

Performance Testing - 2021-06-22

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:

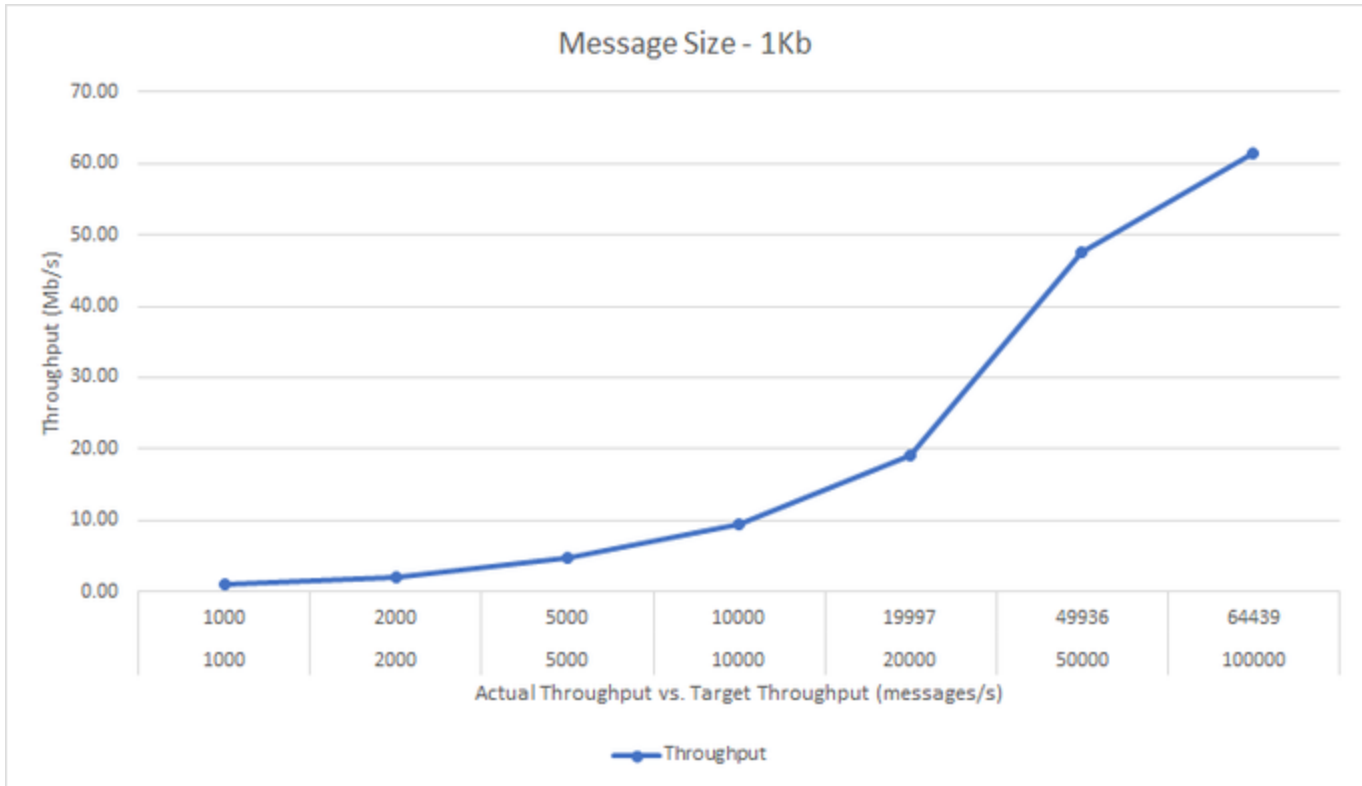
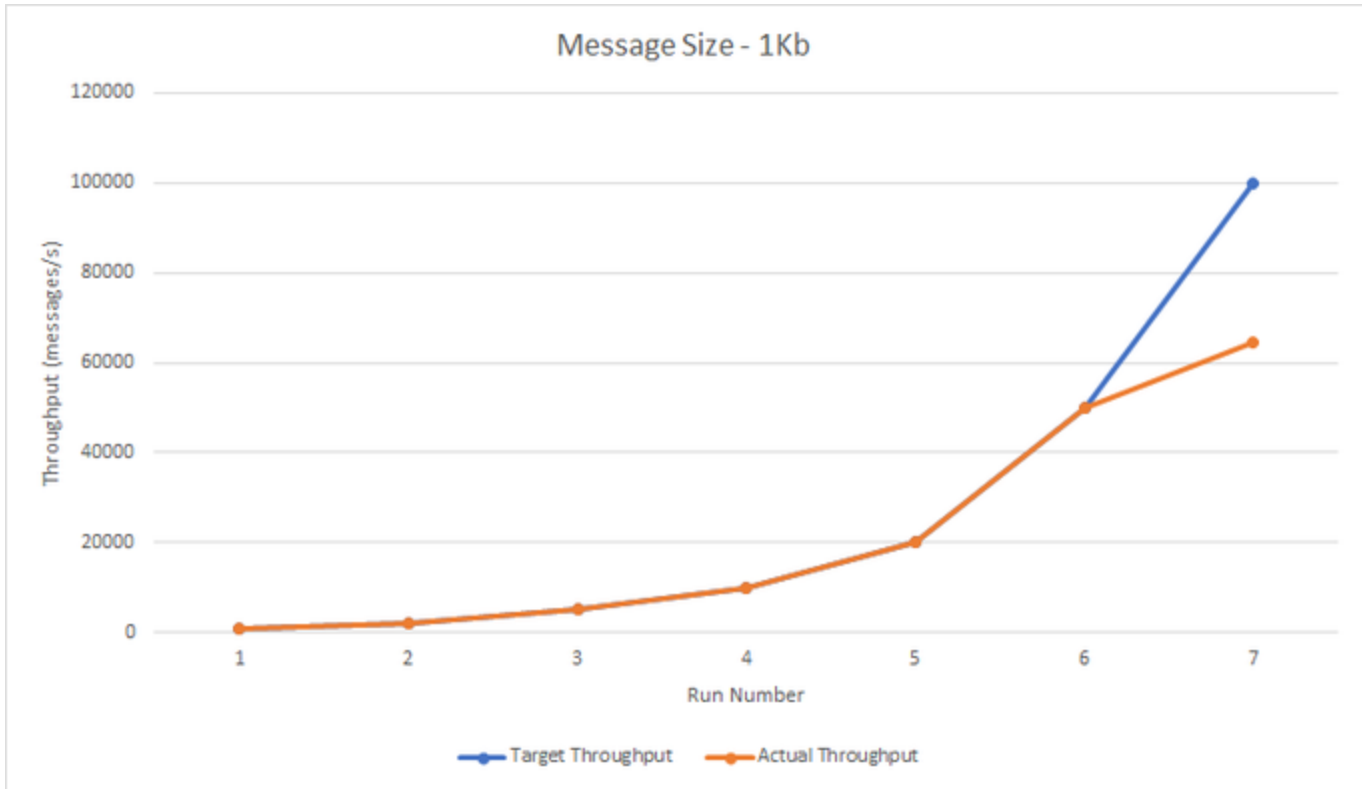
1. Message size (KB): 1, 2, 5, 10, 100
2. Production rate (records / second): 1000, 2000, 5000, 10000, 20000, 50000, 100000
3. Replica placement: cluster default!
4. Compression: none!

