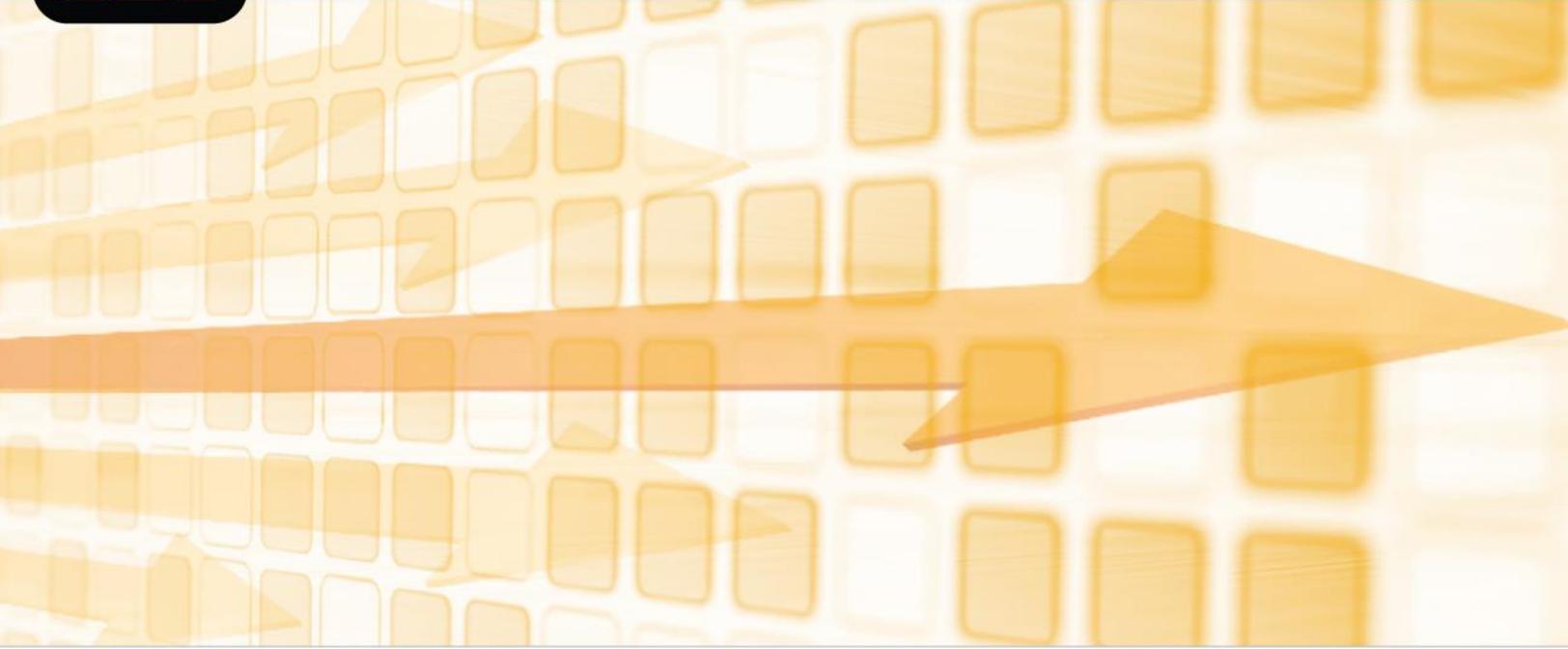




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Economic Value Validation

Nimble CS Series Storage Systems

July 2014

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Executive Summary

ESG was engaged by Nimble to develop a detailed Economic Value Validation (EVV) analysis; the EVV analysis is designed to help organizations determine the relative costs and benefits of leveraging Nimble's CS series of flash storage arrays to support enterprise applications compared with a "present mode of operation" (PMO) that reflects the typical enterprise storage environment that most customers currently use today: alternative storage systems, backup and restore software and appliances, and storage management software. This EVV analysis builds upon in-depth interviews with Nimble customers and other IT professionals, relevant product demos, additional ESG market research of relevant storage subsystems, and ESG's general familiarity with the myriad of enterprise storage products available in the market today. The goal of the EVV is to provide potential customers with a comprehensive picture of the direct and indirect costs and benefits they should consider when evaluating a Nimble solution, or any other storage solution investment.

As discussed in the following pages, Nimble storage arrays offer the opportunity for enterprise organizations to drastically increase their IT and user productivity at a significantly lower TCO compared with alternative storage investments. In fact, ESG's analysis of typical use cases for Nimble result in impressive estimated ROIs in the range of 325% - 472%. Comparative storage (and accompanying data protection) investments which ESG modeled resulted in significantly lower ROIs as a result of both higher total costs of ownership and lower benefits. For organizations taking a progressive view of future storage infrastructure investments – moving beyond "specification-leapfrog" and focusing on differential value delivered by the software functionality and support that a vendor can provide – Nimble has a compelling set of offerings. This report summarizes the rigorous research ESG conducted to quantify the value Nimble is delivering for its customers and communicates the results of this analysis.

Market Overview

Where Nimble Competes

The world of enterprise storage is a complex marketplace. It is crowded, and yet constantly attracts new entrants; the user demands are extreme, with little to no room for error. Despite being a mature market, it has a number of leaders, a myriad of alternatives, and no one or two truly dominant vendors as other areas of IT do; furthermore, there is a host of prerequisite standards, protocols, and functionalities, and so many of the competing products seem (at least superficially) similar. But how does a new organization, one in a perpetual crowd of startups, "break out?" Why, specifically, is Nimble attracting so much investment (including a successful IPO in Q4 '13), pulling in so many loyal users, and gaining such traction and buzz when "similar" companies have been less successful?¹

The answer, of course, is by effectively and comprehensively meeting user needs, and doing so in a way that offers users better value than the alternatives. The purpose of this report, and of ESG's EVV methodology overall, is to provide detailed measurement of that value; this first section provides the necessary background to that analysis, with a succinct overview of the market and of the Nimble offering.

Market Drivers and User Needs

It's an over-used truism to talk about the "constantly changing" world of IT, and simply hyperbole to talk about the "new IT world." However, taking a longer-term view of IT and storage, certain trends do show that, over time, the demands upon storage systems, and our technical ability to meet the new needs, have changed considerably. Of course, the basics of the digital storage market are unchanged since it began in the 1950s: *Colloquially put, the desire of users is for storage vendors to get ever closer to providing as much capacity as can be consumed, with performance that exceeds what is needed, and total reliability, for minimal cost!*

¹ Some elements in this section of the report have been edited and adapted from an existing ESG brief ([How has Nimble Been So Quick?](#), August 2013), which offers extra detail on Nimble and its offering than the focus and space permits here.

