

Performance Testing - 2021-06-07



NOTE: the performance testing was conducted on a cluster with incorrectly configured replica placement so results may not reflect actual performance of the cluster. This document is kept only to maintain history of the performance test runs!

Tooling

We use `kafka-producer-perf-test` (comes with the platform) for all producer related testing. We've created additional automation to run multiple variations of the performance test using Ansible – <https://gitlab.mtb.com/foundational-services/cp-performance>. And for one-click run see the following Tower template – https://ansible.mtb.com/#/templates/job_template/2201

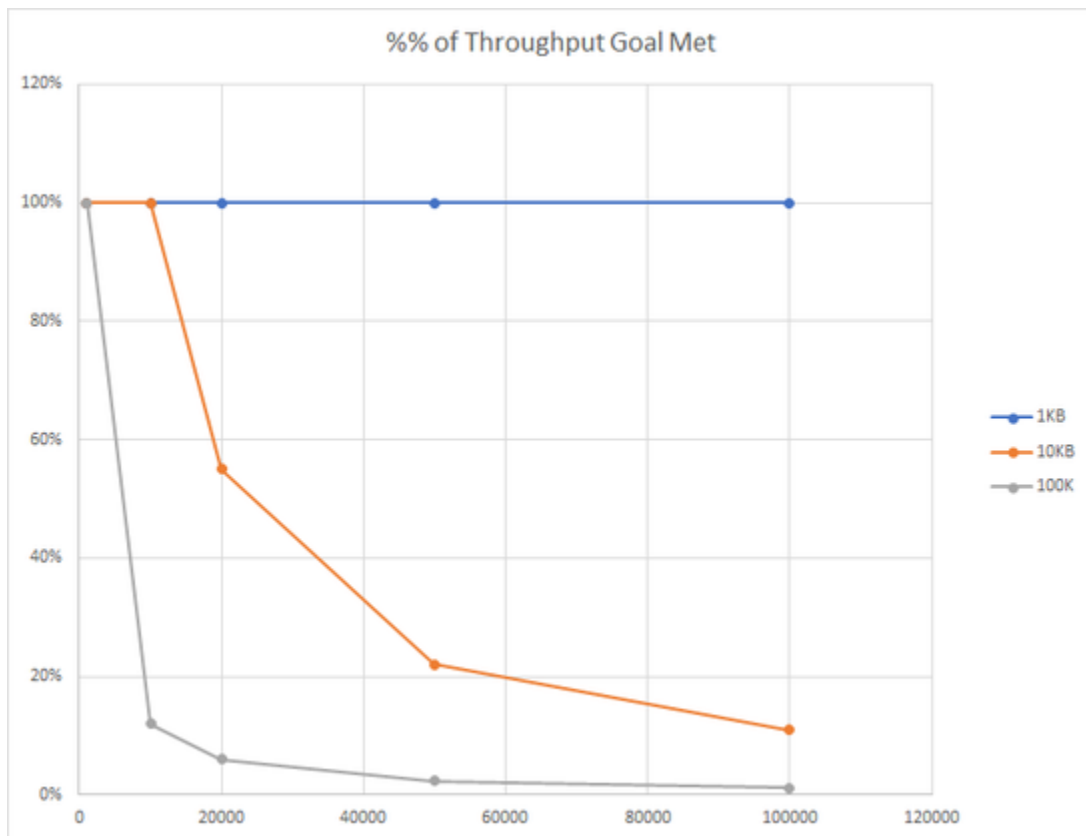
Variables

For performance testing we consider the following variations of producer behavior:

