

VMmark[®] 3.1 Results

Vendor and Hardware Platform: Fujitsu Server PRIMEQUEST 3800E2
 Virtualization Platform: VMware ESXi 6.7 EP 06 Build 11675023
 VMware vCenter Server : VMware vCenter Server Appliance 6.7.0d Build 9451876

**VMmark 3.1 Score =
33.04 @ 35 Tiles**

Number of Hosts: 2

Uniform Hosts [yes/no]: yes

Total sockets/cores/threads in test: 16/448/896

Tested By: Fujitsu

Test Date: 06-03-2019

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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	3573.01	0.99	0.56 0.00	568.25	0.99	1.13 0.75	962.30	1.31	788.79	666.30	1.33	948.48	452.80	1.31	1105.48	1.18
p1	3564.47	0.99	0.54 0.00	567.09	0.99	1.02 0.68	945.92	1.29	824.78	685.83	1.37	955.56	474.12	1.37	1106.99	1.19
p2	3551.65	0.99	0.53 0.11	562.02	0.98	0.58 0.31	954.80	1.30	798.88	658.27	1.32	972.13	473.07	1.36	1106.36	1.18
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	3576.58	0.99	0.41 0.00	561.67	0.98	0.53 0.23	929.50	1.27	899.02	629.67	1.26	1110.69	421.48	1.22	1291.38	1.14
p1	3563.00	0.99	0.40 0.00	560.04	0.98	0.54 0.17	907.35	1.24	960.44	642.27	1.28	1135.45	440.40	1.27	1312.77	1.14
p2	3549.34	0.99	0.42 0.00	561.16	0.98	0.63 0.29	927.27	1.26	910.63	626.55	1.25	1119.12	420.75	1.21	1308.04	1.13
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	3569.03	0.99	0.51 0.00	562.66	0.98	0.76 0.44	963.77	1.31	784.80	646.33	1.29	940.68	431.00	1.24	1108.78	1.15
p1	3556.26	0.99	0.51 0.00	553.21	0.97	0.61 0.33	945.67	1.29	814.76	703.10	1.40	957.57	491.85	1.42	1105.21	1.20
p2	3536.47	0.98	0.53 0.00	548.50	0.96	0.77 0.40	955.88	1.30	793.52	636.90	1.27	956.01	451.73	1.30	1106.25	1.15
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	3579.51	0.99	0.37 0.00	571.05	1.00	1.02 0.55	930.65	1.27	883.17	636.48	1.27	1064.44	422.55	1.22	1277.96	1.14
p1	3559.95	0.99	0.36 0.00	573.57	1.00	0.96 0.45	912.33	1.24	929.32	645.62	1.29	1115.92	460.60	1.33	1292.14	1.16
p2	3559.78	0.99	0.37 0.00	570.49	1.00	0.94 0.62	929.95	1.27	901.79	628.20	1.26	1105.98	418.68	1.21	1312.29	1.14
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	3561.19	0.99	0.56 0.00	564.53	0.99	0.64 0.32	971.38	1.32	772.92	671.35	1.34	933.17	458.60	1.32	1069.45	1.18
p1	3554.35	0.99	0.50 0.00	566.63	0.99	0.67 0.29	959.12	1.31	790.64	687.35	1.37	936.17	500.82	1.44	1065.87	1.20
p2	3531.97	0.98	0.50 0.00	562.57	0.98	0.59 0.21	977.42	1.33	737.55	680.70	1.36	890.38	466.80	1.35	1026.73	1.19
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	3574.00	0.99	0.46 0.00	567.03	0.99	1.14 0.82	971.80	1.32	765.88	674.73	1.35	923.07	460.05	1.33	1073.42	1.18
p1	3558.56	0.99	0.48 0.00	568.89	0.99	1.00 0.62	964.62	1.31	770.05	698.73	1.40	901.26	507.38	1.46	1033.26	1.21
p2	3540.64	0.98	0.50 0.00	562.53	0.98	0.79 0.44	988.95	1.35	714.77	693.00	1.38	851.68	473.10	1.36	993.80	1.20
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	3567.91	0.99	0.51 0.00	565.87	0.99	0.62 0.24	937.58	1.28	847.31	648.08	1.29	1013.60	442.30	1.28	1162.30	1.16
p1	3549.77	0.99	0.51 0.00	562.12	0.98	0.64 0.27	928.45	1.26	878.52	657.90	1.31	1046.98	457.20	1.32	1203.26	1.16
p2	3532.56	0.98	0.49 0.00	558.19	0.98	0.72 0.34	934.67	1.27	856.53	618.23	1.24	1043.03	435.77	1.26	1204.22	1.14
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	3578.76	0.99	0.40 0.00	566.80	0.99	1.33 0.99	915.40	1.25	899.91	634.77	1.27	1051.53	451.98	1.30	1215.84	1.15
p1	3562.03	0.99	0.40 0.00	562.19	0.98	0.52 0.26	926.38	1.26	876.63	634.33	1.27	1055.08	452.85	1.31	1219.27	1.15
p2	3549.03	0.99	0.42 0.00	559.32	0.98	0.76 0.40	920.75	1.25	899.92	633.42	1.27	1077.91	424.82	1.22	1264.90	1.13
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	3577.36	0.99	0.50 0.00	571.40	1.00	1.03 0.70	877.50	1.19	1042.37	623.98	1.25	1219.82	418.50	1.21	1444.04	1.12
p1	3565.48	0.99	0.51 0.00	565.30	0.99	0.79 0.45	903.00	1.23	984.43	604.92	1.21	1206.16	424.95	1.23	1401.17	1.12
p2	3557.29	0.99	0.50 0.00	561.15	0.98	0.50 0.22	903.05	1.23	974.11	613.08	1.22	1176.24	413.12	1.19	1374.32	1.12
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	3572.30	0.99	0.50 0.00	572.10	1.00	0.83 0.35	1010.17	1.38	664.18	741.60	1.48	760.51	520.02	1.50	873.67	1.25
p1	3563.79	0.99	0.50 0.01	571.15	1.00	0.98 0.51	1023.45	1.39	625.30	725.70	1.45	736.74	527.27	1.52	841.14	1.25
p2	3557.13	0.99	0.47 0.00	571.81	1.00	0.87 0.43	1034.17	1.41	605.67	730.42	1.46	723.33	508.88	1.47	827.31	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	3576.10	0.99	0.57 0.00	564.80	0.99	0.84 0.46	945.17	1.29	823.95	681.40	1.36	967.34	471.82	1.36	1112.95	1.19
p1	3558.64	0.99	0.52 0.00	560.39	0.98	0.58 0.31	956.55	1.30	786.17	661.38	1.32	946.09	458.50	1.32	1083.10	1.17
p2	3539.93	0.98	0.51 0.01	556.01	0.97	0.73 0.29	968.58	1.32	771.51	670.65	1.34	914.13	481.60	1.39	1065.82	1.19
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	3578.72	0.99	0.44 0.00	564.12	0.99	0.42 0.09	879.73	1.20	1056.80	651.60	1.30	1223.00	451.70	1.30	1390.03	1.15
p1	3567.45	0.99	0.42 0.00	562.71	0.98	0.51 0.12	956.25	1.30	802.41	634.88	1.27	981.99	448.12	1.29	1126.83	1.16
p2	3558.98	0.99	0.47 0.00	560.91	0.98	0.47 0.15	936.83	1.28	854.75	670.08	1.34	1011.45	463.23	1.34	1162.40	1.17
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	3574.07	0.99	0.42 0.00	563.04	0.98	0.51 0.17	913.17	1.24	924.43	649.33	1.30	1101.15	467.20	1.35	1253.60	1.16
p1	3558.09	0.99	0.44 0.00	560.68	0.98	0.64 0.37	926.27	1.26	896.70	633.90	1.27	1087.94	423.60	1.22	1280.63	1.14
p2	3555.90	0.99	0.45 0.00	559.12	0.98	0.60 0.25	911.90	1.24	927.59	649.12	1.30	1104.17	445.30	1.28	1278.30	1.15
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	3573.79	0.99	0.37 0.00	570.31	1.00	1.09 0.69	981.23	1.34	719.94	711.30	1.42	864.35	525.83	1.52	958.75	1.23
p1	3563.06	0.99	0.35 0.00	566.73	0.99	1.11 0.81	1010.05	1.38	666.86	710.65	1.42	785.88	490.75	1.42	905.82	1.22

