

Research Insights Paper

Assessing the Financial Impact of HPE Nimble Storage Powered by HPE InfoSight

A Quantitative Analysis of HPE Customers

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Executive Summary

Applications are the engines that drive today's digital businesses. When the infrastructure that powers those applications is difficult to administer, or fails, businesses and their IT organizations are severely impacted. Traditionally, IT assumed much of the responsibility to ensure availability and performance. In the digital era, however, the industry needs to evolve and reset the requirements on vendors.

HPE Nimble Storage has broken away from convention and transformed how storage is managed and supported with the HPE InfoSight predictive analytics platform. HPE engaged [ESG](#) to conduct a quantitative survey of the HPE Nimble Storage installed base, as well as non-HPE Nimble Storage customers, to better assess how HPE Nimble Storage All Flash and Adaptive Flash Arrays powered by HPE InfoSight positively impacts customer environments. Both HPE InfoSight telemetry data and ESG's quantitative survey data show that the benefit delivered to HPE Nimble Storage customers is significant, driving:

- 79% lower IT operational expenses.
- 73% fewer trouble tickets in the environment.
- 85% less time spent resolving storage-related trouble tickets.
- 69% faster time to resolution for events that necessitate level 3 support.
- The ability to manage and troubleshoot the entire infrastructure environment from a single, intelligent platform.

Market Overview

Organizations today operate in an inherently digital world. In a recent ESG survey, 44% of enterprise respondents (i.e., those employed by an organization with 1,000 or more employees) reported their organizations run 500 or more business applications versus just 16% that run less than 100.¹ That means the average enterprise has hundreds of digital assets driving value for the organization and, just as importantly, hundreds of potential failure points. Uptime and reliable performance are two of the most critical measures of success for an organization's applications and they are increasingly more important.

The scale of organizations' application profiles is noteworthy and so is the variety of infrastructure that can underpin those applications. From traditional client-server architectures, through modern public and private cloud developments, to multi-cloud and hybrid deployments. Having the flexibility to select the right infrastructure for the right workload is a good thing. However, one consequence of this flexibility is infrastructure complexity, which increases both the frequency of problems and the amount of time it takes IT organizations to effectively resolve them.

IT professionals faced with these organizational dynamics are in an interesting position. On one hand, as their organizations become more digitized, the IT organization becomes more central and visible in terms of business success. On the other hand, if the technology solutions administered by IT professionals are difficult to manage or fail to perform, the business impact can be very painful. An organization may lose revenue, or damage customer relationships, and the operational costs associated with IT troubleshooting and lost productivity can quickly skyrocket. IT organizations bogged down with tactical troubleshooting and infrastructure management make poor partners to lines of business on an ever-accelerating digital journey.

¹ Source: ESG Master Survey Results, [2019 IT Spending Intentions Survey](#), March 2019.

The Enterprise Storage Experience Needs to Change

IT departments shouldn't bear the burden alone. Vendors need to make infrastructure simpler and less time-consuming to manage. This includes resetting industry expectations and requirements on the enterprise support model. Vendor support can result in painful, drawn-out experiences. When something goes wrong, pinning down the root cause of the issue is difficult. Application vendors point the finger at server vendors, who pass the buck to the networking vendors, who lay the responsibility at the feet storage vendors, and on and on. Often, the customer is left trying to resolve the problem themselves (and sometimes the problems are *never* resolved).

Even when the customer knows which vendor to work with on a fix, the experience can be incredibly frustrating. Vendors route customers through several rounds of escalations (level 1 support for triage, level 2 support, etc.) and often require them to recreate problems and manually generate log data before they are connected with a support technician who can actually solve their problem.

The end result? There are too many problems to deal with and too many vendors in the stack playing the blame game, and applying a fix takes too long and consumes too many resources.

HPE Nimble Storage's Answer: HPE InfoSight Predictive Analytics and Automated Storage Management

Since its founding in 2008, HPE Nimble Storage was architected to deliver an autonomous user experience that would distinguish the platform from its traditional storage counterparts and alter the storage paradigm. This vision delivered an advanced flash storage platform that would revolutionize and transform support; massively reduce the time, risk, and high cost of storage management; and deliver the best price/performance flash storage on the market.

HPE Nimble Storage is architected with two key elements seamlessly integrated into a single user experience through NimbleOS: **HPE InfoSight** and **Multicloud Flash Fabric**.

HPE InfoSight is a cloud-based AI platform that predicts and prevents issues before they happen. It collects telemetry data every second from thousands of embedded sensors in each HPE Nimble Storage Array and its surrounding infrastructure deployed around the world. HPE InfoSight then aggregates, analyzes, and correlates this data across the installed base, generating cloud-based predictive analytics signatures that monitor the incoming data stream to anticipate and prevent issues. HPE InfoSight gets customers ahead of problems before they occur, ensuring availability and performance.

- **Predictive problem resolution:** HPE InfoSight constantly looks for potential indicators of problems and proactively resolves uncovered issues. If it detects an issue in one system, it learns to predict the issue and prevent other systems in the installed base from seeing the same problem.
- **Global visibility and learning:** HPE InfoSight remediates issues spanning the entire infrastructure stack—storage, network, compute, and applications/VMs—and applies machine learning to predict and advise customers on future capacity, performance, and bandwidth needs.
- **Automation that transforms support:** By automating the resolution of level 1 and 2 problems, HPE InfoSight has empowered organizations to staff entire support centers with level 3 engineers. For customers, this means fewer support cases and faster time to resolve complex issues, avoiding the pain of escalating problems through multiple levels of support.

The **Multicloud Flash Fabric** is an intelligent, data experience designed to easily and cost effectively consume all-flash, adaptive flash arrays, and cloud storage. The Multicloud Flash Fabric automates storage management through a common, integrated OS and intelligently drives data placement for a self-optimized and flexible solution across application tiers—primary storage, secondary storage, and disaster recovery.

