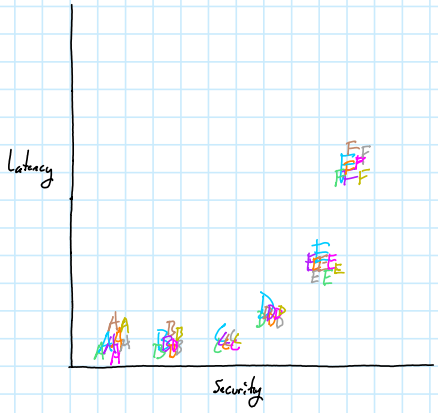
Graphs

Thursday, July 18, 2019 6:30 AM

4x WORM & Freeze Experiments, Random & Sequential

1 Cipher Performance on Given Workload When Reading, No Scheduling



LEGEND

40 MB WORM Random
40 MB Freeze Random
40 MB WORM Sequential
40 MB Freeze Random
512kB WORM Random
512kB Freeze Random
512kB WORM Sequential
512 kB Freeze Sequential

Where A-F represent Ciphers.

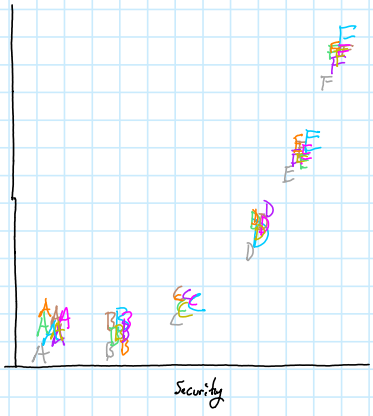
A Chacha8 — D freestyle_fast
B Chacha12 — E freestyle_balanced
C Chacha20 — F freestyle_secure

(there are many more)

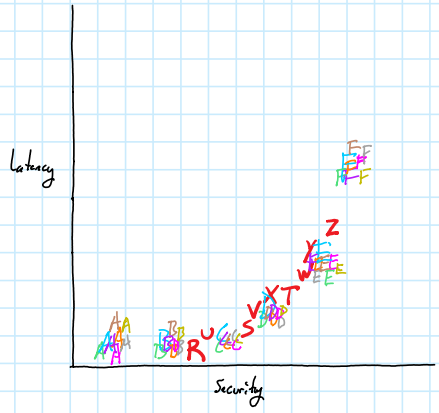
And R-Z

R A-D U B-D X C-D
S A-E V B-E Y C-E
T A-F W B-F Z C-F

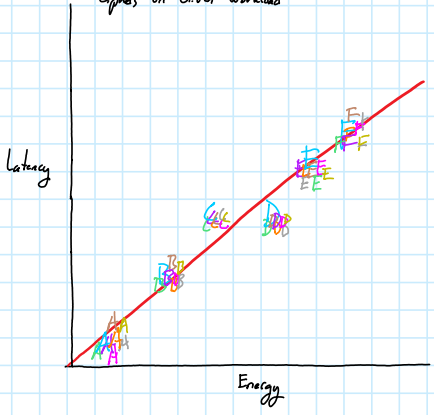
2 Cipher Performance on Given Workload When Writing, No Scheduling



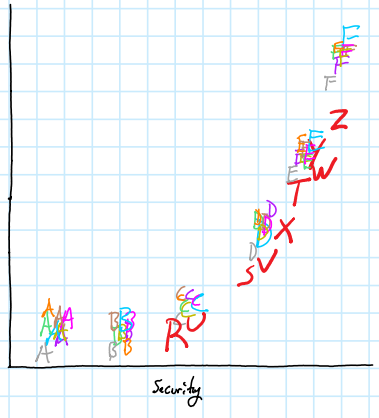
3 Cipher Performance on Given Workload When Reading, Forward 0 Scheduling, 50/50 Ratio



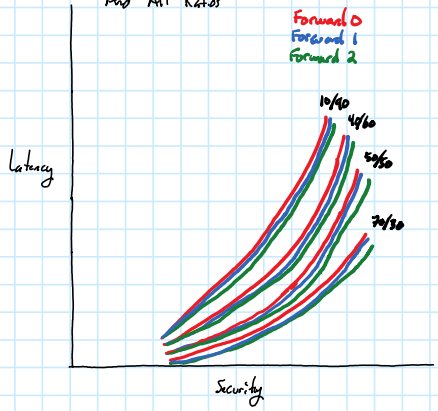
4 Linearity Between Latency and Energy Use Across Ciphers on Given Workload



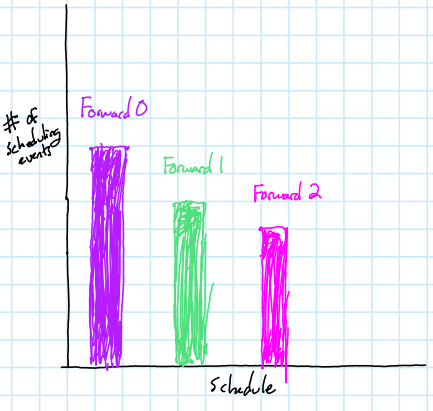
5 Cipher Performance on Given Workload When Writing, Forward 0 Scheduling, 50/50 Ratio



