

UTP Q4 2019 - 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 (µs)	Median Latency (µs)	10th Percentile Latency (µs)	90th Percentile Latency (µs)	99th Percentile Latency (µs)
1Q16	100.00%	249.5	1,244.6	5.0:1	60.1	215.0	3.6:1	366.2	2,285.8	921.0	471.2	390.0	1044.4	9799.6
2Q16	100.00%	291.9	1,244.6	4.3:1	83.0	215.0	2.6:1	282.5	2,285.8	777.8	461.9	390.0	926.9	5725.8
3Q16	100.00%	412.5	1,244.6	3.0:1	78.9	215.0	2.7:1	261.8	2,285.8	762.0	457.3	386.1	926.9	5393.9
4Q16	100.00%	222.9	2,809.8	12.6:1	75.9	283.1	3.7:1	292.4	8,121.4	193.2	18.0	17.1	20.3	28.5
1Q17	99.99%	245.7	2,809.8	11.4:1	60.4	283.1	4.7:1	200.9	8,121.4	17.6	17.1	16.0	19.1	24.0
2Q17	99.99%	267.8	2,809.8	10.5:1	62.9	283.1	4.5:1	216.0	8,121.4	16.9	16.5	15.4	18.4	23.8
3Q17	100.00%	300.1	2,809.8	9.4:1	68.3	283.1	4.1:1	186.1	5,461.5	16.7	16.3	15.2	18.0	22.7
4Q17	100.00%	275.5	2,809.8	10.2:1	61.0	283.1	4.6:1	232.1	5,461.5	16.7	16.3	15.4	18.0	22.3
1Q18	100.00%	266.4	2,809.8	10.5:1	72.3	283.1	3.9:1	412.3	5,461.5	16.7	16.5	15.4	18.2	22.2
2Q18	100.00%	317.6	2,809.8	8.8:1	68.5	283.1	4.1:1	279.8	5,461.5	16.8	16.6	15.5	18.2	22.7
3Q18	100.00%	295.6	2,809.8	9.5:1	70.7	283.1	4.0:1	205.3	5,461.5	16.8	16.5	15.4	18.0	22.4
Jul 2018	n/a	210.3	2,809.8	13.4:1	70.7	283.1	4.0:1	197.8	5,461.5	16.8	16.5	15.4	18.1	22.4
Aug 2018	n/a	218.3	2,809.8	12.9:1	63.9	283.1	4.4:1	205.3	5,461.5	16.8	16.5	15.4	18.1	22.7
Sep 2018	n/a	295.6	2,809.8	9.5:1	67.7	283.1	4.2:1	193.3	5,461.5	16.8	16.5	15.4	18.0	22.2
4Q18	100.00%	297.6	3,075.9	10.3:1	83.7	308.4	3.7:1	476.1	5,461.5	16.9	16.6	15.5	18.6	23.8
Oct 2018	n/a	230.7	3,075.9	13.3:1	74.3	308.4	4.2:1	476.1	5,461.5	16.9	16.5	15.4	18.6	23.6
Nov 2018	n/a	285.6	3,075.9	10.8:1	83.7	308.4	3.7:1	343.9	5,461.5	16.9	16.6	15.7	18.4	23.6
Dec 2018	n/a	297.6	3,075.9	10.3:1	80.4	308.4	3.8:1	407.1	5,461.5	17.1	16.6	15.5	18.8	24.8
1Q19	100.00%	372.3	3,075.9	8.3:1	81.6	308.4	3.8:1	321.5	5,461.5	17.0	16.6	15.5	18.6	24.5
Jan 2019	n/a	251.3	3,075.9	12.2:1	81.6	308.4	3.8:1	321.5	5,461.5	17.0	16.6	15.5	18.6	24.3
Feb 2019	n/a	265.2	3,075.9	11.6:1	73.9	308.4	4.2:1	259.4	5,461.5	16.9	16.5	15.4	18.2	24.5
Mar 2019	n/a	372.3	3,075.9	8.3:1	75.9	308.4	4.1:1	295.3	5,461.5	17.0	16.6	15.7	18.6	24.5
2Q19	100.00%	338.9	3,075.9	9.1:1	75.6	308.4	4.1:1	301.2	5,461.5	16.9	16.5	15.4	18.4	23.3
Apr 2019	n/a	254.1	3,075.9	12.1:1	61.6	308.4	5.0:1	210.2	5,461.5	16.8	16.5	15.4	18.2	23.1
May 2019	n/a	253.1	3,075.9	12.2:1	69.5	308.4	4.4:1	301.2	5,461.5	16.9	16.6	15.4	18.6	23.6
Jun 2019	n/a	338.9	3,075.9	9.1:1	75.6	308.4	4.1:1	299.0	5,461.5	16.9	16.6	15.4	18.6	23.2
3Q19	100.00%	361.9	3,075.9	8.5:1	74.5	308.4	4.1:1	314.9	5,461.5	16.9	16.5	15.4	18.4	22.9
Jul 2019	n/a	256.8	3,075.9	12.0:1	71.2	308.4	4.3:1	248.0	5,461.5	16.8	16.5	15.4	18.4	22.9
Aug 2019	n/a	289.7	3,075.9	10.6:1	74.5	308.4	4.1:1	314.9	5,461.5	16.9	16.5	15.4	18.6	22.9
Sep 2019	n/a	361.9	3,075.9	8.5:1	73.0	308.4	4.2:1	261.0	5,461.5	16.9	16.6	15.7	18.6	22.7
4Q19	100.00%	356.1	3,075.9	8.6:1	97.2	310.8	3.2:1	264.5	5,461.5	16.8	16.5	15.5	18.4	22.7
Oct 2019	n/a	332.8	3,075.9	9.2:1	97.2	308.4	3.2:1	264.5	5,461.5	16.8	16.5	15.4	18.4	22.7
Nov 2019	n/a	329.5	3,075.9	9.3:1	93.0	310.8	3.3:1	199.7	5,461.5	16.8	16.5	15.5	18.3	22.2
Dec 2019	n/a	356.1	3,075.9	8.6:1	95.5	310.8	3.3:1	243.6	5,461.5	16.9	16.6	15.5	18.6	22.9

