VMmark® 3.1.1 Results

Server Vendor & Model: Dell EMC PowerEdge R6525 **Storage Vendor & Model: VMware vSAN - All Flash** **Hypervisor: VMware ESXi 6.7.0 P01 Build 15160138** **Datacenter Management Software: VMware vCenter Server 6.7.0 U3b Build 15132721**	**VMmark 3.1.1 Score = 24.08 @ 28 Tiles**

Number of Hosts: 4	**Uniform Hosts [yes/no]: yes**	**Total sockets/cores/threads in test: 8/512/1024**
Tested By: Dell Inc.		**Test Date: 04-02-2020**

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	3577.74	0.99	0.44 | 0.08	568.11	0.99	0.53 | 0.16	809.85	1.10	1197.65	578.25	1.16	1381.65	405.80	1.17	1533.18	1.08
p1	3572.07	0.99	0.44 | 0.00	560.13	0.98	0.50 | 0.18	738.00	1.01	1553.72	485.90	0.97	1867.82	349.80	1.01	2058.60	0.99
p2	3554.04	0.99	0.43 | 0.03	561.12	0.98	0.39 | 0.03	738.30	1.01	1514.98	498.88	1.00	1775.59	340.75	0.98	1968.31	0.99
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	3580.39	1.00	0.40 | 0.00	569.08	0.99	0.53 | 0.16	815.08	1.11	1197.65	580.12	1.16	1377.84	404.40	1.17	1533.70	1.08
p1	3570.12	0.99	0.41 | 0.00	563.76	0.99	0.44 | 0.12	806.98	1.10	1258.15	544.23	1.09	1521.52	387.93	1.12	1714.62	1.05
p2	3557.06	0.99	0.43 | 0.00	562.77	0.98	0.37 | 0.06	763.45	1.04	1425.26	514.83	1.03	1680.13	352.15	1.02	1857.30	1.01
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	3575.70	0.99	0.51 | 0.11	564.30	0.99	0.47 | 0.24	890.73	1.21	918.42	648.77	1.30	1042.48	460.10	1.33	1150.39	1.15
p1	3563.66	0.99	0.63 | 0.24	563.83	0.99	0.49 | 0.28	823.02	1.12	1195.85	560.80	1.12	1411.96	394.98	1.14	1524.58	1.07
p2	3546.72	0.99	0.71 | 0.40	560.28	0.98	0.42 | 0.13	769.02	1.05	1397.98	519.75	1.04	1650.33	370.70	1.07	1859.91	1.02
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	3574.36	0.99	0.60 | 0.18	564.78	0.99	0.37 | 0.11	772.98	1.05	1421.35	557.65	1.11	1663.26	387.45	1.12	1875.24	1.05
p1	3560.73	0.99	0.70 | 0.49	559.65	0.98	0.49 | 0.13	848.17	1.16	1090.49	559.77	1.12	1292.87	398.15	1.15	1459.51	1.07
p2	3552.25	0.99	0.42 | 0.04	557.76	0.97	0.48 | 0.15	862.00	1.17	1035.11	621.40	1.24	1184.41	434.52	1.25	1316.39	1.12
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	3574.13	0.99	0.84 | 0.68	565.48	0.99	0.42 | 0.11	750.67	1.02	1486.42	520.73	1.04	1777.19	374.27	1.08	1962.19	1.02
p1	3565.84	0.99	0.37 | 0.05	562.43	0.98	0.38 | 0.09	768.20	1.05	1416.14	513.45	1.03	1701.61	345.05	0.99	1941.56	1.01
p2	3545.15	0.99	0.58 | 0.33	560.90	0.98	0.50 | 0.16	749.45	1.02	1504.23	519.48	1.04	1763.14	357.05	1.03	1999.27	1.01
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	3570.84	0.99	1.07 | 0.63	571.29	1.00	0.76 | 0.29	766.58	1.04	1452.89	537.50	1.07	1691.15	386.82	1.12	1921.69	1.04
p1	3568.13	0.99	0.49 | 0.13	569.71	1.00	0.75 | 0.23	766.60	1.04	1444.21	514.38	1.03	1711.86	340.20	0.98	1999.57	1.01
p2	3547.69	0.99	0.56 | 0.12	570.18	1.00	0.66 | 0.29	794.98	1.08	1322.72	563.10	1.13	1540.48	387.02	1.12	1736.82	1.06
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	3572.91	0.99	0.42 | 0.00	571.71	1.00	0.80 | 0.38	765.70	1.04	1425.59	539.92	1.08	1666.21	384.57	1.11	1880.52	1.04
