQUEST 3800E can be split up into 1 to 4 completely independent system partitions with dedicated HW. Each partition is treated as a separate ESXi host. For this VMmark result two partitions (containing two system boards and two IO unit) were configured on each of two PRIMEQUEST 3800E.

- Server/Partition BIOS settings:
  - Turbo Mode: Enabled (Intel Turbo Boost up to 3.8GHz, default Enabled)
  - DCU Streamer Prefetcher = Disabled (default Enabled)
  - Sub NUMA Clustering = Enabled (default: Disabled)
  - Stale AtoS = Enabled (default: Disabled)
  - LLC Dead Line Alloc = Disabled (default: Enabled)
  - Fan Control = Full (default: Auto)

Networking Notes

- vSwitch Configuration:
  - vSwitch0 for Service Console on vmnic0 at 1Gb/s
  - vSwitch1 for all workload on vmnic4,vmnic5,vmnic6 at 10Gb/s
  - vSwitch4 for vMotion connection on vmnic7 at 10Gb/s
    - 9000 MTU (default 1500)

Storage Notes

- First Fujitsu Server PRIMERGY RX2540 M2 configured as a Fibre Channel Target:

  - Hardware details:

        - 2 x Intel Xeon E5-2667 v4@3.2GHz processors
        - 128GB RAM (8 x 16 GB dual rank PC4-19200 Registered DDR4 / 2400 MHz DIMMs)
        - 1 x QLogic QLE2672 Dual Port 16Gb FC HBA used as FC target controller
        - 1 x Fujitsu RAID SAS Controller with 1GB Cache (D3108)
        - 1 x 400GB SAS-SSD Toshiba PX02SMF040
        - 1 x Fusion ioMemory PX600 1.3TB PCIe SSD
        - 3 x Fusion ioMemory PX600 2.6TB PCIe SSD

    - Software details:
        - Operating System: SUSE Linux Enterprise Server 12 SP2 - 4.4.21-69-default (64-bit)
        - Fibre Channel Target SW: LIO (part of SUSE Linux Enterprise Server 12 SP2)

RAID configuration:

- SAS-SSD 1:
    - LUN 1: Storage system OS (400GB, this LUN is not counted in the Storage section)

- First PCIe-SSD:
    - LUN 1: DS3DB, DS3WebA, DS3WebB, DS3WebC for tile 0 (600GB)
    - LUN 2: DS3DB, DS3WebA, DS3WebB, DS3WebC for tile 11 (600GB)
    - LUN 3: AuctionNoSQL, ElasticDB for tile 0 (300GB)
    - LUN 4: AuctionDB, ElasticLB for tile 0 (300GB)
    - LUN 5: AuctionDB, ElasticLB for tile 11 (300GB)

- Second PCIe-SSD:
    - LUN 1: DS3DB, DS3WebA, DS3WebB, DS3WebC for tile 1 (600GB)
    - LUN 2: DS3DB, DS3WebA, DS3WebB, DS3WebC for tile 12 (600GB)
    - LUN 3: AuctionNoSQL, ElasticDB for tile 1 (300GB)
    - LUN 4: AuctionDB, ElasticLB for tile 1 (300GB)
    - LUN 5: AuctionDB, ElasticLB for tile 12 (300GB)

- Third PCIe-SSD:
    - LUN 1: DS3DB, DS3WebA, DS3WebB, DS3WebC for tile 2 (600GB)
    - LUN 2: DS3DB, DS3WebA, DS3WebB, DS3WebC for tile 13 (600GB)
    - LUN 3: AuctionNoSQL, ElasticDB for tile 2 (300GB)
    - LUN 4: AuctionDB, ElasticLB for tile 2 (300GB)
    - LUN 5: AuctionDB, ElasticLB for tile 13 (300GB)

