



Highlights

[Flash Memory Summit Highlights](#)

[KIOXIA Introduces Sample PCIe NVME Technology-Based Flash Hardware for the Linux Foundation's Software-Enabled Flash](#)

[StorPool Next-Generation Data Storage Software Best in Show and Most Innovative Startup](#)

[Decentralized Data Storage Applications Beyond Cryptocurrency](#)

[Upcoming Conferences](#)

AUGUST 6-11, 2022

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Flash Memory Summit Highlights

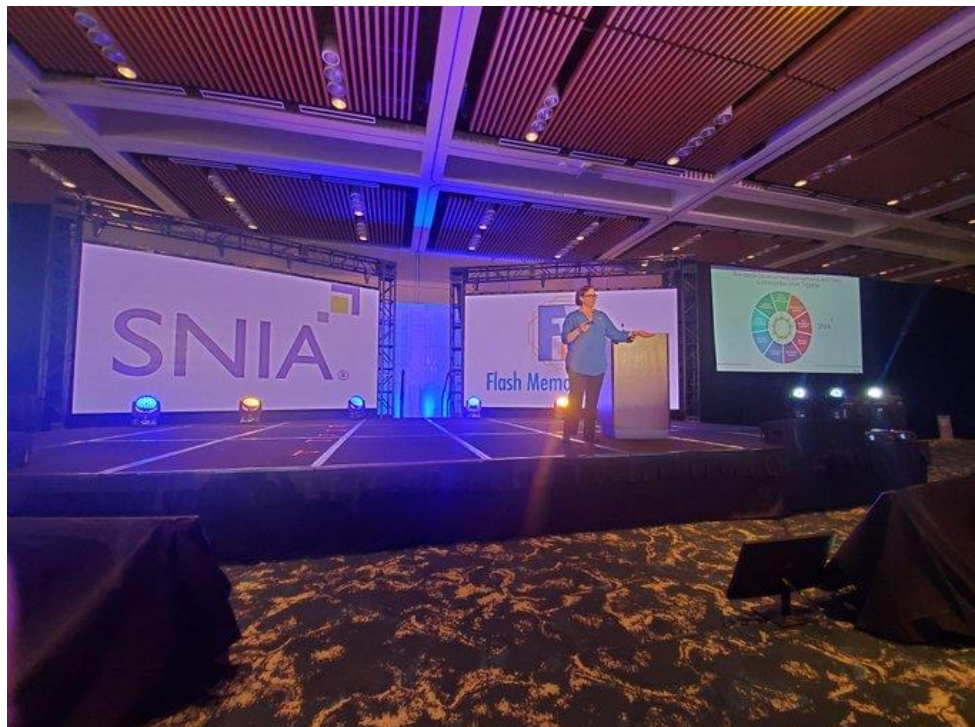
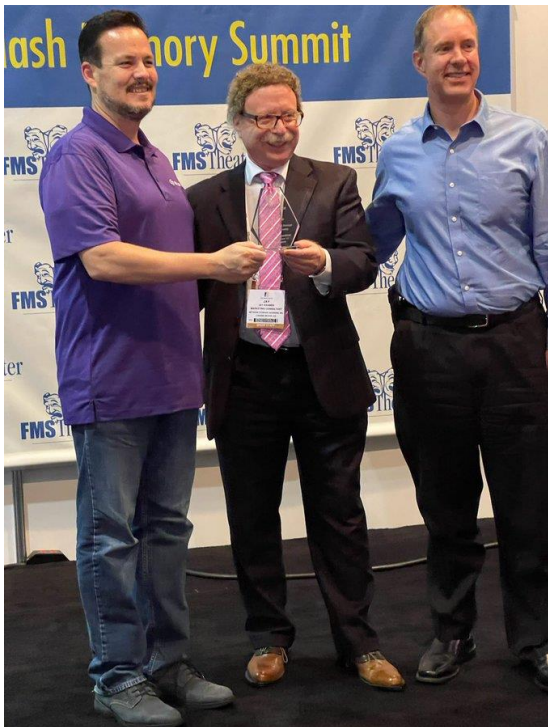


