White Paper

Pure Storage Agile Data Services Delivering on the "Modern Data Experience"

Sponsored by: Pure Storage

Eric Burgener
June 2020

IDC OPINION

The world has changed, and more and more enterprises are moving to digitally enhanced business models. Over 90% of enterprises have embarked on this evolution, which IDC refers to as "digital transformation" (DX). DX is a two-sided coin: while on the one hand, the new mentality of more extensively mining internal, market and customer data can definitely help to drive better business decisions, while on the other those enterprises that are slow to make this transition (i.e. digital laggards) will be at a significant competitive disadvantage going forward.

DX requires not only a new way of thinking which treats data as a strategic asset, but it also requires very different enterprise information technology (IT) infrastructure. New workloads leveraging mobile computing, social media, big data analytics and cloud technologies will be critical to the transition, and they will change the performance, availability, scalability and agility requirements of IT infrastructure. Enterprises will be modernizing their IT infrastructure at a rapid rate over the next two to three years, incorporating needed new technologies in the storage arena which will include NVMe and related solid-state storage offerings, software-defined storage, and artificial intelligence and machine learning (AI/ML) – all unified through an agile, "cloud-like" experience for all infrastructure, regardless of location. As enterprises evolve in this direction, they are creating a new, modern data experience that is at the heart of DX.

The modern data experience raises the bar in how data is stored, safeguarded, managed, accessed and mobilized. To meet the new storage requirements across these areas, enterprises will be dealing with more data than ever before, and will need high performance, highly available and highly scalable storage infrastructure that is both agile and efficient. Intelligent management, guided by AI/ML, will drive better administrative productivity and more reliable operations at this new level of scale. Pure Storage, one of the market share leading enterprise storage vendors by revenue in the All-Flash Array (AFA) space, delivers on the modern data experience with their comprehensive Agile Data Services capabilities and this white paper will explore both the definition of the modern data experience and how Pure Storage delivers it with their Agile Data Services.

IN THIS WHITE PAPER

Successful digital transformation requires that enterprise infrastructure deliver what can be termed a "modern data experience". This white paper will explore the meaning of the term modern data experience and how this connects back to delivering an enterprise infrastructure that is agile, highly

available, high performance and efficient. It will then turn to a brief discussion of how Pure Storage's Agile Data Services deliver on the requirements of the modern data experience.

SITUATION OVERVIEW

DX, which is the move to much more data-centric business models, is taking the industry by storm. Recent research by IDC indicates that 91.1% of enterprises have at least embarked on this journey, and by 2023 DX spending will grow to over 50% of all information and communications technology (ICT) spending. The workloads that will most benefit from this growth are those that leverage data intelligence and analytics, and the #1 reason enterprises are undertaking this evolution is to create information-based competitive advantages.

DX requires that enterprises come to view their data as a strategic asset that, when used effectively, can help them to optimize their product and services offerings, improve the experience they drive for their customers, streamline internal workflows and processes, and more rapidly identify new market opportunities. Data is at the core of this new strategy, and by 2023 IDC expects that 65% of enterprises will modernize their IT infrastructure with extensive new technology platform investments to meet evolving DX needs. One of the key objectives of these infrastructure modernization efforts will be to move to a more "modern" data experience.

The modern data experience raises the bar in how data is stored, safeguarded, managed, accessed and mobilized. Enterprises are capturing more data than ever before and implementing a variety of next generation applications (NGAs) that leverage mobile computing, social media, big data analytics, and cloud platforms to use that data to drive better business decisions faster than ever before. This "sea change" demands higher performance and availability as well as increased scalability and agility in the IT infrastructure. To meet these requirements, infrastructure modernization efforts are bringing key technologies into play, such as NVMe and related solid-state storage offerings, software-defined storage, AI/ML, and hybrid cloud as well as other "cloud-like" capabilities.

When enterprises first began to use public cloud services, it was primarily for data protection and disaster recovery. Public clouds provided offsite locations that were easy to bring online, were almost limitlessly scalable, and significantly lowered the costs associated with data protection activities. Since then, however, the services available on public clouds have expanded significantly, and they now provide an agile platform with access to newer technologies, like accelerated compute, AI/ML, devops, and storage-as-a-service (among others), that offer excellent options for business transformation. Software products started to become available from trusted enterprise storage providers that could be run in the public cloud to provide enterprise-class storage capabilities. Other aspects of the public cloud experience, such as easy scalability, pay-as-you-go consumption models that took IT assets off the balance sheet, and non-disruptive multi-generational technology upgrades, were very attractive as well. CIOs with hybrid cloud environments began to think more about how they could enjoy those advantages across their entire IT infrastructure (not just the public cloud-based component).

