Economic Validation Report

The Economic Benefits of HPE StoreEver as Active Archival Storage

Date: August 2020 **Author:** Alex Arcilla, Validation Analyst

Abstract

This report documents the results of a study examining the economic benefits of using HPE StoreEver technology for cost-effective hierarchical storage management. We look at the expected ten-year savings of using HPE StoreEver for active archival storage compared with using all-disk and all-cloud storage alternatives. We discuss the advantages of HPE StoreEver via example use cases and highlight the expected economic savings of tiering data with HPE StoreEver.

Challenges

Pulled Workloads Back

Usage of public cloud services continues to increase, but ESG research has uncovered that 55% of organizations have moved workloads back to on-premises data centers from public cloud infrastructure services.[1] For example, organizations have attempted to use the public cloud for archiving data before relocating data back on-premises. The reason for this is that although monthly cloud storage archive fees may seem affordable at first, those fees, as well as egress costs related to data retrieval and transfer, can accumulate over time, especially at higher data growth rates. An alternative is for organizations to use an active archiving strategy employing tape-based solutions for backing up and retrieving data, without taking on the burden of these additional costs.

Active Archiving with HPE StoreEver

HPE StoreEver Tape Storage has been designed to address an organization's needs for data protection, archival storage, and long-term retention for its rapidly growing data. With support for Linear Tape-Open-8 (LTO-8), HPE StoreEver is designed to store up to 400 TB of data per rack unit (RU). HPE StoreEver is also highly scalable as it can support up to a maximum of 16.8 PB of data in 42RU with transfer rates of up to 300 Mb/sec.

For tiered storage, backup, and recovery, HPE StoreEver's high tape density enables organizations to move data not requiring fast and immediate access onto lower cost tape tiers, without resorting to all-disk (flash or HDD) solutions. ESG found that organizations employing HPE StoreEver as an active archive can reap the following economic benefits:

- Decreased capital expense, specifically related to hardware and tape media – Organizations can decrease TCO with higher density, longer term storage without incurring the typical higher costs of all-disk solutions. This is especially important for organizations that store large amounts of data and still need to retrieve some subset, as dictated by business requirements, before relegating the data to storage reserved for long-term retention.
- Decreased operational expense – HPE StoreEver's high tape density also helps to lower TCO as it can help to decrease both rack and floorspace requirements, thus decreasing power, cooling, management, and administration costs. With LTO tape, the excessive fees associated with cloud storage and higher costs of disk-based storage are not a factor.

ESG Economic Validation Highlights

To validate the cost savings that HPE StoreEver can offer in archiving warm data, ESG considered three scenarios:

1. Ten-year TCO of HPE StoreEver compared with that of an all-disk (HDD-based) solution and a public cloud solution.
2. Annual public cloud storage and retrieval costs over a ten-year period compared with HPE StoreEver costs.
3. Cumulative ten-year storage and retrieval costs of HPE StoreEver compared with that of an all-disk solution and a public cloud solution.

[1] Source: ESG Master Survey Results, *2019 Data Storage Trends,* November 2019.

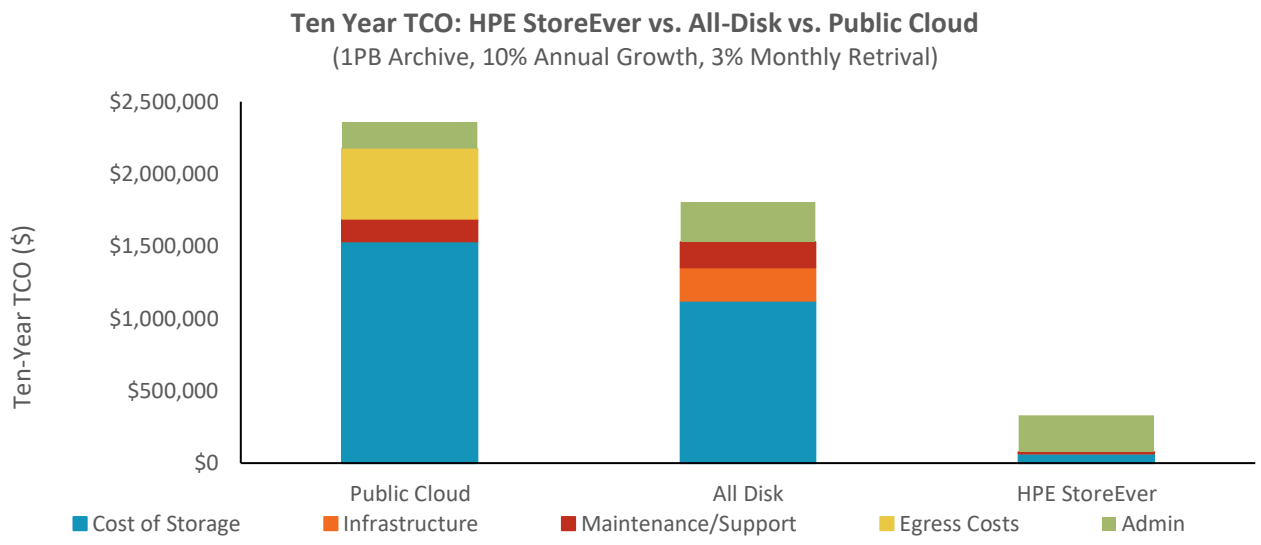
For each scenario, ESG assumed that data is created and stored 24/7, and no data is deleted during the ten-year timeframe. The annual data growth rate is set at 10%. We also assume that the organization retrieves 3% of data monthly. Assumptions regarding growth and retrieval rates are conservative estimates based on our research of current operational practices.