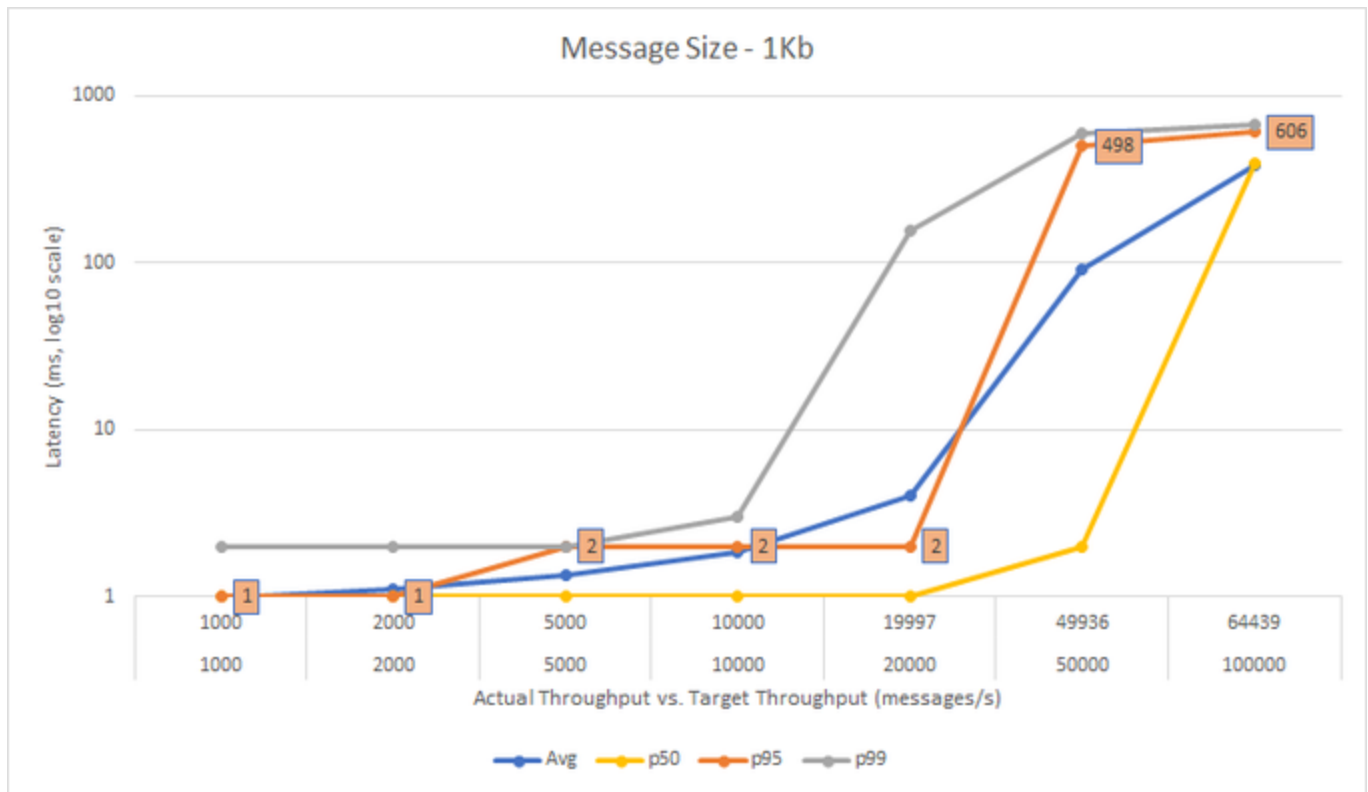
PROD

Summary

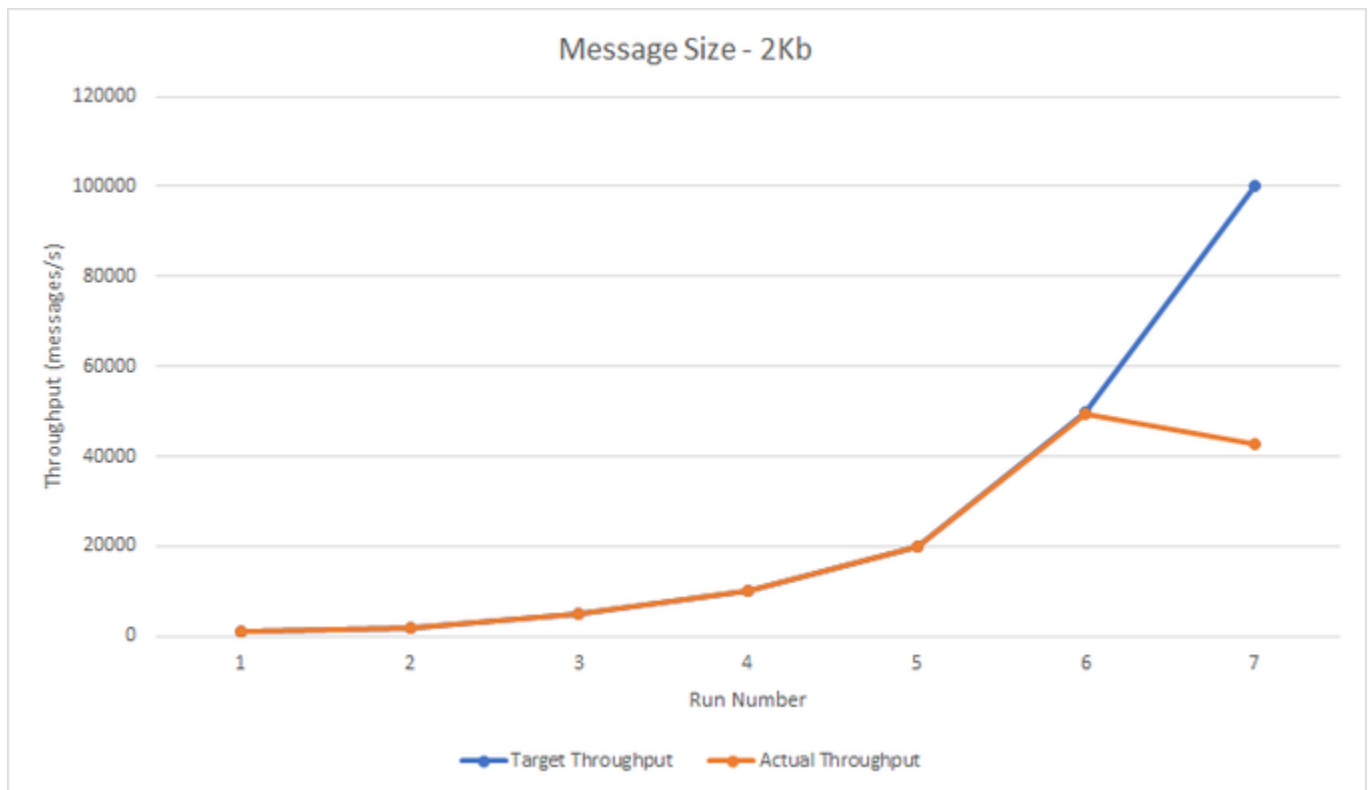
- We don't know exactly what our network layout is BUT based on numbers acquired as part of the test we see some form of saturation at around 110-120 MB/sec with a 10x to 100x increase in request latency. One unclear thing is how other network tenants can impact overall available bandwidth and other way around – if we were to pump 120 MB/sec on a prolonged basis what impact it may have on other apps;
