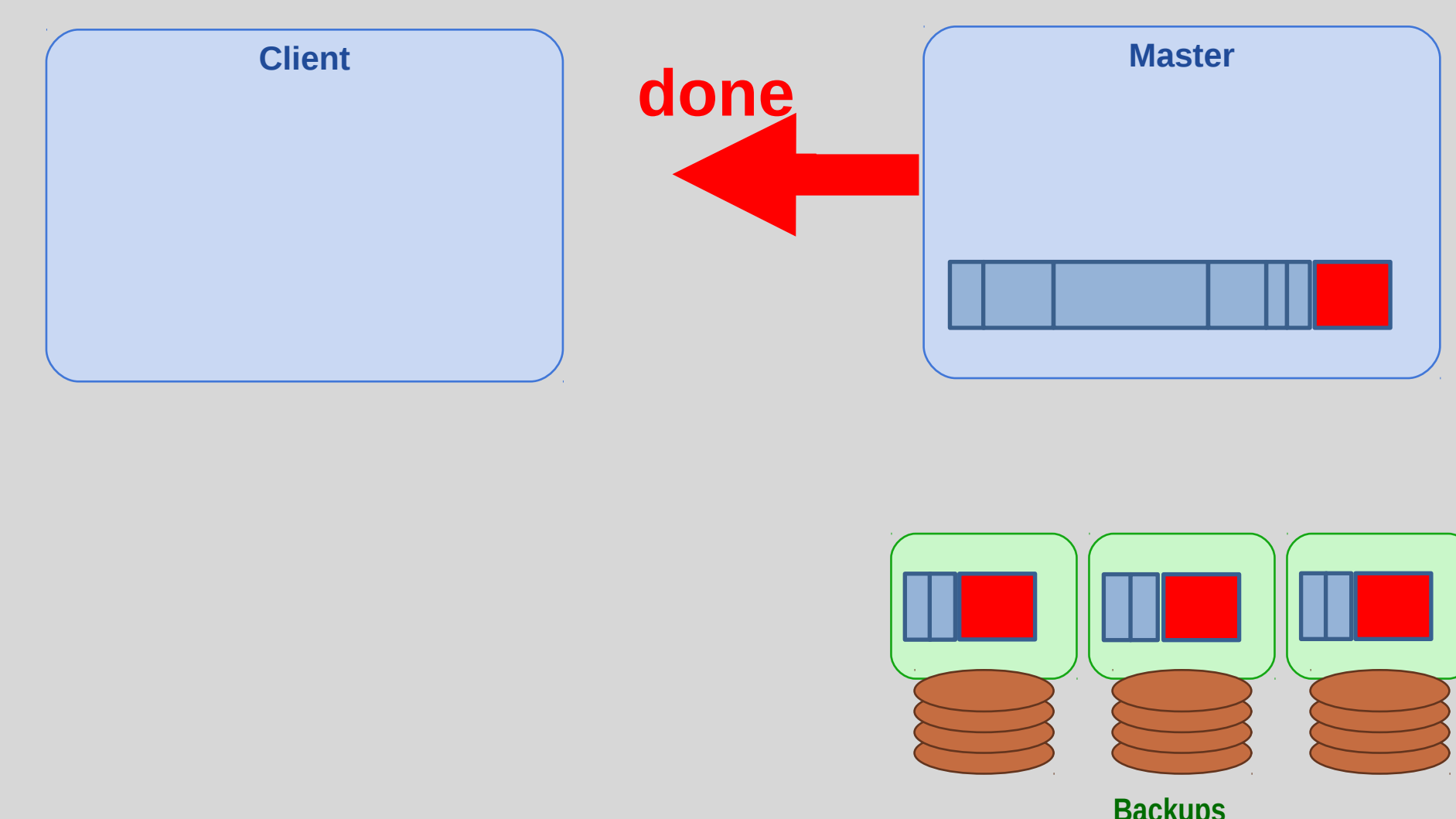
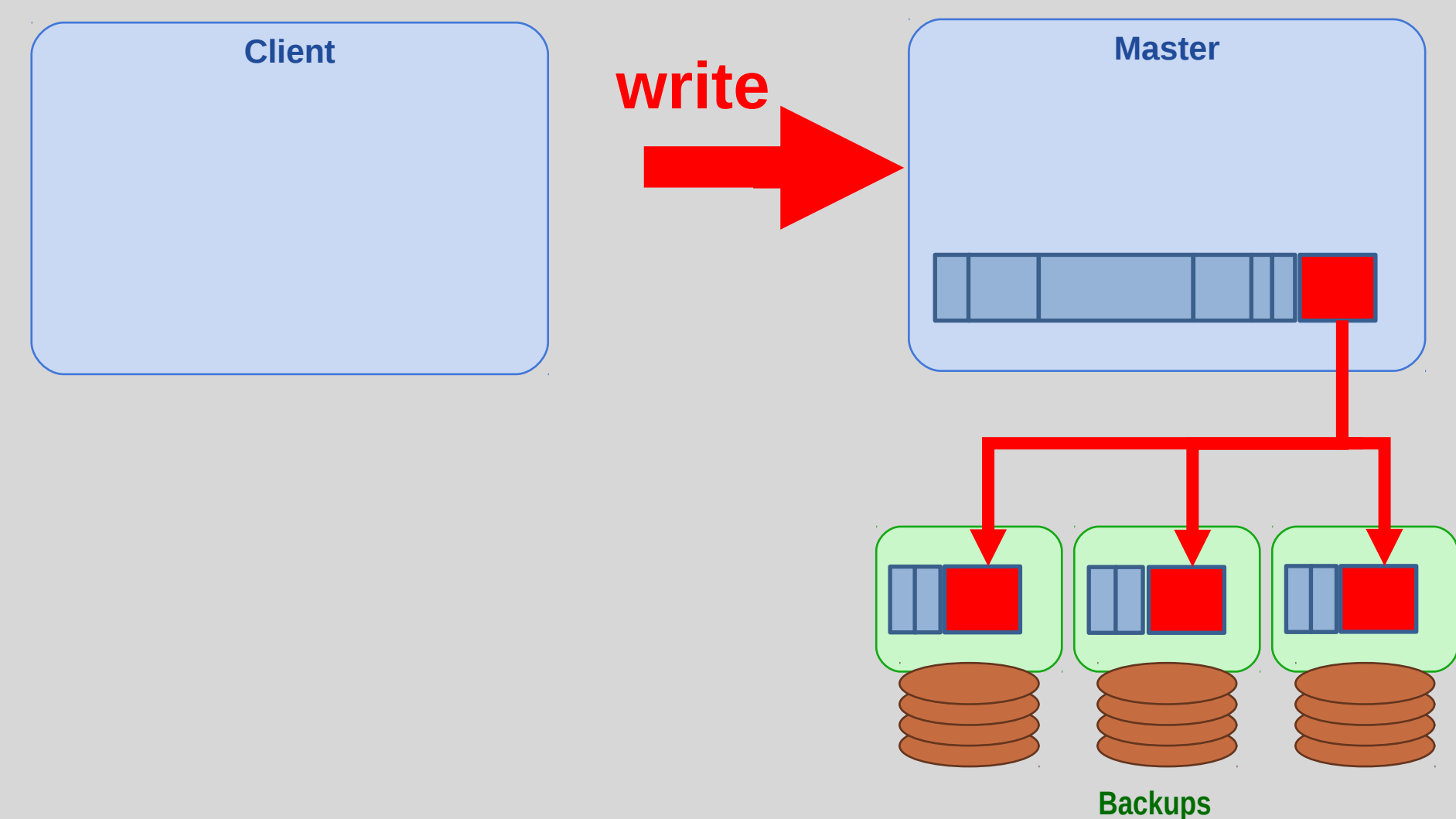
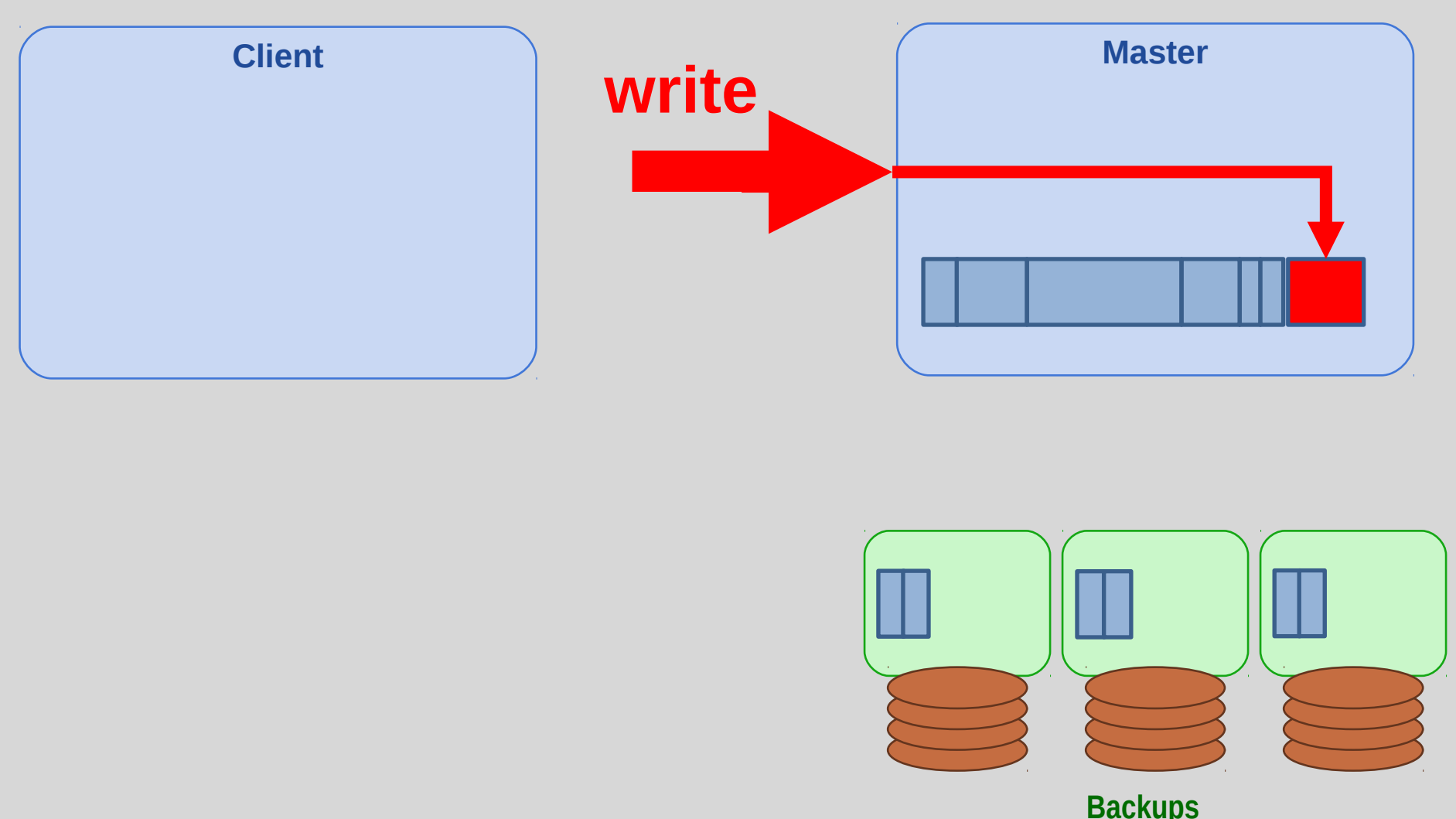
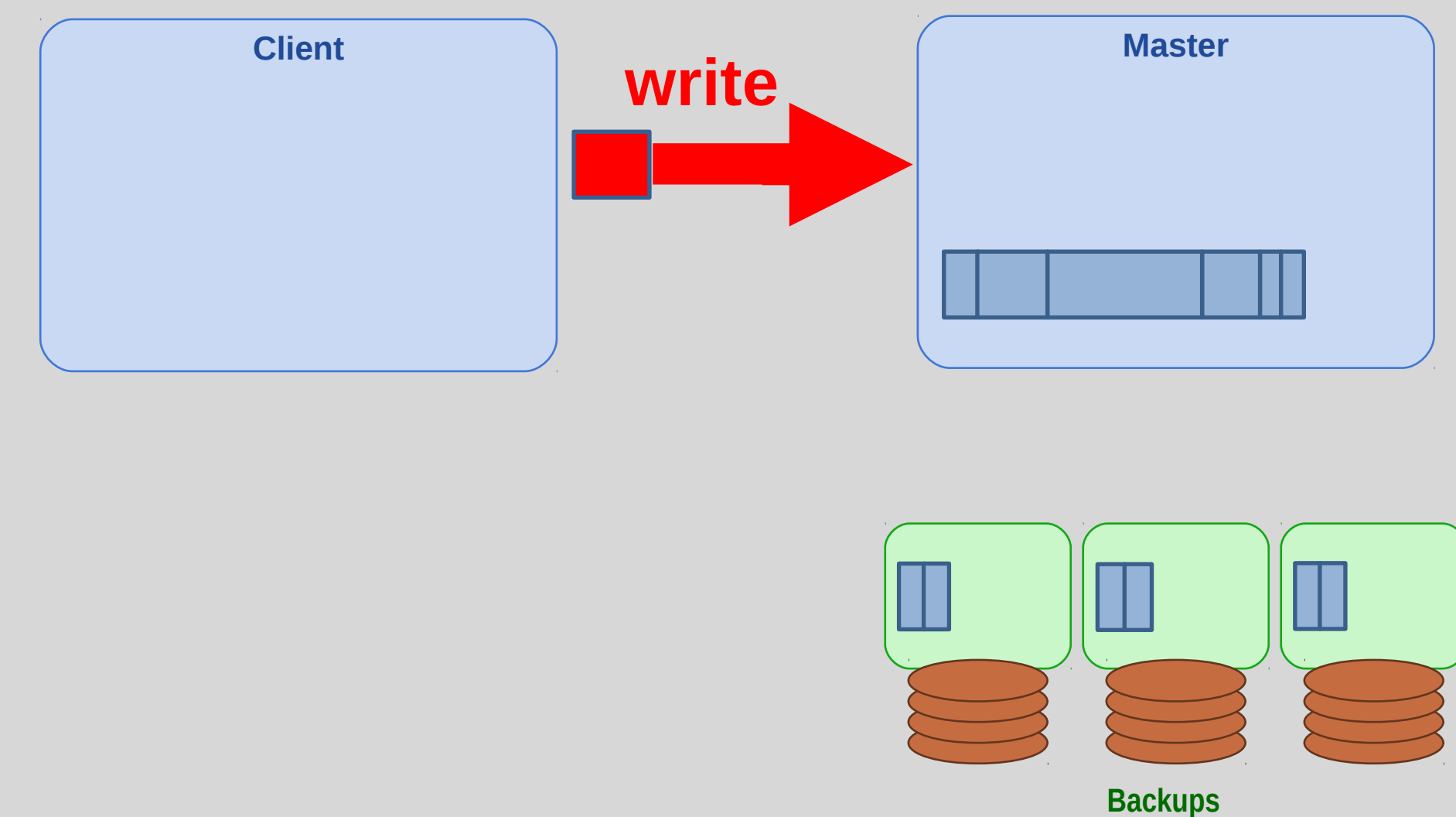