Flash Memory Summit

Flash Memory Summit returned to in-person and was well attended with many breakout sessions and keynotes filled to standing room only. Companies highlighted new products and innovation and attendees embraced the opportunity to network with old and new friends and colleagues. Highlights:



SNIA won the Most Innovative Memory Technology Award and their Computational Storage Technical Work Group Received an Award for Computational Storage Architecture and Programming Model [Scott Shadley](#), SNIA Board of Directors member and Co-Chair of the SNIA Computational Storage Technical Work Group and [Jason Molgaard](#), fellow Co-Chair accept the award from Jay Kramer. [Richelle Ahlvers](#) SNIA Vice Chair, spoke on standards and partnerships with alliance organizations.



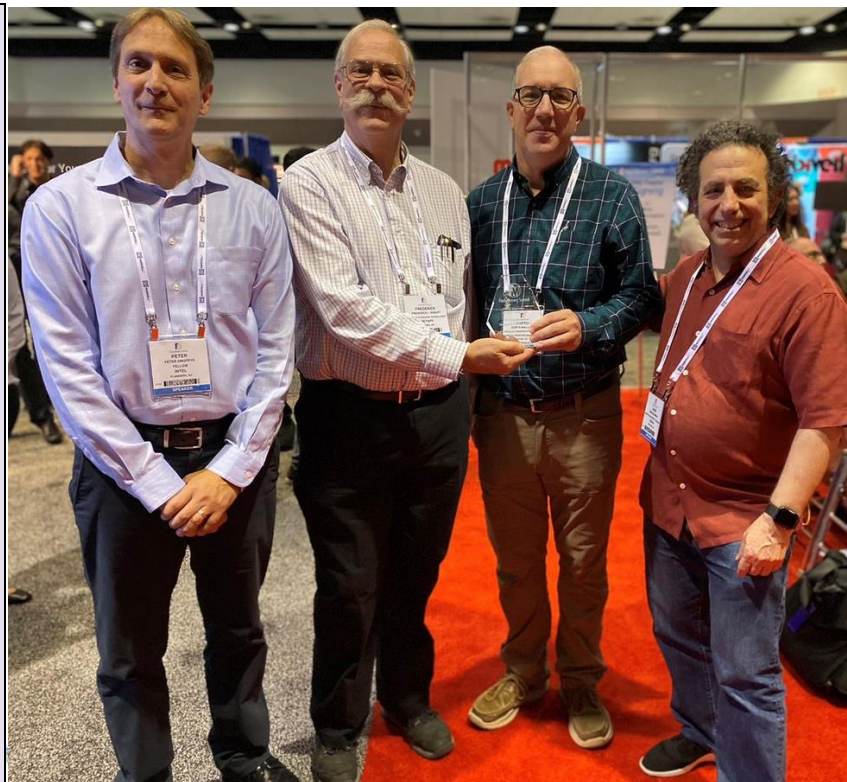


Quarch Technology Power Analysis Module won the Most Innovative Sustainability Technology award.

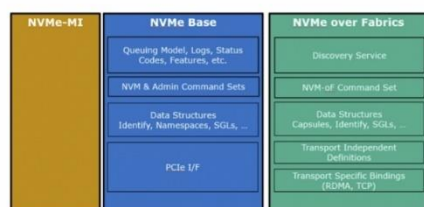
"I set up Quarch to eliminate the problems of manual testing—its unreliability and its high cost in terms of time and money. My ultimate aim was to produce smart tools that automated the testing process, making it reliable, repeatable and fast. We've created a broad range of tools that allow you to test your products in ways that just weren't practical with manual testing."

