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RESEARCH HIGHLIGHTS

2020 Tape Landscape

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OCTOBER 2020

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Research Objectives

Tape is back on the forefront with new use cases and possibilities. The need for unlimited and cost-conscious storage for long-term retention has never been stronger, in particular for “cold” layers of storage in public and private clouds. Hardware, software, and product usability evolutions make tape solutions an attractive option for long-term archiving, ransomware remediation, and massive storage for media or media-like applications.

In order to gain insight into these trends, ESG surveyed 303 IT professionals at organizations in North America (US and Canada) personally responsible for or familiar with their organization’s data protection environment and strategy, including tape technology. The respondents’ organizations had to be current users of tape technology. This research aimed to understand the current state of enterprise tape deployments, uncover specific use cases (including vertical-specific ones), identify gaps, and highlight future expectations. Special attention will also be paid to cloud use cases such as the usage of tape for long-term retention by hyperscalers, leveraging cloud-like services that use tape as a replacement for on-premises solutions, and migration of tape to cloud.

THIS STUDY SOUGHT TO:



Understand the existing and emerging technology and business challenges and drivers influencing tape usage and purchasing strategies.



Determine the technology requirements organizations have when it comes to tape solutions and evaluate the impact of cloud service providers/hyperscalers.



Examine how tape is used and is expected to be used to support data protection and modern archiving.



Assess how growing compliance requirements and ransomware are influencing buying decisions and changing tape topologies.

Research Highlights



MEDIA VOLUMES KEEP GROWING AT AN INCREDIBLE PACE, AND STORAGE DESTINATIONS ARE SHIFTING TO CLOUD.

Organizations produce and accumulate staggering amounts of secondary (i.e., non-production) data, especially when it comes to backups and archives. Among those who include tape in their secondary data storage infrastructure strategy, tape storage serves as the repository for 33% of total backup and archive data on average today.



TAPE TOPOLOGIES DELIVER ON THROUGHPUT, RELIABILITY, SECURITY, AND COST-EFFECTIVENESS.

Tape wins the cost perception battle against public cloud and disk subsystems, with more than four in ten IT professionals rating it as the most cost-effective backup medium. For recoverability, tape is seen as a robust medium on par with public cloud and slightly ahead of disk systems.



ARCHIVES CREATE TECHNOLOGY CHALLENGES AS WELL AS OPPORTUNITIES LIKE ACTIVE ARCHIVES AND INTELLIGENT DATA MANAGEMENT.

More than half of respondents indicate their organizations have maximum retention requirements of four to ten years for archive data. Among those organizations that support data archiving activities with tape technology, more than three-quarters currently leverage an active archive solution, and 89% of these respondents support this tiered storage management approach with tape.



TAPE SHINES FOR COMPLIANCE AND CYBER RESILIENCE.

Nearly nine in ten organizations classify tape as critical or important in meeting compliance requirements, with more than one-third of respondents stating that tape is the foundation of their data compliance efforts. With cybercrime increasingly widespread and tape allowing for critical capabilities such as air gapping, it makes sense that more than one in five organizations surveyed use tape as their most commonly leveraged mechanism to deal with cyber-attacks.



LOOKING AHEAD, THE MAJORITY OF USERS WILL CONTINUE TO INVEST IN TAPE.

The majority of current tape users expect to continue placing bets on tape with increased future investments. Among those respondents who are either not currently increasing their tape spending or actively planning to decrease it, only 10% believe their organization will completely replace tape within the next year.

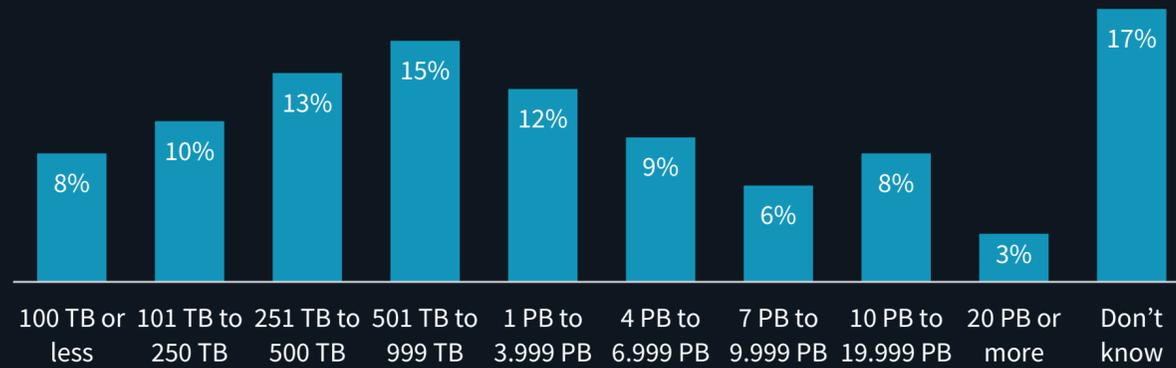
Media Volumes Keep Growing at an Incredible Pace, and Storage Destinations Are Shifting to Cloud



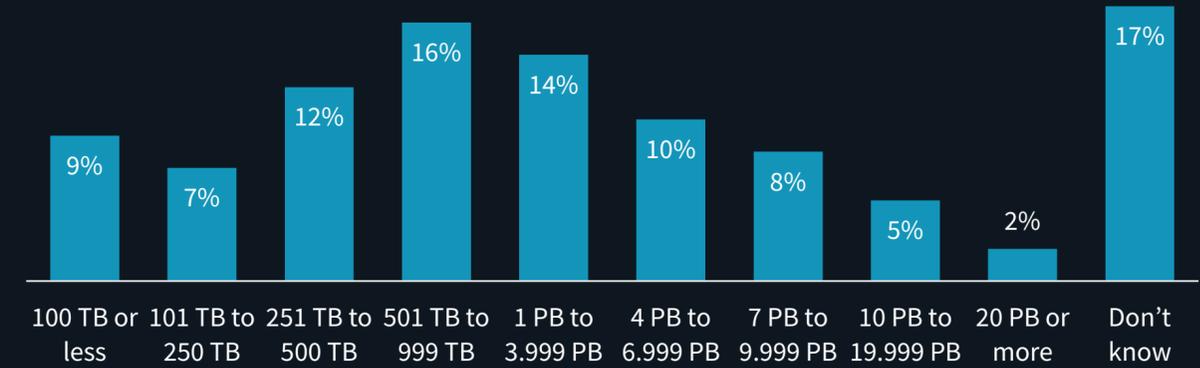
There's a Lot Of Backup Data, and It Keeps Growing

In the age of digital transformation, the explosion of data seems unavoidable. Organizations produce and accumulate staggering amounts of secondary (i.e., non-production) data, especially when it comes to backups and archives. This translates into organizations reporting having 4 PB of backup data and 3 PB of information archives on average. This data deluge is not going to stop any time soon, with backup data growing at 39% annually and archives at 41%. It should also be noted that for about a third of organizations, backup and archive growth is over 50% annually. Indeed, there's so much data that nearly one in five respondents don't even know how much they have, indicating nothing short of a loss of control over their environment.