- Another missing bit of data is cluster internal metrics – to understand where 120 MB/sec limit comes from we in addition to producer metrics need to capture CPU, memory, I/O utilization of the cluster. Also, useful might be broker specific metrics as replication lag, out-of-sync replicas, etc.;
- Our assumptions so far about our tenants/customers are: 10 TPS per topic, 1K message size, p95 latency should not be higher than 50ms (at least on the producer side). Considering that the cluster is a shared resource and even resource distribution is possible we should be able to host around 1000-2000 topics without breaking our SLA;
- One interesting anomaly that we may want to look a little deeper into – for most of the runs (except 1KB messages) we observed lower actual throughput at 100K messages/sec target than at 50K messages/sec target. Additional cluster and producer metrics may shed some light here;

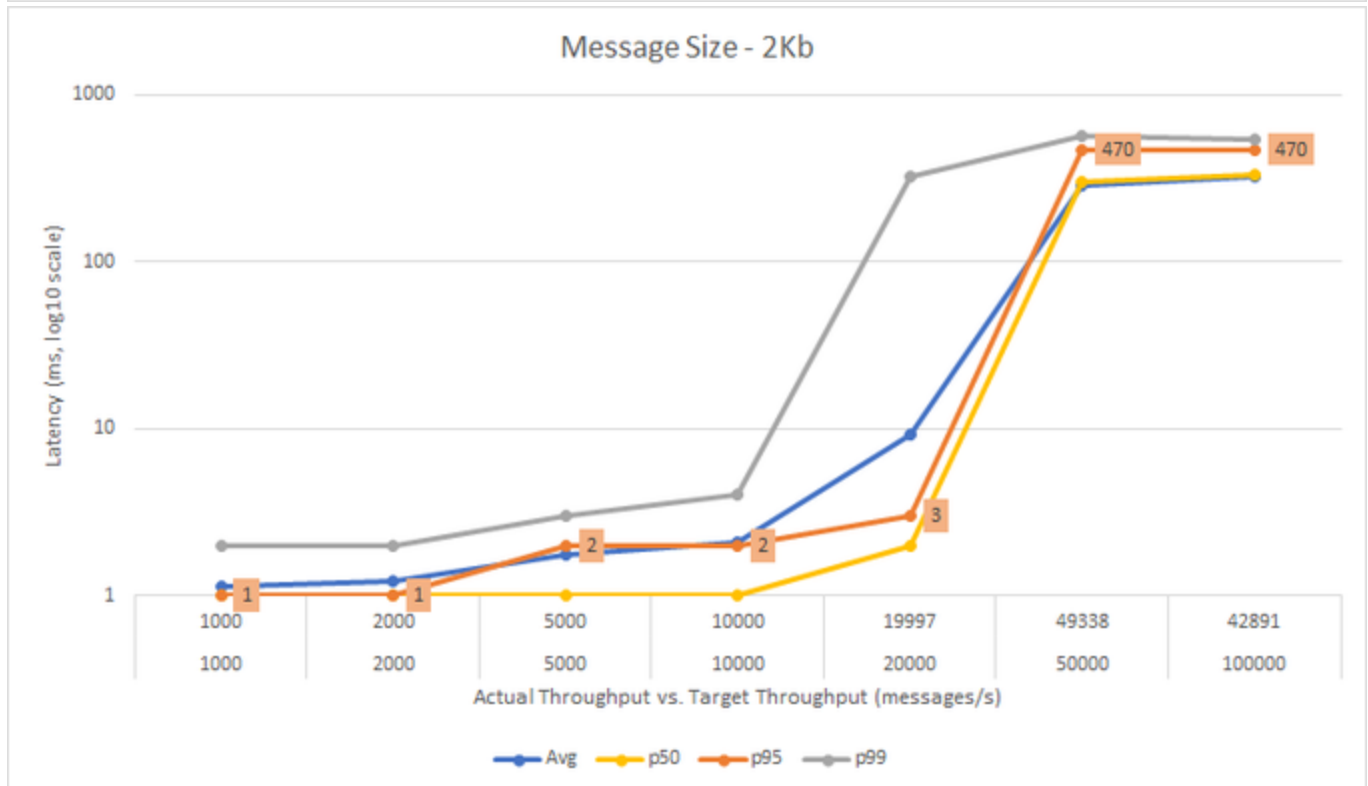
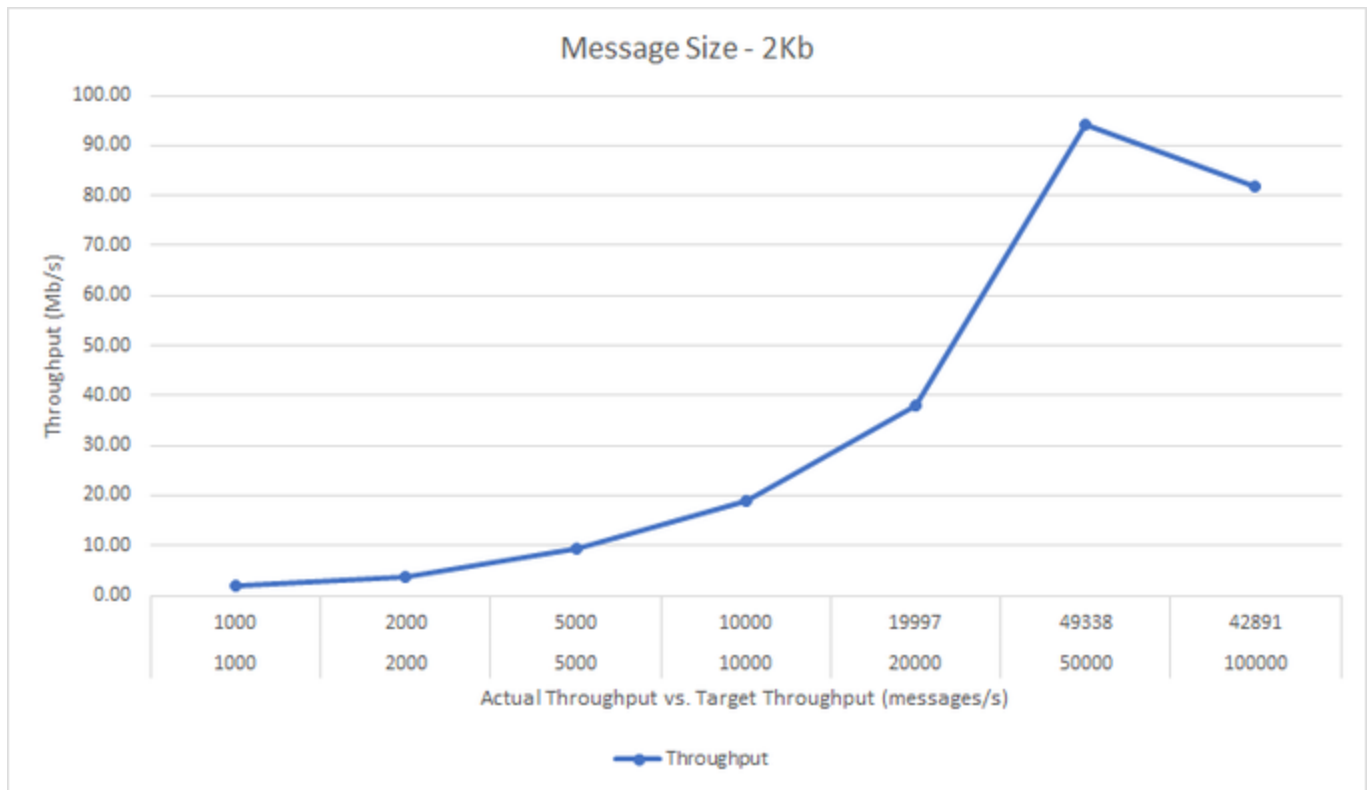
Message Size - 1KB



