Hewlett Packard
Enterprise

Brochure

There's a new space race. And HPE StoreEver tape has the right stuff.

As the data universe expands, HPE StoreEver LTO technology can help you manage and control Big Data.

Introduction

All of the bugs and practicalities of access, scale, manufacturing, and supply chain have been worked out for the tape industry and it's [now] really about advancing the technology. I see some solutions for the problems in the next 5-10 years, whereas pore sequencing for DNA or [similar technical challenges] have a huge number of issues to make it a practical solution.[1]

Jim Bain
Professor, Electrical and Computer Engineering
Associate Director, Data Storage Systems Center
Carnegie Mellon University

[1] 'INSIC Global Trends, Applications and Use Cases for Tape Adoption Report 2024', INSIC 2024

According to a report by Further Research[2], we live in an age of minimal data deletion, one where business information needs to be kept indefinitely.

This is the mega trend behind the new data 'space race'. Traditional applications and new workloads powered by AI and Machine Learning are creating astonishing amounts of information that organisations are either reluctant to erase or prevented from so doing by compliance requirements.

Two key statistics illustrate this phenomenon:

By 2030, Further Research estimates that new data storage capacity shipments will reach 11.3 ZB, a Compound Annual Growth Rate (CAGR) of 30% between 2023 and 2030.

And at the same point, Further Research also predict the installed base of Enterprise data could be 35.8 ZB, compared to only 6.4 ZB in 2023. As much as 70% of this new data universe will be classified as cold or frozen in nature. Effectively, this means a doubling every 3.5 years.

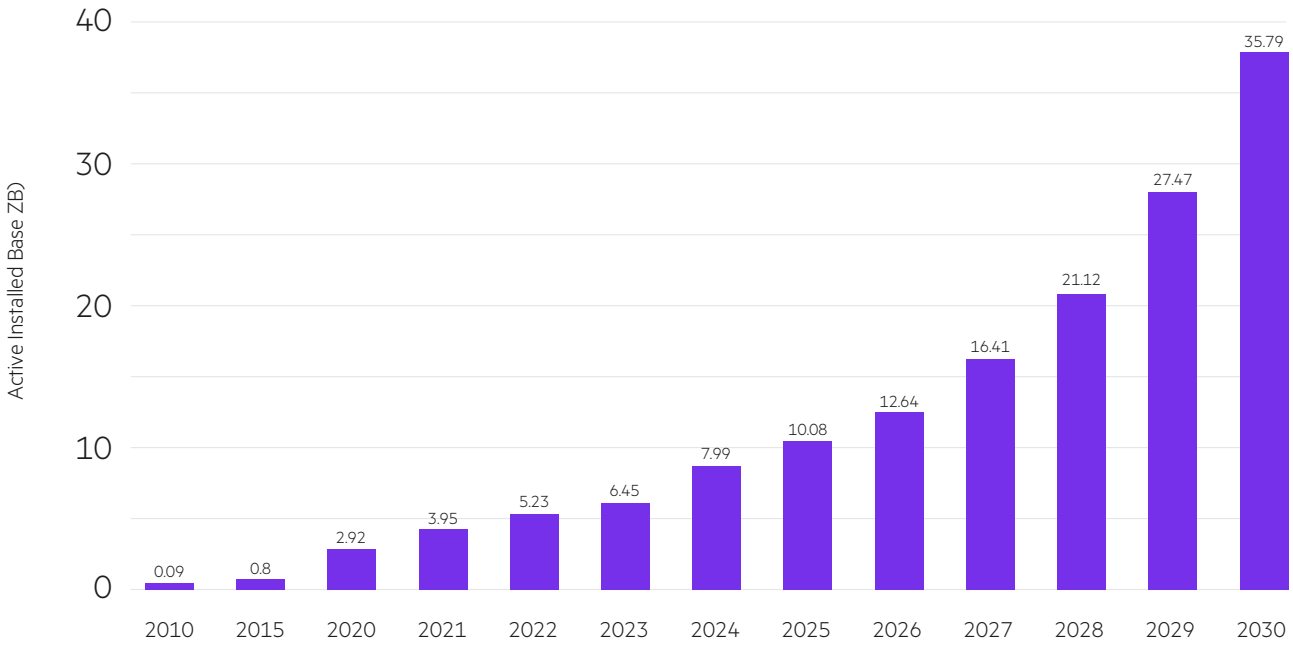
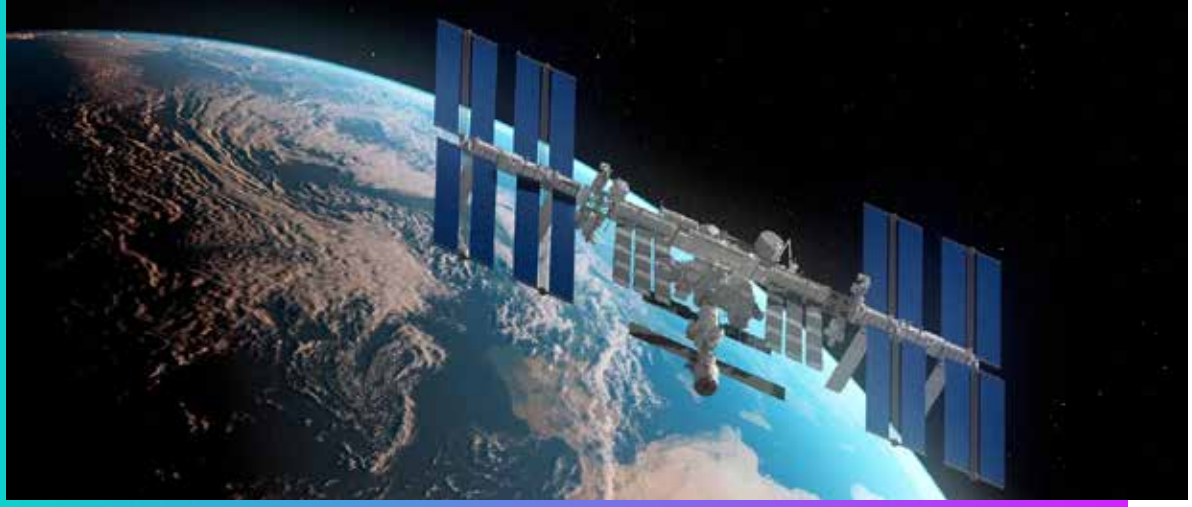