The modern data experience brings together true enterprise-class capabilities with the agility of the public cloud, all controlled from a single pane of glass that provides monitoring and management across all infrastructure components, regardless of location. Consumption model options give customers the choice of acquiring on-premise equipment through traditional outright purchase or pay-as-you-go models that let businesses move assets off the balance sheet when desired. Just as with the public cloud, on-premise IT infrastructure must be "evergreen" in the sense that it can be non-

disruptively evolved to accommodate new technologies as they become available and can be refreshed across technology generations when increased performance, scalability and/or infrastructure density is required. The modern data experience also assumes that enterprise IT infrastructure will be built around secure hybrid cloud environments that allow optimal workload placement and simple workload mobility.

The Storage Foundation for the Modern Data Experience

While the public cloud provides the agility model for the modern data experience, there is a technology foundation that is required to meet the performance, availability and efficiency demands of DX as well. Solid-state storage technology, empowered by the NVMe protocol that was designed specifically for solid-state media, provides the foundation for extremely high performance and massive parallelism that will drive the highest efficiencies with today's multi-core CPU technologies and multi-petabyte (PB) data sets. The need for NVMe extends not only to storage devices but also to the storage networks (e.g. NVMe over Fabrics) that will be required for the most performance-sensitive workloads. Some workloads require extremely low latencies and high degrees of concurrency, while others can trade performance off to achieve lower $/GB costs with massive scalability. Enterprises need to be able to choose from a menu of storage options which deliver the combinations of low latency, high throughput, massive capacity and low cost needed for different workloads.

The need for storage systems that leverage and are optimized for solid-state media is important. Compared to hard disk drives (HDDs), solid-state drives (SSDs) deliver significantly lower latencies, higher throughput, and higher density (which results in lower energy and floorspace consumption). Performance is more consistent, particularly under load. The lower flash latencies result in higher CPU utilization in servers, which means fewer CPU cores are needed to meet any given performance requirement. At scale, this means fewer servers are needed, and software licensing costs related to servers are lower. For performance-sensitive primary workloads, All-Flash Arrays (AFAs) were delivering a lower total cost of ownership (TCO) than HDD-based arrays as far back as 2014 - along with better performance, increased capacities and functionality, and higher efficiency. New solid-state technology, such as 3D and quad-level cell (QLC) media, continue to push the $/GB cost of flash down, enabling the availability of AFAs that can be cost-effectively used for tier 2 and other secondary storage workloads (relative to the much slower and less efficient near line HDD-based platforms). Although over the last decade many AFAs used the SCSI protocol, NVMe is the protocol that will unlock the true performance capabilities of solid-state media, whether that is for performance, storage density, or infrastructure efficiency. That is why NVMe is the future of enterprise storage.

Enterprises undergoing DX find that, as their IT infrastructure becomes a more strategic determinant of their competitive advantage, their availability requirements increase as well. Different workloads re-quire different levels of availability, but recent primary research by IDC sheds light on what is required for enterprises' most mission-critical workloads. 34.6% of enterprises manage their most mission-critical workloads to "five nines" or greater availability – that's roughly five minutes of downtime or less per year. Being able to put together high availability strategies that can perform at this level requires lots of different types of data services that can be applied selectively at the application level as needed - a "defense in depth" strategy, if you will. IDC's research has uncovered what capabilities enterprises depend on to meet these requirements: at least dual parity RAID, multi-pathing, snapshots, replication options (including stretch clusters that can provide zero recovery point objective (RPO) and zero recovery time objective (RTO) capabilities), transparent recovery from component failures, and redundant, hot pluggable components. Customers also depend heavily on tiered backup software that

enables low RPO/RTO from local data with cost-effective and massively scalable offsite storage options such as public cloud.

