ESG Economic Value Audit

Analyzing the Economic Benefits of the HPE SimpliVity 380 All-flash Hyperconverged Portfolio
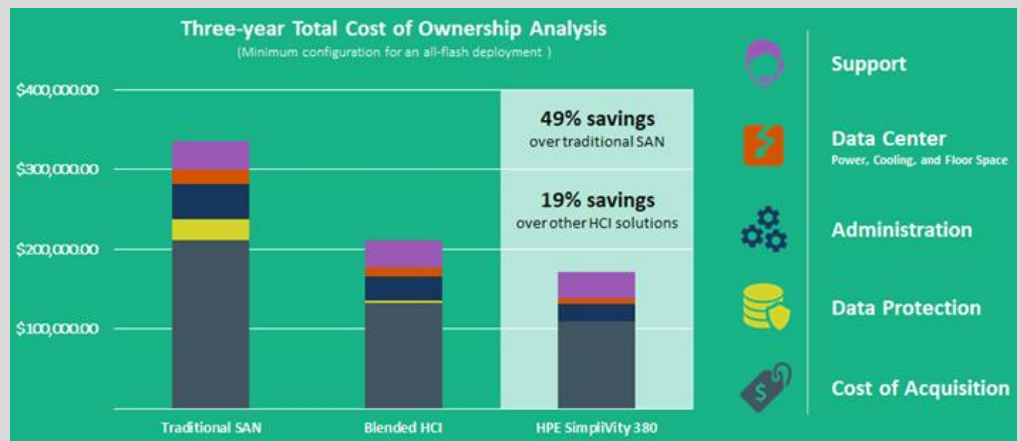
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Executive Summary

Budget restraints plague IT decision makers as management continues to ask them to do more with less. As such, organizations have turned to hyperconverged infrastructures (HCI) to meet budget requirements while continuing to meet critical application SLAs related to scalability, performance, and reliability. The all-flash HPE SimpliVity 380, offers organizations a lightweight two-node deployment that has the potential to cut costs even further when compared with not only a traditional three-tier architecture, but also other hyperconverged offerings. ESG completed a total cost of ownership analysis comparing a traditional infrastructure and a blend of other HCI offerings with the HPE SimpliVity 380 with a goal of understanding the quantitative savings organizations can expect across five cost categories: cost of acquisition, data protection, administration, data center, and support. ESG also completed customer interviews to learn about additional qualitative benefits existing customers have achieved since deploying the technology in their own environments.

ESG found that over a three-year period, HPE SimpliVity 380 all-flash solutions can save 49% when compared with a traditional infrastructure consisting of siloed servers and SAN storage, and can save 55% or more in ROBO deployments. Further, when compared with a blend of other HCI offerings, the HPE SimpliVity 380 yielded a savings of nearly 20%. These savings come from the fact that a minimum deployment of an HPE SimpliVity 380 consists of just two nodes, while most competitive offerings require three. Additionally, HPE SimpliVity comes with core built-in data protection, while all management and administration across compute, storage, virtualization, and data protection can be done from a familiar VMware vSphere interface.

Three-year Total Cost of Ownership Analysis
(Minimum configuration for an all-flash deployment)