Over the decades, vendors have done a remarkably good job on all fronts; considering, for example, that the first commercially relevant disk drive was a mere 5 MB (spread over 50 24" platters!) and cost \$7,800 per MB. Speed, capacity, reliability, and system functionality have improved, while cost has plummeted. Clearly the intrinsic technical attributes and specifications of storage systems have dramatically improved; this is what is providing the impetus for such "waves" as the increased integration of flash, hybrid options, and tiering across just about all storage systems. *However*, these raw technologies are (admittedly with some variance of implementation) very easily available and, therefore, essentially standard. The longer-term trends previously mentioned are more to do with *storage as part of an integrated IT ecosystem* and that is what has created opportunities for new vendors, such as Nimble, to provide enhanced value to the market.

These new trends can seem "softer" than the traditional storage yardsticks. Where once you could just measure the number of GB, the available network paths, and perhaps the size of the controller, it is now necessary—indeed vital—to look at such things as the ease of installation and operation, the ability of the platform to flex and grow, and the reduction of specialist training needs. The change is both driven by—and in turn is an enabler of—far more malleable IT infrastructure encompassing fluctuating workloads and application-specific resources, which are the defining nature of contemporary IT. The virtualized nature of modern IT resources combines with massive online data volumes and insatiable end-user expectations to create opportunities for storage vendors to deliver platforms that are more suited to the current needs. To be specific, this means there is opportunity for storage vendors that can take all the hardware "wonderfulness," and package it with *ease of management, adaptability, and automation*. These are the areas where vendors in today's storage market are competing to differentiate and add real value.

Nimble: Company and Products

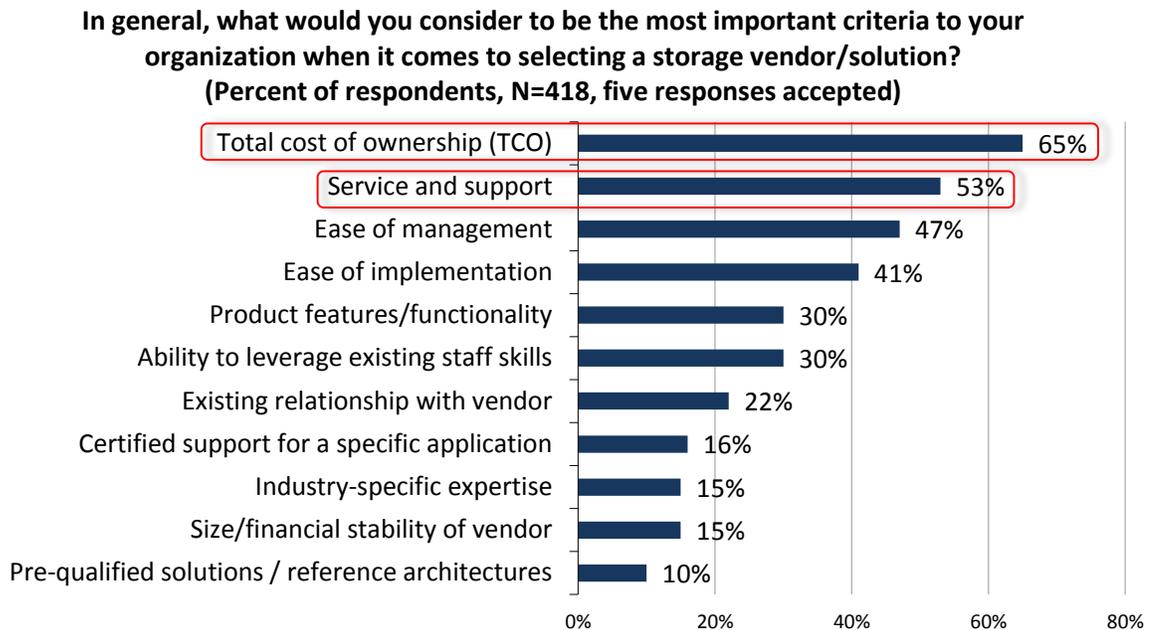
Basics: Launched in 2008, Nimble has set a new pace for early success: It announced that it surpassed a \$100 million booking run-rate early in 2013 with an annual sales growth of more than 400%. On the "table-stakes" side, Nimble's CS Series is a product offering with contemporary relevance, offering a solution that leverages those raw storage advancements previously mentioned and that are important to buyers now—flash storage, hybrid storage, support for virtual machines, convergence, etc. Playing in *all* those areas is smart. For example, its Cache Accelerated Sequential Layout (CASL) architecture optimizes the use of the hybrid hardware to achieve both operational suitability (what Nimble calls "Scale to Fit") and pricing flexibility in line with what a given application needs, and a given customer wants to pay.²

In itself, a purpose-built system that accommodates flash and spinning drives simultaneously is helpful. No retrofitting is needed; both types of storage work together, minimizing over-provisioning, which equates to improved efficiency and a better total cost of ownership over the long term. Nimble provides a good TCO for its customers, and ESG research has found that respondent organizations' most-cited buying criteria when purchasing storage are TCO followed by service and support (see Figure 1).³

² Full details of CASL and the Nimble CS product can be found on the company's website or in the ESG brief (ibid). However, just to give a summary, the architecture intelligently uses a mix of inline compression, real-time flash-caching, and high-capacity HDDs to provide a balance of performance and cost via high utilization rates. CASL itself means that even the HDDs can deliver surprisingly good performance and the system also offers flexible scalability and frequent, delta-based snapshots that provide efficient levels of data protection.

³ Source: ESG Research Report, [2012 Storage Market Survey](#), November 2012.

Figure 1. Important Criteria When Selecting Storage Vendors/Solutions



Source: Enterprise Strategy Group, 2014.

How Nimble Provides Value and Differentiation: Many vendors concentrate on the TCO aspects and then simply pay lip-service to the service and support side of the equation. Nimble has made “uber-support” an area of differentiation and user value via a comprehensive model that it brands “InfoSight.” As shown in Figure 1, ESG research shows that service and support are important to buyers, closely following TCO. Traditionally, great service required the resources of a big company that could offer 24x7x365, with “follow-the-sun” support and guaranteed SLAs. There’s a “hill to own” for an intrepid startup in this market, though, and Nimble has targeted it.

To this end, Nimble has established processes such as active monitoring, in which it opens a support case before a customer is even aware of a problem. Five-minute “heartbeats” and daily telemetry data pour in from customers’ systems for analysis in real time. Irregularities are immediately flagged, and support cases opened. According to Nimble, more than 90% of cases are detected automatically, with no customer intervention. In the event of a true support-assistance requirement, a Nimble specialist VPNs into the box and troubleshoots the issue, resulting in fast resolution (as well as preemptive protection for other at-risk customers). In a similar fashion to the focus on storage systems having moved from the hardware to the software, so too is Nimble moving from simply great “break-fix” to providing a support ecosystem that its users love *and* that provides two-way value between vendor and customer. But, again, this can appear in users’ evaluations to be “softer” in nature; this ESG report puts some hard value measurability around it.