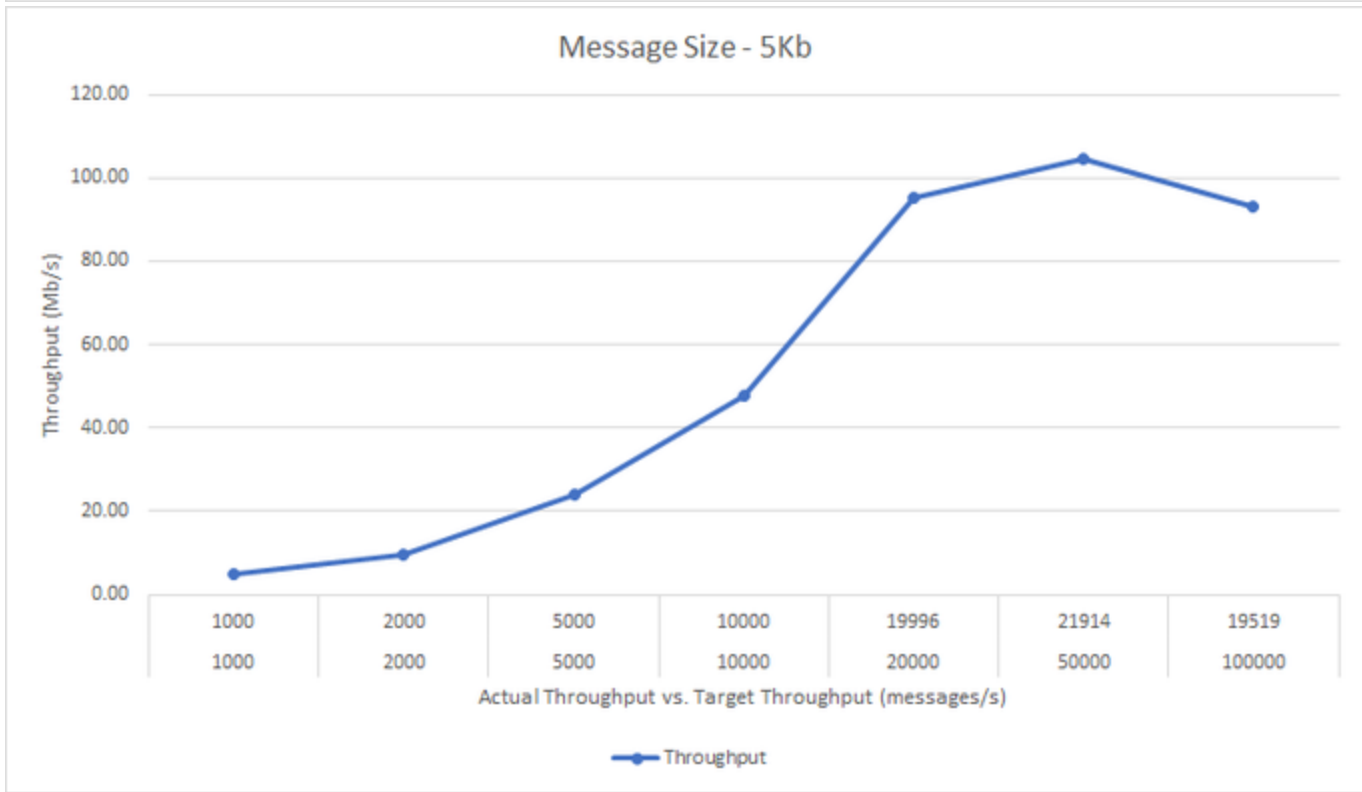
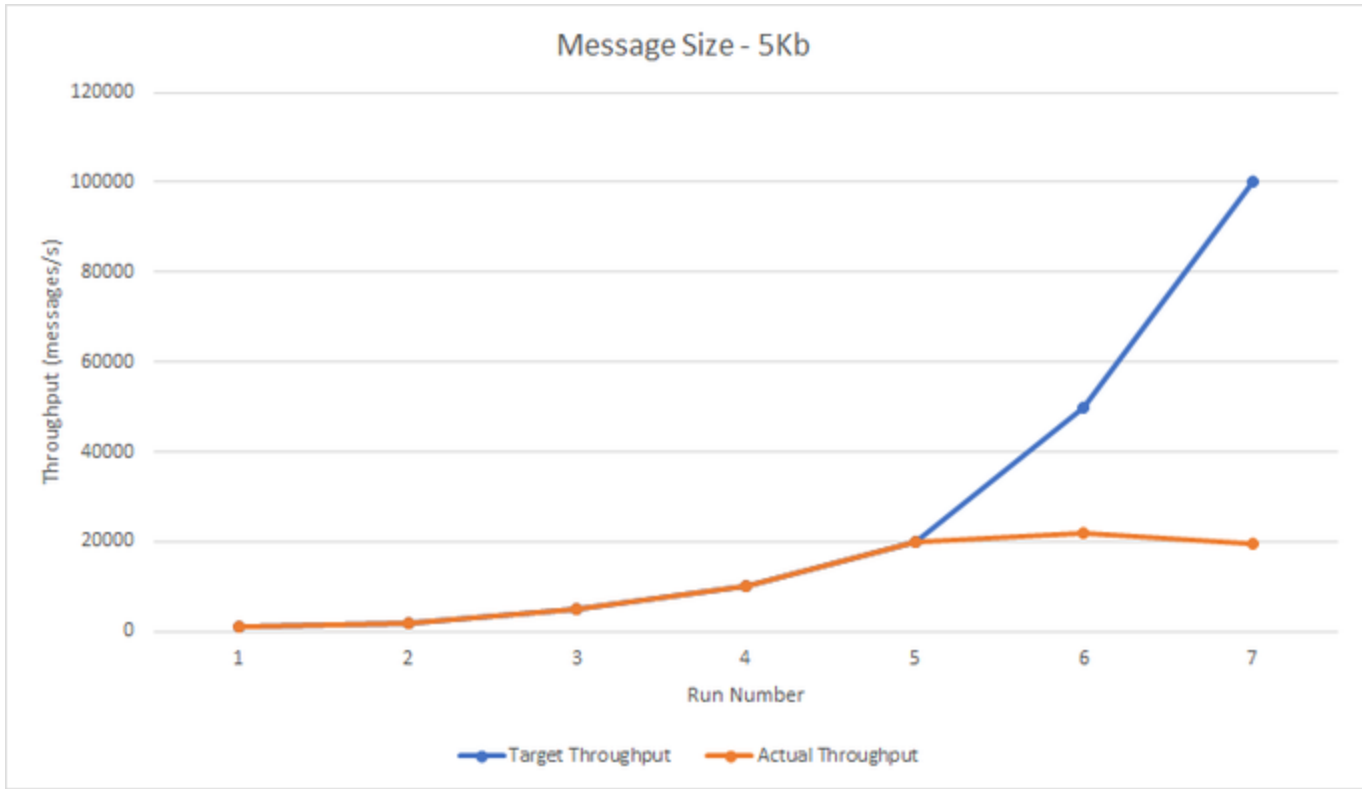