49% savings over traditional SAN

19% savings over other HCI solutions

Support

Data Center
Power, Cooling, and Floor Space

Administration

Data Protection

Cost of Acquisition

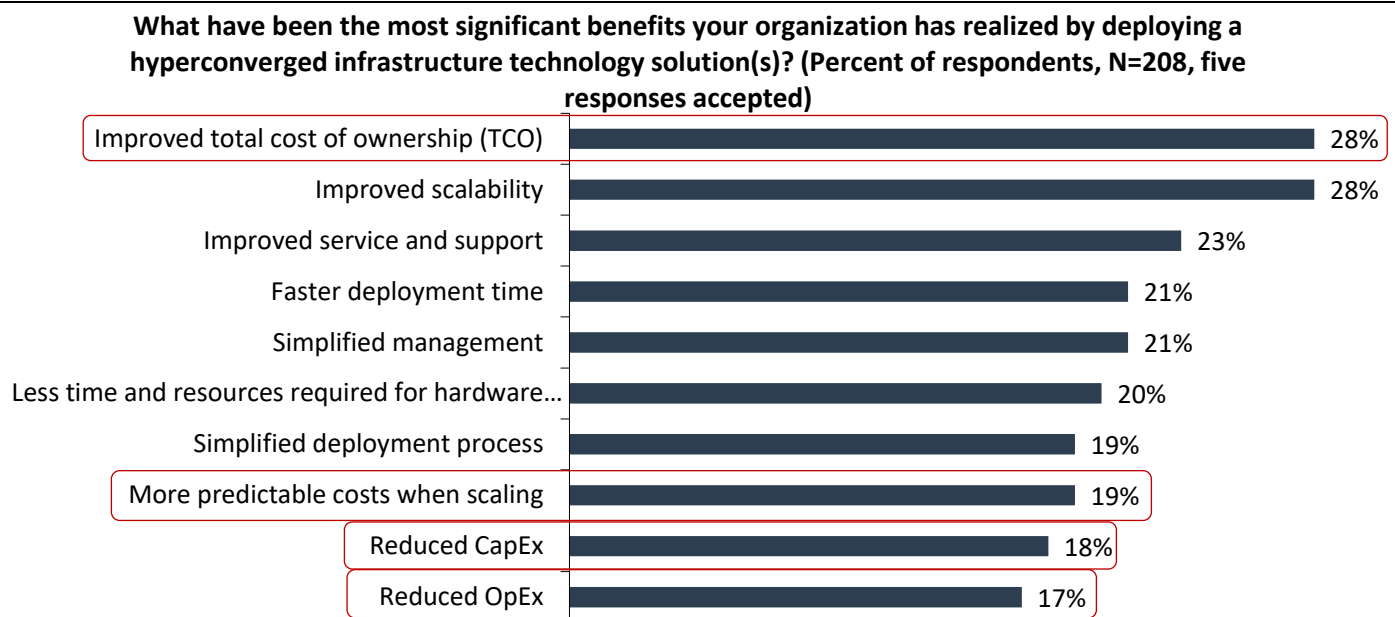Traditional SAN Blended HCI HPE SimpliVity 380

Introduction

This ESG Economic Value Audit focused on the quantitative and qualitative benefits organizations can expect from a two-node deployment of an all-flash HPE SimpliVity 380 compared with a traditional SAN-like infrastructure and a blend of competitive hyperconverged offerings. ESG created a model that factored in common cost analysis categories, including cost of hardware, data protection services, support, floor space, power, cooling, and administration. The model was then applied to a remote office/branch office use case, and a customer interview further highlights the benefits that can be achieved with this hyperconverged infrastructure, including deployment in a virtual desktop environment.

Background/Problem/Challenges

Hyperconverged infrastructures continue to gain momentum, as organizations are turning to the technology to cost-effectively consolidate and simplify their IT infrastructures. In fact, ESG recently surveyed 537 mid-market and enterprise-class organizations and 39% of those organizations report currently using hyperconverged technology, while another 18% plan to use or have interest in using the technology in their data centers.[1] With budget restraints continuing to plague IT decision makers, the cost savings advantage of hyperconverged solutions continues to be appealing. Of the organizations that already deployed hyperconverged technology, ESG asked what the most significant realized benefits have been since deploying the technology and improved total cost of ownership tied for the most-cited response.[2]

Figure 1. Top Ten Benefits Realized from Deploying a Hyperconverged Infrastructure

What have been the most significant benefits your organization has realized by deploying a hyperconverged infrastructure technology solution(s)? (Percent of respondents, N=208, five responses accepted)

Improved total cost of ownership (TCO)	28%
Improved scalability	28%
Improved service and support	23%
Faster deployment time	21%
Simplified management	21%
Less time and resources required for hardware…	20%
Simplified deployment process	19%
More predictable costs when scaling	19%
Reduced CapEx	18%
Reduced OpEx	17%

Source: Enterprise Strategy Group, 2017

HPE SimpliVity 380

Building off SimpliVity's early success in the hyperconverged market, HPE is looking to provide cloud-like flexibility and cost benefits on-premises with the HPE SimpliVity 380. By combining HPE SimpliVity software's unique architecture and feature set with powerful HPE ProLiant DL380 servers, HPE offers a robust solution to meet the dynamic demands of a modern data center. This pre-integrated solution uses a building block approach to simplify the deployment and management of a highly virtualized environment. VM-centric management enables improved operational efficiency, and all-flash storage delivers high levels of sustainable performance. It includes storage features that will boost efficiency without negatively affecting performance, such as inline compression and deduplication, plus built-in resiliency that ensures workloads can survive infrastructure failures. With these features, organizations gain a complete IT infrastructure built with proven technology that delivers the simplicity and speed they demand.