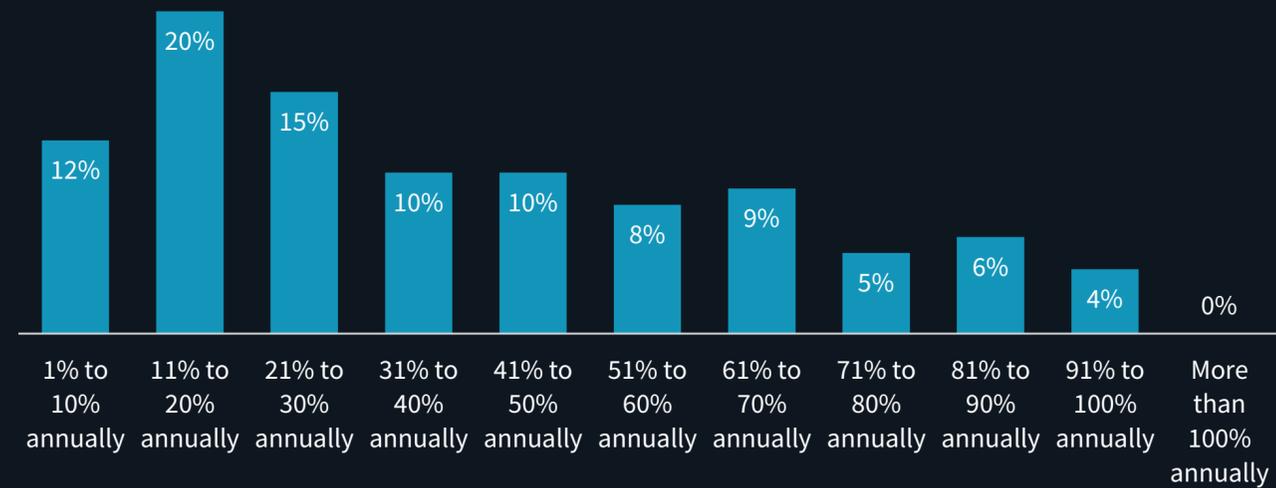
» Total volume of backup data. **MEAN = 4 PB**



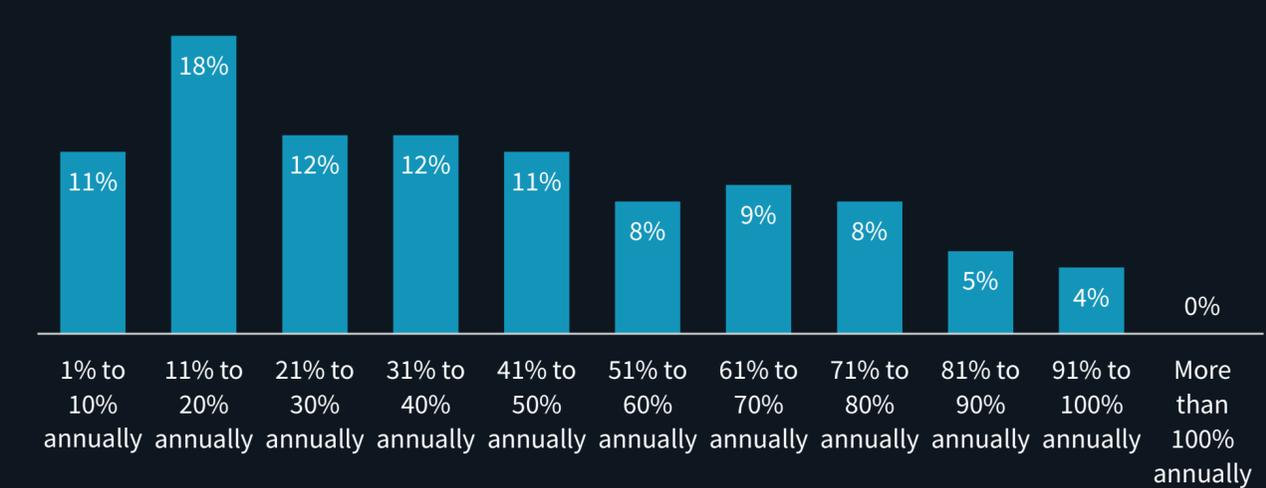
» Total volume of archive data. **MEAN = 3 PB**



» Annual growth rate of backup data. **ESTIMATED MEAN = 39%**



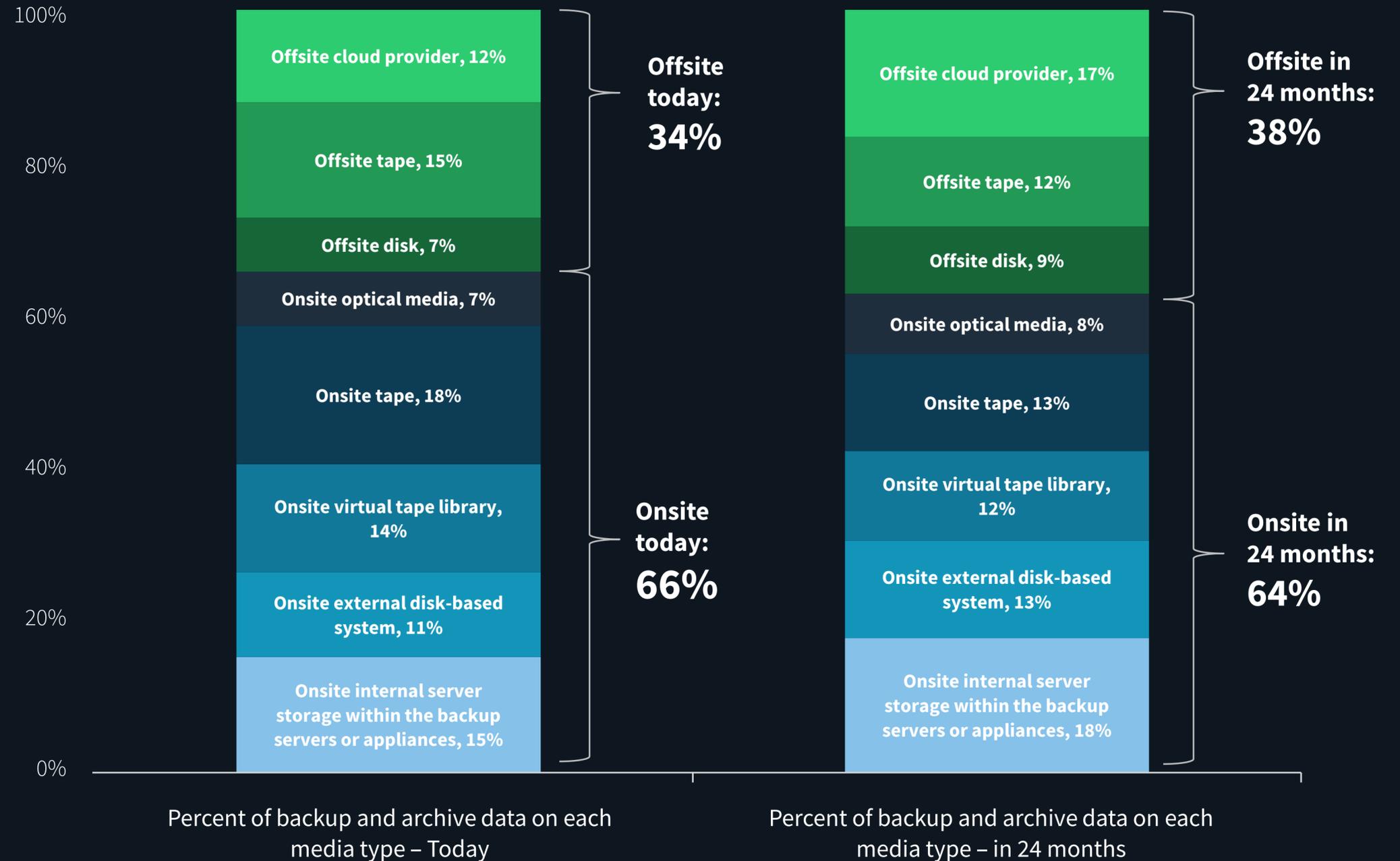
» Annual growth rate of archive data. **ESTIMATED MEAN = 41%**



More Secondary Storage Will Be Shifting to Cloud

Tape as a medium can be found both onsite and offsite in many organizations. Among those who include it in their data protection infrastructure, in combination, tape storage serves as the repository for 33% of the backup and archive data today on average. As more data moves offsite overall in the next 24 months, tape's relative share will drop to 25%, while offsite cloud providers' share will increase. Though their cloud front-end may be different than in-house tape deployments, many providers actually use significant tape storage typically marketed as lower cost and "colder" tiers of storage services as part of their back-end infrastructure.