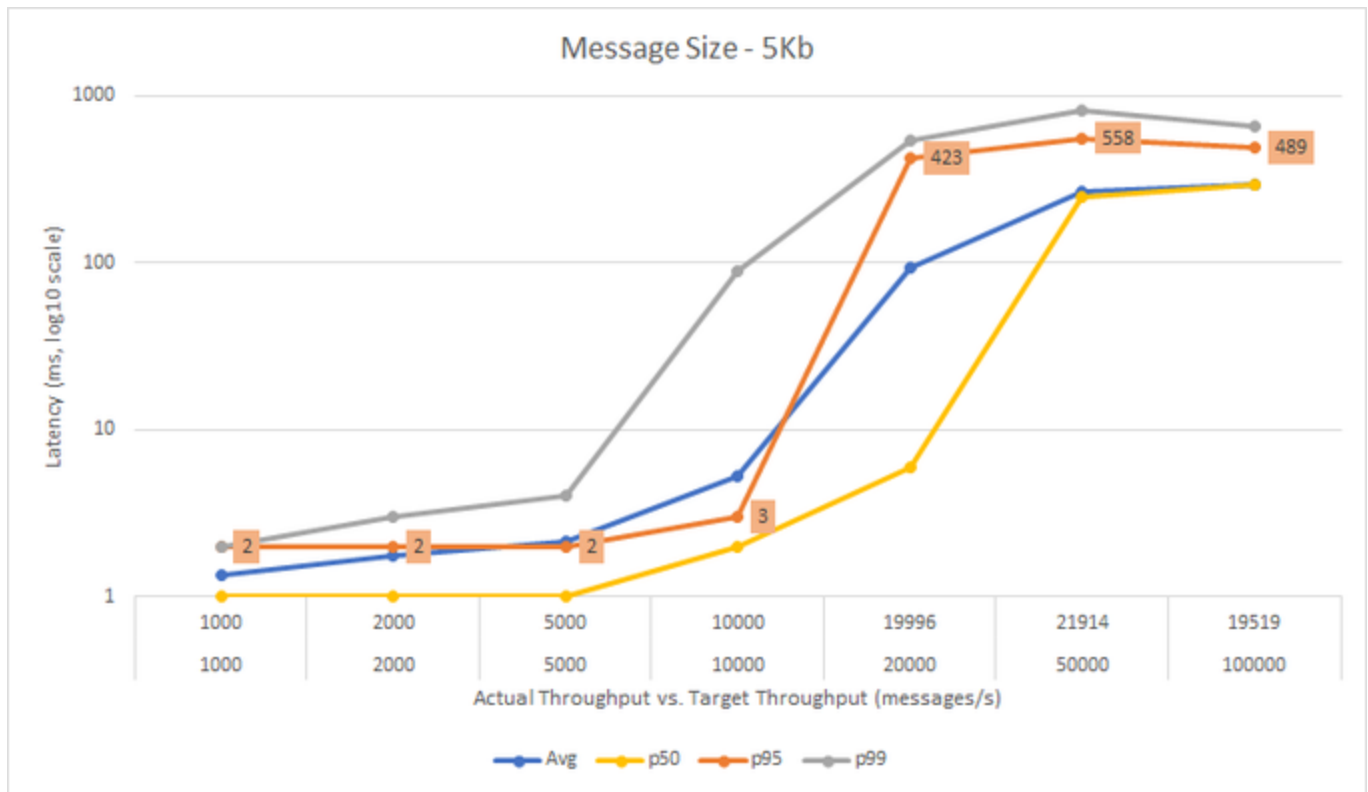
Message Size - 2Kb



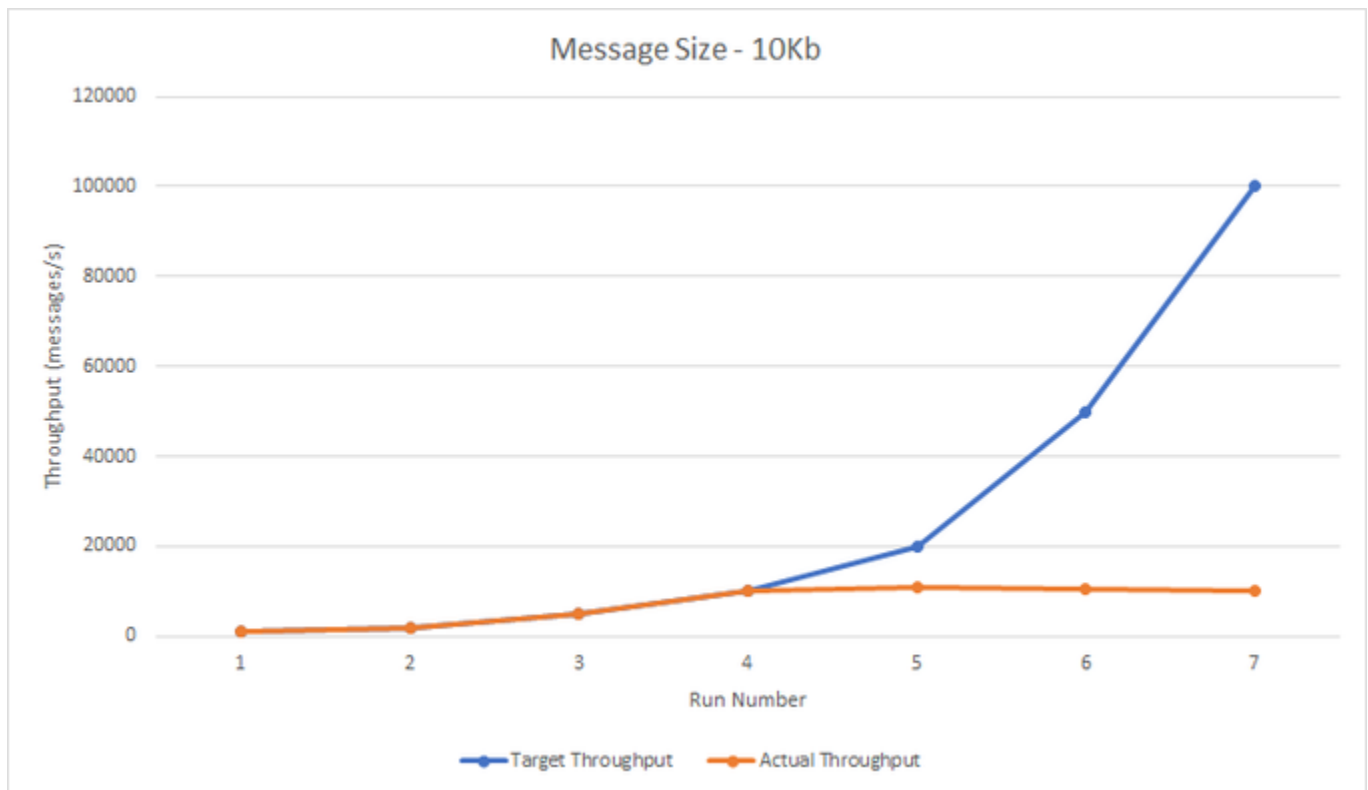