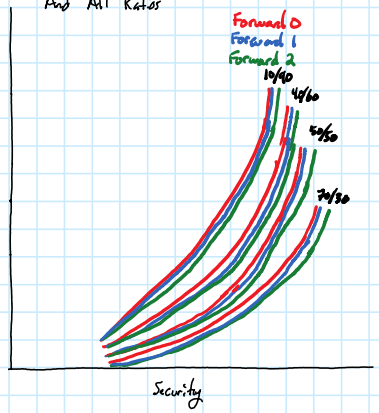
6 Cipher Performance on Sequential 40 MB Workload, Reading, Across All Forward Schedules And All Ratios



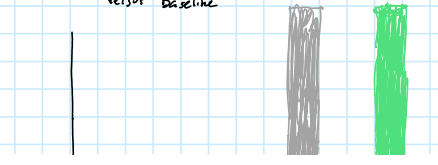
7 Frequency of Scheduling Events during 40 MB Sequential R/W Across All Forward Schedules



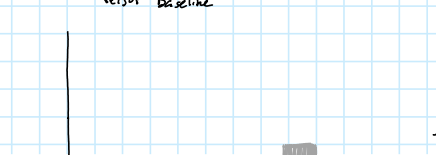
8 Cipher Performance on 40 MB Sequential Workload, Writing, Across All Forward Schedules And All Ratios



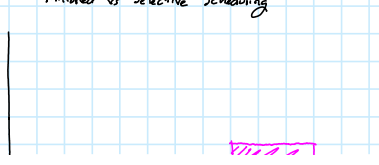
9 Cipher 1 vs Cipher 2 Performance with 40 MB Workload R/W, Mirrored Schedule Versus Baseline

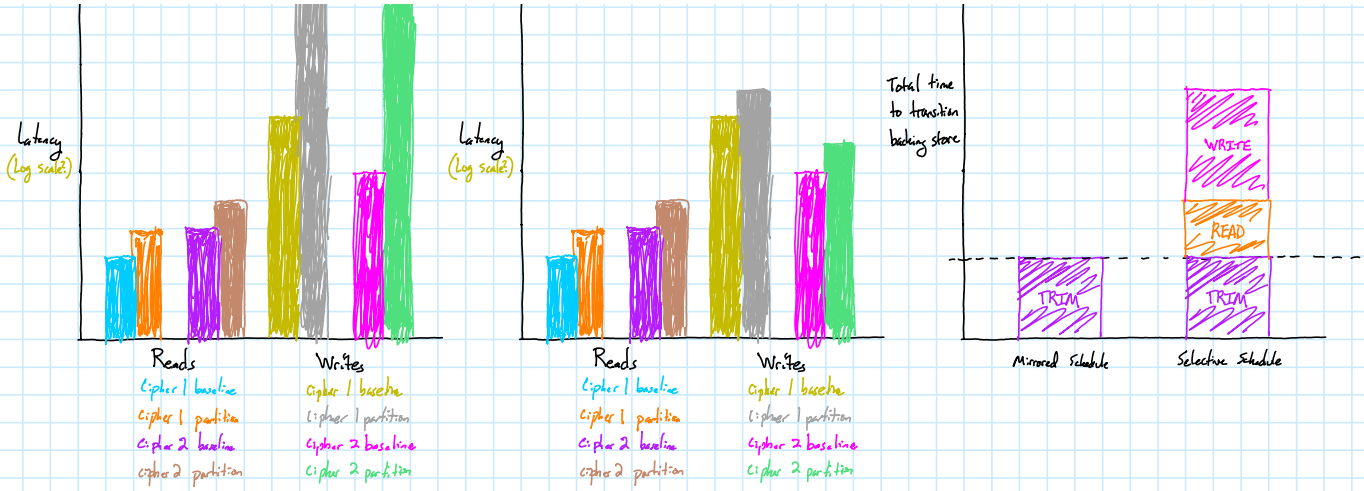


10 Cipher 1 vs Cipher 2 Performance with 40 MB Workload R/W, Selective Schedule Versus Baseline



11 Total Time to Transition Entire Backing Store to New Cipher and Eliminate Old Data, Mirrored vs Selective Scheduling




Latency
(Log scale?)
Reads
Writes
cipher 1 baseline
cipher 1 partition
cipher 2 baseline
cipher 2 partition
Latency
(Log scale?)
Reads
Writes
cipher 1 baseline
cipher 1 partition
cipher 2 baseline
cipher 2 partition
Total time
to transition
backing store
WRITE
READ
TRIM
TRIM
Mirrored Schedule
Selective Schedule