Beyond its efficiency, automation, ease of use, and InfoSight support, Nimble has other areas of relevant differentiation that help it to deliver measurable value to its users. Examples are:

- **Automated, Built-in Data Protection:** The CS Series systems don’t need dedicated windows for backup, and instead they offer near-instant data recovery and therefore cost-effective DR.⁴
- **Strong Integration Options:** Integration comes in two flavors for Nimble, both of which help its users to derive value. It offers extensive interoperability (via partnerships with the likes of VMware, Cisco, Citrix, Microsoft, and CommVault), which includes being embedded in VMware and Cisco reference architectures for easy/automatic integrations that don’t require complex professional services engagements. And it also

⁴ Nimble uses pre-configurable snapshots for data protection to maximize efficiency of storage consumption and performance. Offsite replication is also efficient; only compressed block-level-deltas go across the wire.

rolled out the Nimble Storage “SmartStack” framework, designed for the converged infrastructure and cloud worlds.

Market Situation Summary

There was a time in the storage market where product iterations, and resultant user value, were measured simply in terms of the arrival of the next generation of hardware. While there is still a foundational game of “specification-leapfrog” in the industry, these days, differential value is mainly delivered by the software functionality and support that a vendor can provide, whether that manifests as ease of use, automation, flexibility, or comprehensive service and infrastructure integration. Traditional vendors often struggle to meld their monolithic products with the demands of this new world, and this is what creates an opening for new vendors such as Nimble. It has been gaining market traction, awards, and a raving-fan user base based upon a very attractive mix of product, abilities, and a strong community. This means it is able to not only “do the old stuff better,” but it can also offer new abilities, such as integrated data protection, flexible scalability, and intuitive management. Its early customers love what they are getting, but as Nimble seeks to increase its market traction and drive adoption, that “love” will increasingly need to be expressed in more measurable operational and financial terms, which is the purpose of this ESG study.

CS Series Storage Systems: Qualitative Examples of Customer Benefits

As outlined, Nimble's CS Series of storage systems offer a differentiated alternative to both traditional, monolithic storage systems and other flash-disk hybrids. Nimble's differentiated approach to service, support, and data protection offer tremendous value to its customers' IT organizations and to business end-users alike. However, to accurately and defensibly quantify these benefits, real-world experiences must be gathered, vetted, and interpreted. To accomplish this goal, ESG interviewed current Nimble customers to better understand the existing usage and benefits of the CS Series product line and to inform and validate the assumptions used in ESG's EVV modeling. Based on these interviews, ESG concludes that the benefits of deploying a Nimble product compared with traditional storage solutions are numerous and diverse. ESG's findings with respect to customer benefits are incorporated into and, in turn, presented quantitatively in the EVV scenario analyses presented later in this report, but they are also summarized qualitatively—in many cases in the customers' own words—in this section.

Key Customer Benefits Summary:

- Superior cost performance.
- Simplified deployment and ease of administration.
- Significant reduction in data center footprint and associated OPEX.
- Exceptional support coupled with proactive monitoring.
- Greater efficacy of native data protection tools.

Superior Cost-performance

Storage technology offerings have advanced significantly over the past few decades with significant advances in both capacity and performance. However, the fact remains that storage infrastructure persists in being a major cost component in many environments. Moreover, the fundamental basis of storage technology, spinning disks, has remained unchanged for years. The result is that many IT organizations accept expensive, proprietary SAN technologies produced by IT bellwethers as being part of the cost of doing business.

The Nimble customers ESG interviewed cited numerous examples of how Nimble's storage solutions have offered enterprise-grade performance at a much lower price point by natively leveraging flash technology.

Customer Insights:

"Now that we've transitioned to Nimble storage, we've found that our cost per GB is much more competitive. It turns out that our prior solution was more expensive by a factor of 2.5:1."

"Performance has been a pleasant surprise. Inline compression has been 2X on all data, which results in a much lower cost per TB. Everything is tier-0 on Nimble, so no tiered storage required."

"We have moved lots of our SQL workloads to Nimble. We get much better response times for large queries at a lower price point, which is empowering our staff to devote their time to analytics initiatives which just weren't possible before."

"We monitor costs closely by charging back costs to projects. We've found that our prior solution was 9X more expensive than Nimble."

Simplified Deployment and Ease of Administration

IT and storage administration can be a thankless job: Simultaneously maintaining high service levels and enabling transformative technology deployments, all on flat or shrinking budgets, is a difficult task, but is one which many IT organizations are expected to execute. It is for this reason that solutions that are easy to deploy and manage are exceedingly valuable to enterprise IT organizations. As evidenced by customer insights, this is an area where Nimble's offerings shine:

Customer Insights:

“Nimble arrays truly are self-managing—very little admin time is required.”

“We are always trying to drive cost effectiveness, not only the cost of acquisition but also the cost of management. I have four people to manage all of our infrastructure; the cost of scale up, training courses, etc. for other solutions is very expensive. We need one person to be able to manage not only storage but virtualization and the network as well. We can't afford dedicated people in each area. Nimble allows us to have that.”

“We can't install arrays from the big guys ourselves. It requires a significant investment in professional services. Nimble allows us to self-install. Anyone can install Nimble in a couple of hours—alternatives can take days or weeks of preparation.”

“We began our deployment initially because we had a critical application on a traditional system and it was not running well. We absolutely had to get it on to something else. Nimble runs that problem application very well making our lives a lot easier.”

Significant Reduction in Data Center Footprint and Associated OPEX

Large enterprises require lots of infrastructure, and for many of these organizations, data center floor space is a precious commodity. Additionally, data center power and cooling costs can make up a significant portion of the IT group's operating budget. Nimble's solutions have a much smaller footprint than many comparably performing arrays from traditional storage providers. The results after deploying Nimble are a significant reduction in the floor space required for storage systems and dramatically lower energy bills.

Customer Insights:

“Data center costs are much less now that we have Nimble. Our deployment takes up three rack units. Our previous solution required about 20 arrays compared to what we get out of one Nimble array—that means huge energy savings.”

“We currently have two Nimble nodes taking up six rack units. Before we had a product that took up three entire racks of space.”

“We had a 15 rack unit deployment from one of the usual suspects, which has since been replaced by three rack units of Nimble.”

Exceptional Support Coupled with Proactive Monitoring

As stated previously, Nimble has made a concerted effort to deliver exceptional service and support to customers, an area where incumbent enterprise storage vendors are often found lacking. Nimble's automated support system, InfoSight, both opens and resolves the majority of customer support cases without any action required on the customer's behalf. This is yet another example of how Nimble lowers the IT management burden on taxed IT staffers and delivers value to customers.