[Mike Dearman, Founder and CEO](#)

NVMe won the 2022 Most Innovative Memory Award for NVMe 2.0 Specifications. Like other NVMe spec updates, version 2.0 comes with a variety of new features and functionality for drives to implement (usually as optional features). But the most significant change—and the reason this is called version 2.0 instead of 1.5—is that the spec has been drastically reorganized to better fit the broad scope of features that NVMe now encompasses. From its humble beginnings as a block storage protocol operating over PCI Express, NVMe has grown to also become one of the most important networked storage protocols, and now also supports storage paradigms that are entirely different from the hard drive-like block storage abstraction originally provided by NVMe.



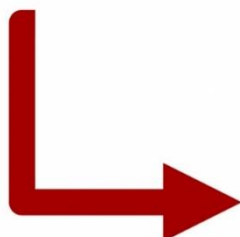
Refactoring NVMe® Specifications



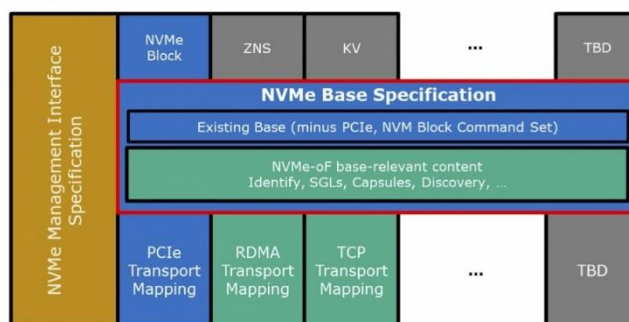
Key Aspects Driving the Refactor

- Back to the core values... Fast, Simple, Scalable
- Foster areas of innovation while minimizing impact to broadly deployed solutions
- Creating an extensible spec infrastructure that will take the industry through the next phase of growth for NVMe technology

