

PLANNING YOUR MIGRATION TO ALL-FLASH STORAGE

PeerPaper Report



TIPS AND ADVICE FROM REAL ENTERPRISE USERS

ABSTRACT

The IT field is well past the “should we, or shouldn’t we?” stage regarding all-flash storage. For nearly every organization, the question is when, not if they will place primary storage workloads on all-flash arrays. Yet, successful migration of storage to all-flash takes planning and knowledge of best practices. This paper helps with the migration process. It offers insights for business success with all-flash storage based on real user experiences from IT Central Station. It covers how to build a business case for all-flash, provides tips on identifying success criteria for your project and highlights the importance of proof-of-concept (POC) testing to compare your alternatives and make sure you can meet your goals while achieving the best value.

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INTRODUCTION

All-flash storage has rapidly become the predominant mode of primary storage. For IT professionals, the decision to adopt all-flash has moved well past the “should we or shouldn’t we?” stage. Already, all-flash deployments are moving beyond the highest-performance, primary storage use cases. How does one best make the migration from spinning disks to all-flash arrays (AFAs)? When and how should an IT organization consider moving even more workloads onto AFAs?

This paper examines best practices for planning and implementing a new all-flash system based on input from real users on IT Central Station. The paper offers insights gleaned from their experiences when moving from traditional storage to all-flash. Frequently cited best practices include building a business case for all-flash, identifying success criteria for an all-flash project, and proof-of-concept (POC) testing to compare alternatives.

The State of Flash Adoption

The AFA market is maturing. According to the analyst firm, IDC, AFAs comprised over 80% of all primary storage revenue in 2017.¹ Now, many organizations are planning their next steps, including deploying AFAs for the purpose of mixed workload consolidation. Figure 1 visualizes this transition. Indeed, an IDC report states, “The successful vendors in this space [all-flash arrays] have all basically determined what is required for dense mixed workload consolidation.”² The all-flash trend is evident on IT Central Station, where members share their stories of AFA adoption.

Speed is a major driver of AFA adoption, of course.

A [Manager, Unix Storage Group](#) at a healthcare company³ noted, “The most valuable feature [of our NetApp AFA] is just the speed. Our databases perform much better since we moved over to it. That’s really our value. We use it for SQL and Oracle. The DBAs are happy.” A [Storage Systems Admin](#) at a university explained, “Having the option of such high-speed storage in the data center is what makes it valuable. When a request comes in for an application that requires something on flash, I have the [AFA] to go. I know that whatever the application is, it can’t beat it.”

Operational improvements also attract users to AFA. A [Senior Server Network Engineer](#) at a healthcare company praised his AFA implementation, saying,

¹ IDC MarketScope: Worldwide All-Flash Array 2017, IDC #US43310017, December 2017, IDC

² IDC MarketScope: Worldwide All-Flash Array 2017, IDC #US43310017, December 2017, IDC

³ Except where noted, all organizations cited in this paper have more than 1,000 employees