All scenarios use US-based pricing associated with the HPE StoreEver MSL3040 populated with LTO-7 tape drives. We also used average US pricing for representative HDD-based and public cloud storage solutions. ESG specifically used pricing associated with public cloud storage tiers designed for infrequent data access, not standard storage.

Scenario 1: Ten-year TCO of HPE StoreEver versus All-disk and All-cloud Solutions

ESG first considered the scenario in which an organization has an archive size of 1 PB of retained data. The analysis is displayed in Figure 1.

Figure 1. Comparison of TCO at Year 10: HPE StoreEver versus All-disk and Public Cloud for 1 PB



Source: Enterprise Strategy Group

HPE StoreEver versus Public Cloud

ESG estimated that an organization can achieve total cost savings (considering storage, infrastructure, maintenance/support, egress, and administration) of approximately 86% ($2.358M versus $329K) over a ten-year period using HPE StoreEver for a 1PB archive over the public cloud. Since organizations incur monthly storage costs and egress costs when using public cloud storage, ESG noted how they accumulate quickly over longer time periods. Also, organizations that opt for public cloud storage as an active archive must purchase additional storage to accomodate backups and snapshots over time, further increasing monthly costs.

86% less

HPE StoreEver ten-year TCO compared with public cloud

We also estimated that the ten-year cost of public cloud storage alone is 96% higher than the ten-year HPE StoreEver capital expense—hardware, software, and infrastructure. With on-premises tape storage, organizations may only need to purchase additional media capacity, and tape library modules to accommodate data growth every three to five years, which helps to reduce TCO.

HPE StoreEver versus All-disk Solution

When compared with an all-disk solution, ESG also noted that the HPE StoreEver can be a viable alternative when used for active archiving. The lower capital investment for HPE StoreEver subsequently decreases related power, cooling, and

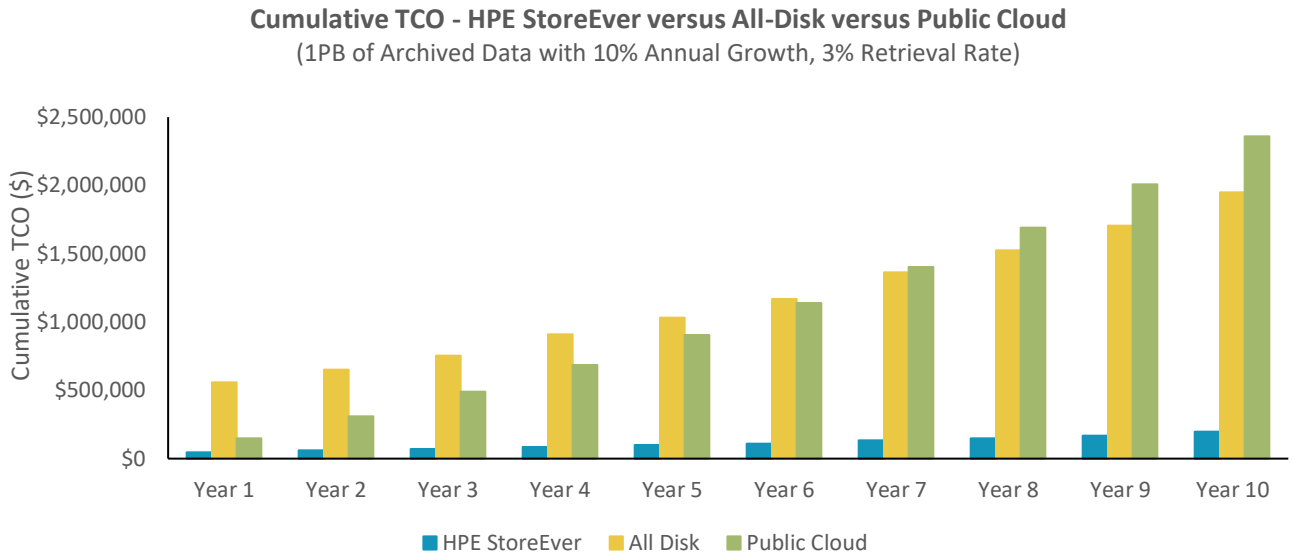
admminstration costs. Our analysis revealed that the TCO is 82% lower than those related to disk-based solutions ($329K for HPE versus $1.803M for all-disk).