- Fourth PCIe-SSD:
    - LUN 1: AuctionWebA, AuctionWebB, AuctionAppA, AuctionAppB, AuctionLB, AuctionMSQ, Standby, ElasticWebA, ElasticWebB, ElasticAppA, ElasticAppB for tile 0 (300GB)
    - LUN 2: AuctionWebA, AuctionWebB, AuctionAppA, AuctionAppB, AuctionLB, AuctionMSQ, Standby, ElasticWebA, ElasticWebB, ElasticAppA, ElasticAppB for tile 3 (300GB)
    - LUN 3: AuctionWebA, AuctionWebB, AuctionAppA, AuctionAppB, AuctionLB, AuctionMSQ, Standby, ElasticWebA, ElasticWebB, ElasticAppA, ElasticAppB for tile 6 (300GB)

- Second Fujitsu Server PRIMERGY RX2540 M2 configured as a Fibre Channel Target:

    - Hardware details:
        - 2 x Intel Xeon E5-2667 v4@3.2GHz processors
        - 128GB RAM (8 x 16 GB dual rank PC4-19200 Registered DDR4 / 2400 MHz DIMMs)
        - 1 x QLogic QLE2672 Dual Port 16Gb FC HBA used as FC target controller
        - 1 x Fujitsu RAID SAS Controller with 1GB Cache (D3108)
        - 1 x 400GB SAS-SSD Toshiba PX02SMF040

        - 1 x Fusion ioMemory PX600 1.3TB PCIe SSD
        - 3 x Fusion ioMemory PX600 2.6TB PCIe SSD

    - Software details:
        - Operating System: SUSE Linux Enterprise Server 12 SP2 - 4.4.21-69-default (64-bit)
        - Fibre Channel Target SW: LIO (part of SUSE Linux Enterprise Server 12 SP2)

RAID configuration:

- SAS-SSD 1:
    - LUN 1: Storage system OS (400GB, this LUN is not counted in the Storage section)

- First PCIe-SSD:
    - LUN 1: DS3DB, DS3WebA, DS3WebB, DS3WebC for tile 3 (600GB)
    - LUN 2: DS3DB, DS3WebA, DS3WebB, DS3WebC for tile 14 (600GB)
    - LUN 3: AuctionNoSQL, ElasticDB for tile 3 (300GB)
    - LUN 4: AuctionDB, ElasticLB for tile 3 (300GB)
    - LUN 5: AuctionDB, ElasticLB for tile 14 (300GB)

- Second PCIe-SSD:
    - LUN 1: DS3DB, DS3WebA, DS3WebB, DS3WebC for tile 4 (600GB)
    - LUN 2: DS3DB, DS3WebA, DS3WebB, DS3WebC for tile 15 (600GB)
    - LUN 3: AuctionNoSQL, ElasticDB for tile 4 (300GB)
    - LUN 4: AuctionDB, ElasticLB for tile 4 (300GB)
    - LUN 5: AuctionDB, ElasticLB for tile 15 (300GB)

- Third PCIe-SSD:
    - LUN 1: DS3DB, DS3WebA, DS3WebB, DS3WebC for tile 5 (600GB)
    - LUN 2: DS3DB, DS3WebA, DS3WebB, DS3WebC for tile 16 (600GB)
    - LUN 3: AuctionNoSQL, ElasticDB for tile 5 (300GB)
    - LUN 4: AuctionDB, ElasticLB for tile 5 (300GB)
    - LUN 5: AuctionDB, ElasticLB for tile 16 (300GB)

- Fourth PCIe-SSD:
    - LUN 1: AuctionWebA, AuctionWebB, AuctionAppA, AuctionAppB, AuctionLB, AuctionMSQ, Standby, ElasticWebA, ElasticWebB, ElasticAppA, ElasticAppB for tile 1 (300GB)
    - LUN 2: AuctionWebA, AuctionWebB, AuctionAppA, AuctionAppB, AuctionLB, AuctionMSQ, Standby, ElasticWebA, ElasticWebB, ElasticAppA, ElasticAppB for tile 4 (300GB)
    - LUN 3: AuctionWebA, AuctionWebB, AuctionAppA, AuctionAppB, AuctionLB, AuctionMSQ, Standby, ElasticWebA, ElasticWebB, ElasticAppA, ElasticAppB for tile 7 (300GB)

- Third Fujitsu Server PRIMERGY RX2540 M2 configured as a Fibre Channel Target:

