Meet the Next-generation SSD/Flash Storage Vendors...

Making Informed Decisions When Evaluating Flash for Storage Refreshes, Augmentation, or Disinvesting from Legacy Storage Assets

By Roberta Marvin and Chris Tsilipoundakis

Who Should Read This Report? This report is beneficial to midmarket and enterprise organizations considering investing in SSD/Flash storage systems, or anyone curious about how next-gen options differ from traditional, or legacy storage products. The research provides targeted recommendations for IT Leaders and Storage professionals interested in understanding technology options that are mature and generally available, including architecture characteristics and key features that help businesses achieve the best economics from flash. It focuses on competitive differentiators between INFINIDAT, Tegile Systems, Pure Storage, Tintri and Nimble Storage with commentary on NetApp’s FAS series and EMC’s XtremIO. The purpose is to provide evaluators with insight into market trends occurring, commonly found challenges associated with maintaining legacy storage assets, the merits of next-gen options, and how emerging advancements like NVMe and 3D XPoint will shape future investments in solid-state storage.

When it comes to flash storage, it’s not a matter of “If” but a matter of “When”. Thanks to the changing economics of flash and cost structures that have fallen into place rationally, 2016 was a pivotal year with adoption of flash and Solid-State Drive (SSD) technology growing quickly. However, in spite of statistics that tell us there is a massive surge in flash adoption, recently collected market feedback indicates that many organizations are still not confident in knowing their options and haven’t established a strategy to adopt it. This is due to multiple reasons including misconception about price and for many, despite intrigue, simply being cautious and wary of bringing in new vendors and “newish” technologies.

Looking back at top storage trends of 2016, when a corporate three-year refresh cycle comes up, many shops didn’t examine how their technology will serve the business in the coming years. Instead of refreshing everything, they purchased smaller pieces to fit specific needs in order to hang on to their old assets longer. In fact, while most shops today see the immediate benefits of moving to flash storage, many are still unsure what their options are, leaving a lot of potential for storage providers to help these shops make informed decisions about when to disinvest from old IT assets or invest in new ones.

By The Numbers:
Top Challenges in Q3/Q4, 2016, driving evaluations of next-gen storage options in 2017:

67% of IT Leader’s main objective is to reduce cost in the storage infrastructure

But that’s only part of the story...of those same responders:

46% are specifically challenged with rising maintenance and support costs with legacy storage vendors  or are researching ways to reduce OPEX costs  14% face upcoming technology refresh cycles and looking to modernize the IT environment

13% plan to expand virtualization, enable VM consolidation or deploy VDI  19% are looking to improve replication and DR processes...

While the remaining  8% deal with “classic” storage challenges, such as capacity crunches due to data growth, application performance requirements and reducing latency

Source: Pegasus Research Group™ survey based on 114 responses from Storage Influencers in 42 organizations evaluating next-gen storage options within 18 months; Aug-16-Dec-16 (multiple responses allowed)
Storage Architecture Strategies in 2017: What’s Trending and Why

What’s trending in 2017 is that organizations are interested in exploring options prior to refresh cycles, to understand key differences between modern next-gen storage arrays and traditional models. This is largely due to the knowledge that their competitors are using new technologies to gain market advantage and current challenges with rising maintenance and support costs with traditional storage providers including NetApp¹ and EMC shops. There are a number of common challenges affecting users of legacy storage systems and growing use cases in general to deploy flash. Aging storage infrastructure in particular is holding many companies back from realizing the full potential of virtualization. In many cases, it’s less about upgrading slow legacy disk-based storage and more about finding cost-competitive options for storage modernization. Yesterday’s spinning storage devices are becoming inadequate for meeting aggressive application performance requirements of modern applications.

"What is your top key interest that will drive your decisions when investing in new storage solutions in the upcoming year?"

