ECONOMIC VALIDATION

Analyzing the Economic Benefits of NetApp ASA All-flash Block-optimized Storage Solutions

Organizations Can Recognize up to 66% Lower Total Cost of Ownership With NetApp Solutions

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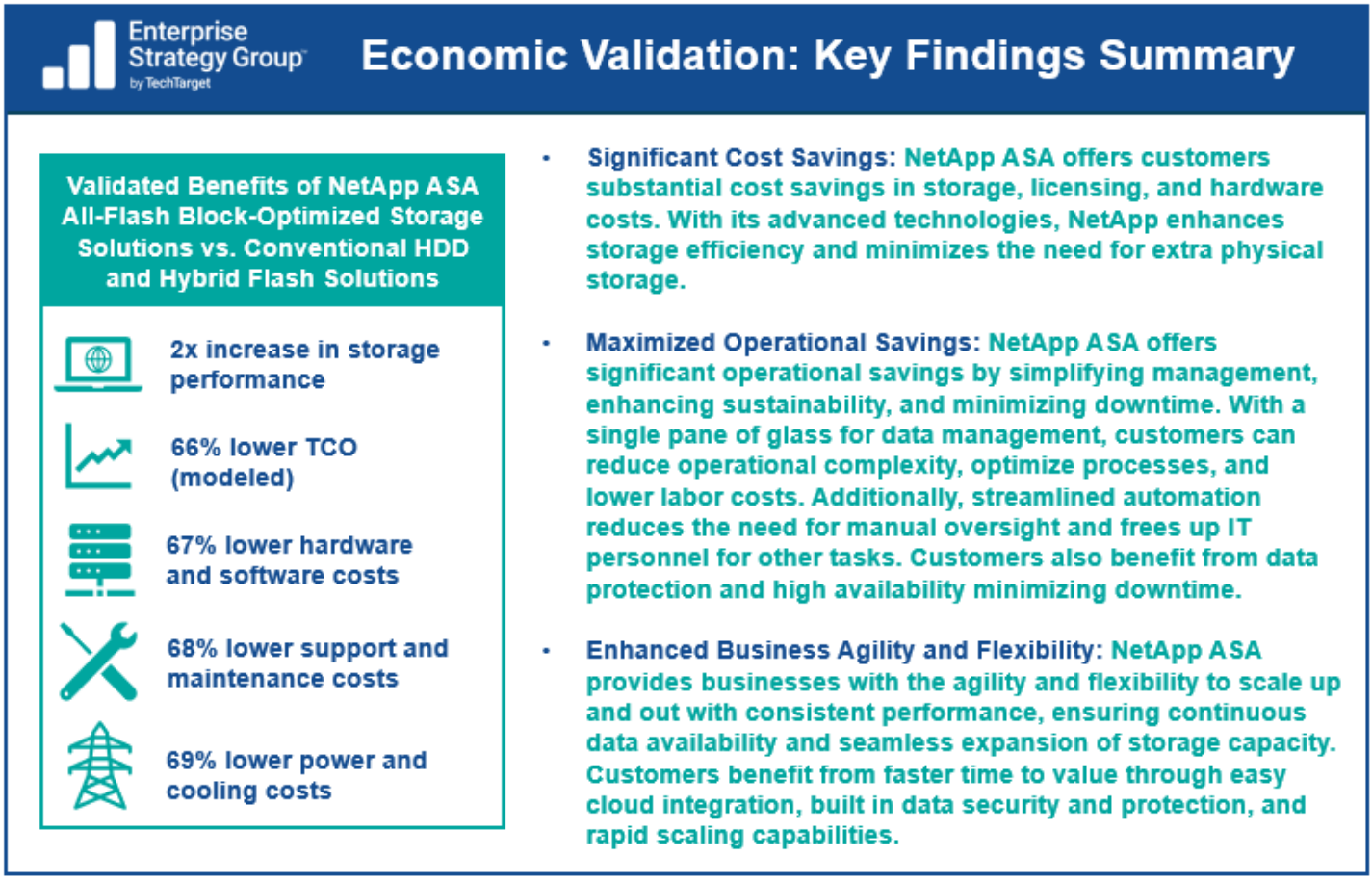


Introduction

This Economic Validation from TechTarget's Enterprise Strategy Group focused on the quantitative and qualitative benefits organizations can expect from using NetApp's ASA all-flash block-optimized storage solutions, contrasting their performance against conventional HDD and hybrid flash solutions to enhance and optimize storage infrastructure.