(1) Beginning Q1 2016 measurement of System Availability is reflective of the entire environment and no longer by data service, on a quarterly basis in accordance with the SLA with the UTP committee. Service level guidelines remain: (A) 99.98% system availability; (B) 10 minute recovery time for full system failures; (C) Operations production support 24x6 in primary and secondary data center and test support provided on Saturdays.

(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 2019 - 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 (µs)	Median Latency (µs)	10th Percentile Latency (µs)	90th Percentile Latency (µs)	99th Percentile Latency (µs)
1Q16	100.00%	75.3	613.7	8.2:1	19.4	132.8	6.8:1	21.0	232.0	773.8	485.4	409.9	759.6	6484.2
2Q16	100.00%	100.3	613.7	6.1:1	28.2	132.8	4.7:1	18.3	232.0	604.8	480.6	409.9	680.9	1974.4
3Q16	100.00%	142.6	613.7	4.3:1	34.6	132.8	3.8:1	14.1	232.0	619.7	475.9	405.8	694.5	2034.3
4Q16	100.00%	76.5	2,741.2	35.8:1	22.4	300.0	13.4:1	20.3	4,608.8	158.2	18.9	17.7	21.4	27.1
1Q17	99.99%	82.4	2,741.2	33.3:1	22.0	300.0	13.6:1	14.7	4,608.8	18.8	18.4	17.1	20.9	25.0
2Q17	99.99%	89.3	2,741.2	30.7:1	20.1	300.0	14.9:1	17.1	4,608.8	17.7	17.3	16.2	19.5	23.6
3Q17	100.00%	93.0	2,741.2	29.5:1	30.2	300.0	9.9:1	15.8	3,691.9	18.9	17.5	16.3	19.7	22.8
4Q17	100.00%	80.0	2,741.2	34.3:1	16.7	300.0	18.0:1	17.6	3,691.9	17.6	17.5	16.4	18.9	21.3
1Q18	100.00%	76.5	2,741.2	35.8:1	17.2	300.0	17.4:1	22.3	3,691.9	17.5	17.5	16.3	18.9	21.1
2Q18	100.00%	98.1	2,741.2	28.0:1	18.5	300.0	16.3:1	17.2	3,691.9	17.4	17.3	16.3	18.8	20.9
3Q18	100.00%	94.5	2,741.2	29.0:1	22.3	300.0	13.5:1	16.5	3,691.9	17.5	17.3	16.3	18.8	20.7
Jul 2018	n/a	56.2	2,741.2	48.8:1	15.7	300.0	19.1:1	16.2	3,691.9	17.5	17.5	16.3	18.8	20.9
Aug 2018	n/a	55.7	2,741.2	49.2:1	16.0	300.0	18.8:1	15.7	3,691.9	17.5	17.3	16.3	18.8	20.7
Sep 2018	n/a	94.5	2,741.2	29.0:1	22.3	300.0	13.5:1	16.5	3,691.9	17.4	17.3	16.2	18.8	20.7
4Q18	100.00%	68.5	3,143.7	45.9:1	18.5	300.0	16.2:1	22.1	4,200.0	17.5	17.3	16.3	18.8	20.7
Oct 2018	n/a	46.0	3,143.7	68.3:1	13.5	300.0	22.2:1	22.1	4,200.0	17.4	17.3	16.2	18.6	20.5