Previous Version

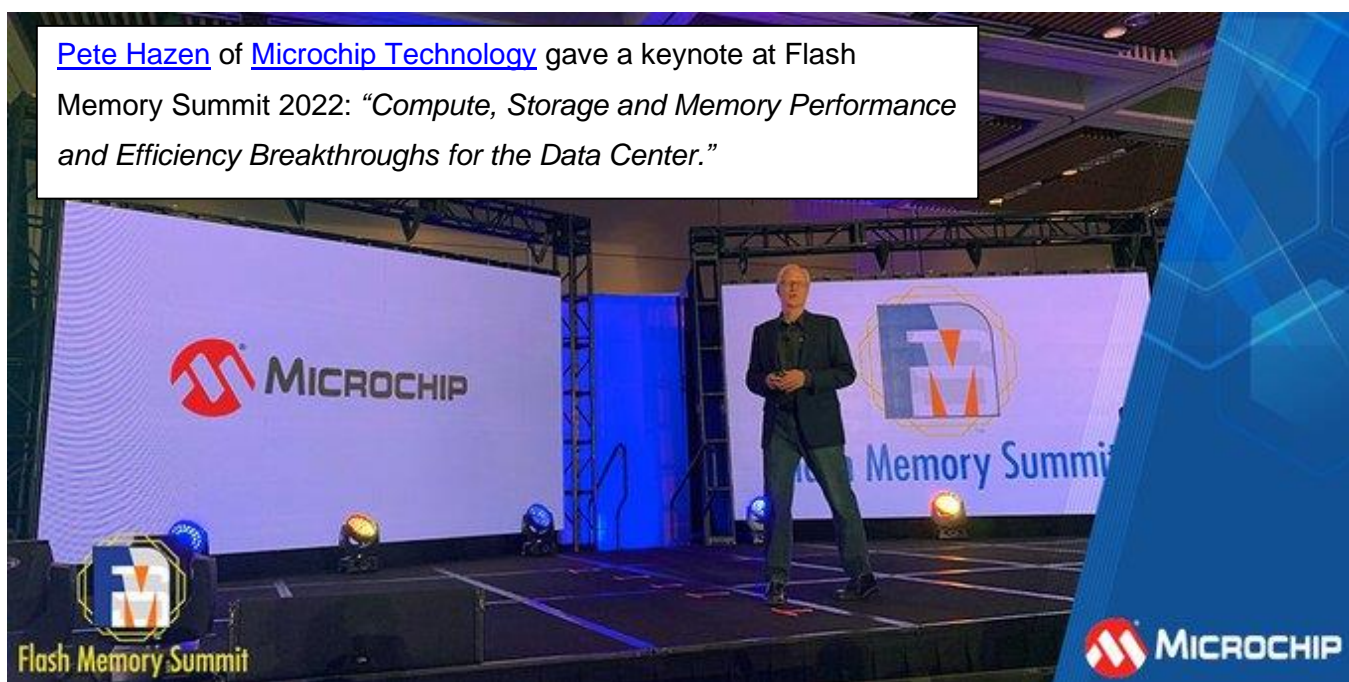


New Structure





[Pete Hazen](#) of [Microchip Technology](#) gave a keynote at Flash Memory Summit 2022: “Compute, Storage and Memory Performance and Efficiency Breakthroughs for the Data Center.”



KIOXIA Introduces Sample PCIe NVME Technology-Based Flash Hardware for the Linux Foundation's Software-Enabled Flash

KIOXIA

Open-Source Software Project Enables Software Developers to Maximize Use of Flash Media
KIOXIA [highlighted its new open-source software](#) project in a session at Flash Memory Summit 2022: "NVMe Software-Enabled Flash Storage for Hyperscale Data Centers." The technology fully uncouples flash storage from legacy HDD protocols, allowing flash to realize its full capability and potential as a storage media.



To reach efficiency at scale, hyperscale cloud storage needs more from flash storage devices that are currently based on hard disk drive protocols created decades ago. To resolve this, the Linux

Foundation's Software-Enabled Flash Community Project enables industry adoption of a software-defined flash API, giving developers the ability to customize flash storage specific to data center, application and workload requirements. The project was created to benefit the storage developer community with a vendor agnostic, flexible solution that meets the evolving requirements of the modern data center.

Software-Enabled Flash technology consists of an open-source API and libraries coupled with purpose-built, media-centric flash hardware focused on hyperscale requirements and provides the tools for software developers to maximize the yet untapped capabilities in flash storage. By unlocking the full power of flash, this technology breaks free from legacy HDD protocols and creates a platform specific to flash media in a hyperscale environment.

Software-Enabled Flash technology fundamentally redefines the relationship between the host and solid-state storage, offering our hyperscale customers real value while enabling new markets and increasing demand for our flash solutions. By delivering the ability to flexibly deploy and manage flash-based storage, and get the maximum value out of it, we are making good on our promise to improve flash efficiencies in hyperscale data centers.

["Software-Enabled Flash technology fundamentally redefines the relationship between the host and solid-state storage, offering our hyperscaler customers real value while enabling new markets and increasing demand for our flash solutions."](#)
[Eric Ries](#), SVP, Memory Storage Strategy Division (MSSD), KIOXIA America, Inc.

StorPool Next-Generation Data Storage Software

**Best in Show and
Most Innovative Startup**



"Cloud Service Providers have a very high bar for criteria when selecting storage arrays. They need to deliver extreme reliability, minimal latency and fast data writing and retrieval to meet the service level objectives across a range of customer workloads. We are proud to recognize StorPool with their StorPool Storage and the ability to deliver a highly available storage infrastructure which is agile enough to meet the dynamic needs of cloud customers who also demand consistent quality of service, speed, and cost-effectiveness." [Jay Kramer](#), Chairman of the Awards Program

