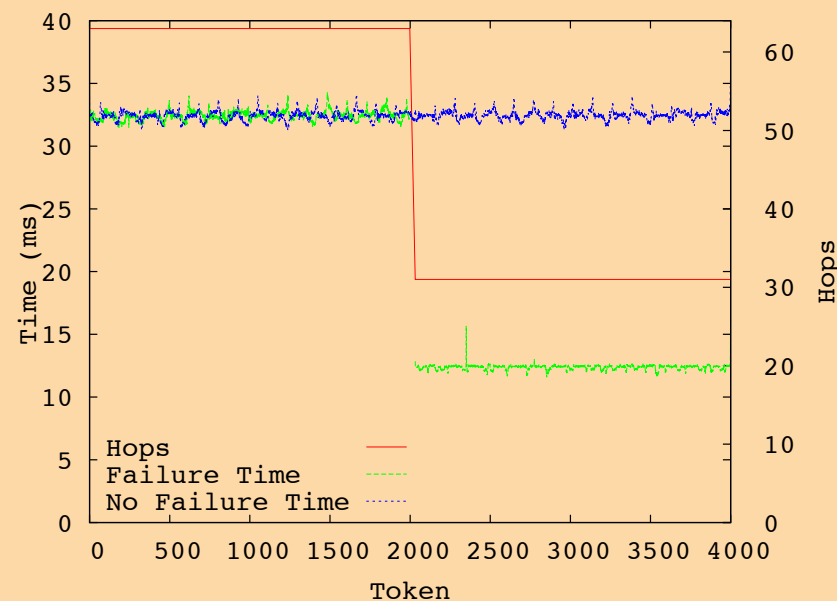
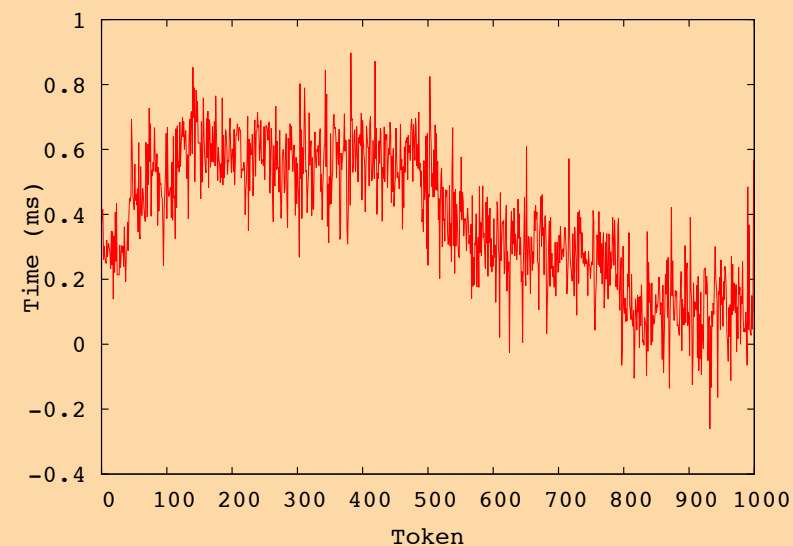