Challenges

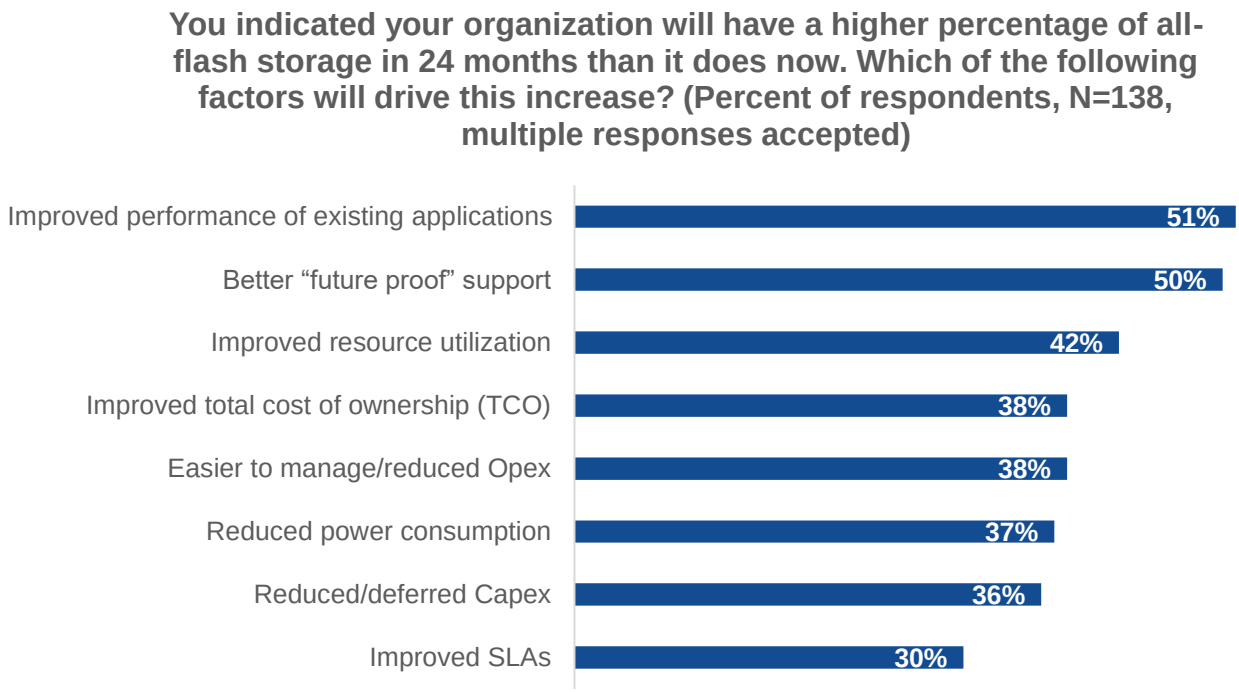
Organizations contend with a growing need for resilient and efficient storage solutions in a landscape characterized by rapid technological advancements. Despite the ongoing pursuit of superior performance, scalability, and cost-effectiveness, enterprises face many challenges in strategically managing and optimizing their storage infrastructures. These challenges encompass increased upfront costs, capacity constraints, integration complexities, storage/data silos, data security concerns, vendor lock-in, and the ever-evolving sustainability landscape.

Enterprise customers present unique challenges as they typically contend with a mix of SAN-based workloads (such as VMware, databases, ERP, and VDI) and unstructured data workloads in their environment. Internal policies are often instituted, necessitating dedicated storage to isolate certain or all the SAN workloads, which demand high performance, continuous availability, and operational efficiency, within constrained budgets.