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[1] Source: ESG Master Survey Results, *Converged and Hyperconverged Infrastructure Trends*, October 2017.
[2] Ibid.

ESG Economic Audit

ESG completed a quantitative/qualitative economic analysis of the all-flash HPE SimpliVity 380. Focus was placed on the economic benefits organizations can expect when leveraging the technology compared with a traditional SAN-like infrastructure and a cost blend of competitive offerings.

Economic Audit Process

ESG's Economic Audit process is a proven method for understanding, validating, quantifying, and modeling the economic value propositions of a product or solution. The process leverages ESG's core competencies in market and industry analysis, forward-looking research, and technical/economic validation. The process consists of three main phases: value scoping, validation, and analysis.

In the value scoping phase, ESG works with a vendor's internal stakeholders to discuss the ways in which the product or solution can impact potential customers. These economic benefits may be in the form of costs savings (e.g., lower CapEx or OpEx), cost avoidance (e.g., reducing compliance risk or eliminating the need for professional services), increased revenue (e.g., faster task completion or the ability to handle more desktops), and other soft benefits (e.g., increased user productivity or higher customer satisfaction). In the value validation phase, ESG conducts in-depth interviews with end-users to better understand and quantify how these potential value propositions have impacted their organizations, particularly in comparison with previously deployed and/or experienced solutions.

In the final phase, ESG blends the quantified values revealed through the stakeholder and customer interviews with known industry values and additional research, resulting in a validated set of assumptions on which to build a model. In some cases, if a vendor has a prebuilt model, ESG simply audits the model based on the two previous phases. The model accepts inputs that answer typical questions regarding a potential customer's IT environment and/or business needs. The model then returns a breakdown of expected savings, TCO, and/or ROI over a given time interval, as compared with a relevant, defined present mode of operation. An overview of the ESG Economic Validation process is shown in Figure 3.

Figure 2. The ESG Economic Audit Process
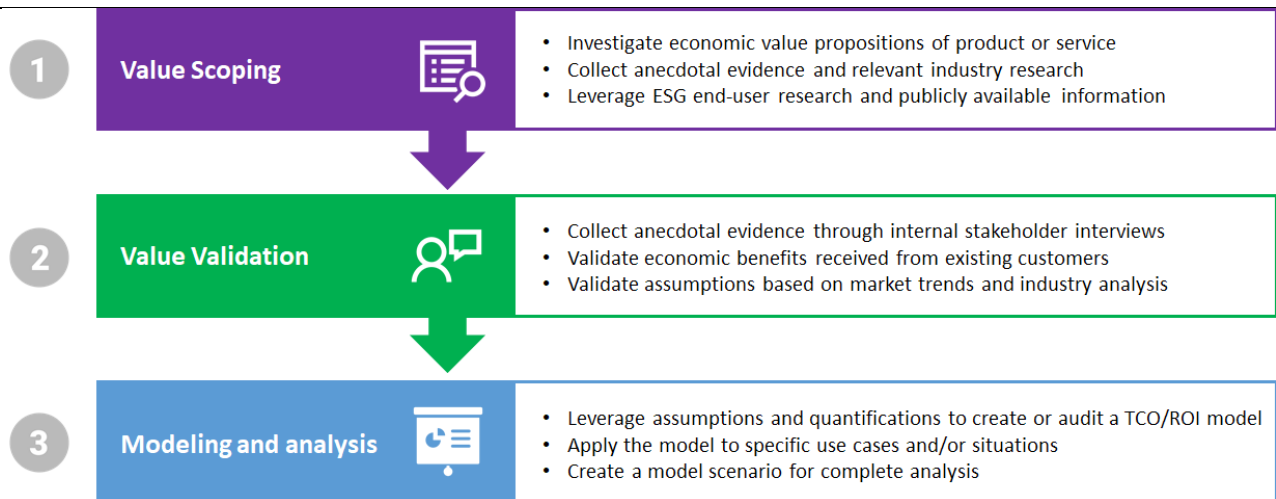
For ESG's analysis of the all-flash HPE SimpliVity 380, ESG scoped and validated economic value through internal and external stakeholder interviews. A model was then created based on a minimum deployment and analyzed for total cost of ownership. This model was then applied to two use cases: remote office/branch office (ROBO) and VDI. The ROBO scenario directly leveraged the TCO model, while the VDI scenario leveraged customer interviews and focused on qualitative benefits.