» Percentage allocation of backup and archive data across storage media types.

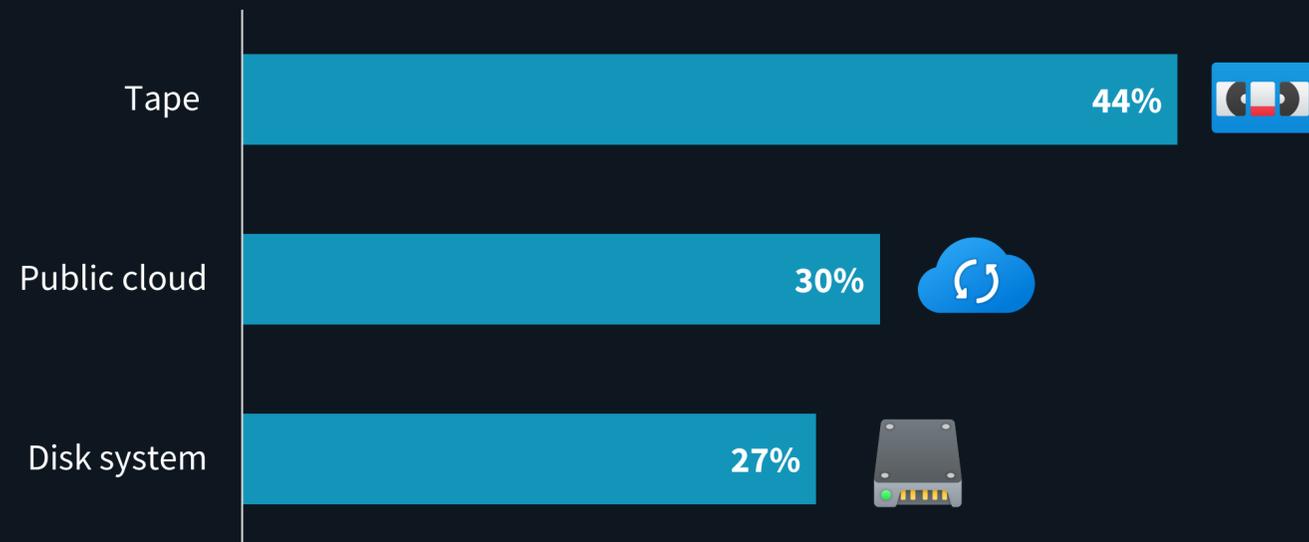


Tape Topologies Deliver on Throughput, Reliability, Security, and Cost-effectiveness

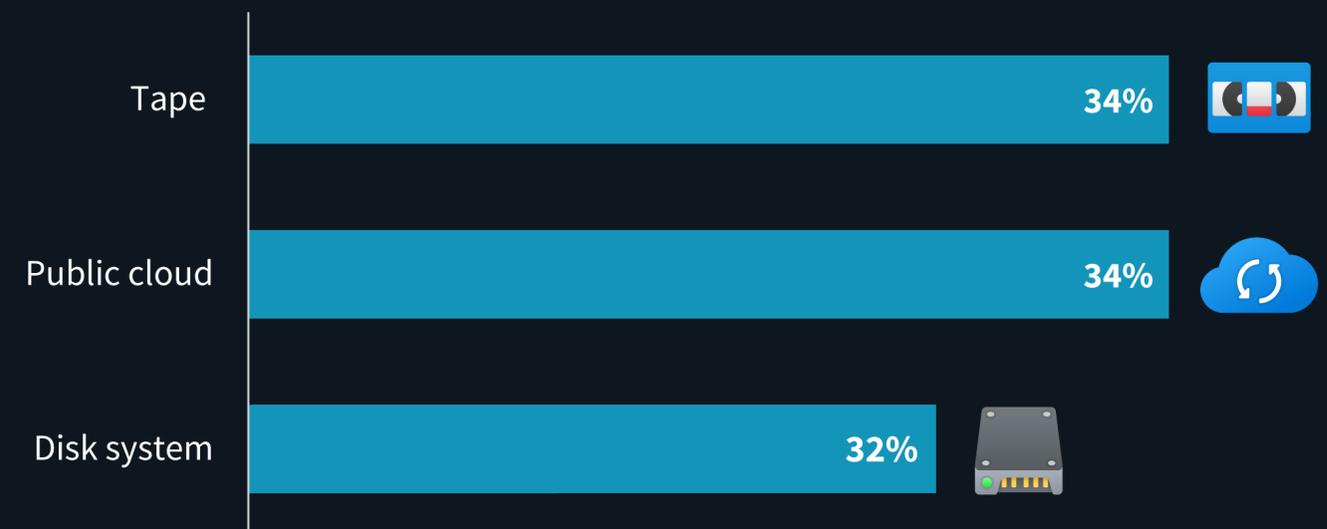
Tape Wins the Cost-effectiveness Race and Holds Its Ground on Recoverability

Storing data is only one side of the coin. Storing massive amounts of data is not free, and cost can vary widely depending on the choice of media. Tape wins the cost perception battle against public cloud and disk subsystems, with more than four in ten IT professionals rating it as the most cost-effective backup medium. Backup is not just about backup; it's also about recoverability of the data. For recoverability, tape is seen as a robust medium on par with public cloud and slightly ahead of disk systems. ESG believes this is in part due to the throughput performance of tape, and its improved usability in the past few years. It should also be noted that the type of recovery (amount of data, number of files, etc.) will influence which medium does better. In combination, the cost-effectiveness and recoverability rankings place tape in a positive light.

» Backup media considered most cost-effective.



» Backup media considered most recoverable.



Cost, Security, and Performance Are Top Challenges for Cloud Backup Users, while Tape Users Sleep Well at Night on These Issues

While there is a significant trend toward externalizing data to cloud infrastructures for backup and archiving, some drawbacks exist. Offering some strong counter arguments for tape technology, cost, security, and performance are cited as top challenges for cloud backup and archive users.

» Most common cloud backup/archive challenges.



40%

Storage
cost issues



40%

Data
access time



37%

Security
concerns/issues

Conversely, tape excels in these areas for many respondents. Indeed, tape infrastructure provides a variety of benefits and shines with its well-established, proven reliability. This is of course a critical consideration for any storage medium and, in this case, it is a clear differentiator. As suggested, in light of very long retention times and many petabytes of data to store, combined with the seemingly never-ending growth of data volumes, tape is recognized for its optimized cost profile and its attractive total cost of ownership. Adding tape's ability to provide improved security in the form of air-gapping, encryption, etc., to the mix makes it a great medium that is tough to match for the safe handling of the data deluge.

» Three most common benefits of using tape technology.