The burden on storage administrators intensifies as they navigate the complexities of supporting businesses with existing infrastructure inefficiencies while concurrently deploying new technologies to bolster innovative business initiatives and complying with expanding security and compliance measures. In response to these dual challenges, organizations are driven to explore innovative alternatives, seeking solutions that deliver superior performance, scalability, and cost-effectiveness. According to Enterprise Strategy Group research findings, organizations expressed a compelling need to advance their adoption of all-flash storage solutions. Among the primary drivers identified, 51% of surveyed organizations are looking to improve the performance of existing applications. Additionally, 50% will seek better "future proof" support, and 42% underscore the significance of improving resource utilization. Other factors that are expected to influence the adoption of all-flash storage include improved total cost of ownership (TCO), reduced Opex, and reduced power consumption (see Figure 1).[1]

[1] Source: Enterprise Strategy Group Complete Survey Results, *Navigating the Cloud and AI Revolution: The State of Enterprise Storage and HCI*, February 2024.

Figure 1. Numerous Drivers Will Spur Increased All-flash Storage Adoption



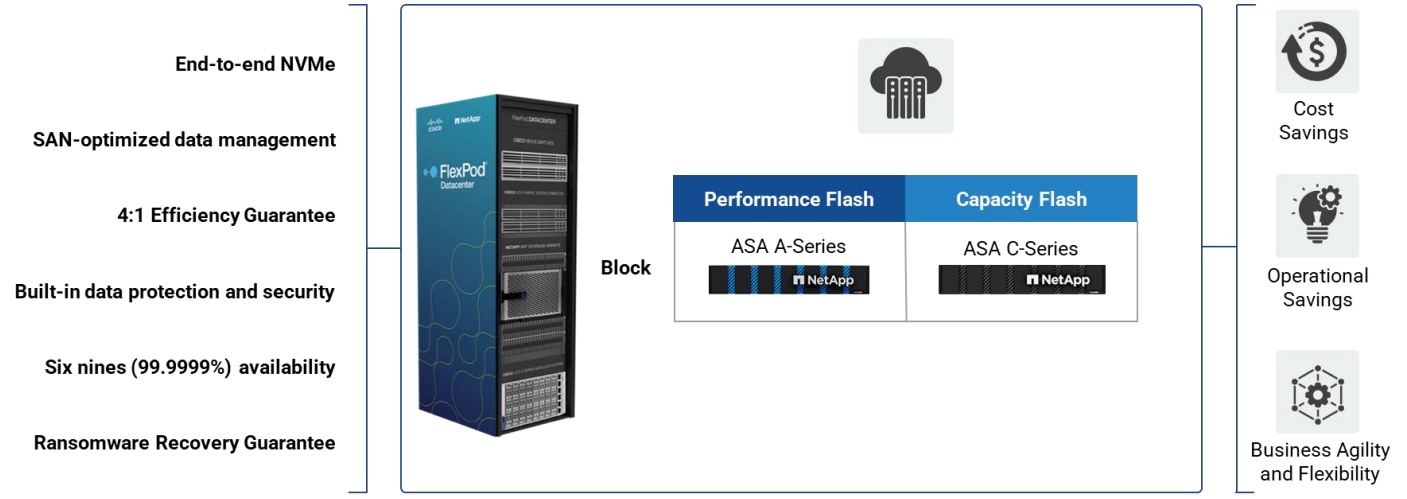
Source: Enterprise Strategy Group, a division of TechTarget, Inc.

A strategic solution becomes imperative because of the challenges posed by the rapidly evolving storage landscape and the nuanced demands of enterprise customers. Addressing the multifaceted issues of increased upfront costs, capacity constraints, integration complexities, and more requires a forward-thinking approach. An all-flash storage solution strategically aligns with the diverse workload requirements of enterprise customers, offering increased performance, scalability, and cost-effectiveness.

The Solution: NetApp All-flash Block-optimized Storage

NetApp ASA all-flash block-optimized systems offer a streamlined SAN experience tailored for mission-critical and business-critical databases, VMware environments, and other SAN workloads. Engineered on an end-to-end NVMe architecture, the NetApp ASA systems establish a benchmark for high availability, outperforming competitors with superior performance and a unified experience with data management in hybrid cloud environments. This solution is meticulously crafted to cost-effectively furnish high-performance, low-latency storage for demanding workloads and applications, with continuous data availability, integrated data protection, and data security (see Figure 2).