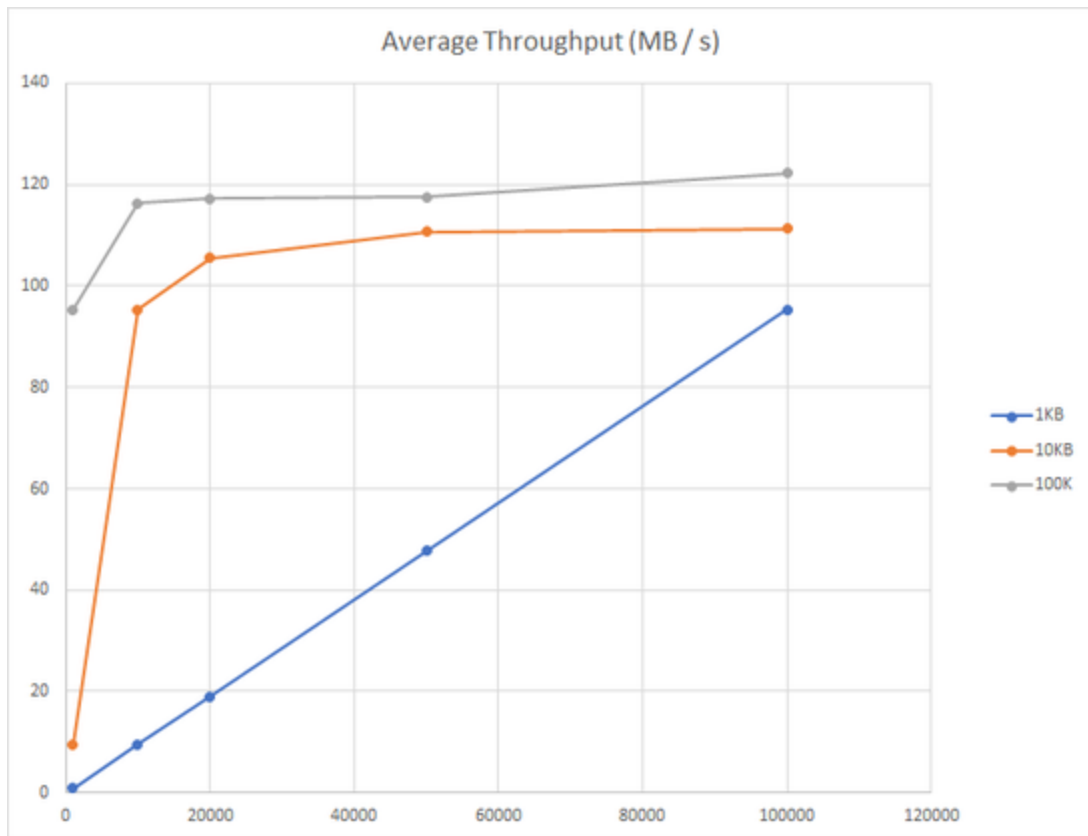
1. Message size (KB): 1, 10, 100
2. Production rate (records / second): 1000, 10000, 20000, 50000, 100000
3. Replica placement:
 - a. ONE - 3 sync replicas in the primary DC, 1 sync replica in the secondary DC, 2 observers in the secondary DC
 - b. LOCAL - 3 sync replica in the primary DC, 3 observers in the secondary DC
4. Compression: none, lz4

PROD

Throughput Goal vs. Message Size



Average Throughput vs. Message Size



Latency vs. Message Size



Raw Results

Message Size (KB)	Production Rate (records / s)	Replica Placement	Compression	Average Throughput (records / s)	Average Throughput (MB / s)	Average Latency (ms)	p50 (ms)	p95 (ms)	p99 (ms)	p99.9 (ms)
1	1000	ONE	none	~1000	0.95	1	1	1	5	98
1	1000	ONE	lz4	~1000	0.95	1	1	2	5	66