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<thead>
<tr>
<th>Criteria</th>
<th>Interest</th>
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<tbody>
<tr>
<td>Price</td>
<td>46%</td>
</tr>
<tr>
<td>Performance</td>
<td>30%</td>
</tr>
<tr>
<td>Functionality</td>
<td>15%</td>
</tr>
<tr>
<td>Features</td>
<td>6%</td>
</tr>
<tr>
<td>ROI</td>
<td>3%</td>
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Based on 39 responses from Storage Influencers & Technical Decision makers with planned evaluations of next-gen storage options within 18 months; Aug-16-Nov-16

In general, it will cost way too much to keep legacy assets running, and vendors may not support the technologies in years to come. More than 70% of an organization’s IT budget goes to maintenance or operations cost², or “keeping the lights on.” This one of the main reason customers who have been using legacy storage are so interested in next-gen storage options. Often times, the cost of support, maintenance, and hardware refreshes is far more than investing in a new technology. They are looking to modernize their data center and avoid the “hockey stick” approach of legacy storage vendors—where at years three and five, support is spikes, forcing the customer rip and replace into a new storage array.

Over the past decade, next-gen storage providers including Tegile, Nimble, Pure Storage, INFINIDAT and Tintri have emerged with strong value propositions focused on solving common challenges seen today with legacy storage vendors and products better aligned with customers’ needs. Many of today’s best flash storage options are new technologies and are simpler to purchase and to use. These arrays are not simply smaller siblings of a larger array in a product series. They are modern flash-centric systems that have been designed from the ground up to deliver consistently high performance and low latency at a significant cost savings to organizations.

Solid State Drive (SSD) versus Hard Disk Drive (HDD)

- Solid State Drives (SSD) are more reliable, last longer and for the first time are the same price as spinning disk
- All-Flash systems are 33%-55% more cost-effective over 3 years than spinning disk
- Far less man hours managing spinning disk issues and replacing failed drives

Competition & Challenges with Legacy Storage

The storage array marketplace is highly competitive. When SSD/flash storage was first announced in 2008, devices were prohibitively expensive for all but the most mission critical workloads. Over the past several years, the price of flash has significantly dropped while its performance has greatly increased. What’s more, because all-flash systems rely on solid-state technology, there are no moving

¹ To reflect the formal name change of NetApp from Network Appliance since 6-Mar-08
² The Top 5 IT Storage Trends of 2016 by Patrick Conway, Ronald Colin 10-Feb-16
parts, so power consumption is significantly less than traditional spinning-disk technologies. Consequently, all major vendors recognized the need to better align R&D with evolving user needs for flash and buying behavior. Storage vendors with significant high-end storage revenue and markets to protect, including EMC and NetApp, responded by introducing all-flash to their portfolios. NetApp’s Fabric-attached Storage (FAS) series is an all-flash product aimed at traditional FAS customers while EMC’s latest offering, XtremIO, is purpose-built as a scale out Solid-State Array (SSA) and remains the only EMC product with deduplication.

Weighing the research, NetApp continues to have an impressively loyal customer base today with only a handful of NetApp shops looking for other options outside the FAS-series. Shops that are looking at other alternatives have had a performance hit (e.g. downtime, resources, ROI, and more) post clustered DataOn Tap (c-DOT) transition but more often than not, are suffering from rising costs associated with hardware refreshes of existing NetApp controllers and the associated support renewals. For many of these shops, at their three or five year refresh, the support costs are exceeding the cost of buying new hardware.

Legacy vendors have support costs that are variable and in most cases, much higher than next-gen providers (sometimes double!). As technology refreshes cycles approach this upcoming year, we expect growing market exploration of next-gen offerings due to greater flexibility in products, reduced price points, and compelling support offerings.
Meet the Next-Gen Storage Providers…

Due to advancements in storage-related technologies, customers can afford to be more selective and better-positioned to change vendors, thereby reducing the loyalty factor to legacy vendors in storage purchases.