p2	3558.20	0.99	0.37 0.00	564.98	0.99	0.87 0.54	1014.67	1.38	643.59	745.33	1.49	748.29	526.85	1.52	846.46	1.25
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	3566.46	0.99	0.49 0.00	569.08	0.99	0.71 0.41	932.77	1.27	845.11	671.67	1.34	997.37	487.88	1.41	1136.48	1.19
p1	3550.85	0.99	0.52 0.00	564.80	0.99	0.49 0.20	955.10	1.30	791.24	663.38	1.33	939.35	433.38	1.25	1088.40	1.16
p2	3532.12	0.98	0.48 0.00	557.77	0.97	0.66 0.24	939.85	1.28	830.30	679.73	1.36	961.64	494.18	1.42	1107.97	1.19
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	3572.09	0.99	0.47 0.10	569.28	0.99	1.03 0.63	959.30	1.31	796.67	681.62	1.36	966.39	472.38	1.36	1110.80	1.19
p1	3567.17	0.99	0.45 0.00	566.26	0.99	0.71 0.46	943.62	1.29	823.28	637.77	1.27	966.66	446.88	1.29	1131.55	1.16
p2	3558.71	0.99	0.44 0.00	565.10	0.99	0.52 0.23	901.90	1.23	979.34	637.60	1.27	1165.58	465.18	1.34	1309.90	1.15
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	3580.86	1.00	0.59 0.11	566.49	0.99	0.74 0.28	856.40	1.17	1133.17	569.05	1.14	1369.43	400.65	1.16	1584.43	1.09
p1	3568.45	0.99	0.55 0.00	563.30	0.98	0.61 0.29	886.25	1.21	1028.50	599.88	1.20	1232.88	402.55	1.16	1433.04	1.10
p2	3551.72	0.99	0.53 0.00	557.36	0.97	0.60 0.24	878.55	1.20	1043.48	618.23	1.24	1244.80	439.57	1.27	1444.92	1.12
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	3581.02	1.00	0.42 0.00	562.06	0.98	0.60 0.33	975.42	1.33	741.52	680.90	1.36	883.94	489.98	1.41	1017.76	1.20
p1	3560.78	0.99	0.43 0.00	559.74	0.98	0.50 0.18	980.45	1.34	733.94	680.98	1.36	878.03	469.35	1.35	1010.27	1.19
p2	3543.50	0.98	0.43 0.00	557.51	0.97	0.72 0.40	965.40	1.31	769.95	700.65	1.40	895.03	509.70	1.47	1030.48	1.21
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	3566.46	0.99	0.89 0.00	562.72	0.98	0.68 0.34	975.85	1.33	743.77	673.20	1.35	901.07	493.07	1.42	1005.14	1.20
p1	3565.49	0.99	0.68 0.00	562.50	0.98	0.53 0.14	970.38	1.32	745.91	675.92	1.35	893.30	469.50	1.35	1017.70	1.19
p2	3552.55	0.99	0.67 0.00	559.19	0.98	0.70 0.30	965.70	1.32	755.38	698.58	1.40	889.07	513.42	1.48	1004.71	1.21
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	3574.65	0.99	0.49 0.10	570.16	1.00	0.77 0.34	961.50	1.31	778.18	660.40	1.32	952.96	455.25	1.31	1092.09	1.18
p1	3556.34	0.99	0.50 0.00	568.08	0.99	0.71 0.26	944.08	1.29	820.25	659.33	1.32	958.71	471.75	1.36	1107.91	1.18
p2	3547.64	0.99	0.47 0.00	564.09	0.99	0.58 0.19	970.40	1.32	746.37	702.65	1.40	884.13	492.73	1.42	1010.91	1.21
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	3574.19	0.99	0.40 0.00	564.05	0.99	0.61 0.34	974.48	1.33	743.83	652.65	1.30	898.03	463.98	1.34	1036.92	1.18
p1	3560.43	0.99	0.41 0.00	552.72	0.97	1.70 0.45	966.38	1.32	772.12	693.73	1.39	918.66	483.55	1.39	1053.62	1.19
p2	3549.72	0.99	0.43 0.00	554.83	0.97	0.56 0.17	966.35	1.32	775.87	672.77	1.34	917.79	481.57	1.39	1052.03	1.19
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	3580.27	1.00	0.39 0.11	563.88	0.99	0.60 0.28	991.80	1.35	720.40	685.70	1.37	873.87	471.65	1.36	1021.59	1.20
p1	3558.88	0.99	0.39 0.00	558.70	0.98	0.55 0.24	978.85	1.33	753.24	704.30	1.41	890.84	487.07	1.40	1035.12	1.21
p2	3544.58	0.99	0.39 0.00	557.13	0.97	0.50 0.09	982.65	1.34	747.70	682.52	1.36	890.26	494.30	1.43	1007.50	1.20
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	3569.63	0.99	0.54 0.10	568.18	0.99	0.62 0.25	948.73	1.29	828.11	649.25	1.30	1013.92	443.00	1.28	1177.97	1.16
p1	3554.64	0.99	0.50 0.00	562.95	0.98	0.61 0.33	932.73	1.27	859.53	667.73	1.33	1018.92	463.50	1.34	1162.51	1.17
p2	3541.76	0.98	0.50 0.00	558.38	0.98	0.53 0.20	945.40	1.29	830.36	650.20	1.30	1004.24	448.38	1.29	1141.98	1.16
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	3566.73	0.99	0.39 0.10	568.04	0.99	0.92 0.48	917.15	1.25	929.22	621.50	1.24	1125.32	399.05	1.15	1322.55	1.12
p1	3552.93	0.99	0.36 0.00	563.62	0.99	0.68 0.27	906.55	1.23	945.32	646.25	1.29	1105.57	462.55	1.33	1287.09	1.16
p2	3535.55	0.98	0.36 0.00	560.59	0.98	0.58 0.31	929.20	1.27	889.94	628.17	1.26	1089.88	426.40	1.23	1261.46	1.13
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	3581.89	1.00	0.48 0.00	571.11	1.00	1.21 0.86	933.80	1.27	856.37	646.83	1.29	1012.37	441.82	1.27	1171.85	1.16
p1	3566.93	0.99	0.53 0.00	566.93	0.99	1.16 0.72	922.25	1.26	885.18	662.73	1.32	1037.50	481.88	1.39	1178.67	1.18
p2	3545.95	0.99	0.49 0.00	561.70	0.98	0.67 0.29	935.88	1.27	851.57	647.50	1.29	1014.92	441.43	1.27	1180.64	1.15
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	3573.84	0.99	0.42 0.10	571.05	1.00	1.08 0.64	933.60	1.27	867.18	640.58	1.28	1049.07	434.98	1.25	1209.47	1.15
p1	3556.70	0.99	0.38 0.00	568.05	0.99	0.84 0.56	921.67	1.26	895.15	658.80	1.32	1059.57	477.38	1.38	1200.17	1.17
p2	3541.16	0.98	0.38 0.00	563.75	0.99	0.73 0.45	941.67	1.28	848.36	647.15	1.29	1024.68	439.00	1.27	1190.58	1.15
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	3577.28	0.99	0.58 0.11	571.23	1.00	1.18 0.79	957.27	1.30	790.93	666.27	1.33	941.34	452.80	1.31	1098.51	1.18
p1	3561.45	0.99	0.52 0.00	570.22	1.00	1.09 0.69	950.38	1.29	817.68	685.65	1.37	960.73	492.88	1.42	1105.24	1.20
p2	3547.96	0.99	0.47 0.00	568.62	0.99	0.54 0.22	975.45	1.33	755.03	672.67	1.34	915.58	439.27	1.27	1064.60	1.17
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	3573.85	0.99	0.53 0.00	568.38	0.99	1.04 0.63	1032.03	1.41	603.70	736.95	1.47	697.56	511.18	1.47	802.40	1.25
p1	3560.77	0.99	0.55 0.00	565.15	0.99	0.86 0.49	1039.92	1.42	575.96	773.33	1.55	658.22	575.25	1.66	739.82	1.29
p2	3551.16	0.99	0.51 0.00	559.39	0.98	0.54 0.21	1023.20	1.39	620.95	705.42	1.41	726.43	479.23	1.38	846.14	1.21
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	3587.50	1.00	0.60 0.11	567.36	0.99	0.72 0.43	840.20	1.14	1165.85	587.38	1.17	1374.89	396.07	1.14	1605.65	1.09
p1	3571.03	0.99	0.60 0.00	562.86	0.98	0.70 0.41	870.60	1.19	1059.26	587.52	1.17	1273.27	414.98	1.20	1479.07	1.10
p2	3547.59	0.99	0.56 0.00	560.61	0.98	0.66 0.35	882.35	1.20	1017.85	598.33	1.20	1228.38	403.15	1.16	1417.98	1.10
TILE_29	Actual	Ratio	QoS(nRT MaxPctF)	Actual	Ratio	QoS(nRT MaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
p0	3584.85	1.00	0.48 0.09	571.45	1.00	0.86 0.44	974.88	1.33	742.52	701.58	1.40	884.58	490.15	1.41	1015.37	1.21
p1	3569.60	0.99	0.43 0.00	565.54	0.99	0.45 0.22	983.70	1.34	727.62	686.48	1.37	862.65	493.85	1.42	999.89	1.21
p2	3545.54	0.99	0.39 0.00	561.33	0.98	0.51 0.21	991.08	1.35	715.23	690.60	1.38	854.74	472.77	1.36	1000.20	1.20
TILE_30	Actual	Ratio	QoS(nRT MaxPctF)	Actual	Ratio	QoS(nRT MaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
p0	3573.19	0.99	0.68 0.00	568.15	0.99	0.81 0.43	882.25	1.20	1030.38	621.33	1.24	1233.95	420.95	1.21	1435.37	1.12
p1	3560.27	0.99	0.58 0.00	561.17	0.98	0.46 0.25	899.17	1.22	982.52	605.77	1.21	1198.43	425.27	1.23	1407.70	1.12

