



Storage Networking Industry Association

Technical Activities Update

February 2022



SNIA Technical News: New Zoned Storage TWG

- In a Zoned Storage system, the host and device cooperate regarding data placement on the device. For SSDs, this enables lower overprovisioning, more predictable performance, and potential device cost reduction. For HDDs, Zoned Storage enables the use of SMR drives, which deliver the highest capacities, as well as performance benefits.
- Command interfaces for Zoned Storage have been standardized (ZAC/ZBC for SMR HDDs and ZNS for NVMe SSDs), however, the specifications leave flexibility in how host software interacts with the Zoned Storage IO stack and Zoned Storage devices, resulting in different application best practices depending on the use case. The Zoned Storage ecosystem will benefit from the description of common use cases, and a nomenclature around which corresponding host/device models can be described.
- **The Zoned Storage TWG will facilitate a common industry understanding of Zoned Storage use cases and create a host/device architecture and programming model; providing a framework for Zoned Storage design and enabling the development of a robust Zoned Storage solutions ecosystem.**

SNIA Technical News: New SNIA Standard

- **Swordfish Scalable Storage Management API Specification v1.2.3**
 - The Swordfish Scalable Storage Management API defines a RESTful interface and a standardized data model to provide a scalable, customer-centric interface for managing storage and related data services.

SNIA Public Review Drafts

- Smart Data Accelerator Interface (“SDXI”) Specification v0.9.0 rev 1
- Blockchain Interoperability Specification v0.5 rev 0.1
- Computational Storage Architecture and Programming Model v0.8 rev 0
- Computational Storage API v0.5 rev 0
- DRAFT CDMI Extensions and Profiles
 - Capabilities Selection Extension v2.0
 - CORS Extension v2.0
 - Data Affinity Extension v2.0
 - Extended Child Listing v2.0
 - Jobs v2.0
 - Partial Upload Extension v2.0

Check them out! - Provide Feedback!
Participate in their development!

Storage Developer Podcast: Latest Episode



This week's highlighted Podcast:

#161: Analysis of Distributed Storage on Blockchain by Tejas Chopra, Senior Software Engineer, Netflix.

Blockchain has revolutionized decentralized finance, and with smart-contracts has enabled the world of Non-Fungible Tokens, set to revolutionize industries such as art, collectibles and gaming. Blockchains, at the very core, are distributed chained hashes. They can be leveraged to store information in a decentralized, secure, encrypted, durable and available format. However, some of the challenges in Blockchain stem from the bloat of storage. Since each participating node will keep a copy of the entire chain, the same data gets replicated on each node, and even a 5MB file stored on the chain can exhaust systems. Several techniques have been used by different implementations to allow Blockchains for distributed storage of data. The advantages compared to cloud storage would be the decentralized nature of storage, the security provided by encrypting content, and the costs. In this session, we will discuss how different blockchain implementations such as Storj, InterPlanetary File System, YottaChain, and ILCOIN have solved the problem of storing data on the chain, but avoiding bloat. Most of these solutions store the data off-chain and store the transactions metadata on the blockchain itself. IPFS & Storj for example, uses content-addressing to uniquely identify each file in a global namespace connecting all the computing devices. The incoming file is encrypted, and split into smaller chunks, and each participating node will store a chunk with zero-knowledge of the other chunks. ILCOIN relies on RIFT protocol to enable two level blockchains, one for the standard blocks, and the other for the mini-blocks that comprise the transactions and which are not mined, but generated by the system. Yottachain uses deduplication after encrypting content, which is not generally the way data storage is designed for cloud, to reduce the footprint of data on the chain. We will discuss the tradeoffs of these solutions and how they aim to disrupt cloud storage. We will compare the benefits provided in terms of security, scalability and costs, and how organizations such as Netflix, Box, Dropbox can benefit from leveraging these technologies.

Learning Objectives: 1) Learn about the Blockchains and how they are designed to store small amounts of information; 2) Learn about different blockchain projects such as IPFS, Yottachain, Storj, ILCOIN and their implementations; 3) How blockchain based storage solutions can provide better benefits to existing cloud storage; 4) Impact of leveraging blockchain storage on companies such as Netflix, Box, Dropbox.

Storage Developer Podcast: Upcoming Episodes

- Ransomware!!! – an Analysis of Practical Steps for Mitigation and Recovery
- Automating the Discovery of NVMe-oF Subsystems over an IP Network
- Enabling Asynchronous I/O Passthru in NVMe-Native Applications
- Enabling Heterogeneous Memory in Python
- Future of Storage Platform Architecture
- NVMe-oF: Protocols & Transports Deep Dive
- PCIe® 6.0: A High-Performance Interconnect for Storage Networking Challenges

Next SNIA LIVE Webcast

■ Why Cryptocurrency and Computational Storage?

- **Tuesday, February 15, 2022. 10:00 am PT / 1:00 pm ET(or after on-demand)**
 - Blockchains, cryptocurrency, and the internet of markets are working to transform finance, wealth, safety, digital security, and trust. Storage-based cryptocurrencies had a breakout year in 2021. Proof of Space and Time is a new blockchain consensus that uses storage capacity to secure the blockchain. Decentralized file storage will enable alternatives to hyperscale data centers for hosting files and objects. Understanding the TCO of a storage system and optimizing the utilization of the storage hardware is critical in scaling these systems. Proof of space generation requires temporary compute and ephemeral storage resources. Having compute resources onboard an SSD can allow for local data processing to decrease overall system Total Cost of Ownership (TCO).
 - Join SNIA members Jonmichael Hands of Chia Network, and Eli Tiomkin of NGD Systems as they discuss how a new approach of auto-plotting SSDs combined with computational storage can lower the total TCO. They will discuss how autoplotting works, provide server use cases that illustrate significant performance/TB gains, and discuss the results based on the [SNIA Total Cost of Ownership Mode for Storage](#). This is a perfect opportunity to learn about the SNIA TCO model with an interactive case study.

Upcoming SNIA LIVE Webcasts

- **15 Minutes in the Cloud: What is Cloud?**
 - Wednesday, March 2, 2022, 10:00 am PT / 1:00 pm ET
- **Storage Life on the Edge: Edge Storage Use Cases**
 - Tuesday, March 22, 2022. 10:00 am PT / 1:00 pm ET

Geek Out on File vs. Block vs. Object Storage



<http://www.snia.org/geekout>

SNIA Annual Members Symposium

- Learn what SNIA has planned for 2022
 - All SNIA Committees, Forums, Initiatives, and Technical Work Groups presented on their activities and plans for 2022
- Check out the video presentations

<https://www.snia.org/symposium>

Important SNIA Links

- <http://www.snia.org/standards/>
- <http://www.snia.org/software/>
- <http://www.snia.org/publicreview/>
 - Draft SNIA Technical Work available for public review
- <http://www.snia.org/feedback/>
 - Public feedback submission form for draft SNIA Technical Work
- <http://www.snia.org/dictionary/>
 - Current SNIA Dictionary
- <http://www.snia.org/library>
 - Educational Library
- <http://www.snia.org/webcasts>
 - SNIA Webcasts
- <http://www.storagedeveloper.org>
 - SNIA Storage Developer Conference (SDC)
- <http://www.snia.org/podcasts/>
 - SDC Podcasts