

White Paper

The Importance of Flash Storage in a Hybrid IT World

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Hybrid IT Demands New Ways of IT Thinking

It is possible that a significant number of people reading this piece may find themselves confused, or at least intrigued, by its title: “The Importance of Flash Storage in a Hybrid IT World.” Might it be that two separate white papers have been inadvertently muddled and integrated? After all, “hybrid IT” is about a sweeping strategic trend for the industry, whereas “flash storage” seems prosaically tactical. Also, while neither item is a market per se—flash is a storage media and hybrid IT is essentially a delivery and consumption construct—nonetheless there are absolute, direct, and valuable connections between the two that categorically need to be exposed, understood, and evaluated by any organization that is seeking to optimize itself...whether that optimization is from any mix of multiple perspectives—operations, applications, and finances.

The logical rush to hybrid IT as a norm is helped by its breadth; the term can be used to embrace everything from convergence and software-defined systems through to rampant expectations and new applications. It is that very range, however—which is brought into sharper focus by such over-arching practical demands as security needs, service levels, and cost constraints—that is helping to drive the rapid adoption and deployment of flash storage. Simply put, a flash storage foundation along with cloud-connected data movers can in many cases overcome some of the perceived gaps of a public cloud while also delivering the provisioning speed and agility benefits typically associated *with* the public cloud. This is precisely why flash is a key element in the toolkit for business and IT operations professionals evaluating the right mix of on-premises and off-premises data services within their hybrid IT initiatives

What Is Hybrid IT? And Why Does It Need Flash Storage?

Before examining the enhanced values that an IT organization can obtain from the optimum deployment of [extending its] flash storage in an [emerging] hybrid IT world, it is necessary to be specific about what “hybrid IT” is *and* is not.

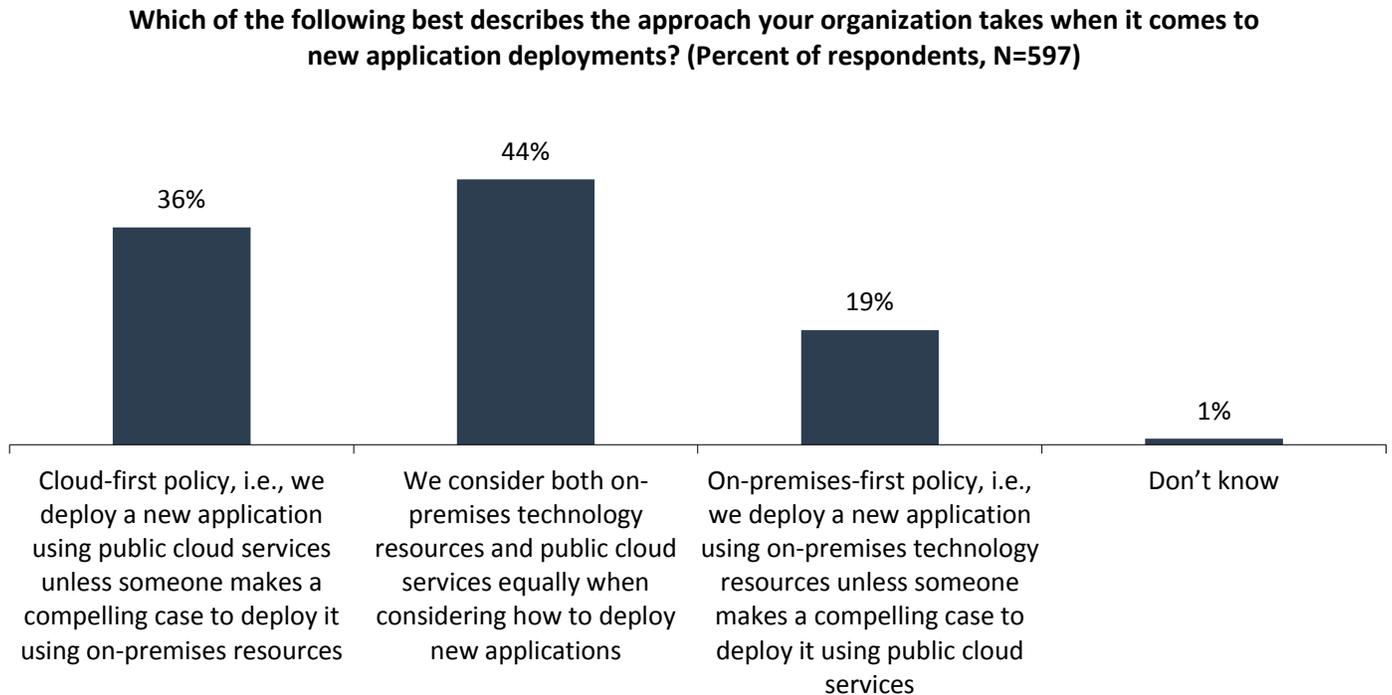
“Hybrid IT” does not mean—or at least it should not mean—simply having some amount of on-premises-based IT activity and some amount of public cloud-based IT activity. That situation is exactly what it reads as: There is some amount of on-premises-based IT activity and some amount of public cloud-based IT activity. Having an electric car and a gas-guzzling SUV in your garage does not mean you have two hybrid vehicles! The whole point of hybrid is to optimally use a variable mix of resources...whether that is to propel a vehicle or to deliver IT solutions. Hybrid is always about optimized balance (sometimes with an element of choice) between available resources, and almost always will be preferable (and more optimized) if it is automated, granular, and flexible. Thus, hybrid IT *is* about having “some of each” working in dynamic, as-seamless-as-possible, and optimal harmony. Of course, an unconnected “some of each” *will* work for some people—perhaps to parry awkward management questions and allow them to portray themselves (however erroneously) as being part of the contemporary IT world. But it is not hybrid IT. Hybrid IT inherently demands a mix of resources, deployment types, and consumption models, but that mix is a necessary-but-not-sufficient determinant of whether you have actual hybrid IT. It is making those mixed resources work together, preferably with an ability to make [granular] changes over time as business needs shift, that ultimately matters.¹