p2	3544.98	0.99	0.53 0.00	558.45	0.98	0.58 0.36	907.40	1.24	945.15	617.10	1.23	1151.59	412.12	1.19	1352.64	1.12
TILE_31	Actual	Ratio	QoS(nRT MaxPctF)	Actual	Ratio	QoS(nRT MaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
p0	3566.83	0.99	0.50 0.10	562.65	0.98	0.48 0.26	905.62	1.23	932.10	651.10	1.30	1092.16	445.02	1.28	1278.70	1.15
p1	3551.32	0.99	0.46 0.00	561.70	0.98	0.55 0.19	929.10	1.27	883.89	628.48	1.26	1091.76	444.85	1.28	1262.46	1.15
p2	3537.41	0.98	0.46 0.00	560.34	0.98	0.52 0.22	921.77	1.26	904.65	638.90	1.28	1067.47	430.27	1.24	1248.11	1.14
TILE_32	Actual	Ratio	QoS(nRT MaxPctF)	Actual	Ratio	QoS(nRT MaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
p0	3568.77	0.99	0.41 0.10	569.19	0.99	1.25 0.83	991.70	1.35	698.13	727.67	1.45	802.09	527.77	1.52	930.24	1.24
p1	3553.19	0.99	0.42 0.00	562.27	0.98	0.82 0.47	989.88	1.35	708.84	667.27	1.33	851.13	472.77	1.36	985.20	1.19
p2	3523.17	0.98	0.40 0.00	558.23	0.98	0.71 0.39	948.35	1.29	818.70	680.73	1.36	973.87	469.57	1.35	1129.05	1.18
TILE_33	Actual	Ratio	QoS(nRT MaxPctF)	Actual	Ratio	QoS(nRT MaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
p0	3572.00	0.99	0.40 0.00	568.50	0.99	0.84 0.41	926.62	1.26	891.27	654.52	1.31	1077.70	473.40	1.37	1220.98	1.17
p1	3555.06	0.99	0.38 0.00	563.51	0.98	0.65 0.32	934.92	1.27	870.67	637.05	1.27	1068.41	427.60	1.23	1258.89	1.14
p2	3527.17	0.98	0.37 0.00	556.91	0.97	0.47 0.09	922.35	1.26	911.47	650.30	1.30	1101.02	443.43	1.28	1280.28	1.15
TILE_34	Actual	Ratio	QoS(nRT MaxPctF)	Actual	Ratio	QoS(nRT MaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
p0	3571.28	0.99	0.55 0.00	569.32	1.00	0.90 0.47	928.38	1.26	869.15	666.08	1.33	1025.19	486.57	1.40	1155.26	1.18
p1	3550.01	0.99	0.50 0.03	563.21	0.98	0.81 0.40	944.00	1.29	835.13	648.23	1.30	1008.78	442.43	1.28	1167.58	1.16
p2	3522.13	0.98	0.47 0.00	557.90	0.98	0.66 0.34	937.40	1.28	850.46	671.52	1.34	1007.38	464.15	1.34	1160.25	1.17
p0_score:	40.98															
p1_score:	41.08															
p2_score:	40.88															

