ESG Economic Validation

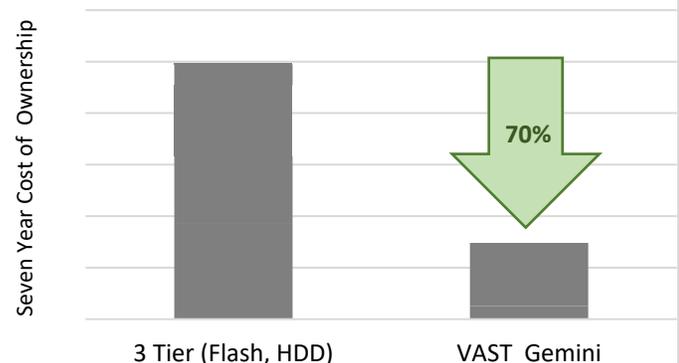# Analyzing the Economic Benefits of the VAST Data Gemini Consumption Model

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Executive Summary

VAST Data Universal Storage is a scale-out file and object data storage solution that scales to exabyte levels of capacity with all-flash performance at a lower cost than traditional scale-out NAS and public cloud storage alternatives. Gemini, a recently announced VAST Universal Storage consumption model, amplifies the savings with a subscription-based licensing model that reduces the cost of storage software and provides the option of purchasing hardware directly from a distributor, which reduces the cost of storage hardware. ESG research has also shown that more than half of companies that have tried cloud data have moved data stores and applications back to on-prem.[1]

ESG compared the cost of VAST Gemini to a traditional 3-tier scale-out NAS solution, the public cloud, and a hybrid combination of on-premises scale-out NAS and the public cloud. For a typical organization with 10 petabytes of unstructured data growing at 20% annually over seven years, ESG has confirmed that VAST Gemini is 39-70% less expensive.

Reducing the Cost of Storage with VAST Gemini

Seven Year Cost of Ownership

3 Tier (Flash, HDD)   VAST Gemini

70%

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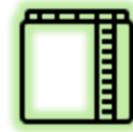
Introduction

This ESG Economic Validation focuses on the savings that organizations can expect with VAST Universal Storage and the Gemini consumption model when compared with traditional on-premises scale-out NAS, hybrid, and public cloud solutions.

Challenges

It is estimated that between 80-90% of data that will exist in two years has not been created today.[2] This onslaught of data, combined with the demands presented with new data types, new endpoints, and increasingly remote workforces, initially drove most companies to look to public cloud as the solution. With 57% of respondents to an ESG research survey reporting that they have over 1PB of total installed/available capacity associated with primary active data storage,[3] it quickly becomes apparent that

44% of organizations have over 1 PB of storage (vs 23% in 2017)

55% of organizations have moved one or more workloads from public cloud to on-premises storage

public cloud often cannot provide the security, access, and scalable cost structure needed to achieve both business and budgetary goals. As a result, 55% of organizations have moved at least one application or workload from a public cloud back to on-premises resources. The three most-cited reasons for moving workloads from the public cloud to on-premises infrastructure were data security issues, cost, and regulatory compliance.

Traditional on-premises storage can also present IT with hurdles to overcome. When asked about the top challenges with on-premises storage, customers noted hardware costs, data protection, lack of content/data awareness, data growth, and data migration all as key areas that required attention, as shown in Figure 1.[4]

Figure 1. Top Five On-premises File Storage Challenges

In general, what would you say are your organization's biggest challenges in terms of its on-premises storage environment for file (i.e., NAS, object, etc.) environments? (Percent of respondents, N=372, five responses accepted)

Challenge	Percent
Data protection	30%
Data migration	27%
Hardware costs	26%
Rapid data growth rate	25%
Lack of content/data awareness	23%

Source: Enterprise Strategy Group

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[2] Source: Rivery, *Big Data Statistics: How Much Data Is There in the World?*.
[3] Source: ESG Master Survey Results, *2019 Data Storage Trends*, November 2019.
[4] Ibid.