46%

Proven reliability



44%

Improved security



39%

Optimized cost/TCO

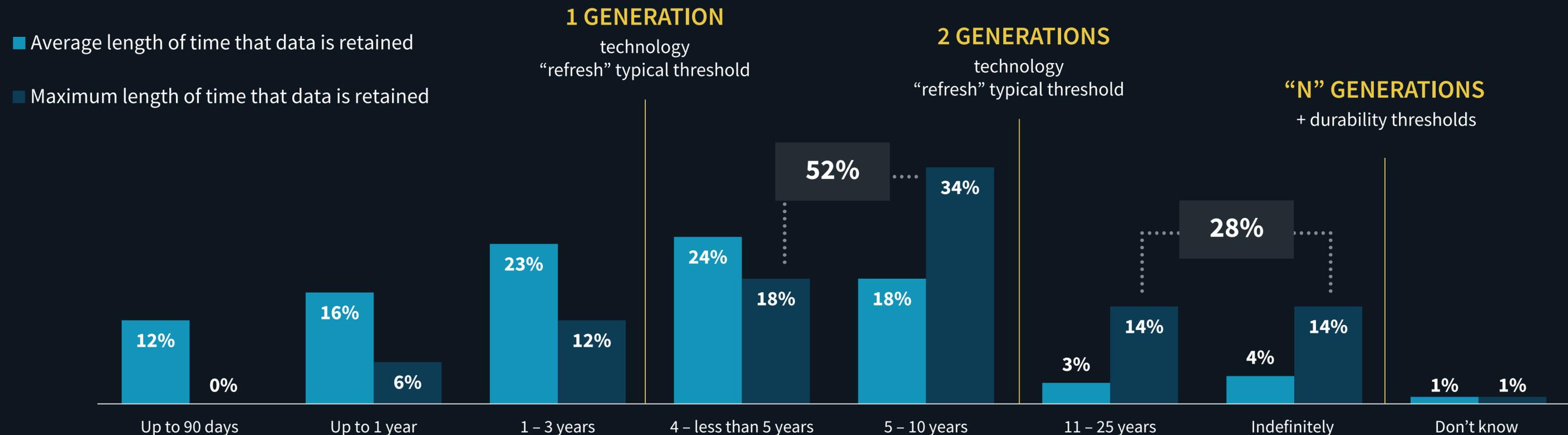


**Archives Create Technology
Challenges as well as
Opportunities like Active
Archives and Intelligent
Data Management**

Archive Data Retention Times

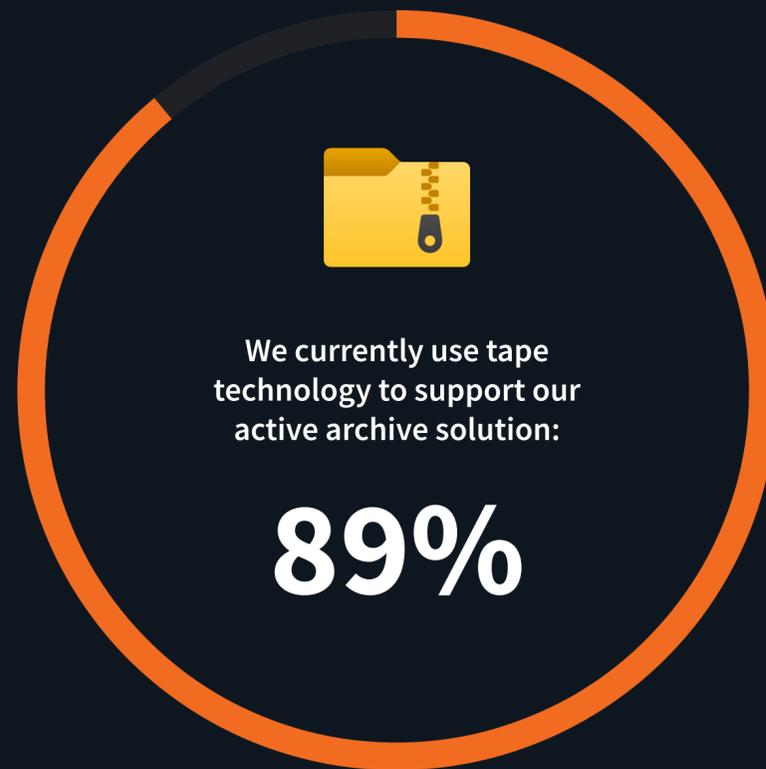
Archive data must be recoverable for many years, placing a burden on maintaining technology compatibility as well as presenting opportunities to solve the “generations” issue. More than half of respondents indicate their organizations have maximum retention requirements of four to ten years for archive data. This is an interesting timeframe when considering that recent TCO models and data in this research indicate a significant advantage builds up over time in favor of tape when compared to disk or public cloud, again in a context of significant yearly growth. Additionally, it should be noted that more than one-quarter of respondents will retain data on tape for 11 to 25 years (14%) or indefinitely (14%).

» Length of time archived data is retained.

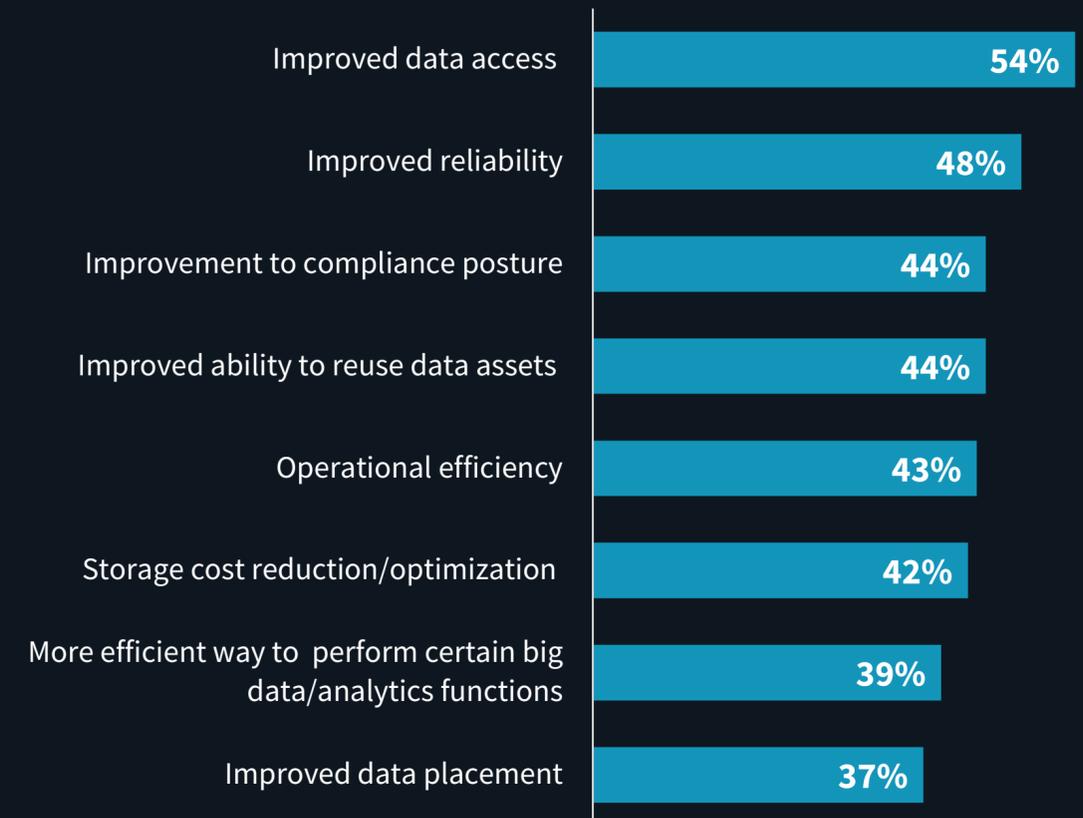


Active Archives Are Widely Used and Supported by Tape

Active archives are defined as a tiered storage topology that gives other IT systems or human end-users access to data through a common, unified file system that automatically retrieves and places that data on the appropriate storage tier. Among those organizations that support data archiving activities with tape technology, more than three-quarters currently leverage an active archive solution, and 89% of these respondents support this tiered storage management approach with tape. Active archives deliver on their promises and are perceived in a favorable light by IT professionals. Active archives are perceived to provide better access to data, improve reliability and compliance, and deliver an improved ability to reuse data assets. These top benefits in combination point to the growing influence of active archive topologies in the creation of intelligent data management processes and solutions.



» Benefits of active archive technology.

