VMmark® 3.1.1 Results

Server Vendor & Model: Fujitsu Server PRIMERGY RX2540 M7
Storage Vendor & Model: 5 x Fujitsu Server PRIMERGY RX2540 M4
3 x Fujitsu Server PRIMERGY RX2540 M5
Hypervisor: VMware ESXi 8.0 GA, build 20513097
Datacenter Management Software: VMware vCenter Server Appliance 8.0 GA, build 20519528

VMmark 3.1.1 Server and Storage PPKW Score = 4.8019 @ 22 Tiles

Number of Hosts: 2	Uniform Hosts [yes/no]: yes	Total sockets/cores/threads in test: 4/240/480
Tested By: Fujitsu	Test Date: 03-03-2023	

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	3581.80	1.00	0.68 | 0.00	567.51	0.99	0.86 | 0.51	1022.90	1.39	618.98	714.27	1.43	743.69	523.17	1.51	834.99	1.24
p1	3563.27	0.99	0.66 | 0.00	564.96	0.99	0.49 | 0.19	1034.25	1.41	597.04	724.05	1.45	724.76	505.12	1.46	824.89	1.24
p2	3542.41	0.98	0.65 | 0.00	563.11	0.98	0.57 | 0.23	1025.20	1.40	616.65	749.00	1.50	722.64	553.88	1.60	802.47	1.26
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	3563.94	0.99	0.85 | 0.00	563.32	0.98	0.43 | 0.20	1080.65	1.47	497.40	748.80	1.50	584.79	545.30	1.57	655.62	1.28
p1	3546.52	0.99	0.78 | 0.00	561.91	0.98	0.52 | 0.30	1079.22	1.47	498.85	805.58	1.61	565.49	576.42	1.66	644.21	1.31
p2	3537.40	0.98	0.76 | 0.00	554.49	0.97	0.61 | 0.30	1078.83	1.47	500.56	777.02	1.55	574.29	571.02	1.65	656.18	1.29
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	3570.68	0.99	0.81 | 0.00	568.77	0.99	0.99 | 0.60	1044.20	1.42	568.78	720.70	1.44	661.67	490.70	1.41	779.37	1.23
p1	3557.10	0.99	0.83 | 0.00	564.72	0.99	0.72 | 0.34	1029.75	1.40	599.10	788.05	1.57	682.68	557.65	1.61	785.38	1.28
p2	3547.45	0.99	0.83 | 0.00	563.09	0.98	0.58 | 0.25	1042.33	1.42	570.27	718.62	1.44	665.94	516.42	1.49	772.20	1.24
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	3555.95	0.99	0.64 | 0.00	565.66	0.99	0.53 | 0.29	1088.15	1.48	478.54	784.52	1.57	554.38	553.65	1.60	622.19	1.29
p1	3543.92	0.98	0.62 | 0.00	563.46	0.98	0.69 | 0.39	1097.65	1.49	466.29	810.45	1.62	554.03	611.88	1.76	596.20	1.33
p2	3525.92	0.98	0.59 | 0.00	561.40	0.98	0.63 | 0.34	1101.78	1.50	466.49	762.95	1.52	546.35	531.95	1.53	611.25	1.28
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	3569.42	0.99	0.86 | 0.00	566.79	0.99	0.52 | 0.25	1063.47	1.45	534.20	780.70	1.56	634.68	552.20	1.59	707.86	1.29
p1	3563.41	0.99	0.83 | 0.00	561.83	0.98	0.44 | 0.24	1066.35	1.45	522.55	753.42	1.51	635.65	552.40	1.59	706.65	1.28
p2	3551.29	0.99	0.85 | 0.00	557.99	0.98	0.57 | 0.18	1074.03	1.46	521.22	760.92	1.52	620.50	531.00	1.53	693.76	1.27
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	3566.01	0.99	0.77 | 0.01	565.44	0.99	0.78 | 0.49	1053.00	1.43	538.40	774.23	1.55	636.87	594.60	1.71	661.34	1.30