    - Hardware details:
        - 2 x Intel Xeon E5-2667 v4@3.2GHz processors
        - 128GB RAM (8 x 16 GB dual rank PC4-19200 Registered DDR4 / 2400 MHz DIMMs)
        - 1 x QLogic QLE2672 Dual Port 16Gb FC HBA used as FC target controller
        - 1 x Fujitsu RAID SAS Controller with 1GB Cache (D3108)
        - 1 x 400GB SAS-SSD Toshiba PX02SMF040
        - 1 x Fusion ioMemory PX600 1.3TB PCIe SSD
        - 3 x Fusion ioMemory PX600 2.6TB PCIe SSD

    - Software details:
        - Operating System: SUSE Linux Enterprise Server 12 SP2 - 4.4.21-69-default (64-bit)

        - Fibre Channel Target SW: LIO (part of SUSE Linux Enterprise Server 12 SP2)

RAID configuration:

- SAS-SSD 1:
    - LUN 1: Storage system OS (400GB, this LUN is not counted in the Storage section)

- First PCIe-SSD:
    - LUN 1: DS3DB, DS3WebA, DS3WebB, DS3WebC for tile 6 (600GB)
    - LUN 2: DS3DB, DS3WebA, DS3WebB, DS3WebC for tile 17 (600GB)
    - LUN 3: AuctionNoSQL, ElasticDB for tile 6 (300GB)
    - LUN 4: AuctionDB, ElasticLB for tile 6 (300GB)
    - LUN 5: AuctionDB, ElasticLB for tile 17 (300GB)

- Second PCIe-SSD:
    - LUN 1: DS3DB, DS3WebA, DS3WebB, DS3WebC for tile 7 (600GB)
    - LUN 2: DS3DB, DS3WebA, DS3WebB, DS3WebC for tile 18 (600GB)
    - LUN 3: AuctionNoSQL, ElasticDB for tile 7 (300GB)
    - LUN 4: AuctionDB, ElasticLB for tile 7 (300GB)
    - LUN 5: AuctionDB, ElasticLB for tile 18 (300GB)

- Third PCIe-SSD:
    - LUN 1: DS3DB, DS3WebA, DS3WebB, DS3WebC for tile 8 (600GB)
    - LUN 2: DS3DB, DS3WebA, DS3WebB, DS3WebC for tile 19 (600GB)
    - LUN 3: AuctionNoSQL, ElasticDB for tile 8 (300GB)
    - LUN 4: AuctionDB, ElasticLB for tile 8 (300GB)
    - LUN 5: AuctionDB, ElasticLB for tile 19 (300GB)

- Fourth PCIe-SSD:
    - LUN 1: AuctionWebA, AuctionWebB, AuctionAppA, AuctionAppB, AuctionLB, AuctionMSQ, Standby, ElasticWebA, ElasticWebB, ElasticAppA, ElasticAppB for tile 2 (300GB)
    - LUN 2: AuctionWebA, AuctionWebB, AuctionAppA, AuctionAppB, AuctionLB, AuctionMSQ, Standby, ElasticWebA, ElasticWebB, ElasticAppA, ElasticAppB for tile 5 (300GB)
    - LUN 3: AuctionWebA, AuctionWebB, AuctionAppA, AuctionAppB, AuctionLB, AuctionMSQ, Standby, ElasticWebA, ElasticWebB, ElasticAppA, ElasticAppB for tile 8 (300GB)

- Fourth Fujitsu Server PRIMERGY RX2530 M2 configured as a Fibre Channel Target:

    - Hardware details:
        - 2 x Intel Xeon E5-2683 v4@2.1GHz processors
        - 128GB RAM (8 x 16 GB dual rank PC4-19200 Registered DDR4 / 2400 MHz DIMMs)
        - 1 x QLogic QLE2672 Dual Port 16Gb FC HBA used as FC target controller
        - 1 x Fujitsu RAID SAS Controller with 1GB Cache (D3108)
        - 1 x 400GB SAS-SSD Toshiba AL14SEB03EN
        - 1 x Fusion ioMemory PX600 2.6TB PCIe SSD