Moreover, let’s not get too caught up in the mere avant-garde trendiness of “hybrid”: whatever the optimization of operations, applications, and finances that a hybrid IT world can deliver, it is *not* an end in itself—it is a *means* to other valuable IT and organizational outcomes. For example, it can help to deliver IT-as-a-service; it may enable (where appropriate) more cloud applications to be used; it will invariably *both* drive *and* demand more data mobility, virtualized infrastructure, and modernized infrastructure; and if such things as these are done well, it is also likely to help minimize both cost and risk.

¹ Much of this paragraph is adapted from a blog published by the author on 3/22/17: <http://www.esg-global.com/blog/hybrid-it-is-great-unless-its-just-pretend>.

The simultaneous mix of push and pull factors explains why Hybrid IT is so compelling to just about every organization. And all this intricacy largely explains why there is so much demand for flexible and fast I/O in many places within a hybrid IT world...and that in turn translates to the need for an extensive range of placements and types of flash storage. This is not some future concept; it is happening now—ESG research finds that 78% of respondents are already using the public cloud to some degree, with a further 15% having plans or interest in doing so.² And Figure 1 shows that the public cloud is at least being considered for 80% of new application deployments.³

FIGURE 1. Extent to Which Cloud is Considered when Deploying New Applications



Source: Enterprise Strategy Group, 2017

Furthermore, these new applications are highly likely to be ones that demand low latency and high bandwidth storage. The current top most important IT initiatives for 2017 identified by respondents to ESG research are:

- Strengthening cybersecurity tools and processes (selected as the number one initiative by 32% of respondents).
- Using data analytics for real-time business intelligence and customer insight (17%).
- Use of public cloud for applications and infrastructure (15%).
- Data center modernization (i.e. highly virtualized and automated) (15%).⁴

All those IT initiatives and their associated applications are I/O-greedy (speed) and -demanding (volume). The link of cybersecurity to flash may not be as immediately obvious as for the others above, but boils down to this equation: increasing data points + analyzing data points fast = better security. In plain English, both hybrid IT intrinsically—and the contemporary specific IT activities conducted in a hybrid IT space—demand flash storage.

² Source: ESG Research Report, [2017 Public Cloud Computing Trends](#), April 2017.

³ Source: Ibid.

⁴ Source: ESG Research Report, [2017 IT Spending Intentions Survey](#), March 2017.

However, while the prima facie need for flash may be obvious, it is not homogenous—different IT organizations have myriad factors (from business needs, to application types, to budgets, etc.) that will drive different types, amounts, locations, and deployments of flash storage.

What Sort of Flash Storage Is Optimum For A Hybrid IT World? And What Can It Deliver?

As with so many things in IT, the answer to “what sort of flash is optimum for hybrid IT?” is a resounding “it depends!” However, that in and of itself is a very important statement as it subsumes two key implications that should be very important to IT professionals looking to make decisions in this space:

- 1. There *is* an extensive choice of flash storage:** IT departments need to be pragmatic (based on their specific needs, rather than “shiny object syndrome,” to determine the extent, type, and location of flash storage that they choose to deploy. There is no prescriptive one-size-fits-all answer; there are choices in terms of performance (both bandwidth and latency), price, placement,⁵ longevity, scalability, and so on. In other words, this is not just about investing in one or more all-flash systems, but demands using flash strategically (what one might colloquially describe as various flavors of “hybrid-IT-optimized-flash”) to support specific business objectives...both current and planned/expected. Once those business needs are clear, then prospective users can decide by focusing on such things as:
 - o Affordability (the result of different media types, placement, packaging, software-completeness, “compaction- effectiveness,” etc.).
 - o Application Integration (the suitability of the platform for different use cases and applications, whether they are established approaches, or emerging application paradigms such as containers).
 - o Scalability and Performance (Can the system meet your needs? Does the vendor offer *worthwhile* guarantees? What if something changes?).
 - o Data Resilience and Data Protection (ranging from HA and DR inclusion/integration through to low-production-impact DP).
 - o Deployment and Management Ease (How is the system managed? To what degree is provisioning automated? What about professional services, data migrations, multiple protocols, and ecosystem interoperability?).
- 2. Flash is not just about performance.** Misconceptions that flash storage is just “expensive turbo-charging for a few key applications” persist. While flash storage *is* indeed exceptionally good at improving application performance via its combination of raw speed with added data compaction, not all applications intuitively demand flash performance⁶ ...and yet the demand for, and logic of, flash storage continues to rise unabated. Partly, this is explained by the ongoing reduction in real and effective pricing (whether per-bit or per-I/O) that is helping to move the “tipping point” towards flash storage, but also the acknowledged value of flash storage in other ways—sometimes where its performance is consumed in less obvious ways—is increasing. Good examples include

⁵ “Placement” should be read in two ways: First the obvious one of where a “box” might sit within an IT ecosystem; and second, users should think outside of just “boxes” of hardware and included capabilities in this discussion...users should look more broadly than at just the individual feature sets included in the base array, which then includes flash in a “hybrid-ness” that starts to touch the network, other management tools, etc.

⁶ When ESG last researched this ([2015 Data Storage Market Trends](#), October 2015, currently being updated) not one flash-storage-using respondent stated that 50% or more of its applications demanded the performance of flash.

operational benefits such as improved administrator productivity (due to such things as less hot-spot tuning and troubleshooting to manage), and data center simplification due to footprint consolidation.

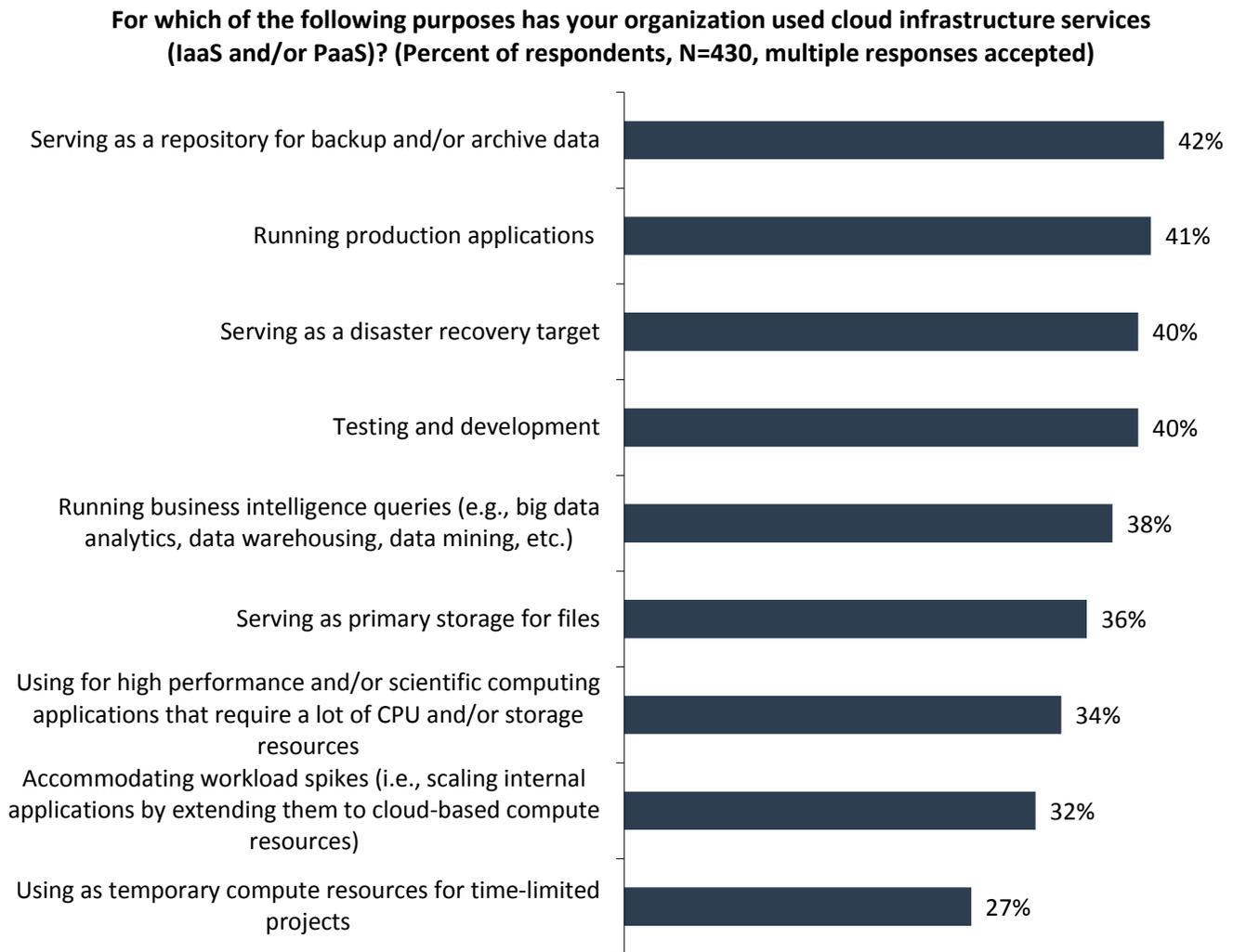
In summary, while there's no such thing as "flash for hybrid IT" per se (or if there is it is a virtual amalgam of products and capabilities), it is important for users to understand and evaluate the wide range of flash storage options for their own hybrid IT manifestation and needs—knowing that the range of flash storage options offers something for every aspect of the hybrid IT world's demands.