Infrastructure_Operations_Scores:	vMotion	SVMotion	XVMotion	Deploy
Completed_Ops_PerHour	28.00	27.00	21.00	11.50
Avg_Seconds_To_Complete	8.81	77.84	109.89	282.91
Failures	0.00	0.00	0.00	0.00
Ratio	1.08	1.50	1.17	1.44
Number_Of_Threads	1	1	1	1

Summary	Run_Is_Compliant	Turbo_Setting:0
	Number_Of_Compliance_Issues(0)*	Median_Phase(p0)
Unreviewed_VMmark3_Applications_Score	40.98	
Unreviewed_VMmark3_Infrastructure_Score	1.28	
Unreviewed_VMmark3_Score	33.04	

Configuration

Virtualization Software	
Hypervisor Vendor, Product, Version, and Build / Availability Date (MM-DD-YYYY)	VMware ESXi 6.7 EP 06, Build 11675023 / 01-17-2019
Datacenter Management Software Vendor, Product, Version, and Build / Availability Date (MM-DD-YYYY)	VMware vCenter Server Appliance 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)	2
Server Manufacturer and Model	Fujitsu Server PRIMEQUEST 3800E2
Processor Vendor and Model	Intel Xeon Platinum 8280
Processor Speed (GHz)	2.7
Total Sockets/Total Cores/Total Threads	8 Sockets / 224 Cores / 448 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 R1.10.0 for D3858-B1x
Memory Size (in GB, Number of DIMMs)	3072, 96
Memory Type and Speed	32GB 2Rx4 DDR4 2933MHz 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	Micron, MTFDDAK240TCB, 240 GB, SATA 6Gb/S
Number of Host Bus Adapters	4
Host Bus Adapter Vendors and Models	Emulex LightPulse LPe31002-M6 2-Port 16Gb

Number of Network Controllers	5
Network Controller Vendors and Models	4 x 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)	05-08-2019
BIOS Availability Date (MM-DD-YYYY)	03-22-2019
Software Availability Date (MM-DD-YYYY)	04-03-2019
Network	
Network Switch Vendors and Models	1 x Fujitsu SR-X340TR1 1 x Fujitsu ET-7648BFERA-FOS
Network Speed	1Gbps for SUT management, 2x10Gbps for VMotion, 6x10Gbps for Clients and VMs
Storage	
Array Vendors, Models, and Firmware Versions	5 x Fujitsu Server PRIMERGY RX2540 M4, Firmware V5.0.0.12 R1.22.0 for D3384-A1x 1 x Fujitsu Server PRIMERGY RX2540 M4, Firmware V5.0.0.12 R1.28.0 for D3384-A1x 2 x Fujitsu Server PRIMERGY RX2540 M5, Firmware V5.0.0.14 R1.2.0 for D3384-B1x 2 x Fujitsu Server PRIMERGY RX2540 M2, Firmware V5.0.0.11 R1.13.0 for D3289-B1x
Fibre Channel Switch Vendors and Models	Brocade 6510
Disk Space Used	53.7TB
Array Cache Size	1GB for storage server 1~5 and 9,10 OS; no cache used for SUT datastores and storage server 6~8 OS
Total Number of Physical Disks Used	10 x SATA-SSD(2 per PRIMERGY RX2540M4 OS), 1 x SATA-SSD(1 per PRIMERGY RX2540M4 OS), 2 x SATA-SSD(1 per PRIMERGY RX2540M5 OS), 2 x SAS-SSD(1 per PRIMERGY RX2540M2 OS), 37 x PCIe-SSD
Total Number of Enclosures/Pods/Shelves Used	10
Number of Physical Disks Used per Enclosure/Pod/Shelf	5 x Enclosure(PRIMERGY RX2540 M4): 2 x SATA-SSD and 4 x PCIe-SSD 1 x Enclosure(PRIMERGY RX2540 M4): 1 x SATA-SSD and 4 x PCIe-SSD 1 x Enclosure(PRIMERGY RX2540 M5): 1 x SATA-SSD and 4 x PCIe-SSD 1 x Enclosure(PRIMERGY RX2540 M5): 1 x SATA-SSD and 2 x PCIe-SSD 1 x Enclosure(PRIMERGY RX2540 M2): 1 x SAS-SSD and 4 x PCIe-SSD 1 x Enclosure(PRIMERGY RX2540 M2): 1 x SAS-SSD and 3 x PCIe-SSD
Total Number of Storage Groups Used	0
Number of LUNs Used	144

