THE Storage Conference is Virtual

Flash Memory Summit returns for its 15th year, but for the first time as a virtual conference, November 10-12. Topics range from 3D flash, NVMe, 3D XPoint, new nonvolatile memory technologies, controllers, persistent memory, CXL interface, EDSFF, and AI/ML applications to meeting the challenges of big data, real-time analytics, virtual and augmented reality, autonomous vehicles, hyperconverged sites, and hyperscale cloud computing.

“FMS is the world’s leading storage conference, “ said Dr. Lance Leventhal, Program Chairperson. “The new virtual version continues the traditions of important industry keynotes, annual updates, and extensive coverage of key topics such as NVMe/NVMe-oF, persistent memory, new memory technologies, controllers, and computational storage. New areas include SmartNICs, cloud-scale storage, cloud-defined storage, big memory management, storage processors, and Ethernet-attached SSDs. “

Sponsors include both heavy hitters in the storage space and newcomers, with keynotes from Kioxia, Fungible, Western Digital, Marvell, Xilinx, Pliops, Intel, IBM, NASA Ames Research Center, NVIDIA, Neo Semiconductor, IDC, NVM Express, and Microsoft.

Hyperscalers dominate Tuesday's agenda with heavy hitters Twitter, Facebook, Amazon, and Microsoft taking center stage. Sagi Grimber, of Lightbits Labs leads a panel discussion on NVME/TCP Use Cases with Marvell, Equinox, and Intel (NVMe Track). Or, follow the Enterprise Systems Track for discussions on Smart New Architecture for Cloud-Scale Storage led by VAST Data.

Additional tracks include New Memory Technologies, Computational Storage, AI/M, Flash Technology, SSDs, Software, Persistent Memory, Market Research (IDC), and Controllers.

The discussion of New Ways to Improve SSD Management and Performance on Wednesday is rich with experienced presenters from Calypso Systems, Silicon Motion, IBM, and Intel. That afternoon, Dell, Kioxia, and HPE present Using the New EDSFF (E3) SSDS Effectively.

Thursday is packed with highlights including a discussion of the Latest Trends in Storage for AI/ML led by Western Digital with presenters from Moor Insights and Strategy, Intuitive Cognition Consulting, and WekaIO. IT Brand Pulse Awards presented in the morning and SuperWomen in Flash awards Thursday afternoon followed by a hearty discussion of the development and potential dominance of QLC Flash with panelists from Micron, Infinidat, VAST Data, and Pure Storage.

General admission is free; PRO track is available for $495. Register here.

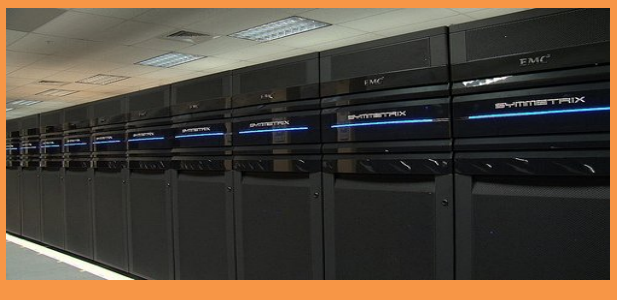
Join us "In the Hot Seat"

Let's talk about what is Hot and what is Not

The convention floors will be empty (and virtual occupied) so we won't be on the floor interviewing people at FMS this year BUT we could do zoom interviews to highlight things going on in the industry. Sound interesting? Keep in mind, these are not infomercials. But they could be "industry shorts" to get the word out about events, technology development, challenges, major personnel changes, shifts in direction, and focuses on your area of expertise and interest.

We hosted these for free at FMS last year and we will host them again for free (caveat: limited spots; let's keep it fun). We will host and post in late November, early December. Guest companies and FMS will receive a copy to use as they wish and we will post a copy on our youtube channel. Let us know if you want a spot.

Are Storage Arrays Dead or Just Evolving?