Figure 2. NetApp All-flash Block-optimized Storage Solutions



Source: Enterprise Strategy Group, a division of TechTarget, Inc.

Enterprise Strategy Group Economic Validation

Enterprise Strategy Group quantitatively analyzed NetApp ASA. Our process is a proven method for understanding, validating, quantifying, and modeling a product or solution's value propositions. The process leverages Enterprise Strategy Group's core competencies in market and industry analysis, forward-looking research, and technical/economic validation.

Enterprise Strategy Group conducted in-depth interviews with end users to better understand and quantify how NetApp ASA has impacted their organizations, particularly compared to previous storage solutions. We conducted a comprehensive evaluation encompassing vendor-generated technical documentation, established case studies, independent analyses, and our team's expert insights into the industry, markets, and alternative technologies. The qualitative and quantitative data were then used as the basis for a simple economic analysis comparing the costs and benefits of implementing NetApp ASA.

NetApp ASA Economic Overview

Enterprise Strategy Group's economic analysis found that NetApp ASA provided its customers with significant savings and benefits in the following categories:

- **Cost Savings.** Organizations can realize reduced costs through advanced storage efficiency and lower energy consumption while enhancing performance, scalability, and reliability.
- **Operational Savings.** NetApp ASA simplifies data management by consolidating interfaces, integrating automation, reducing downtime, and optimizing the carbon footprint.
- **Business Agility and Flexibility.** Businesses can scale up and out with consistent performance and continuous data availability to enhance agility and flexibility.

Cost Savings

NetApp ASA offers substantial cost-saving benefits by providing higher usable storage capacity for the same amount of raw capacity, and leveraging advanced inline data deduplication, inline compression, and thin provisioning technologies to maximize storage efficiency. This significantly reduces storage space and costs without impacting performance.

- **Lower Storage Costs.** NetApp offers a 4:1 Storage Efficiency Guarantee for customers using SAN protocols, enabling them to reduce storage costs. Storage costs are reduced through NetApp's advanced data management technologies, including inline data compression, deduplication, and compaction. Together, these technologies provide customers with a cost-effective storage solution, maximizing storage capacity while minimizing the need for additional hardware investments.

> **"The NetApp All-SAN array was the perfect technical fit for block VMware workloads. The 4:1 Storage Efficiency Guarantee delivered incredible space and power savings."**
>
> **-Lead Storage Engineer, Research and development**

- **Lower Licensing Costs.** NetApp ASA helps organizations reduce application software licensing costs through increased CPU utilization stemming from ultra-high storage performance, decreasing the need for related application software licenses. Increased CPU utilization efficiency helps businesses achieve better performance with fewer CPUs, thereby lowering CPU-based licensing costs. Customers experienced improved performance, optimizing the use of existing software licenses and potentially reducing the number of licenses needed for the same workload. Additionally, the unified management interface and built-in data protection and data security software included in the all-inclusive ONTAP One software package simplifies control, eliminating the need for multiple management tools and licenses.
- **Reduced Hardware Costs.** NetApp ASA can help organizations realize significant hardware cost reductions thanks to their higher storage density compared with traditional HDD or hybrid storage solutions. This allows more data to be stored in a smaller physical space, reducing the need for extensive data center real estate. Additionally, the compact design of the all-flash systems frees up extra space in the data center. The high performance and capacity enable the consolidation of workloads onto fewer systems, minimizing the overall hardware footprint. High performance, coupled with quality of service (QoS) technology, further enhances the efficiency of storage investments by ensuring workloads are protected from interference when hosted on the same system.

> **"We were able to show how we could go from 11 racks down to 1 and a half!"**
>
> **-Technical Solutions Architect, Advanced technology solutions and integration**

  Furthermore, the competitively priced ASA C-Series matches the cost of hybrid block storage from other vendors, providing additional financial benefits.

Operational Savings

Organizations can recognize operational savings with NetApp ASA through simplified management, enhanced sustainability with energy-efficient technologies, streamlining operations through advanced data management and automation, and minimizing downtime to avoid costly interruptions.

