**The Effects of Rotating Skiplist on LevelDB**

Github Repository containing source code, tests, LevelDB builds: <https://github.com/jsngalloway/leveldb_rotating_skiplist>

**Topic**

The aim of this project is focused around LevelDB (<https://github.com/google/leveldb>), an open-source, in-memory database designed and used by Google. Our project is an attempt to replace the underlying skiplist data structure it employs as an index with a rotating skiplist, as outlined in the paper “A Skip List For Multicore”, by Dick, Fekete, and Gramoli.

**Background**

LevelDB is a fast key-value storage that provides an ordered mapping of string keys to string pairs. Basic operations include Put(key, value), Get(key), Delete(key).

Rotating Skiplist is a type of skiplist that claims to be the fastest concurrent skiplist to date. It aims to improve throughput performance by rotating the head of the skiplist for minimizing contention, using wheels instead of towers in the internal structure, and no locks. According to the paper, Rotating skiplist outperforms all other novel logarithmic skiplists/trees (Fraser’s skiplist, Crain’s no hotspot skiplist, Optimistic skiplist, Transaction-based skiplist, Speculation-Friendly BST, Citrus Tree, Non-blocking BST) across 0, 10, 30, and 90% update transactions in terms of throughput.

**Motivation**

**Major Challenges**

**Implementation Details**

**Results**

**References**

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