Customer Insights:

“Service and support from our previous storage vendor was a nightmare. Everything was difficult: licensing, tech support, break/fix issues, etc. We simply do not have the personnel to deal with subpar support and now we don't have to.”

“We can often resolve Nimble issues ourselves versus having to call up the vendor. Even when we do have to call Nimble, nothing has ever needed to be escalated over tier-1 support. It's also worth mentioning that call volume is down significantly—we are now leveraging automated ticketing from the health checks almost exclusively.”

“With Nimble we have the ability to do hot upgrades. We once tried to do a hot upgrade with our previous vendor, but the arrays just died and required a major fire drill. We've never had an issue swapping Nimble hardware. We've also never had a software upgrade fail.”

Greater Efficacy of Native Data Protection Tools

Nimble's storage systems not only provide excellent-performing primary storage for customers, but also deliver backup and disaster recovery systems in a single appliance. Customers ESG spoke with cited this fact as a significant benefit over more traditional storage systems. By leveraging native data protection features, customers can significantly decrease costs while improving their data protection foundation.

Customer Insights:

"Database recovery works great on Nimble. Traditionally we would have to recover from Avamar, which could take 2-4 hours—with Nimble we can get it done in ten to 15 minutes"

"Snapshots have been instrumented. This allowed us to overcome a limitation we had. Before, we were not able to back up large VMs (100+ GB). Now we can handle large VMs with bare-metal recovery capability. Then there is replication. Workloads that previously were not replicated, we can now consider. We can now do disaster recovery for apps that we couldn't afford before. So our overall risk management is much better."

"We had an instance where we needed to do a restore, which previously would have taken us five days. With Nimble we were able to do it in 30 minutes."

"Our largest app was a SQL database running on our site. This is one of the apps we moved over to Nimble. Our batch time went from >6 hours to under 15 minutes. This allows us to mine our data in ways we couldn't do before."

These points are just a sampling of the benefits Nimble customers reported to ESG. The remainder of this paper discusses the process of quantifying these benefits in ESG's Economic Value Model and discusses the model outputs for an example scenario.

Nimble CS Series Storage Systems: An Economic Value Validation

Methodology

For this project, ESG followed its standard, four-phase EVV methodology, depicted in Figure 2.

Figure 2. ESG EVV Methodology



Source: Enterprise Strategy Group, 2014.

Please note that the data and conclusions presented in this report regarding the costs and benefits associated with leveraging a Nimble solution compared with a typical enterprise storage environment reflect the output of ESG’s Economic Value analysis based on the specific use case and default scenario assumptions modeled for this report. ESG acknowledges that changes to these assumptions will lead to a different set of results and, as such, advises IT professionals to use this report as one validation point in a comprehensive financial analysis prior to making a purchase decision. ESG’s pricing assumptions for Nimble hardware components were provided by Nimble. Other IT equipment and labor cost assumptions were obtained from publicly available sources such as IT vendor websites and published price lists. ESG acknowledges that list prices, configuration details, or other data used as inputs may vary depending on the source of this information.

Economic Value Model Overview

As previously noted, ESG’s EVV methodology compares two scenarios: The first is an organization that elects to use Nimble’s CS series of flash storage arrays to support its enterprise applications. The second scenario is a “present mode of operation” (PMO), which reflects the traditional approach that most enterprises currently take to meet their enterprise applications’ storage requirements. The basic profiles for each scenario are:

- **Nimble Scenario:** In this scenario, the customer is utilizing the appropriate number and size of Nimble CS series arrays. Specific configurations are determined by user-provided inputs or by formulaic assumptions

based on user-provided environment characteristics. The model takes into account all hardware, software, and data center infrastructure, as well as support and maintenance costs associated with the Nimble solution, plus related IT labor costs for planning, implementation, and ongoing administration.

- **Present Mode of Operation Scenario:** In this scenario, the customer is using appropriately sized traditional storage arrays predominantly built on spinning disks or with a non-natively architected Flash cache, along with multiple licensed software tools for snapshots, remote replication, and compression. The model takes into account all hardware, software, and data center infrastructure costs associated with this solution, plus related IT labor costs for planning, implementation, and ongoing administration.

For both scenarios, ESG modeled and compared the costs and benefits associated with many IT and end-user workflow activities including:

- Deployment tasks such as initial installation and setup, in addition to periodic upgrade and maintenance activities.
- Admin time spent provisioning storage or changing storage configurations to optimize applications or accommodate growth and scalability.
- Admin time spent tuning applications and troubleshooting performance and configuration issues.
- Admin time spent implementing, scheduling, and monitoring backups (both full and incremental).
- End-user productivity adjusted for application performance.
- End-user productivity adjusted for periodic administration tasks conducted by IT (move, add, change operations, backups, etc.).
- End-user productivity adjusted for application availability (i.e., lost waiting for issue/helpdesk ticket resolution).
- Additional activities, capital purchases, and migrations required over time to account for the ownership and operation of the solutions over multiple years.

Simply put, ESG's model estimates the likely cost and potential benefits of deploying and using the different storage solutions to support an application mix according to the tasks and cost components outlined. Data sources used by ESG to inform and populate the assumptions regarding the tasks used in the model include in-depth interviews with current Nimble customers and other IT professionals, product demos of Nimble's features (e.g., InfoSight), and supplementary ESG market research data.

Time Horizon

This ESG EVV considers the likely costs and potential benefits of both Nimble and the PMO over a three-year time horizon.

Cost Categories

This ESG EVV considers five cost categories for both Nimble and the PMO: hardware, software, data center costs, professional services, and maintenance and support. The sum of these categories equals the total cost of ownership (TCO) of each solution.

Benefit Categories

This ESG EVV quantifies the net benefit of both Nimble and the PMO compared with a hypothetical baseline. The two primary benefit categories for both solutions are: IT efficiency improvements and user productivity improvements. The sum of these categories equals the total benefit delivered by each solution.

Example Use Cases

ESG developed baseline profiles of generic use cases to illustrate the relative costs and benefits of leveraging Nimble arrays compared with the PMO. For the purposes of this analysis, ESG has tuned its model assumptions to the use cases described in Table 1.

Table 1. Key Assumptions in Default Scenarios

| Variable | Input Value, Use Case 1 | Input Value, Use Case 2 |
|---|-------------------------|------------------------------|
| Use case/application(s) supported | Virtualization/VDI | E-mail + SQL |
| Number of servers used for this application(s) | 120 | 80 (E-mail) + 120 (SQL) |
| Number of users supported by this use case/application(s) | 1,000 | 1,500 (E-mail) + 1,000 (SQL) |
| Production storage needed for this use case/application(s) | 60 TB | 60 TB (E-mail) + 70 TB (SQL) |
| Rate of growth for storage for this use case/application(s) | 30% | 25% (E-mail) + 20% (SQL) |
| Frequency of full backups | Weekly | Weekly |
| Frequency of incremental backups | Daily | Daily |
| Number of copies of full backups retained for 30 days, or more | 1 | 1 |
| Number of copies of incremental backups retained for 30 days, or more | 25 | 25 |
| Class of storage array typically leveraged by organization | Enterprise-grade | Enterprise-grade |
| Average annual salary for a typical IT employee | \$80,000 | \$80,000 |
| Average annual salary for a typical non-IT employee | \$65,000 | \$65,000 |

Source: Enterprise Strategy Group, 2014.