p1	3561.14	0.99	0.37 | 0.03	572.92	1.00	0.84 | 0.50	833.92	1.14	1140.44	553.70	1.11	1326.94	373.20	1.08	1509.60	1.06
p2	3548.72	0.99	0.45 | 0.23	570.66	1.00	0.79 | 0.52	826.33	1.13	1152.84	597.23	1.19	1323.91	433.55	1.25	1477.17	1.11
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	3579.87	0.99	0.45 | 0.10	567.23	0.99	0.61 | 0.24	764.75	1.04	1432.77	532.88	1.06	1705.26	366.90	1.06	1915.70	1.03
p1	3560.68	0.99	0.46 | 0.30	562.11	0.98	0.45 | 0.18	741.75	1.01	1582.66	480.45	0.96	1854.93	333.10	0.96	2082.70	0.98
p2	3539.54	0.98	0.57 | 0.15	563.78	0.99	0.56 | 0.22	739.38	1.01	1513.83	517.05	1.03	1776.14	372.65	1.07	1963.88	1.02
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	3577.42	0.99	0.41 | 0.02	568.42	0.99	0.60 | 0.20	838.42	1.14	1127.58	577.80	1.15	1317.31	415.90	1.20	1472.80	1.09
p1	3571.55	0.99	0.43 | 0.00	567.28	0.99	0.40 | 0.16	841.60	1.15	1118.49	576.52	1.15	1328.42	396.85	1.14	1492.04	1.08
p2	3543.01	0.98	0.46 | 0.06	563.14	0.98	0.42 | 0.10	867.95	1.18	1010.77	624.98	1.25	1154.64	457.98	1.32	1286.17	1.14
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	3577.80	0.99	0.44 | 0.06	569.46	1.00	0.66 | 0.14	844.98	1.15	1072.41	584.08	1.17	1252.59	430.30	1.24	1352.24	1.11
p1	3566.13	0.99	0.82 | 0.33	564.59	0.99	0.39 | 0.08	767.20	1.04	1392.39	523.88	1.05	1625.53	359.57	1.04	1797.93	1.02
p2	3557.05	0.99	0.93 | 0.46	565.30	0.99	0.40 | 0.09	768.45	1.05	1368.78	541.83	1.08	1588.70	378.02	1.09	1750.97	1.04
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	3572.90	0.99	0.37 | 0.00	565.59	0.99	0.41 | 0.12	918.77	1.25	860.47	644.55	1.29	1005.82	469.70	1.35	1112.49	1.16
p1	3555.83	0.99	0.46 | 0.04	563.10	0.98	0.46 | 0.13	930.48	1.27	828.36	652.08	1.30	960.93	454.80	1.31	1074.60	1.16
p2	3546.69	0.99	0.49 | 0.04	563.98	0.99	0.39 | 0.07	906.05	1.23	869.62	668.23	1.34	979.56	496.43	1.43	1075.23	1.18
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	3582.07	1.00	0.68 | 0.20	565.91	0.99	0.60 | 0.26	770.00	1.05	1407.53	500.27	1.00	1685.93	352.00	1.01	1884.60	1.01
p1	3565.15	0.99	0.53 | 0.14	560.42	0.98	0.46 | 0.18	756.30	1.03	1450.22	535.73	1.07	1666.88	368.55	1.06	1890.42	1.03
p2	3548.40	0.99	0.51 | 0.09	558.10	0.98	0.49 | 0.13	777.73	1.06	1339.16	528.15	1.06	1586.90	384.18	1.11	1728.31	1.04
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	3574.95	0.99	0.44 | 0.04	572.54	1.00	0.71 | 0.31	778.38	1.06	1347.99	529.58	1.06	1579.24	364.90	1.05	1774.77	1.03
p1	3560.28	0.99	0.50 | 0.23	571.01	1.00	0.61 | 0.23	755.85	1.03	1448.99	531.10	1.06	1688.63	367.85	1.06	1884.42	1.03
p2	3535.56	0.98	1.07 | 0.47	564.39	0.99	0.48 | 0.14	763.80	1.04	1404.56	518.65	1.04	1654.79	375.52	1.08	1817.46	1.02
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	3565.67	0.99	0.34 | 0.00	566.05	0.99	0.39 | 0.13	852.62	1.16	1058.09	590.23	1.18	1238.70	407.35	1.17	1372.32	1.10
p1	3564.78	0.99	0.36 | 0.00	563.96	0.99	0.48 | 0.14	833.98	1.14	1117.68	596.33	1.19	1289.72	422.88	1.22	1406.49	1.10