p1	3538.93	0.98	0.81 | 0.00	560.72	0.98	0.66 | 0.25	1056.95	1.44	540.85	724.30	1.45	640.60	537.75	1.55	685.36	1.25
p2	3529.23	0.98	0.88 | 0.01	556.41	0.97	0.72 | 0.33	1010.92	1.38	644.59	764.02	1.53	751.23	534.38	1.54	808.43	1.25
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	3572.53	0.99	0.90 | 0.00	565.04	0.99	0.65 | 0.29	1038.05	1.41	585.80	731.27	1.46	704.59	536.38	1.55	781.72	1.26
p1	3551.36	0.99	0.87 | 0.01	561.48	0.98	0.66 | 0.33	1011.95	1.38	637.93	713.65	1.43	756.69	497.38	1.43	851.30	1.22
p2	3530.16	0.98	0.93 | 0.00	558.55	0.98	0.50 | 0.18	1030.85	1.40	593.93	751.52	1.50	703.28	558.90	1.61	781.74	1.27
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	3574.81	0.99	0.62 | 0.00	561.70	0.98	0.51 | 0.27	1087.60	1.48	492.18	771.40	1.54	588.74	540.58	1.56	663.45	1.28
p1	3561.14	0.99	0.63 | 0.00	559.45	0.98	0.49 | 0.17	1081.72	1.47	500.60	795.88	1.59	572.47	574.02	1.66	642.91	1.30
p2	3553.52	0.99	0.66 | 0.00	557.13	0.97	0.64 | 0.31	1077.40	1.47	502.08	765.62	1.53	596.38	569.15	1.64	665.86	1.29
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	3568.53	0.99	0.75 | 0.00	559.21	0.98	0.58 | 0.31	1052.58	1.43	557.10	741.08	1.48	670.29	525.20	1.51	741.73	1.26
p1	3563.58	0.99	0.76 | 0.00	557.49	0.97	0.49 | 0.17	1045.92	1.42	574.65	764.60	1.53	684.00	570.67	1.65	742.38	1.28
p2	3553.87	0.99	0.78 | 0.00	553.33	0.97	0.68 | 0.37	1056.33	1.44	550.20	744.15	1.49	660.56	522.90	1.51	733.25	1.25
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	3571.79	0.99	0.84 | 0.00	570.55	1.00	1.01 | 0.77	1064.35	1.45	520.69	790.70	1.58	590.69	561.15	1.62	669.72	1.30
p1	3562.20	0.99	0.84 | 0.00	565.55	0.99	0.53 | 0.31	1068.22	1.45	506.11	768.62	1.54	589.74	566.25	1.63	665.67	1.29
p2	3546.46	0.99	0.93 | 0.01	563.53	0.98	0.69 | 0.34	1069.90	1.46	510.91	774.25	1.55	582.43	540.65	1.56	662.52	1.28
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	3570.69	0.99	0.70 | 0.00	566.78	0.99	0.82 | 0.42	1030.75	1.40	592.31	749.92	1.50	710.85	567.88	1.64	762.25	1.28
p1	3565.86	0.99	0.72 | 0.00	564.75	0.99	0.66 | 0.30	1034.72	1.41	578.10	731.50	1.46	706.41	515.25	1.49	781.54	1.25
p2	3544.30	0.99	0.74 | 0.00	564.21	0.99	0.52 | 0.19	1037.47	1.41	585.30	756.33	1.51	692.03	547.17	1.58	750.91	1.27
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	3573.58	0.99	0.84 | 0.00	568.46	0.99	0.50 | 0.19	1067.88	1.45	518.35	767.55	1.53	601.69	563.85	1.63	679.37	1.29
p1	3552.31	0.99	0.84 | 0.00	564.36	0.99	0.61 | 0.26	1069.55	1.46	515.80	770.62	1.54	590.63	542.30	1.56	669.02	1.28
p2	3539.09	0.98	0.87 | 0.00	561.32	0.98	0.51 | 0.17	1071.92	1.46	521.98	791.35	1.58	602.49	591.27	1.70	662.62	1.31
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	3568.97	0.99	0.72 | 0.00	565.29	0.99	0.63 | 0.26	1053.90	1.44	556.34	750.10	1.50	650.97	520.33	1.50	753.29	1.26
p1	3550.37	0.99	0.74 | 0.00	562.98	0.98	0.52 | 0.13	1043.17	1.42	561.58	780.42	1.56	639.76	543.30	1.57	743.01	1.27
p2	3528.13	0.98	0.72 | 0.00	558.73	0.98	0.40 | 0.12	1051.38	1.43	554.28	746.12	1.49	656.04	545.25	1.57	743.57	1.26
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	3577.45	0.99	0.89 | 0.01	566.98	0.99	0.75 | 0.47	1074.65	1.46	499.02	766.60	1.53	592.52	550.20	1.59	636.92	1.29
p1	3560.78	0.99	0.93 | 0.01	564.78	0.99	0.56 | 0.28	1079.95	1.47	487.55	795.75	1.59	581.81	607.20	1.75	609.33	1.32
p2	3546.92	0.99	0.92 | 0.01	561.42	0.98	0.54 | 0.27	1084.40	1.48	487.69	768.35	1.54	585.08	552.33	1.59	628.95	1.28
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	3570.46	0.99	0.98 | 0.00	565.10	0.99	0.50 | 0.12	995.38	1.36	691.67	709.33	1.42	839.48	494.07	1.42	971.01	1.22

