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There's no doubt that the cloud offers IT unprecedented flexibility in scaling out infrastructure rapidly. At the same time, organizations using cloud services also face challenges — including rising costs, optimizing resource utilization, and managing cloud resources. These challenges become more pronounced as data footprints continue to grow.

In a recent S&P Global Market Intelligence 451 Research survey, respondents project growth in data volume of 30%, on average, over the next 12 months. Beyond this, 72% of respondents report they either experienced or were notified of a price increase for cloud storage services, to the tune of 30% on average. These compounding issues have IT and infrastructure leaders grappling with how to manage rising storage costs in a hybrid and multicloud world.

Storage Budgets Rise in 2023, as Price Increases Highlight Need for Change

Henry Baltazar, Research Director

The high cost of storage, both capital and operational expenditure, has become the top pain point for organizations, jumping ahead of key issues such as disaster recovery. Making matters worse, most respondents are facing price increases for storage systems, software, maintenance and cloud storage services, reflecting the impact of inflation and supply chain shortages on the storage market.

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The following is an excerpt from an independently published S&P Global Market Intelligence 451 Research report, "Storage Budgets Rise in 2023, as Price Increases Highlight Need for Change" released in March 2023.

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Report Excerpt

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Executive summary

Introduction

In 451 Research's Voice of The Enterprise: Storage, Budgets 2023 study, respondents report that they expect 30% growth in data volume, on average, in the coming year — significantly higher than in previous studies. The high cost of storage, both capital and operational expenditure (capex and opex), has become the top pain point for organizations, jumping ahead of key issues such as disaster recovery. Making matters worse, most respondents are facing price increases for storage systems, software, maintenance and cloud storage services, reflecting the impact of inflation and supply chain shortages on the storage market.

About this report

Reports such as this showcase insights derived from a variety of market-level research inputs, including financial data, M&A information, and other market data sources both proprietary to S&P Global and publicly available. This input is combined with ongoing observation of markets and regular interaction with vendors and other key market players.

This report specifically includes data from the following sources. See the Methodology section at the end of the report for more details.

- **451 Research's Voice of the Enterprise: Storage, Budgets 2023** — This web-based survey was fielded Oct. 14 to Nov. 28, 2022, among approximately 370 IT end-user decision-makers worldwide.

Key findings

Data under management is growing more rapidly in 2023. Respondents expect 30% growth in data volume, on average, over the next 12 months, compared with an average expectation of 24% growth for 2022. Data growth remains the top-cited pain point, with 34% selecting it as a challenge. As organizations struggle with data management processes such as data deletion and migration, and the threat of ransomware compels organizations to maintain more immutable backup copies for recovery, the data growth issue will only worsen with time.

Public cloud storage spending continues to cut into on-premises storage budgets. The percentage of respondents reporting that public cloud is impacting their storage budgets has dropped slightly from 54% a year ago to 51% in the recent study. Egress charges and cloud storage cost concerns are key factors that have slowed the migration of data from on-premises to public cloud environments, and with recent cloud storage price increases from vendors such as Google LLC, organizations will have to invest in optimization to help keep costs under control.

Respondents report substantial price increases for storage systems, software and cloud storage services. Seventy-two percent of respondents either experienced or were notified about price increases for storage systems, and these increases appeared for storage management software (66%), data protection software (70%) and cloud storage services (72%). Price increases of about 30% on average were seen across all categories, which will force organizations to scrutinize future purchases.

Organizations are seeking less expensive alternative storage suppliers. Among respondents that experienced a recent price increase, 44% say they are seeking competitive bids from alternative vendors to secure negotiating leverage. Thirty-one percent say they are switching to alternate vendors and/or service providers in response to the price increases. One-third (33%) say they are adjusting their contact terms or service-level agreements with service providers to reduce costs.

The Take

Inflation and supply chain shortages are having a deep impact on the storage industry and organizations that purchase storage systems, data protection software, storage management software and cloud storage services. Data storage remains a challenge for organizations given that the best way to reduce costs is to either delete data or migrate infrequently accessed data to less expensive storage options, which are both difficult tasks. A data deletion or migration mistake could have a major negative business impact, which is why some organizations have decided to just purchase more storage to handle data and delay the implementation of comprehensive data management optimization. With the majority of respondents already impacted by vendor price increases, organizations are under pressure to rein in their storage costs and maximize the value of their investments in storage systems, software and services. Cloud storage services remain a popular alternative to traditional on-premises systems, though recent price increases and additional charges for egress fees and API access fees have made some organizations more cautious about accelerating their transition to hybrid cloud.