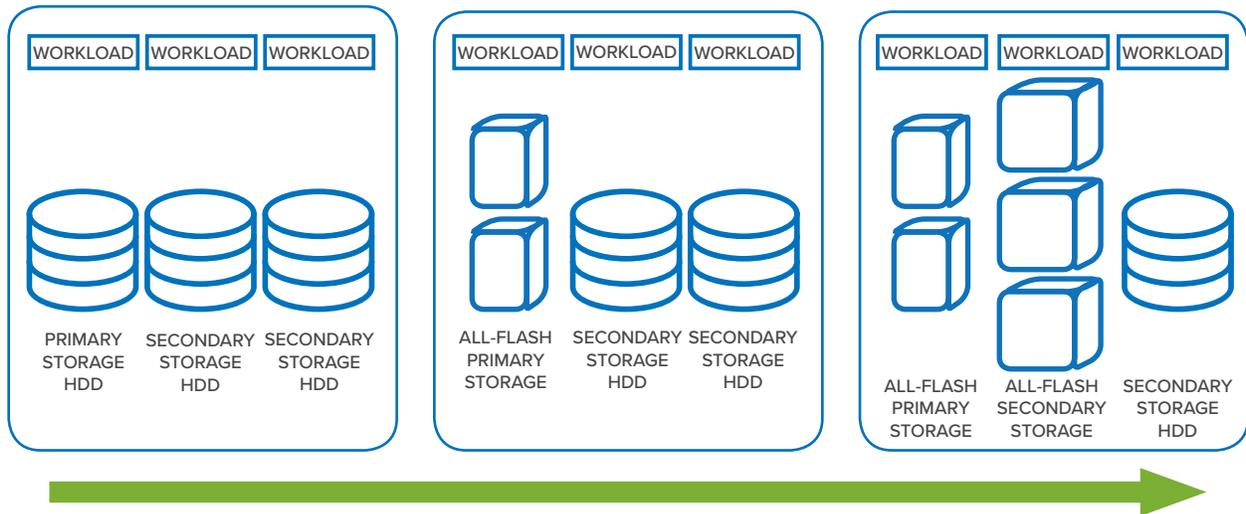


Figure 1 - IT departments are migrating more workloads to AFAs, replacing primary and secondary hard disk drive (HDD) storage in the process.

“We’re able to quickly roll out close to 2,000 VDIs [Virtual Desktops] with very little setup.” According to a [Server Administrator](#) at an energy/utilities company, AFA leads to improvements in staff productivity. He said, “I can be less proactive about monitoring it [my storage]. We don’t have to mess with tweaking it as much. On the production SAN, for instance, we’re always on there, monitoring performance, checking how it’s doing. Whereas with the [AFA solution], because there’s only one thing running on it, it runs so fast, we just let it go.”

Tips and Advice from Real Enterprise Users

IT Central Station members share their experiences with AFA solutions, offering prospective all-flash buyers helpful tips and advice. The following seven steps represent best practices that come straight from the real-world usage of AFAs in demanding IT environments.

1. DEVELOP THE BUSINESS CASE

An AFA’s features may be best-in-class, but the technology will still need to fulfill a business purpose to justify an acquisition. Understanding the business case is the first step for any IT department considering all-flash storage. For example, application performance improvements can result in improvements to business productivity. As a [Service Manager, IT](#) at a tech

company put it, “If you have better performance from your critical ERP applications and databases, that’s a gain from the cost perspective. We are able to manage our data centers better from the space perspective. Those two pieces are the key benefits.”

An [Infrastructure Architect](#) at an insurance company described a multi-faceted business case for AFA by stating, “It provides financial benefits, because we don’t have to spend as much on storage, because of the dedupe and the compression and the performance it gives us. We don’t have to buy anything else because of it.” He then added, “It’s saved us in reliability, in downtime. We’ve had downtime with our old solution. In the end, we decided that it was not worth it, financially, to keep it. We got rid of it, and invested in NetApp, and all those reliability and performance issues went away. It’s been 100% since day one.”

An [IT Manager](#) at a financial services firm with over 10,000 employees valued AFA’s ability to effect “the consolidation, the physical rack space. For example, we’ve got a project ongoing at the moment in consolidating our footprint from 20 rack spaces down into two. I think we’ve got a 70-80% footprint reduction in going from old FAS controllers to AFF.” Meanwhile, a [CEO](#) at a tech services company said, “Because it [AFA] has been used to deploy the virtualization solution, the consolidation helped optimize its center space, in terms of power, cooling, and so on and so forth. Therefore, we have had significant optimizations

across the board.”

Business benefits need not be limited to financial considerations. Business outcomes that are difficult to measure can also be compelling, such as an ability to meet an internal service level agreement (SLA) or the impact on customer experience. In this context, a [Senior Internet Services Engineer](#) at a tech company said, “We run a lot of Oracle databases that rely on performance because we want to have the business application respond within a certain amount of time for business transactions.” A [Director, Operations](#) at a media company added, “Part of our business is data processing. Any time we can take processes that are slow, find the pain points and speed them up, it helps a lot of different parts of the business.”