Comparing Cumulative TCO across All Solutions

ESG then compared cumulative TCO, year over year, for an organization with the same 1PB archive (see Figure 2). We wanted to observe the impact of storage and egress costs. Our analysis showed that the TCO for HPE StoreEver and the public cloud in Year 1 are lower compared with the all-disk solution. While our analysis revealed a lower initial investment in hardware, software, and maintenance contracts for HPE StoreEver in Year 1, we observed low cloud and egress costs also.

For subsequent years, ESG observed that the monthly incurrence of storage costs (for the all-disk and cloud options) and egress costs (applicable only in the cloud scenario) accrue. The public cloud becomes the more expensive option in the longer term, as organizations accumulate cloud storage costs to accommodate copies of archived data and egress costs to retrieve larger amounts of data annually over the public internet.

Figure 2. Cumulative TCO: HPE StoreEver versus All-disk versus Public Cloud for 1PB



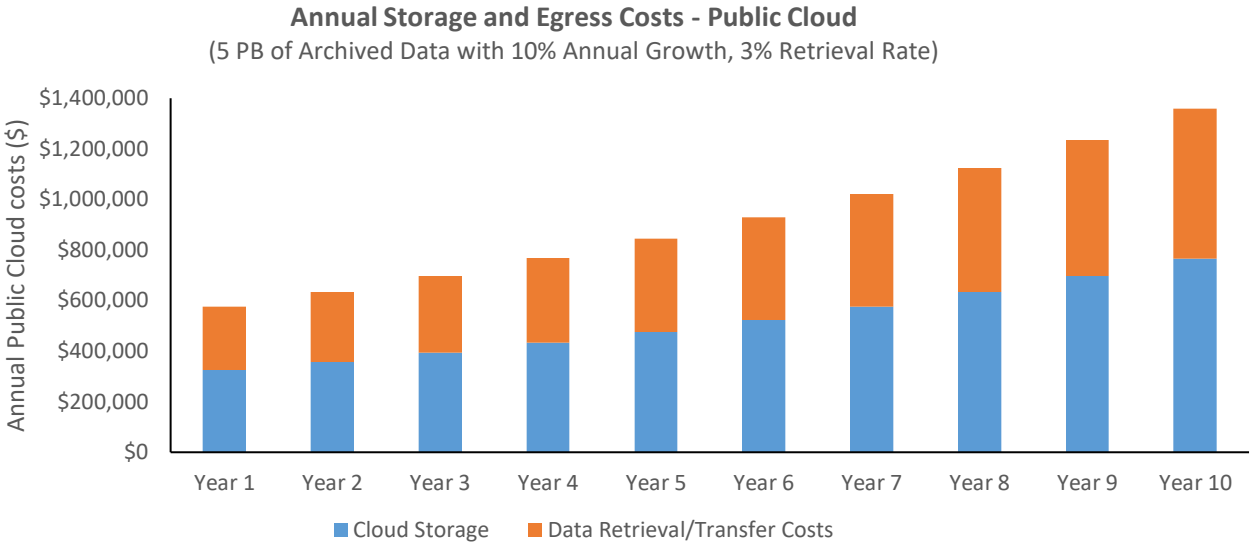
Source: Enterprise Strategy Group

Ultimately, ESG estimated that the TCO over the ten-year period for HPE StoreEver remains lower than both alternative solutions. The absence of the monthly cloud storage and egress costs makes a long-term investment in HPE StoreEver the most cost-effective over all considered alternatives.

Scenario 2: HPE StoreEver versus Public Cloud – Storage and Egress Costs for 5 PB

ESG then examined the combined spend of cloud storage and egress costs for an organization with an initial 5 PB of retained data over a ten-year period (see Figure 3). We also considered how these estimates compared with estimated costs using HPE StoreEver LTO tape.

