

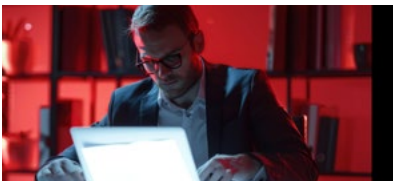
# GLOBAL TRENDS, APPLICATIONS AND USE CASES FOR TAPE ADOPTION



INSIC Report 2024 Executive  
Summary by the LTO Program



A new report by INSIC, the Information Storage Industry Consortium, provides key insights about the current storage marketplace highlighting the role that tape storage plays in this space. The report delivers in-depth discussion on a variety of storage topics including market and technology trends, cost analysis, energy consumption, vertical industries and workloads, and sustainability. Suffice it to say, this is a comprehensive report that was created in a collaborative effort by industry experts and analysts. This document provides short summaries of key sections of the INSIC 2024 report which can be downloaded separately.



*“Tape is ideal for long term, deep archives. Our customers typically transition their data to tape when it is over two years old. We have never lost content.”*

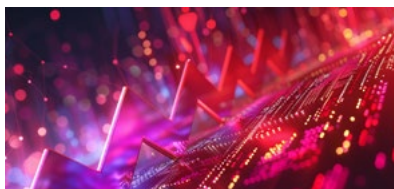
**Dave Thomson,**  
QStar Technologies

#### **EXECUTIVE SUMMARY**

The Global Trends, Applications and Use Cases for Tape Adoption Report 2024 summarizes that tape storage has inherent and fundamental usage, cost and longevity benefits including “... low acquisition cost, extremely low power consumption, excellent footprint density, scalability, and ... reliability.” It stresses that tape can protect data with a number of attributes that include “The inherent air-gap design of tape [which] makes it the choice for offline data protection and portability, providing significant protection from cyberattacks.” The air-gap design means that when a tape cartridge is removed from the drive it is offline, that is, an air-gap is created between the tape and the system preventing on-line cyber-access to the offline tapes. If online data is compromised the offline protected tape data can be used to recover.

## GO GREEN

One of the substantial market trends is making the data center as green as possible. Power and cooling requirements and expenses are a substantial consideration in data center design. Data centers have been shown to generate up to 2 percent of global CO2 emissions. The report explains that "Tape has an inherent architectural advantage for inactive data at scale. Using removable media that consumes no power when not in use provides a huge power and cooling saving over other storage technology choices. A study by Brad Johns Consulting concluded that a disk archive consumes 96 percent more power than a tape-based solution. Tape's carbon footprint is also reduced. The same study showed a CO2e saving with tape of about 97 percent." There is a lot more to glean on this subject in the full report.



## DATA GROWTH

"We now live in an era of minimal data deletion. In a recent study by Further Research, businesses expressed overwhelming preference for keeping all their data rather than try to selectively curate their data archives," notes the INSIC report. Data growth and retention is a key consideration for storage management decision criteria, as described in the report: According

to Gartner, 80% of all data stored in the future will be unstructured. Between 60% and 70% is Enterprise content that is infrequently accessed but just needs [to be] retained for some essential purpose. Further Market Research estimates that as much as 35 ZB of cold storage will be needed by 2035." Store it on tape to help reduce expense and protect the content long-term.

Data analytics, artificial intelligence, video surveillance, and cloud all have big data requirements with extended retention times. The report explains that, "A combination of cloud and tape can help to achieve best practices in digital preservation for the long-term by providing IT managers with three copies of data, on two different media types and one offsite. INSIC further notes: "Organizations with on-premises tape also have control of their data and the option of abandoning cloud or switching cloud providers rather than paying exorbitant egress fees." More detail on this subject in the report.