- **Reduced Operational Complexity With Data Management and Automation.** Customers can consolidate storage arrays and centralize storage management streamlining operations, cutting down on the complexity and costs of managing multiple systems with NetApp SAN solutions. Handling mixed workloads with predictably low latencies minimizes application performance issues, lowering internal support costs and boosting productivity for administrators and end users.

  > **"Our storage capacity is approximately 220PB, and with NetApp's automation and centralized management, we are able to manage that environment with about five people, which is pretty phenomenal."**
  >
  > **-Technical Solutions Architect, Advanced technology solutions and integration**

  Simplified and centralized management, along with integrated automation, further reduces operational complexity and labor costs. Easy provisioning and data management are supported by market-leading host operating systems, hypervisors, and application software through an intuitive onboard GUI, REST APIs, and automation integrations. NetApp's automation tools enable automatic provisioning of storage resources and policy-based management, managing routine tasks like data tiering, snapshots, and replication with minimal manual oversight. Integrating popular orchestration tools allows for seamless automation of workflows and better coordination across IT infrastructure. Intelligent data placement and predictive analytics optimize performance and cost-efficiency by automating performance tuning and data tiering. Dynamic scaling facilitates the addition or removal of storage resources based on demand. By spending less time managing storage, organizations can significantly reduce operational costs, free up IT personnel to focus on other areas of the business, and greatly reduce the time spent troubleshooting and resolving performance and capacity issues.

- **Achieve Better Sustainability.** NetApp's high-density, highly efficient all-flash storage solutions significantly reduce the storage footprint, power consumption, and carbon footprint. All-flash SAN storage systems consume less power and generate less heat, lowering energy and cooling costs compared with traditional HDD and hybrid systems. As environmental sustainability becomes a top priority for organizations, the ability to consolidate and run workloads more efficiently results in a dramatically reduced footprint and significantly lower power and cooling needs.

- **Cost Avoidance of Downtime.** Ensuring continuous availability is paramount when the business runs on data. NetApp provides robust data protection features and guarantees six 9's (99.9999%) data availability to minimize the risk of costly data loss and unplanned outages. NetApp supports symmetric, active-active multi-pathing, ensuring continuous access to customer data, even during HA pair takeovers. This guarantees that paths to data are always available, minimizing the impact of takeovers and givebacks. Automated backup and disaster recovery processes ensure consistent data protection and quick restoration, minimizing downtime and operational disruption. NetApp's multifactor authentication, role-based access control, and multi-admin verification protect organizations from data loss, ransomware, and other potential threats. Additionally, NetApp guarantees data recovery during a ransomware attack with its Ransomware Recovery Guarantee.

  > **"It's rare to find a brand that provides such exceptional support. We are very happy with NetApp and confident in their ability to support us."**
  >
  > **-Systems and Network Administrator, Local Government Administration**

Business Agility and Flexibility

NetApp ASA enables businesses to scale up and scale out with consistent performance, allowing customers to expand their storage footprint without disruptions seamlessly. Since deploying NetApp, organizations have reported significant business agility and flexibility improvements, ensuring they can grow smoothly and respond quickly to changing demands.

- **Faster Time to Value.** Organizations experience faster time to value with NetApp ASA, which facilitates data migration, security, protection, and access while enabling non-disruptive scaling of storage capacity as needed. Additionally, organizations have reported benefits such as quicker deployments and efficient data migration, leading to a faster time to value for deployed applications.
- **Greater Performance and Resiliency.** By delivering high performance, NetApp ASA enables organizations to respond quickly to changing business needs and demanding workloads. The primary advantage of using an all-flash array is the significant increase in performance, particularly through lower latency. Organizations could see substantial increases in IOPS performance, consistently lower latency, and reduced time to complete scheduled jobs. These performance enhancements help businesses manage their workloads efficiently and maintain productivity. One customer noted that the improved performance increased customer satisfaction and improved efficiency.