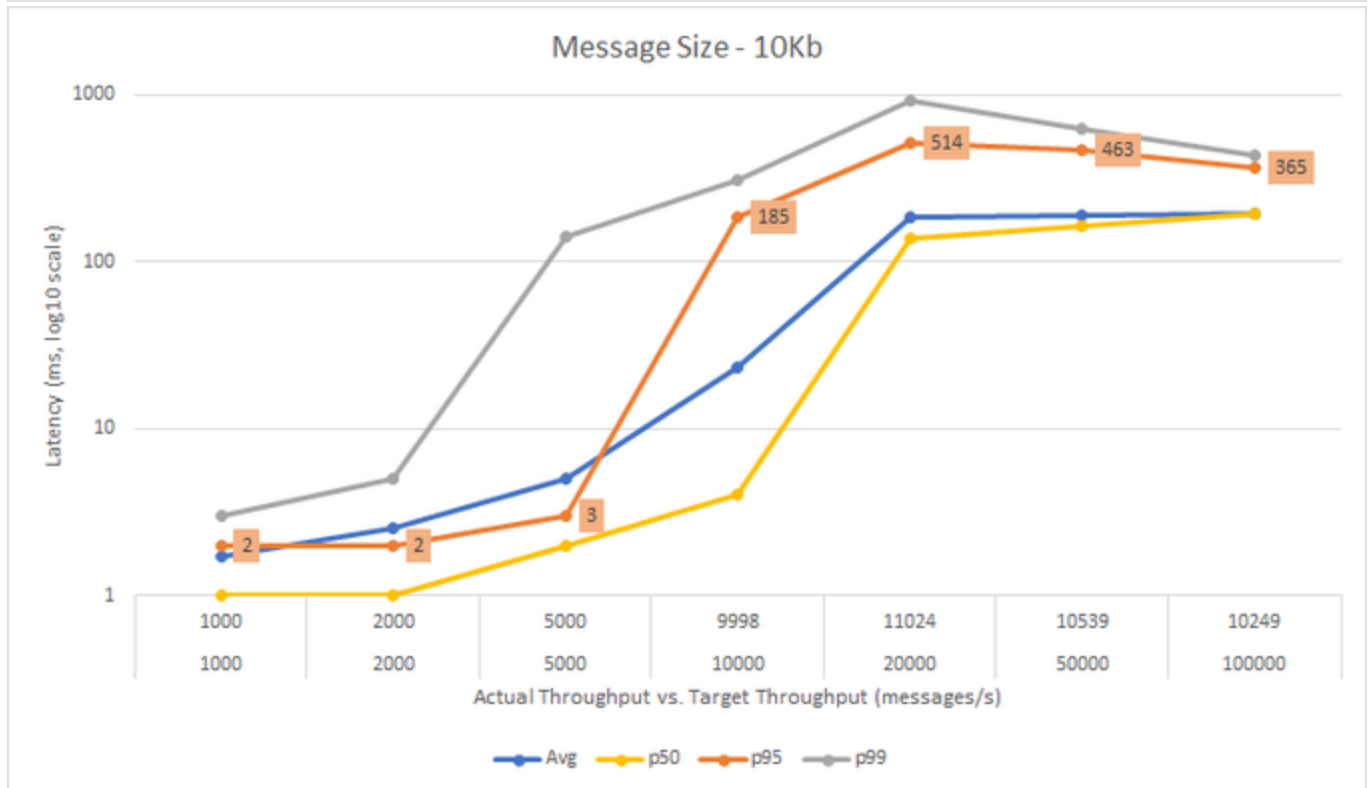
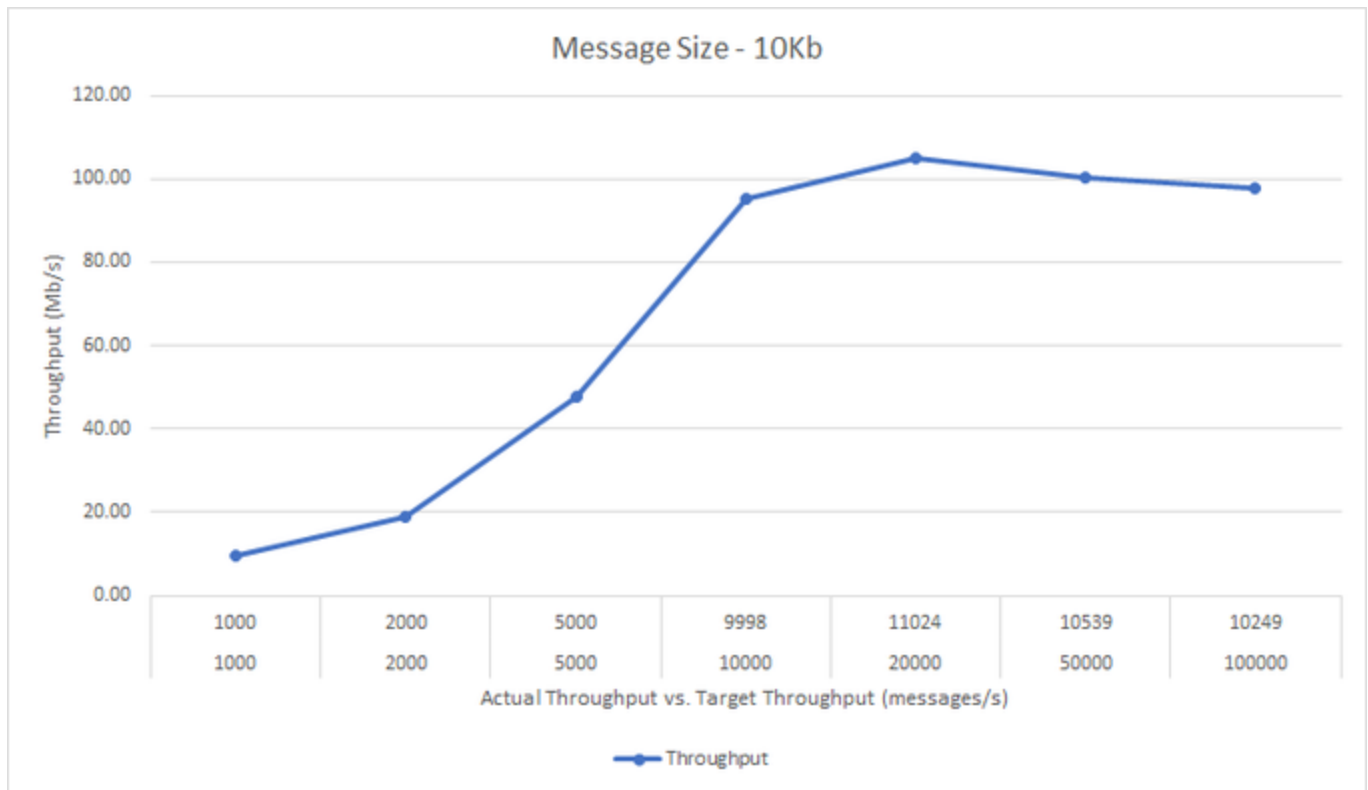
Message Size - 5KB