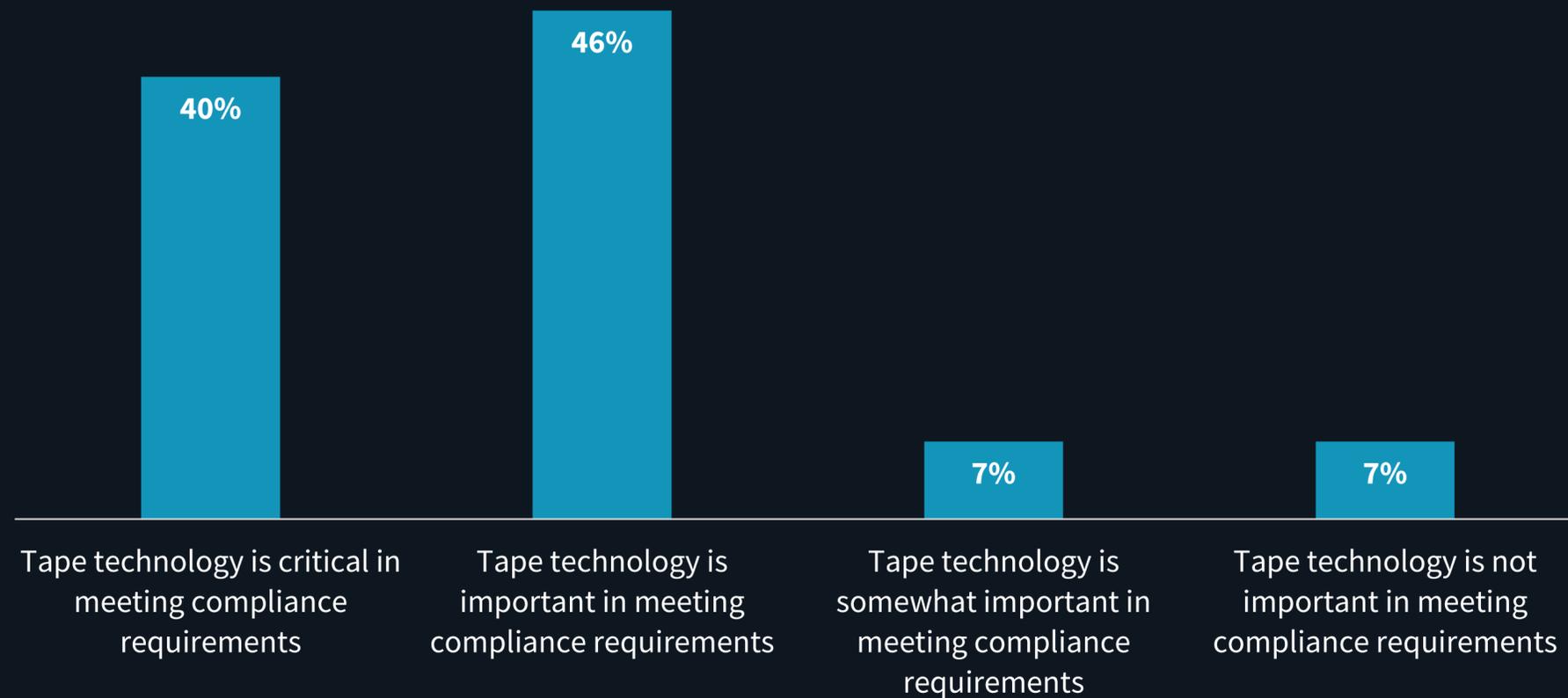


Tape Shines for Compliance and Cyber Resilience



Tape Technology Is At The Heart of Compliance Today

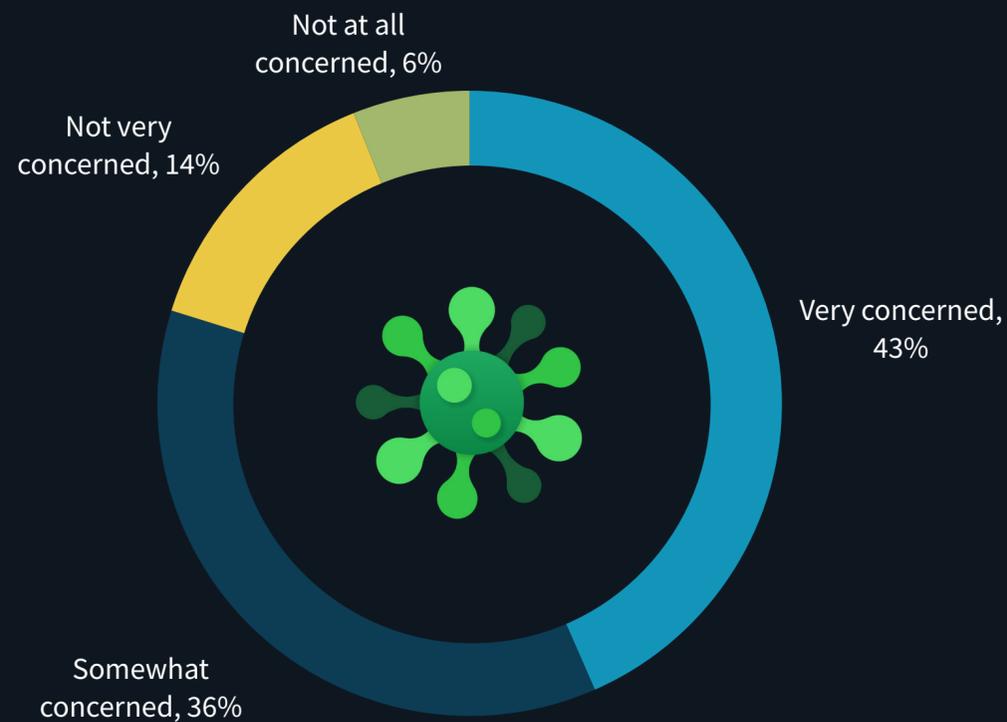
Compliance is at the center of many IT initiatives as the majority of enterprises are already significantly regulated on their management and use of data, with new privacy-focused compliance requirements adding to the complexity and risk of supporting these mandates. Compliance is not an option; it is a business imperative. This is where tape is playing a central role, with 86% reporting tape is critical or important in meeting compliance requirements. In fact, more than one-third of respondents stated that tape is the foundation of their data compliance efforts.



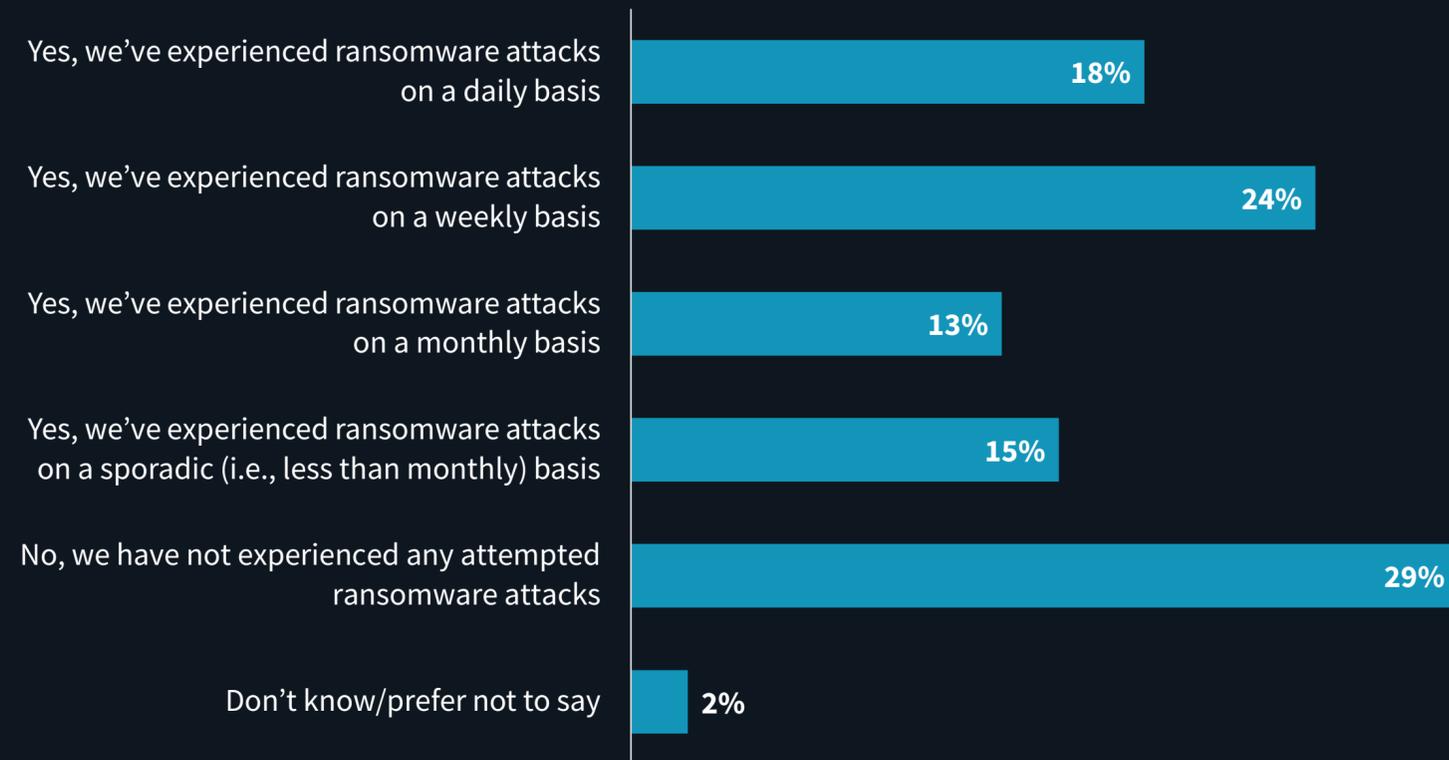
Cyber-attacks Targeting Backup Data Is a Concern, Especially with Rampant Ransomware Attacks