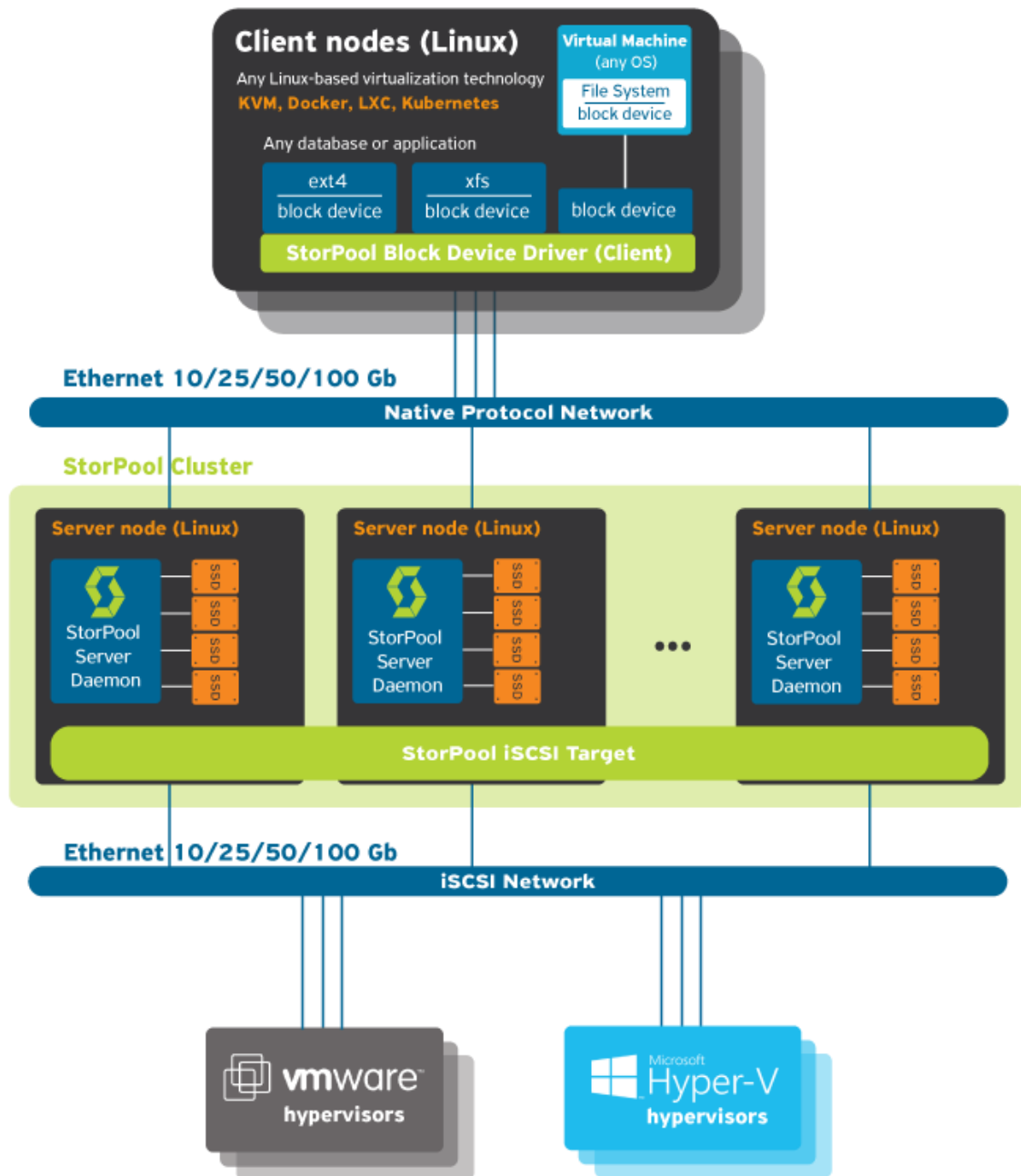
[StorPool](#) is a next-generation data storage software. It pools the capacity and performance of attached local DAS devices (NVMe, SSD, HDD), from multiple standard servers, to create a single pool of shared block storage. StorPool works on a cluster of servers in a fully distributed, shared-nothing architecture. All functions are performed by all servers on an equal peer basis. It works on standard servers running GNU/Linux.