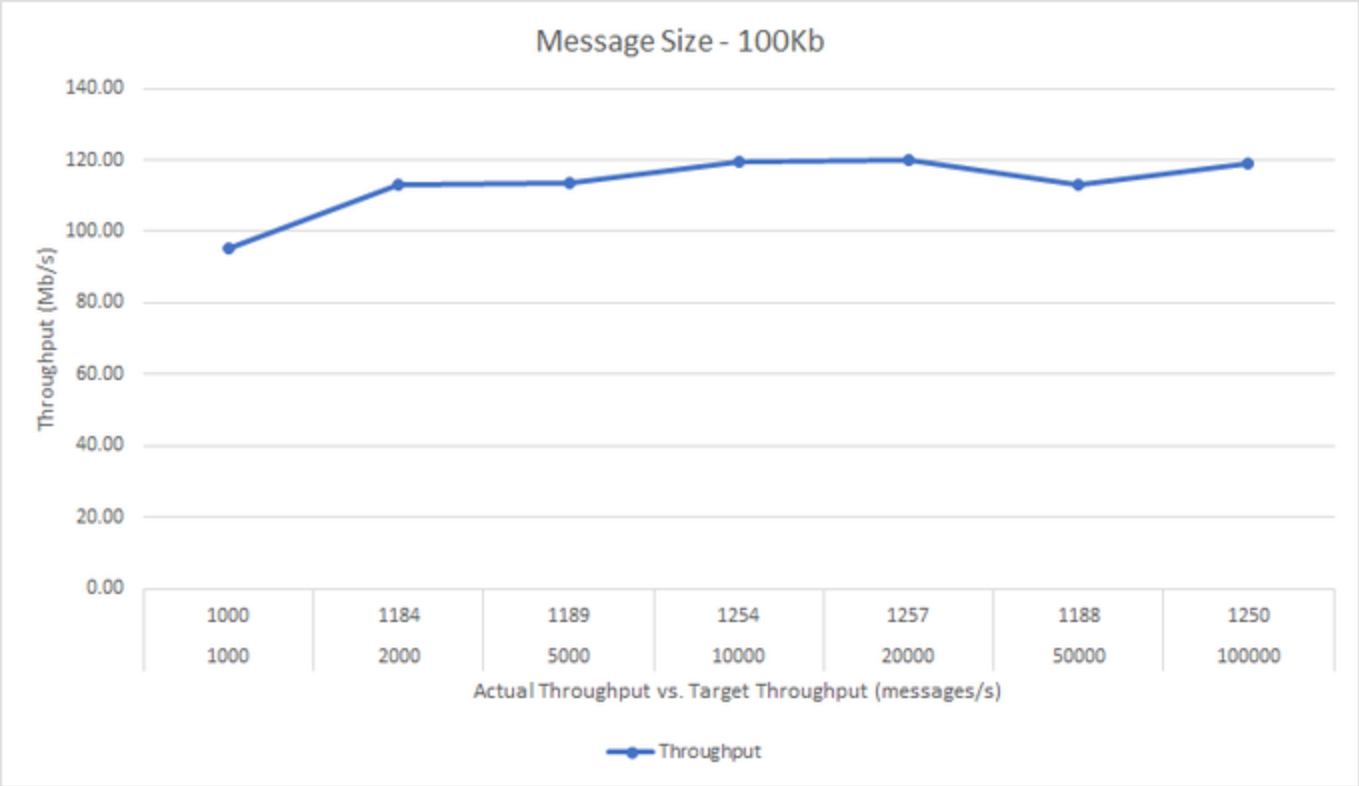
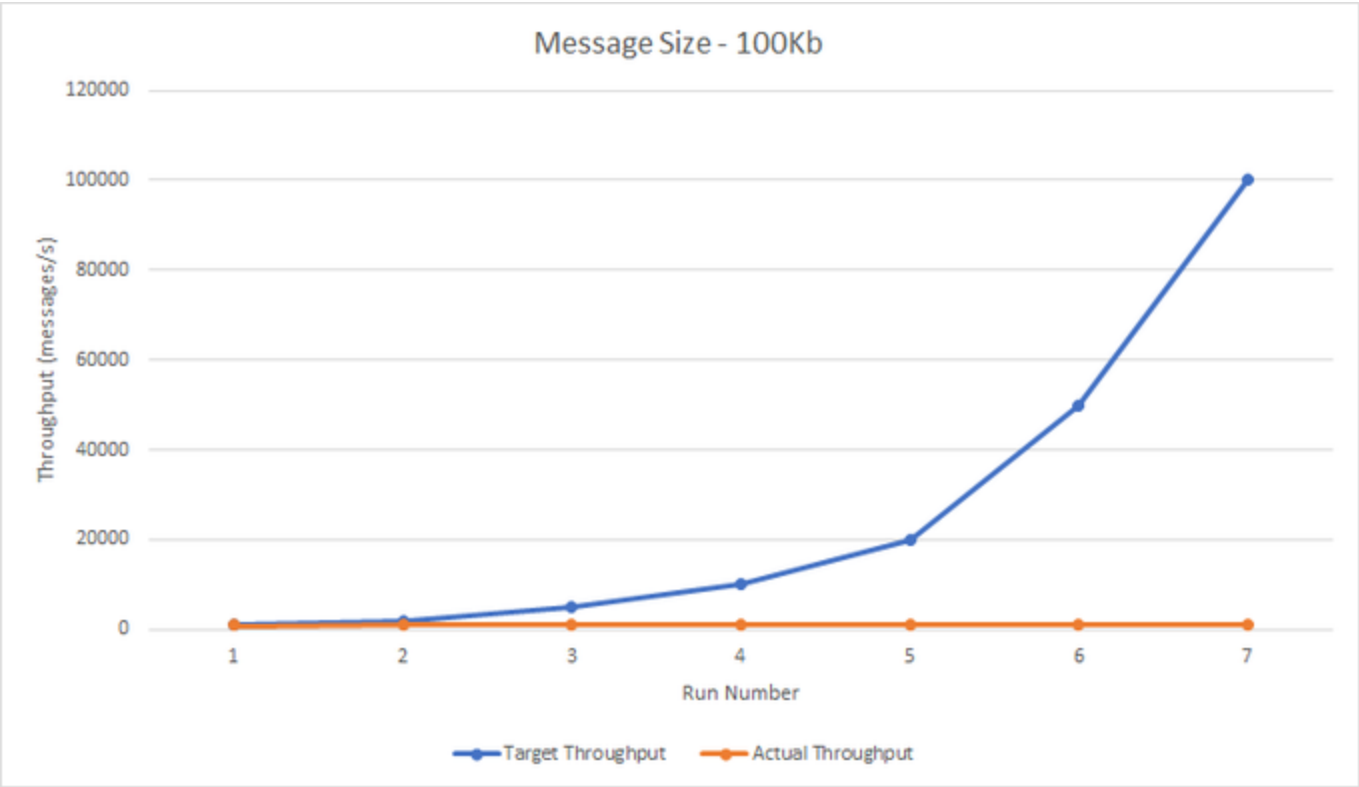


Message Size - 10KB





Message Size - 100KB



Data



performance_tes...2021-06-22.xlsx



performance_tes..._2021-06-22.txt