Quantifying Relevant Cost and Benefit Differences

Economic models are, by definition, abstractions from reality. In any model, numerous estimates and assumptions must be made. ESG's EVV methodology leverages rigorous market research and in-depth interviews to estimate the material differences between Nimble CS series arrays and the PMO, both in terms of how those solutions would be configured in different environments (and the related differences in solution CapEx and OpEx) and how the solutions impact organizational efficiencies (both for IT and end-users). The next two sections discuss important estimates incorporated into ESG's EVV model.

Comparative Cost Analysis

All of the hardware and software components (and associated support/maintenance and training) required to operate both a Nimble storage solution and the PMO storage solution, given the inputs specified, are within the scope of ESG's EVV model. Included within the model's TCO calculations are costs for: storage arrays; complementary software licenses (if required); network infrastructure; data center power, cooling, and rack space; and annual support/maintenance.

- Hardware:** ESG's EVM utilizes user-supplied variables including the use case for the arrays, production storage capacity for the use case required initially, rate of annual storage growth for the use case in question, and the number of servers attached to the array to estimate both the number and configurations of Nimble CS arrays required and the number and configurations of PMO arrays required. The PMO array options included in the model are blended averages of best-of-breed enterprise storage arrays from a number of vendors. Based on ESG's research, coupled with publicly available specifications and customer

anecdotes, Nimble arrays for most use cases offer the opportunity to significantly reduce hardware costs. Nimble arrays are modeled to allow for more efficient capacity purchasing because of their natively-architected SSD tier and the exceptionally high levels of data compression enabled. Additionally, Nimble's superior snapshot and replication functionalities reduce the need for redundant storage devices or specialized data protection hardware appliances. For the hypothetical enterprise use cases ESG modeled, hardware costs with Nimble are calculated to be 35%-44% lower than those of the PMO.

- **Complementary software licenses:** In the PMO scenario, ESG's model configures software costs associated with local backups, snapshots, remote replication, deduplication, and compression in the PMO scenario. In the Nimble scenario, due to the fact that Nimble arrays include powerful and effective native data protection tools, no additional software costs are configured. For the hypothetical enterprise use cases ESG modeled, software licensing costs with Nimble are calculated to be between \$150,000 and \$300,000 less than those in the PMO scenario, which is due to the incremental purchase of data protection products that may not be necessary in a Nimble deployment.
- **Data center power, cooling, and rack space:** A significant difference between Nimble arrays and their counterparts is the appliance-like integration Nimble arrays achieve. This tight integration is evident in the fact that a 3U Nimble array typically delivers performance on par with a half, or even full, rack of alternatives. This advantage manifests itself as a tangible reduction in infrastructure costs including power, cooling, rack space, and network requirements. ESG's model accounts for these costs by calculating the power consumption and corresponding cooling costs that would be incurred for both scenarios and by including a cost estimate for data center real estate. By default, ESG uses an estimate of \$.13/KWh and estimates additional data center costs (over and above power and cooling) as \$20,000 per rack per year. The end result is that for the hypothetical enterprise use cases ESG modeled, data center costs for the Nimble deployment are calculated to be between \$80,000 and \$120,000 less than those in the PMO scenario.
- **Support/maintenance:** ESG's model calculates the appropriate three-year support cost for each Nimble component that is sized and configured to suit the model's inputs. By default in the PMO scenario, support and maintenance costs are estimated as 15% of accrued hardware and software expenses charged on an annual basis. ESG believes this is a conservative estimate based on industry norms. Since the PMO's maintenance costs are a function of hardware and software expenses, and since the PMO's hardware and software footprint is generally significantly larger than a comparable Nimble deployment, support costs for the PMO generally far outstrip Nimble in most enterprise use cases. For the hypothetical enterprise use cases ESG modeled, support costs for the Nimble deployment are calculated to be between \$175,000 and \$350,000 less than those in the PMO scenario.

Comparative Benefit Analysis

In addition to costs, ESG's EVV model quantifies the operational benefits both Nimble and the PMO can provide an organization over a hypothetical baseline by categorizing and quantifying benefits in two areas: IT operations improvement and end-user productivity. The magnitude of benefits are informed by ESG research and in-depth interviews with IT practitioners. Generally they are characterized as time saved by either IT or application user constituencies or as deferred capital purchases over time. A detailed breakdown of benefit categories follows:

- **IT operations efficiency:** Nimble CS series arrays are tightly integrated and appliance-like, a departure from many complex, proprietary storage systems available from vendor bellwethers. Moreover, as a natively integrated hybrid array, the complexity of creating and managing a tiered storage architecture is eliminated with Nimble. By comparison, the PMO is comprised of potentially many networked storage arrays requiring numerous HDD spindles or a custom-built tiered storage architecture. As such, ESG models that numerous planning, configuration, deployment, and administration tasks will require significantly less IT administration time for an organization utilizing Nimble arrays compared with an organization leveraging a PMO-type storage solution. For the hypothetical enterprise use cases ESG modeled, an organization leveraging Nimble is modeled to save between .09 and .26 burdened IT FTEs over the PMO in architecting

and planning its deployment initially. Efficiencies compared with the PMO-related ongoing storage administration, move, add, change operations, and system maintenance operations are estimated to be in the range of .16 and .4 burdened IT FTEs annually.