LUN Size and Number of Disks Per LUN	Details in section Storage Notes
RAID Type	RAID 1 for OS drives(PRIMERGY RX2540 M4 for storage server 1~5) No RAID used for OS drives(PRIMERGY RX2540 M4 for storage server 6) No RAID used for OS drives(PRIMERGY RX2540 M5) RAID 0 for OS drives(PRIMERGY RX2540 M2) No RAID used for PCIe-SSD devices
Number of Members per RAID Set	2 (PRIMERGY RX2540 M4 for storage server 1~5) 1 (PRIMERGY RX2540 M2)
Disk Vendors, Models, and Speeds	10 x Micron MTFDDAK480TDC 480GB SATA-SSD 1 x Micron MTFDDAK960TDC 960GB SATA-SSD 2 x Micron MTFDDAK240TCB 240GB SATA-SSD 2 x Toshiba PX02SMF040 400GB SAS SSD 18 x Intel P4800X 750GB PCIe SSD 8 x Intel P4600 2TB PCIe SSD 4 x Intel P4600 4TB PCIe SSD 1 x Fusion ioMemory PX600 1.3TB PCIe SSD 6 x Fusion ioMemory PX600 2.6TB 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	36 / 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 8180M
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: 4 Sockets / 112 Cores / 224 Threads
Memory per Virtual Client Host	ClientHost1-6: 256 GB ClientHost7: 768 GB
Network Controller(s) Vendors and Models	ClientHost1-6: Emulex OneConnect Oce14000 1GbE Dual Port Adapter Emulex OneConnect Oce14000 10GbE Dual Port Adapter ClientHost7: Intel(R) Ethernet Connection X722 for 1GbE 2 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 U1 Build 10302608

Notes for Workload

Virtualization Software Notes

- CDROM removed for all VMs (default enabled)
- CPU and Memory shares set to high for all DS3DB VMs (default normal)
- 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 and Memory 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/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)
- /vmkernel/hyperthreadingMitigation = TRUE (default FALSE)

Server Notes

- Server/Partition BIOS settings:
 - Turbo Mode: Enabled (Intel Turbo Boost up to 4.0GHz, 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 vmnic8, vmnic9, vmnic10, vmnic11, vmnic12, vmnic13 at 10Gb/s
 - vSwitch2 for vMotion connection on vmnic14, vmnic15 at 10Gb/s
 - 9000 MTU (default 1500)

Storage Notes

- First 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)
 - 2 x QLogic QLE2742 Dual Port 32Gb FC HBA used as FC target controller
 - 1 x Fujitsu RAID SAS Controller with 1GB Cache (D3108)
 - 2 x 480GB SATA-SSD Micron 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 0 (600GB)
- Second PCIe-SSD:
 - LUN 1: DS3DB, DS3WebA, DS3WebB, DS3WebC for tile 1 (600GB)
- Third PCIe-SSD:
 - LUN 1: DS3DB, DS3WebA, DS3WebB, DS3WebC for tile 2 (600GB)
 - LUN 2: AuctionNoSQL, ElasticDB for tile 0 (300GB)
 - LUN 3: AuctionDB, ElasticLB for tile 0 (300GB)
 - LUN 4: AuctionWebA, AuctionWebB, AuctionAppA, AuctionAppB, AuctionLB, AuctionMSQ, Standby, ElasticWebA, ElasticWebB, ElasticAppA, ElasticAppB for tile 2 (300GB)
 - LUN 5: AuctionWebA, AuctionWebB, AuctionAppA, AuctionAppB, AuctionLB, AuctionMSQ, Standby, ElasticWebA, ElasticWebB, ElasticAppA, ElasticAppB for tile 3 (300GB)
- Fourth PCIe-SSD:
 - LUN 1: DS3DB, DS3WebA, DS3WebB, DS3WebC for tile 3 (600GB)
 - LUN 2: DS3DB, DS3WebA, DS3WebB, DS3WebC for tile 28 (600GB)
 - LUN 3: AuctionNoSQL, ElasticDB for tile 1 (300GB)
 - LUN 4: AuctionNoSQL, ElasticDB for tile 2 (300GB)
 - LUN 5: AuctionNoSQL, ElasticDB for tile 3 (300GB)
 - LUN 6: AuctionDB, ElasticLB for tile 1 (300GB)
 - LUN 7: AuctionDB, ElasticLB for tile 2 (300GB)
 - LUN 8: AuctionDB, ElasticLB for tile 3 (300GB)
 - LUN 9: AuctionWebA, AuctionWebB, AuctionAppA, AuctionAppB, AuctionLB, AuctionMSQ, Standby, ElasticWebA, ElasticWebB, ElasticAppA, ElasticAppB for tile 0 (300GB)
 - LUN 10: AuctionWebA, AuctionWebB, AuctionAppA, AuctionAppB, AuctionLB, AuctionMSQ, Standby, ElasticWebA, ElasticWebB, ElasticAppA, ElasticAppB for tile 1 (300GB)
- Second 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)
 - 2 x QLogic QLE2742 Dual Port 32Gb FC HBA used as FC target controller
 - 1 x Fujitsu RAID SAS Controller with 1GB Cache (D3108)
 - 2 x 480GB SATA-SSD Micron 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 4 (600GB)

- Second PCIe-SSD:
 - LUN 1: DS3DB, DS3WebA, DS3WebB, DS3WebC for tile 5 (600GB)
- Third PCIe-SSD:
 - LUN 1: DS3DB, DS3WebA, DS3WebB, DS3WebC for tile 6 (600GB)
 - LUN 2: AuctionNoSQL, ElasticDB for tile 4 (300GB)
 - LUN 3: AuctionDB, ElasticLB for tile 4 (300GB)
 - LUN 4: AuctionWebA, AuctionWebB, AuctionAppA, AuctionAppB, AuctionLB, AuctionMSQ, Standby, ElasticWebA, ElasticWebB, ElasticAppA, ElasticAppB for tile 6 (300GB)
 - LUN 5: AuctionWebA, AuctionWebB, AuctionAppA, AuctionAppB, AuctionLB, AuctionMSQ, Standby, ElasticWebA, ElasticWebB, ElasticAppA, ElasticAppB for tile 7 (300GB)
- Fourth PCIe-SSD:
 - LUN 1: DS3DB, DS3WebA, DS3WebB, DS3WebC for tile 7 (600GB)
 - LUN 2: DS3DB, DS3WebA, DS3WebB, DS3WebC for tile 30 (600GB)
 - LUN 3: AuctionNoSQL, ElasticDB for tile 5 (300GB)
 - LUN 4: AuctionNoSQL, ElasticDB for tile 6 (300GB)
 - LUN 5: AuctionNoSQL, ElasticDB for tile 7 (300GB)
 - LUN 6: AuctionDB, ElasticLB for tile 5 (300GB)
 - LUN 7: AuctionDB, ElasticLB for tile 6 (300GB)
 - LUN 8: AuctionDB, ElasticLB for tile 7 (300GB)
 - LUN 9: AuctionWebA, AuctionWebB, AuctionAppA, AuctionAppB, AuctionLB, AuctionMSQ, Standby, ElasticWebA, ElasticWebB, ElasticAppA, ElasticAppB for tile 4 (300GB)
 - LUN 10: AuctionWebA, AuctionWebB, AuctionAppA, AuctionAppB, AuctionLB, AuctionMSQ, Standby, ElasticWebA, ElasticWebB, ElasticAppA, ElasticAppB for tile 5 (300GB)
- Third 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)
 - 2 x QLogic QLE2742 Dual Port 32Gb FC HBA used as FC target controller
 - 1 x Fujitsu RAID SAS Controller with 1GB Cache (D3108)
 - 2 x 480GB SATA-SSD Micron 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 8 (600GB)
- Second PCIe-SSD:
 - LUN 1: DS3DB, DS3WebA, DS3WebB, DS3WebC for tile 9 (600GB)
- Third PCIe-SSD:
 - LUN 1: DS3DB, DS3WebA, DS3WebB, DS3WebC for tile 10 (600GB)