- **Deploy apps effortlessly and at massive scale:** On-premises installation for HPE Nimble Storage Arrays is simple and takes only minutes, meaning an organization can accomplish this task with in-house skills. As data grows or workload requirements change, Nimble Storage customers can easily and non-disruptively “scale up” performance by adding cache and faster controllers, “scale deep” with additional storage shelves, or “scale out” by adding a mix of all-flash and adaptive flash arrays up to a 4x Nimble cluster with automated rebalancing to maintain optimal performance.
- **Guaranteed workload performance and security:** In complex VM environments, automated QoS keeps noisy neighbors quiet, while low-latency apps get the guaranteed performance they need. This automation, plus the granular software encryption that comes with HPE Nimble Storage SmartSecure, enables service providers and enterprises alike to provide per-tenant, cloud-scale performance, resources, and security.
- **Optimized performance for every workload:** As organizations change, grow, or add workloads, HPE InfoSight determines the right flash for optimal price and performance. Then, with automated, single-click simplicity, they can deploy or migrate workloads across the HPE Nimble Storage Multicloud Fabric cluster of all-flash, adaptive flash, and cloud storage.

HPE Nimble Storage has created a much simpler storage experience through HPE InfoSight and the Multicloud Flash Fabric. For example, data collected by the platform shows that 86% of problems are automatically resolved before customers even realize there is an issue. Moreover, 54% of the problems resolved are outside of storage. The result is a significant reduction on storage management time and cost, and greater than 99.9999% of measured availability across the entire user base.²

² Aggregated customer metrics as reported by HPE InfoSight.

Research Overview

Research Objectives

HPE Nimble Storage holds a high Net Promoter Score³ (85), an industry-recognized measurement of customer satisfaction, relative to the broader storage industry. Customers attribute this high level of satisfaction to the storage experience enabled by HPE InfoSight and storage that just works with a demonstrated 99.9999% availability. HPE Nimble Storage wanted to better understand what the financial impact of predictive analytics and exceptional support has been on its customers.

To dig deeper into this question, HPE Nimble Storage commissioned ESG to conduct a quantitative survey of both current customers and non-customers. The goal of the research is to compare and contrast key cost and efficiency metrics that customers track and to gain insight into how customers feel about the manageability of their storage solutions.

The survey included 489 qualified respondents. To be qualified to participate in the survey, respondents must have been employed in an IT function, with significant day to day responsibility for managing data storage, and involvement in the organization's data storage purchase process (inclusive of determining technical requirements through approving purchases). Moreover, all respondents must have been employed at organizations with at least 100 employees.

The survey included respondents from the United States (65% of respondents), United Kingdom (20%), and Australia (16%). The survey also included a wide range of industry verticals, including: manufacturing (20%), financial services (13%), education (13%), government agencies (9%), health care (9%), and retail (9%), among others. Please see *Appendix I: Research Methodology and Respondent Demographics* for more details about the survey.

The quantitative research study was complemented by three qualitative interviews ESG conducted with HPE Nimble Storage customers. Key anecdotes and insights from those interviews are noted throughout this report.

Research Findings

IT organizations spend substantially less time and allocate fewer resources to managing storage

Within the scope of ESG's survey were several questions related to the operational costs of managing storage. A major component of that operational cost is staff time, whether that represents full-time workers solely focused on storage or IT generalists charged with managing storage as one part of their job. ESG found that fewer administrators tended to be bogged down administering storage

within HPE Nimble Storage's customers compared with non- customers. *Note: Data referenced in this section relates only to surveys completed by respondents working at enterprise organizations (i.e., those with 1,000 or more employees).*

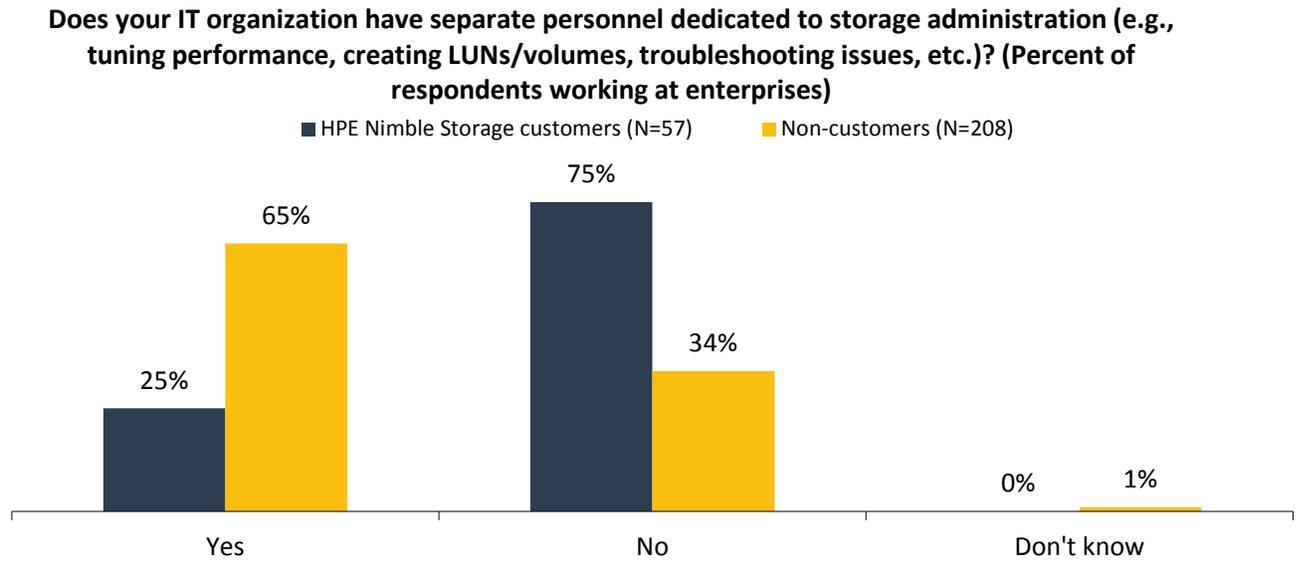
“Comparing the amount of time we spend managing Nimble compared to our previous storage stack, the decrease is almost 20X.”

- Eugene Kashperovetskyi, VP of Technology, SingleHop

Just 25% of HPE Nimble Storage customers reported that their organization allocates dedicated personnel to administer storage compared with 65% of non-customers (see Figure 1). Moreover, among HPE Nimble Storage customers who do utilize dedicated storage administrators, the average number of full-time equivalents (FTEs) was reported as 1.21 while non-customers reported 2.83 FTEs, on average. This is important because storage specialists with deep knowledge in areas like configuring systems, provisioning storage, and tuning performance over time are hard to find.