Top pain points focus on cost, resiliency and management

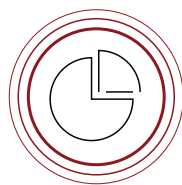
Data growth remains the top pain point for organizations. Respondents believe that growth will accelerate substantially in 2023, with an average expectation of 30% growth, compared with an average expectation of 24% for 2022 (see Figure 1). Several factors will drive this growth, including the expansion of data-heavy workloads such as video surveillance, medical images, AI/machine learning and analytics; and the need to maintain more copies of data to meet data protection and data management requirements. The threat of ransomware is driving organizations to maintain an immutable, off-site copy of data to recover in the event of an incident. Spending on data protection should remain strong in 2023, as 20% of respondents say meeting disaster recovery requirements is a top pain point.

Figure 1: Data growth and cost are leading pain points

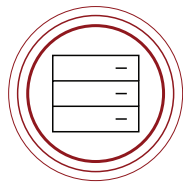
Data growth and storage challenges highlights



30% data growth for 2023. Compared with 24% a year ago, data growth is accelerating for many, and it remains the top pain point in 2023.



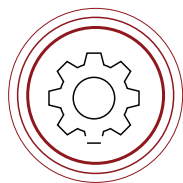
20% on-premises storage budget increase. Represents an increase from 12% budget growth in 2022, but still trails storage growth.



28% view high capex storage costs as a top pain point, up from 26% a year ago.



22% say managing data across cloud and third-party environments is a top pain point.



25% view high opex storage costs as top pain point, up from 21% a year ago.



20% cite disaster recovery requirements as a top pain point, down from 24% a year ago.



51% say spending on public cloud storage services is impacting on-premises storage budgets.



20% report that growth from new applications is a top pain point.

Q. What are your organization's top pain points from a storage perspective? Please select top three choices that apply.

Base: Respondents from organizations using on-premises storage and managing more than 1 TB of data (2023); All respondents (2022).

Sources: 451 Research's Voice of the Enterprise: Storage, Budgets 2023; Storage, Data Management and Disaster Recovery 2022.

Q. Over the next 12 months, do you expect the amount of data your organization has under management to increase, decrease, or not change?

Base: Respondents from organizations using on-premises storage and managing more than 1 TB of data (2023); All respondents (2022).

Sources: 451 Research's Voice of the Enterprise: Storage, Budgets 2023; Storage, Data Management and Disaster Recovery 2022.

Q. By what percentage do you expect your organization's on-premises storage infrastructure budget to change [over the next year]?

Base: Respondents from organizations using on-premises storage and managing more than 1 TB of data (2023); All respondents (2022).

