**Project Description**

ScreeDB is a RocksDB utility that uses NVML to bypass the RocksDB LSM implementation entirely. ScreeDB uses NVM exclusively (without mixing in other types of storage) and specifically targets capacities/latencies expected for Crystal Ridge.

**Project Team:**

The prototype will be built and evaluated by the Crystal Ridge SW architecture team.

**Business Summary**

Key-value services are increasingly used for high-performance storage tiers in cloud architectures. An open-source reference implementation of a key/value datastore optimized for 3DXP could show performance and RAS advantages, creating pull for Crystal Ridge in the Public and Private cloud segments.

Depending on the results of this experiment, favorable business value might obtain in either of two ways: 1) ScreeDB performance and 3DXP pricing could provide a superior economic alternative to LSM, if performance is high enough relative to cost or 2) ScreeDB+3DXP could have moderately reduced performance/efficiency compared to LSM implementations, but with substantially reduced solution complexity (including configuration).

**Market/Requester**

Crystal Software Architecture and joint NSG Pathfinding team with a goal to create optimized, reference applications for the CSP and Private Cloud segments.

**How will you know when you are done?**

- Negative result: If RocksDB and NVML libraries are fundamentally incompatible

- Negative result: If FPTreeDB performance is significantly lower than unmodified RocksDB

- Negative result: If FPTreeDB solution complexity exceeds that of a LSM implementation

- Positive result: If performance and pricing position FPTreeDB favorably with LSM implementations (using existing K/V pathfinding workloads for comparison)

**Technical Description**

As a RocksDB utility, ScreeDB does not modify the core RocksDB distribution, but only adds code at expected extension points. ScreeDB follows SpatialDB and TransactionDB utilities, which provide high-level wrappers using the RocksDB API.

ScreeDB runs completely in user-space and doesn't propose any hardware acceleration.

**Details**

**In Scope**

A backlog of issues assigned to the first Alpha milestone are available in GitHub: https://github.com/RobDickinson/screedb

**Out of Scope**

(needs review)

**Dependencies**

None for PoC evaluation.

**Resources & Schedule**

Rob to estimate

**Prototype Availability**

Rob to estimate