Founded in 2010, Tegile Systems (whose name is a combination of two words “Technical Agility”) is a next-generation storage provider with a modern flash-centric architecture. Recognized by Gartner in both the GP Disk Array and Solid-State Array Magic Quadrants as visionaries, Tegile makes VM-aware all-flash and hybrid storage arrays that help organizations eliminate storage silos, simplify storage management, and reduce costs by consolidating all of their workloads onto a single flash platform. All Tegile arrays have native support for block and file protocols, so organizations can choose to provision storage for any workload and virtual machines using block storage or provisioning file shares using NFS or CIFS—all on a single Tegile array. Instead of deploying multiple arrays from different vendors, you can consolidate multiple workloads based on SLAs on a single Tegile array. Thanks to active/active controllers, customers can achieve 99.999% availability and take advantage of all the CPU & memory they pay for. Their all-inclusive licensing and software features on the arrays simplify the purchase process, ensuring that all required features are available to the organization from day one.

To optimize the IO path and improve performance, Tegile uses patented metadata acceleration. With traditional storage, metadata is interspersed with data and over time becomes fragmented which will negatively affect I/O performance. Tegile has solved this problem with a unique architecture characteristic in their arrays. Tegile’s technique does not intersperse metadata along with data. Metadata resides on persistent and performance-oriented media to ensure optimal I/O paths and accelerate storage operations without performance impact for inline data reduction techniques like deduplication. Inline deduplication and compression are standard, along with the industry’s densest media, continuing to be the main reason customers achieve the best economics from the array. Users taking advantage of Tegile’s data reduction features can effectively triple their capacity (or more) depending on workload, which brings the value of flash to all datacenters.

Not every provider can do this metadata/data split; it’s a unique characteristic to Tegile Systems. Legacy storage providers, like NetApp, have an especially hard time doing this since their performance tanks when turning on deduplication are serving data at the same. Tegile’s deduplication table (unique data reference points) is also stored with the metadata away from the data on fast storage media guaranteeing that there will not be a performance impact when using their data reduction features. Tegile designed their system from the ground up this way. Legacy vendors bolt on this functionality after the fact.

Founded in 2008, Tintri builds all-flash and hybrid storage specifically for virtualized applications and virtual machines, and does not include physical servers. Leading analyst firms including Gartner agree more than 60% of today’s workloads run in virtual machines, as opposed to physical servers, but this specialization does limit Tintri’s ability to support every customer in the market. Some positive market feedback recently received on Tintri highlights the ease of configuration (“set it and forget it”) and its small footprint with its 4U hybrid unit.

Nimble Storage builds the all-flash AF1000/AF3000 series that are entry points to the Nimble Predictive Flash Platform to deliver high performance and availability, boasting a TCO 33-66% less than other all-flash arrays. Nimble arrays have good data reduction capabilities on their all-flash line, but do not include deduplication on their hybrid line. Data center footprint can be reduced since entry racks are 8U. One drawback to Nimble’s architecture is their active/passive controller design, meaning only one controller is active while the other controller sits idle. This translates into consumers of the arrays only being able to take advantage of 50% of the CPU and memory they pay for.
Defining itself as a next generation provider of enterprise-proven storage, **INFINIDAT** was founded in 2011 with a product vision of being a single storage vendor you can turn to for all your storage needs. Based on the philosophy that too often, organizations cannot take advantage of the data they need due to costs and poorly architected storage solutions, INFINIDAT introduced InfiniBox™, a flash-optimized storage platform that is simple to use, and provides 99.99999% data availability and over 1M IOPs of performance at microsecond latency. INFINIDAT innovations enable good storage density in a single 42U rack – the primary contributor to their disruptive price. Through the integration of technologies such as DRAM, SSD, HDD and their innovative software, INFINIDAT delivers a solid storage solution to help customers maximize their competitive advantage.

In October 2009, **Pure Storage** was founded by John Colgrove and John Hayes. Pure Storage is a leading all-flash enterprise array vendor with their FlashArray FA-400 series which was originally released in August, 2011 and meant to accelerate applications like server virtualization, database systems, desktop virtualization and cloud computing systems that require high rates of random I/O operations. FlashArray is built on 100% consumer-grade MLC flash. In May, 2012 the second generation of FlashArray //m was introduced with new software features and support for VMware’s vStorage interface. Later that same year new software features were announced including iSCSI connectivity using 10-gig Ethernet and integration with VMware vCenter.