p2	3550.54	0.99	0.40 | 0.04	559.26	0.98	0.38 | 0.19	797.52	1.09	1262.34	546.40	1.09	1477.14	394.88	1.14	1641.75	1.05
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	3573.74	0.99	0.41 | 0.00	568.69	0.99	0.58 | 0.16	832.85	1.13	1089.61	578.12	1.16	1268.15	404.30	1.17	1435.36	1.09
p1	3565.73	0.99	0.46 | 0.01	564.64	0.99	0.48 | 0.20	797.02	1.09	1234.21	577.58	1.15	1384.24	407.35	1.17	1515.90	1.08
p2	3547.57	0.99	0.44 | 0.20	563.58	0.98	0.44 | 0.18	762.80	1.04	1385.33	526.20	1.05	1592.06	364.23	1.05	1754.27	1.02
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	3583.87	1.00	0.54 | 0.05	566.48	0.99	0.66 | 0.26	747.10	1.02	1547.45	482.10	0.96	1821.51	322.05	0.93	2136.02	0.98
p1	3561.91	0.99	0.63 | 0.22	562.94	0.98	0.41 | 0.18	770.58	1.05	1393.84	569.20	1.14	1594.76	398.15	1.15	1805.17	1.06
p2	3545.21	0.99	0.81 | 0.37	560.84	0.98	0.40 | 0.13	768.38	1.05	1396.65	499.38	1.00	1656.89	352.43	1.02	1871.41	1.00
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	3574.27	0.99	0.33 | 0.14	570.03	1.00	0.59 | 0.28	775.33	1.06	1350.57	530.65	1.06	1577.71	363.50	1.05	1764.35	1.03
p1	3564.05	0.99	0.38 | 0.03	567.69	0.99	0.48 | 0.21	786.75	1.07	1296.22	563.45	1.13	1497.59	414.45	1.20	1641.60	1.07
p2	3552.80	0.99	0.38 | 0.07	565.68	0.99	0.34 | 0.14	808.55	1.10	1214.89	554.58	1.11	1427.79	387.38	1.12	1556.05	1.06
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	3575.96	0.99	0.36 | 0.00	564.72	0.99	0.47 | 0.15	829.27	1.13	1187.17	564.73	1.13	1420.37	382.40	1.10	1618.24	1.07
p1	3569.93	0.99	0.41 | 0.00	562.19	0.98	0.40 | 0.13	760.90	1.04	1443.83	540.50	1.08	1655.85	394.93	1.14	1835.50	1.04
p2	3545.41	0.99	0.46 | 0.01	560.11	0.98	0.38 | 0.11	766.15	1.04	1413.11	516.40	1.03	1655.43	336.10	0.97	1870.00	1.00
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	3580.86	1.00	0.52 | 0.32	566.88	0.99	0.57 | 0.27	791.95	1.08	1326.54	535.15	1.07	1565.72	364.82	1.05	1774.06	1.04
p1	3566.33	0.99	0.40 | 0.03	563.50	0.98	0.47 | 0.18	790.52	1.08	1308.23	559.20	1.12	1501.31	389.30	1.12	1680.76	1.06
p2	3552.37	0.99	0.54 | 0.16	559.53	0.98	0.54 | 0.21	847.50	1.15	1096.37	583.10	1.17	1288.37	398.65	1.15	1472.70	1.08
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	3585.11	1.00	0.54 | 0.11	569.11	0.99	0.78 | 0.39	763.60	1.04	1434.90	515.88	1.03	1677.63	352.20	1.02	1877.25	1.02
p1	3569.03	0.99	0.38 | 0.09	561.57	0.98	0.36 | 0.06	826.10	1.12	1151.80	585.92	1.17	1344.96	413.60	1.19	1467.68	1.09
p2	3549.57	0.99	0.35 | 0.22	560.73	0.98	0.44 | 0.11	782.08	1.07	1342.82	514.20	1.03	1573.72	364.43	1.05	1742.96	1.02
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	3572.97	0.99	0.34 | 0.06	561.39	0.98	0.37 | 0.14	799.62	1.09	1284.08	565.08	1.13	1486.60	394.15	1.14	1668.14	1.06
p1	3556.58	0.99	0.40 | 0.01	560.68	0.98	0.47 | 0.14	778.42	1.06	1366.54	528.42	1.06	1599.90	373.45	1.08	1803.69	1.03