Your analysis may also uncover applications that will not benefit from an AFA investment. A [Storage and Unix System Administrator](#) at a financial services firm with over 50 employees noted, “We’re actually delving in to it, moving our large Oracle workloads on there. However, we don’t want to necessarily move all of those components on. There are some that clearly might not benefit from [an AFA solution]. Being that there’s a premium cost, a premium right now, and we only have one array, we need to be judicious in what we cut over. The smaller database environments are a given. Also, we’ll be moving some of our VMware, more performance-sensitive workloads, onto that.”

2. ESTABLISH YOUR SUCCESS CRITERIA

It’s important to establish success criteria in advance of investing in new IT infrastructure, and AFAs are no exception. One underappreciated reason for documenting success criteria is the importance of communicating spending decisions to key stakeholders outside the IT organization. While success, or lack thereof, may seem obvious to technologists, it’s good practice to make the success characteristics explicit, transparent, and measurable.

IT Central Station members almost invariably cite different combinations of success criteria in their AFA product reviews. A [VP of Systems Integration](#) at a tech services company said, “The most important criteria when I’m selecting a vendor are ease of use and management.” A [Systems Manager](#) at a university explained, “It’s not always about cost” and then went on to say: “Understand what your workload is first. What is it that you’re trying to accomplish so you set the proper thresholds and criteria for performance. Understand what your support service needs are.” A [System Administrator](#) at a retailer added, “The most important criteria for me when selecting a product are that it is highly available, scalable, and easy to use. It should be able to work in our environment, basically; in a mixed-workload environment.”

3. SET SPECIFIC PERFORMANCE GOALS

Storage managers love the speed of an AFA. That said,

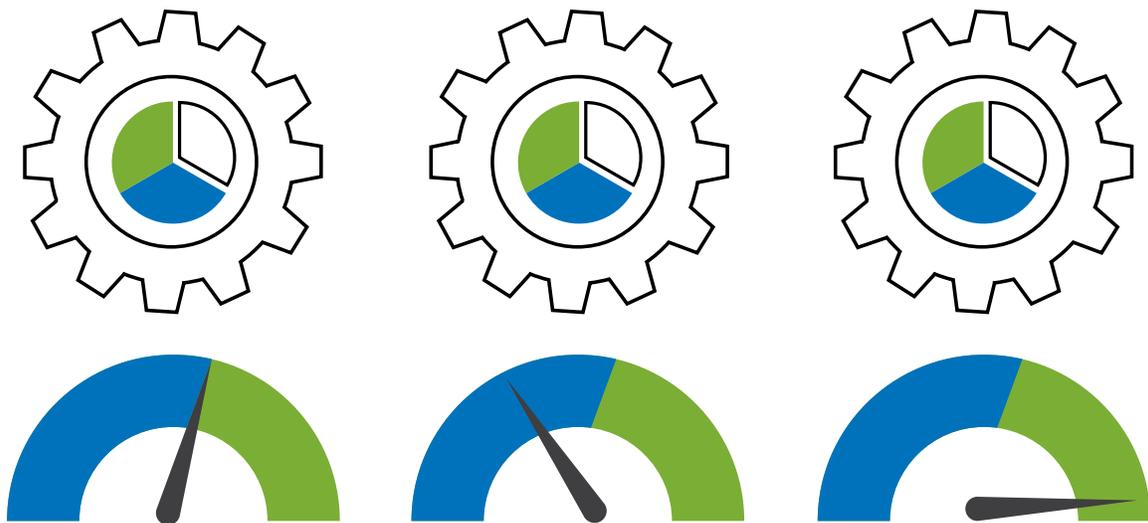


Figure 2 – Define Your Performance Requirements for Each Workload.

there is still a need to be specific about what levels of performance are required for a given workload. It's still possible to under- or over-spec performance requirements, even though flash performance provides more "wiggle room" if you underestimate your needs. If you expect to add new workloads over time, you should also investigate how you can scale performance beyond the confines of a single system.