Cybercrime is widespread, and recent ESG research on COVID-19 and subsequent work-from-home mandates revealed that the recent health crisis has only accelerated the attack rates.* Therefore, it is not surprising that more than four in ten organizations are very concerned that their data protection ecosystem could be compromised by these types of attacks, especially considering that 69% report experiencing at least one attempted ransomware attack within the last year. These types of attacks can be devastating and require many processes and technology measures be put in place. Even with the best training, intrusion detection, and other mechanisms in place, the creativity of cyber criminals cannot be underestimated, and having a strong strategy for remediation or cyber recovery is key. That’s why “protecting the protector,” or the backup copies, is necessary. It is a serious concern today as expressed by many IT professionals.

» Level of concern that protection copies of data could become infected or corrupted by cyber-attacks.



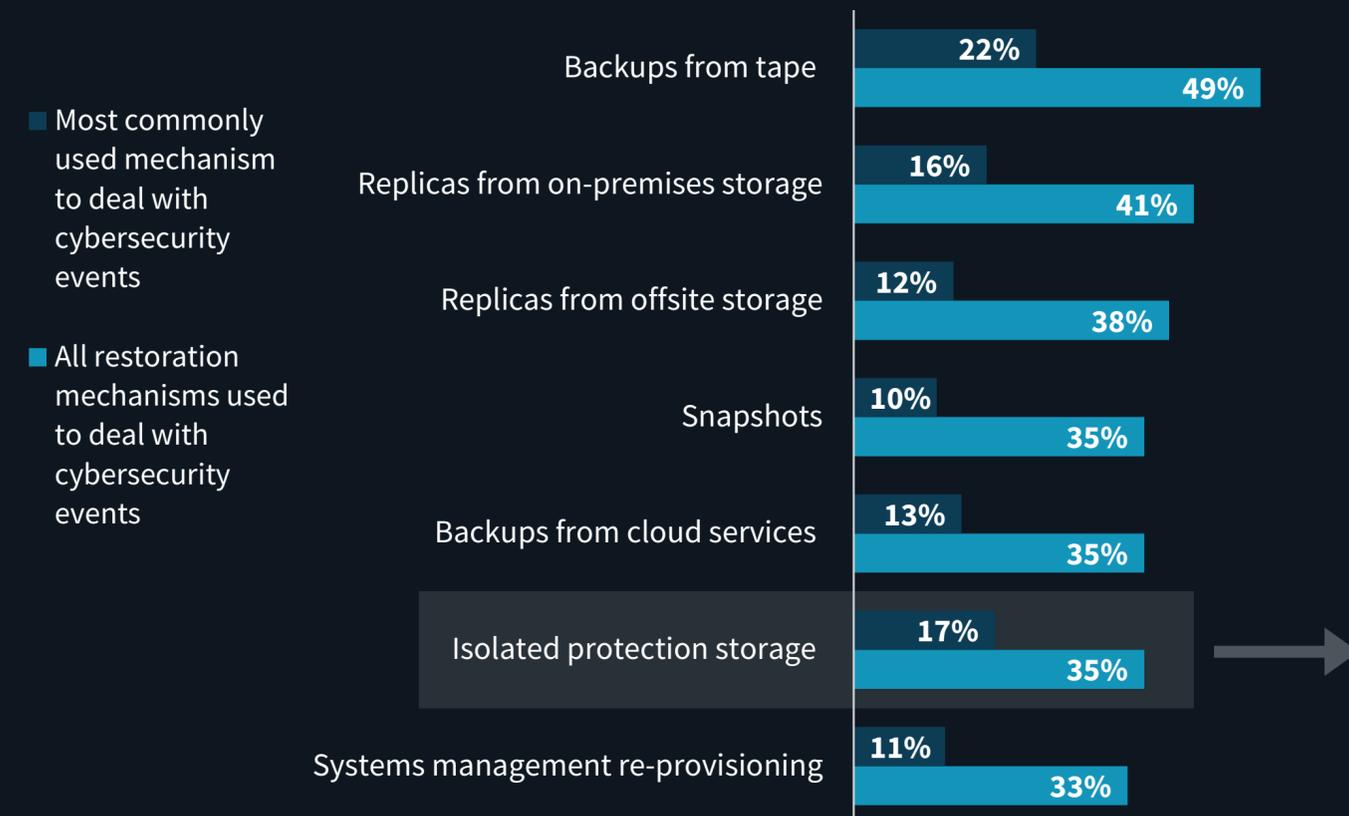
» Frequency of attempted ransomware attacks within the last 12 months.