    - Software details:
        - Operating System: SUSE Linux Enterprise Server 12 SP3 - 4.4.73-5-default (64-bit)
        - Fibre Channel Target SW: LIO (part of SUSE Linux Enterprise Server 12 SP3)

    RAID configuration:

    - SAS-SSD 1:
        - LUN 1: Storage system OS (300GB, this LUN is not counted in the Storage section)

        - First PCIe-SSD:
            - LUN 1: DS3DB, DS3WebA, DS3WebB, DS3WebC for tile 26 (600GB)
            - LUN 2: DS3DB, DS3WebA, DS3WebB, DS3WebC for tile 28 (600GB)
            - LUN 3: AuctionNoSQL, ElasticDB for tile 26 (300GB)
            - LUN 4: AuctionDB, ElasticLB for tile 26 (300GB)
            - LUN 5: AuctionDB, ElasticLB for tile 28 (300GB)

    - Fifth Fujitsu Server PRIMERGY RX2530 M2 configured as a Fibre Channel Target:

        - Hardware details:
            - 2 x Intel Xeon E5-2683 v4@2.1GHz processors
            - 128GB RAM (8 x 16 GB dual rank PC4-19200 Registered DDR4 / 2400 MHz DIMMs)
            - 1 x QLogic QLE2672 Dual Port 16Gb FC HBA used as FC target controller
            - 1 x Fujitsu RAID SAS Controller with 1GB Cache (D3108)
            - 1 x 400GB SAS-SSD Toshiba AL14SEB03EN
            - 1 x Fusion ioMemory PX600 2.6TB PCIe SSD

        - Software details:
            - Operating System: SUSE Linux Enterprise Server 12 SP3 - 4.4.73-5-default (64-bit)
            - Fibre Channel Target SW: LIO (part of SUSE Linux Enterprise Server 12 SP3)

        RAID configuration:

        - SAS-SSD 1:
            - LUN 1: Storage system OS (300GB, this LUN is not counted in the Storage section)
        - First PCIe-SSD:
            - LUN 1: DS3DB, DS3WebA, DS3WebB, DS3WebC for tile 27 (600GB)
            - LUN 2: Not Used (600GB)
            - LUN 3: AuctionNoSQL, ElasticDB for tile 27 (300GB)
            - LUN 4: AuctionDB, ElasticLB for tile 27 (300GB)
            - LUN 5: Not Used (300GB)

    - Sixth Fujitsu Server PRIMERGY RX2540 M4 configured as a Fibre Channel Target:

        - Hardware details:
            - 2 x Intel Xeon Gold 6134M@3.2GHz processors
            - 64GB RAM (2 x 32 GB dual rank PC4-2666 Registered DDR4 / 2666 MHz DIMMs)
            - 1 x QLogic QLE2672 Dual Port 16Gb FC HBA used as FC target controller
            - 1 x Fujitsu RAID SAS Controller with 1GB Cache (D3108)
            - 2 x 480GB SATA-SSD Micro MTFDDAK480TDC
            - 2 x Intel P4800X 750GB PCIe SSD
            - 1 x Intel P4600 2TB PCIe SSD
            - 1 x Intel P4600 4TB PCIe SSD

        - Software details:
            - Operating System: SUSE Linux Enterprise Server 12 SP3 - 4.4.162-94.72-default (64-bit)
            - Fibre Channel Target SW: LIO (part of SUSE Linux Enterprise Server 12 SP3)

        RAID configuration:

- SATA-SSD 1,2 (RAID 1):
  - LUN 1: Storage system OS (480GB, this LUN is not counted in the Storage section)

- First PCIe-SSD:
  - LUN 1: DS3DB, DS3WebA, DS3WebB, DS3WebC for tile 22 (600GB)

- Second PCIe-SSD:
  - LUN 1: DS3DB, DS3WebA, DS3WebB, DS3WebC for tile 23 (600GB)