p1	3556.66	0.99	0.98 | 0.00	566.48	0.99	0.59 | 0.24	1008.67	1.37	668.65	696.15	1.39	820.05	501.68	1.45	933.17	1.22
p2	3546.47	0.99	0.94 | 0.00	566.19	0.99	0.61 | 0.24	1007.95	1.37	666.67	697.80	1.39	809.60	479.20	1.38	939.55	1.21
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	3576.53	0.99	0.61 | 0.00	563.89	0.99	0.63 | 0.28	1070.60	1.46	516.89	789.08	1.58	610.53	588.67	1.70	673.85	1.31
p1	3567.94	0.99	0.62 | 0.01	563.01	0.98	0.44 | 0.18	1077.53	1.47	504.99	766.80	1.53	600.47	539.70	1.56	678.42	1.28
p2	3546.23	0.99	0.61 | 0.00	562.36	0.98	0.51 | 0.30	1070.12	1.46	515.90	796.62	1.59	595.21	565.58	1.63	663.09	1.30
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	3569.55	0.99	0.77 | 0.00	570.34	1.00	0.81 | 0.43	1003.20	1.37	670.01	698.40	1.40	812.57	505.18	1.46	933.67	1.22
p1	3568.25	0.99	0.78 | 0.00	564.53	0.99	0.61 | 0.24	1016.15	1.38	648.78	710.08	1.42	773.74	490.30	1.41	902.02	1.22
p2	3553.83	0.99	0.74 | 0.00	563.26	0.98	0.45 | 0.14	999.42	1.36	672.22	729.27	1.46	793.59	534.05	1.54	900.37	1.24
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	3576.65	0.99	0.61 | 0.00	569.91	1.00	0.96 | 0.52	1009.95	1.38	656.71	702.67	1.40	799.87	487.80	1.41	908.94	1.22
p1	3565.73	0.99	0.62 | 0.00	565.33	0.99	0.58 | 0.22	1009.50	1.37	646.78	734.33	1.47	766.99	519.55	1.50	865.79	1.24
p2	3550.88	0.99	0.61 | 0.00	564.86	0.99	0.52 | 0.26	1016.05	1.38	651.89	709.15	1.42	773.52	520.75	1.50	863.70	1.23
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	3582.34	1.00	0.70 | 0.00	568.09	0.99	0.82 | 0.39	1054.30	1.44	554.88	719.23	1.44	659.72	526.60	1.52	738.11	1.25
p1	3565.15	0.99	0.79 | 0.00	561.70	0.98	0.46 | 0.17	1044.78	1.42	566.19	767.40	1.53	670.44	573.20	1.65	729.19	1.29
p2	3553.69	0.99	0.70 | 0.00	556.52	0.97	0.61 | 0.17	1053.25	1.43	547.23	745.05	1.49	655.22	529.85	1.53	724.09	1.26
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	3579.90	0.99	0.58 | 0.00	563.15	0.98	0.53 | 0.22	1047.17	1.43	565.10	768.80	1.54	660.79	550.90	1.59	732.68	1.28
p1	3558.94	0.99	0.53 | 0.00	554.07	0.97	0.44 | 0.16	1054.33	1.44	558.04	747.65	1.49	661.53	552.23	1.59	725.10	1.27
p2	3548.29	0.99	0.56 | 0.00	551.14	0.96	0.47 | 0.12	1053.40	1.43	554.42	740.70	1.48	664.63	529.40	1.53	737.77	1.25
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	3572.87	0.99	0.78 | 0.00	565.56	0.99	0.67 | 0.26	1053.42	1.43	554.72	801.92	1.60	643.19	576.08	1.66	721.12	1.30
p1	3555.25	0.99	0.75 | 0.00	562.74	0.98	0.67 | 0.27	1051.28	1.43	545.92	729.58	1.46	645.05	529.00	1.53	719.58	1.25
p2	3544.00	0.99	0.77 | 0.01	561.62	0.98	0.52 | 0.24	1055.88	1.44	543.90	784.55	1.57	627.85	555.42	1.60	708.46	1.28
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	3575.03	0.99	0.53 | 0.00	571.14	1.00	0.98 | 0.59	1033.42	1.41	599.39	750.25	1.50	721.49	549.70	1.59	825.78	1.27
p1	3553.21	0.99	0.55 | 0.00	569.70	1.00	0.96 | 0.67	1043.95	1.42	581.81	707.25	1.41	696.40	483.15	1.39	803.46	1.22
p2	3529.13	0.98	0.63 | 0.00	566.86	0.99	0.70 | 0.40	1029.30	1.40	604.33	781.02	1.56	699.32	555.27	1.60	799.05	1.28

p0_score:	27.91
p1_score:	27.89
p2_score:	27.85

Infrastructure_Operations_Scores:	vMotion	SVMotion	XVMotion	Deploy
Completed_Ops_PerHour	28.50	27.00	22.00	12.00

Avg_Seconds_To_Complete	5.48	75.26	95.31	252.10
Failures	0.00	0.00	0.00	0.00
Ratio	1.10	1.50	1.22	1.50
Number_Of_Threads	1	1	1	1

PTD_Summary:		
Number_of_PTD_Daemons	2	
Number_of_PTD_Phases	3	
PTD_Phase_Timing	2400secs	
PtdTiming:	ptd0	ptd1
p0	-60	-60
p1	-60	-60
p2	-60	-60

PTD_Results:							
p0	Target	Avg_Watts	Avg_Volts	Avg_Amps	Avg_PF	Samples	UnCert%
ptd0	SERVER	2324.96	207.71	11.45	0.98	2399.00	0.00
ptd1	EXT_STOR	2375.71	207.81	11.45	1.00	2399.00	0.00
p1	Target	Avg_Watts	Avg_Volts	Avg_Amps	Avg_PF	Samples	UnCert%
ptd0	SERVER	2326.20	207.38	11.47	0.98	2400.00	0.00
ptd1	EXT_STOR	2375.68	207.33	11.48	1.00	2400.00	0.00
p2	Target	Avg_Watts	Avg_Volts	Avg_Amps	Avg_PF	Samples	UnCert%
ptd0	SERVER	2327.08	206.90	11.50	0.98	2400.00	0.00
ptd1	EXT_STOR	2375.99	206.85	11.51	1.00	2400.00	0.00

Summary	Run_Is_Compliant	Turbo_Setting:0
	Number_Of_Compliance_Issues(0)*	Median_Phase(p1)
Unreviewed_VMmark3_Avg_Watts	4701.88	
Unreviewed_VMmark3_Applications_Score	27.89	
Unreviewed_VMmark3_Infrastructure_Score	1.32	
Unreviewed_VMmark3_Score	22.58	
Unreviewed_VMmark3_PPKW	4.8019	

Configuration

PTD Configuration	
Number of Power Meters	2
Power Meter Vendors and Models	2 x Hioki PW3336