Sixty years ago, enterprise datacenters were populated by one type of computing system – the mainframe. These machines could rapidly run (at least for the times) tens or hundreds of programs at a time and provide access to a variety of resources. They did so in a manner which provided (in the day) state-of-the-art data storage and user partitioning. In the 1970s, minicomputers began to take away market share from mainframes, followed by X86 servers in the early 2000s, and cloud computing in the mid-2010s, which now constitute roughly 50% of the total computing market. During much of this time, the importance of storage arrays – hardware whose sole purpose was to storage (and serve out) vast quantities of mission-critical data, stayed constant. Perhaps most famous of these was the EMC Symmetrix (pictured here). However, the mid-2010s saw cloud storage (the twin and perhaps more successful sibling of cloud computing) start to impact the enterprise storage hardware market, while terabyte-capacity SSDs and NVMe-oF™ based storage software began to disrupt the market for storage arrays in enterprises that chose to keep their data (or at least some of their data) on-premise.

The obvious question is “are storage arrays dead” or are they evolving? Notably, mainframes did not die, though they are certainly a niche market these days. In some sense (though to a much lesser extent), the same thing has happened in storage arrays - according to IDC the market for storage arrays has been shrinking over the past two years, after a period of growth fueled by the switchover to flash-based storage arrays. At the same time, a number of arrays have adopted a more disaggregated architecture that utilizes NVMe-oF as the storage networking fabric, making the lines between them and distributed file system software-based architectures even less clear, a point that is reinforced by the number of storage array companies that have switched to selling software-only or cloud-based storage solutions.

So if you are an enterprise storage architect, where do you put your money – into the cloud (no CapEx, but potential performance issues, data security concerns, and unpredictable costs), into all-flash arrays (high CapEx and potential vendor lock-in), or into a software-based storage solution (which you may have to integrate yourself)? It really depends on the workloads you are running, and the extent to which your storage solution vendor (whether hardware, software, or cloud) will work with you. Buying models for many arrays are now subscription-based, reducing

or eliminating CapEx costs. Integrated cloud and on-premise offerings are also becoming common. In the end, knowing how you are going to use your storage, how long you are going to use it for, and then shopping around is critical to find the most optimal answer to this issue. There are a lot of good choices today (including storage arrays), but caveat emptor still applies!

Register for our G2M Research Webinar, Tues, November 17 at 9am

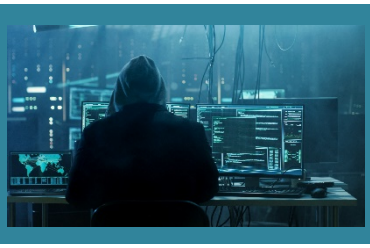
NVMe-oF™ - Using Telemetry to Improve Network Latency

lightbits

KIOXIA

Western Digital

Securing Enterprise Data Is Harder Than You Think



Earlier this month, Pfizer reported a massive data breach which included HIPAA-related information and other confidential medical information. Interestingly enough, this breach was on a misconfigured set of storage volumes running on Google Cloud. Pfizer joins a list of other firms which have suffered cloud data breaches in 2020, including Razer (maker of high-end gaming peripherals), Mailfire (dating and e-commerce sites), and the UK National Health Service (NHS; PII for residents in Wales who tested positive for COVID-19).

The most interesting thing about these breaches is that they demonstrate that putting your data on a large cloud storage provide in and of itself does not make it secure. A decade ago, many organizations stayed away from the cloud because of security concerns, only to be hit with security breaches in their own organizations' data centers. The latest cloud data breaches show that organizations cannot blindly trust the security of the cloud any more than they could their own datacenters - the truth is that neither approach is inherently secure (or insecure). What's worse, the combination of hybrid data storage (having data on both the cloud and in on-premise storage) and remote users increases the likelihood that data is exposed and/or at risk. This is because the

root causes for most data breaches is still incorrectly-configured security or login settings, or data exfiltration by insiders.

