



## Enterprise Storage & Technology Newsletter

December 2022

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**THE NEED FOR  
SPEED: NVME &  
ADVANCED SSDS**



February 7 at 10:00am PST

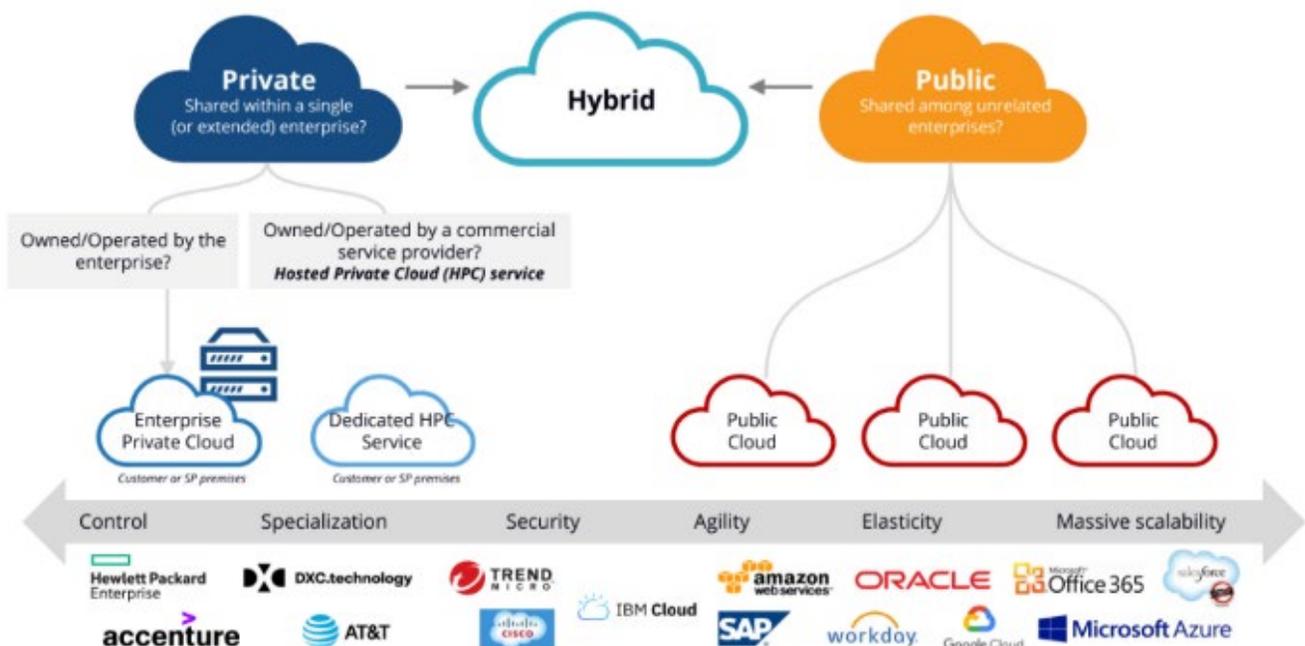
# Earnings Season: Pure Storage, HPE, Box, Dropbox All See Growth



Mike Heumann, December 21, 2022

'Tis the season for the announcement of financial results, and at least four companies have seen good financial results over the last three months. [Pure Storage](#) (NYSE: PSTG) [announced](#) Q3 revenue growth of 20% year-year to \$676M, with subscription services revenue up by 30% year-year to \$244.8M. The company, which had for years had operating losses as it grew its market share, reported operating cash flow of \$154.7M, free cash flow of \$114.8M, and total cash/cash equivalents/securities of \$1.5B. Pure Storage repurchased \$24.5M in shares during FQ3 (888,000 shares). Similarly, [HPE](#) (NYSE: HPE) reported a record (financial) Q4 performance for FQ4 2022 (ending Oct 31, 2022). Revenue for FQ4'22 was \$7.9B (up 7% year-year), with ARR of \$936M (up 17%). Storage revenue for HPE was \$1.3B for the quarter, an increase of 4% year-year. For the full year, HPE total revenue was \$28.5B (up 3% from the previous year), with free cash flow of \$1.8B. Like Pure Storage, HPE used a significant amount of their free cash flow to repurchase shares and pay dividends, totaling \$1.1B.