- LUN 2: DS3DB, DS3WebA, DS3WebB, DS3WebC for tile 27 (600GB)
 - LUN 3: AuctionNoSQL, ElasticDB for tile 8 (300GB)
 - LUN 4: AuctionDB, ElasticLB for tile 8 (300GB)
- Fourth PCIe-SSD:
 - LUN 1: DS3DB, DS3WebA, DS3WebB, DS3WebC for tile 11 (600GB)
 - LUN 2: DS3DB, DS3WebA, DS3WebB, DS3WebC for tile 32 (600GB)
 - LUN 3: AuctionNoSQL, ElasticDB for tile 9 (300GB)
 - LUN 4: AuctionNoSQL, ElasticDB for tile 10 (300GB)
 - LUN 5: AuctionNoSQL, ElasticDB for tile 11 (300GB)
 - LUN 6: AuctionDB, ElasticLB for tile 9 (300GB)
 - LUN 7: AuctionDB, ElasticLB for tile 10 (300GB)
 - LUN 8: AuctionDB, ElasticLB for tile 11 (300GB)
 - LUN 9: AuctionWebA, AuctionWebB, AuctionAppA, AuctionAppB, AuctionLB, AuctionMSQ, Standby, ElasticWebA, ElasticWebB, ElasticAppA, ElasticAppB for tile 8 (300GB)
 - LUN 10: AuctionWebA, AuctionWebB, AuctionAppA, AuctionAppB, AuctionLB, AuctionMSQ, Standby, ElasticWebA, ElasticWebB, ElasticAppA, ElasticAppB for tile 9 (300GB)
- Fourth 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)
 - 2 x QLogic QLE2742 Dual Port 32Gb FC HBA used as FC target controller
 - 1 x Fujitsu RAID SAS Controller with 1GB Cache (D3108)
 - 2 x 480GB SATA-SSD Micron 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 12 (600GB)
- Second PCIe-SSD:
 - LUN 1: DS3DB, DS3WebA, DS3WebB, DS3WebC for tile 13 (600GB)
- Third PCIe-SSD:
 - LUN 1: DS3DB, DS3WebA, DS3WebB, DS3WebC for tile 14 (600GB)
 - LUN 2: AuctionNoSQL, ElasticDB for tile 12 (300GB)
 - LUN 3: AuctionDB, ElasticLB for tile 12 (300GB)
 - LUN 4: AuctionWebA, AuctionWebB, AuctionAppA, AuctionAppB, AuctionLB, AuctionMSQ, Standby, ElasticWebA, ElasticWebB, ElasticAppA, ElasticAppB for tile 12 (300GB)
 - LUN 5: vmmark3.1-template-020419 (300GB)
- Fourth PCIe-SSD:

- LUN 1: DS3DB, DS3WebA, DS3WebB, DS3WebC for tile 15 (600GB)
 - LUN 2: DS3DB, DS3WebA, DS3WebB, DS3WebC for tile 29 (600GB)
 - LUN 3: AuctionNoSQL, ElasticDB for tile 13 (300GB)
 - LUN 4: AuctionNoSQL, ElasticDB for tile 14 (300GB)
 - LUN 5: AuctionNoSQL, ElasticDB for tile 15 (300GB)
 - LUN 6: AuctionDB, ElasticLB for tile 13 (300GB)
 - LUN 7: AuctionDB, ElasticLB for tile 14 (300GB)
 - LUN 8: AuctionDB, ElasticLB for tile 15 (300GB)
 - LUN 9: AuctionWebA, AuctionWebB, AuctionAppA, AuctionAppB, AuctionLB, AuctionMSQ, Standby, ElasticWebA, ElasticWebB, ElasticAppA, ElasticAppB for tile 13 (300GB)
 - LUN 10: AuctionWebA, AuctionWebB, AuctionAppA, AuctionAppB, AuctionLB, AuctionMSQ, Standby, ElasticWebA, ElasticWebB, ElasticAppA, ElasticAppB for tile 14 (300GB)
- Fifth 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)
 - 2 x QLogic QLE2742 Dual Port 32Gb FC HBA used as FC target controller
 - 1 x Fujitsu RAID SAS Controller with 1GB Cache (D3108)
 - 2 x 480GB SATA-SSD Micron MTFDDAK480TDC
 - 2 x Intel P4800X 750GB PCIe SSD
 - 2 x Intel P4600 2TB 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 16 (600GB)
- Second PCIe-SSD:
 - LUN 1: DS3DB, DS3WebA, DS3WebB, DS3WebC for tile 17 (600GB)
- Third PCIe-SSD:
 - LUN 1: DS3DB, DS3WebA, DS3WebB, DS3WebC for tile 18 (600GB)
 - LUN 2: AuctionNoSQL, ElasticDB for tile 16 (300GB)
 - LUN 3: AuctionDB, ElasticLB for tile 16 (300GB)
 - LUN 4: AuctionWebA, AuctionWebB, AuctionAppA, AuctionAppB, AuctionLB, AuctionMSQ, Standby, ElasticWebA, ElasticWebB, ElasticAppA, ElasticAppB for tile 16 (300GB)
 - LUN 5: XvMotion Target Lun (300GB)
- Fourth PCIe-SSD:
 - LUN 1: DS3DB, DS3WebA, DS3WebB, DS3WebC for tile 19 (600GB)
 - LUN 2: AuctionNoSQL, ElasticDB for tile 17 (300GB)
 - LUN 3: AuctionDB, ElasticLB for tile 17 (300GB)
 - LUN 4: AuctionWebA, AuctionWebB, AuctionAppA, AuctionAppB, AuctionLB, AuctionMSQ, Standby, ElasticWebA, ElasticWebB, ElasticAppA, ElasticAppB for tile 17 (300GB)
 - LUN 5: SvMotion Target Lun (300GB)