- Third PCIe-SSD:
  - LUN 1: AuctionNoSQL, ElasticDB for tile 11 (300GB)
  - LUN 2: AuctionNoSQL, ElasticDB for tile 16 (300GB)
  - LUN 3: AuctionNoSQL, ElasticDB for tile 21 (300GB)
  - LUN 4: AuctionNoSQL, ElasticDB for tile 9 (300GB)
  - LUN 5: AuctionDB, ElasticLB for tile 22 (300GB)
  - LUN 6: vmmark3-template-053117-02 (300GB)

- Fourth PCIe-SSD:
  - LUN 1: AuctionWebA, AuctionWebB, AuctionAppA, AuctionAppB, AuctionLB, AuctionMSQ, Standby, ElasticWebA, ElasticWebB, ElasticAppA, ElasticAppB for tile 9 (300GB)
  - LUN 2: AuctionWebA, AuctionWebB, AuctionAppA, AuctionAppB, AuctionLB, AuctionMSQ, Standby, ElasticWebA, ElasticWebB, ElasticAppA, ElasticAppB for tile 12 (300GB)
  - LUN 3: AuctionWebA, AuctionWebB, AuctionAppA, AuctionAppB, AuctionLB, AuctionMSQ, Standby, ElasticWebA, ElasticWebB, ElasticAppA, ElasticAppB for tile 15 (300GB)
  - LUN 4: AuctionWebA, AuctionWebB, AuctionAppA, AuctionAppB, AuctionLB, AuctionMSQ, Standby, ElasticWebA, ElasticWebB, ElasticAppA, ElasticAppB for tile 18 (300GB)
  - LUN 5: AuctionWebA, AuctionWebB, AuctionAppA, AuctionAppB, AuctionLB, AuctionMSQ, Standby, ElasticWebA, ElasticWebB, ElasticAppA, ElasticAppB for tile 21 (300GB)
  - LUN 6: AuctionWebA, AuctionWebB, AuctionAppA, AuctionAppB, AuctionLB, AuctionMSQ, Standby, ElasticWebA, ElasticWebB, ElasticAppA, ElasticAppB for tile 24 (300GB)
  - LUN 7: AuctionWebA, AuctionWebB, AuctionAppA, AuctionAppB, AuctionLB, AuctionMSQ, Standby, ElasticWebA, ElasticWebB, ElasticAppA, ElasticAppB for tile 27 (300GB)

- Seventh Fujitsu Server PRIMERGY RX2540 M4 configured as a Fibre Channel Target:

  - Hardware details:
    - 2 x Intel Xeon Gold 6134M@3.2GHz processors
    - 64GB RAM (2 x 32 GB dual rank PC4-2666 Registered DDR4 / 2666 MHz DIMMs)
    - 1 x QLogic QLE2672 Dual Port 16Gb FC HBA used as FC target controller
    - 1 x Fujitsu RAID SAS Controller with 1GB Cache (D3108)
    - 2 x 480GB SATA-SSD Micro MTFDDAK480TDC
    - 2 x Intel P4800X 750GB PCIe SSD
    - 1 x Intel P4600 2TB PCIe SSD
    - 1 x Intel P4600 4TB PCIe SSD

  - Software details:
    - Operating System: SUSE Linux Enterprise Server 12 SP3 - 4.4.162-94.72-default (64-bit)
    - Fibre Channel Target SW: LIO (part of SUSE Linux Enterprise Server 12 SP3)

  RAID configuration:

  - SATA-SSD 1,2 (RAID 1):
    - LUN 1: Storage system OS (480GB, this LUN is not counted in the Storage section)

  - First PCIe-SSD:
    - LUN 1: DS3DB, DS3WebA, DS3WebB, DS3WebC for tile 24 (600GB)

  - Second PCIe-SSD:

        - LUN 1: DS3DB, DS3WebA, DS3WebB, DS3WebC for tile 25 (600GB)

    - Third PCIe-SSD:
        - LUN 1: AuctionNoSQL, ElasticDB for tile 12 (300GB)
        - LUN 2: AuctionNoSQL, ElasticDB for tile 17 (300GB)
        - LUN 3: AuctionNoSQL, ElasticDB for tile 22 (300GB)
        - LUN 4: AuctionNoSQL, ElasticDB for tile 10 (300GB)
        - LUN 5: AuctionDB, ElasticLB for tile 23 (300GB)
        - LUN 6: Deploy Lun 2 (300GB)