It was originally estimated that Pure’s FlashArray would require about 20% of the power and space required for traditional arrays, delivering all-flash enterprise storage that is 10x faster, more reliable and simpler, and yet cost less than traditional performance disk arrays. Pure storage continues to be a popular choice for mid-market and enterprise organizations looking to introduce flash. Some obvious drawbacks are the array requires a post process dedupe and garbage collection which limits performance of the overall appliance, and its ability to do block support only. For customers that are considering hybrid, it should be noted with Pure storage you cannot add hybrid flash to your all flash arrays. You have to continuously build your all-flash platforms as opposed to Tegile Systems, where customers can have both all-flash and hybrid flash on the same platform.

**Protocol Support in Modern Storage Architectures**

Networks and systems have evolved to meet the ever changing needs of workloads. Network-attached Storage (NAS) are devices and Storage-area Networks (SAN) are fabric, and both remain dominant storage architectures in today’s business. EMC has historically had really good storage options to address block access (i.e. SAN) and NetApp does a good job addressing file access (NAS). For the longest time, however, unless you invested in a unified storage platform, the market did not have a storage option that did both. Companies had to support multiple protocols with multiple storage strategies.

The NAS market in particular has been dominated by NetApp and EMC for many years with little competition from other major brands. As the market has grown, it attracted more vendors and became more competitive with major brands including IBM, HP and Hitachi Data Systems. The proliferation of server virtualization in particular impacted the NAS market in a very significant way. It increased the use of Network File System (NFS), the file sharing protocol in a Unix network, to support a large deployment of VMware virtual machines to replace the complex management of VMware VMFS.

SAN developed as data volumes increased beyond the capacity of what could be stored in an individual server. SANs provide benefits such as high availability, compression, and performance, but the biggest one is the ability to store large amounts of data. In terms of connectivity, Fibre Channel (FC) is

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4 Pure Storage 2015 marketing collateral

5 The Gorilla Guide to Storage Designs for Big Data and Real-Time Analytics by Joseph D’Antoni and James Green; Copyright © 2016 by ActualTech Media
the standard for SAN in enterprises storage. The other connection method, iSCSI, is often seen as the low-cost alternative to FC and used to transmit data between the devices. What’s more, “The need for SAN in a virtual environment is well understood in the datacenter today as an overwhelming majority of the virtual infrastructure deployments are based on SANs.”

A tremendous advantage provided by next-gen storage providers, including Tegile and INFINIDAT, is a single storage array with multi-protocol support (iSCSI, FC, NFS, CIFS/SMB 3.0) to address block or file access.

Find the best fit for your environment: Which protocol(s) does your business need to take advantage of?

<table>
<thead>
<tr>
<th>Provider</th>
<th>Support</th>
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<tbody>
<tr>
<td>Tegile Systems</td>
<td>Native support for block AND file protocols (iSCSI, FC, NFS, CIFS/SMB 3.0) on all arrays</td>
</tr>
<tr>
<td>INFINIDAT</td>
<td>FC/iSCSI, SAN, NAS, and mainframe protocols (InfiniBox™ platform)</td>
</tr>
<tr>
<td>Pure Storage</td>
<td>Block only</td>
</tr>
<tr>
<td>EMC ExtremIO</td>
<td>Block only</td>
</tr>
<tr>
<td>Nimble Storage</td>
<td>Block only</td>
</tr>
<tr>
<td>Tintri</td>
<td>File only (NFS/SMB) No Block; no physical server</td>
</tr>
</tbody>
</table>

With Tegile, customers won’t need multiple storage systems or a NAS gateway to support block and file-level storage. Exposing all protocols from a single array makes it incredibly simple to integrate and ease arrays into any environment wherever shops need a boost of performance.

One of the shortcomings of Nimble, Pure Storage and EMC’s ExtremIO continues to be only the capability to support block unlike other providers who expose all protocols from the array making it challenging for some customers looking to move from block to file over the next year. Granted, XtremIO is block for high performance (customers may not really need Tier 2 or 3 file collaboration on all flash) but for those that considering it, another purchase into VNX or Isilon is the only option.