The Solution: VAST Gemini

VAST Data built its business knowing that customers spend far too much energy and money consistently moving data throughout a storage hierarchy that is rapidly growing in complexity. The result was that organizations spent too much time managing context, silos, migrations, and costs, and not enough time utilizing data to reach business goals.
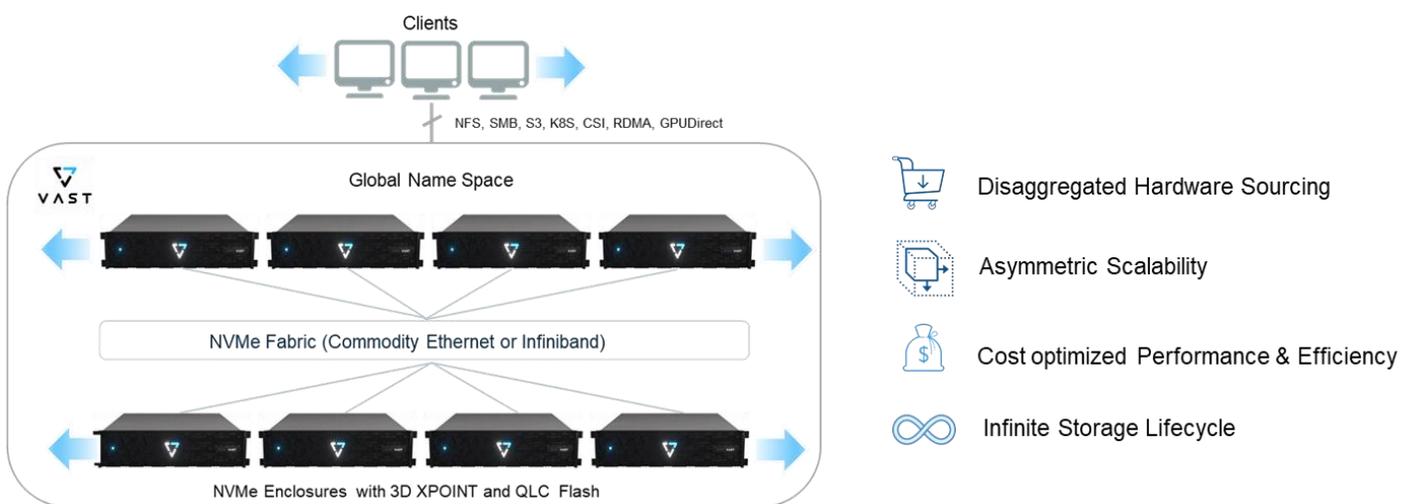
The evolution of VAST Storage has led to the release of VAST Gemini. VAST Gemini is a disaggregated consumption model that shines with full flash performance, instant scalability, and low-cost hardware that practically eliminates the disruption and cost of data migrations.

VAST Gemini removes the storage vendor from the hardware supply chain while giving the end customer organization the cost benefit of the buying power, supply chain, and logistics of VAST's global distribution partner. With the VAST Gemini consumption model, customers can issue a single PO and have the storage hardware arrive at their location preconfigured with VAST Universal Storage software and ready to drop into the customer environment.

A VAST Gemini ecosystem can be started with as little as 100 terabytes but can quickly and efficiently expand to multiple petabyte systems without the expense of hardware refreshes or the disruption of data migrations. The VAST Co-Pilot program provides expert human assistance throughout the Gemini install, deployment, support, RMA, and monitoring processes, lowering complexity with no added cost.[5] VAST Universal Storage systems rely on fast yet efficient flash storage. The reliability of flash storage extends the hardware lifecycle far beyond what can be expected with traditional storage or hybrid environments.

As shown in Figure 2, clients access the single name space of a VAST Universal Storage solution via traditional and emerging file and object storage protocols (e.g., NFS, GPUDirect). The VAST Universal Storage architecture combines the simplicity of a single global namespace, the affordability of QLC flash technology, the speed of 3D XPOINT storage class memory, and an any-to-any NVMe fabric interconnect between compute and media nodes to create an affordable flash storage solution that scales to meet the growing unstructured storage needs of the business.

Figure 2. VAST Universal Storage and the Gemini Disaggregated Consumption Model

Source: Enterprise Strategy Group

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[5] Source: Vast website, , April 2021.