Along these lines, a [Storage Administrator](#) at a tech company commented on his AFA's ability to meet variable performance levels. He said, "I have been there since the beginning of [NetApp] AFF, and we've deployed dozens and dozens of these clusters. Since all [the solid-state] disks are the same, and they're all very fast, we can throw all sorts of different service levels on there. The configuration is very similar and cookie cutter for everything."

A [Lead Storage/System Engineer](#) at a financial services firm advises new buyers to "Decide your current and future requirements in terms of performance, capacity scaling, application (SQL / Oracle / SharePoint / Exchange / SAP) integration, storage efficiency dedupe/compression, operational overhead, etc. and decide on a vendor based on it."

4. PREPARE FOR DATA GROWTH

Is any organization's data volume not growing? Planning for data growth is a best practice in selecting and implementing an AFA. The [Systems Manager](#) at the university said, "We decided to invest in a new storage solution just because of the data growth that we needed. We're expanding our business content, meaning disaster recovery architecture. We needed to expand to an additional site."

Growth can affect more than just storage, as a [Senior IT Specialist II](#) at a pharma/biotech company observed. He said, "What I would suggest to people that are looking at flash is to make sure they're able to do proper sizing. With buying flash, you need to also make sure your controllers are able to support the workloads you expect the flash to handle. I think flash removes the disk as the bottleneck, but then that pushes that bottleneck down to other hardware components, such as either the network SAN or storage controllers. Make sure that the rest of your system can handle it. That's what I would offer in terms

of evaluating a flash solution, and to look into scaling out versus scaling up for flash."

5. PLAN ON INFRASTRUCTURE CONSOLIDATION

AFA's present an opportunity to consolidate infrastructure. On this front, IDC recommends that users ask themselves two questions when considering AFA's: "Do I want to consolidate block- and file-based workloads on the same platform, or do I want to use separate platforms for those workloads?" and "Do I want to consolidate both physical and virtual workloads on the platform, or am I just interested in virtual workloads?"⁴

A [Senior Consultant](#) at a consultancy spoke to this issue, saying "Getting all-flash in place for us has been really helpful in consolidating a lot of those environments down to a single network structure, as opposed to spreading way out, across fiber and copper." A [Senior Data Storage Administrator](#) at a healthcare company noted, "We have consolidated on to UCS and Nexus on NetApp. The FlexPod model has made it very easy for our support staff. We don't have to support a large number of other types of vendors and such. Support from the two partners, including VMware, makes it easier for us to be able to manage it and get to the root cause of problems that we have encountered."

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6. EVALUATE EASE OF USE FACTORS

IT Central Station members don't like AFA's that require difficult, frequent updates. A [Systems Analyst](#) at a healthcare company said, "When I'm looking at a vendor to work with, I'll be blunt: I don't want to worry about it. I don't have to deal with it. I don't want to work with it a whole lot. I'd like it to be, 'I have a use for it and I want it to do that.' I don't want to have to do a lot of configuration, tweaking or perpetual updates and patches. NetApp specifically,

⁴ IDC MarketScape: Worldwide All-Flash Array 2017, IDC #US43310017, December 2017, IDC

was very, very good about one-time patches, no-downtime patches. They work well from an it-just-works standpoint. I can't always say that about all my vendors."

A [System Engineer](#) at an engineering company with over 500 employees said, "So far, stability's been excellent, and the update process was actually incredibly painless. We've upgraded twice now and I am surprised that it didn't cause any issues at all. Usually, you have to have some kind of user intervention. For this product, you just throw the image on there, click update and it's done. You come back about an hour later and you're happy." The [VP of Systems Integration](#) at the tech services company added, "For us, it's mainly about being able to transition data from one location to another rapidly, and even do incremental updates. So, that aspect of ONTAP allows us, as well as our customers, to be able to leverage great geographic distances in order to seamlessly still present their data in one location."