It is interesting to note that the rise of AI/ML-driven big data analytics applications to better inform business decisions is mirrored by the use of those same technologies to improve the self-management capabilities of IT infrastructure. More forward-looking enterprise storage vendors have already replaced their traditional "remote monitoring" systems with cloud-based predictive analytics platforms. These platforms are different from the simple telemetry approaches of the past in three ways:

- First, they have increased the number of sensors and the amount of machine data collected by several orders of magnitude and extended the monitoring beyond just storage to include servers, network components, and applications – all under a single pane of glass.

- Second, they store this data in a secure cloud-based environment owned by the storage vendor that allows them to retain all the data collected from their entire installed base for years, and makes that data easily accessible to functional groups (within the vendor) like technical support, product management, sales and marketing, and finance for analysis and planning purposes.

- And third, this data is analyzed using AI/ML algorithms which can ultimately improve the vendors' ability to do everything from resolve technical issues faster (or even before the customer knows there is a problem) to pre-validate upgrades to reduce risk, aid in performance and capacity planning, better disseminate best practices, assist in product planning, streamline existing workflows and processes, and many more.

IDC has also noted that many vendors are building on-board AI/ML capabilities into the systems themselves to make them more self-managing while better enabling their ability to meet prescribed service level agreements (SLAs). The vendors doing the best job of leveraging AI/ML to drive meaningful value for their customers, both within systems themselves and within the cloud, are able to verify these improvements with quantifiable metrics which indicate everything from improved availability, decreased numbers of support calls and faster problem resolution to higher data reduction ratios, better customer experience (CX) metrics such as Net Promoter Score (NPS), and improved infrastructure efficiencies (e.g. watts/TB, watts/IOPS, effective TB/U, etc.).

DX will inevitably move enterprises in the direction of hybrid cloud – the IT infrastructure strategy that IDC believes will dominate going forward. In the "holy grail" of hybrid cloud, the "public cloud experience" of on-demand agility, easy access to updated technologies, and extensive automation and orchestration is extended to cover more on-premise offerings as well. While certain newer business models may be able to run their entire businesses in the cloud, for most enterprises there are certain performance, availability, security, compliance and regulatory requirements that will continue to demand owned, on-premise IT infrastructure. This will be particularly true when it comes to capabilities that have traditionally been considered "enterprise-class" - extremely low latency, very high availability, demanding security requirements, etc. How well a vendor can create a seamless environment that combines multiple public clouds with on-premises IT infrastructure will become an increasingly important purchase criteria as enterprises get farther down the DX path.

PURE STORAGE: DELIVERING THE MODERN DATA EXPERIENCE

Pure Storage started out with a blank sheet of paper to design enterprise-class storage systems that used only solid-state storage – no HDDs. This focus has served their customers well – Pure Storage has grown to be a $1.6B vendor that has garnered a top market share spot by revenue in a group that

is otherwise dominated by the established enterprise storage providers. Along the way, Pure Storage has introduced a number of industry firsts that have positively changed the face of the enterprise storage CX and encouraged their major competitors to follow in their footsteps:

- Pure Storage was the first vendor to tackle and resolve the challenges that ultimately made all-flash media appropriate and cost-effective for general purpose primary storage platforms for structured workloads: combining less expensive consumer grade flash with software enhancements to drive enterprise-class endurance; and in-line data reduction (compression and deduplication) technology to drive an effective $/GB cost that rivalled that of the era's high performance HDDs. These capabilities allowed them to introduce an all-flash system with 10x the performance of HDD-based arrays at roughly the same cost. The result: the FlashArray introduction in 2012.

- Pure Storage changed the enterprise storage value proposition by bundling all software with the base price of their arrays (unlike other vendors who were charging a la carte for the array software) and then upped the ante with their Evergreen Storage guarantee programs (which included money back, data reduction, right sizing (performance and capacity), and fixed maintenance cost for the life of the array guarantees). In addition to technical support, Evergreen Storage also included guaranteed trade in credit amounts when customers wanted to move to next generation controllers and/or storage devices, and offered the first ever non-disruptive multi-generational technology refresh guarantee to move arrays from SCSI to NVMe, a feature that has never been copied.

- Pure Storage was one of the first vendors to begin to harness AI/ML to optimize and automate many aspects of array management with their Pure1 Meta cloud-based predictive analytics platform. Even as other vendors eventually began to introduce their own versions of this, Pure Storage has set a high bar with not only functionality but also by clearly explaining how they drive performance, availability, efficiency and cost value for their customers with this platform.