ESG Economic Validation

ESG completed a quantitative economic analysis with the goal of comparing the VAST Gemini approach to storage with industry-leading traditional, hybrid, and cloud storage solutions. This process leveraged ESG's expertise and core competencies in the storage industry and existing forward-looking research on storage challenges and adoption trends.

The qualitative and quantitative findings were determined by creating a sample organization requiring 10PB of data storage growing at an annual rate of 20% over a period of seven years to represent the data demands and governance policies of many medium- to large-sized organizations.

VAST Gemini Economics

VAST Gemini is extremely affordable when compared with traditional on-premises, hybrid, and public cloud storage solutions. Additionally, VAST Gemini's reliance on flash storage brings performance and lifecycle benefits that other options cannot match. ESG validated benefits that can be categorized in three groups:

- **Cost-optimized performance & efficiency** – Optimize performance, power, and space with an all-flash architecture.

- **Asymmetric scalability** – Reduce the cost and complexity of expansion to meet the capacity—and performance—needs of the business with an asymmetric shared-everything architecture.

- **Infinite storage lifecycle** – Avoid migrations and costly refreshes with perpetual licensing and forward and backward software compatibility.

Cost-optimized Performance & Efficiency

Organizations that deploy VAST Gemini can achieve two things that are often seen as diametrically opposed: lowered costs and increased performance. While Gemini is a new way to provide consumption-based costing for storage, the VAST architecture has proven to provide 2x server pool performance when compared with traditional storage. Additionally, ESG research indicates that 58% of organizations prefer a pay-per-use consumption model for on-premises storage.[6]

- **Disaggregated hardware sourcing** – VAST Gemini removes VAST from the hardware supply chain, allowing the customer organization to purchase direct from manufacturers, all while maintaining access to the purchasing power of VAST's combined customer base.

- **All-flash architecture** – VAST Gemini utilizes 100% flash-based storage. Flash storage is faster than typical hard drives, has lower energy consumption and heat generation, and has been shown to be more durable than rotating media, leading to dramatically extended lifecycles. The result is a VAST Gemini platform that offers high performance that is very cost-effective over a longer time when compared with traditional storage.

- **Capacity-efficient availability -** Capacity requirements are hard to predict as data rapidly becomes denser and generated from more endpoints. Traditional storage too often requires upfront capacity estimates that either lock a company into a certain architecture or result in purchasing capacity that is not current used. The VAST Gemini

ESG research indicates that 58% of organizations would prefer a pay-per-use consumption model for on-premises storage.

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[6] Source: ESG Research Report, *2019 Data Storage Trends*, November 2019.

model allows capacity to be added or removed on-prem as demand dictates with licensing flexibility that allows natural growth. A shift to a blended CapEx/OpEx model adds additional budgeting flexibility.

- **Guaranteed data reduction –** VAST guarantees best-in-class data reduction, resulting in less pressure to expand capacity when compared to competitive offerings or cloud storage.

- **Turnkey appliance –** VAST storage arrives configured and ready to power up and add to your storage infrastructure. VAST telemetry ensures 24/7 monitoring.

Asymmetric Scalability

VAST has engineered storage that can be scaled asymmetrically. This means that additional storage capacity can be added in flexible increments without the major upgrade pains that can be found with competitive storage architectures. The CPUs can be scaled when performance is needed; the storage can be scaled when capacity is needed. Each can be changed independently, eliminating the need to add capacity to both resources at once as is often seen in traditional storage.

Infinite Storage Lifecycle

With traditional or cloud storage comes the need for migrations. Migrations are costly, inject risk into operations, and become exponentially more complex as the scale of the data increases. With VAST Gemini, you never need to migrate again. As your data lake increases in size, capacity can be added.

- **Never pay software tax on hardware refresh –** Gemini decouples hardware and software. With traditional storage vendors, expanding often becomes a game of squeezing into existing software licenses, buying new perpetual licenses to replace existing licensing, or purchasing new licensing, which is often not backwards-compatible. VAST's asymmetric clusters support multiple generations of hardware in a single cluster, pool, and namespace, allowing users to add the latest, most cost-effective hardware at each expansion.