## SECURITY AND CYBER RESILIENCY

Cybercrime has become a headline and a huge headache for far too many organizations. The report states that, "One such [cybercrime] scheme is Ransomware, which is malware that locks down a screen or network until a requested payment is made to an anonymous recipient using bitcoin. In 2022, the FBI's Internet Crime Complaint Center received 800,944 complaints, with losses exceeding \$10.3 billion. To fight cybercrime, organizations must defend themselves with smart data storage and security strategies."

As previously explained, storing copies of data on secure disconnected 'air-gapped' devices is paramount. "Tape, due to its removability, enables organizations to keep data offline and safe to protect themselves from disruption of service," notes INSIC in the report.



## TECHNOLOGY TRENDS

This section of the report discusses competing technologies, unstructured data integration, uncorrectable bit error rate, Redundant Array of Independent Libraries (RAIL) when used with Erasure Coded tape technology, host interface and more. If you like to 'see under the covers' and want to understand the technology behind data preservation and protection then you need to visit this section about 'Technology Trends.'



### SUMMARY

As you can surmise from this 'teaser' the INSIC report is a robust and rich source of data storage information. It proceeds to thoroughly discuss additional subjects including throughput and reliability, durability of data, media wear out, vertical industry use cases and sustainability. The report notes that sustainability has "a broad spectrum of impacts including economic, social, governance and traditional carbon impacts human life has on earth." Get all the info in the full INSIC report here.

Click to view 'Global Trends, Applications and Use Cases for Tape Adoption'. INSIC Report 2024.

[DOWNLOAD HERE](#)



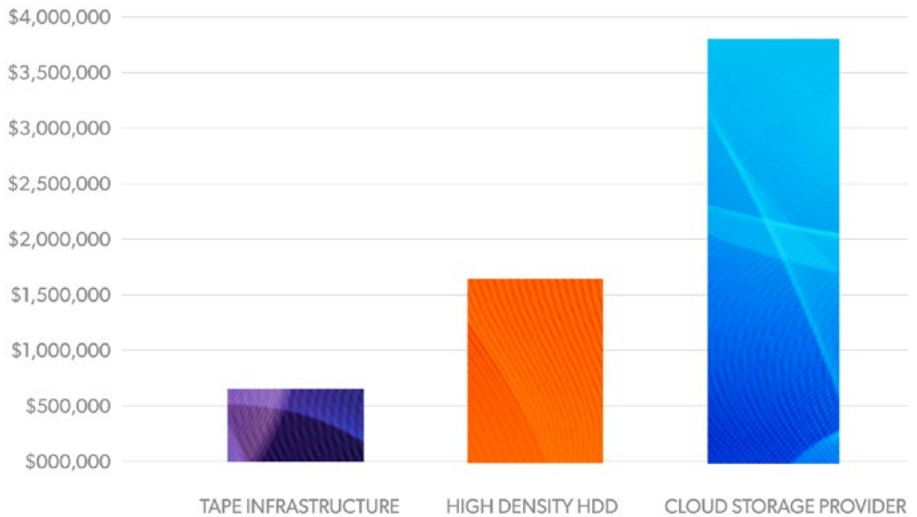
### TCO & SUSTAINABILITY ADVANTAGES

The cost of storage alternatives is important for storage managers to plan, budget and manage data access, preservation and expense. The report examines cost considerations from a variety of viewpoints including Total Cost of Ownership (TCO), energy consumption, and cost trends. TCO is the first consideration that is discussed in the report: "The TCO of tape has been demonstrated across multiple use

cases, most common amongst these is active archives and deep archives of data.

Tape is most cost effective where infrequently accessed multiple Petabytes of data exist." The bar chart shows 20 PB stored for 10 years, with no data expansion, 1% data retrieval/egress per month. "The model yields outcomes that are very similar to other TCO tools. HDD is 2.5x and S3 glacier is 5.9x more expensive than the tape solution." See the full report for additional scrutiny on TCO and energy consumption.

### TEN YEAR TOTAL COST OF OWNERSHIP COMPARISON



Source: Custom analysis created in May 2024 using the LTO Program Total Cost of Ownership calculator