p2	3537.81	0.98	0.44 | 0.20	557.12	0.97	0.48 | 0.17	781.80	1.06	1337.45	531.58	1.06	1581.41	362.20	1.04	1766.96	1.02
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	3573.98	0.99	0.42 | 0.00	568.59	0.99	0.39 | 0.02	847.20	1.15	1075.37	604.62	1.21	1269.39	424.15	1.22	1392.45	1.11
p1	3563.01	0.99	0.39 | 0.00	566.02	0.99	0.45 | 0.17	828.02	1.13	1156.94	569.48	1.14	1361.30	411.35	1.19	1503.30	1.08
p2	3551.70	0.99	0.39 | 0.06	559.57	0.98	0.40 | 0.05	792.02	1.08	1318.37	538.08	1.08	1553.12	371.68	1.07	1735.71	1.04
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	3587.02	1.00	0.53 | 0.14	567.12	0.99	0.63 | 0.31	858.50	1.17	1003.18	622.17	1.24	1133.03	437.20	1.26	1258.71	1.13
p1	3568.08	0.99	0.43 | 0.00	560.13	0.98	0.44 | 0.12	843.15	1.15	1060.42	594.10	1.19	1177.88	416.60	1.20	1264.35	1.10
p2	3552.43	0.99	0.47 | 0.11	557.67	0.97	0.54 | 0.23	839.38	1.14	1059.29	585.48	1.17	1222.61	426.25	1.23	1374.14	1.10
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	3573.94	0.99	0.44 | 0.08	570.77	1.00	0.70 | 0.34	839.35	1.14	1091.20	608.12	1.22	1240.69	427.73	1.23	1356.60	1.11
p1	3554.54	0.99	0.39 | 0.04	566.63	0.99	0.60 | 0.19	869.92	1.18	985.45	581.95	1.16	1162.39	419.23	1.21	1292.60	1.10
p2	3546.55	0.99	0.44 | 0.30	561.90	0.98	0.48 | 0.16	842.70	1.15	1080.71	605.05	1.21	1230.99	426.15	1.23	1360.81	1.11
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	3581.92	1.00	0.49 | 0.03	568.00	0.99	0.44 | 0.11	789.35	1.07	1295.71	562.40	1.12	1502.95	411.57	1.19	1657.89	1.07
p1	3568.45	0.99	0.80 | 0.36	562.68	0.98	0.39 | 0.10	810.88	1.10	1218.71	555.88	1.11	1436.97	379.82	1.10	1616.48	1.06
p2	3551.31	0.99	1.11 | 0.77	561.91	0.98	0.37 | 0.06	794.10	1.08	1259.08	565.98	1.13	1456.30	396.32	1.14	1610.86	1.06
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	3572.64	0.99	0.40 | 0.03	570.04	1.00	0.73 | 0.29	866.10	1.18	983.87	631.48	1.26	1130.80	464.05	1.34	1233.58	1.15
p1	3554.86	0.99	0.47 | 0.18	564.95	0.99	0.48 | 0.14	841.70	1.15	1102.57	575.92	1.15	1291.28	400.65	1.16	1431.21	1.08
p2	3542.64	0.98	0.43 | 0.47	563.46	0.98	0.41 | 0.13	829.67	1.13	1113.50	596.67	1.19	1262.96	423.80	1.22	1387.76	1.10
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	3574.61	0.99	0.37 | 0.00	570.55	1.00	0.64 | 0.26	772.15	1.05	1388.00	542.17	1.08	1621.05	391.07	1.13	1810.86	1.05
p1	3571.79	0.99	0.33 | 0.01	563.85	0.99	0.31 | 0.05	816.20	1.11	1222.80	555.62	1.11	1439.59	375.60	1.08	1654.45	1.06
p2	3550.33	0.99	0.52 | 0.21	561.12	0.98	0.40 | 0.09	808.98	1.10	1222.62	573.62	1.15	1420.09	395.43	1.14	1606.82	1.07
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	3577.56	0.99	0.60 | 0.09	564.02	0.99	0.77 | 0.31	757.00	1.03	1457.82	525.38	1.05	1733.93	375.98	1.08	1963.96	1.03
p1	3571.67	0.99	0.52 | 0.43	525.09	0.92	0.47 | 0.09	800.42	1.09	1297.12	521.27	1.04	1601.08	344.62	0.99	1835.47	1.01
p2	3548.97	0.99	0.46 | 0.23	506.17	0.88	0.62 | 0.06	825.27	1.12	1163.85	606.80	1.21	1367.33	424.30	1.22	1517.69	1.08