³ An index ranging from -100 to 100 that measures the willingness of customers to recommend a company's products or services to others.

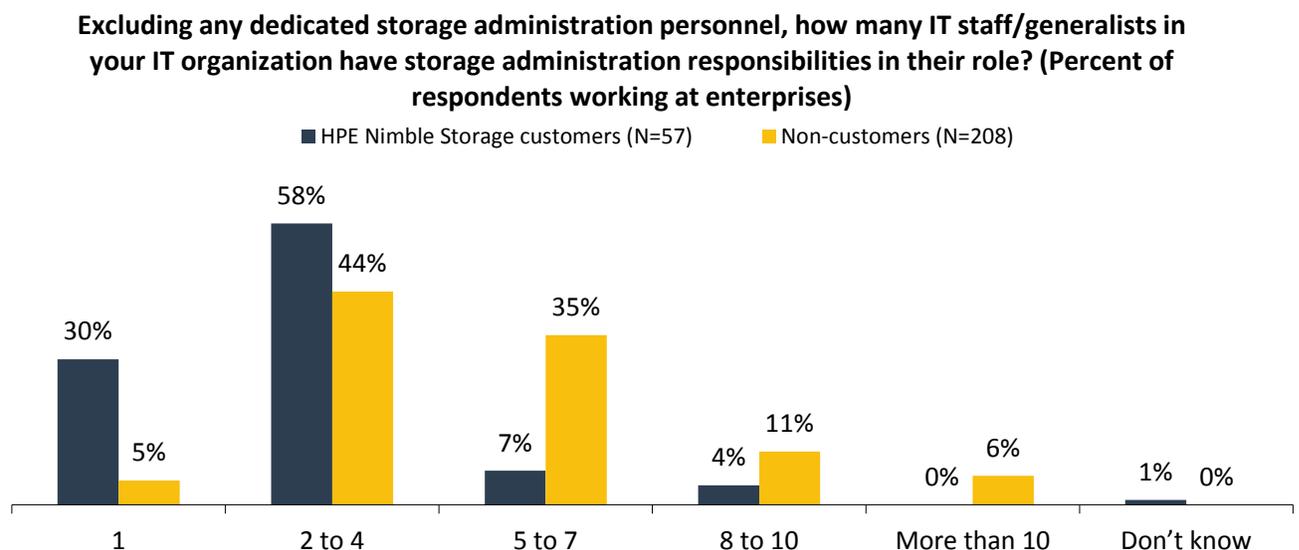
Figure 1. Allocation of Dedicated Storage Administrators, HPE Nimble Storage Customers Versus Non-customers



Source: Enterprise Strategy Group

Of course, someone within the organization must take ownership of storage administration tasks. Moreover, if an organization does not employ storage specialists, but delegates tasks to numerous IT generalists who in turn spend a great deal of their time working with storage, the economic benefits from not utilizing storage specialists may be quickly eroded. However, when respondents were asked how many individuals in their organization, excluding any storage specialists, had storage administration responsibilities in their role, HPE Nimble Storage customers once again reported fewer (2.8 staff versus 5.1 staff among non-customers, see Figure 2). Additionally, when respondents were asked what percentage of these individuals' time was spent on storage, HPE Nimble Storage customers on average estimated 8.9% compared with an average of 16.2% among non-customers.

Figure 2. Allocation of IT Generalists with Storage Administration Responsibilities, HPE Nimble Storage Customers Versus Non-customers

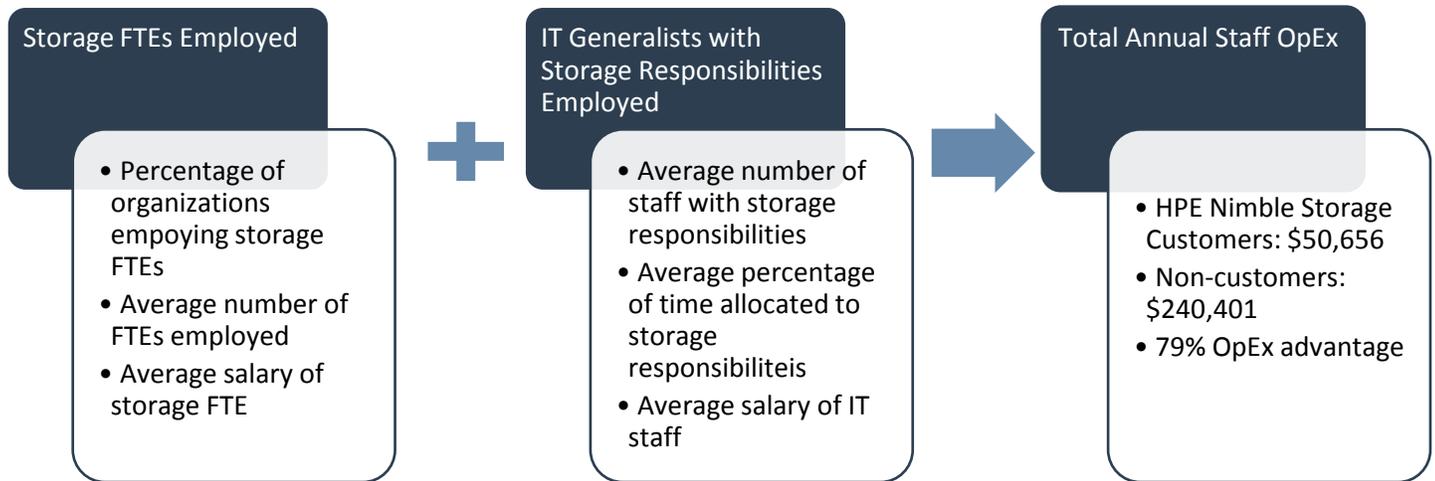


Source: Enterprise Strategy Group

Modeling the financial impact on storage management

ESG developed a financial model to quantify the financial impact of allocating fewer staff, spending less of their time, on storage. However, it is important to note this is a “cost only” model; the financial implications of being able to redeploy valuable staff to more aspirational projects, thereby accelerating them, is not considered by this model. **As shown by the model in Figure 3, based on an analysis of ESG’s survey data, HPE Nimble customers report 79% lower annual storage staff OpEx when compared with non-customers surveyed.**⁴

Figure 3. Financial Analysis of Annual Storage Operational Expense Based on ESG Survey Data



Source: Enterprise Strategy Group

IT organizations encounter fewer issues *and* they are resolved faster

The previous section of this report discussed storage-centric staff allocations, a major part of the IT OpEx associated with supporting a storage environment. Another metric of interest is the amount of time consumed by troubleshooting and dealing with break-fix events. As noted in this report, HPE Nimble Storage has collected data that shows that 86% of customers’ storage issues are remediated by HPE InfoSight before the customer is even aware of them.