- Sixth Fujitsu Server PRIMERGY RX2540 M4 configured as a Fibre Channel Target:
 - Hardware details:
 - 2 x Intel Xeon Gold 6134@3.2GHz processors
 - 64GB RAM (4 x 16 GB dual rank PC4-2666 Registered DDR4 / 2666 MHz DIMMs)
 - 1 x QLogic QLE2742 Dual Port 32Gb FC HBA used as FC target controller
 - 1 x 960GB SATA-SSD Micron MTFDDAK480TDC
 - 3 x Intel P4800X 750GB PCIe SSD
 - 1 x Intel P4600 2TB 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:
 - LUN 1: Storage system OS (960GB, 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: DS3DB, DS3WebA, DS3WebB, DS3WebC for tile 22 (600GB)
 - Fourth PCIe-SSD:
 - LUN 1: DS3DB, DS3WebA, DS3WebB, DS3WebC for tile 23 (600GB)
 - LUN 2: AuctionNoSQL, ElasticDB for tile 18 (300GB)
 - LUN 3: AuctionDB, ElasticLB for tile 18 (300GB)
 - LUN 4: AuctionWebA, AuctionWebB, AuctionAppA, AuctionAppB, AuctionLB, AuctionMSQ, Standby, ElasticWebA, ElasticWebB, ElasticAppA, ElasticAppB for tile 18 (300GB)
- Seventh Fujitsu Server PRIMERGY RX2540 M5 configured as a Fibre Channel Target:
 - Hardware details:
 - 2 x Intel Xeon Gold 8280L@2.6GHz processors
 - 64GB RAM (2 x 32 GB dual rank PC4-2933 Registered DDR4 / 2933 MHz DIMMs)
 - 1 x QLogic QLE2742 Dual Port 32Gb FC HBA used as FC target controller
 - 1 x 240GB SATA-SSD Micron MTFDDAK240TCB
 - 3 x Intel P4800X 750GB PCIe SSD
 - 1 x Intel P4600 2TB 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:
 - LUN 1: Storage system OS (240GB, 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: DS3DB, DS3WebA, DS3WebB, DS3WebC for tile 26 (600GB)
- Fourth PCIe-SSD:
 - LUN 1: DS3DB, DS3WebA, DS3WebB, DS3WebC for tile 34 (600GB)
 - LUN 2: AuctionNoSQL, ElasticDB for tile 34 (300GB)
 - LUN 3: AuctionDB, ElasticLB for tile 34 (300GB)
 - LUN 4: AuctionWebA, AuctionWebB, AuctionAppA, AuctionAppB, AuctionLB, AuctionMSQ, Standby, ElasticWebA, ElasticWebB, ElasticAppA, ElasticAppB for tile 34 (300GB)
- Eighth Fujitsu Server PRIMERGY RX2540 M5 configured as a Fibre Channel Target:
 - Hardware details:
 - 2 x Intel Xeon Gold 8280L@2.6GHz processors
 - 64GB RAM (2 x 32 GB dual rank PC4-2933 Registered DDR4 / 2933 MHz DIMMs)
 - 1 x QLogic QLE2742 Dual Port 32Gb FC HBA used as FC target controller
 - 1 x 240GB SATA-SSD Micron MTFDDAK240TCB
 - 2 x Intel P4800X 750GB 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:
 - LUN 1: Storage system OS (240GB, this LUN is not counted in the Storage section)
- First PCIe-SSD:
 - LUN 1: DS3DB, DS3WebA, DS3WebB, DS3WebC for tile 31 (600GB)
- Second PCIe-SSD:
 - LUN 1: DS3DB, DS3WebA, DS3WebB, DS3WebC for tile 33 (600GB)
- Ninth 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 QLE2742 Dual Port 32Gb FC HBA used as FC target controller
 - 1 x Fujitsu RAID SAS Controller with 1GB Cache (D3108)
 - 1 x 400GB SAS-SSD Toshiba PX02SMF040
 - 3 x Fusion ioMemory PX600 2.6TB PCIe SSD
 - 1 x Fusion ioMemory PX600 1.3TB 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: AuctionNoSQL, ElasticDB for tile 19 (300GB)
 - LUN 2: AuctionNoSQL, ElasticDB for tile 20 (300GB)
 - LUN 3: AuctionNoSQL, ElasticDB for tile 21 (300GB)
 - LUN 4: AuctionDB, ElasticLB for tile 19 (300GB)
 - LUN 5: AuctionDB, ElasticLB for tile 20 (300GB)
 - LUN 6: AuctionDB, ElasticLB for tile 21 (300GB)
 - LUN 7: AuctionWebA, AuctionWebB, AuctionAppA, AuctionAppB, AuctionLB, AuctionMSQ, Standby, ElasticWebA, ElasticWebB, ElasticAppA, ElasticAppB for tile 19 (300GB)
 - LUN 8: AuctionWebA, AuctionWebB, AuctionAppA, AuctionAppB, AuctionLB, AuctionMSQ, Standby, ElasticWebA, ElasticWebB, ElasticAppA, ElasticAppB for tile 20 (300GB)
- Second PCIe-SSD:
 - LUN 1: AuctionNoSQL, ElasticDB for tile 22 (300GB)
 - LUN 2: AuctionNoSQL, ElasticDB for tile 23 (300GB)
 - LUN 3: AuctionNoSQL, ElasticDB for tile 24 (300GB)
 - LUN 4: AuctionDB, ElasticLB for tile 22 (300GB)
 - LUN 5: AuctionDB, ElasticLB for tile 23 (300GB)
 - LUN 6: AuctionDB, ElasticLB for tile 24 (300GB)
 - LUN 7: AuctionWebA, AuctionWebB, AuctionAppA, AuctionAppB, AuctionLB, AuctionMSQ, Standby, ElasticWebA, ElasticWebB, ElasticAppA, ElasticAppB for tile 22 (300GB)
 - LUN 8: AuctionWebA, AuctionWebB, AuctionAppA, AuctionAppB, AuctionLB, AuctionMSQ, Standby, ElasticWebA, ElasticWebB, ElasticAppA, ElasticAppB for tile 23 (300GB)
- Third PCIe-SSD:
 - LUN 1: AuctionNoSQL, ElasticDB for tile 25 (300GB)
 - LUN 2: AuctionNoSQL, ElasticDB for tile 26 (300GB)
 - LUN 3: AuctionNoSQL, ElasticDB for tile 27 (300GB)
 - LUN 4: AuctionDB, ElasticLB for tile 25 (300GB)
 - LUN 5: AuctionDB, ElasticLB for tile 26 (300GB)
 - LUN 6: AuctionDB, ElasticLB for tile 27 (300GB)
 - LUN 7: AuctionWebA, AuctionWebB, AuctionAppA, AuctionAppB, AuctionLB, AuctionMSQ, Standby, ElasticWebA, ElasticWebB, ElasticAppA, ElasticAppB for tile 25 (300GB)
 - LUN 8: AuctionWebA, AuctionWebB, AuctionAppA, AuctionAppB, AuctionLB, AuctionMSQ, Standby, ElasticWebA, ElasticWebB, ElasticAppA, ElasticAppB for tile 26 (300GB)
- Fourth PCIe-SSD:
 - LUN 1: Deploy Lun (300GB)
- Tenth 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
 - 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: AuctionNoSQL, ElasticDB for tile 28 (300GB)
 - LUN 2: AuctionNoSQL, ElasticDB for tile 29 (300GB)
 - LUN 3: AuctionDB, ElasticLB for tile 28 (300GB)
 - LUN 4: AuctionDB, ElasticLB for tile 29 (300GB)
 - LUN 5: AuctionWebA, AuctionWebB, AuctionAppA, AuctionAppB, AuctionLB, AuctionMSQ, Standby, ElasticWebA, ElasticWebB, ElasticAppA, ElasticAppB for tile 28 (300GB)
 - LUN 6: AuctionWebA, AuctionWebB, AuctionAppA, AuctionAppB, AuctionLB, AuctionMSQ, Standby, ElasticWebA, ElasticWebB, ElasticAppA, ElasticAppB for tile 29 (300GB)
 - LUN 7: AuctionWebA, AuctionWebB, AuctionAppA, AuctionAppB, AuctionLB, AuctionMSQ, Standby, ElasticWebA, ElasticWebB, ElasticAppA, ElasticAppB for tile 10 (300GB)
 - LUN 8: AuctionWebA, AuctionWebB, AuctionAppA, AuctionAppB, AuctionLB, AuctionMSQ, Standby, ElasticWebA, ElasticWebB, ElasticAppA, ElasticAppB for tile 11 (300GB)
- Second PCIe-SSD:
 - LUN 1: AuctionNoSQL, ElasticDB for tile 30 (300GB)
 - LUN 2: AuctionNoSQL, ElasticDB for tile 31 (300GB)
 - LUN 3: AuctionDB, ElasticLB for tile 30 (300GB)
 - LUN 4: AuctionDB, ElasticLB for tile 31 (300GB)
 - LUN 5: AuctionWebA, AuctionWebB, AuctionAppA, AuctionAppB, AuctionLB, AuctionMSQ, Standby, ElasticWebA, ElasticWebB, ElasticAppA, ElasticAppB for tile 30 (300GB)
 - LUN 6: AuctionWebA, AuctionWebB, AuctionAppA, AuctionAppB, AuctionLB, AuctionMSQ, Standby, ElasticWebA, ElasticWebB, ElasticAppA, ElasticAppB for tile 31 (300GB)
 - LUN 7: AuctionWebA, AuctionWebB, AuctionAppA, AuctionAppB, AuctionLB, AuctionMSQ, Standby, ElasticWebA, ElasticWebB, ElasticAppA, ElasticAppB for tile 15 (300GB)
 - LUN 8: AuctionWebA, AuctionWebB, AuctionAppA, AuctionAppB, AuctionLB, AuctionMSQ, Standby, ElasticWebA, ElasticWebB, ElasticAppA, ElasticAppB for tile 21 (300GB)
- Third PCIe-SSD:
 - LUN 1: AuctionNoSQL, ElasticDB for tile 32 (300GB)
 - LUN 2: AuctionNoSQL, ElasticDB for tile 33 (300GB)
 - LUN 3: AuctionDB, ElasticLB for tile 32 (300GB)
 - LUN 4: AuctionDB, ElasticLB for tile 33 (300GB)
 - LUN 5: AuctionWebA, AuctionWebB, AuctionAppA, AuctionAppB, AuctionLB, AuctionMSQ, Standby, ElasticWebA, ElasticWebB, ElasticAppA, ElasticAppB for tile 32 (300GB)
 - LUN 6: AuctionWebA, AuctionWebB, AuctionAppA, AuctionAppB, AuctionLB, AuctionMSQ, Standby, ElasticWebA, ElasticWebB, ElasticAppA, ElasticAppB for tile 33 (300GB)
 - LUN 7: AuctionWebA, AuctionWebB, AuctionAppA, AuctionAppB, AuctionLB, AuctionMSQ, Standby, ElasticWebA, ElasticWebB, ElasticAppA, ElasticAppB for tile 24 (300GB)
 - LUN 8: AuctionWebA, AuctionWebB, AuctionAppA, AuctionAppB, AuctionLB, AuctionMSQ, Standby, ElasticWebA, ElasticWebB, ElasticAppA, ElasticAppB for tile 27 (300GB)
- All LUNs were configured as block devices; no system memory was used for caching
- "StorageM5_3_nvme1n1p1" was configured with 2 paths and all other LUNs were configured with a single path