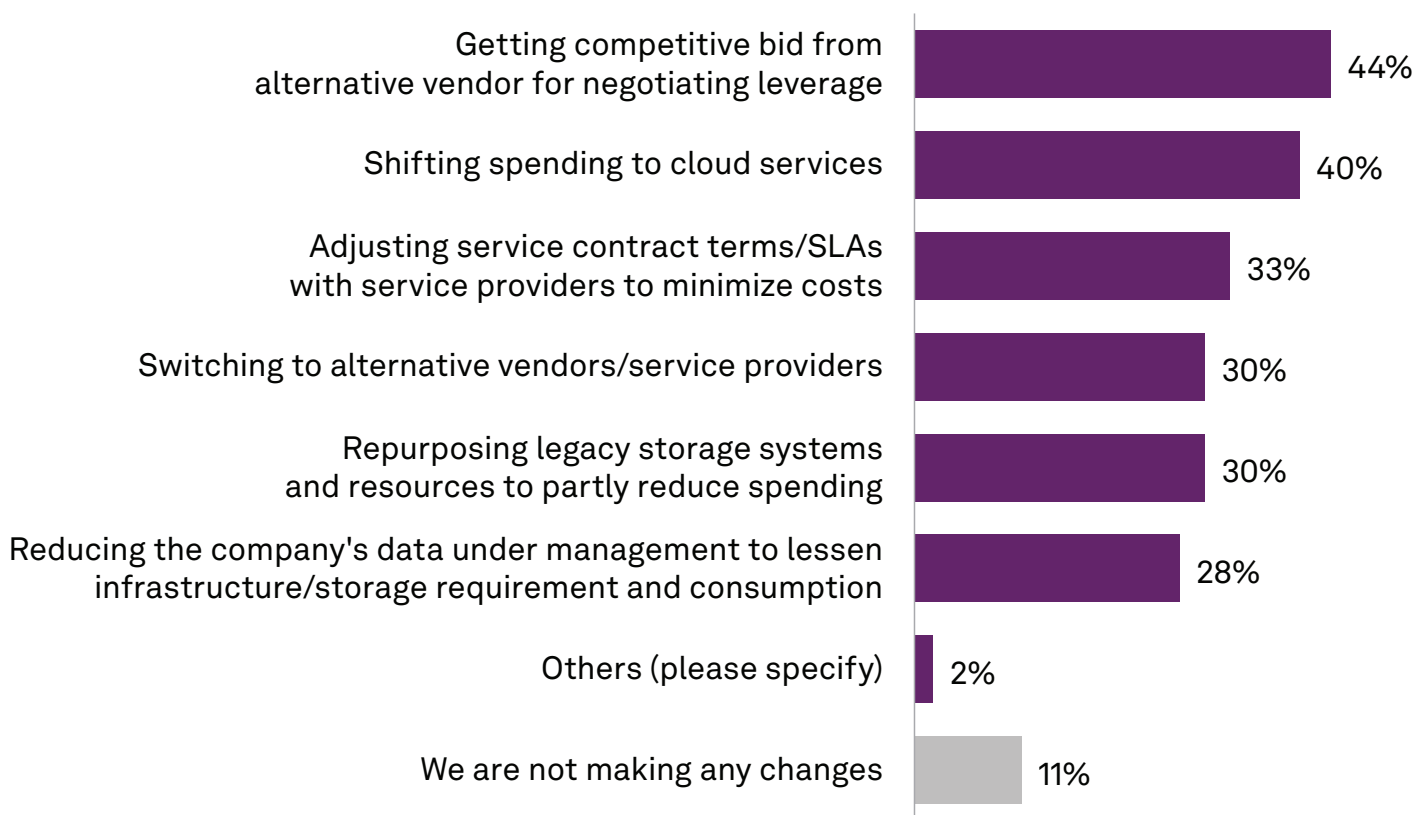
Sources: 451 Research's Voice of the Enterprise: Storage, Budgets 2023; Storage, Data Management and Disaster Recovery 2022.

Although companies have been dealing with the challenge of data growth for decades, current market conditions are forcing organizations to reevaluate their storage policies and consumption practices. The high cost of storage on a capex basis has been highlighted as a problem — a point that cloud and storage vendors have used to promote cloud storage services and storage as a service (STaaS). However, the higher cost of storage on an opex basis is cited as a pain point by a quarter of respondents. The majority of respondents (51%) say increased spending on public cloud storage services is impacting their on-premises storage budgets, which is an important dynamic given that most organizations are pursuing hybrid and multicloud storage for their cloud operating models. As we will discuss in greater depth later in this report, price increases are not exclusive to on-premises storage vendors; public cloud vendors such as [Google Cloud began announcing notable price increases a year ago](#).

Organizations are seeking alternative vendors and cloud services to meet needs

Organizations are taking various measures in response to price increases. More than two in five respondents who have seen price increases (44%) are seeking competitive bids from alternative storage vendors to gain negotiating leverage. Nearly a third of respondents facing price increases (31%) say they are switching to less expensive vendors or service providers. The same proportion (31%) say they are repurposing legacy systems. This is not surprising because our *VotE: Storage, ESG 2022* study highlighted that some organizations are looking to hold on to legacy systems to handle future workloads instead of retiring them at the typical three- to five-year cadence. More than a quarter of those affected by price increases (28%) say they are reducing data under management, but deleting or tiering data to lower-cost storage is not a trivial exercise and could lead to data loss if done incorrectly.

Figure 4: How organizations are responding to price increases



Q. Which of the following, if any, has your organization decided to implement in response to the price increases? Please select all that apply.

Base: Respondents from organizations whose storage vendors/service providers have implemented price increases (n=151).

Source: 451 Research's Voice of the Enterprise: Storage, Budgets 2023.