“We’ve had Nimble for over 2 years, with many petabytes of capacity, and we are at 100% availability.”

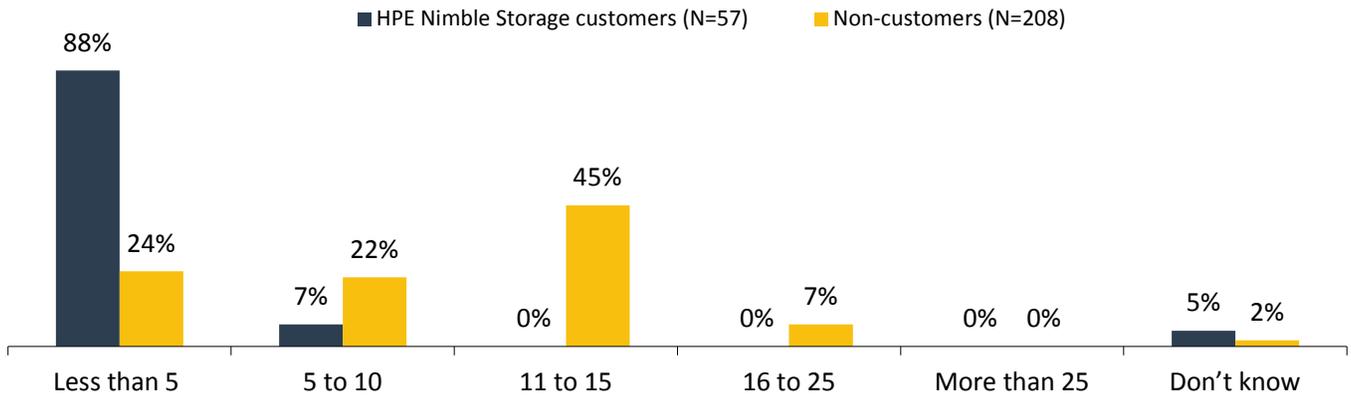
- Justin Giardina, CTO, iLand Internet Solutions

Given this fact, it would be logical to assume that customers report they encounter fewer trouble tickets in their environment, an assumption validated by ESG’s research. When ESG asked respondents how many trouble tickets related to storage are submitted to the IT organization in a typical month, nearly nine out of ten HPE Nimble Storage customers reported the number was less than five. By contrast, a plurality of non-customers reported 11 to 15 monthly tickets. An estimated average of the data collected shows that non-customers participating in this survey reported having to address 3.4 times as many tickets as HPE Nimble Storage customers (see Figure 4).

⁴ Assumptions used in this model included: an average administrator salary of \$60,122, and a fully loaded labor ratio of 1.5 to account for employment costs like paid vacation and benefits.

Figure 4. Number of Monthly Storage Trouble Tickets, HPE Nimble Storage Customers Versus Non-customers

In a typical month, how many trouble tickets does your organization’s internal help desk group respond to related to troubleshooting storage (e.g., performance issue, break-fix event, configuration error, etc.)? (Percent of respondents working at enterprises)

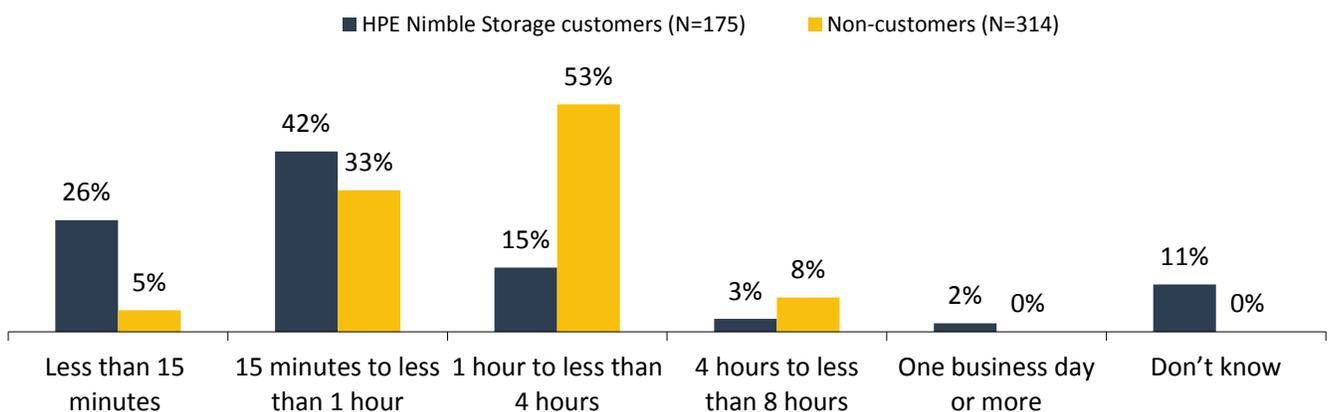


Source: Enterprise Strategy Group

More than just encountering fewer issues, HPE Nimble Storage customers also reported that issues tended to be resolved faster when compared with their counterparts at organizations that are not customers. When respondents were asked to estimate the average amount of time and effort it takes to fully resolve a storage trouble ticket, nearly 70% of HPE Nimble Storage customers reported an elapsed time of under one hour. By contrast, 61% of non-customers reported an elapsed time of one hour or more (see Figure 5).