- **Eliminate migrations –** Data migrations are painful, expensive, and sometimes risky. Moving data between silos or between local and cloud storage is a fact of life for traditional storage. With VAST, migrations are a thing of the past since VAST provides the ability to actively add capacity without constant refreshes and movement.

- **Extended lifecycle –** Flash-based media has proven to last longer than rotating drives. VAST Gemini storage is not dependent on consistent hardware refreshing and can provide exceptional reliability and performance for periods exceeding 10 years.

> ## Why This Matters
>
> Storage refreshes are expensive and inject both disruption and risk into operations. As the size of an organization's data store grows, the disruption and risk grows exponentially.
>
> VAST Gemini eliminates both refreshes and migrations. As the demand for storage grows, new appliances are added to Gemini to increase capacity.
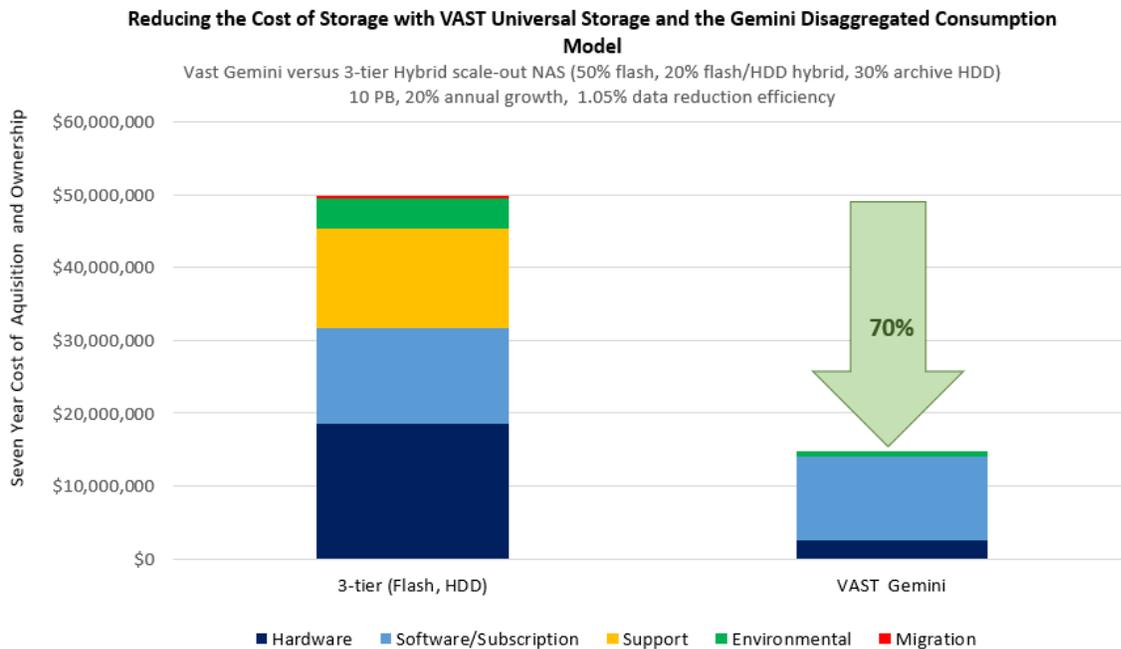
ESG Analysis Results

To effectively compare VAST Gemini with competitive solutions, ESG modeled the unstructured storage requirements of a medium to large enterprise with 10 PB of storage growing by 20% annually over seven years. An overview of the storage media configurations that were compared is summarized in Table 1.

Table 1. Configuration Overview

Unstructured Data Storage Solutions	Media Type(s)
VAST Gemini	All-flash
3-tier on-premises (SSD/HDD)	50% SSD 20% hybrid SSD/HDD 30% HDD
3-tier hybrid	50% SSD (on-premises) 25% public cloud file storage services 25% public cloud file archive storage services
Public cloud	50% public cloud file storages 50% public cloud file archive storage services