Figure 1: Enterprise Active Installed Base of Digital Data (PB)

The need to create and maintain huge data archives is putting pressure on storage media densities, IT budgets and data centre resources like never before.

And arguably, business success in the future will be dependent on how well organisations manage and exploit these almost immeasurable data assets.

[2] 'Storage Management in an Age of Minimal Data Deletion', Further Research, 2023



HPE StoreEver tape is the perfect deep space solution

HPE's storage portfolio helps you radically simplify data management with the industry's most comprehensive solutions to store, manage, and protect data across your hybrid cloud.

But above the clouds, as business data ages and cools, lies deep space. It's here that HPE StoreEver can help you preserve and protect the more distant reaches of your data universe.

This is what HPE means when it talks about a new 'space race' in storage.

Distant stars can shine brightly with HPE StoreEver

The majority of this cold and frozen data is rarely accessed but it needs to be retained, secure from the threat of ransomware, due to compliance requirements and business strategy. Using expensive primary or secondary storage is illogical so what's the alternative?

The answer is active archiving with HPE StoreEver tape as the foundation.

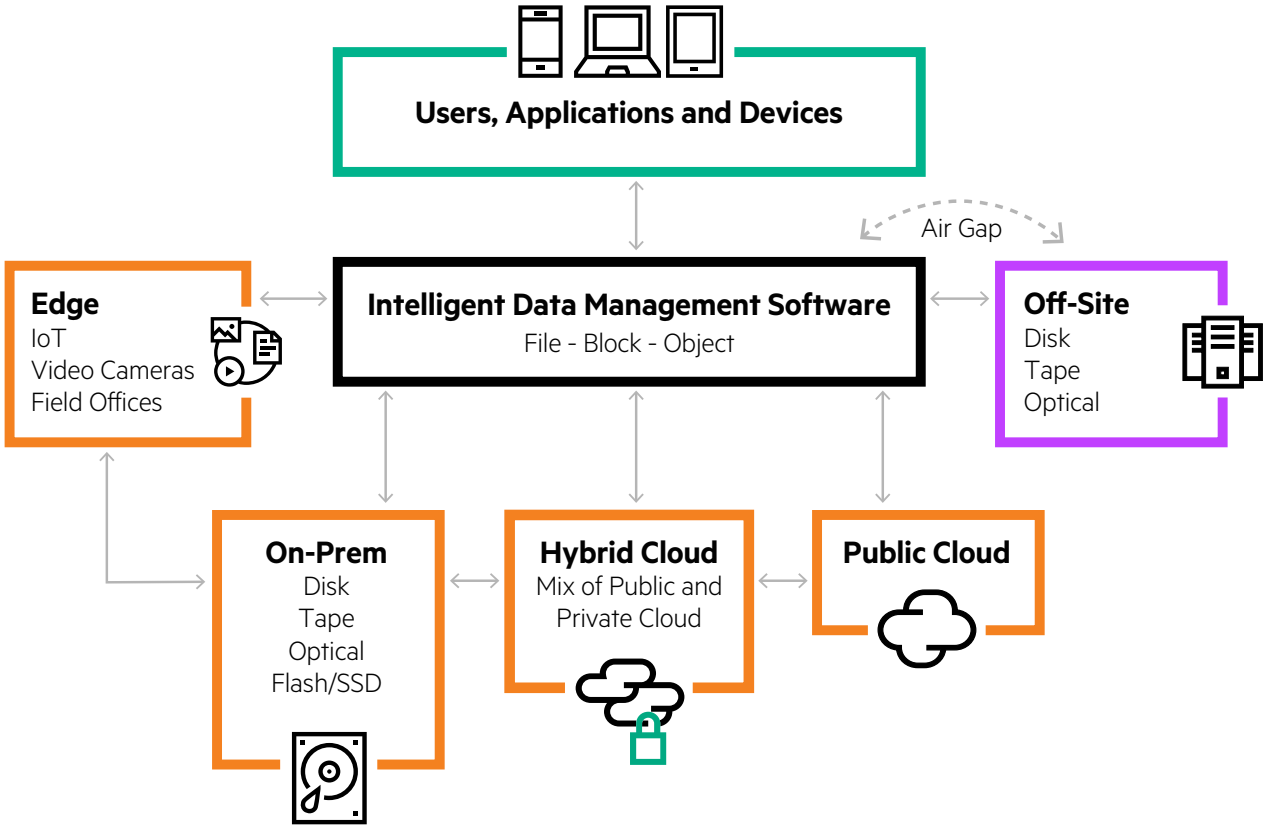


Figure 2: Active archiving in the hybrid cloud

An HPE StoreEver tape system, in conjunction with ISV active archiving software, can be integrated in a tiered data management, where data is passed seamlessly between mission critical, secondary storage or archive tiers and across on-prem systems and the cloud. In a survey by Enterprise Strategy Group, 71% of businesses reported significant improvements in data retrieval times when active archives were deployed.[3]

With a number of ISV's offering native object-to-tape gateways for data stored in S3 and other clouds, vast unstructured datasets generated by new workflows like AI and Machine Learning, can be kept in deep archives but easily recovered to support business operations and compliance when needed. And it's clear that long term storage is a strategic priority, intersecting with more high profile areas of IT in a profound manner. In the same ESG study, 88% of respondents said long-term storage was critical to the success of their AI/ML initiatives.

Choosing the right solution for long term storage has never been more important.

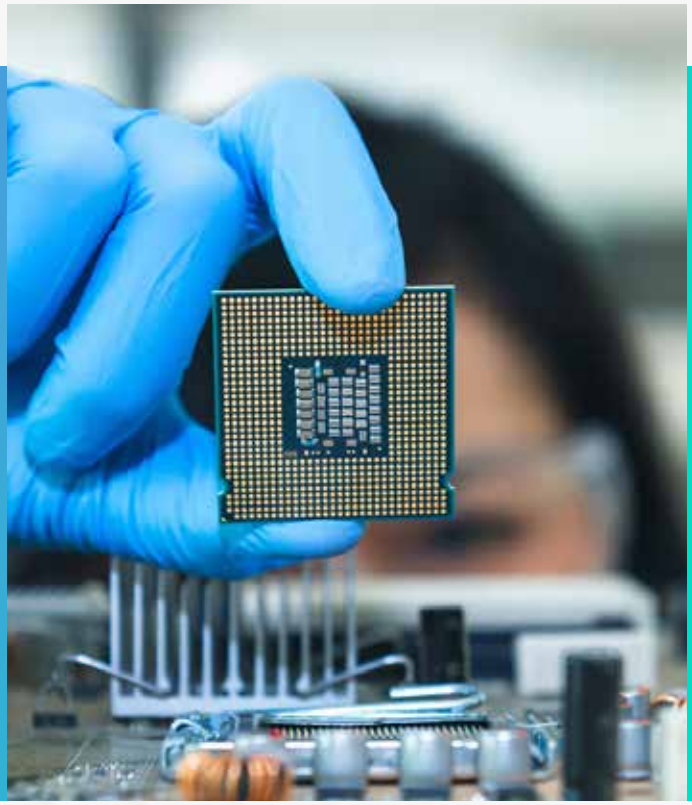
71%

of businesses reported significant improvements in data retrieval times when active archives were deployed.