Density & Data Reduction: Achieving the Best Economics of Flash

Storage is playing a significant role in overall IT spending and just like price, performance and capacity, reducing the storage footprint and OPEX (Rackspace, power, cooling) is a defining factor in making decisions. The days of having “Big iron” on the floor are numbered, and size does matter.

Today, most storage vendors make all-flash and hybrid storage arrays to accommodate different grades of storage media from disk to flash. Most provide software features designed to enhance performance, maximize capacity and enable simple administration. Features that warrant special attention in the storage array selection process however, include protocol support, data reduction capabilities, support and maintenance programs, density, effective capacity numbers and resulting Rack Unit (RU) size. Some of the greatest gains realized from next-gen options are in operating expense (OPEX) savings due to reduced rackspace, power and cooling. There is a dramatic TCO savings from an OPEX model and reducing the storage footprint will reduce costs.

DCIG confirms that data efficiency features such as in-line deduplication and compression multiply the effective capacity and density of arrays, ultimately driving down the cost of the storage systems. Many arrays are designed for administrators to “turn on and off” data reduction capabilities when desired, understanding there may be a performance penalty. As opposed to legacy products including NetApp’s FAS-series (where dedupe is post-process), the real benefit of next-gen technology like Tegile’s data

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6 VMWare vSphere Best Practices Guide v 9.2, by Cody Hosterman, Ravi Venkat

7 Referring to what the usable capacity is multiplied by the data reduction number; industry average is 5:1

8 DCIG 2016-17 Midmarket Enterprise Storage Array Buyer’s Guide by Chuck Cook & Ken Clipperton
reduction capabilities is it is inline. And since the metadata is abstracted from data on the device, it results in optimal I/O paths and really extends the capacity (what customers end up paying for). For evaluators, effective capacity numbers should be kept in mind when calculating storage required (because you’ll need less of it) and that will extend the investment without adding cost.

Solid-state drives equipped with NAND flash offer superior performance to HDD-based systems; however, the challenge has been meeting density and cost requirements. As the cost of flash storage has decreased however, flash density has followed. With 3D NAND flash the memory cells are stacked vertically in multiple layers to achieve higher densities at lower cost per bit compared to planar or 2D NAND.

In today’s modern arrays, all next-gen storage providers are using some sort of NAND flash for performance. The main types of NAND flash technology are Single-level cell (SLC) which stores 1 bit per cell, offers the highest endurance, Multi-level cell (MLC) which stores multiple bits per cell, provides lower endurance than SLC, and Triple-level cell (TLC) which stores 3 bits per cell, offers lower endurance than SLC and MLC. NAND generally uses MLC or TLC flash and offers the potential for higher capacity in a smaller physical space.

The first manufacturer to mass-produce NAND flash was Samsung, under the name Vertical NAND in 2013. Other NAND manufacturers include Intel and Micron Technology and Toshiba, which partners with Western Digital’s SanDisk. An interesting fact is that Tegile has a tremendous advantage in sourcing the highest density NAND flash first (as opposed to other next-gen providers) since WD/SanDisk is their investor as well as a current customer. To demonstrate the importance of this, imagine evaluating a new storage solution for two (raw) Petabytes of storage: The INFINIDAT InfiniBox™ storage array can scale to multiple petabytes in a single 42U rack. You’ll be able to support both block and file protocols in your environment. But if you’re on the third floor of a building, are you really willing to move in a 2700-pound 42U storage array? Alternatively, Tegile’s IntelliFlash HD delivers the same capacity and configuration in just 5U—only 70 pounds fully populated.

![Comparison of Effective Capacity and Footprint Of Four Leading Next-Gen Flash Storage Vendors](image)

Tegile offers 2PB at 5:1 data reduction in only 5RU

Flash Media is Evolving Rapidly: There are Far Better Things Ahead than There are Behind

When flash was first announced in 2008, SLC was high performance but cost prohibitive. EMC was the first to introduce flash in their Symmetrix product, which later became their VMAX product. As storage media continues to evolve (high performance flash, dense flash, disk) it’s important to inquire about any given vendor’s roadmap to ensure you will be getting the most recent advancements in whatever storage technology is available at that time.