List pricing and a typical enterprise-class street discount was used to price the hardware and software for each of the on-premises storage solutions (the same discount level was used for each of the on-premises configurations, including VAST Gemini software). A blended average of on-demand pricing for two of the marketing-leading public cloud vendors, including business class support, was used to price each of the public cloud configurations. As shown in Figure 3, the all-flash VAST Gemini solution reduces the cost of acquiring and owning storage by 70% over seven years compared to a traditional 3-tier scale-out NAS solution with a combination of Flash SSD and HDD.
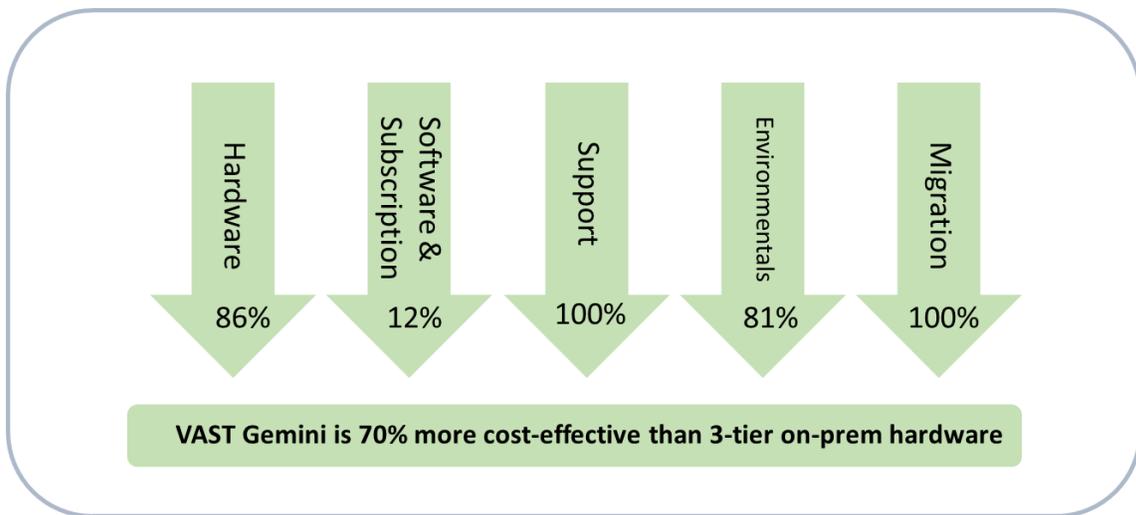
Figure 3. VAST Gemini's Disaggregated Consumption Model Costs 70% Less

Source: Enterprise Strategy Group

The chart of accounts used for the TCO review had these five main categories: Hardware, Software & Subscription, Support, Environmentals, and Migration, with VAST Gemini showing a positive TCO advantage across each of the buckets, as shown in Figure 4. Each of the five categories shows VAST costs less when compared with both all-flash tiered on-premises storage and public cloud solutions. Hardware savings stem from the direct purchasing model that removes VAST from the supply chain, software and subscription savings for VAST increase as the length of analysis grows, due to licensing costs associated with traditional storage refreshes; support is included in the VAST model at no additional charge; environmentals are dramatically reduced with VAST, as the amount of onsite hardware is much less than traditional platforms; and Migration costs are reduced or eliminated with VAST, as migrations are not necessary to grow VAST capacity.
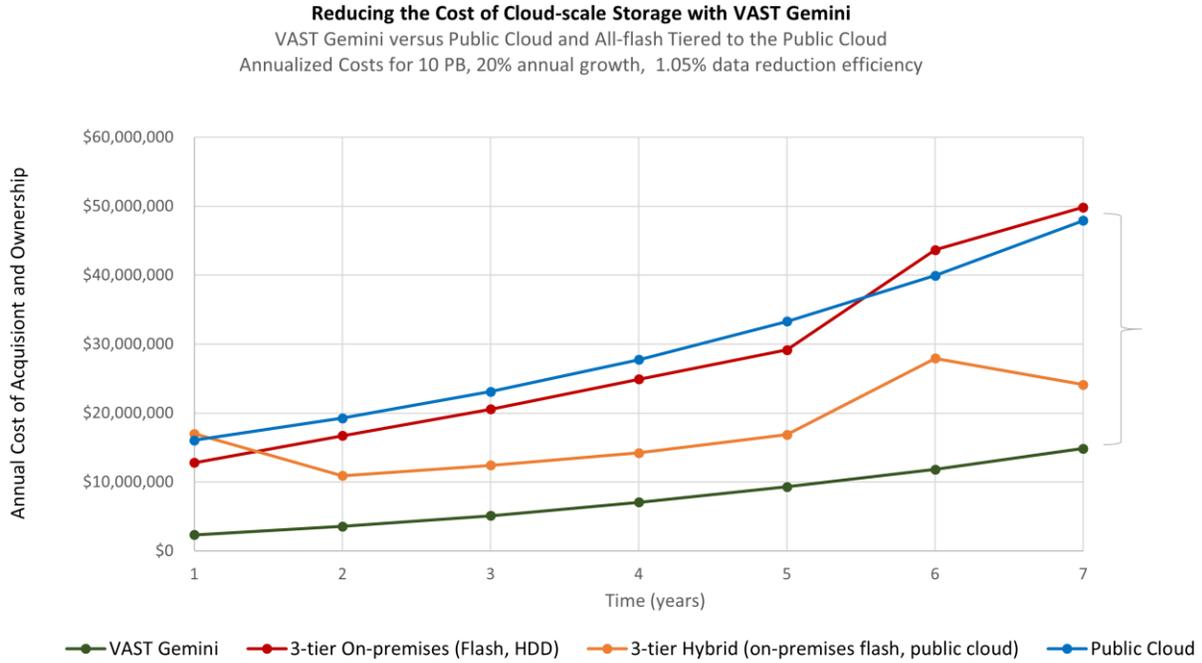
Figure 4. VAST Gemini Has a Lower TCO in Each of the Five Major Costing Categories