    - Fourth PCIe-SSD:
        - LUN 1: AuctionWebA, AuctionWebB, AuctionAppA, AuctionAppB, AuctionLB, AuctionMSQ, Standby, ElasticWebA, ElasticWebB, ElasticAppA, ElasticAppB for tile 10 (300GB)
        - LUN 2: AuctionWebA, AuctionWebB, AuctionAppA, AuctionAppB, AuctionLB, AuctionMSQ, Standby, ElasticWebA, ElasticWebB, ElasticAppA, ElasticAppB for tile 13 (300GB)
        - LUN 3: AuctionWebA, AuctionWebB, AuctionAppA, AuctionAppB, AuctionLB, AuctionMSQ, Standby, ElasticWebA, ElasticWebB, ElasticAppA, ElasticAppB for tile 16 (300GB)
        - LUN 4: AuctionWebA, AuctionWebB, AuctionAppA, AuctionAppB, AuctionLB, AuctionMSQ, Standby, ElasticWebA, ElasticWebB, ElasticAppA, ElasticAppB for tile 19 (300GB)
        - LUN 5: AuctionWebA, AuctionWebB, AuctionAppA, AuctionAppB, AuctionLB, AuctionMSQ, Standby, ElasticWebA, ElasticWebB, ElasticAppA, ElasticAppB for tile 22 (300GB)
        - LUN 6: AuctionWebA, AuctionWebB, AuctionAppA, AuctionAppB, AuctionLB, AuctionMSQ, Standby, ElasticWebA, ElasticWebB, ElasticAppA, ElasticAppB for tile 25 (300GB)
        - LUN 7: AuctionWebA, AuctionWebB, AuctionAppA, AuctionAppB, AuctionLB, AuctionMSQ, Standby, ElasticWebA, ElasticWebB, ElasticAppA, ElasticAppB for tile 28 (300GB)

- Eighth Fujitsu Server PRIMERGY RX2540 M4 configured as a Fibre Channel Target:

    - Hardware details:
        - 2 x Intel Xeon Gold 6134M@3.2GHz processors
        - 64GB RAM (2 x 32 GB dual rank PC4-2666 Registered DDR4 / 2666 MHz DIMMs)
        - 1 x QLogic QLE2672 Dual Port 16Gb FC HBA used as FC target controller
        - 1 x Fujitsu RAID SAS Controller with 1GB Cache (D3108)
        - 2 x 480GB SATA-SSD Micro MTFDDAK480TDC
        - 2 x Intel P4800X 750GB PCIe SSD
        - 1 x Intel P4600 2TB PCIe SSD
        - 1 x Intel P4600 4TB PCIe SSD

    - Software details:
        - Operating System: SUSE Linux Enterprise Server 12 SP3 - 4.4.162-94.72-default (64-bit)
        - Fibre Channel Target SW: LIO (part of SUSE Linux Enterprise Server 12 SP3)

RAID configuration:

- SATA-SSD 1,2 (RAID 1):
    - LUN 1: Storage system OS (480GB, this LUN is not counted in the Storage section)

- First PCIe-SSD:
    - LUN 1: DS3DB, DS3WebA, DS3WebB, DS3WebC for tile 9 (600GB)

- Second PCIe-SSD:
    - LUN 1: DS3DB, DS3WebA, DS3WebB, DS3WebC for tile 10 (600GB)

- Third PCIe-SSD:
    - LUN 1: AuctionNoSQL, ElasticDB for tile 13 (300GB)
    - LUN 2: AuctionNoSQL, ElasticDB for tile 18 (300GB)
    - LUN 3: AuctionNoSQL, ElasticDB for tile 23 (300GB)
    - LUN 4: AuctionNoSQL, ElasticDB for tile 28 (300GB)

        - LUN 5: AuctionDB, ElasticLB for tile 24 (300GB)
        - LUN 6: SvMotion Target Lun 2 (300GB)