p0_score:	29.93
p1_score:	29.57
p2_score:	29.57

Infrastructure_Operations_Scores:	vMotion	SVMotion	XVMotion	Deploy
Completed_Ops_PerHour	54.00	42.00	34.00	17.00
Avg_Seconds_To_Complete	10.45	131.04	156.62	376.17
Failures	0.00	0.00	0.00	0.00
Ratio	2.08	2.33	1.89	2.12
Number_Of_Threads	2	2	2	2

Summary	Run_Is_Compliant	Turbo_Setting:0

	Number_Of_Compliance_Issues(0)*	Median_Phase(p1)
Unreviewed_VMmark3_Applications_Score	29.57	
Unreviewed_VMmark3_Infrastructure_Score	2.10	
Unreviewed_VMmark3_Score	24.08	

Configuration

Virtualization Software	
Hypervisor Vendor, Product, Version, and Build / Availability Date (MM-DD-YYYY)	VMware ESXi 6.7.0 P01, Build 15160138 / 12-05-2019
Datacenter Management Software Vendor, Product, Version, and Build / Availability Date (MM-DD-YYYY)	VMware vCenter Server 6.7.0 U3b Build 15132721 / 12-05-2019
Supplemental Software	None
Servers	
Number of Servers in System Under Test (all subsequent fields in this section are per server)	4
Server Manufacturer and Model	Dell EMC PowerEdge R6525
Processor Vendor and Model	AMD EPYC 7742
Processor Speed (GHz) / Turbo Boost Speed (GHz)	2.25 / 3.4
Total Sockets/Total Cores/Total Threads	2 Sockets / 128 Cores / 256 Threads
Primary CPU Cache	32 KB I + 32 KB D on chip per core
Secondary CPU Cache	512 KB I+D on chip per core
Other CPU Cache	256 MB I+D on chip per chip, 16 MB shared / 4 cores
BIOS Version	1.2.11
Memory Size (in GB, Number of DIMMs)	2048, 32
Memory Type and Speed	64 GB 2Rx4 PC4-3200
Disk Subsystem Type	vSAN, iSCSI SAN
Number of Disk Controllers	1

Disk Controller Vendors and Models	Dell BOSS-S1
Total Number of Physical Disks for Hypervisor	2
Disk Vendors, Models, Capacities, and Speeds	Dell, SSDSCKKB240G8R, 240GB SSD, RAID 1
Number of Host Bus Adapters	None
Host Bus Adapter Vendors and Models	None
Number of Network Controllers	3
Network Controller Vendors and Models	Broadcom Gigabit Ethernet BCM5720 (Disabled) Mellanox ConnectX-5 EN 25GbE Dual-port Adapter Mellanox ConnectX-5 EN 100GbE Dual-port Adapter
Other Hardware	None
Other Software	None
Hardware Availability Date (MM-DD-YYYY)	08-13-2019
BIOS Availability Date (MM-DD-YYYY)	02-14-2020
Software Availability Date (MM-DD-YYYY)	12-05-2019
Network	
Network Switch Vendors and Models	Mellanox SN2700 32-port 100GbE Open Ethernet Switch
Network Speed	1 x 100 Gbps for Management, vSAN, and Standby and Template VM traffic 1 x 100 Gbps for vMotion and iSCSI trafic 2 x 25 Gbps for all Auction, Elastic, and DS3 VM traffic
Primary Storage	
Storage Category	VMware vSAN
Storage Vendors, Models, and Firmware Versions	4 x Dell EMC PowerEdge R6525 servers, with VMware vSAN 6.7.0 P01
Storage Configuration Summary	VMware vSAN • 2 x Disk Groups per host • 2 x Dell Express Flash PM1725b 1.6TB SFF FW 1.0.0, for vSAN Cache • 6 x Dell Express Flash PM1725b 3.2TB SFF FW 1.1.0, for vSAN Capacity
Datacenter Management Server	
System Model	Dell EMC PowerEdge R6415
Processor Vendor and Model	AMD EPYC 7551P