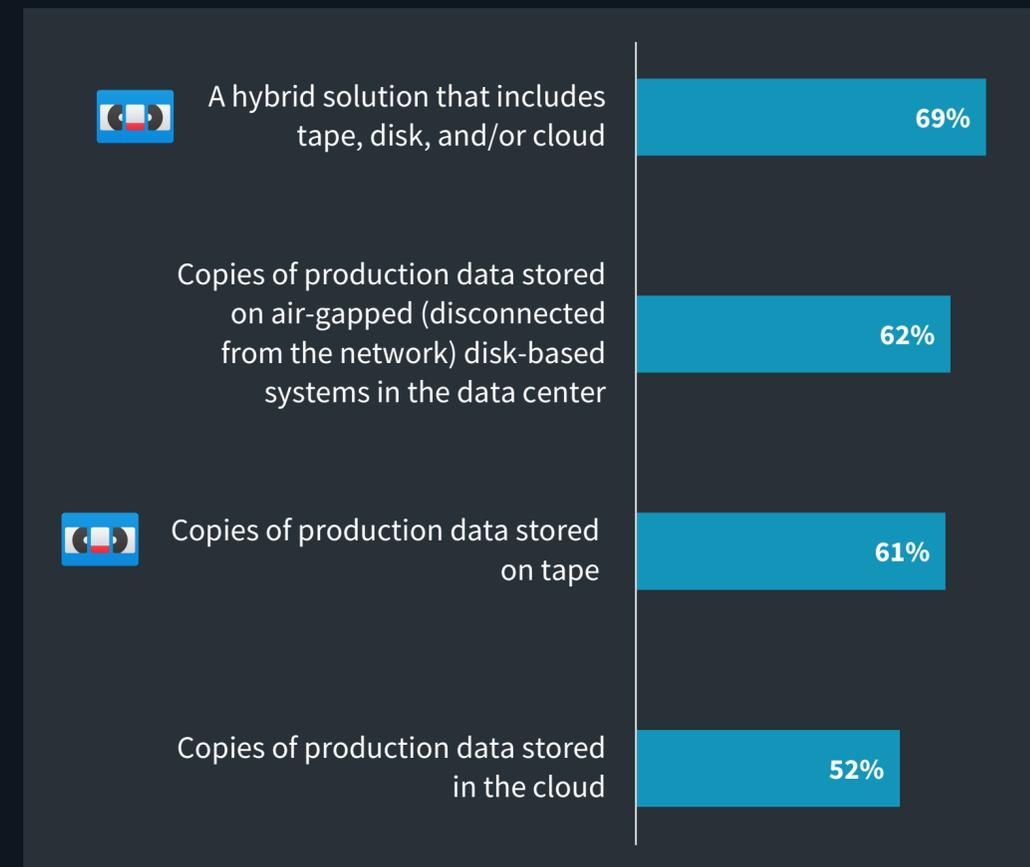
Tape Shines For Cyber Resilience

Multiple technologies, individually or in combination, can be used to fend off cyber attackers. ESG’s opinion is that successful strategies are likely to include a blend of approaches to meet specific and sometimes complex mitigation requirements. Notably, more than one in five organizations surveyed use tape as their most commonly leveraged mechanism to deal with cyber-attacks. Tape allows for critical capabilities such as air gapping, and logically 61% keep production data on tape as isolated protection storage and 69% use tape in a hybrid media solution (combining tape, disk, and/or cloud). The role of tape in the mitigation of cyber-attack impact is foundational. Indeed, 85% of the organizations that use tape in this manner voice a high or very high degree of confidence in the technology’s ability to facilitate data recoveries triggered by cyber events.

» Mechanisms to restore production servers from a cybersecurity event.



» Types of isolated protection storage.

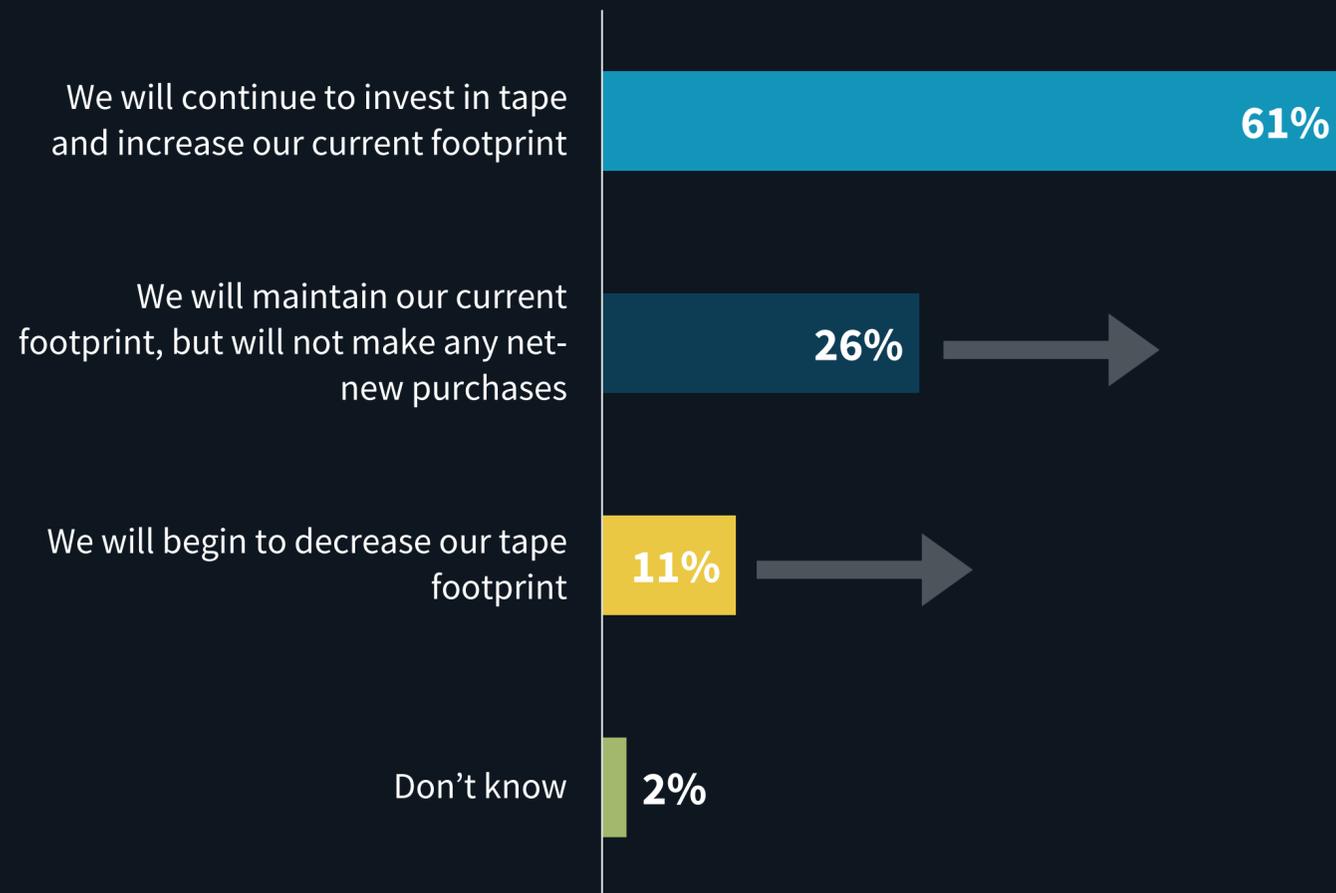


85% of organizations voice a high or very high degree of confidence in tape technology in the context of tape isolated recovery schemas.

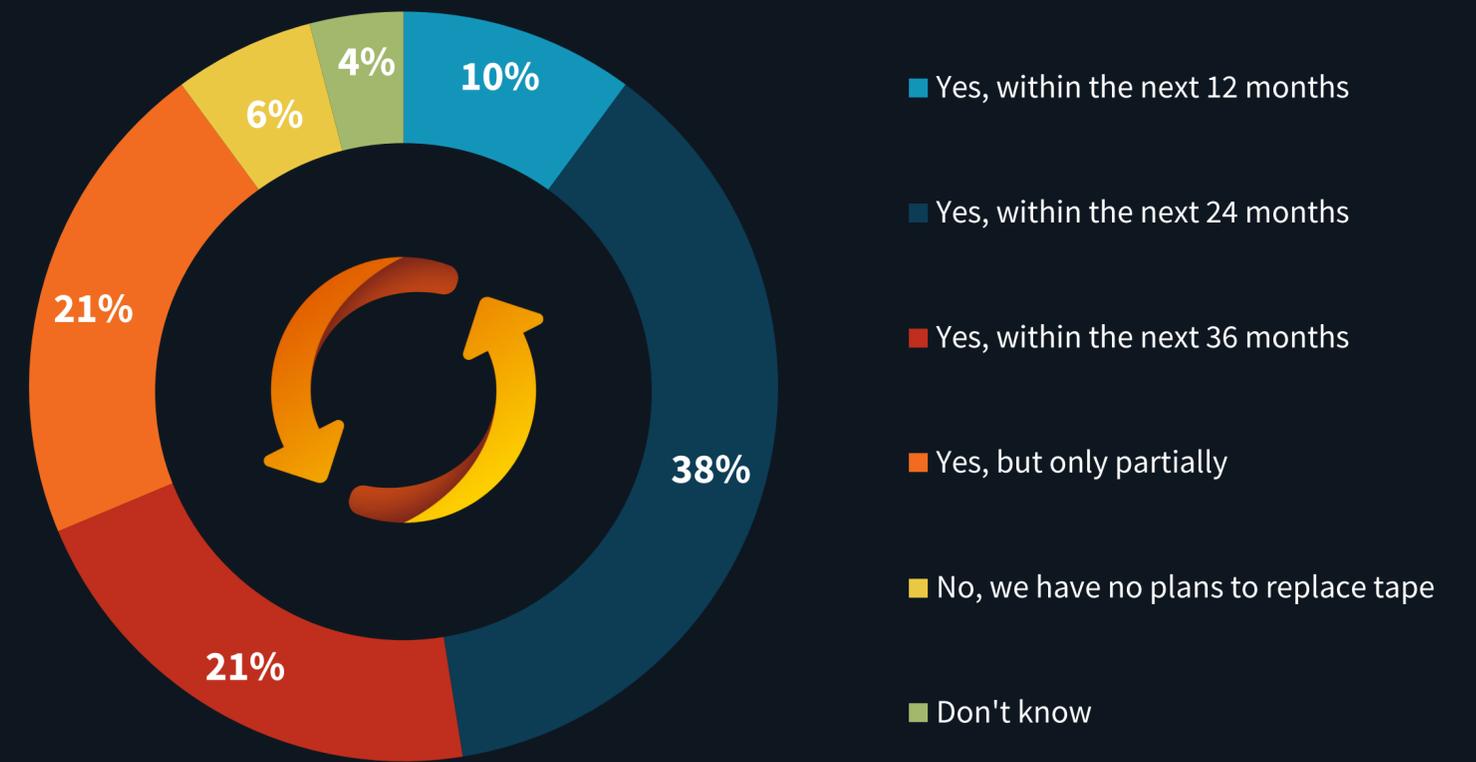
The Majority of Tape Users Are Continuing to Invest