- **Application administration impact on end-users:** The comparatively simple nature of Nimble arrays versus other enterprise-grade peers is not only modeled to have a tangible impact on IT operations efficiency, but also on application end-user productivity. Because a Nimble environment is modeled to require less architecting, planning, and integration, ESG's model also assumes that applications can be deployed faster and that application time to value is comparably shorter in the Nimble scenario compared with the PMO scenario. For the hypothetical enterprise use cases ESG modeled, it is estimated that an organization leveraging Nimble (to support 1,000–2,500 application users) will achieve \$11–\$13 in productivity benefits over and above the PMO scenario *per application user* during the deployment phase of the storage roll out. Moreover, because management tasks such as provisioning storage or changing storage configurations to optimize applications or accommodate growth and scalability are more efficient with Nimble compared with the PMO, an annual productivity benefit of \$6–\$6.5 is modeled to be delivered to the organization *per application user* annually over the time horizon.
- **IT data protection benefits:** As discussed previously in this paper, Nimble customers believe the native data protection capabilities—including instant snapshots and recovery, high-compression replication, and zero-copy clones—of Nimble arrays surpass those available in peer storage systems. This means not only that an organization may incur a lower TCO with Nimble by eliminating purchases of specialized data protection software or appliances, but it will also be able to manage, automate, and execute data protection activities in one existing system to create IT efficiencies. ESG accounts for these assumptions by modeling full and incremental backups, as well as data restores, to require less time to manage, monitor, and conduct. ESG models this advantage as slightly less than 50% compared with the PMO, varying somewhat based on the activity. Based on the frequency with which these operations are modeled to occur and the size of the environmental characteristics of the enterprise use cases modeled, the expected efficiency gained for an organization utilizing Nimble arrays compared with the PMO is estimated to be in the range of .08–.12 IT FTEs annually.
- **Application user data protection benefits:** ESG's EVV model also takes into consideration the impact of Nimble's unique, integrated data protection features on application end-users. Nimble arrays are able to retain months of snapshots without impacting performance. This means organizations have the potential to eliminate application degradation during backup windows. For an organization losing the race to sunrise, this can have a significant impact on the productivity of workers. Moreover, users are modeled to lose 40% less productive time per data restore with Nimble compared with the PMO due to the RTO improvement enabled by Nimble's instant snapshot and recovery features. ESG's model assumes, by default, that each application user will require four restores annually. In total, for the enterprise use cases ESG modeled, a Nimble solution is expected to deliver an annual productivity benefit associated with data protection of \$55–\$57 to the organization *per application user*.
- **Solution scaling IT efficiencies:** Nimble customers ESG spoke with also articulated significant IT efficiency benefits associated with Nimble's ability to scale in a simple, non-disruptive manner—either by upgrading the storage controller, adding a larger Flash cache, adding capacity (disks) to an individual array, or by clustering multiple arrays to seamlessly share resources. ESG models these benefits by assuming that an organization will upgrade an array's controller once every four years, an array's cache once every two years, and an array's disk capacity annually. ESG estimates these operations would take an order of magnitude (10x) less time with Nimble compared with peer storage systems. For the enterprise use cases modeled by ESG, the result is an IT efficiency increase over the PMO of about .02 IT FTEs annually.
- **Customer support IT efficiencies:** Nimble customers ESG spoke with also related Nimble's high level of focus on customer support and satisfaction as a trait which differentiates Nimble from more established IT bellwethers. However, a greater focus for ESG's EVV model is Nimble's automated support feature: InfoSight. InfoSight automatically pings all of a customer's storage arrays automatically at regular intervals

to check system health, performance, and protection gaps—alerting the customer if any issues demand his attention. Customers ESG spoke with related that the vast majority of tickets associated with their Nimble arrays are both opened and closed by InfoSight with no action required on their parts. Clearly this automated approach to systems support carries with it a tangible benefit for IT operations. ESG models this benefit by estimating the number of help desk events, capacity/performance degradation events, and proactive alerts that would take place in the storage environment—a function of the number of servers connected to each array, between one and two of each class of event per server annually—and estimating that resolving those events in a Nimble environment would require 60%–90% less time and effort. For the enterprise use cases modeled by ESG, the result is an IT efficiency increase over the PMO of about .03 IT FTEs annually.

- **Customer support user efficiencies:** Of course, the benefits of InfoSight do not occur in an IT vacuum. The ability to head off performance issues before they occur and for IT to more efficiently solve system problems has a direct effect on end-users. Each proactive monitoring event, all of which are modeled to occur twice annually per server, is estimated to save application end-users significant amounts of productive time. This accounts for potential performance problems which would be experienced without InfoSight’s proactive alerts in the PMO scenario. Additionally, based on insight from Nimble’s customers, Nimble’s commitment to exceptional customer support means that IT departments can get end-users’ problems solved faster. To account for this benefit, each user-initiated help desk ticket—modeled at a frequency of one ticket per user per year—is estimated to be resolved five minutes faster. The end result is that for the hypothetical enterprise use cases modeled, ESG’s EVV model estimates that \$49–\$69 of incremental user productivity will be delivered by Nimble, over and above what’s possible with the PMO, *per user annually*.
- **User efficiencies associated with reduced application downtime and delays:** As discussed previously, Nimble arrays allow for efficient solution scaling on any vector (i.e., Flash cache, capacity, array clustering). What is perhaps more important is that Nimble arrays are also scalable in a non-disruptive manner—capacity or performance can be increased without causing an application outage. As noted, ESG models an organization will upgrade an array’s controller once every four years, an array’s cache once every two years, and an array’s disk capacity annually. In the PMO scenario, each of these events is modeled to cause several hours of application downtime, which carries with it a tangible loss in application user productivity. Moreover, due to InfoSight’s proactive system monitoring, instances of unplanned application downtime are modeled to be reduced by 15%. In total, incremental end-user productivity delivered by Nimble beyond what is estimated in the PMO scenario associated with reduced application downtime and delays is expected to be in the range of \$51–\$68 *per application user annually*.

Economic Value Validation Results

Summary of Results, Use Case 1: Enterprise Virtualization/VDI

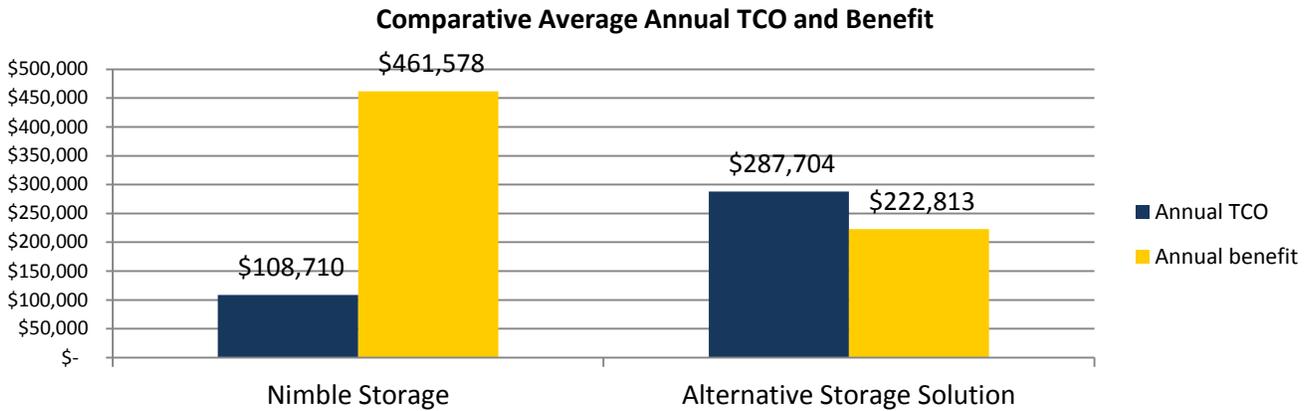
Given the virtualization/VDI use case assumptions described in Table 1 and the model assumptions related to cost and benefit differences described in this report, ESG estimates the following financial outcomes for both Nimble storage arrays and the PMO solution.