Power Meter PTD Target(s) (SERVER/EXT_STOR)	SERVER,EXT_STOR
Power Meter Connection Type(s) (Eth/GPIB/Serial/USB)	Serial
Power Meter Calibration Date(s) (MM-DD-YYYY)	06-28-2022
Power Meter Calibration Info (Calibrated By/Duration)	Kyosai Technos Co.,Ltd. / one year / CY226004828, CY226004830
Power Meter(s) Volt/Amp Range	300 / 20
Power Source Voltage/Frequency/Phase	200V / 50Hz / 1-phase
PTD Client Configuration	
Number of Power Meter Clients	2
System Model(s)	PrimeClient, details in client configuration section
Processor Vendor(s) and Model(s)	PrimeClient, details in client configuration section
Processor Speed(s) (GHz)	PrimeClient, details in client configuration section
Total Sockets/Total Cores/Total Threads	PrimeClient, details in client configuration section
Memory Per Power Meter Client	PrimeClient, details in client configuration section
Network Controller(s) Vendors and Models	PrimeClient, details in client configuration section
Operating System, Version, and Service Pack	PrimeClient, details in client configuration section
Other Hardware	2 x BUFFALO BSUSRC06 USB-Serial converter
Other Software	None

Configuration

Virtualization Software	
Hypervisor Vendor, Product, Version, and Build / Availability Date (MM-DD-YYYY)	VMware ESXi 8.0 GA, Build 20513097 / 10-11-2022
Datacenter Management Software Vendor, Product, Version, and Build / Availability Date (MM-DD-YYYY)	VMware vCenter Server Appliance 8.0 GA, Build 20519528 / 10-11-2022
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 PRIMERGY RX2540 M7
Processor Vendor and Model	Intel Xeon Platinum 8490H
Processor Speed (GHz) / Turbo Boost Speed (GHz)	1.9 / 3.5

Total Sockets/Total Cores/Total Threads	2 Sockets / 120 Cores / 240 Threads
Primary CPU Cache	32KB I+48KB D on chip per core
Secondary CPU Cache	2MB I+D on chip per core
Other CPU Cache	112.5MB I+D on chip per chip
BIOS Version	V1.0.0.0 R1.1.2 for D3983-A1x
Memory Size (in GB, Number of DIMMs)	2048, 32
Memory Type and Speed	64GB 2Rx4 DDR5 4800MHz RDIMM,running at 4400MHz
Disk Subsystem Type	FC SAN
Number of Disk Controllers	1
Disk Controller Vendors and Models	integrated SATA controller
Total Number of Physical Disks for Hypervisor	1
Disk Vendors, Models, Capacities, and Speeds	Micron MTFDDAK480TDS 480GB SATA-SSD 6GB/s
Number of Host Bus Adapters	2
Host Bus Adapter Vendors and Models	Emulex LPe35002 dual port 32Gb PCIe Adapter
Number of Network Controllers	3
Network Controller Vendors and Models	2 x Mellanox MCX4121A-ACAT dual port 25Gb SFP28 PCIe Adapters 1 x Intel I210 1Gb onboard
Other Hardware	None
Other Software	None
Hardware Availability Date (MM-DD-YYYY)	03-27-2023
BIOS Availability Date (MM-DD-YYYY)	03-27-2023
Software Availability Date (MM-DD-YYYY)	10-11-2022
Network	
Network Switch Vendors and Models	1 x Fujitsu SR-X340TR1 1 x Extreme Networks SLX 9150-48Y
Network Speed	1 x 1Gbps for SUT management, 1 x 25Gbps for vMotion, 3 x 25Gbps for Client and VMs
Primary Storage	
Storage Category	SCSI Target
Storage Vendors, Models, and Firmware Versions	5 x Fujitsu Server PRIMERGY RX2540 M4, Firmware V5.0.0.12 R1.22.0 for D3384-A1x 3 x Fujitsu Server PRIMERGY RX2540 M5, Firmware V5.0.0.14 R1.15.0 for D3384-B1x

Storage Configuration Summary	FC switches: • 1 x Brocade G620 32Gb 48 port Storage Servers: • for OS storage ◦ 9 x Micron MTFDDAK480TDC 480GB SATA SSD ◦ 3 x Samsung MZ7KH480HAHQ 480GB SATA SSD • for Workload storage ◦ 22 x Intel P4800X 750GB PCIe SSD ◦ 1 x Intel P4600 2TB PCIe SSD ◦ 4 x Intel P4600 4TB PCIe SSD ◦ 3 x Intel P4610 3.2TB 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)	80 GB, 8
Network Controller(s) Vendors and Models	Emulex OneConnect OCe14000 1GbE dual port Adapter
Operating System, Version, Bitness, and Service Pack	VMware ESXi 7.0 Update 3c Build 19193900
Virtual Center VM Number of vCPUs	4
Virtual Center VM Virtual Memory (in GB)	21
Virtual Center VM Operating System, Version, Bitness, and Service Pack	VMware vCenter Server Appliance 8.0 GA Build 20519528
Other Hardware	None
Other Software	None

Clients	
Total Number of Virtual Clients / Virtual Client Hosts	23 / 6
System Model(s)	Fujitsu Server PRIMERGY RX2530 M2
Processor Vendor(s) and Model(s)	Intel Xeon E5-2699 v4 (for Client Host 1-3 and 6) Intel Xeon E5-2699A v4 (for Client Host 4 and 5)

Processor Speed(s) (GHz)	2.2 (Intel Xeon E5-2699 v4) 2.4 (Intel Xeon E5-2699A v4)
Total Sockets/Total Cores/Total Threads	2 Sockets / 44 Cores / 88 Threads
Memory per Virtual Client Host	256 GB
Network Controller(s) Vendors and Models	1 x Emulex OneConnect OCe14000 1Gb dual port 1 x Emulex OneConnect OCe14000 10Gb dual port
Virtual Client Networking Notes	1 virtual adapter for management, 2 virtual adapters for workload traffic
Virtual Client Storage Notes	1 x 300GB SAS 10K TOSHIBA AL14SEB03EN HDD with RAID0 for Client Host OS 2 x 400GB SAS 12G TOSHIBA PX02SMF040 SSD with RAID0 for Client VMs
Other Hardware	None
Other Software	VMware ESXi 7.0 Update 3c Build 19193900