[Box](#) (NYSE: BOX) [announced](#) significant financial gains, achieving their first \$1B revenue run-rate quarter in the company's history. The cloud-based content sharing company had FQ3 2023 revenue of \$250.0M, which represents a 12% increase year-year. The company's free cash flow was \$55.0M for the quarter, a 76% increase over free cash flow for the same quarter the previous year. Similarly, Box competitor [Dropbox](#) (NASDAQ: DBX) [delivered](#) a very strong FQ3 2022 results, with quarterly revenue of \$591M (9.7% year-year growth), and free cash flow of \$245.2M (11% year-year growth).



All four sets of announcements show very strong growth in the storage industry in spite of the looming potential of a recession. It is especially noteworthy for both Pure Storage and HPE, who still count on selling actual hardware for a large portion of their storage revenue, that they have considerable revenue growth in their hardware offerings. For an industry that everyone expected would be cratered by cloud storage giants [Amazon Web Services](#) (AWS), [Microsoft Azure](#), and [Google Cloud](#), this is significant. It is also notable that both Pure Storage and HPE offer their own cloud storage services, both of which saw significant growth. Clearly, there is a desire for customers to utilize multi-cloud strategies to diversify their cloud storage usage. While the overall cloud market, which [Forrester](#) has [forecasted](#) at \$446.4B in 2022 and growing to \$1.03T in 2026, will continue to be dominated by the hyperscalers (AWS, Azure, and Google Cloud), it appears that growing pressure for both features and profit margins will ensure a place for other providers in this market to grow as well.



**Mike Heumann, December 21, 2022**

In our [last enterprise storage newsletter](#), we talked about how the Open Compute Project (OCP) Summit 2022 had become a significant storage trade show, with over 60 exhibitors (nearly 2/3 the number that Flash Memory Summit had in 2022). Bookending that was [SC22](#), the premiere high-performance computing (HPC) conference. This year SC22, which was in Dallas TX, boasted nearly 12,000 attendees and 361 exhibitors. While it is true that many of the exhibitors at SC22 were universities and other research centers rather than vendors, the show still drew a huge number of storage companies, many with very large booth properties; companies such as [Weka](#), [VAST Data](#), [Microsoft](#), [AWS](#), [HPE](#), [Dell](#), and [SuperMicro](#) were all represented with impressive exhibit spaces. While I didn't count the number of storage companies exhibiting at SC22, I would wager that the number definitely exceeded OCP 22, and was at least equal to (if not greater than) Flash Memory Summit 2022.

SC22 was also host to a number of press releases from storage companies. Some of the more interesting releases included the following:

- Weka [announced](#) a Series D funding raise of \$135M to accelerate the company's growth and expansion. The round was led by Generation Investment Management, and included existing investors including 10D, Atreides Management, Celestica Capital, Gemini Israel Ventures, HPE,

Hitachi Ventures, and others. The company was also recently named as a “visionary” for the second year in a row in the 2022 Gartner Magic Quadrant for Distributed File Systems and Object Storage.

- VAST Data [announced](#) that it has been ranked 5<sup>th</sup> among North America’s fastest-growing technology companies. The rating, which was on the Deloitte Technology Fast 500™, recognized VAST Data’s revenue growth of almost 15,000% (150X) between 2018 and 2021.
- NVIDIA and Microsoft [announced](#) plans to build a massive cloud AI computer utilizing Microsoft Azure supercomputing infrastructure and NVIDIA GPGPUs. The plan is to provide tens of thousands of NVIDIA A100 and H100 GPUs, tying the network together with a 400Tgb/s Infiniband network. The stack will include Microsoft’s DeepSpeed AI deep learning optimization software along with NVIDIA’s AI workflows and software development kits.
- [RAMBUS showcased](#) a number of [Compute Express Link \(CXL\)](#) solutions at SC22. CXL, which provides extremely high transfer speeds and allows for the extension and sharing of memory resources across computer clusters, is expected to have a strong impact on HPC in the next decade by solving the “stranded memory” problem that plagues large compute instances.

