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KIOXIA America Updates TRocksDB; Validates Payload Sizes

Open Source RocksDB Architectural Patch Benefits Overall Database Operation, SSD Lifespan

SAN JOSE, Calif., February 27, 2020 – Furthering its commitment to leading the market forward with next-generation technologies, KIOXIA America, Inc. (formerly Toshiba Memory America, Inc.) has performed validation testing on its TRocksDB solution, which provides a blueprint to improve open source software for SSDs. After evaluating a series of TRocksDB payload test scenarios, KIOXIA found that as the payload size increased, database performance gains continued to be realized[1] with TRocksDB over RocksDB (without the TRocksDB patch). Additionally, KIOXIA has merged TRocksDB with the latest RocksDB release (version 6.4.6) to ensure compatibility.

First introduced at FMS 2019, KIOXIA's TRocksDB is an open source contribution that improves the life span of SSDs used with the RocksDB database, while delivering the same or improved performance[2]. TRocksDB utilizes fast SSD storage while supporting I/O-bound, in-memory, write-once workloads.

"While we're well-known for our role as a leader in SSDs and flash memory solutions – at KIOXIA, we're always striving to be a driving, transformational force in the storage market," noted Eric Ries, SVP, Memory Storage Strategy Division (MSSD), KIOXIA America, Inc. "Building on the successful rollout of TRocksDB, KIOXIA continues to innovate by validating the performance gains that this solution offers over RocksDB. We are proud to contribute the TRocksDB code to the open source community to enable a wider variety of capabilities for users – and extend the overall life of their flash-based database storage."

Highly flexible and designed for use with any off-the-shelf SSD, TRocksDB is an enhancement to the RocksDB database design that uses key values more efficiently with SSDs to enable improvements in storage and DRAM usage. TRocksDB also reduces the repeated data rewriting[2] caused by application-generated write amplification[3]. TRocksDB runs on any

Linux® hardware supported by RocksDB. Being a member of the OSS community enables TRocksDB to be part of storage innovation and industry participation that can evolve the platform to a higher level.

TRocksDB is currently available for download from a GitHub®[2] repository. For more information, please visit www.kioxia.com.

About KIOXIA America, Inc.

KIOXIA America, Inc. (formerly Toshiba Memory America, Inc.) is the U.S.-based subsidiary of KIOXIA Corporation, a leading worldwide supplier of flash memory and solid state drives (SSDs). From the invention of flash memory to today's breakthrough BiCS FLASH™ 3D technology, KIOXIA continues to pioneer cutting-edge memory solutions and services that enrich people's lives and expand society's horizons. The company's innovative 3D flash memory technology, BiCS FLASH, is shaping the future of storage in high-density applications, including advanced smartphones, PCs, SSDs, automotive, and data centers. For more information, please visit KIOXIA.com.

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Notes:

[1] Based on internal KIOXIA testing: "Comparing Payload Sizes: RocksDB vs. TRocksDB," February 2020.

[2] Based on internal KIOXIA testing: "Introducing the TRocksDB Platform," December 2019.

[3] SSD Write Amplification (WA) is a scenario that happens to solid state drives (SSD) where data and metadata are written multiple times that increases the number of program and erase cycles. This effect can reduce the life of the SSD over time.

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