Nov 2018	n/a	68.5	3,143.7	45.9:1	18.5	300.0	16.2:1	19.0	4,200.0	17.5	17.3	16.3	18.8	20.7
Dec 2018	n/a	65.8	3,143.7	47.8:1	15.2	300.0	19.7:1	21.9	4,200.0	17.5	17.5	16.5	18.8	20.9
1Q19	100.00%	89.8	3,143.7	35.0:1	17.8	300.0	16.8:1	17.7	4,200.0	17.5	17.3	16.3	18.8	20.7
Jan 2019	n/a	54.1	3,143.7	58.1:1	17.8	300.0	16.8:1	17.7	4,200.0	17.5	17.3	16.5	18.8	20.9
Feb 2019	n/a	61.4	3,143.7	51.2:1	16.0	300.0	18.8:1	15.9	4,200.0	17.5	17.3	16.3	18.8	20.7
Mar 2019	n/a	89.8	3,143.7	35.0:1	16.5	300.0	18.2:1	17.1	4,200.0	17.4	17.3	16.3	18.6	20.5
2Q19	100.00%	99.4	3,143.7	31.6:1	28.1	300.0	10.7:1	19.6	4,200.0	17.5	17.3	16.3	18.9	21.1
Apr 2019	n/a	60.5	3,143.7	52.0:1	17.9	300.0	16.8:1	16.0	4,200.0	17.6	17.5	16.5	18.9	21.1
May 2019	n/a	63.2	3,143.7	49.7:1	15.8	300.0	19.0:1	19.3	4,200.0	17.5	17.3	16.2	18.8	21.1
Jun 2019	n/a	99.4	3,143.7	31.6:1	28.1	300.0	10.7:1	19.6	4,200.0	17.4	17.3	16.2	18.9	21.2
3Q19	100.00%	84.5	3,143.7	37.2:1	33.1	300.0	9.1:1	20.7	4,200.0	17.5	17.3	16.2	18.9	21.3
Jul 2019	n/a	55.5	3,143.7	56.7:1	25.9	300.0	11.6:1	18.9	4,200.0	17.5	17.3	16.2	18.9	21.3
Aug 2019	n/a	75.6	3,143.7	41.6:1	20.9	300.0	14.4:1	20.7	4,200.0	17.5	17.4	16.3	18.9	21.2
Sep 2019	n/a	84.5	3,143.7	37.2:1	33.1	300.0	9.1:1	18.9	4,200.0	17.4	17.3	16.2	18.9	21.3
4Q19	100.00%	95.4	3,143.7	33.0:1	35.8	350.8	9.8:1	18.4	4,200.0	17.5	17.3	16.3	18.9	21.3
Oct 2019	n/a	95.4	3,143.7	33.0:1	35.8	300.0	8.4:1	18.4	4,200.0	17.5	17.3	16.2	18.9	21.3
Nov 2019	n/a	60.6	3,143.7	51.9:1	26.7	350.8	13.2:1	17.8	4,200.0	17.4	17.3	16.2	18.8	21.3
Dec 2019	n/a	69.0	3,143.7	45.5:1	29.6	350.8	11.9:1	18.2	4,200.0	17.6	17.5	16.3	19.1	23.1

(1) Beginning Q1 2016 measurement of System Availability is reflective of the entire environment and no longer by data service, on a quarterly basis in accordance with the SLA with the UTP committee. Service level guidelines remain: (A) 99.98% system availability; (B) 10 minute recovery time for full system failures; (C) Operations production support 24x6 in primary and secondary data center and test support provided on Saturdays.

(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.