> **"NetApp increased our storage performance by 2x!"**
>
> **-CIO, Retail**

Enterprise Strategy Group Analysis

Enterprise Strategy Group leveraged the information collected through vendor-provided material, public and industry knowledge of economics and technologies, and the results of customer interviews to review, audit, and contribute to a three-year TCO model that compares the costs and benefits of NetApp ASA to two competitors. Our interviews with customers who have recently made the transition, combined with experience and expertise in economic modeling and technical validation of NetApp ASA, helped to form the basis for our modeled scenario.

We first examined the model that compared the NetApp ASA C250 to two competitors. The first competitor features 2 nodes, a total raw capacity of 126 TB, a usable capacity of 79.71 TB, a storage efficiency ratio of 2:1, and an effective capacity of 159.42 TiB, with a power consumption of 979 watts and occupying 2U of rack space. The second competitor offers a raw capacity of 119 TB, a usable capacity of 85.88 TiB, a 2:1 storage efficiency ratio, and 171.77 TiB of effective capacity while consuming 1,447 watts and occupying 6U of rack space.

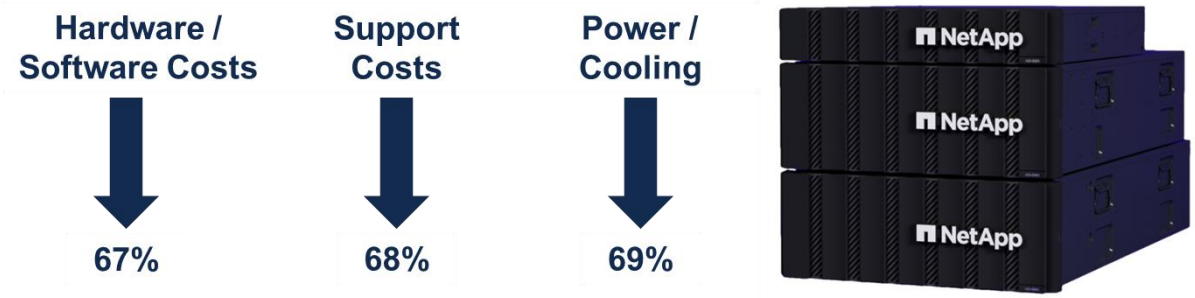
When comparing these competitors to NetApp, the results indicated that NetApp provides significant advantages. Specifically, NetApp reduces hardware and software costs by 67%, support costs by 68%, and power and cooling costs up to 69% (see Figure 3). These substantial cost reductions are attributed to NetApp's efficient design and advanced technology, which minimize resource consumption while maximizing performance. The NetApp ASA C250 not only optimizes storage utilization but also simplifies management, leading to reduced operational overhead.

Why This Matters

Organizations using traditional storage systems face high operational costs, frequent maintenance, and performance bottlenecks. These systems require labor-intensive data management and complex and disruptive upgrades to scale, leading to increased downtime and resource inefficiencies.

NetApp ASA block-optimized solutions address these issues by offering high performance, seamless scalability, and simplified management, resulting in reduced costs, improved productivity, and faster time to value.

