SDC 20

BY Developers FOR Developers

Storage Developer Conference
September 22-23, 2020

Track Overview: Blockchain

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Offchain Storage for Blockchain

Ramya Krishnamurthy
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HPE

Blockchain – A Quick Overview

- Blockchain is a distributed database of records, stored in blocks. The data stored in Blockchain cannot be modified or deleted and remains immutable
- Storage infrastructure for Blockchain requires massive scale and performance resulting from petabytes of records and distributed access
- Major use cases include secure, automated transactions, and tracking in the sectors like financial services , healthcare, and supply chain

Scope of this session is centered around aspects of storage infrastructure needed for Blockchain

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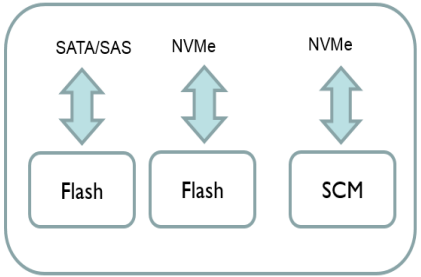
NVME/Flash Technology

- Off-chain storage unburdens the block chain of storing large datasets but this can impact performance since physical disks are slow

- NVMe technology can help in reducing processor cycle for storage and provide the desired performance at scale. NVMe bypasses the slow SATA bus and communicates directly with the CPU, providing higher bandwidth, IOPS and lower latency to improve the off-chain workload performance

- NVMe with storage class memory (SCM) ensures persistent data even if there is a power failure or system crash
- NVMe with SCM also provides increased performance as compared to NAND flash drives



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Blockchain in Storage Applications

ActionSpot
Andrey Verbitsky
Olga Buchonina

Blockchain, Hash and Consensus protocol

- Blockchain can use different cryptographic hash algorithms such as SHA-256 (one of the most popular), Whirpool, RIPEMD (RACE Integrity Primitives Evaluation Message Digest), Dagger-Hashimoto and others).
  - Mercle tree is a blockchain construct which allows to build a chain by using hashes and data blocks.
- Consensus protocols is protocol for decision making such as Proof of Work, Proof of Space, Proof of Stake and etc. Each consensus protocol is using the distributed ledger to make a record for the block of data transferred.

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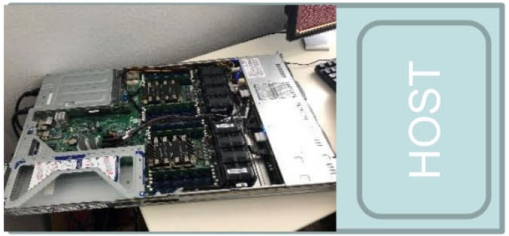
Building Blockchain using NVMe and NVMe-oF end to end solutions

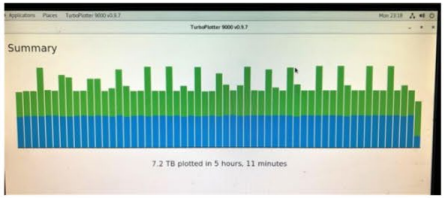
The architecture and setup for Blockchain Proof of Capacity Miner



NVMe-oF

NVMe Devices

Plotting – MEM WRITES



PoC Miners
(Scavenger for Burst)

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Maximize your SDC 2020 Experience

SDC 20

- Participate in our online chat for this track at <TBD>
- Check out the Blockchain Birds of a Feather (BoF) session on Wednesday 4:00 – 5:00pm PT
- Please be sure you rate each session you watch – you'll see a box under the video
- For additional details see the *Introduction to Virtual SDC* video (https://www.snia.org/SDCintro)
- ***Enjoy the SDC 2020 virtual event!***

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