Just over half of respondents (51%) say they are shifting spending from on-premises storage to public cloud storage services, though based on our interviews some organizations are leery of the costs associated with cloud and fear they could spike rapidly with time. In the example below, an IT engineer at a media company notes that some coworkers, including their sales team, were under the false impression that data could be stored in the cloud for free. With additional expenses such as egress charges for data retrieval greatly inflating the total cost of ownership for cloud storage, this company is looking to bring back some applications from the cloud, noting that as those applications grow, the cost of the services would outpace the cost for data storage on-premises.

Reining in cloud storage spending is a challenge

“Storage is really probably the biggest cost in the cloud. And so stuff that is very storage intensive, they’ve been tending to keep on-premises... They’re trying not to grow the storage in the cloud too much. Part of that is also putting caps on what we retain, too. That’s been an ongoing problem... Our sales folks like to say, “Oh yes, we’ll keep your data forever, and it won’t cost you anything.”... Our salespeople don’t actually realize that we pay for that storage. It’s like, what’s in the cloud, [they think] it’s free....”

“In one case, they’ve actually started talking about moving a cloud app from the cloud back on-prem[ises] because of the egress charges, because I think it’s been higher than anybody anticipated... They knew that if [the application] grew, that was going to happen. They didn’t think it was going to grow for a few years, and I think it grew very fast, pretty quickly... It seems like it’s actually costing us more to host in the cloud than it would if we were hosting it on-prem[ises].”

-IT/engineering manager/staff

10,000-49,999 employees

\$2.50B-\$4.99B revenue, media & communications



Hybrid Cloud Storage Maturity Model 2023

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The Hybrid Cloud Storage Maturity Model 2023 is the third edition of this annual study and reflects the changing market dynamics that organizations face as they seek to establish their data storage policies across hybrid and multicloud environments. In the past year, adoption of cloud storage services grew rapidly at the expense of on-premises storage spending, with hybrid cloud and cloud-based data protection turning on-premises-only organizations into a minority.

To learn more or to request a demo,
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The following is an excerpt from an independently published S&P Global Market Intelligence 451 Research report, “Hybrid Cloud Storage Maturity Model 2023” released in May 2023.

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Hybrid cloud storage maturity model 2023

This maturity model is based on the findings of our survey data as well as in-depth interviews with end users who discussed their use of cloud storage and future infrastructure plans with our analysts. The hybrid IT environment is constantly evolving, with new products, business models and innovations disrupting the market at a rapid pace. As this innovation continues and as the market matures, technologies that may seem out of reach or unnecessary today could become mainstream. As these changes occur, revisions to the model will likely emerge.

Organizations using cloud storage technologies and services fall into three categories along a continuum in terms of their approach to cloud storage and data management (the traditional, maturing and modern scenarios), and a fourth category presents a target vision for the future. We call this our hybrid cloud storage maturity model.

Traditional

These organizations are focused on their on-premises infrastructure and are either not using public cloud storage today or are in the early stages of using cloud storage, where they are evaluating these services in proof of concept.

Backup, disaster recovery and archiving

In the past two years, there has been a major shift in data protection preferences. Only 28% of respondents now favor exclusive use of on-premises systems and software, while 51% favor hybrid cloud storage and 20% favor strictly cloud-based services (online backup and DRaaS). If traditional organizations are using cloud, it is often for a specific use case such as online backup or for email archiving. Despite the growing popularity of DRaaS, traditional organizations are not quite ready to rely on these services as a replacement for their own on-premises or managed services disaster recovery implementations.

IaaS cloud storage services

Cloud storage has emerged as an alternative to tape-based storage for long-term retention of backups and for some archive scenarios. With the growing threat of ransomware, organizations must have long-term backup storage with rapid recovery capabilities, which gives cloud object storage services a major edge over

recovery from offsite tapes. The ability to use cloud compute resources to facilitate and test recovery options is another major advantage over offsite tape. If block storage is used, it is likely to provide primary storage for an application that is cloud-resident and has not been migrated from on-premises. The rise of cloud-native workloads has highlighted the need for persistent storage for containers, both on-premises and in public cloud environments.

Hybrid cloud storage enablers

Traditional customers are unlikely to be using many hybrid cloud storage enablers now, but they could in the future. For example, a cloud gateway could be implemented by traditional customers to accelerate recovery jobs. Cloud tiering capabilities have become more common on arrays over the last few years and could be used by traditional organizations to free up space if they are trying to extend the life of existing systems due to budget constraints. The emergence of STaaS provides customers with an opex consumption model for obtaining storage resources to run on-premises, and many traditional organizations are evaluating these services as an alternative to capex-based storage acquisition.