Figure 5. Average Time to Resolve a Storage Trouble Ticket, HPE Nimble Storage Customers Versus Non-customers

On average, how much time and effort does it take for your organization’s internal help desk group to fully resolve a storage trouble ticket? (Percent of respondents)

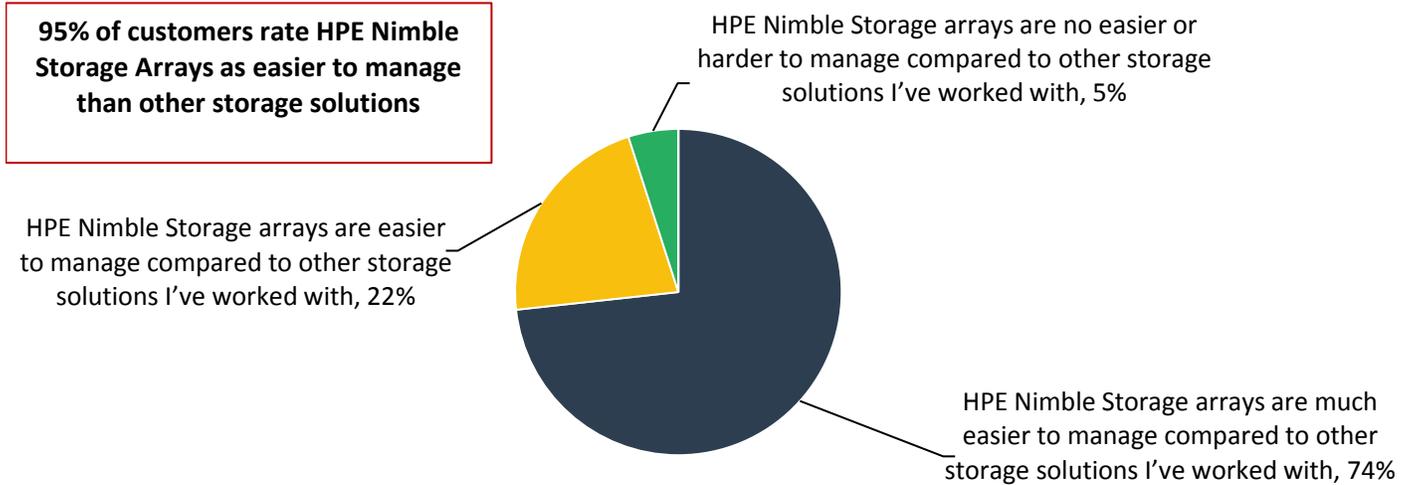


Source: Enterprise Strategy Group

ESG’s survey data provides a wealth of evidence that HPE Nimble Storage Arrays require less administration resources and encounter fewer issues, and, when issues are encountered, they are faster to resolve. But perhaps the most impactful statistic from the survey is that 95% of customers rate that HPE Nimble Storage Arrays are easier to manage compared with other enterprise storage systems. Moreover, not a single customer ESG surveyed reported HPE Nimble Storage Arrays were *more* difficult to manage than competitive solutions (see Figure 6).

Figure 6. Customer Assessment of HPE Nimble Storage’s Ease of Management Compared with Competitive Systems

Based on your experiences with HPE Nimble Storage compared to other enterprise-grade storage solutions, how would you rate the ease of management (frequency of issues, ease of troubleshooting, tuning the array, system reliability, etc.) of your arrays? (Percent of respondents, N=175)

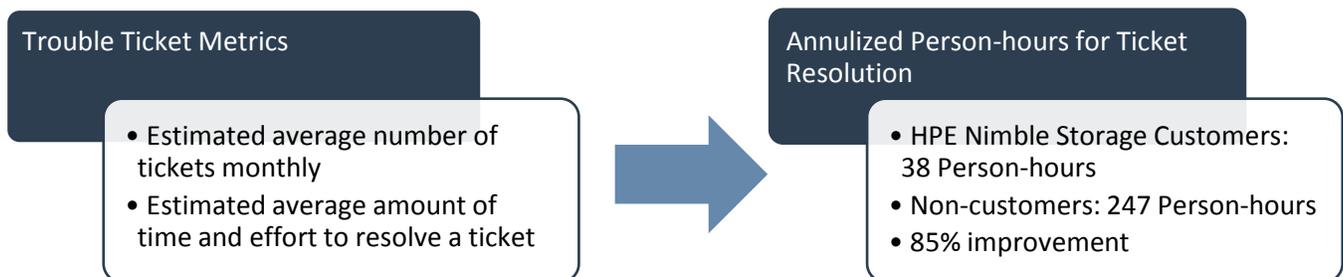


Source: Enterprise Strategy Group

Modeling the impact of fewer and faster-to-resolve storage tickets

Clearly, operating a storage environment that requires less attention from support staff has a benefit to the organization. The data observed likely plays a role in the propensity of HPE Nimble Storage’s customers to operate smaller storage administration teams. ESG has used the survey data to create an annualized model of the impact on the IT operations and support organization. **As shown by the model in Figure 7, based on an analysis of ESG’s survey data, HPE Nimble Storage customers report that 85% fewer annualized person-hours are dedicated to resolving storage-related trouble tickets in their environments compared with non-customers surveyed.**

Figure 7. Impact Analysis of Storage Trouble Ticket Differences



Source: Enterprise Strategy Group

The pain of interfacing with traditional vendors

ESG's research shows that HPE Nimble Storage customers report fundamentally better metrics related to supporting their storage environments. The research also asked respondents about their support experience when dealing with particularly thorny issues where they need to contact their vendor to help resolve an issue. Once again, the survey data indicates that HPE Nimble Storage customers encounter a much better experience.

As discussed, HPE InfoSight has allowed the vendor to construct a support team comprised entirely of level 3 engineers. If a customer calls HPE Nimble Storage, the intention is that the person on the other end of the line will be knowledgeable enough to solve the issue.