HPE SimpliVity 380 Economic Value Overview

ESG's economic analysis revealed that an effective deployment of an HPE SimpliVity all-flash solution can provide significant cost savings over a three-year period when compared with a traditional approach that leverages a SAN, as well as compared with other hyperconverged offerings for the modeled configuration.

The overall configuration that ESG modeled was for an organization or office that required a minimum infrastructure deployment with a primary and backup storage footprint of up to 50 TB over three years, compute leveraging Intel Broadwell E5-2650 v4 chips, and memory in the 256GB range per server/node. With this configuration in mind, ESG analyzed the following areas as they pertain to cost:

- Cost of Acquisition – With traditional infrastructures having compute and storage resources separated, servers and storage were priced separately, while the blended pricing of the other HCI vendors was priced on a per-node basis, with each node containing the necessary CPUs, memory, and storage to meet the modeled requirements.

- Data Protection – The traditional approach leveraged a small backup appliance, while the blended HCI vendors paid licensing fees for core data protection backup and recovery features.

- Administration – An average IT administrator's salary was leveraged and divided based on hours spent completing common administrative tasks, such as additional installations, deployments, and ongoing management and maintenance.

- Data Center – Floor space, power (calculated by taking the average electricity cost per kilowatt hour), and cooling were included in the data center costs.

- Support – The same tier of 24/7 support was applied across all three scenarios. Professional fees associated with initial installation and deployment were also included in this cost.

Cost of Acquisition

For a traditional method, organizations must purchase resources in a siloed approach: servers, storage, and licensing as separate line items. For storage specifically, the cost of a small SAN is quite sizeable, never mind an all-flash array that contains enough capacity to handle data growth over three years. Often organizations are forced to overprovision resources to proactively handle data growth due to the higher cost of scaling capacity, which leads directly to higher costs.

For HCI vendors, the building block approach enables an easier way to scale, but most vendors have a minimum deployment requirement of three nodes to ensure high availability in the case of a failure. Further, due to architecture implementations associated with capacity savings such as compression and deduplication, more capacity or resources must be deployed to handle capacity optimization techniques, whether that be compute-intensive inline or post-process techniques that require more initial capacity.

The minimum deployment requirement for the HPE SimpliVity 380 is just two nodes, enabling an immediate savings compared with both a traditional approach as well as other HCI offerings. For data efficiency, data is deduplicated and compressed once and forever inline through a separate dedicated card. This means the overall cluster is not impacted by capacity optimization and additional resources are not required to assist in completing the inline process, yielding a two-fold savings. In total, these advantages can yield acquisition cost savings of 18% compared with other HCI solutions, and as much as 48% when compared with a traditional approach.

The HPE SimpliVity 380 requires just two nodes yielding a cost of acquisition savings of at least 18% and up to 48%.

Data Protection

Traditional approaches require additional costs for data protection, usually in the form of a backup/recovery appliance. Most HCI solutions provide no built-in backup software, which means third-party software must be used to back up data to primary storage as well as provide replication capabilities. Of course, these solutions come with software licensing and annual maintenance fees, which leads to added costs.

With built-in data protection at no additional cost, organizations save thousands of dollars in data protection costs.

With HPE SimpliVity, core data protection features are standard with every solution. This includes built-in VM backups, multi-site replication, recovery and cloning, and disaster recovery. HPE provides an additional, less obvious cost benefit through partner alliances. For organizations that require specialized data protection features and functions, HPE has key partnerships with other technology vendors to easily meet those requirements.

Administration

For IT administrators managing a traditional deployment, separate interfaces are used for each component, including compute, storage, virtualization, and data protection. There are two typical approaches to traditional data center management, each with different cost impacts. The first is that an organization would require a separate administrator for each resource. The second would be to employ an IT administrator capable of managing all the resources, but of course that employee comes at a higher salary.

Most HCI solutions allow management of compute, storage, and virtualization through a single interface, whether through integration with VMware, or through custom management interfaces. While HCI administration may require licensing costs, they are typically very low. Regardless of the overall management interface, the external backup application will create additional administrative costs for both traditional and typical HCI solutions. Without having built-in data protection, IT administrators are required to deploy and navigate to a separate interface to manage everything associated with backup and recovery.