While not unique to next-gen products only, all-flash storage systems are built leveraging some form of NAND flash and the controller is optimized for SSD’s higher performance. Legacy disk controllers were designed to support a storage medium (spinning disk drives) that could generally provide less than 200 IOPS each. Today, performance is normalized across the vendors and today’s flash controllers leverage dedicated hardware to handle flash-specific overhead so it doesn’t degrade performance. The use of lower-MLC and enterprise-grade MLC (eMLC) NAND flash drives increases flash chip endurance and helps bring down the effective cost per gigabyte of all-flash storage systems.

While Nimble, NetApp’s FAS-series and Pure Storage use 100% consumer-grade MLC (cMLC), Tegile arrays, on the other hand, are built on DRAM and Enterprise-class MLC (eMLC). The advantages of using eMLC as opposed to commodity or cMLC are most often realized in the efficiency job of running NAND flash operations like reducing write application, improving wear leveling (spread writes to make cells last longer), and “garbage collection”, which is basically the process of reclaiming free space on the drives.

Highly dense flash is evolving rapidly and driving the cost per gig down. Performance flash is getting faster and faster. Soon, providers including Tegile will be introducing Non-Volatile Media Express (NVMe) as the new standard protocol to unveil the full potential of flash. Tegile, whose key investor is Western Digital’s SanDisk, is already testing NVMe into their framework (although they are waiting until dual-ported drives are available to ensure no single point of failure with a single-ported architecture). "Tegile’s architecture was built from day one to leverage best-in-class high-performance and high-density storage technologies to help customers relieve the tension between price and performance." Says Justin Cheen, a Tegile founder. "As technologies such as NVMe and 3D NAND mature, we will integrate them into our IntelliFlash roadmap to deliver a best-in-class storage solution to our customers." As opposed to SAS connectivity which is serial, taking non-volatile SSD like NVMe over a PCI bus will expose the parallelism that flash delivers and expose the full potential of flash.

3D XPoint is all the hype in the data storage market, with development of the non-volatile technology beginning around 2012 and announced by Intel and Micron in July 2015. While much of the details of the materials and physics of operation are still not disclosed, it’s reportedly a new class of memory and storage that is faster, denser, and more durable than conventional DRAM and flash storage. The SSDs will be compatible with the NVMe protocol and fit into PCI-Express slots. Micron refers to future storage devices using the technology under the name QuantX while Intel uses the name Optane.

Recent insight into Intel’s Optane SSDs being shipped indicate that some have already been shipped to testers, mainly cloud providers like FaceBook to help unwrap uses for the technology.9 While 3D NAND types are less about performance...

9 *Intel experiments with 3D Xpoint as it ships out SSDs to testers* by Agam Shah 21-Jul-16
and more about density (vertical layering makes it denser), 3D XPoint is about solving challenges of density and performance with significant benchmark improvements compared to PCIe NAND SSDs. 3D XPoint will shape future investments in solid state storage and reportedly, could possibly drive changes in server designs. Arrays with 3D XPoint SSDs could also serve as both memory and storage, providing flexibility in a small footprint.

Don’t get stuck with a solution stack that can’t evolve to meet your future needs. It’s critical when exploring options with any SSD/Flash storage vendor to inquire about R&D and future roadmap regards to storage media. As an example, Pure Storage customers today can purchase support to upgrade (non-disruptively) controllers in three years but must maintain older flash drives. With NetApp, controllers are also replaced but not the whole storage array. Tegile Systems on the other hand, has an interesting support program called “Lifetime storage” which ensures that customers that purchase a Tegile IntelliFlash™ storage system with IntelliCare™ Lifetime Storage receive a new storage system (not just the controllers) with the freshest storage media available that year every three (or five) years when maintenance is renewed. \(^{10}\) Benefits to the customer include eliminating any future CAPEX and keeping OPEX low over time because maintenance renewals will be flat or lower and will never exceed the original contract. With this program, your next technology refresh is already covered in the maintenance contract.

**Replication & Backup/ Recovery: Still front of mind**

A recent survey of IT Storage Professionals reveals that 38% of organizations considering investments in next-gen arrays over the next year are still not confident in their ability to restore normal business operations quickly following a disaster. \(^{11}\) Replication and affordable Disaster Recovery is front-of-mind for many.