Maturing

Maturing businesses are using cloud storage services for specific use cases such as long-term backup retention, or to provide persistent storage for applications running in a cloud computing environment. Use cases tend to be siloed with no workload mobility between on-premises and public cloud.

Backup, disaster recovery and archiving

Organizations in the maturing category commonly have archive, online backup and long-term backup storage in use. Though a large portion may have DRaaS implemented or in testing, this service is not yet ubiquitous. In the past year, the use of third-party cloud-to-cloud backup providers to protect SaaS platforms such as Salesforce Inc. CRM and Microsoft Corp. 365 has increased substantially from 15% to 34% of respondents, and this figure is likely to rise with the growing importance of SaaS.

Modern

Organizations at this stage are notable for establishing a true hybrid IT strategy that allows business stakeholders to move or spread workloads to various execution venues to optimize performance, reduce cost or prevent outages.

Backup, disaster recovery and archiving

Modern-stage organizations are likely to be already using backup, DRaaS and archiving services in their environments. While it is still rare to see organizations archiving the entire repository of data to cloud, the amount of data placed in cloud archives will only increase. In the most recent study, respondents on average report archiving 35% of their data under management to public cloud environments. Costly egress charges and API access fees have forced some organizations to rethink their usage of cloud archive storage, despite their desire to use more cloud storage.

IaaS cloud storage services

Maturing organizations are likely already using all the cloud storage services. Cloud NAS has risen in popularity over the past two years and is a necessary component for organizations that wish to lift and shift existing on-premises workloads that rely on standard NFS and CIFS file sharing protocols to a public cloud.

Hybrid cloud storage enablers

Organizations at the maturing stage are likely evaluating and deploying cloud gateways (47% of respondents have deployed) and cloud tiering, which is a common feature for modern storage systems. Though cloud storage colocation is valuable for facilitating multicloud environments, just 27% have this service deployed today, though it is expected to rise to 39% in two years. While there is growing interest in innovations such as cloud-to-ground, it is unlikely that these services are deployed for production.

IaaS cloud storage services

Modern-stage organizations are likely using all of the IaaS storage service types and have probably been doing so for a few years. These services are being used not only to support applications born in the cloud, but also to support legacy applications that have moved to the cloud.

Hybrid cloud storage enablers

Organizations in the modern phase likely have implemented enabling technologies or have them in the evaluation process. Optimization and automation services are in high demand for these organizations because they can help improve reliability while also reining in costs by identifying wasted and inefficiently used resources. These organizations may be evaluating cloud-to-ground, especially if they are trying to bring infrastructure services to remote environments.

Future

This scenario is a target vision for the future of storage and data management, where integrated automation and optimization allow workloads to run in appropriate execution venues, while considering compliance, performance and cost factors and also ensuring that resource consumption matches the changing needs of a workload and dataset. Emerging offerings, such as cloud-to-ground extending the physical reach of hyperscalers, will be more prevalent in the future state.

Backup, disaster recovery and archiving

Future-phase organizations will likely have these services in use. Proactive modern-stage organizations may be in the process of integrating data protection and data management into their applications to reduce their dependency on SaaS providers.

IaaS cloud storage services

All the services will likely be in use and will have been thoroughly evaluated to ensure workloads are using the appropriate services.

Hybrid cloud storage enablers

Future-stage organizations will likely be using most of the hybrid cloud storage enablers when appropriate, and they will evaluate future offerings that will transform the next generation of applications.

Figure 4: Technology adoption based on maturity status

■ Not in use, not in consideration ■ In consideration ■ In use

Backup, disaster recovery and archiving

	TRADITIONAL	MATURING	MODERN	FUTURE
Archive	*			
Online backup	*			
Long-term backup storage	*			

IaaS cloud storage services

	TRADITIONAL	MATURING	MODERN	FUTURE
DRaaS				
Object storage	*			
Block storage	*			
Cloud NAS	*			

Hybrid cloud storage enablers

	TRADITIONAL	MATURING	MODERN	FUTURE
Cloud gateway/controller		*		
Cloud tiering/replication		*		
Cloud storage colocation				
Cloud-to-ground				
HCI hybrid cloud				
Optimization				
Persistent storage for containers				
STaaS			*	

* indicates values that have changed from the 2021 study.
Source: S&P Global Market Intelligence, 2023.

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