With HPE SimpliVity, all aspects of management, including core infrastructure and data protection, are done directly in the familiar VMware vSphere interface and do not require special training. This enables organizations to employ a single IT generalist to handle the management tasks of the entire deployment.

Server, storage, virtualization, and data protection management is done through one familiar interface—VMware vSphere.

Data Center

Traditional deployments will always have higher data center costs due simply to the fact that there are more physical components, which consume more floor space, power, and cooling. For other HCI offerings, the minimum of three nodes per deployment increases data center costs and footprint. HPE SimpliVity offers immediate data center costs savings because of its two-node minimum. In this case, fewer nodes means less floor space, less power, and less cooling, leading to savings ranging from 44% compared with other HCI solutions to 63% compared with traditional approaches.

Support

With more components, whether physical hardware or virtual software, traditional approaches require more support. Further, that support comes at an added cost of having to deal with different support centers depending on how many vendors are being leveraged to deliver compute, storage, virtualization, and data protection. Typical three-node HCI solutions can be supported through a single vendor, but they also require support for the external data protection solution. For HPE SimpliVity, less hardware and built-in data protection mean lower support costs and a single support center for infrastructure, software, and backups.

Three-year TCO Savings with HPE SimpliVity

ESG created a model and applied pricing associated with each cost component—cost of acquisition, data protection, administration, data center, and support—across the three scenarios (traditional, other blended HCI, and HPE SimpliVity 380). Pricing was based on publicly available data and industry knowledge, and all costs were based on street pricing, which factor in expected discounts. The results are shown in Figure 3 and Table 1.

Figure 3. Three-year Total Cost of Ownership Analysis
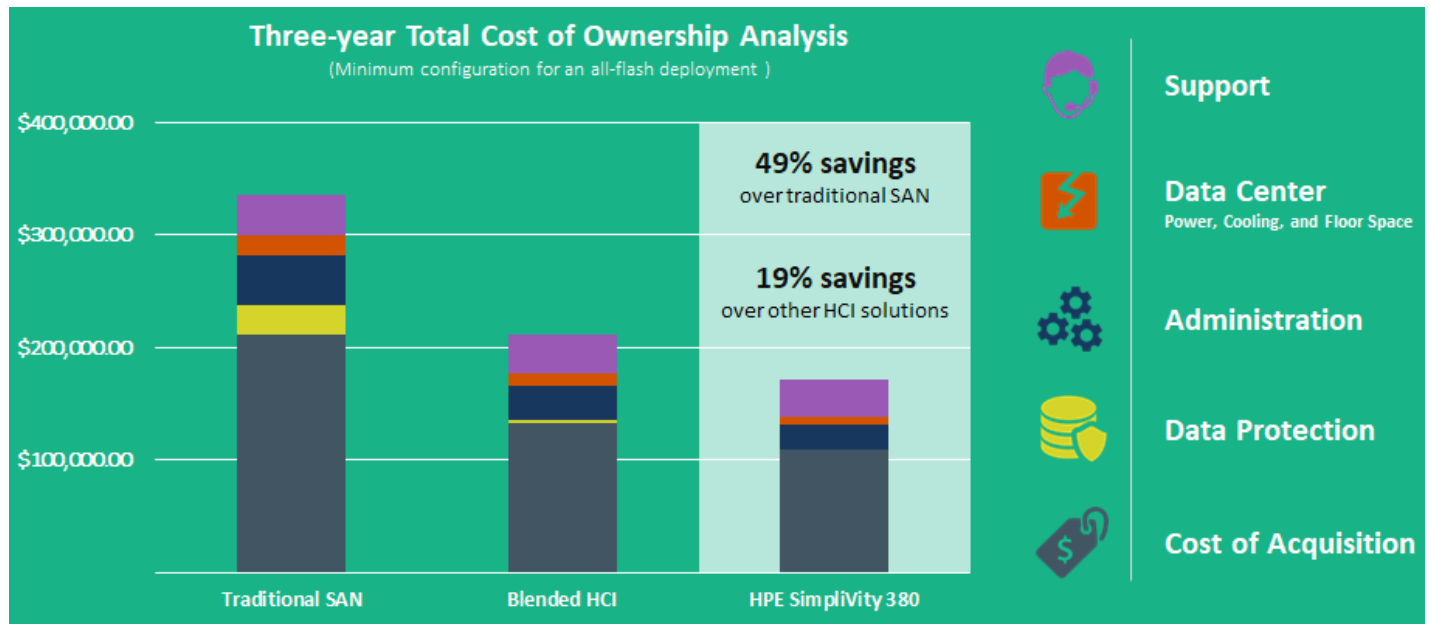
Table 1. Three-year Total Cost of Ownership Analysis