[3] 'Active Archives in the Age of AI/ML', Enterprise Strategy Group by Tech Target, March 2024

Four reasons why you can win the space race with HPE StoreEver.

The value of modern tape solutions is founded upon four strategic benefits.



Scalability

Further Research predicts that by 2030, the installed base of Enterprise data will reach a staggering 35.8 ZB, the overwhelming majority of which will be cold or frozen data. While hard disk (HDD) areal density growth has slowed dramatically, constraining the size of HDDs, the 14 generation LTO roadmap is projecting tape media capacities of 1.4 PB per cartridge.

This makes HPE StoreEver LTO tape the ideal, ultra-dense, cold data storage platform of the future.

That matters because in the ESG study quoted above, 84% of respondents said they needed more scalable (and energy efficient storage) to retain larger data sets for longer time periods.

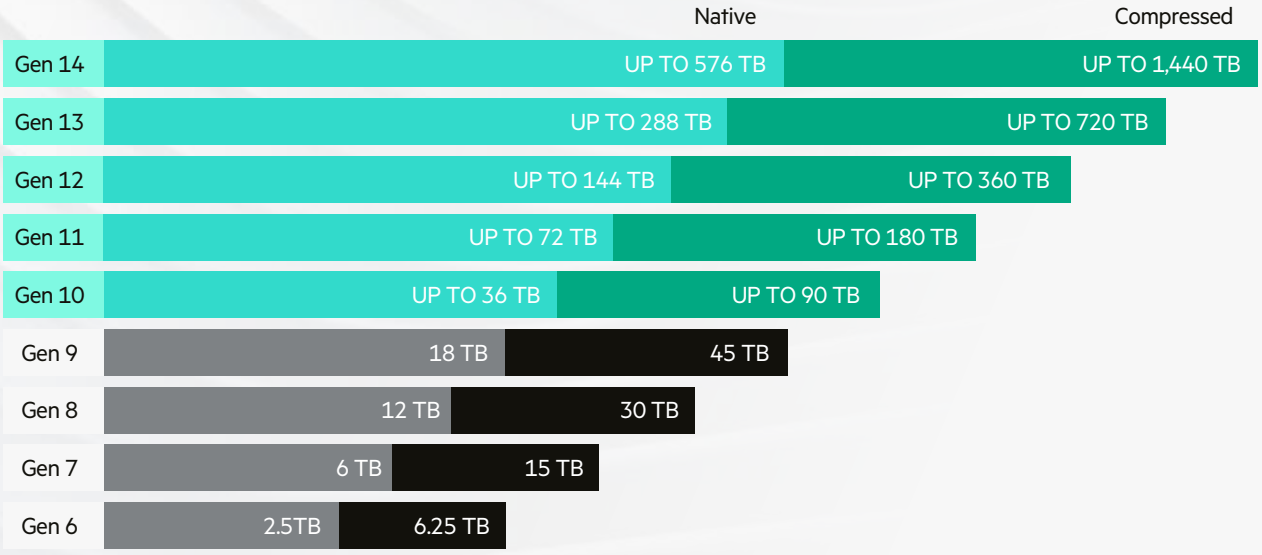


Figure 3: LTO Roadmap[4]

[4] Source; LTO Program, lto.org

Security

A recent study by backup software vendor, Veeam[5], found that in 93% of ransomware incidents, criminals target connected backup repositories, resulting in more than one-third (39%) of these backups being completely lost.

HPE StoreEver tape technology can make your backup and restore processes ultra-secure by allowing you to keep copies of your business data completely offline and disconnected from all network activity.

As such, HPE StoreEver is the final part of the 3-2-1-1 best practice rule which proposes you maintain three copies of your data, on at least two different media types, with one stored offsite and one stored offline behind a true airgap.