Source: Enterprise Strategy Group

As shown in Figure 5, VAST Gemini TCO shines when compared with both traditional and public cloud storage. Analyzing the results at any point in the seven-year period shows that VAST Gemini delivers TCO savings of 39-70% compared with traditional 3-tier on-premises, hybrid, and public cloud storage solutions.

Figure 5. Reducing the Cost of Cloud-scale Storage with VAST Gemini

Reducing the Cost of Cloud-scale Storage with VAST Gemini
VAST Gemini versus Public Cloud and All-flash Tiered to the Public Cloud
Annualized Costs for 10 PB, 20% annual growth, 1.05% data reduction efficiency

Source: Enterprise Strategy Group

The Bigger Truth

Many organizations see data as a burden that must be stored, while some see it as an asset that can be mined for new trends and initiatives, and others see it as a responsibility that must be stored to comply with rules and regulations. Whatever the case, the size and flow of data are growing at an explosive rate.

The cost and complexity of maintaining on-premises data led many organizations to explore cloud data storage. However, more than half of companies that have tried cloud data have moved data stores and applications back to on-prem. They found that a combination of the high cost and hurdles they would experience when moving and accessing their data in the cloud just didn't make sense.

VAST Gemini is a unique approach that ties together 3 key fundamentals of storage (performance, reliability, and cost) in a way that takes many of the pain points of traditional on-prem and cloud storage off the table. By removing itself from the hardware vendor chain, VAST allows its customers to deploy hardware at cost and keep that hardware operating at a high-performance level far longer than traditional storage vendors.

ESG validated VAST Gemini by comparing the TCO provided by VAST against the TCO of 3 common competitive storage scenarios and found that VAST provided equal or superior performance at a much lower cost. ESG also reviewed existing customer case studies and TCO models and found that VAST's approach to storage eliminated key pain points reported by customers and provided benefits that translated into better storage performance and lower costs.

The concept of an unsolvable triangle in enterprise storage involves performance, simplicity, and cost, with the compromise being that you can only pick two of the three. The mantra has always been to pick two of the three. With the Gemini consumption model, VAST has been shown to outperform both traditional and cloud storage while eliminating complexity and at a dramatically lower cost. VAST has solved the unsolvable triangle.

VAST Gemini has simplified the decision-making process for organizations considering enterprise-level storage and created an offering that is compelling for anyone looking for a high level of performance at a lower price than traditional alternatives. If your organization is looking for a better solution for enterprise storage, ESG highly recommends you consider VAST Gemini.