1	10000	ONE	none	-10000	9.54	2	1	2	8	147
1	10000	ONE	lz4	-10000	9.54	1	1	3	12	89
1	20000	ONE	none	-20000	19.07	3	1	2	36	265
1	20000	ONE	lz4	-20000	19.07	2	1	4	14	88
1	50000	ONE	none	-50000	47.68	10	2	4	428	605
1	50000	ONE	lz4	-50000	47.64	2	1	4	19	155
1	100000	ONE	none	-100000	95.36	27	4	255	424	527
1	100000	ONE	lz4	-100000	95.26	3	1	4	18	186
10	1000	ONE	none	-1000	9.54	3	1	2	25	258
10	1000	ONE	lz4	-1000	9.54	2	1	2	8	172
10	10000	ONE	none	-10000	95.36	21	4	164	278	401
10	10000	ONE	lz4	-10000	95.36	36	7	238	366	462
10	20000	ONE	none	-11000	105.59	184	144	468	766	1043
10	20000	ONE	lz4	-11000	105.92	183	137	479	866	1359
10	50000	ONE	none	-11000	110.71	176	115	573	884	1084
10	50000	ONE	lz4	-11000	102.00	191	141	524	719	909
10	100000	ONE	none	-11000	111.27	175	130	493	685	909
10	100000	ONE	lz4	-11000	104.75	186	138	508	709	981
100	1000	ONE	none	-1000	95.36	22	4	116	443	785
100	1000	ONE	lz4	-1000	95.36	37.89	8	237	583	988
100	10000	ONE	none	-1200	116.32	275	51	1522	2493	3219
100	10000	ONE	lz4	-1200	112.41	282	107	1116	1775	2884
100	20000	ONE	none	-1200	117.23	273	45	1425	2809	3976
100	20000	ONE	lz4	-1200	118.55	267	61	1332	2700	4047
100	50000	ONE	none	-1200	117.51	272	46	1448	2566	3649
100	50000	ONE	lz4	-1200	113.27	280	53	1500	2426	3599
100	100000	ONE	none	-1200	122.32	261	49	1409	2335	3448
100	100000	ONE	lz4	-1200	118.49	268	56	1413	2288	3264
1	1000	LOCAL	none	-1000	0.95	1	1	1	2	89
1	1000	LOCAL	lz4	-1000	0.95	1	1	1	9	99
1	10000	LOCAL	none	-10000	9.54	2	1	2	16	181
1	10000	LOCAL	lz4	-10000	9.54	2	1	3	13	94
1	20000	LOCAL	none	-20000	19.07	3	1	2	24	291
1	20000	LOCAL	lz4	-20000	19.02	2	1	4	13	99
1	50000	LOCAL	none	-50000	47.68	8	2	3	336	555
1	50000	LOCAL	lz4	-50000	47.68	2	1	4	16	82
1	100000	LOCAL	none	-100000	95.36	41	4	336	476	591
1	100000	LOCAL	lz4	-100000	95.07	2	1	4	16	139
10	1000	LOCAL	none	-1000	9.54	2	1	2	18	214
10	1000	LOCAL	lz4	-1000	9.54	2	1	2	11	179
10	10000	LOCAL	none	-10000	95.35	20	4	159	309	409
10	10000	LOCAL	lz4	-10000	95.32	44	9	260	372	528
10	20000	LOCAL	none	-11000	108.64	179	141	483	655	758
10	20000	LOCAL	lz4	-11000	106.90	182	124	537	924	1155
10	50000	LOCAL	none	-11000	107.78	181	180	134	516	720
10	50000	LOCAL	lz4	-11000	105.03	185	140	499	713	873
10	100000	LOCAL	none	-11000	109.36	178	133	489	711	951
10	100000	LOCAL	lz4	-11000	106.75	182	133	510	781	1156
100	1000	LOCAL	none	-1000	95.36	19	4	42	455	814
100	1000	LOCAL	lz4	-1000	95.35	28	7	99	573	1083
100	10000	LOCAL	none	-1200	117.39	272	56	1297	2400	3681
100	10000	LOCAL	lz4	-1200	112.4	282	112	1149	1772	2662
100	20000	LOCAL	none	-1300	123.7	259	41	1404	2282	3333
100	20000	LOCAL	lz4	-1200	118.22	268	55	1393	2244	3259
100	50000	LOCAL	none	-1200	117.38	273	57	1394	2492	3645
100	50000	LOCAL	lz4	-1200	113.26	280	77	1286	2215	3343
100	100000	LOCAL	none	-1200	117.66	272	47	1482	2609	3882
100	100000	LOCAL	lz4	-1200	118.36	268.26	51	1436	2465	3796