Open MPI Runtime Modifications

n / 2 Failures



Overhead

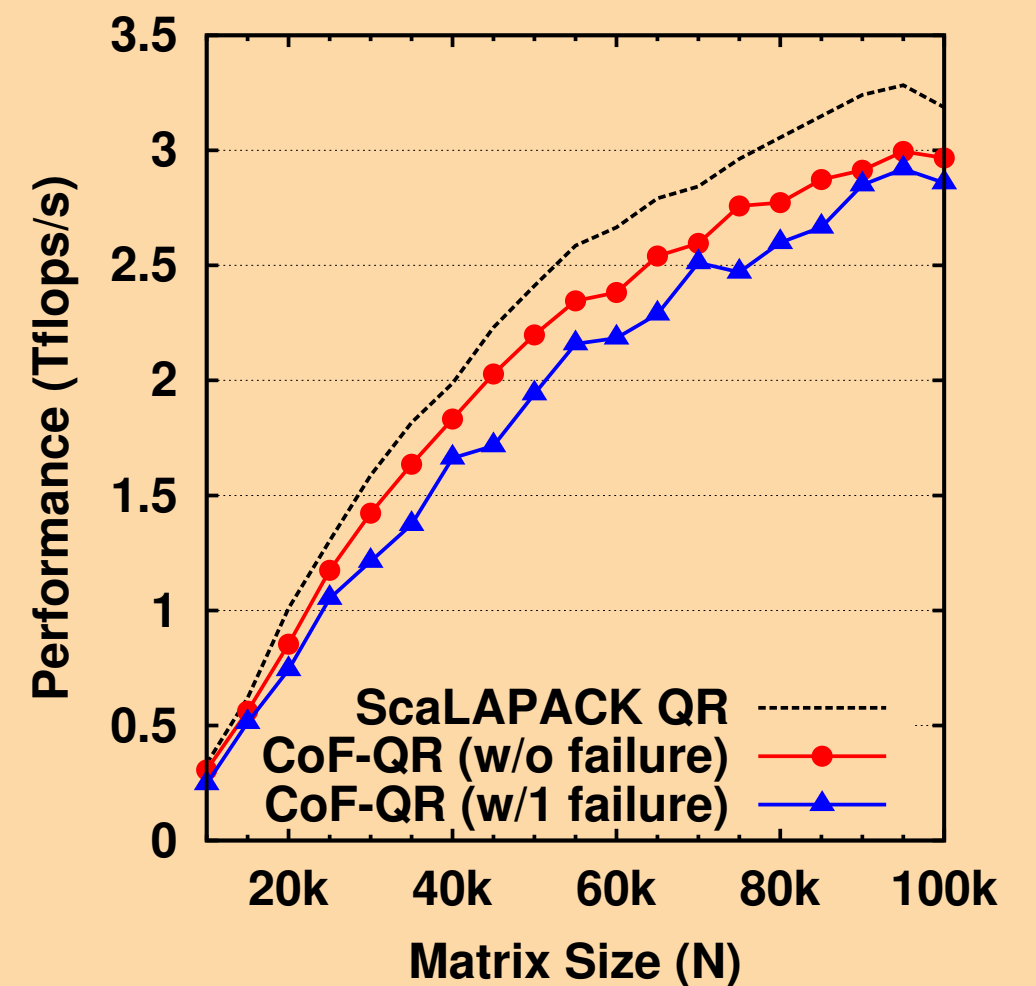


- ✦ Tested with a ring token benchmark
- ✦ Handles up to $n-2$ concurrent failures
- ✦ Minimal overhead over unmodified runtime

Checkpoint-on-Failure

- Comparable performance after failure
- Little loss of performance in the failure free case
- $<10\%$ overhead
- Optimal checkpoint interval

CoF QR Factorization

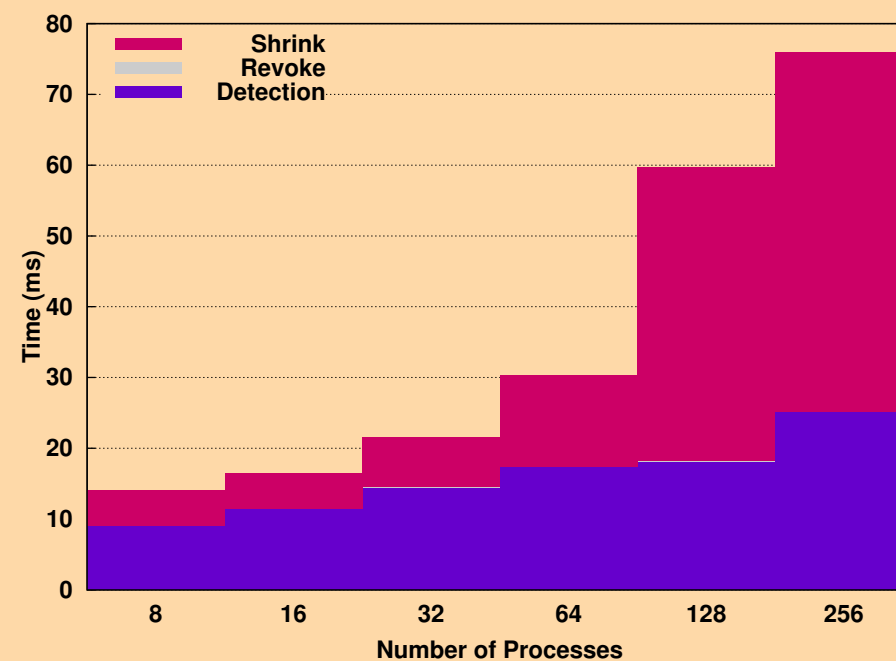


Kraken (24x24 process grid)

User Level Failure Mitigation

- Synthetic Fault Injection Benchmark
 - Demonstrates recovery time
 - Most time spent in communicator creation (dependent on MPI implementation)
- Sequoia-AMG Benchmark
 - Minimal failure-free overhead

Fault Injection Benchmark



Sequoia-AMG Benchmark