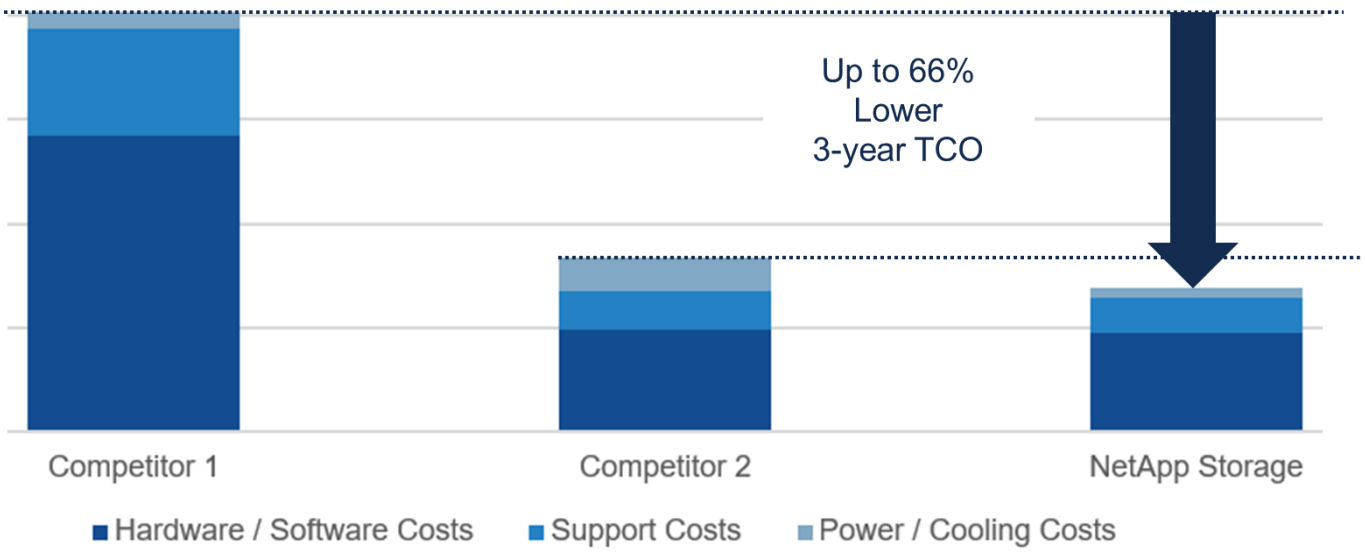
Figure 3. Expected Benefits of NetApp ASA Over Three Years



Source: Enterprise Strategy Group, a division of TechTarget, Inc.

Our evaluation revealed that the NetApp ASA C250 offers significant cost advantages and superior operational efficiency compared to its competitors. Specifically, the ASA C250 is priced at one-third the cost of Competitor 1, while also incurring lower operating expenses. Furthermore, when compared to Competitor 2, the NetApp ASA C250 not only has a lower acquisition price but also operates at one-third of the cost. The C-series all-flash array is available at the price point of traditional disk storage, offering exceptional value for high-performance storage needs. Overall, organizations could see up to 66% reduction in TCO over three years (see Figure 4).

Figure 4. TCO Savings Over Three Years



Source: Enterprise Strategy Group, a division of TechTarget, Inc.

Customers can achieve additional value by consuming ASA as part of a converged infrastructure solutions via FlexPod. The SAN-optimized FlexPod is a converged data center solution that integrates NetApp ASA storage, Cisco compute, and Cisco networking, as a collaborative effort between Cisco and NetApp. This pre-validated solution further simplifies the deployment experience with an optimized infrastructure designed explicitly for SAN workloads demanding high performance, reliability and scalability.

Issues to Consider

While Enterprise Strategy Group models are built in good faith upon conservative, credible, and validated assumptions, no single modeled scenario will ever represent every potential environment. The costs and benefits received from using NetApp ASA all-flash solutions will depend on the details of an organization's requirements and practices. We recommend that organizations perform their own analysis of available products and consult with their NetApp representative to understand and discuss the differences between the solutions through their own proof-of-concept testing.

Conclusion

In a rapidly evolving technological landscape, organizations face an increasing need for resilient and efficient storage solutions. The quest for superior performance, scalability, and cost-effectiveness presents numerous challenges in managing and optimizing storage infrastructures. In response, NetApp ASA offers substantial cost savings and operational efficiencies. Leveraging technologies like data deduplication, compression, and thin provisioning maximizes storage efficiency and reduces physical storage needs, resulting in up to 66% lower TCO. NetApp's solutions also enhance sustainability with design minimizing power and cooling needs. The centralized control features streamline operations and reduce complexity, freeing IT personnel for more strategic initiatives. High performance and capacity support workload consolidation, leading to a reduction in hardware footprint and costs.

NetApp's data protection, data security, and high availability ensure continuous business operations, minimizing the risk of downtime, disruption and ransomware attacks.

If your organization is looking for an efficient, scalable, and reliable storage solution that meets modern enterprise demands, Enterprise Strategy Group recommends that you evaluate whether NetApp ASA is the right fit for your organization's needs.

About Enterprise Strategy Group
TechTarget's Enterprise Strategy Group provides focused and actionable market intelligence, demand-side research, analyst advisory services, GTM strategy guidance, solution validations, and custom content supporting enterprise technology buying and selling.

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