

UTP Q4 2016 - November TAPE C QUOTE METRICS

Quarter	System Availability (1)	Peak Messages Per Second (thousands)	Capacity Messages Per Second (thousands)	Capacity vs Peak Ratio	Peak Messages Per 100 Milliseconds (thousands) (2)	Capacity Messages Per 100 Milliseconds (thousands)	Capacity vs Peak Ratio	Peak Transactions Per Day (millions)	Capacity Transactions Per Day (millions)	Average Latency (ms)	Median Latency (ms)	10th Percentile Latency (ms)	90th Percentile Latency (ms)	99th Percentile Latency (ms)
1Q10	100.00%	82.4	108.4	1.3:1	n/a	n/a	n/a	152.2	413.5	5.42	n/a	n/a	n/a	n/a
2Q10	100.00%	97.5	175.9	1.8:1	n/a	n/a	n/a	232.0	500.0	5.67	n/a	n/a	n/a	n/a
3Q10	100.00%	108.9	175.9	1.6:1	n/a	n/a	n/a	203.7	500.0	5.96	n/a	n/a	n/a	n/a
4Q10	100.00%	119.3	175.9	1.5:1	n/a	n/a	n/a	145.5	500.0	5.24	n/a	n/a	n/a	n/a
1Q11	100.00%	143.1	180.3	1.3:1	n/a	n/a	n/a	233.7	500.0	4.64	n/a	n/a	n/a	n/a
2Q11	100.00%	138.3	180.3	1.3:1	n/a	n/a	n/a	193.4	500.0	4.98	n/a	n/a	n/a	n/a
3Q11	99.99%	156.2	415.0	2.7:1	n/a	n/a	n/a	454.0	500.0	4.87	n/a	n/a	n/a	n/a
4Q11	99.97%	171.8	458.0	2.7:1	n/a	n/a	n/a	341.0	500.0	2.67	n/a	n/a	n/a	n/a
1Q12	99.99%	156.1	458.0	2.9:1	n/a	45.8	n/a	173.0	500.0	1.84	n/a	n/a	n/a	n/a
2Q12	99.99%	175.8	458.0	2.6:1	n/a	45.8	n/a	182.5	500.0	1.51	n/a	n/a	n/a	n/a
3Q12	99.99%	210.0	480.0	2.3:1	n/a	48.0	n/a	146.8	500.0	1.48	n/a	n/a	n/a	n/a
4Q12	100.00%	184.0	480.0	2.6:1	n/a	48.0	n/a	134.0	500.0	1.57	n/a	n/a	n/a	n/a
1Q13	99.97%	201.3	520.0	2.6:1	n/a	52.0	n/a	136.5	500.0	1.45	1.26	n/a	2.28	n/a
2Q13	100.00%	217.5	520.0	2.4:1	n/a	52.0	n/a	173.4	500.0	1.30	1.18	n/a	2.14	n/a
3Q13	99.94%	216.3	520.0	2.4:1	38.9	52.0	1.3:1	131.6	500.0	1.24	1.14	n/a	1.60	n/a
4Q13	100.00%	221.3	520.0	2.3:1	46.1	52.0	1.1:1	156.6	500.0	1.26	1.15	n/a	1.70	n/a
1Q14	100.00%	275.6	707.3	2.6:1	51.5	70.7	1.4:1	185.8	868.1	1.20	1.08	n/a	1.62	n/a
2Q14	100.00%	268.6	707.3	2.6:1	51.2	70.7	1.4:1	237.3	868.1	0.69	0.48	n/a	0.70	n/a
3Q14	99.98%	308.2	707.3	2.3:1	49.8	83.8	1.7:1	179.0	868.1	0.59	0.43	n/a	0.79	n/a
4Q14	99.99%	617.0	707.3	1.1:1	95.4	83.8	0.9:1	359.0	868.1	0.55	0.43	n/a	0.66	n/a
1Q15	100.00%	421.3	1,244.6	3.0:1	85.5	166.9	2.0:1	231.2	868.1	0.50	0.44	n/a	0.62	n/a
2Q15	100.00%	233.2	1,244.6	5.3:1	48.0	215.0	4.5:1	178.2	868.1	0.65	0.44	n/a	0.69	n/a
3Q15	100.00%	214.4	1,244.6	5.8:1	37.1	215.0	5.8:1	329.5	2,285.8	0.80	0.45	n/a	0.79	n/a
4Q15	100.00%	271.6	1,244.6	4.6:1	41.0	215.0	5.2:1	239.6	2,285.8	0.81	0.45	n/a	0.81	n/a
1Q16	100.00%	249.5	1,244.6	5.0:1	60.1	215.0	3.6:1	366.2	2,285.8	0.92	0.47	0.39	1.04	9.80
2Q16	99.99%	291.9	1,244.6	4.3:1	83.0	215.0	2.6:1	282.5	2,285.8	0.78	0.46	0.39	0.93	5.73
Apr 2016	n/a	253.8	1,244.6	4.9:1	76.8	215.0	2.8:1	206.1	2,285.8	0.71	0.46	0.39	0.87	4.81
May 2016	n/a	265.2	1,244.6	4.7:1	80.3	215.0	2.7:1	220.2	2,285.8	0.79	0.46	0.39	0.93	5.93
Jun 2016	n/a	291.9	1,244.6	4.3:1	83.0	215.0	2.6:1	282.5	2,285.8	0.83	0.46	0.39	1.00	6.32
3Q16	100.00%	412.5	1,244.6	3.0:1	78.9	215.0	2.7:1	261.8	2,285.8	0.76	0.46	0.39	0.93	5.39
Jul 2016	n/a	229.3	1,244.6	5.4:1	75.6	215.0	2.8:1	196.6	2,285.8	0.76	0.46	0.39	0.94	5.90
Aug 2016	n/a	235.7	1,244.6	5.3:1	73.5	215.0	2.9:1	183.5	2,285.8	0.71	0.46	0.39	0.92	4.93
Sep 2016	n/a	412.5	1,244.6	3.0:1	78.9	215.0	2.7:1	261.8	2,285.8	0.82	0.46	0.39	0.92	6.12
4Q16	100.00%	212.8	2,809.8	13.2:1	75.9	283.1	3.7:1	292.4	8,121.4	0.28	0.02	0.02	0.02	0.03
Oct 2016	n/a	212.8	2,809.8	13.2:1	75.9	283.1	3.7:1	192.7	8,121.4	0.53	0.46	0.39	0.85	4.36
Nov 2016	n/a	186.5	2,809.8	15.1:1	58.4	283.1	4.8:1	292.4	8,121.4	0.02	0.02	0.02	0.02	0.03