| Component	Traditional SAN	Blended HCI	HPE SimpliVity 380
Cost of Acquisition	$212,031.07	$133,341.90	$109,488.50
Data Protection	$25,928.49	$2,796.00	$-
Administration	$44,645.04	$30,387.77	$22,699.20
Data Center	$16,776.90	$10,939.77	$6,167.42
Support	$36,335.85	$34,190.23	$33,342.00
Total	$335,717.35	$211,655.68	$171,697.12

Source: Enterprise Strategy Group, 2017

For a minimum all-flash deployment, HPE SimpliVity can offer organizations an overall savings of 49% compared with a traditional SAN deployment and an 18% savings compared with a blend of other HCI solutions. Savings are achieved across all modeled components, with the greatest savings coming from the HPE SimpliVity 380 only requiring two nodes for a deployment and having built-in data protection at no additional cost. These two important advantages then impact savings across all other components, including lower administration costs by converging all management tasks into a single interface, lower data center costs due to a smaller physical footprint, and lower support costs due to having less components, all of which can be handled through a single support center.

Use Case: Remote Office/Branch Office

Based on the results of the model, ESG applied costs to a ROBO scenario to understand the magnitude of savings organizations can achieve based on an increasing number of ROBOs. In Figure 3, the total costs of a traditional SAN deployment ($335,717.35), the blended cost of a competing HCI solution ($211,655.68), and a two-node HPE SimpliVity 380 deployment ($171,697.12) represent a single deployment (the first set of columns on the left of the chart). As shown in Figure 4, organizations with ten or more ROBOs have the potential to save millions of dollars when deploying HPE SimpliVity compared with a traditional SAN. The million-dollar savings threshold when comparing HPE SimpliVity with other HCI vendors starts at 50 ROBO deployments.

While the single ROBO deployment with an HPE SimpliVity 380 offers the same savings of 49% when compared with a traditional SAN, as mentioned in the previous section of the report, the savings become greater with an increased number of deployments. This is due to an administrative savings that can be achieved by managing all aspects of the infrastructure from a single pane of glass. HCI can enable organizations to easily manage multiple deployments across ROBOs from a single location or data center. This significantly increases the potential savings from 49% to 55% when comparing HPE SimpliVity with a traditional SAN. While some degree of savings can be achieved with other HCI offerings, efficiencies in the HPE SimpliVity architecture boost the savings to as much as 55% in remote and branch office deployments.

Figure 4. Three-year Total Cost of Ownership Analysis
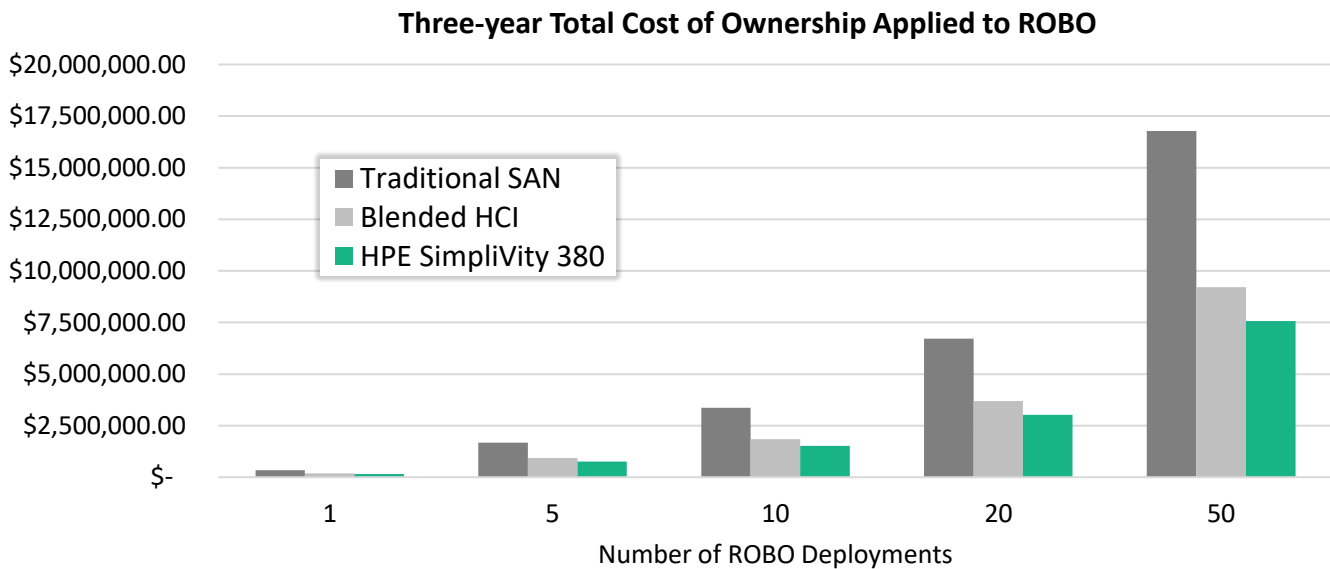
Use Case: Virtual Desktop Infrastructure