This is a fundamentally different approach compared with other vendors. Traditionally, vendors staff tiers of support engineers and route all support calls through an escalation process. For customers with a complex problem, this wastes time and creates frustration as they work their way through the queue. In fact, when ESG asked non- customers how long they expect it to take when contacting their primary storage vendor to reach a support engineer knowledgeable enough to solve their issue, a plurality (32%) reported one to two hours and the estimated average elapsed time was 84 minutes. By contrast, HPE Nimble Storage's internal data shows that the average call-to-answer time for their support organization is one minute. While ESG has not validated HPE Nimble Storage's internal data, if the mean time to connect to a level 3 technician is anywhere near that fast, the delta is noteworthy.

A skeptical reader may say, "Any vendor can say its support engineers are all level 3, but the proof is in the results." This is a fair point. However, ESG's survey data supports the claim that HPE Nimble Storage customers are able to resolve issues that require the help of a senior support technician faster than the market at large. When ESG asked respondents how long it typically takes to identify the root cause and implement a resolution for particularly challenging issues, customers reported that the elapsed time was 69% shorter compared with non-customers (see Figure 8).

"The support experience with Nimble is excellent. In the rare event that you need to call them, you will get a knowledgeable technician in a matter of minutes. There is no sitting on hold, giving information, waiting for a callback... In most cases, Nimble support is proactively calling us to fix a problem we haven't seen yet."

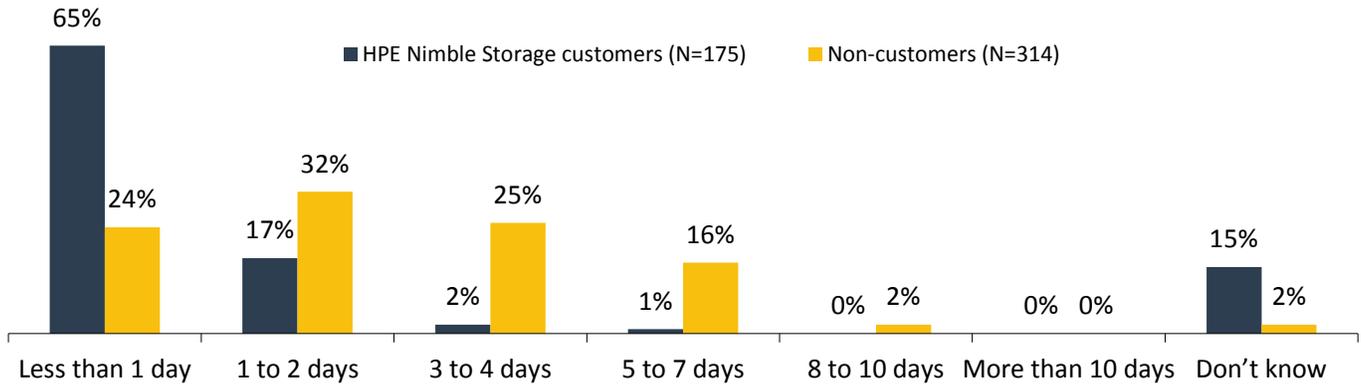
- Justin Giardina, CTO, iLand Internet Solutions

"Nimble's support is one-of-a-kind. Because of Infosight they have the luxury of not having level 1 support. With the alternatives, you have to jump through hoops to get to the right person."

- Eugene Kashperovetskyi, VP of Technology, SingleHop

Figure 8. Average Time to Resolve Storage Issues that Require the Help of a Vendor’s Senior Support Technician, HPE Nimble Storage Customers Versus Non-customers

For an event that requires the assistance of a senior/very experienced support tech, what is the average elapsed time to identify the root cause and implement a resolution? (Percent of respondents)



Source: Enterprise Strategy Group

The extensibility of HPE InfoSight

This paper briefly discussed a phenomenon that nearly any IT administrator can relate to. That is, when there is an issue in the environment, it can be very difficult to isolate a single solution provider in the stack to take ownership of the issue. Rather, a blame game often plays out where different vendors in the stack take turns telling the customer to seek help elsewhere. Once again, HPE InfoSight aims to upset this norm. HPE Nimble Storage claims it is intelligent enough to help customers with issues *outside of storage* and help implement fixes. Once again, ESG’s survey data supports this claim. When ESG asked respondents if they use HPE InfoSight to manage and troubleshoot issues across the environment, 71% reported they actively take advantage of this capability (see Figure 9).

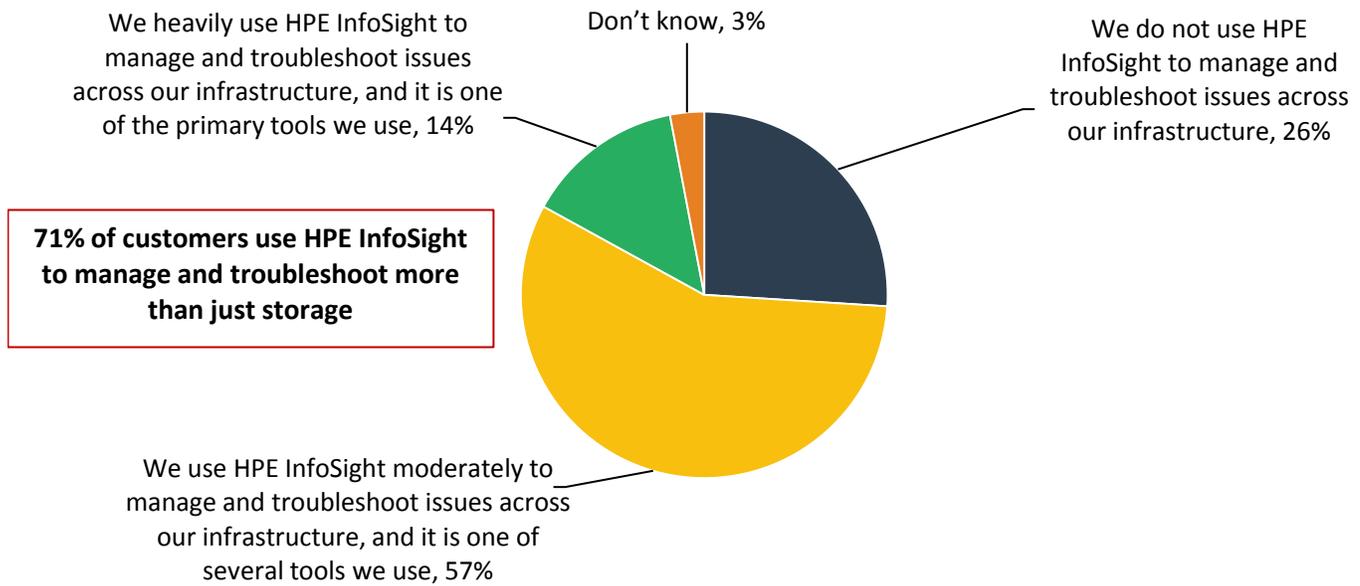
“Predictive analytics, is the true differentiator for Nimble. Their big data approach, and the fact that they are *actually acting* on the data... They’ve seen a lot of data on the platform, the analytics engine has learned and grown and become incredibly solid.”