There are several approaches that IT and IT security groups should undertake to better secure their data, regardless of whether they use the cloud, on-premise storage, or a hybrid model:

1. **Understand the likely threats for your business sector**: For US companies in general, malware and ransomware attacks remain the largest actual threat, followed by phishing/social engineering attacks. However, this varies greatly depending on your type of business, and the right tools are needed to address different threat types. There are several good sources such as the Verizon Data Breach Investigations Report which can help IT and IT security staff understand their business's threat landscape.
2. **Patch often:** Older operating systems, especially those used in embedded systems, tend to have a LOT of vulnerabilities. As the Internet of Things (IoT) continues to grow exponentially, these systems represent a huge threat surface that can only be addressed through rigorous patching. The same is true to a lesser extent for datacenter server and end-user desktop operating systems, but these can be similarly exploited through security vulnerabilities in applications. In either cases, applying the latest patches is critical.
3. **Never use default privileges and/or passwords**: These backdoors are well known to cybercriminals, and they will find them. This attack surface extends beyond just computers and servers to systems such as wireless routers, WiFi access points, and IP video cameras – you have to worry about all of them.
4. **Encrypt data, and limit access by default**: While shutting down access to data that users or systems don't explicitly need, whether by encryption or access control, might sound draconian and painful, it is one of the few methods that almost always works.
5. **Monitor your systems and logs for questionable activity**: Failing to do this is like buying security cameras, but not watching the video. Assuming that you will be eventually breached, and proactively looking for those breaches is far better than seeing your company's name show up in a news article.

These practices apply regardless of your compute or storage model and are critical regardless of what security tools your organization uses.

G2M Research Multi-Vendor Webinar Series

Our 2021 webinar schedule is ready! Click on any of the topics to get more information about that specific webinar. Interested in Sponsoring a webinar? Contact G2M for a prospectus.

Our September webinar "Edge Computing/Storage – Get (and Keep) Your Data Off Of My Cloud" was sponsored by Lightbits Labs, ScaleFlux, and NGD Systems. View the recording and/or download a PDF of the slides.

Our October webinar "AI, GPUs, and Storage Use Cases in Healthcare" was sponsored by NVIDIA, Kioxia, WekaIO, and Datyra. View the recording and/or download a PDF of the slides.

G2M RESEARCH

Jan 19:	Can Your Server Handle The Size of Your SSDs?
Feb 23:	Storage Architectures to Maximize the Performance of HPC Clusters
March 23:	One Year after COVID-19: How Did Storage Architectures Perform for Biotech AI Modeling & What Can We Learn From This?
April 20:	The Race to be Relevant in Autonomous Vehicle Data Storage (both On-Vehicle and Off-Vehicle)
May 18:	Responsive and Efficient Storage Architectures for Social Media
June 15:	It's 2021 - Where Has NVMe-oF™ Progressed To?
July 13:	Computational Storage vs Virtualized Computation/Storage in the Datacenter: "And The Winner Is"?
Aug 17:	AI/ML Storage - Distributed vs Centralized Architectures
Sept 14:	Composable Infrastructure vs Hyper-Converged Infrastructure for Business Intelligence
Oct 12:	Cloud Service Providers: Is Public Cloud, Private Datacenter, or a Hybrid Model Right for You?
Nov 9:	The Radiometry Data Explosion: Can Storage Keep Pace?
Dec 14:	2021 Enterprise Storage Wrap-up Panel Discussion

Upcoming 2020 Enterprise Storage Events - All Virtual

NetApp Insight 2020, October 26-29

AI & Big Data Expo, November 5-6

SC 20, November 16-19

AI Summit, December 9-10

Survey results from our Webinar, "Advanced SSDs – PCIe Gen4, U.3, and New Form Factors" sponsored by Kioxia and Intel

The upcoming U.3 specification will enable U.2 NVMe SSDs, SAS/SATA SSDs, and HDDs to fit into the same slot. How important is the ability interchange media types to your organization?:

Very Important – We adjust our server configurations regularly: 20%

Important – It will allow us to update our servers and extend their life: 20%

Somewhat Important – It will provide us with more purchasing flexibility: 24%

Not that important – We can work with our current configurations: 7%

Not that important – We will transition to all-U.2 SSDs in the near future: 4%

Not that important – We will transition to EDSFF SSDs when they are available: 7%

No opinion: 18%