    - Fourth PCIe-SSD:
        - LUN 1: AuctionWebA, AuctionWebB, AuctionAppA, AuctionAppB, AuctionLB, AuctionMSQ, Standby, ElasticWebA, ElasticWebB, ElasticAppA, ElasticAppB for tile 11 (300GB)
        - LUN 2: AuctionWebA, AuctionWebB, AuctionAppA, AuctionAppB, AuctionLB, AuctionMSQ, Standby, ElasticWebA, ElasticWebB, ElasticAppA, ElasticAppB for tile 14 (300GB)
        - LUN 3: AuctionWebA, AuctionWebB, AuctionAppA, AuctionAppB, AuctionLB, AuctionMSQ, Standby, ElasticWebA, ElasticWebB, ElasticAppA, ElasticAppB for tile 17 (300GB)
        - LUN 4: AuctionWebA, AuctionWebB, AuctionAppA, AuctionAppB, AuctionLB, AuctionMSQ, Standby, ElasticWebA, ElasticWebB, ElasticAppA, ElasticAppB for tile 20 (300GB)
        - LUN 5: AuctionWebA, AuctionWebB, AuctionAppA, AuctionAppB, AuctionLB, AuctionMSQ, Standby, ElasticWebA, ElasticWebB, ElasticAppA, ElasticAppB for tile 23 (300GB)
        - LUN 6: AuctionWebA, AuctionWebB, AuctionAppA, AuctionAppB, AuctionLB, AuctionMSQ, Standby, ElasticWebA, ElasticWebB, ElasticAppA, ElasticAppB for tile 26 (300GB)
        - LUN 7: Not Used (300GB)

- Ninth Fujitsu Server PRIMERGY RX2540 M4 configured as a Fibre Channel Target:

    - Hardware details:
        - 2 x Intel Xeon Gold 6134M@3.2GHz processors
        - 64GB RAM (2 x 32 GB dual rank PC4-2666 Registered DDR4 / 2666 MHz DIMMs)
        - 1 x QLogic QLE2672 Dual Port 16Gb FC HBA used as FC target controller
        - 1 x Fujitsu RAID SAS Controller with 1GB Cache (D3108)
        - 2 x 480GB SATA-SSD Micro MTFDDAK480TDC
        - 2 x Intel P4800X 750GB PCIe SSD
        - 1 x Intel P4600 2TB PCIe SSD
        - 1 x Intel P4600 4TB PCIe SSD

    - Software details:
        - Operating System: SUSE Linux Enterprise Server 12 SP3 - 4.4.162-94.72-default (64-bit)
        - Fibre Channel Target SW: LIO (part of SUSE Linux Enterprise Server 12 SP3)

RAID configuration:

- SATA-SSD 1,2 (RAID 1):
    - LUN 1: Storage system OS (480GB, this LUN is not counted in the Storage section)

- First PCIe-SSD:
    - LUN 1: DS3DB, DS3WebA, DS3WebB, DS3WebC for tile 20 (600GB)

- Second PCIe-SSD:
    - LUN 1: DS3DB, DS3WebA, DS3WebB, DS3WebC for tile 21 (600GB)

- Third PCIe-SSD:
    - LUN 1: AuctionNoSQL, ElasticDB for tile 14 (300GB)
    - LUN 2: AuctionNoSQL, ElasticDB for tile 19 (300GB)
    - LUN 3: AuctionNoSQL, ElasticDB for tile 24 (300GB)
    - LUN 4: Not Used (300GB)
    - LUN 5: AuctionDB, ElasticLB for tile 25 (300GB)
    - LUN 6: XvMotion Target Lun 2 (300GB)

- Fourth PCIe-SSD:
    - LUN 1: vmmark3-template-053117 (300GB)
    - LUN 2: Deploy Lun 1 (300GB)