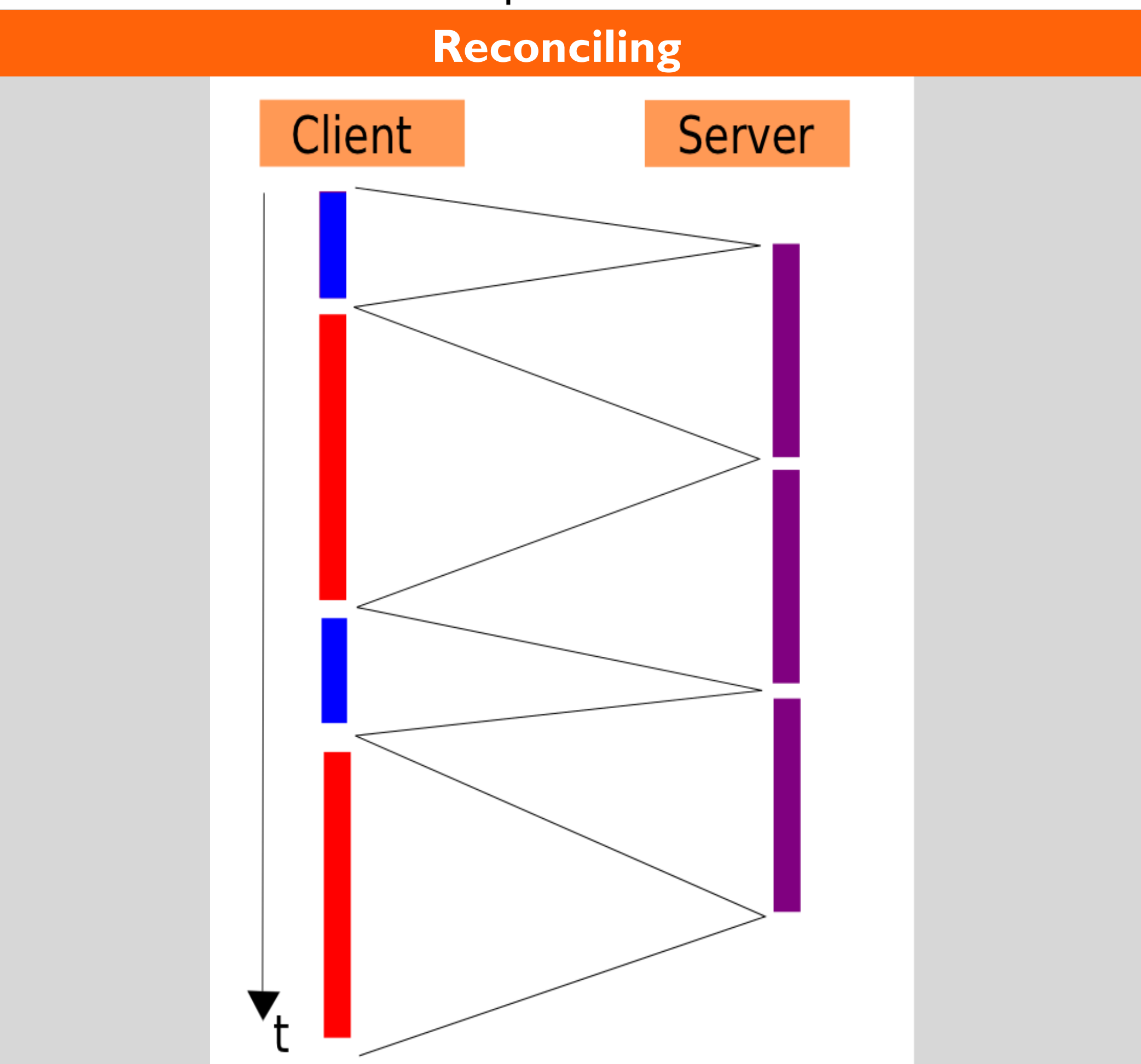
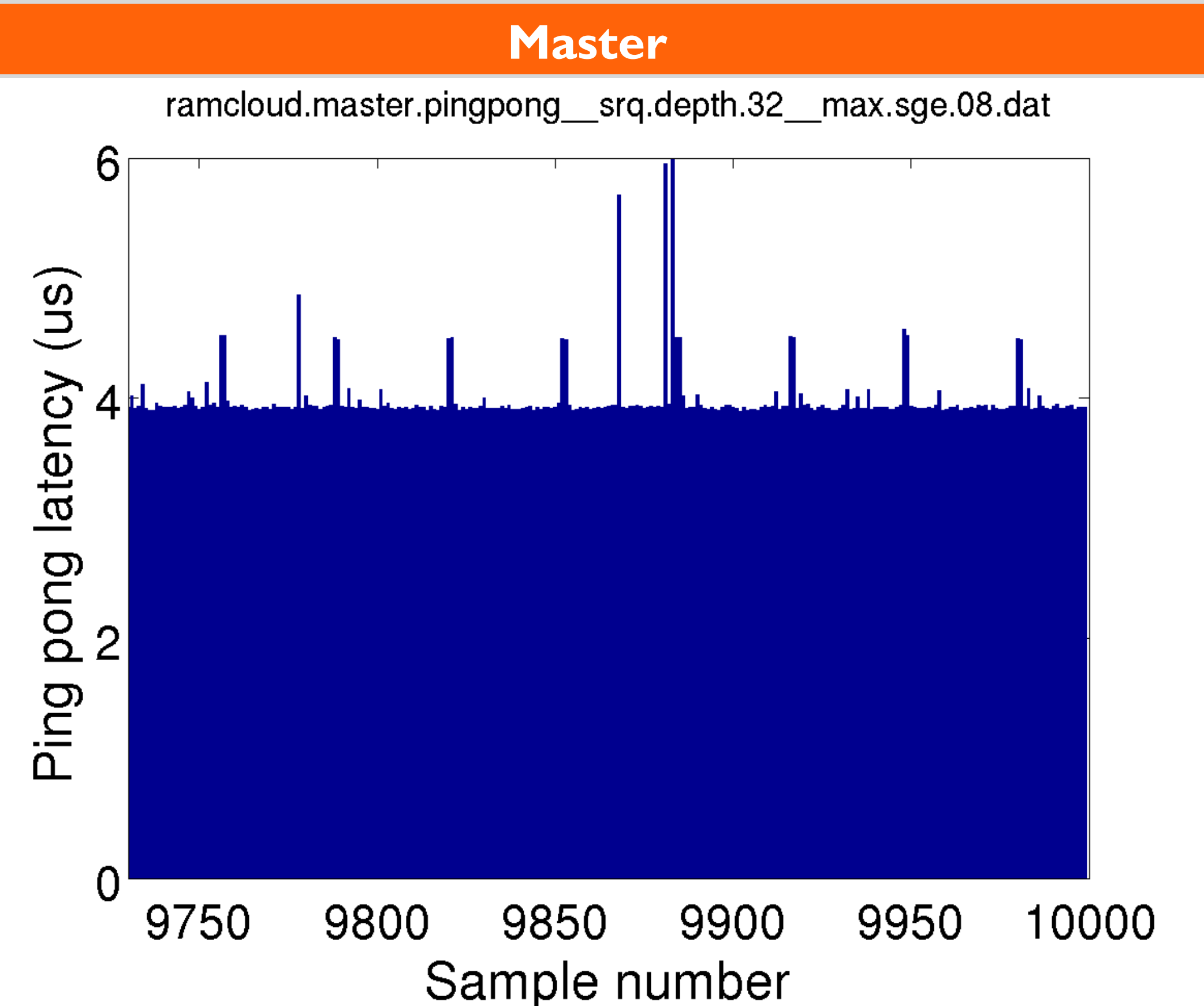
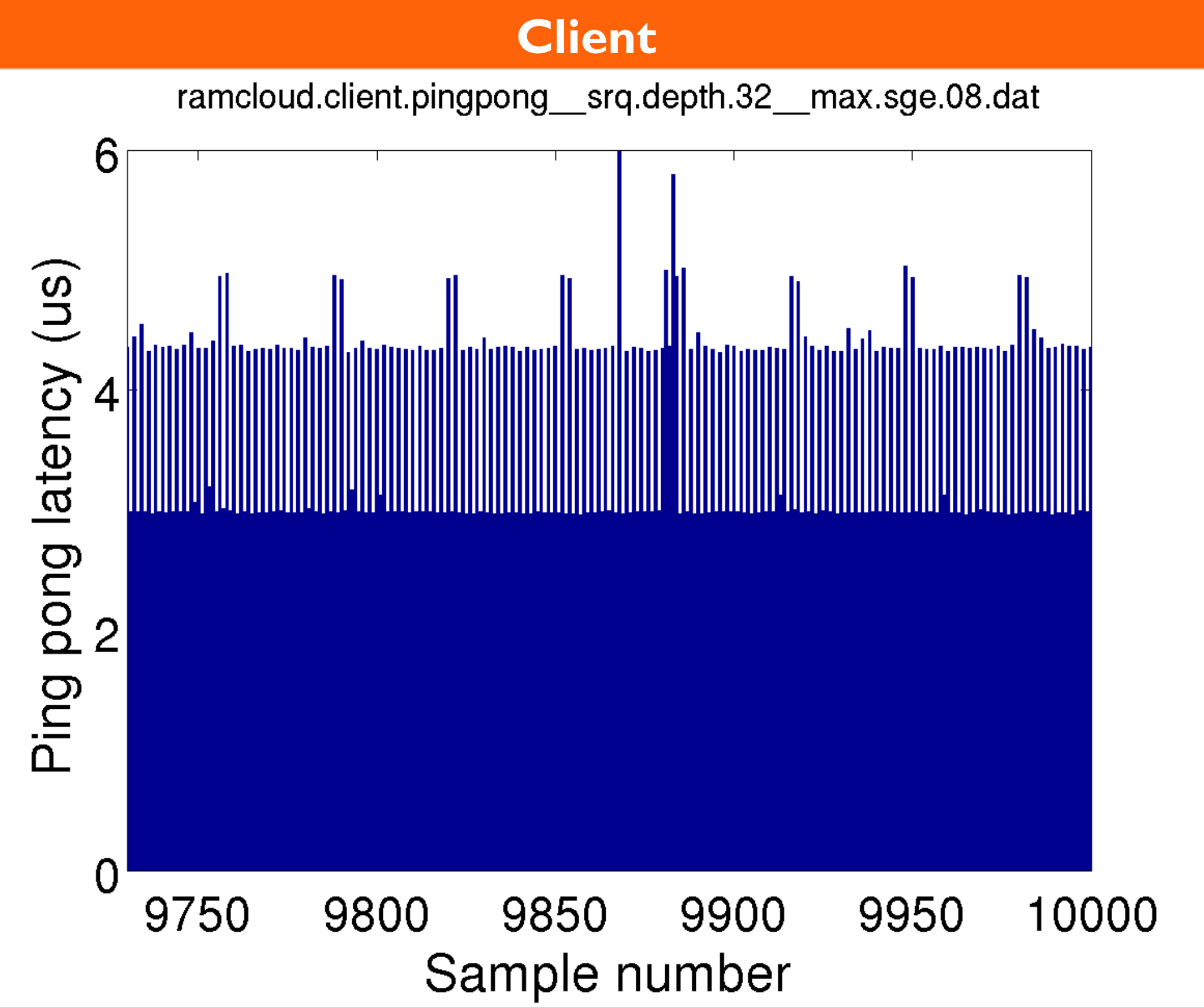
RDMA in RAMCloud

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