The majority of current tape users expect to continue placing bets on tape with increased future investments. Conversely, only one in ten say they will actually decrease their footprint, while 26% will maintain their current footprint. Among those respondents who are either not currently increasing their tape spending or actively planning to decrease it, only 10% believe their organization will completely replace tape within the next year. ESG’s opinion is that tape is not going away any time soon, and most organizations, especially those with longer term plans to potentially get rid of tape, should take a closer look at tape because alternatives may not necessarily be as viable as originally perceived.

» Forward-looking tape technology strategy.



» Would uncommitted tape users ever completely replace tape?





The LTO Ultrium format is a powerful, scalable, adaptable open tape format developed and continuously enhanced by technology providers Hewlett-Packard Enterprise, IBM Corporation and Quantum LTO Holdings, LLC (and their predecessors) to help address the growing demands of data protection in the midrange to enterprise-class server environments. This ultra-high capacity generation of tape storage products is designed to deliver outstanding performance, capacity and reliability combining the advantages of linear multi-channel, bi-directional formats with enhancements in servo technology, data compression, track layout, and error correction.

[LEARN MORE](#)

About ESG

Enterprise Strategy Group is an IT analyst, research, validation, and strategy firm that provides market intelligence and actionable insight to the global IT community.

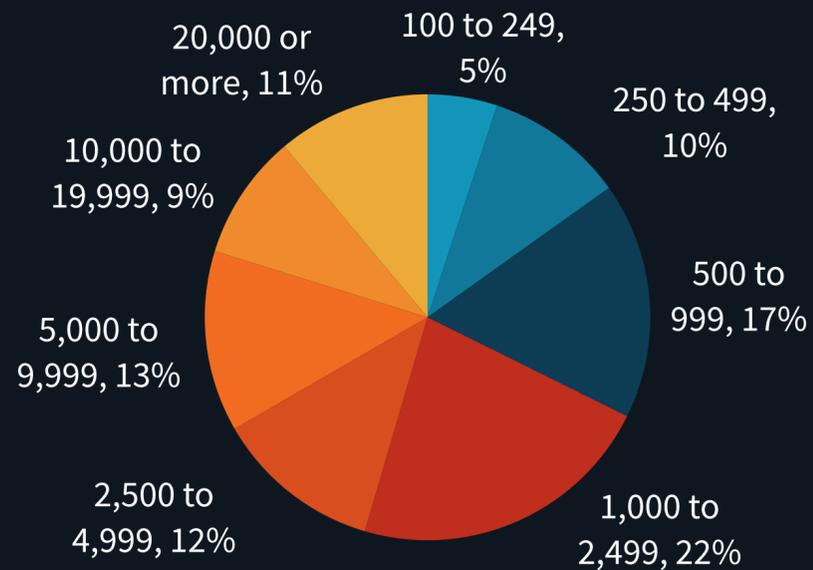


Research Methodology

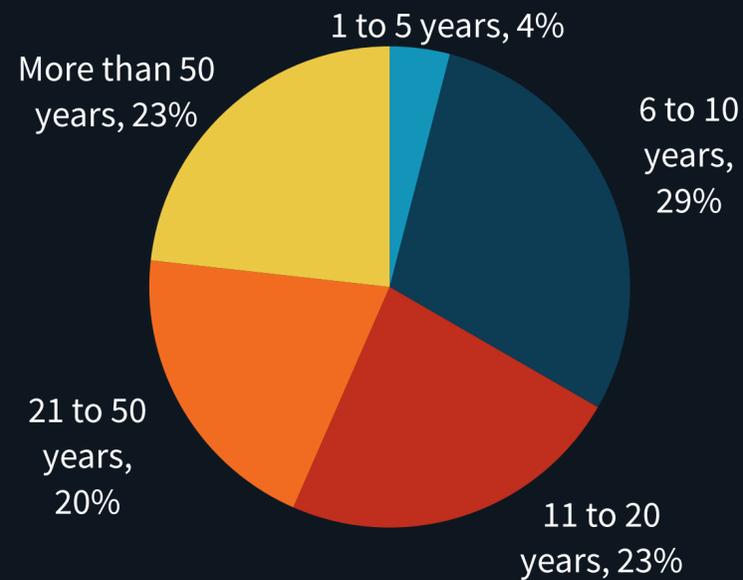
To gather data for this report, ESG conducted a comprehensive online survey of IT professionals from private- and public-sector organizations in North America (United States and Canada) between June 22, 2020 and July 30, 2020. To qualify for this survey, respondents were required to be IT professionals personally responsible for or familiar with their organization’s data protection environment and strategy, including tape technology, and respondents’ organizations had to be current users of tape technology. All respondents were provided an incentive to complete the survey in the form of cash awards and/or cash equivalents.

After filtering out unqualified respondents, removing duplicate responses, and screening the remaining completed responses (on a number of criteria) for data integrity, we were left with a final total sample of 303 IT professionals.

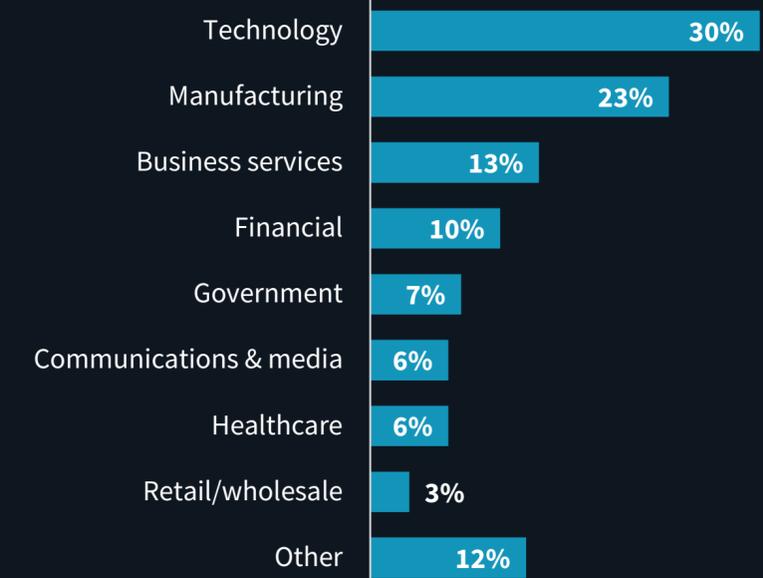
RESPONDENTS BY NUMBER OF EMPLOYEES



RESPONDENTS BY AGE OF COMPANY



RESPONDENTS BY INDUSTRY



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