

Performance Analysis

All Benchmarks are carried out on a maximum of 10 Docs.

Each message has a random delay between 0 and 50 ms associated with simulating real-world network delay.

Benchmarking Process:

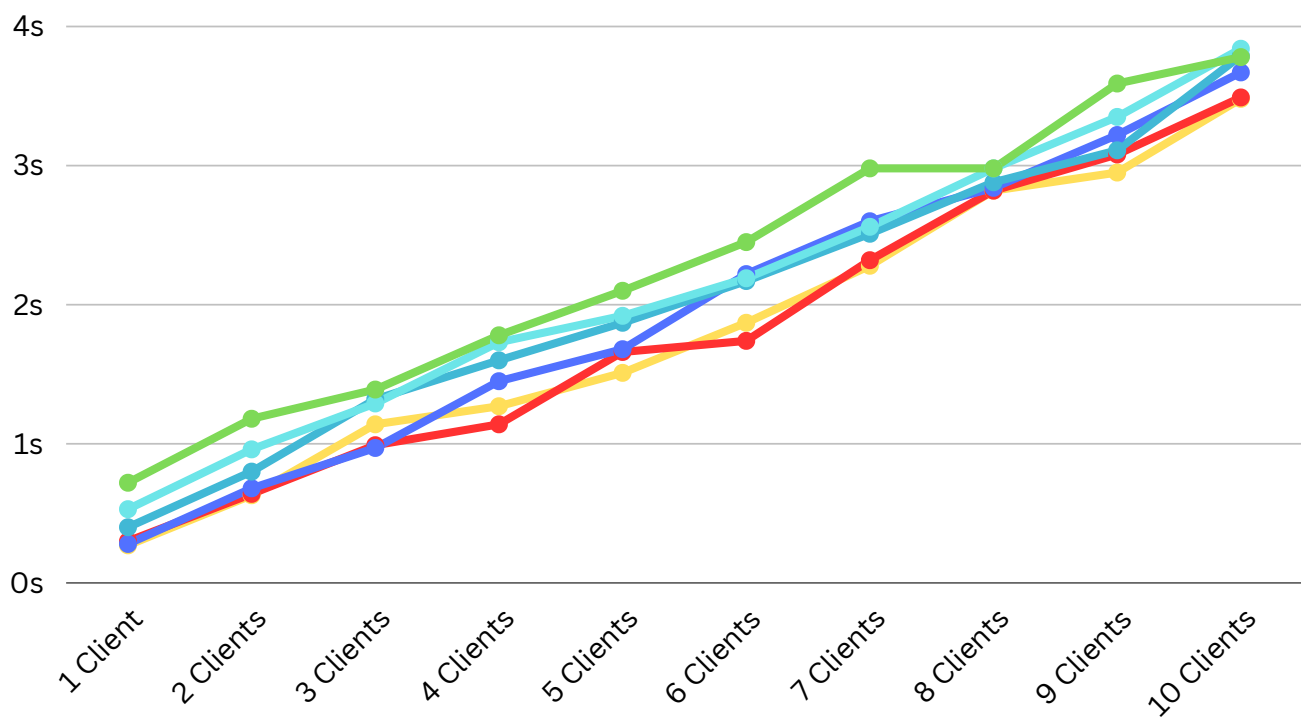
- 1. Each Node executes a read of the document ID similar to the node ID
- 2. Each Node executes a write of document ID similar to the node ID
- 3. Each Node executes a read of a document ID greater by 1 than its node ID
- 4. Each Node executes the write of a document ID greater by 1 than its node ID

Scenarios:

- 1. Baseline Benchmark on Vanilla Ivy Protocol with No Faults - Yellow
- 2. Baseline Benchmark on Fault Tolerant Ivy Protocol with No Faults - Red
- 3. Benchmark on Fault Tolerant Ivy Protocol with one fault in Primary CM (Permanently Dead) - Indigo
- 4. Benchmark on Fault Tolerant Ivy Protocol with one fault in Primary CM (Dead and Restart) - Blue
- 5. Benchmark on Fault Tolerant Ivy Protocol with multiple faults in Primary CM (Dead and Restart) - Cyan
- 6. Benchmark on Fault Tolerant Ivy Protocol with multiple faults in Primary CM and Backup CM (Dead and Restart) - Green

Number of Clients	Scenario 1	Scenario 2	Scenario 3	Scenario 4	Scenario 5	Scenario 6
1	0.27s	0.3s	0.28s	0.4s	0.53s	0.72s
2	0.63s	0.64s	0.68s	0.8s	0.96s	1.18s
3	1.14s	0.99s	0.97s	1.32s	1.29s	1.39s
4	1.27s	1.14s	1.45s	1.6s	1.73s	1.78s
5	1.51s	1.66s	1.68s	1.87s	1.92s	2.10s
6	1.87s	1.74s	2.22s	2.17s	2.19s	2.45s
7	2.28s	2.32s	2.6s	2.51s	2.56s	2.98s
8	2.82s	2.82s	2.84s	2.88s	2.98s	2.98s
9	2.95s	3.08s	3.22s	3.11s	3.35s	3.59s
10	3.48	3.49s	3.67s	3.79s	3.84s	3.78s

Follow the color legend from the Scenarios Section above for the Performance Plot below.



Benchmark Timing in Different Scenarios