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

Notes for Workload

Template deployed with disk type: Thick Lazy

Virtualization Software Notes

- Logical CPU configuration changed for multi-cpu VMs except PrimeClient VM to 1 socket with multiple cores (default: single core per socket)
- CPU shares set to high for all DS3DB and DS3WebA VMs (default normal)
- MEM shares set to high for all DS3DB VMs (default normal)
- All memory reserved for DS3DB VMs (default non-reserved)
- Add sched.mem.lpage.enable1GPage to TRUE for all DS3DB VMs (default FALSE)
- sched.mem.pin set to TRUE for all DS3DB VMs (default FALSE)
- CPU shares set to low for all Standby VMs (default normal)
- vSphere DRS Migration Threshold set to Fully Automated level 2
- CD-ROM was removed from all VMs except template VM(default Enabled)

- "esxcfg-module --set-options lpfc_max_heap_size=512 lpfc" was set for lpfc drivers of all SUTs(default 128MB)

Changed 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)
- /adv/Numa/LocalityWeightActionAffinity = 0 (default : 130)
- /vmkernel/hyperthreadingMitigation = TRUE (default FALSE)

Server Notes

Server BIOS settings:

- Turbo Boost Technology = Enabled (Intel Turbo Boost up to 3.5GHz, default: Enabled)
- Hardware Prefetcher = Disabled (default Enabled)
- DCU Streamer Prefetcher = Disabled (default Enabled)
- DCU IP Prefetcher = Disabled (default Enabled)
- Stale AtoS = Enabled (default Auto)
- Patrol Scrub = Enabled at End of POST(default: Disabled)
- LLC Dead Line Alloc = Disabled (default Enabled)
- LLC Prefetch = Enabled (default Disabled)
- CPU Performance Boost = Aggressive (default Disabled)
- SNC(Sub NUMA) = Enable SNC4 (default Disabled)

Networking Notes

vSwitch Configuration:

- vSwitch0 for Service Console on vmnic0 at 1Gb/s
- vSwitch1 for all workloads on vmnic1, vmnic2 and vmnic3 at 25Gb/s
- vSwitch2 for vMotion connection on vmnic4 at 25Gb/s

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
  - 64 GB RAM (2 x 32GB 2Rx4 2666MHz DDR4 RDIMMs)
  - 2 x QLogic QLE2742 dual port 32Gb FC HBA used as FC target controller
  - 2 x 480GB SATA SSD Micron MTFDDAK480TDC
  - 1 x Intel P4600 4TB PCIe SSD
  - 3 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, 2 (RAID1):
    - LUN 1 : Storage system OS (480GB, this LUN is not counted in the Storage section)
  - First PCIe-SSD (4TB):
    - LUN 1 : AuctionNoSQL, ElasticDB for tile 0 (300GB)
    - LUN 2 : AuctionNoSQL, ElasticDB for tile 1 (300GB)
    - LUN 3 : AuctionNoSQL, ElasticDB for tile 2 (300GB)
    - LUN 4 : AuctionNoSQL, ElasticDB for tile 3 (300GB)
    - LUN 5 : AuctionDB, ElasticLB for tile 0 (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, ElasticWebA, ElasticWebB, ElasticAppA, ElasticAppB, Standby for tile 0 (300GB)
    - LUN 10 : AuctionWebA, AuctionWebB, AuctionAppA, AuctionAppB, AuctionLB, AuctionMSQ, ElasticWebA, ElasticWebB, ElasticAppA, ElasticAppB, Standby for tile 1 (300GB)
    - LUN 11 : AuctionWebA, AuctionWebB, AuctionAppA, AuctionAppB, AuctionLB, AuctionMSQ, ElasticWebA, ElasticWebB, ElasticAppA, ElasticAppB, Standby for tile 2 (300GB)
    - LUN 12 : AuctionWebA, AuctionWebB, AuctionAppA, AuctionAppB, AuctionLB, AuctionMSQ, ElasticWebA, ElasticWebB, ElasticAppA, ElasticAppB, Standby for tile 3 (300GB)
  - Second PCIe-SSD (750GB):
    - LUN 1 : DS3DB, DS3WebA, DS3WebB, DS3WebC for tile 0 (600GB)
  - Third PCIe-SSD (750GB):
    - LUN 1 : DS3DB, DS3WebA, DS3WebB, DS3WebC for tile 1 (600GB)
  - Fourth PCIe-SSD (750GB):
    - LUN 1 : DS3DB, DS3WebA, DS3WebB, DS3WebC for tile 2 (600GB)

Second Fujitsu Server (PRIMERGY RX2540 M4) configured as a Fibre Channel Target:

- Hardware details:
  - 2 x Intel Xeon Gold 6134M@3.2GHz processors
  - 64 GB RAM (2 x 32GB 2Rx4 2666MHz DDR4 RDIMMs)
  - 2 x QLogic QLE2742 dual port 32Gb FC HBA used as FC target controller
  - 2 x 480GB SATA SSD Micron MTFDDAK480TDC