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(2) Beginning Q1 2014, capacity planning interval changed from 1-second to 100-milliseconds.

(3) Beginning Q1 2016, 10th and 99th percentile latency measurements have been included.

UTP Q4 2016 - November TAPE C TRADE METRICS

Quarter	System Availability (1)	Peak Messages Per Second (thousands)	Capacity Messages Per Second (thousands)	Capacity vs Peak Ratio	Peak Messages Per 100 Milliseconds (thousands) (2)	Capacity Messages Per 100 Milliseconds (thousands)	Capacity vs Peak Ratio	Peak Transactions Per Day (millions)	Capacity Transactions Per Day (millions)	Average Latency (ms)	Median Latency (ms)	10th Percentile Latency (ms)	90th Percentile Latency (ms)	99th Percentile Latency (ms)
1Q10	100.00%	18.1	18.7	1.0:1	n/a	n/a	n/a	10.7	76.0	6.39	n/a	n/a	n/a	n/a
2Q10	100.00%	21.6	18.7	0.9:1	n/a	n/a	n/a	16.6	125.0	6.35	n/a	n/a	n/a	n/a
3Q10	100.00%	29.2	36.4	1.2:1	n/a	n/a	n/a	11.2	125.0	6.40	n/a	n/a	n/a	n/a
4Q10	100.00%	30.3	36.4	1.2:1	n/a	n/a	n/a	9.3	125.0	5.91	n/a	n/a	n/a	n/a
1Q11	100.00%	49.8	74.6	1.5:1	n/a	n/a	n/a	11.2	125.0	6.37	n/a	n/a	n/a	n/a
2Q11	100.00%	48.1	74.6	1.6:1	n/a	n/a	n/a	9.4	125.0	4.24	n/a	n/a	n/a	n/a
3Q11	99.99%	51.8	74.6	1.4:1	n/a	n/a	n/a	18.3	125.0	4.49	n/a	n/a	n/a	n/a
4Q11	99.97%	40.5	74.6	1.8:1	n/a	n/a	n/a	13.2	125.0	7.05	n/a	n/a	n/a	n/a
1Q12	99.99%	38.0	156.0	4.1:1	n/a	15.6	n/a	8.8	125.0	7.60	n/a	n/a	n/a	n/a
2Q12	99.99%	66.9	156.0	2.3:1	n/a	15.6	n/a	10.4	125.0	4.02	n/a	n/a	n/a	n/a
3Q12	99.99%	51.7	204.0	3.9:1	n/a	20.4	n/a	8.6	125.0	1.67	n/a	n/a	n/a	n/a
4Q12	100.00%	48.3	204.0	4.2:1	n/a	20.4	n/a	8.7	125.0	1.63	n/a	n/a	n/a	n/a
1Q13	99.97%	52.2	235.0	4.5:1	n/a	23.5	n/a	8.6	125.0	1.64	1.49	n/a	2.44	n/a
2Q13	100.00%	53.0	235.0	4.4:1	n/a	23.5	n/a	9.1	125.0	1.36	1.19	n/a	1.88	n/a
3Q13	99.94%	56.3	235.0	4.2:1	11.8	23.5	2.0:1	9.7	125.0	1.27	1.22	n/a	1.62	n/a