Processor Speed (GHz)	2.0 GHz
Total Sockets/Total Cores/Total Threads	1 Sockets / 32 Cores / 64 Threads
Memory Size (in GB, Number of DIMMs)	256 GB, 8
Network Controller(s) Vendors and Models	Mellanox ConnectX-5 EN 25GbE Dual-port Adapter
Operating System, Version, Bitness, and Service Pack	VMware ESXi 6.7 U3 Build 14320388
Virtual Center VM Number of vCPUs	8
Virtual Center VM Virtual Memory (in GB)	24
Virtual Center VM Operating System, Version, Bitness, and Service Pack	VMware vCenter Server 6.7.0 U3b Build 15132721
Other Hardware	Details in Notes for Workload
Other Software	None

Clients	
Total Number of Virtual Clients / Virtual Client Hosts	29 / 3
System Model(s)	Dell EMC PowerEdge R6525
Processor Vendor(s) and Model(s)	AMD EPYC 7742
Processor Speed(s) (GHz)	2.25 GHz
Total Sockets/Total Cores/Total Threads	2 Sockets / 128 Cores / 256 Threads
Memory per Virtual Client Host	1024 GB
Network Controller(s) Vendors and Models	Mellanox ConnectX-5 EN 25GbE Dual-port Adapter
Virtual Client Networking Notes	Management and VM workload all connected to vSwitch with single uplink
Virtual Client Storage Notes	All Clients on local Dell Express Flash PM1725b 3.2TB SFF LUN
Other Hardware	1 x Dell Express Flash PM1725b 3.2TB SFF FW 1.1.0 1 x Dell BOSS-S1 2 x Dell SSDSCKKB240G8R 240GB SSD, RAID 1
Other Software	VMware ESXi 6.7.0 P01, Build 15160138

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	Not Vulnerable	Not Vulnerable
Spectre	2017-5715	Variant 2	Branch Target Injection	Not Vulnerable	Not Vulnerable	Not Vulnerable
Meltdown	2017-5754	Variant 3	Rogue Data Cache Load	N/A	Not Vulnerable	Not Vulnerable
Spectre-NG	2018-3640	Variant 3a	Rogue System Register Read	Not Vulnerable	N/A	N/A
Spectre-NG	2018-3639	Variant 4	Speculative Store Bypass	N/A	Not Vulnerable	Not Vulnerable
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	Not Vulnerable
Foreshadow-NG	2018-3646	Variant 5	L1 Terminal Fault - VMM	N/A	Not Vulnerable	N/A

Notes for Workload

Template deployed with disk type: Thick Eager

Virtualization Software Notes

- vSphere DRS Migration Threshold level set to 1
- vSphere DRS Advanced Option AggressiveCPUActive set to 1
- Logical CPU configuration changed for all multi-cpu VMs to 1 socket with multiple cores (Default: Single core per socket)
- Logging was disabled for all SUT VMs, client VMs, and the primeclient (Default is Enabled)
- CDROM & Floppy removed for all SUT VMs (Default is Enabled)
- CPU and Memory shares set to high for all DS3DB VMs (Default is Normal)
- All Memory Reserved for DS3DB VMs (Default is Not reserved)
- sched.mem.pin set to TRUE for all DS3DB VMs (Default FALSE)
- CPU shares set to Low for all Standby VMs (Default is Normal)
- Third virtual disk removed from DS3DB0 before cloning DS3DB VMs for other tiles.
- PrimeClient VM configured with a 600 GB sized second disk (default 200 GB)

Advanced Settings:

- UserVars.SuppressShellWarning = 1 (default 0)
- Virsto.DedupSpaceReclaim = 2 (default 0)
- VSAN.ClomBgProRebalanceThreshold = 20 (default 30)

Server Notes

Server BIOS Settings

- NUMA Nodes Per Socket set to 4
- Embedded NIC1 and NIC2 set to Disabled
- System Profile set to Performance Per Watt

