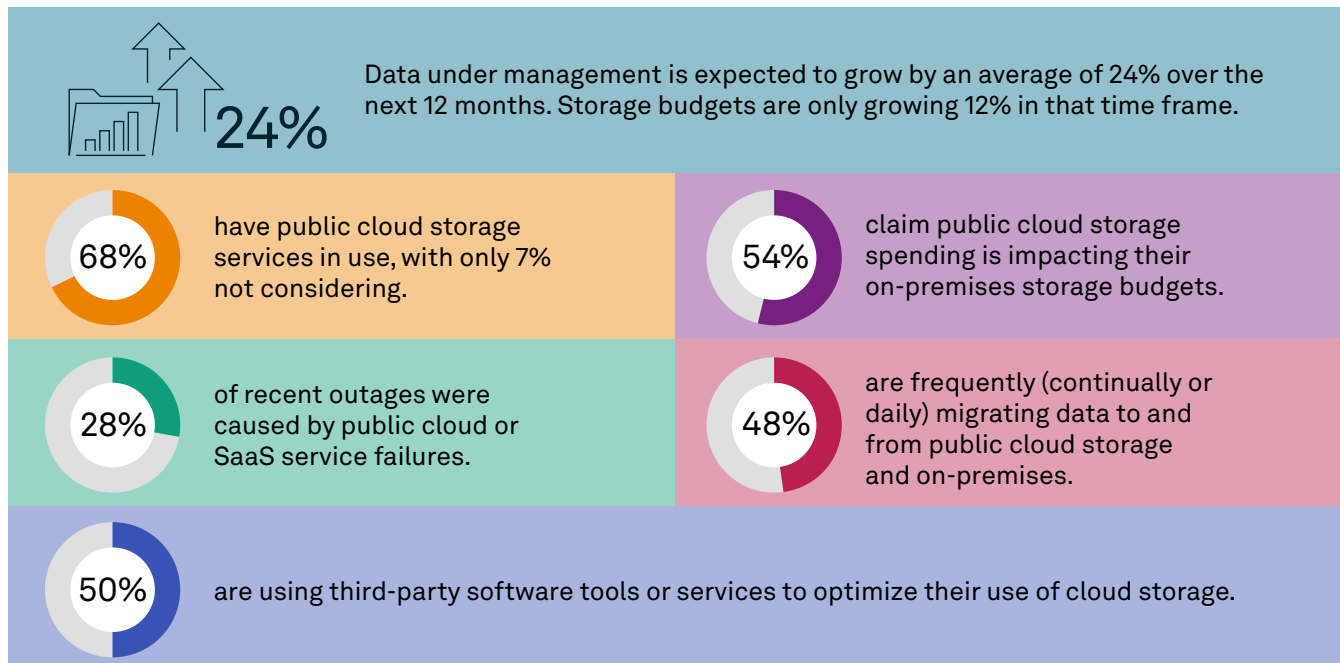# Optimized Cloud Storage Economics

The 451 Take

The growth of data and workloads, 20-30% annually, is outpacing the annual growth of storage budgets, which is roughly 10%, and this dynamic is forcing organizations to look for ways to transform their storage infrastructure. Public cloud storage and compute services provide benefits in terms of provisioning speed and the elasticity to scale resources up and down. Such services also provide access to new innovations, which makes them attractive to developers and DevOps, as well as to line-of-business professionals who are under pressure to deliver new revenue streams with aggressive time-to-value expectations.

Unfortunately, the road to efficient public cloud storage usage is not a simple one. Maintaining consistency between execution venues is a challenge; organizations need to ensure the resiliency of cloud services matches or exceeds what is required given that business stakeholders and customers have low tolerance for outages. Consistency also requires that environments must meet or exceed what is needed by the workload, such as CIFS and NFS for file services. This consistency extends to the resiliency of the data and the performance of the cloud storage offerings, which must match the protocols the workloads require.

Key Trends in Enterprise Cloud Storage

24% Data under management is expected to grow by an average of 24% over the next 12 months. Storage budgets are only growing 12% in that time frame.