4Q13	100.00%	71.0	235.0	3.3:1	14.2	23.5	1.7:1	12.4	125.0	1.36	1.22	n/a	1.62	n/a
1Q14	100.00%	86.0	393.6	4.6:1	19.3	39.4	2.0:1	15.4	222.4	1.32	1.25	n/a	1.67	n/a
2Q14	100.00%	97.2	393.6	4.0:1	20.5	39.4	1.9:1	15.6	222.4	0.82	0.54	n/a	0.74	n/a
3Q14	99.98%	93.5	393.6	4.2:1	17.6	48.5	2.8:1	13.4	222.4	0.59	0.49	n/a	0.68	n/a
4Q14	99.99%	102.7	393.6	3.8:1	19.4	48.5	2.5:1	19.0	222.4	0.59	0.49	n/a	0.67	n/a
1Q15	100.00%	95.0	613.7	6.5:1	20.1	68.7	3.4:1	13.9	222.4	0.53	0.45	n/a	0.60	n/a
2Q15	100.00%	89.3	613.7	6.9:1	22.8	132.8	5.8:1	14.5	222.4	0.54	0.46	n/a	0.62	n/a
3Q15	100.00%	79.7	613.7	7.7:1	16.1	132.8	8.2:1	23.4	232.0	0.58	0.47	n/a	0.64	n/a
4Q15	100.00%	99.5	613.7	6.2:1	18.6	132.8	7.1:1	15.4	232.0	0.62	0.47	n/a	0.66	n/a
1Q16	100.00%	75.3	613.7	8.2:1	19.4	132.8	6.8:1	21.0	232.0	0.77	0.49	0.41	0.76	6.48
2Q16	99.99%	100.3	613.7	6.1:1	28.2	132.8	4.7:1	18.3	232.0	0.60	0.48	0.41	0.68	1.97
Apr 2016	n/a	64.3	613.7	9.5:1	28.2	132.8	4.7:1	15.3	232.0	0.59	0.48	0.41	0.67	1.87
May 2016	n/a	65.3	613.7	9.4:1	26.1	132.8	5.1:1	15.3	232.0	0.60	0.48	0.41	0.68	2.00
Jun 2016	n/a	100.3	613.7	6.1:1	26.5	132.8	5.0:1	18.3	232.0	0.63	0.48	0.41	0.70	2.32
3Q16	100.00%	142.6	613.7	4.3:1	34.6	132.8	3.8:1	14.1	232.0	0.62	0.48	0.41	0.69	2.03
Jul 2016	n/a	59.0	613.7	10.4:1	22.4	132.8	5.9:1	13.6	232.0	0.62	0.48	0.41	0.69	2.01
Aug 2016	n/a	65.4	613.7	9.4:1	28.7	132.8	4.6:1	13.4	232.0	0.60	0.48	0.41	0.68	1.96
Sep 2016	n/a	142.6	613.7	4.3:1	34.6	132.8	3.8:1	14.1	232.0	0.64	0.48	0.41	0.70	2.05
4Q16	100.00%	59.1	2,741.2	46.4:1	22.4	300.0	13.4:1	20.3	4,608.8	0.23	0.02	0.02	0.02	0.03
Oct 2016	n/a	46.1	2,741.2	59.5:1	22.4	300.0	13.4:1	13.0	4,608.8	0.42	0.48	0.41	0.67	1.78
Nov 2016	n/a	59.1	2,741.2	46.4:1	20.2	300.0	14.9:1	20.3	4,608.8	0.02	0.02	0.02	0.02	0.03

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