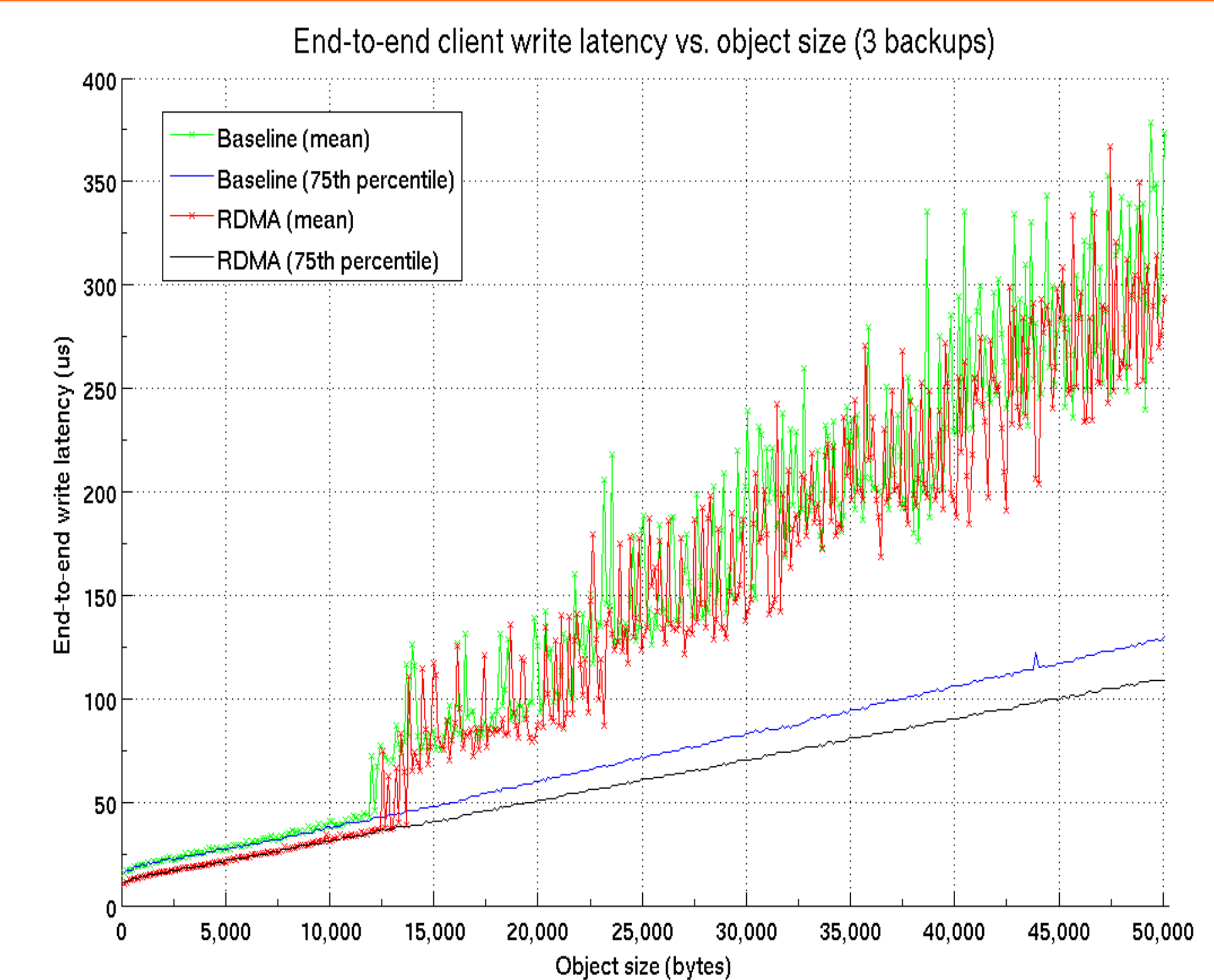
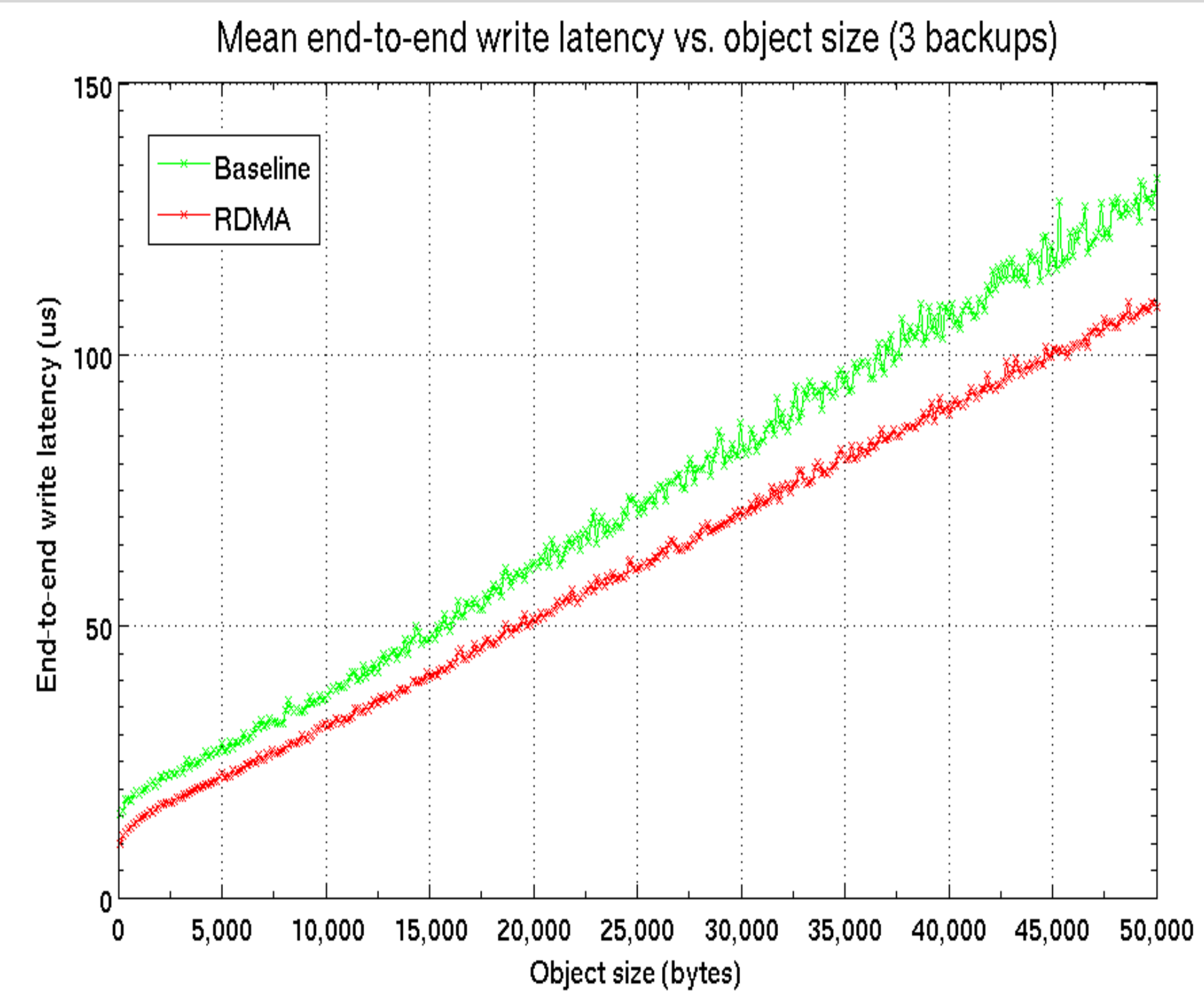
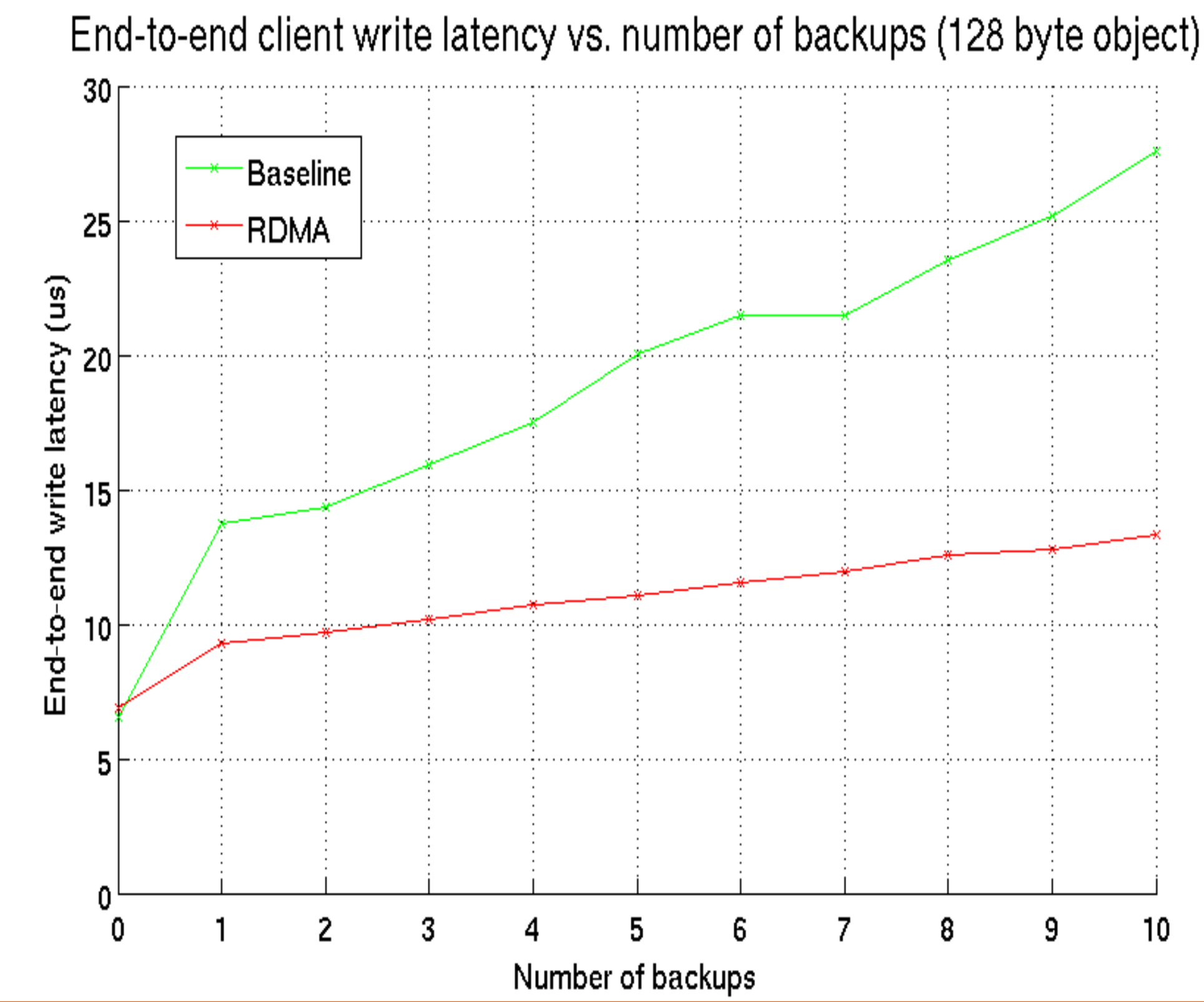
Durable WRITES



Differing Perspectives of Round Trip Latencies



Baseline vs. RDMA Performance



Baseline Replication

- 0 us --- Begin replication (100 bytes)
 - 1.8 us --- Replication RPC #1 sent out
 - 3.2 us --- Replication RPC #2 sent out
 - 4.4 us --- Replication RPC #3 sent out
 - [3.8 us "dead time"]
 - 8.2 us --- Replication RPC #1 completes (duration: 6.4 us)
 - 9.8 us --- Replication RPC #2 completes (duration: 6.6 us)
 - 10.7 us --- Replication RPC #3 completes (duration: 6.3 us)
 - 10.8 us --- End replication
- time

RDMA Replication

- 0 us --- Begin replication (100 bytes)
 - 1.0 us --- Replication RDMA #1 sent out
 - 1.6 us --- Replication RDMA #2 sent out
 - 2.2 us --- Replication RDMA #3 sent out [0.6 us "dead time"]
 - 2.8 us --- Replication RDMA #1 completes (duration: 1.8 us)
 - 3.4 us --- Replication RDMA #2 completes (duration: 1.8 us)
 - 3.9 us --- Replication RDMA #3 completes (duration: 1.7 us)
 - 4.1 us --- End replication
- time