StorPool's redundancy is guaranteed through a synchronous replication algorithm. This can be thought of as a very advanced software RAID between servers and racks. Users can set the desired number of replication copies. Data is "sliced", and copies are distributed between a chosen number of servers or racks. This provides high levels of reliability, speed, and fast recovery.

Further, StorPool enables the implementation of converged/integrated infrastructure solutions, known as hyper-convergence. Users can run compute (virtual machines, applications, databases, etc.), on the same servers as the storage (StorPool). This is because StorPool is highly efficient, taking just 5-10% of the resources of each server and leaving the majority of resources available for running apps. This convergence of storage and compute loads allows customers to increase levels of utilization, thus significantly reducing Total Cost of



Ownership (TCO), and therefore boost Return on Investment (ROI).



“We appreciate the FMS team for giving the industry this chance to explore new directions and innovations in storage, and highlighting the people, products, and providers that are making a difference in the market. Our team is honored to be included in this year’s outstanding collection of winners, and thrilled to participate in FMS.” [Boyan Ivanov](#), CEO at StorPool Storage

Decentralized Data Storage Applications Beyond Cryptocurrency



Centralized data providers such as AWS store data on their internal servers, providing it for clients as needed. Relying on one cloud provider to access your data is an inherent vulnerability that most enterprise level companies would like to avoid. Many companies mitigate this risk by relying on hybrid, multi-cloud and/or on-site storage solutions. However, decentralized storage providers such as [Filecoin](#), [Sia](#) and [Storj](#) offer another alternative to this problem. While these companies were born out of the cryptocurrency space, its decentralized storage offerings are starting to gain traction among traditional companies and organizations.

But is it secure, and [how does it work](#)? Decentralized storage is a peer-to-peer cloud storage solution with ordinary users or miners managing the system. Users rent out free disk space on their drives and are incentivized with tokens in return for their contribution. Data is split into small pieces, encrypted, and distributed over an extensive system of nodes spread across the globe. Even though data is split into small pieces and sent to different nodes, only about 30-40% of the nodes are needed at any given point in time to access the data, creating redundancy in case of node failure. Each file is encrypted with a private key, and only users with the same set of encryption keys can access the data, making it highly secure. To access a particular data in a decentralized storage platform, threat actors have to launch a concurrent attack on data situated on multiple storage nodes worldwide, making it almost impossible for them to hack into the system.

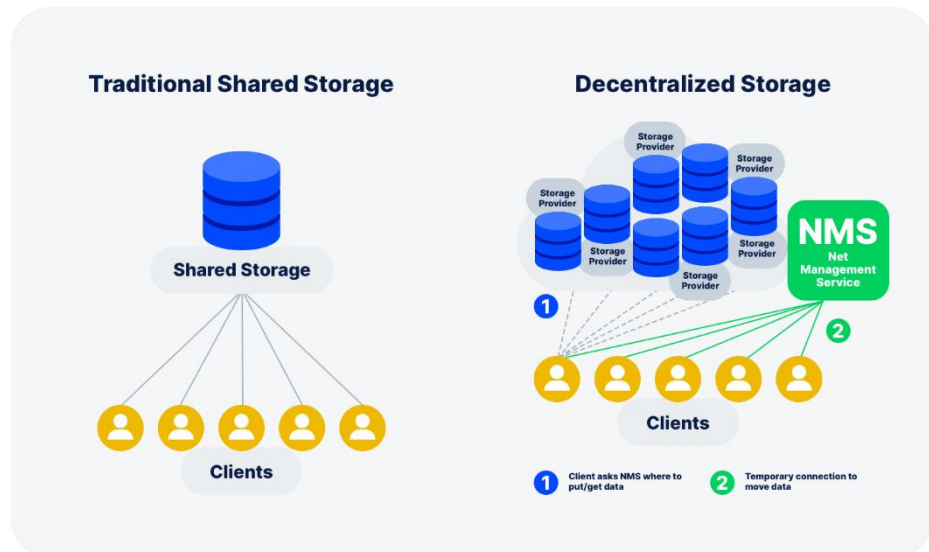
One of the advantages to such a system is its extremely low cost. Even though data is split into small pieces and sent to different nodes, only about 30-40% of the nodes are needed at any given point in time to access the data, creating redundancy in case of node failure. Because these platforms harness large quantities of unused user storage, they can offer storage solutions at cheap commodity prices. For this reason, some have suggested that decentralized storage is a cost-effective option for backing up data. Some of the companies that use decentralized storage providers to store a backup of their data include Wikipedia, OpenStreetMap, and Project Gutenberg.