Average Annual TCO and Benefit

Annual TCO is the sum of all the cost categories included in the EVV analysis, averaged over the time horizon of three years. Similarly, ESG’s EVV model also calculates benefits delivered by Nimble and the PMO averaged over three years. As displayed in Figure 3, the annual TCO for an appropriately configured Nimble solution (given this scenario’s inputs in Table 1) is \$108,710, compared with \$287,704 for the PMO solution. This means that the TCO for a Nimble solution in this scenario represents an expected decline in TCO of 62% compared with the PMO. Of course, TCO should only be one part of the customer consideration. In this scenario, the drastically lower TCO for

Nimble is further augmented by an increase in average annual benefit over the PMO of \$238,765 (or a 107% increase).

Figure 3. Scenario 1: Annual TCO and Benefit, Nimble versus PMO



Source: Enterprise Strategy Group, 2014.

Itemized TCO Analysis

For the hypothetical enterprise virtualization/VDI scenario described, the itemized three-year cost of ownership for Nimble compared with the PMO is displayed in Table 2. As shown, the Nimble solution is modeled to be significantly less expensive compared with the PMO over the time horizon. ESG estimates that Nimble customers will realize the most significant cost savings in the areas of maintenance and support and software.

Table 2. Scenario 1: Three-year TCO, Nimble versus PMO

| Cost Component | Nimble | PMO |
|-------------------------|------------------|------------------|
| Hardware | \$220,000 | \$336,679 |
| Software | \$800 | \$146,980 |
| Data center Costs | \$64,981 | \$152,808 |
| Maintenance and Support | \$38,350 | \$217,647 |
| Professional Services | \$2,000 | \$9,000 |
| Total | \$326,131 | \$863,113 |

Source: Enterprise Strategy Group, 2014.

Itemized Benefits Analysis

As previously discussed, cost is only one side of the equation when evaluating the true economic value of an IT product or service. Potential customers must also take into account the operational benefits they will achieve from that technology solution. The quantification of the benefits offered by a Nimble solution compared with the PMO, for the virtualization/VDI scenario outlined in Table 1, is displayed in Table 3. As shown, total benefits for Nimble are expected to exceed those offered by the PMO by \$716,295. Taking cost and benefit together, this scenario is modeled to result in a total economic advantage of \$1,253,277 over three years for an organization choosing to invest in Nimble rather than a PMO-type solution (see Table 4).

Table 3. Scenario 1: Three-year Benefit, Nimble versus PMO

| Benefit Category | Nimble | PMO |
|---|--------------------|------------------|
| IT Efficiency Improvements | \$219,490 | \$110,211 |
| <i>IT Operations Efficiency</i> | <i>\$101,254</i> | <i>\$36,007</i> |
| <i>Data Protection</i> | <i>\$61,678</i> | <i>\$35,269</i> |
| <i>Scaling</i> | <i>\$21,796</i> | <i>\$13,623</i> |
| <i>Customer Support</i> | <i>\$34,763</i> | <i>\$25,313</i> |
| End-user Productivity Improvements | \$1,165,244 | \$558,228 |
| <i>Application Administration</i> | <i>\$139,966</i> | <i>\$109,688</i> |
| <i>Application Data Protection</i> | <i>\$317,665</i> | <i>\$151,292</i> |
| <i>Application Downtime and Delays</i> | <i>\$364,839</i> | <i>\$160,139</i> |
| <i>End-user Support</i> | <i>\$342,773</i> | <i>\$137,109</i> |
| Total Three-year Benefits | \$1,384,734 | \$668,439 |

Source: Enterprise Strategy Group, 2014.

Table 4. Scenario 1: Three-year Net Financial Benefit, Nimble

| Category | Nimble | PMO | Difference |
|------------------------------|-------------|-----------|--------------------|
| Total Benefits | \$1,384,734 | \$668,439 | \$716,295 |
| Total Costs | \$326,131 | \$863,113 | \$536,982 |
| Net Financial Benefit | | | \$1,253,277 |

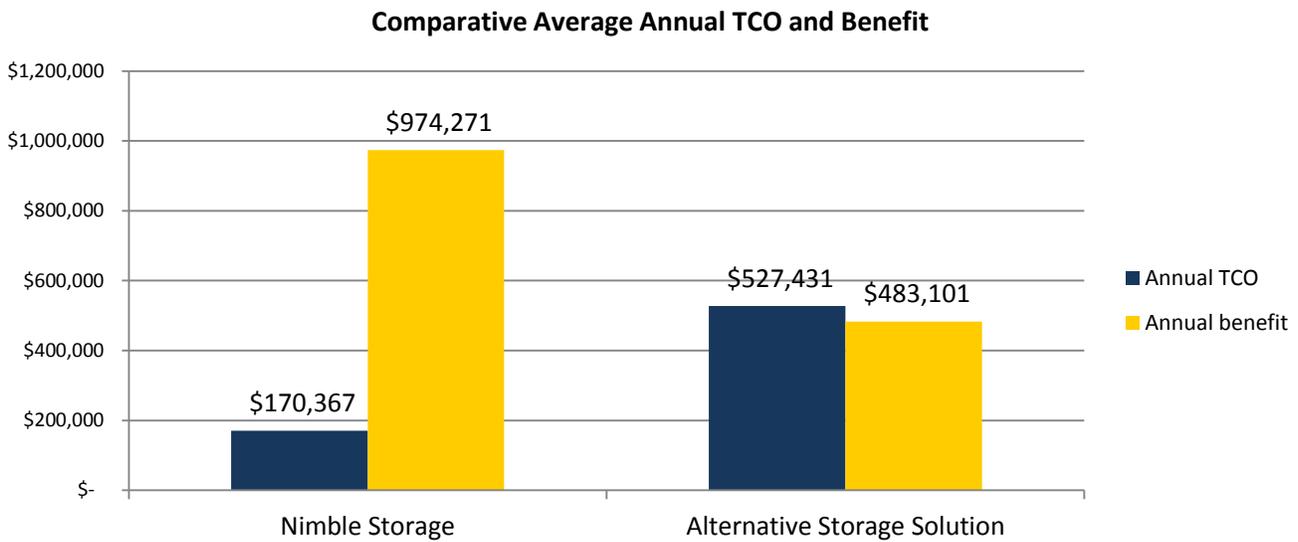
Source: Enterprise Strategy Group, 2014.

Summary of Results, Use Case 2: Enterprise E-mail and SQL Implementation

Given the enterprise e-mail and SQL implementation use case assumptions described in Table 1 and the model assumptions related to cost and benefit differences described in this report, ESG estimates the following financial outcomes for both Nimble storage arrays and the PMO solution.

