Hybrid TM Using NOrec STM

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"Ideal" HTM

"Solves all your synchronization needs"

Best-effort (real) HTM

Hybrid TM

(1) STM provides unbounded txns when needed.
(2) SW txns run concurrently with HW txns.

Hybrid HW Instrumentation

(1) extra work on HW path
(2) larger read sets
(3) cache/predictor pollution

NOrec STM

(1) single shared location
(2) value-based validation
(3) serialized writeback
(4) high performance

NOrec Hybrid

(1) small constant space overhead
(2) no per-access HW instrumentation
(3) SW txns tolerate HW commits
(4) HW txns perform shared RMW
(5) assume HW progress guarantees