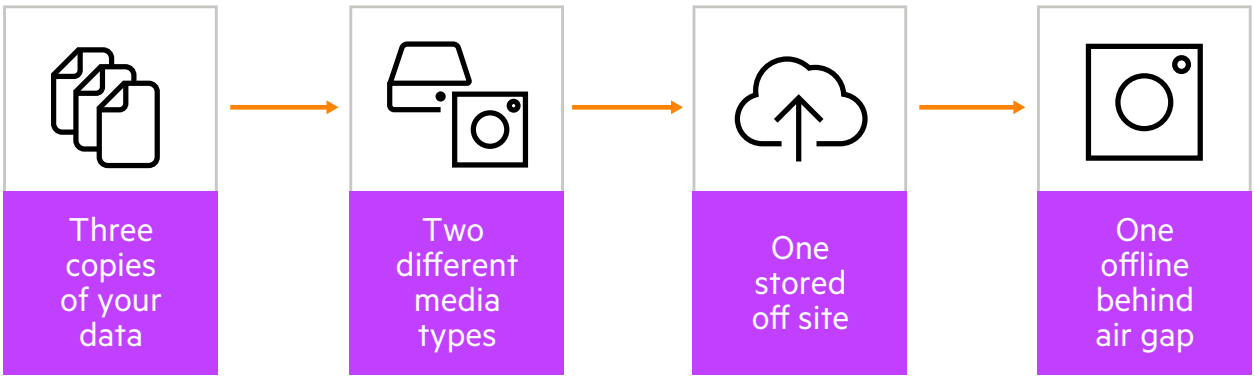


Figure 4: The 3-2-1-1 Rule

[5] Source: "Veeam Ransomware Trends Survey", Veeam, 2023

Sustainability

The cold data oceans of the future will have more in common with the Antarctic than with the warmer seas of the Tropics. But the extraordinary rise of a vast, largely inert information store presents a number of challenges relating to sustainability that tape technology uniquely addresses. Although each organisation will need to analyse its own IT workloads to determine the most sustainable solution, by deploying HPE StoreEver, businesses and institutions might be able to reduce the CO2 emissions associated with archiving cold data and thereby support broader sustainability goals[6].

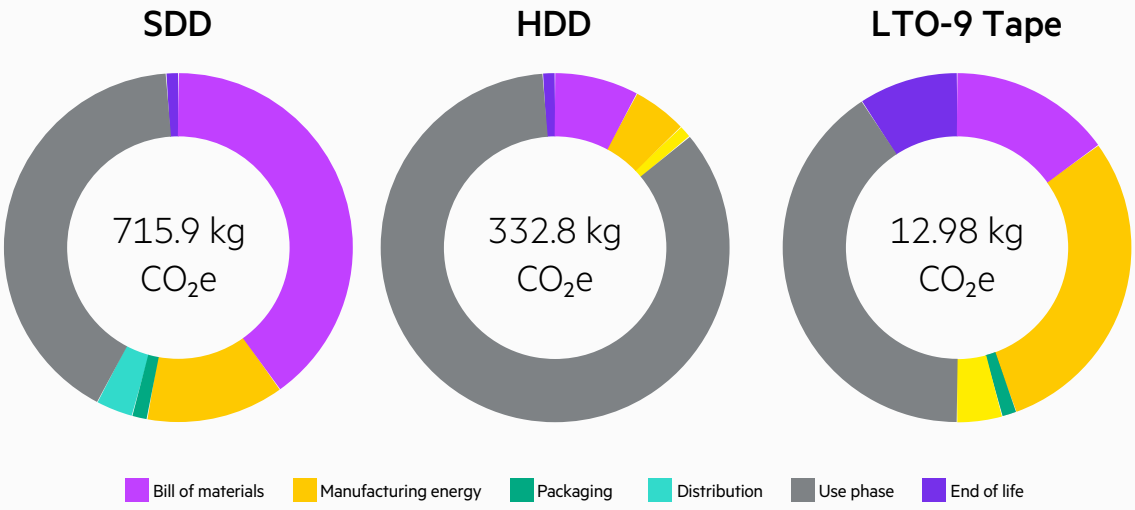
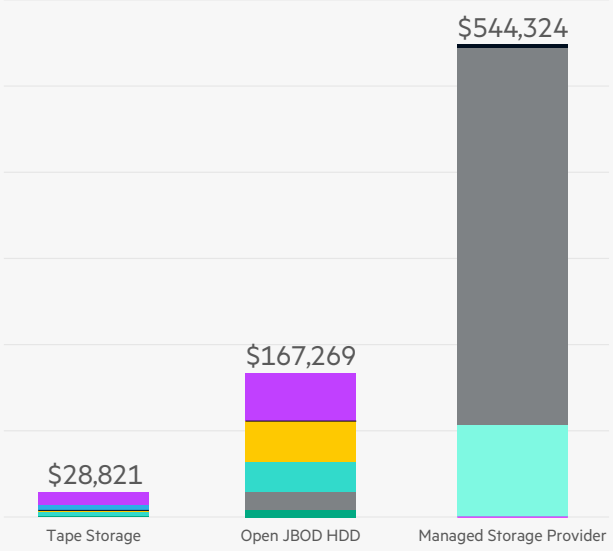