Figure 3. Annual Storage and Retrieval Costs with Public Cloud for 5PB Archive



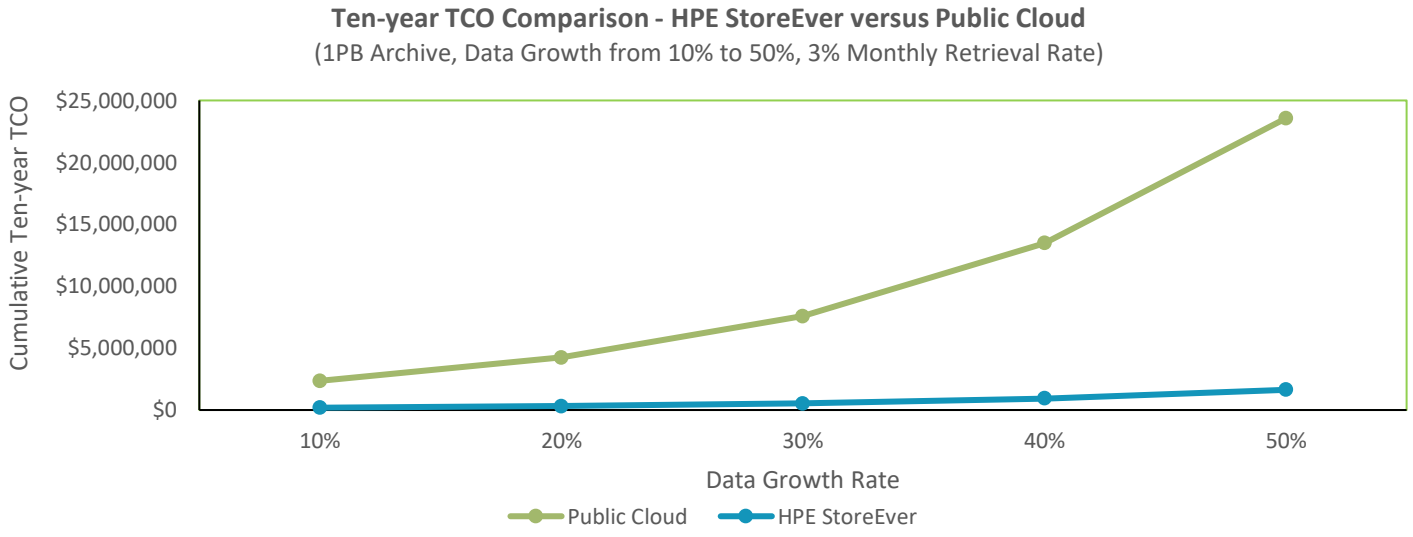
Source: Enterprise Strategy Group

We estimated that the annual spend will grow to $1.359M by Year 10—$766K for public cloud storage, and $592K for egress costs. Should the organization opt to purchase HPE StoreEver and additional LTO-7 tape drives to accommodate for annual data growth, the cumulative storage costs amount to $145K over the ten-year period, 89% lower than the total public storage and egress costs for Year 10. As HPE StoreEver is deployed on-premises, no egress costs are incurred, enabling the organization to achieve significant long-term savings over using the public cloud.

Scenario 3: HPE StoreEver versus All-cloud Archival Storage – Increasing Growth Rates with a 1PB Archive

ESG also examined how the cumulative ten-year TCO for public cloud and HPE StoreEver grew as we increased the data growth rate from 10% to 50% (at 10% intervals) and obtained the results shown in Figure 4.

Figure 4. Cumulative TCO as Growth Rate Varies: HPE StoreEver versus Public Cloud



Source: Enterprise Strategy Group

93% less

HPE StoreEver ten-year TCO at 50% annual data growth compared with public cloud

ESG estimated that the ten-year TCO for public cloud storage increased to $23.6M at a 50% data growth rate, compared with $1.6M for HPE StoreEver. ESG concluded that public cloud storage and egress costs can easily accumulate at large data growth rates, contributing to the large difference in TCO when compared with HPE StoreEver. We observed that this difference remained consistent regardless of the data growth rate.

The Bigger Truth

Organizations that seek to store large data archives while still having the ability to retrieve data quickly for specific use cases, such as compliance or big data analytics sampling, have considered the use of public cloud storage to minimize overall costs. However, both public cloud storage and egress costs unexpectedly accrue on a monthly basis, especially as an organization's data continues to grow.

ESG analyzed the ten-year TCO of HPE StoreEver and found that an organization can achieve 92% cost savings over costs incurred when using the public cloud. We found that an organization using HPE StoreEver saves significantly on both the monthly public cloud storage and egress costs, which are typically overlooked, that can easily accrue over long periods of time, especially as data growth rates increase. When compared with all-disk solutions, organizations can still save with HPE StoreEver due to the lower capital expenses incurred.