While Nimble arrays support VDI and other mission-critical workloads, many customers are critical of the arrays ability to support both virtualized workloads and replication a the same time. More, while the cost of Pure and XtremIO arrays seem initially appealing, it may cost the organization more in the long run since separate all-flash arrays are required to run production systems and additional all-flash arrays to run Disaster Recovery (DR). For organizations with limited budget, the ability to replicate between all-flash at the primary site to a hybrid array at the secondary site is most appealing. Tegile’s all-flash arrays can be used on the production environment to house VMs (SAN/NAS) to leverage the best performance that these arrays have to offer. The hybrid arrays can then be used as backup repositories with the protocol of choice. Tegile was the first next-gen vendor to offer this TCO saving feature.

### Find the best fit for your environment:
**Native Replication between all-flash and hybrid configurations?**

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<thead>
<tr>
<th>Vendor</th>
<th>Replication Options</th>
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<tbody>
<tr>
<td>Tegile Systems</td>
<td>Native replication between any all-flash and hybrid configuration – without buying additional hardware or software</td>
</tr>
<tr>
<td>Pure Storage</td>
<td>Native replication between all-flash arrays only</td>
</tr>
<tr>
<td>NetApp FAS-series</td>
<td>Requires additional cost to license replication capabilities</td>
</tr>
<tr>
<td>EMC XtremIO</td>
<td>Additional hardware costs required</td>
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**The Bottom Line**

As the world of storage undergoes a major transition, challenges in the market are undergoing a major change as well. Performance issues and pressures resulting from aging infrastructure, complexity and rising support and maintenance costs (to name a few) has accelerated the arrival of more flexible, innovative flash-optimized options.
available now to provide high performance pay-back while securing long-term advantages.

Everyone has a use case for flash and there are tremendous advantages that can be realized by considering next-gen storage options. Businesses that wish to give workloads a performance boost with flash, simplify storage operations, and ensure availability and protection of mission critical workloads have increasing vendor portfolios to choose from. Next-generation SSD/flash storage providers in particular, offer greater flexibility in products, reduced price points, and compelling support offerings. Many organizations however, are still unsure what their options are out there with next generation storage providers and are still missing out on just how easy it can be to reduce costs and eliminate the stress of latency and performance issues. Fortunately, several next-gen vendors, including Tegile Systems, are hyper-focused on establishing relationships and providing easy ways to understand the “newish” flash-optimized solutions that provide much better cost/performance tradeoffs for businesses of many different sizes.

Understanding that legacy vendors have support costs that are variable and in most cases, much higher than next-gen providers (sometimes double!) as technology refresh cycles approach, exploration of next-gen offerings will be beneficial to evaluators. It’s been found in numerous real-life scenarios that the of a next-gen vendor solution, like IntelliFlash HD from Tegile, is actually less than annual legacy vendor maintenance costs in most cases.

More than 70% of a buyer’s research about what to buy and whom to buy from is completed either online and/or via referrals before they talk to sellers. For next-gen storage providers, making buyers aware of value proposition and providing them information they need – when, where and how they want it – are table stakes. Consequently, IT Leaders and Storage Professionals should:

✓ Talk to industry peers and referral information; find out why happy customers already leveraging next-gen storage options are so happy
✓ When doing online research/ visiting vendor websites, look for programs offered to make the move off legacy platforms easy and profitable; many next-gen storage providers like Tegile, have “Swap” programs running where shops can swap out existing gear, dispose of the equipment responsibly and actually earn money for aging gear that can be put toward adopting a modern technology infrastructure
✓ Engage further with next-gen storage providers that will not only introduce you to their portfolio, but those willing to help you understand the differentiators with other next-gen options as well as legacy products

IT Leaders will greatly benefit from acting on their curiosity and taking advantage of performance analysis, POCs, meet-n-greet meetings, WebEx presentations, promotional materials, and visiting booths at upcoming shows to see the arrays. Vet your next move and meet the next-gen storage vendors…chances are you’ll end up investing with one within the next year.

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