[SC23](#) will be held in Denver, Colorado from November 12-17, 2023; if this year was any indication, it will continue to draw big-name storage companies as exhibitors (the SC23 [exhibitor floormap](#) shows the show as being nearly sold out!).



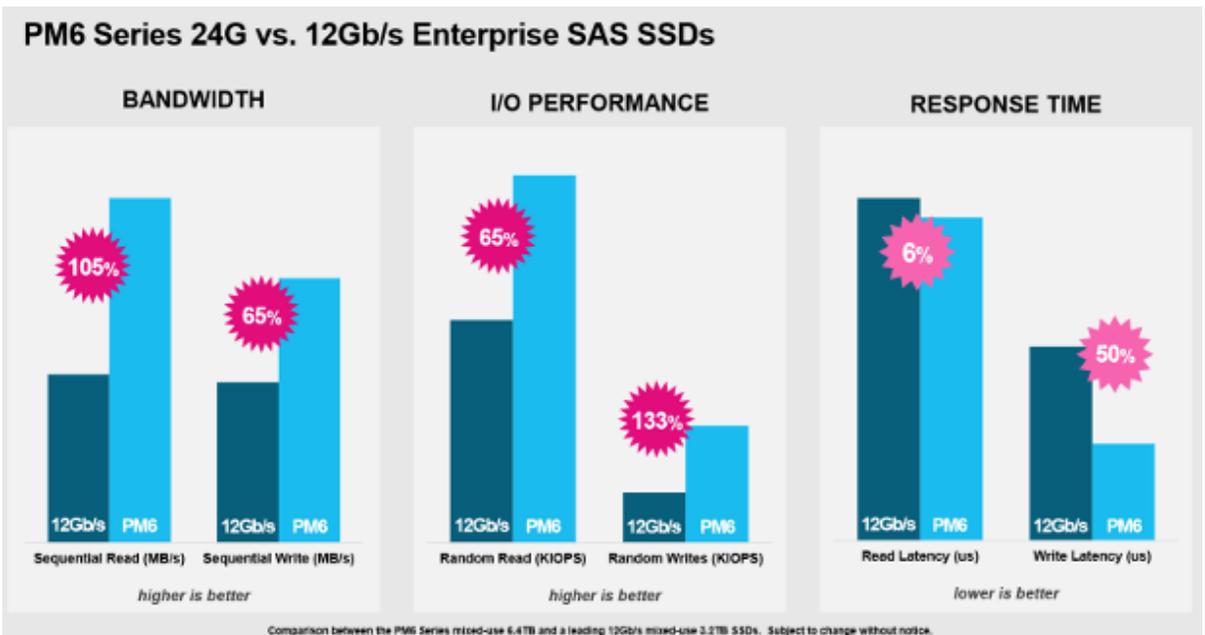
# KIOXIA SSDs Achieve Microsoft Windows Server 2022 Certification



*Karen Heumann, December 21, 2022*

[KIOXIA America](#) announced that its [CM6](#), [CD6](#), and [PM6](#) SSDs have achieved the Microsoft Windows® Server 2022 Software-Defined Data Center (SDDC) certification. The CM6 and CD6 SSDs are both PCIe® 4.0 NVMe™ SSDs with storage capacities of up to 30.72TB and 12.8TB (respectively), while the PM6 is an enterprise SAS drive with a capacity of up to 12.8TB. All three drives utilize the U.2 2.5 inch SSD form factor. The Windows SDDC certification ensures that the KIOXIA SSDs are fully compatible with Microsoft’s Storage Spaces Direct construct that allows SSDs on clustered servers to act as shared resources. This simplifies the addition of capacity to existing clustered serves in converged and hyperconverged IT environments.

“At KIOXIA, we constantly strive to improve upon the past,” said Steve Weinger, senior director of marketing, business development and ecosystems for KIOXIA America, Inc. “By utilizing the latest generation KIOXIA BiCS FLASH™ 3D flash memory and our SSD controller technologies, we are able to do just that – and the performance capabilities of KIOXIA SSDs continues to increase rapidly. Software-defined storage solutions, such as Microsoft SDDC, can take advantage of these performance improvements and deliver cost-effective, reliable storage solutions for customers.”