- Justin Giardina, CTO, iLand Internet Solutions

As noted earlier, 54% of issues addressed by HPE Infosight reside outside of storage. HPE Nimble Storage reduces “finger-pointing” by helping customers even if the problem is unrelated to its storage array. There have been thousands of customers who have benefited from HPE Nimble Storage’s support diagnosing, predicting, and preventing problems related to the network, host, hypervisor, VMs, and applications.

Figure 9. Propensity of Customers to Utilize HPE InfoSight to Manage/Troubleshoot More than Just Storage

Considering its utilization of HPE Nimble Storage, how would you describe your organization’s use of HPE InfoSight to manage and troubleshoot issues across your infrastructure (i.e., not just storage)? (Percent of respondents, N=175)



Source: Enterprise Strategy Group

The Bigger Truth

More than just a means to manage and troubleshoot storage, HPE InfoSight helps to resolve issues before customers even know they exist—throughout the entire infrastructure stack. The results observed among HPE Nimble Storage customers, and compared against a control group of non-customers, are significant.

Organizations seeking to increase IT agility, drive down IT OpEx, and free staff from mundane infrastructure support responsibilities so they can focus on more strategic initiatives would be well served to learn more about HPE InfoSight’s predictive analytics and how it can help them achieve these goals.

Appendix I: Research Methodology and Respondent Demographics

To gather the quantitative data for this report, ESG conducted a comprehensive online survey of IT decision makers from private- and public-sector organizations in the United States, United Kingdom, and Australia between October 31, 2016 and May 9, 2017. To qualify for this survey, respondents were required to have reported significant day to day responsibility for managing data storage, and involvement in the organization’s data storage purchase process (inclusive of determining technical requirements through approving purchases). Moreover, all respondents must have been employed at organizations with at least 100 employees. All respondents were provided an incentive to complete the survey in the form of cash awards and/or cash equivalents.

After filtering out unqualified respondents, removing duplicate responses, and screening the remaining completed responses (on several criteria) for data integrity, a final sample of 489 respondents remained.

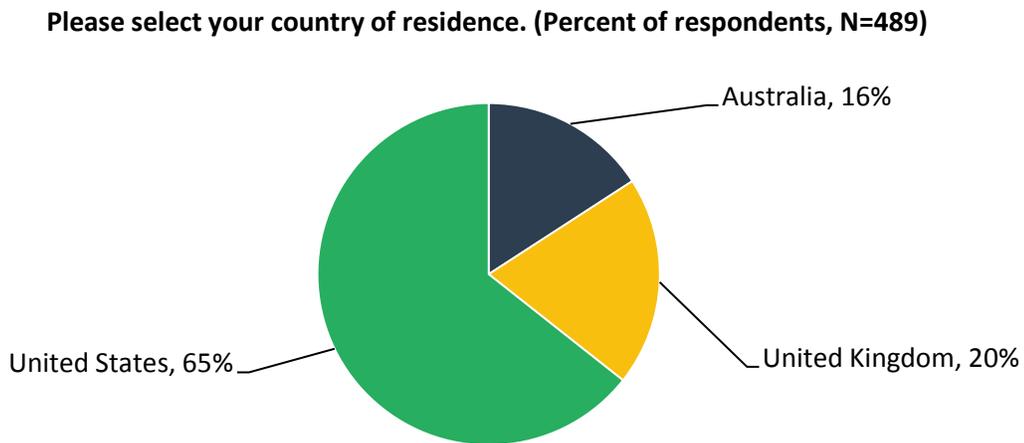
Note: Totals in figures and tables throughout this report may not add up to 100% due to rounding.

To gather the qualitative insights documented in this report, ESG conducted three 60-minute phone interviews with HPE Nimble Storage customers. Those interviews were facilitated by HPE and conducted independently by ESG.

The figures below detail the demographics of the respondent base from the quantitative survey, including respondents’ current job title, as well as respondent organizations’ total number of employees, and primary industry.

Respondents by Geographic Location

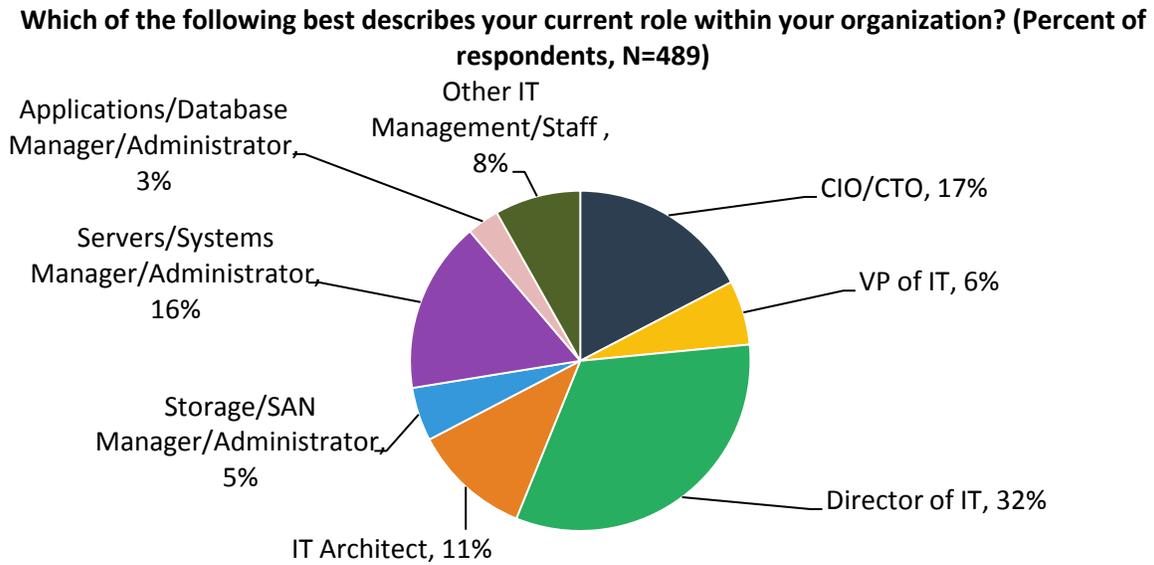
Figure 10. Survey Respondents, by Geographic Location