- Tenth Fujitsu Server PRIMERGY RX2540 M4 configured as a Fibre Channel Target:
  - Hardware details:
    - 2 x Intel Xeon Gold 6134M@3.2GHz processors
    - 64GB RAM (2 x 32 GB dual rank PC4-2666 Registered DDR4 / 2666 MHz DIMMs)
    - 1 x QLogic QLE2672 Dual Port 16Gb FC HBA used as FC target controller
    - 1 x Fujitsu RAID SAS Controller with 1GB Cache (D3108)
    - 2 x 480GB SATA-SSD Micro MTFDDAK480TDC
    - 2 x Intel P4800X 750GB PCIe SSD
    - 1 x Intel P4600 2TB PCIe SSD
    - 1 x Intel P4600 4TB PCIe SSD
  - Software details:
    - Operating System: SUSE Linux Enterprise Server 12 SP3 - 4.4.162-94.72-default (64-bit)
    - Fibre Channel Target SW: LIO (part of SUSE Linux Enterprise Server 12 SP3)

  RAID configuration:

  - SATA-SSD 1,2 (RAID 1):
    - LUN 1: Storage system OS (480GB, this LUN is not counted in the Storage section)
  - First PCIe-SSD:
    - LUN 1: AuctionDB, ElasticLB for tile 9 (300GB)
    - LUN 2: AuctionDB, ElasticLB for tile 20 (300GB)
  - Second PCIe-SSD:
    - LUN 1: AuctionDB, ElasticLB for tile 10 (300GB)
    - LUN 2: AuctionDB, ElasticLB for tile 21 (300GB)
  - Third PCIe-SSD:
    - LUN 1: AuctionNoSQL, ElasticDB for tile 15 (300GB)
    - LUN 2: AuctionNoSQL, ElasticDB for tile 20 (300GB)
    - LUN 3: AuctionNoSQL, ElasticDB for tile 25 (300GB)
  - Fourth PCIe-SSD:
    - LUN 1: SvMotion Target Lun 1 (300GB)
    - LUN 2: XvMotion Target Lun 1 (300GB)
- All LUNs were configured as block devices; no system memory was used for caching

Datacenter Management Server Notes

- Virtual Center realized as a VM running on a dedicated Hypervisor system:
  - Number of vCPUs: 4 (Four vSocket)
  - Size of vRAM: 16GB
- The host operating system VMware ESXi 6.7.0 EP 02a Build 9214924 was installed using 'Fujitsu Custom Image for VMware ESXi 6.7.0 EP 02a' named VMware-ESXi-6.7.0-9214924-Fujitsu-v451-1.iso

Operating System Notes

VMware ESXi 6.7.0 EP 02a Build 9214924 was installed using 'Fujitsu Custom Image for VMware ESXi 6.7.0 EP 02a' named VMware-ESXi-6.7.0-9214924-Fujitsu-v451-1.iso

Software Notes

None

Client Notes

Client Host1: Client0,Client6,Client12,Client18
Client Host2: Client1,Client7,Client13,Client19
Client Host3: Client2,Client8,Client14,Client20
Client Host4: Client3,Client9,Client15,Client21
Client Host5: Client4,Client10,Client16,Client22
Client Host6: Client5,Client11,Client17,Client23
Client Host7: Client24,Client25,Client26,Client27,Client28,PrimeClient

Changes in esx.conf:

- /adv/Power/CpuPolicy = "High Performance" (default balanced)
- /adv/UserVars/HostClientCEIPOptIn = 1 (default 0)

Other Notes

- TileDelay set to 15 (default: 60)
- VCscratchDir set to "/root/VMmark3/results/scratch" (default: "/root/VMmark3/samples/")

Meltdown/Spectre Mitigations

CVE-2017-5754 (aka "Meltdown")

- ESXi: mitigation present (ESXi 6.7.0 EP 02a Build 9214924)
- Guest OS: no mitigation present

CVE-2017-5753 (aka "Spectre variant 1")

- ESXi: mitigation present (ESXi 6.7.0 EP 02a Build 9214924)
- Guest OS: no mitigation present

CVE-2017-5715 (aka "Spectre variant 2")

- Server Firmware: mitigation present (BIOS version: V1.0.0.0 R1.32.0 for D3854-A1x)
- ESXi: mitigation present (ESXi 6.7.0 EP 02a Build 9214924)
- Guest OS: no mitigation present