# The Evolving Role of Backups in Enterprises



*Mike Heumann, December 21, 2022*

For those of us who were around before 2001, the term “backup” conjured visions of walk-in refrigerator-sized robotic tape library machines. The “hot” format for tape at the turn of the century was linear tape-open (LTO) cartridges, could hold 100GB of data per cartridge (the latest generation of LTO can hold up to 18TB in the same size cartridge), which meant that tape libraries like the [StorageTek Powerderhorn](#) could hold up to 8,000 LTO cartridges, or 800 TB of data. For the most part, tape in those days was the primary backup mechanism for datacenters. The latest backups would be kept in tape libraries, while older backups would be sent offsite, either to a disaster recovery (DR) datacenter, or to a secure storage location. As the term “DR” implies, the primary role for backups in those days was to guard against the partial or complete destruction of a primary datacenter, either due to natural disasters (tornadoes, floods, hurricanes, etc.), or due to manmade disasters such as terrorism or fire.

Today, backups have changed in both the nature of the backup media and the primary purpose for doing backups. While tape is still used, the primary backup mechanism in most large datacenters are hard disk drives (HDDs) operating at rotational speeds around 4,500 RPM. With capacities of 20TB or more per drive, a single 1U rack-mount drawer of HDDs like that pictured in the title can hold fifteen (15) or more HDDs, with a capacity of 300TB. A single rack with 32 drawers can hold close to 10PB of data. In most cases, tape cartridges (which have similar capacity to HDDs, but have orders of magnitude slower random access) are used for “backups of the backups”, or as “offline” backups.

The increased random access speed resulting from the change to HDDs for backup has enabled a number of new use cases for backups. These include “self-service” restore of desktop/laptop data lost due to accidental deletions, or storage of images (such as photos) older than a few weeks (which typically are infrequently accessed). However, one of the most important use cases has become the mitigation of ransomware attacks, where disk allows restoration of an malware-encrypted server or desktop computer in hours (or less) instead of days. For a business trying to get back online after a ransomware attack, time is money and the increased cost of using HDDs is usually more than offset by the revenue that is “recovered” by a fast restoration. Even if your organization utilizes the cloud for its backups, it is highly likely that these backups are stored on HDDs. Just make sure your backup storage is in a different domain than your primary storage.



## **G2M Research Multi-Vendor Webinar Series**

Our webinar schedule is below. Registration links and more information will be available in our next newsletter, on our website, and you can always contact us directly with questions. We are offering a Cybersecurity series and an Enterprise Storage & Technology multivendor series.

Interested in Sponsoring a webinar? Contact [G2M](#) for a prospectus. We can create custom webinar, custom webinar series, and add or modify topics to specifically appeal to your target audience. [View](#) our webinars and [access](#) slide deck presentations on our website.

### **Enterprise Storage & Technology Webinars**

<a href="#">The Need for Speed: NVMe &amp; Advanced SSDs</a>	February 7
<a href="#">Memory As The New Storage – CXL, Extended Memory, &amp; Persistent Memory. What Does the Future Hold?</a>	March 7
<a href="#">Storage Architectures for Artificial Intelligence &amp; Machine Learning</a>	April 4
<a href="#">Software-Defined Flash Memory Architectures</a>	May 9
<a href="#">Storage &amp; Compute Architectures for Healthcare &amp; Imaging Applications</a>	June 27
<a href="#">NVMe &amp; NVMe-oF – Past, Present, &amp; Future</a>	July 11
<a href="#">GPUs, SSDs, &amp; Shared Memory: Accelerating Computing?</a>	August 22
<a href="#">Securing Data – How Storage &amp; Cybersecurity Technologies Can Work Together</a>	Sept 26
<a href="#">The Open Compute Platform (OCP) Movement – Providing Compute-At-Scale Value to On-Premises Deployments</a>	October 24
<a href="#">Storage Architectures for HPC Clusters</a>	November 21
<a href="#">2024 Trends – Cloud, On-Premises, &amp; Hybrid Compute/Storage</a>	December 12