Of course, one flaw with the system is that “decentralized storage systems are only as robust as the miners working their blockchain,” said Allan Buxton, director of forensics at Secure Data Recovery. “As long as their blockchain has some value and the companies make node services profitable, it is likely that there will be enough nodes to store their client’s base data.” However, due to the competitive nature of blockchain and the differing cryptocurrencies that attract miners, Buxton said that “using decentralized storage as a primary backup could prove extremely volatile to commercial interests.”

Alternatively, decentralized storage can be used to perform general processing computing and storage at high speeds. While decentralized storage lacks the architecture to do high-performance computing effectively, the decentralized nature of these storage networks and high number of data locations and processing nodes (compared to centralized

services) means that data can be accessed and processed extremely quickly. It’s easy to imagine a company using decentralized storage for general computing tasks, a public cloud provider for specialized tasks like HPC, and physical hardware as a backup.

In order to compete against major cloud providers and physical storage, decentralized storage needs to build public trust, and prove the legitimacy of their business model to enterprise level customers. This is possible by successfully securing user data, and proving that their storage networks are stable and consistent in the services that they provide. While decentralized storage is always encrypted and sharded, storage networks can differ in the quality and/or quantity of their data storage partners. Similar concerns exist for TNC ridesharing - it’s uncomfortable at first getting into a stranger’s personal car to get a ride to the airport - but over time, people become familiar with the service and their comfort with it grows. When companies like Storj have a track record of 0 files lost, over 39 billion object pieces stored, and a network of 13,000+ nodes with 99.95% availability, that speaks volumes to their reliability. Assuming that these companies networks’ remain stable (both in terms of recruiting and retaining storage), it’s possible that they could emerge as a legitimate competitor to public storage in the future.





Upcoming Conferences

August 6-11	Black Hat USA , Vegas
August 11-14	DEF CON 30 , Vegas
August 27-28	Blue Team Con , Chicago
August 29-Sept 1	VMwear Explore , San Francisco
September 8	FutureCon , Des Moines
September 12-14	Gartner Security & Risk Management Summit , London
September 13-14	CISO Forum , Virtual
September 14	Cybersecurity Expo , Phoenix
September 19-20	Industry of Things World , Berlin
September 20-22	Dreamforce , San Francisco
September 22-23	Global Cyber Conference , Zurich
September 26-28	InfoSec World , Colorado Springs
September 27-28	International Cyber Expo , London
September 28-29	IoT World , Santa Clara
September 28-30	Spiceworld , Austin, Hybrid
October 3-4	451Nexus , Las Vegas
October 5-6	Evolve , Vegas
October 6-7	Big Data & AI Toronto

October 10-12	ISC Security Congress , Las Vegas
October 11-13	Google Cloud Next , Virtual
October 17-19	Authenticate 2022 , Seattle
October 17-20	Gartner IT Symposium/Xpo , Orlando
October 24-27	ICS Cybersecurity Conference , Hybrid/Virtual
November 16	San Diego Cybersecurity Conference , Hybrid
November 16	Threat Hunting Summit , Virtual
November 18-19	Data Strategy & Insights (Forrester Research), Virtual
November 21-22	Gartner IT Infrastructure, Operations, & Cloud , London
November 28-Dec 2	AWS re:Invent , Las Vegas
December 1-2	AI & Big Data Expo Global , London
December 6	Security Operations Summit , Virtual



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