    - 1 x Intel P4600 4TB PCIe SSD
    - 3 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, 2 (RAID1):
        - LUN 1 : Storage system OS (480GB, this LUN is not counted in the Storage section)
    - First PCIe-SSD (4TB):
        - LUN 1 : AuctionNoSQL, ElasticDB for tile 4 (300GB)
        - LUN 2 : AuctionNoSQL, ElasticDB for tile 5 (300GB)
        - LUN 3 : AuctionNoSQL, ElasticDB for tile 6 (300GB)
        - LUN 4 : AuctionNoSQL, ElasticDB for tile 7 (300GB)
        - LUN 5 : AuctionDB, ElasticLB for tile 4 (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, ElasticWebA, ElasticWebB, ElasticAppA, ElasticAppB, Standby for tile 4 (300GB)
        - LUN 10 : AuctionWebA, AuctionWebB, AuctionAppA, AuctionAppB, AuctionLB, AuctionMSQ, ElasticWebA, ElasticWebB, ElasticAppA, ElasticAppB, Standby for tile 5 (300GB)
        - LUN 11 : AuctionWebA, AuctionWebB, AuctionAppA, AuctionAppB, AuctionLB, AuctionMSQ, ElasticWebA, ElasticWebB, ElasticAppA, ElasticAppB, Standby for tile 6 (300GB)
        - LUN 12 : AuctionWebA, AuctionWebB, AuctionAppA, AuctionAppB, AuctionLB, AuctionMSQ, ElasticWebA, ElasticWebB, ElasticAppA, ElasticAppB, Standby for tile 7 (300GB)
    - Second PCIe-SSD (750GB):
        - LUN 1 : DS3DB, DS3WebA, DS3WebB, DS3WebC for tile 3 (600GB)
    - Third PCIe-SSD (750GB):
        - LUN 1 : DS3DB, DS3WebA, DS3WebB, DS3WebC for tile 4 (600GB)
    - Fourth PCIe-SSD (750GB):
        - LUN 1 : DS3DB, DS3WebA, DS3WebB, DS3WebC for tile 5 (600GB)

Third Fujitsu Server (PRIMERGY RX2540 M4) configured as a Fibre Channel Target:

- Hardware details:
    - 2 x Intel Xeon Gold 6134M@3.2GHz processors
    - 64 GB RAM (2 x 32GB 2Rx4 2666MHz DDR4 RDIMMs)
    - 2 x QLogic QLE2742 dual port 32Gb FC HBA used as FC target controller
    - 2 x 480GB SATA SSD Micron MTFDDAK480TDC
    - 1 x Intel P4600 4TB PCIe SSD
    - 3 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, 2 (RAID1):

        - LUN 1 : Storage system OS (480GB, this LUN is not counted in the Storage section)
    - First PCIe-SSD (4TB):
        - LUN 1 : AuctionNoSQL, ElasticDB for tile 8 (300GB)
        - LUN 2 : AuctionNoSQL, ElasticDB for tile 9 (300GB)
        - LUN 3 : AuctionNoSQL, ElasticDB for tile 10 (300GB)
        - LUN 4 : AuctionNoSQL, ElasticDB for tile 11 (300GB)
        - LUN 5 : AuctionDB, ElasticLB for tile 8 (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, ElasticWebA, ElasticWebB, ElasticAppA, ElasticAppB, Standby for tile 8 (300GB)
        - LUN 10 : AuctionWebA, AuctionWebB, AuctionAppA, AuctionAppB, AuctionLB, AuctionMSQ, ElasticWebA, ElasticWebB, ElasticAppA, ElasticAppB, Standby for tile 9 (300GB)
        - LUN 11 : AuctionWebA, AuctionWebB, AuctionAppA, AuctionAppB, AuctionLB, AuctionMSQ, ElasticWebA, ElasticWebB, ElasticAppA, ElasticAppB, Standby for tile 10 (300GB)
        - LUN 12 : AuctionWebA, AuctionWebB, AuctionAppA, AuctionAppB, AuctionLB, AuctionMSQ, ElasticWebA, ElasticWebB, ElasticAppA, ElasticAppB, Standby for tile 11 (300GB)
    - Second PCIe-SSD (750GB):
        - LUN 1 : DS3DB, DS3WebA, DS3WebB, DS3WebC for tile 6 (600GB)
    - Third PCIe-SSD (750GB):
        - LUN 1 : DS3DB, DS3WebA, DS3WebB, DS3WebC for tile 7 (600GB)
    - Fourth PCIe-SSD (750GB):
        - LUN 1 : DS3DB, DS3WebA, DS3WebB, DS3WebC for tile 8 (600GB)