While the previous sections focused on the quantitative savings organizations can achieve, ESG shifted to learn about additional savings organizations can expect from a qualitative standpoint for a common workload: VDI. ESG interviewed a customer that leveraged the HPE SimpliVity 380 to handle its VDI environment.

One IT director of a large commercial law firm was looking for a solution that would be able to modernize the firm's current infrastructure without changing the fundamental architecture in place. The two-node cluster making up the current infrastructure needed to remain intact, but the advantages of VDI could not be fully realized on aging spinning disks. With HPE SimpliVity's achievable cost savings through its two-node minimum requirement, built-in data protection, and all-flash storage, the firm achieved an incredible boost to performance while staying within budget. In total, the customer achieved a storage and compute performance improvement of 10x compared with its five-year-old legacy technology.

While the customer is currently in the process of migrating the entire data center over to the HPE SimpliVity deployment, it should be noted that the performance boosts were achieved in a VDI environment where all the virtual desktops are persistent. In other words, due to HPE SimpliVity's ability to deliver capacity optimization techniques on a cost-effective two-node deployment, every user can have a personal virtual desktop that remains saved. And the best part is that while the VDI deployment was in the 250TB range, HPE SimpliVity's compression reduced it to just 1 TB. The customer also noted that even though support has been responsive from the start, the team has had minimal need for it. Cluster management is easy thanks to vSphere's familiar interface where every management task from compute and storage to virtualization and backup can be completed. In fact, the customer spends very little time going into the interface daily, mostly because, as the customer noted, "everything just works." Resource utilization has been a nonissue, even when operating at the workload's maximum capacity.

Overall, HPE SimpliVity lifted desktop virtualization to its full potential with data efficiency, capacity optimization, and global unified management, which when combined, yielded the best end-user experience for the organization. The firm achieved reliable performance and operational efficiency that helped skirt the traditional VDI environment issues and helped provide a cost-effective solution to meet the business's requirements. Based on the current success of the HPE SimpliVity 380 deployment, the customer is convinced HPE SimpliVity will have a positive impact on other business-critical applications within the environment.

The Bigger Truth

Hyperconverged infrastructures are an increasingly popular choice for organizations pressed to do more with less. The all-flash HPE SimpliVity 380 offers organizations a lightweight two-node deployment that costs less than other hyperconverged offerings and significantly less than a traditional three tier architecture. ESG completed a total cost of ownership analysis across five cost categories: cost of acquisition, data protection, administration, data center, and support, finding that over a three-year period, the HPE SimpliVity 380 can yield a total savings of 20% when compared to a blend of other HCI offerings. That same HPE hyperconverged infrastructure can save nearly 50% when compared to a traditional infrastructure, and 55% or more when extended to ROBO deployments. The two-node HPE SimpliVity infrastructure cost advantages are largely due to built-in data protection, compression and deduplication, and the fact that all management and administration across compute, storage, virtualization, and data protection can be done from a single VMware vSphere interface.

When looking for an hyperconverged offering to meet business-critical application requirements while staying on budget, ESG recommends HPE SimpliVity 380 all-flash solutions.

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