Networking Notes

vSwitch Configuration

- vSwitch0 used for Management, vSAN traffic, and VM traffic for Standby and Template VMs
  - vmnic2 configured as uplink at 100 Gbps
  - MTU 9000 configured on vSwitch0, vmnic2, and vmk0
- vSwitch1 used for vMotion and iSCSI traffic
  - vmnic3 configured as uplink at 100 Gbps
  - MTU 9000 configured on vSwitch1, vmnic3, and vmk1
- vSwitch2 used for all DS3, Auction, and Elastic VM traffic
  - Both vmnic0 and vmnic1 configured as uplinks at 25 Gbps each
  - MTU 9000 configured on vSwitch2, vmnic0, and vmnic1

Storage Notes

Host OS installed on Dell BOSS-S1 virtual disk for each host

- 2 x Dell SSDSCKKB240G8R 240GB SSDs configured in RAID1 for virtual disk boot LUN

VMware vSAN (Primary Storage)

- VMware vSAN 6.7 Patch 01
- Capacity: 76.8 TB
- Cache: 12.8 TB
- Hardware Configuration:
  - Each host had two disk groups. Each disk group used:
    - Caching drive: 1 x Dell Express Flash PM1725b 1.6 TB SFF FW 1.0.0
    - Capacity drive: 3 x Dell Express Flash PM1725b 3.2 TB SFF FW 1.1.0
- Software Configuration:
  - Custom vSAN Storage Policy applied
    - Object Checksum Disabled
- SUT vSAN datastore was used for all SUT VMs and template VMs

Dell EMC Compellent Storage Array (Secondary Storage)

- Dell EMC Compellent CT-SC7020
- Physical Configuration
  - Unisphere 7.3.11.28
  - 2 x Compellent Storage Controllers
  - 4 x Compellent 25 Gbps iSCSI ports
  - 24 x Dell Compellent PM1633 1.92TB SFF SAS
  - Deduplication with compression was enabled across the entire array
  - Each volume was configured with RAID10 striped across all SSDs
  - The Compellent Storage Array is VAAI enabled
- Virtual Configuration
  - 2 x 1024 GB LUNs were used for Storage vMotion infrastructure operation targets
  - 2 x 1024 GB LUNs were used for XvMotion infrastructure operation targets
  - 2 x 1024 GB LUNs were used for VM deploy operation targets

Datacenter Management Server Notes

VMware vCenter Server 6.7.0 U3b Build 15132721 was hosted on a Dell EMC R6415 system that was seperate from the SUTs and clients.

Operating System Notes

All Client and SUT hosts were installed with the VMware ESXi 6.7 P01 build 15160138

Software Notes

None

Client Notes

Advanced Settings

- UserVars.SuppressShellWarning = 1 (default 0)
- UserVars.HostClientCEIPOptIn =1 (default 0)

Client Host Storage

- VMware ESXi 6.7 U3b was installed on 2 x Dell SSDSCKKB240G8R 240GB SSDs configured in RAID1 on the Dell BOSS-S1 storage controller
- A VMFS datastore was created on the Dell Express Flash PM1725b 3.2TB for the Prime Client and all Client VMs
  - All Client VMs on Client Host 1 were stored on VMFS datastore client1
  - All Client VMs on Client Host 2 were stored on VMFS datastore client2
  - All Client VMs and Prime Client on Client Host 3 were stored on VMFS datastore client3

The client VMs were modified as follows

- Total memory set to 32 GB (default 20 GB)
- Total vCPUs set to 16 (default 12)
- Logging disabled

The Client VMs were distributed across the client hosts as follows:

- Client Host 1: Client0, Client3, Client6, Client9, Client12, Client15, Client18, Client21, Client24, Client27
- Client Host 2: Client1, Client4, Client7, Client10, Client13, Client16, Client19, Client22, Client25
- Client Host 3: Client2, Client5, Client8, Client11, Client14, Client17, Client20, Client23, Client26, and the Prime Client

Client host vSwitch configuration

- All client VMs were connected to the same VM Network portgroup on vSwitch0
- A single 25 Gbps uplink was configured for vSwitch0
- The management interface was connected to vSwitch0

Other Notes

Changes to VMmark3.properties file:

- TileDelay set to 15 (default 60)

- DebugLevel = 3 (default 0)
- ScrubConfigFile was set to true (default false)
- ErrorImmediate was set to true (default false)

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