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A [Senior Storage Administrator](#) at a leisure / travel company praised his AFA because of "the fact that we can move forward, increase capacity, update hardware, without having to take an outage." A [Director of IT](#) at a legal firm concurred, praising his AFA as "extremely stable; never had any down time or issues with it. It's fully redundant. All of the updates have pretty much been non-interruptive."

7. RUN A PROOF-OF-CONCEPT (POC) TEST BEFORE MAKING A SELECTION

Testing an AFA on an actual workload emerges as a "must do" practice on IT Central Station. A [Principal Systems Engineer](#) at an insurance company said, "You need to evaluate your use case and do a proof of concept, testing on multiple platforms, and see what works best for you." A [Storage Administrator](#) at a retailer added, "A lot of companies will tell you that they're the best at what they do. As a company, I think it's very important that you look at POCs to see if you

can get them. Everybody can tell you they have the best product, but until you can actually prove it on your workload, you really don't know 100% for sure."

A [VP of IT](#) at an insurance company explained, "We did a PoC against other vendors. The decision came down to the simplicity of the platform." A [Senior Storage Admin](#) at a tech services company noted, "In terms of selecting a vendor, in the case of PoC, we look for more support and faster responses." Each user will look for specific outcomes in a PoC. The important thing is to give potential solutions a chance to prove themselves in your own unique environment.

CONCLUSION

As AFAs become a mainstream element of so many organizations' infrastructures, a set of best practices is emerging to help IT managers get the most out of the technology. IT Central Station members have drawn on their collective experiences to offer recommendations for enjoying an optimal experience with AFAs. Suggested practices include understanding the business case and matching performance levels to specific workloads. Pairing AFAs with performance-dependent workloads is recommended, given that all-flash is not yet suitable for all workloads. After establishing success criteria, it's recommended to engage with one or more vendors in a PoC and then consider whether to bring in professional services to help deploy the preferred solution.

Each organization will have its own way of addressing the recommendations in this paper. They are provided as a reference to help IT departments navigate the evolving AFA technology and ensure that they are getting the right solution and the best possible value for their storage investment.

ABOUT NETAPP ALL-FLASH STORAGE

Content furnished by NetApp

NetApp AFA solutions appear prominently on IT Central Station discussions of all-flash storage. We've listed a few examples below and you can find many more by visiting the [NetApp AFF product reviews](#) on IT Central Station. For the latest product information, including datasheets, technical reports, and how-to videos, visit the [NetApp AFF A-Series](#) product page on NetApp.com.

- A [Senior System Administrator](#) at a media company with over 50 employees selected NetApp and the All-Flash FAS “because of the speed of the flash, the reliability and the stability; it stays up.”
- A [Senior Systems Administrator - Storage](#) at an engineering company said, “We didn’t see a lot of value in having another siloed storage system out there that we had to support. Price-wise, NetApp was very competitive, more competitive than we had expected.”
- The [Senior Data Storage Administrator](#) at a healthcare company presented a similar outlook, saying, “The other vendors out there that we have looked at have always been bringing different solutions together and having it be a construct of many parts. That played a big role; the most important thing for this hardware to do was to stay up and running, and required the least amount of manpower that we would have to hire and administrate. Ultimately, that’s why we chose NetApp. It’s an elegant solution.”

ABOUT IT CENTRAL STATION

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The Internet has completely changed the way we make buying decisions. We now use ratings and review sites to see what other real users think before we buy electronics, book a hotel, visit a doctor or choose a restaurant. But in the world of enterprise technology, most of the information online and in your inbox comes from vendors but what you really want is objective information from other users. IT Central Station provides technology professionals with a community platform to share information about enterprise solutions.

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