68% have public cloud storage services in use, with only 7% not considering.

54% claim public cloud storage spending is impacting their on-premises storage budgets.

28% of recent outages were caused by public cloud or SaaS service failures.

48% are frequently (continually or daily) migrating data to and from public cloud storage and on-premises.

50% are using third-party software tools or services to optimize their use of cloud storage.

Source: 451 Research's Voice of the Enterprise: Storage, Data Management and Disaster Recovery 2022. The data presented here is compiled from responses to multiple specific survey questions. Click here for more information on this survey.

Data and workload mobility is key because slow or inefficient data migrations can prevent organizations from leveraging all of their resources in a timely fashion and can lead to outages. Key data protection services such as disaster recovery as a service are implementations of automated workload mobility driven by an outage or other unfortunate event. Enterprises report that less than 40% of their total data under management is stored in public clouds, which means there is still a large amount of unstructured data that could soon be on the move.

Cloud cost optimization is a requirement for building a sustainable cloud strategy, and in 451's VotE: Storage, Transformation 2021 study, 50% of respondents reported that they already use third-party tools to optimize their cloud storage use. Respondents said that storage consumed 48% of overall public cloud services spending, highlighting the importance of controlling cloud storage costs.

Business Impact

Organizations are moving toward hybrid IT but still want consistency. Most organizations are already adjusting their storage budgets because of increased public cloud storage spending. However, should workloads need to move between execution venues, customers must have consistency in multiple dimensions including resiliency, availability and performance to ensure workload movement doesn't disrupt production.

Cloud storage services can create outages; multicloud can provide essential resiliency. Though cloud service providers are responsible for maintaining the software and hardware infrastructure in their clouds, this does not absolve customers from all outage scenarios. In a recent 451 Research study, respondents attributed 28% of outages to cloud service or SaaS failures. Customers need to take steps to ensure resiliency by leveraging multicloud deployments or by replicating data between multiple availability zones to ensure an outage does not impact production. While resiliency is essential, it does not come for free, which makes cost optimization an important aspect of a multicloud environment.

Data transfer to/from on-premises and public cloud is frequent. Nearly half of enterprises are migrating data to/from on-premises and cloud environments at least daily. Organizations require tools and methods to ensure data consistency between locations, and we expect to see them leveraging automation to run and manage these data transfers. About half of data migrations are still run by on-premises staff today; IT professionals would benefit greatly from enhanced tools and support that could reduce this management burden.

Unmanaged public cloud storage costs can lead to unpredictable expenses. Public cloud storage services vary based on performance and data access capabilities. Intelligent tiering capabilities can help organizations move infrequently accessed data to colder tiers while simultaneously upgrading active data to high-performance storage when needed. Egress fees for moving data between availability zones or to and from on-premises and public cloud have negatively impacted more than a third of respondents, forcing some companies to switch to cloud storage providers with lower egress fees. API access fees also concern organizations, especially in e-commerce or media sites that receive a large number of requests for images, videos and other files.

Looking Ahead

Modern storage environments need to provide a customer experience that delivers consistency, performance, resiliency, data protection and management across multicloud execution venues. What complicates matters is that the cost of cloud storage services varies widely depending on the class of the service, which is where optimization and data tiering come in. For example, while archive storage services cost a fraction of a cent per GB per month, it could take hours to access archived data in those services. In contrast, some high-performance cloud-based file services could cost up to 30 cents per GB per month to store data. This may be acceptable for latency-sensitive production use cases but could lead to wasted cloud storage spending if the data sitting in those services is idle.

In addition to intelligent data migration tools, automation is needed to reduce the management burden of these migrations. Human error can lead to data loss, so automation of both the migration and data validation process is necessary to ensure migrations run smoothly. Management tools and services that can enhance data intelligence can help organizations understand how data is being used and where various pieces of data should reside based on factors including performance requirements, compliance and cost. Half of organizations are already using optimization tools, and we expect this will become more firmly ingrained over time.