Source: Enterprise Strategy Group

Respondents by Job Title/Role

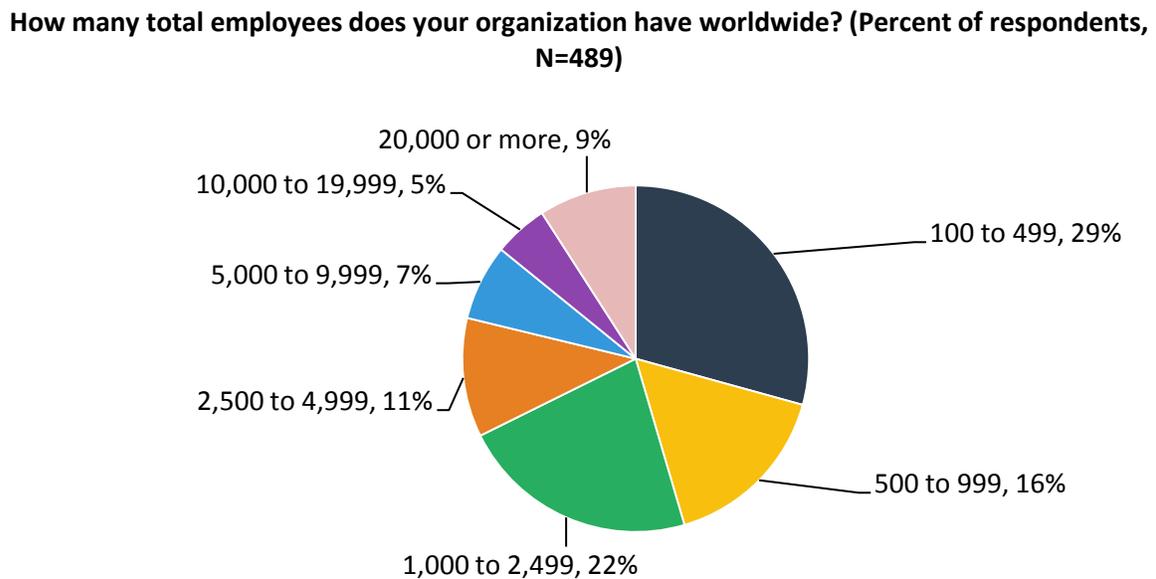
Figure 11. Survey Respondents, by Job Title/Role



Source: Enterprise Strategy Group

Respondents by Number of Employees

Figure 12. Survey Respondents, by Number of Employees

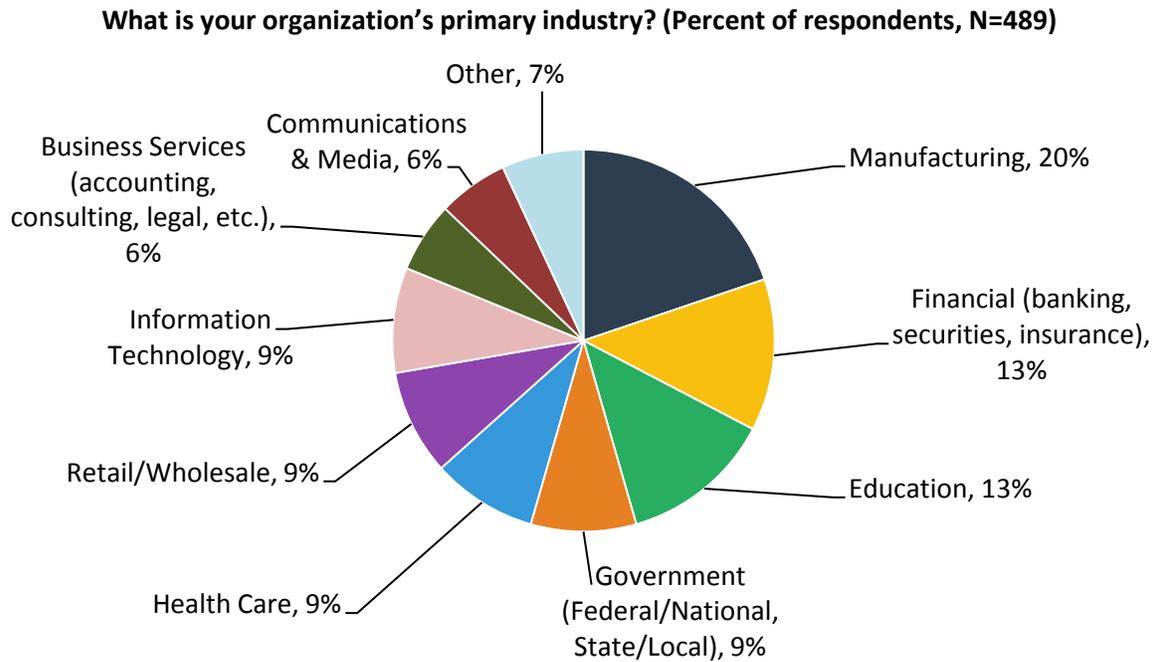


Source: Enterprise Strategy Group

Respondents by Industry

Respondents were asked to identify their organization’s primary industry. In total, ESG received completed, qualified responses from individuals in 21 distinct vertical industries, plus an “Other” category. Respondents were then grouped into the broader categories shown in Figure 13.

Figure 13. Survey Respondents, by Industry



Source: Enterprise Strategy Group

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