## **Cybersecurity Webinars**

<a href="#"><u>Bug Bounties Gone Bad? Uber Case Highlights Pressure on CISOs.</u></a>	January 12
<a href="#"><u>Cybersecurity for Remote Workers &amp; Mobile Devices</u></a>	March 23
<a href="#"><u>The Increasing Complexity of Cybersecurity Regulatory &amp; Compliance for the Financial Services Industry</u></a>	May 25
<a href="#"><u>xDR- The Promise versus the Reality</u></a>	June 15
<a href="#"><u>10 Features of an Effective Attack Surface Management Tool</u></a>	September 7
<a href="#"><u>How Secure is the Cloud for Your Workloads?</u></a>	October 12
<a href="#"><u>Do You Need a SIEM? Use Cases Where a SIEM Makes Sense.</u></a>	November 9



## Upcoming 2023 Conferences

January 5-8	<a href="#">CES</a> , Las Vegas & Virtual
January 18	<a href="#">SNIA Persistent Memory Summit</a> , San Jose, CA
January 30-Feb 1	<a href="#">Cybertech Global TLV</a> , Tel Aviv, Israel
February 6-10	<a href="#">Cisco Live</a> , Amsterdam, Netherlands
February 13-14	<a href="#">Gartner Security &amp; Risk Management</a> , Mumbai, India
February 14-16	<a href="#">ESNA Expo</a> , Long Beach, CA
February 14-17	<a href="#">ITExpo East</a> , Fort Lauderdale, FL
February 27-28	<a href="#">Gartner Security &amp; Risk Management Summit</a> , Dubai
February 27-March 2	<a href="#">Mobile World Congress Barcelona</a>
February 28-March 2	<a href="#">Rice University Energy HPC Conference</a> , Houston, TX
March 8-9	<a href="#">CloudExpo Europe</a> , London
March 14-16	<a href="#">Gulf Information Security Expo</a> , Dubai, UAE
March 20-22	<a href="#">Gartner Data &amp; Analytics Summit</a> , Grapevine, TX
March 20-23	<a href="#">GTC CPU Technology Conference</a> , San Jose, CA
March 28-29	<a href="#">Gartner Security &amp; Risk Management</a> , Sydney, Australia
March 28-31	<a href="#">ISC West</a> , Las Vegas
April 5-7	<a href="#">IST Information Security Expo</a> , Tokyo, Japan
April 15-19	<a href="#">NABShow</a> , Las Vegas
April 17-21	<a href="#">HIMMS Global Health Conference</a> , Chicago, IL
April 19-20	<a href="#">CyberSec Europe</a> , Brussels, Belgium
April 24-27	<a href="#">RSA Conference</a> , San Francisco
May 22-25	<a href="#">Dell World</a> , Las Vegas
June 2-6	<a href="#">School Transportation Network Expo East</a> , Indianapolis, IN
June 4-8	<a href="#">Cisco Live</a> , Las Vegas

June 5-7	<a href="#">Gartner Security &amp; Risk Management</a> , National Harbor, MD
June 7-9	<a href="#">Synnex Red, White and You</a> , Greenville, SC
June 14-16	<a href="#">Interop Tokyo</a> , Chiba, Japan
June 20-22	<a href="#">HPE Discover</a> , Las Vegas
June 20-22	<a href="#">Info Security Europe</a> , London
July 14-19	<a href="#">School Transportation Network Expo</a> , Reno, NV
August 1-3	<a href="#">Flash Memory Summit</a> , Santa Clara, CA
August 5-10	<a href="#">Black Hat USA</a> , Las Vegas
August 30-Sept 1	<a href="#">Security Expo</a> , Sydney, Australia
September 11-13	<a href="#">Gartner Security &amp; Risk Management</a> , London
September 11-13	<a href="#">Global Security Exchange</a> , Dallas, TX
September 18-20	<a href="#">CrowdStrike fal.con</a> , Las Vegas
October 2-4	<a href="#">DattoCon</a> , Miami, FL
October 3-4	<a href="#">CyberTech Europe</a> , Rome

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