Figure 5: Carbon Impact and Breakdown by Component

[6] Source: Data Economics: LTO-9 Technology Optimizing Data Value", Solutions North Consulting, 2023
[7] https://www.seagate.com/www-content/datasheets/pdfs/nytro-3000-sas-ssdDS1950-2-1711US-en_US.pdf
[8] https://www.seagate.com/global-citizenship/product-sustainability/exos-x16-sustainability-report/
[9] Brad John's Consulting; improving Information Technology Sustainability with Modern Tape Storage - 2022



	Tape Storage	Open JBOD HDD	Managed Storage Provider
Operations cost	$1,038	$1,025	$3,750
Data retrieval charges	0	0	$432,832
Storage costs	0	0	$107,687
Command charges	0	0	$55
Hardware	$14,030	$52,681	0
Total operational energy	$1,442	$47,254	0
Cost of maintenance	$5,000	$34,243	0
Cost of floor space	0	$24,000	0
Sustainability charges	$792	$8,066	0
Media	$6,519	0	0
Data transmission costs	0	0	0
Software	0	0	0
10-year total	**$28,821**	**$167,269**	**$544,324**

Savings

Using LTO technology for long term data storage can dramatically lower the cost of storing and managing data over timeframes spanning decades in comparison to all-disk or all-cloud solutions[10]. With extremely low cost per TB, high storage density to maximise data centre resources and vast and flexible scalability, tape is better suited to the colossal data storage demands of the looming 'zettabyte era'.

LTO-Savings
$139,488 vs HDD
$516,503 vs Cloud deep archive

Figure 6: 10 Year Total Cost of Ownership Comparison

[10] Source: Data Economics: LTO-9 Technology Optimizing Data Value", Solutions North Consulting, 2023

HPE GreenLake for Tape Libraries

One of the traditional barriers has been the perceived upfront cost of tape compared to the apparent ease and flexibility of the public cloud. HPE GreenLake Flex Solutions for Tape Libraries creates a new paradigm for tape customers.

- Consumption-based pricing: customers only pay for what they use and avoid paying for over provisioned solutions.
- They can monitor capacity and performance precisely to allow for more timely upgrades.
- Instead of a big initial capital outlay, customers can spread the cost over a longer period.

Use Cases for HPE StoreEver tape

The use of HPE StoreEver tape spans various industries, offering secure and cost-effective solutions tailored to their unique needs[11].

Industry	Examples
HPC / Scientific	Defence / Modeling Weather forecasting Particle physics AI/ML data and model retention
Cloud / Hyperscale	Traditional internal data archiving Archiving-as-a-service
Media & Entertainment	Streaming asset capture (e.g. 8k video) FILM & TV archiving and preservation
Healthcare	Regulatory records, video and imaging content retention
Life Sciences / Genomics	Backing up and protecting large data sets
Video Surveillance	Incident video retention, legal holds, time-based video retention
Traditional IT	Banking Finance Manufacturing
Government / Agencies	Library of Congress Streaming data collection and retention
Oil & Gas / Seismic	Near real-time collection of seismic data

Figure 7: Tape Industry Usage Examples

[11] 'INSIC Global Trends, Applications and Use Cases for Tape Adoption Report 2024', INSIC 2024

Conclusion

The ability of HPE StoreEver LTO tape technology to continuously innovate, while providing compelling TCO advantages and a unique barrier against cyber security threats, make it more essential today than it has ever been.

This is witnessed by the fact that in 2023, industry LTO tape media capacity shipments reached a new record level of 152.9 EB[12]. Clearly, the demand for tape storage is higher than it has ever been.

And with the growing urgency of climate action, tape's ability to store petabytes of infrequently accessed data with minimal environmental impact should increase its popularity still further.

But as businesses embark upon a new 'space race', HPE believes the natural solution to some of these strategic long term data storage challenges will be to expand your archival capabilities with HPE StoreEver LTO Ultrium tape solutions.

When it comes to helping you manage vast cold data archives, HPE StoreEver has the right stuff!

[12] Source: LTO Media Shipment Capacity Report, LTO Program May 2024.

Learn more at
hpe.com/storage/storeever

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