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

- Hardware details:
    - 2 x Intel Xeon Gold 6134M@3.2GHz processors
    - 64 GB RAM (2 x 32GB 2Rx4 2666MHz DDR4 RDIMMs)
    - 2 x QLogic QLE2742 dual port 32Gb FC HBA used as FC target controller
    - 2 x 480GB SATA SSD Micron MTFDDAK480TDC
    - 1 x Intel P4600 4TB PCIe SSD
    - 3 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, 2 (RAID1):
        - LUN 1 : Storage system OS (480GB, this LUN is not counted in the Storage section)
    - First PCIe-SSD (4TB):
        - LUN 1 : AuctionNoSQL, ElasticDB for tile 12 (300GB)
        - LUN 2 : AuctionNoSQL, ElasticDB for tile 13 (300GB)
        - LUN 3 : AuctionNoSQL, ElasticDB for tile 14 (300GB)
        - LUN 4 : AuctionNoSQL, ElasticDB for tile 15 (300GB)
        - LUN 5 : AuctionDB, ElasticLB for tile 12 (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, ElasticWebA, ElasticWebB, ElasticAppA, ElasticAppB, Standby for tile 12 (300GB)
        - LUN 10 : AuctionWebA, AuctionWebB, AuctionAppA, AuctionAppB, AuctionLB, AuctionMSQ, ElasticWebA, ElasticWebB, ElasticAppA, ElasticAppB, Standby for tile 13 (300GB)
        - LUN 11 : AuctionWebA, AuctionWebB, AuctionAppA, AuctionAppB, AuctionLB, AuctionMSQ, ElasticWebA, ElasticWebB, ElasticAppA, ElasticAppB, Standby for tile 14 (300GB)
        - LUN 12 : AuctionWebA, AuctionWebB, AuctionAppA, AuctionAppB, AuctionLB, AuctionMSQ, ElasticWebA, ElasticWebB, ElasticAppA, ElasticAppB, Standby for tile 15 (300GB)
    - Second PCIe-SSD (750GB):
        - LUN 1 : DS3DB, DS3WebA, DS3WebB, DS3WebC for tile 9 (600GB)
    - Third PCIe-SSD (750GB):
        - LUN 1 : DS3DB, DS3WebA, DS3WebB, DS3WebC for tile 10 (600GB)
    - Fourth PCIe-SSD (750GB):
        - LUN 1 : DS3DB, DS3WebA, DS3WebB, DS3WebC for tile 11 (600GB)

Fifth Fujitsu Server (PRIMERGY RX2540 M4) configured as a Fibre Channel Target:

- Hardware details:
    - 2 x Intel Xeon Gold 6134M@3.2GHz processors
    - 64 GB RAM (2 x 32GB 2Rx4 2666MHz DDR4 RDIMMs)
    - 2 x QLogic QLE2742 dual port 32Gb FC HBA used as FC target controller
    - 1 x 480GB SATA SSD Micron MTFDDAK480TDC
    - 1 x Intel P4600 2TB PCIe SSD
    - 3 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 (RAID0):
        - LUN 1 : Storage system OS (480GB, this LUN is not counted in the Storage section)
    - First PCIe-SSD (2TB):
        - LUN 1 : SvMotion Target LUN (300GB)
        - LUN 2 : XvMotion Target LUN (300GB)
        - LUN 3 : vmmark3.1.1-template-031420 (300GB)
        - LUN 4 : DS3DB backup (300GB, this LUN is not counted in the Storage section)
        - LUN 5 : Deploy LUN (300GB)
    - Second PCIe-SSD (750GB):
        - LUN 1 : DS3DB, DS3WebA, DS3WebB, DS3WebC for tile 12 (600GB)
    - Third PCIe-SSD (750GB):
        - LUN 1 : DS3DB, DS3WebA, DS3WebB, DS3WebC for tile 13 (600GB)
    - Fourth PCIe-SSD (750GB):
        - LUN 1 : DS3DB, DS3WebA, DS3WebB, DS3WebC for tile 14 (600GB)

Sixth Fujitsu Server (PRIMERGY RX2540 M5) configured as a Fibre Channel Target:

- Hardware details:

    - 2 x Intel Xeon Gold 6234@3.3GHz processors
    - 128 GB RAM (4 x 32GB 2Rx4 2933MHz DDR4 RDIMMs)
    - 2 x QLogic QLE2742 dual port 32Gb FC HBA used as FC target controller
    - 1 x 480GB SATA SSD Micron MTFDDAK480TDC
    - 1 x Intel P4610 3.2TB PCIe SSD
    - 3 x Intel P4800X 750GB PCIe SSD

- Software details:
    - Operating System: SUSE Linux Enterprise Server 15 SP1 - 4.12.14-197.56-default (64-bit)
    - Fibre Channel Target SW: LIO (part of SUSE Linux Enterprise Server 15 SP1)

- RAID configuration:
    - SATA-SSD 1 (RAID0):
        - LUN 1 : Storage system OS (480GB, this LUN is not counted in the Storage section)
    - First PCIe-SSD (3.2TB):
        - LUN 1 : AuctionNoSQL, ElasticDB for tile 16 (300GB)
        - LUN 2 : AuctionNoSQL, ElasticDB for tile 17 (300GB)
        - LUN 3 : AuctionDB, ElasticLB for tile 16 (300GB)
        - LUN 4 : AuctionDB, ElasticLB for tile 17 (300GB)
        - LUN 5 : AuctionWebA, AuctionWebB, AuctionAppA, AuctionAppB, AuctionLB, AuctionMSQ, ElasticWebA, ElasticWebB, ElasticAppA, ElasticAppB, Standby for tile 16 (300GB)
        - LUN 6 : AuctionWebA, AuctionWebB, AuctionAppA, AuctionAppB, AuctionLB, AuctionMSQ, ElasticWebA, ElasticWebB, ElasticAppA, ElasticAppB, Standby for tile 17 (300GB)
    - Second PCIe-SSD (750GB):
        - LUN 1 : DS3DB, DS3WebA, DS3WebB, DS3WebC for tile 18 (600GB)
    - Third PCIe-SSD (750GB):
        - LUN 1 : DS3DB, DS3WebA, DS3WebB, DS3WebC for tile 19 (600GB)
    - Fourth PCIe-SSD (750GB):
        - LUN 1 : DS3DB, DS3WebA, DS3WebB, DS3WebC for tile 20 (600GB)

Seventh Fujitsu Server (PRIMERGY RX2540 M5) configured as a Fibre Channel Target:

- Hardware details:
    - 2 x Intel Xeon Gold 6234@3.3GHz processors
    - 128 GB RAM (4 x 32GB 2Rx4 2933MHz DDR4 RDIMMs)
    - 2 x QLogic QLE2742 dual port 32Gb FC HBA used as FC target controller
    - 1 x 480GB SATA SSD Micron MTFDDAK480TDC
    - 1 x Intel P4610 3.2TB PCIe SSD
    - 3 x Intel P4800X 750GB PCIe SSD

- Software details:
    - Operating System: SUSE Linux Enterprise Server 15 SP1 - 4.12.14-197.56-default (64-bit)
    - Fibre Channel Target SW: LIO (part of SUSE Linux Enterprise Server 15 SP1)

- RAID configuration:
    - SATA-SSD 1 (RAID0):
        - LUN 1 : Storage system OS (480GB, this LUN is not counted in the Storage section)
    - First PCIe-SSD (3.2TB):

        - LUN 1 : AuctionNoSQL, ElasticDB for tile 18 (300GB)
        - LUN 2 : AuctionNoSQL, ElasticDB for tile 19 (300GB)
        - LUN 3 : AuctionNoSQL, ElasticDB for tile 20 (300GB)
        - LUN 4 : AuctionDB, ElasticLB for tile 18 (300GB)
        - LUN 5 : AuctionDB, ElasticLB for tile 19 (300GB)
        - LUN 6 : AuctionDB, ElasticLB for tile 20 (300GB)
        - LUN 7 : AuctionWebA, AuctionWebB, AuctionAppA, AuctionAppB, AuctionLB, AuctionMSQ, ElasticWebA, ElasticWebB, ElasticAppA, ElasticAppB, Standby for tile 18 (300GB)
        - LUN 8 : AuctionWebA, AuctionWebB, AuctionAppA, AuctionAppB, AuctionLB, AuctionMSQ, ElasticWebA, ElasticWebB, ElasticAppA, ElasticAppB, Standby for tile 19 (300GB)
        - LUN 9 : AuctionWebA, AuctionWebB, AuctionAppA, AuctionAppB, AuctionLB, AuctionMSQ, ElasticWebA, ElasticWebB, ElasticAppA, ElasticAppB, Standby for tile 20 (300GB)
    - Second PCIe-SSD (750GB):
        - LUN 1 : DS3DB, DS3WebA, DS3WebB, DS3WebC for tile 15 (600GB)
    - Third PCIe-SSD (750GB):
        - LUN 1 : DS3DB, DS3WebA, DS3WebB, DS3WebC for tile 16 (600GB)
    - Fourth PCIe-SSD (750GB):
        - LUN 1 : DS3DB, DS3WebA, DS3WebB, DS3WebC for tile 17 (600GB)

Eighth Fujitsu Server (PRIMERGY RX2540 M5) configured as a Fibre Channel Target:

- Hardware details:
    - 2 x Intel Xeon Gold 6254@3.1GHz processors
    - 128 GB RAM (4 x 32GB 2Rx4 2933MHz DDR4 RDIMMs)
    - 2 x QLogic QLE2742 dual port 32Gb FC HBA used as FC target controller
    - 1 x 480GB SATA SSD Micron MTFDDAK480TDC
    - 1 x Intel P4610 3.2TB PCIe SSD
    - 3 x Intel P4800X 750GB PCIe SSD

- Software details:
    - Operating System: SUSE Linux Enterprise Server 15 SP3 - 5.3.18-57-default (64-bit)
    - Fibre Channel Target SW: LIO (part of SUSE Linux Enterprise Server 15 SP3)

- RAID configuration:
    - SATA-SSD 1 (RAID0):
        - LUN 1 : Storage system OS (480GB, this LUN is not counted in the Storage section)
    - First PCIe-SSD (3.2TB):
        - LUN 1 : AuctionNoSQL, ElasticDB for tile 21 (300GB)
        - LUN 4 : AuctionDB, ElasticLB for tile 21 (300GB)
        - LUN 7 : AuctionWebA, AuctionWebB, AuctionAppA, AuctionAppB, AuctionLB, AuctionMSQ, ElasticWebA, ElasticWebB, ElasticAppA, ElasticAppB, Standby for tile 21 (300GB)
    - Second PCIe-SSD (750GB):
        - LUN 1 : DS3DB, DS3WebA, DS3WebB, DS3WebC for tile 21 (600GB)

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: 21GB
- The host operating system VMware ESXi 7.0 Update3c Build 19193900 was installed using 'Fujitsu Custom Image for VMware ESXi 7.0.3 update03' named VMware-ESXi-7.0.3.update03-19193900-Fujitsu-v530-1.iso

Operating System Notes

- VMware ESXi 8.0 GA Build 20513097 was installed using 'VMware Image for VMware ESXi 8.0.0' named VMware-ESXi-8.0.0-20513097-Fujitsu-v550-1.iso.

Software Notes

None

Client Notes

The location of Client VMs:

- Client Host 1: Client0, Client4, Client8, Client12
- Client Host 2: Client1, Client5, Client9, Client13
- Client Host 3: Client2, Client6, Client10, PrimeClient
- Client Host 4: Client3, Client7, Client11, Client14
- Client Host 5: Client15, Client16, Client17, Client18
- Client Host 6: Client19, Client20, Client21

Changes in esx.conf:

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

vSwitch Configuration:

- vSwitch0 for Service Console on vmnic0 at 1Gb/s
- vSwitch1 for all workloads on vmnic2 and vmnic3 at 10Gb/s

Other Notes

Changes in VMmark3.properties files:

- PTD = True (default false)
- VCscratchDir = /root/VMmark3/results/scratch (default /root/VMmark3/samples/)
