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Modern key-value stores use LSM-based storage, where unlike traditional index structures, these do not perform in-place updates. Rather, LSM tree first buffers all writes in main memory, and subsequently flushes the buffer as sorted run to disk whenever it fills up, and organizing the disk-runs into a number of levels of increasing sizes. LSM-tree later sort-merges these runs. This design has lots of benefits including superior write performance, high space utilization, tunability, and simplification of concurrency control and recovery.

In this paper, the authors provide