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 6.7.1 EP 06 Build 11675023 was installed using 'Fujitsu Custom Image for VMware ESXi 6.7.1 EP 06' named VMware-ESXi-6.7.0-11675023-Fujitsu-v461-1.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,Client29,Client30,Client31,Client32,Client33,Client34,PrimeClient

Changes in esx.conf:

- /adv/Power/CpuPolicy = "High Performance" (default balanced)

Other Notes

- TileDelay set to 15 (default: 60)

Security Mitigations

Security Mitigations						
Vulnerability	CVE	Exploit Name	Public Vulnerability Name	Mitigated		
				Server Firmware	ESXi	Guest OS
Spectre	2017-5753	Variant 1	Bounds Check Bypass	N/A	Yes	Yes
Spectre	2017-5715	Variant 2	Branch Target Injection	Yes	Yes	Yes
Meltdown	2017-5754	Variant 3	Rogue Data Cache Load	N/A	Yes	Yes
Spectre-NG	2018-3640	Variant 3a	Rogue System Register Read	Yes	N/A	N/A
Spectre-NG	2018-3639	Variant 4	Speculative Store Bypass	N/A	Yes	Yes
Foreshadow	2018-3615	Variant 5	L1 Terminal Fault - SGX	N/A	N/A	N/A
Foreshadow-NG	2018-3620	Variant 5	L1 Terminal Fault - OS	N/A	N/A	Yes
Foreshadow-NG	2018-3646	Variant 5	L1 Terminal Fault - VMM	N/A	Yes	N/A

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