Average Annual TCO and Benefit

As displayed in Table 7, the annual TCO for an appropriately configured Nimble solution (given this scenario's inputs in Table 1) is \$170,367, compared with \$527,431 for the PMO solution. This means that the TCO for a Nimble solution in this scenario represents an expected decline in TCO of 68% compared with the PMO. Just as important as the significantly lower TCO for Nimble in this scenario is the large increase in average annual benefit modeled compared with the PMO (\$491,169 or a 102% increase).

Figure 4. Scenario 2: Annual TCO and Benefit, Nimble versus PMO


Source: Enterprise Strategy Group, 2014.

Itemized TCO Analysis

Itemized TCO over three years for the hypothetical Exchange and SQL use case is displayed in Table 5. As shown, the Nimble solution is modeled to be significantly less expensive compared with the PMO over the time horizon. Once again, ESG estimates that Nimble customers will realize the most significant cost savings in the areas of maintenance and support and software.

Table 5. Scenario 2: Three-year TCO, Nimble versus PMO

| Cost Component | Nimble | PMO |
|-------------------------|------------------|--------------------|
| Hardware | \$350,000 | \$623,908 |
| Software | \$800 | \$309,020 |
| Data Center Costs | \$98,111 | \$220,549 |
| Maintenance and Support | \$60,190 | \$419,818 |
| Professional Services | \$2,000 | \$9,000 |
| Total | \$511,101 | \$1,582,294 |

Source: Enterprise Strategy Group, 2014.

Itemized Benefits Analysis

Potential customers taking a 360° view will also take into consideration the operational benefits they will achieve from their storage solution investment. The quantification of the benefits offered by a Nimble solution compared with the PMO for the Exchange plus SQL scenario outlined in Table 1 is displayed in Table 6. As shown, total benefits for Nimble are expected to exceed those offered by the PMO by \$1,473,509. Taking cost and benefit together, this scenario is modeled to result in a total economic advantage of \$2,544,702 over three years for an organization choosing to invest in Nimble rather than a PMO-type solution (see Table 7).

Table 6. Scenario 2: Three-year Benefit, Nimble versus PMO

| Benefit Category | Nimble | PMO |
|---|--------------------|--------------------|
| IT Efficiency Improvements | \$417,468 | \$192,772 |
| <i>IT Operations Efficiency</i> | \$255,766 | \$91,255 |
| <i>Data Protection</i> | \$91,375 | \$52,250 |
| <i>Scaling</i> | \$18,827 | \$11,767 |
| <i>Customer Support</i> | \$51,500 | \$37,500 |
| End-user Productivity Improvements | \$2,505,344 | \$1,256,531 |
| <i>Application Administration</i> | \$325,000 | \$255,938 |
| <i>Application Data Protection</i> | \$821,438 | \$391,219 |
| <i>Application Downtime and Delays</i> | \$749,531 | \$365,625 |
| <i>End-user Support</i> | \$609,375 | \$243,750 |
| Total Three-year Benefits | \$2,922,812 | \$1,449,303 |

Source: Enterprise Strategy Group, 2014.

Table 7. Scenario 2: Three-year Net Financial Benefit, Nimble

| Category | Nimble | PMO | Difference |
|------------------------------|-------------|-------------|--------------------|
| Total Benefits | \$2,922,812 | \$1,449,303 | \$1,473,509 |
| Total Costs | \$511,101 | \$1,582,294 | \$1,071,193 |
| Net Financial Benefit | | | \$2,544,702 |

Source: Enterprise Strategy Group, 2014.

The Bigger Truth

This EVV report started by explaining the essence of Nimble Storage's ability to succeed in the complex and demanding storage market. Despite considerable standardization of many underlying foundational components, Nimble has concentrated on an overall product package that emphasizes and meets contemporary user needs. These include such things as extensive and simple integration into users' IT ecosystems, and adding value by providing an enhanced user experience. While these qualitative statements are themselves compelling, many users have to go beyond the "operationally desirable" and *quantitatively prove* the "business value" (ROI) of potential IT investments.⁵ That is what this EVV research and report is all about.

This EVV clearly shows numerous stark positive contrasts between both the costs and the benefits (the ROI) of the Nimble approach when compared with a typical "present mode of operation" (PMO). And it should be remembered that this is not a purely academic model, but is instead modeling the ROI based upon real-world user feedback, inputs, and analysis. Furthermore, while it is easy enough to appreciate how certain "hard" elements within the Nimble value proposition lead to a better ROI (an example might be the integrated data protection, which reduces the need for additional training, time, and equipment), it is important to note that with sufficient detailed input and analysis, even "softer" elements (such as the enhanced support experience) can, and do, have a measurable business impact on both decreased costs and increased benefits. Lastly, because there is an extensive ability to adjust the model's inputs for specific user situations, the EVV can be thought of as the business and financial equivalent of what a proof of concept does technically and operationally; think of it as a proof of value tool.

The EVV research demonstrates Nimble's ability to positively impact *both* sides of the ROI equation—that is to not only reduce costs (by requiring less equipment, for instance), but also to improve benefits (such as enhancing productivity). Users that were interviewed for this research helped quantify the scale of both of these: "*...our prior solution was more expensive by a factor of 2.5:1;*" "*...a restore which previously would have taken us five days, we were able to do in 30 minutes with Nimble.*"⁶ Another key distinction of the Nimble offering is that it not only helps to complete existing operations better (such as those just highlighted), but it also provides the ability for its users to do entirely new things. The former can be viewed as adding *efficiency* and the latter as adding *effectiveness*. Again, users helped to identify such opportunities: "*...our batch time went from >6 hours to under 15 minutes...which allows us to mine our data in ways we couldn't do before.*" "*We get much better response times for large [SQL] queries at a lower price point, which is empowering our staff to devote their time to analytics initiatives which just weren't possible before.*"⁷

Of course, the drama and financial impact of these impressive statements is achieved in a granular fashion—per user and per workload, both in terms of efficiency and effectiveness. The power of this EVV is to evaluate and measure those granular improvements (modeled from real-world inputs) to help potential adopters of Nimble Storage gauge the kind of ROI improvements that they can expect. Whether it is via direct cost reductions from such elements as integrated data protection, increased productivity from time-to-application value, or from improved management operations due to InfoSight, this EVV report (together with its associated research and model) shows that Nimble can deliver significant, quantifiable ROI advantages when compared with typical present storage operational models.

⁵ In ESG's research report, [2014 IT Spending Intentions Survey](#), (published February 2014), return on investment was the consideration most-cited by IT managers as necessary to justify investments to their businesses.

⁶ This is an amalgam quote from two users, only edited for readability.

⁷ Ibid.



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