Looking beyond the obvious uses of flash (based on its superficial—though entirely laudable—price and performance characteristics), the following is a small sample of some of the less obvious advantages flash storage can deliver in a hybrid IT world:

- **Risk Mitigation:** The most obvious aspect here is that of using flash storage to improve security (as mentioned earlier, the faster threats can be spotted and resolved, the sooner analytics can be handled, and the lower is the likelihood of a successful security breach). But there is much more to risk mitigation than security. By permitting higher and faster levels of such things as on-premises control, and data sovereignty, combined with intrinsically high levels of data durability, flash storage can be a useful tool in the battle to mitigate risk in IT.
- **Consolidation Can Reduce Software Costs:** While virtualization/consolidation can be good to reduce the number of servers and/or software licenses, it invariably increases the I/O pressure on the resulting systems...something that flash storage can address.
- **Flash is for the Cloud Too:** It can be easy, but erroneous, to think that the public cloud is only used for applications that don't demand much performance, or for data that is inactive or simply "dumped." However, ESG's latest research into cloud use cases (see Figure 2) shows that production applications were the second most popular purpose for which organizations used cloud infrastructure services, while business analytics was the fifth most-cited response⁷....so, quite simply, flash storage is needed in the cloud too. And users would again be well-advised to consider the overall orchestration and flexibility for dynamic deployments that might move between and across on-premises and clouds.
- **Streamlining Data "Polarization":** Increasingly, "hot" data is getting hotter (data is required closer to CPUs with in-memory databases), while "cold" data is getting colder (long term storage moving to disks in erasure-encoded object stores). Sophisticated data management—aided by flash storage—can help house data appropriately.

⁷ Source: ESG Research Report, [2017 Public Cloud Computing Trends](#), April 2017.

FIGURE 2. What’s Running On Cloud Infrastructures



Source: Enterprise Strategy Group, 2017

And there’s one other consideration that users should note: Much as “hybrid IT” represents the outward face of what can be called “flexible IT,” so too must there be flexibility “behind the IT curtain.” In other words, it behooves users to look for flexibility when deciding upon their chosen vendor. That flexibility could be everything from a range of product options, to overall management, to granularity and flexibility in terms of consumption models.

The Bigger Truth

“Hybrid IT” does not come from simply creating a “smorgasbord” of options and additions; it is about combining IT “ingredients” to produce a variable range of IT “meals,” suited to different seasons and appetites. While flash storage is still not for everything (all applications or all data storage), some amount of it is almost certainly optimal everywhere in the hybrid IT ecosystem. While hybrid IT is the physical manifestation of an ongoing transformation from IT (as infrastructure technology) to IT (as information technology), flash storage is a valuable addition—arguably a prerequisite—to that transformation, because it can improve both the effectiveness *and* efficiency of many facets of the newly flexible and dynamic hybrid IT world.

Because of both the flexibility demanded *by* hybrid IT, and the flexibility it offers *to* the business, users have an opportunity to [literally and figuratively] think outside the box. That means users should look for vendors/service providers that can

match the broad flexibility that is the hallmark of the hybrid IT world. They should examine, but also look beyond, the product itself and through to the overall offering. Flash storage is an integral part of optimizing hybrid IT, and so it pays to make a careful and considered choice.

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