- Like many startups, Pure Storage also originally emphasized their focus on putting the customer first but what set them apart from others was that they continued to do this over time as they grew to be a $1B+ company. The proof point here is that they have tracked and published a third-party verified metric (the Net Promoter Score) that gives them the highest consistently published CX rating (83.3 as of May 2020) from any external storage vendor[1].

- True to their original mission of using all solid-state media for enterprise storage solutions, Pure Storage added to their original FlashArray line, introducing the first purpose-built AFA for unstructured data workloads (the FlashBlade in 2016) and the first purpose-built secondary storage array (the FlashArray//C) in 2019. They have also introduced an offering that brings all of their enterprise-class capabilities to the public cloud: Pure Cloud Block Store. All of these products used innovative designs to cost-effectively bring the performance, efficiency and storage density of all-flash to markets that had been dominated by HDD-based arrays.

Over the last several years, the vendor has been filling out their hybrid cloud integration strategy and bringing the "cloud experience" to on-premise IT infrastructure. The Pure1 Meta dashboard provides the unified management interface that monitors and centrally manages everything from a single Pure Storage array to an entire fleet that spans both on- and off-premise locations. Integrated data mobility features allow snapshots to be taken on any Pure Storage array and exchanged between and used by

---

[1] The Net Promoter Score (NPS) is a standardized measure of customer satisfaction that is broadly used across 220+ industries to provide an independent rating, based on customer response, of the quality of experience a vendor delivers to its customers. For further information about NPS, see *NPS Becoming an Important Metric for Enterprise Storage Managers to Understand,* IDC #US43896818, June 2018).

other Pure Storage arrays, 3rd party NFS servers, and public cloud environments. Integrated data reduction technology ensures that data is efficiently transmitted between Pure Storage arrays and public cloud environments without worrying about rehydration - the vendor's software handles all that transparently.

The vendor offers true enterprise-class storage capabilities in public clouds by allowing customers to run a software-only instance of Purity//FA (the vendor's storage operating system) on top of webscale infrastructure. Pure's orchestration tools allow workflows that can span on- and off-premise locations to be automated to increase administrative productivity and improve the reliability of operations. Finally, while customers can of course buy IT infrastructure from Pure Storage outright, the vendor's Pure-as-a-Service offerings let buyers purchase any Pure Storage products using subscription-based pricing (pay-as-you-go) that moves those assets off balance sheet and can consolidate billing for the vendor's infrastructure both on-premise and in the public cloud. Taken together, this combination of hardware design, software functionality, hybrid cloud integration, and CX programs deliver what Pure Storage refers to as Agile Data Services.

The vendor's flagship FlashArray//X systems, which are optimized for performance- and availability-sensitive workloads, span from the midrange to the high end in enterprise storage. Systems can non-disruptively grow from tens of terabytes (TBs) to PBs of effective capacity, delivering millions of IOPS and up to "six nines" of availability. These systems are all based around NVMe and support Fibre Channel (FC) and Ethernet host connection options. The vendor has tens of thousands of arrays in the field, and continuously tracks hundreds of metrics for each connected system through Pure1 Meta. As of this writing, the vendor confirmed that it has been delivering 99.99996% availability across their entire installed base since the FlashArray//X was first shipped in 2017.

How The Purity//FA Storage OS Delivers Agile Data Services

Purity//FA is the vendor's enterprise-class storage operating system, and it is at the core of Pure Storage's ability to deliver the modern data experience through their Agile Data Services offering. The software-defined mentality that pervades Pure Storage's engineering design philosophy gives the vendor an ability to optimize their designs for improved efficiencies in a manner that is not available with off-the-shelf enterprise SSD hardware. What this translates into for customers is better utilization of storage resources for improved endurance and lower cost as well as better agility.

Purity//FA was originally designed only for solid-state storage and is optimized to get the most out of the media to drive performance, capacity utilization, reliability, and endurance benefits. There are no vestiges of functionality for managing much slower HDDs in this platform. Purity//FA offers the enterprise-class features digitally transforming businesses expect to handle the requirements of mission-critical legacy workloads as well as NGAs: thin provisioning, in-line data reduction, dual parity RAID, multi pathing, transparent controller failover, snapshots, encryption, quality of service, and various replication options. It also includes the Purity//FA Run feature, which optionally allows storage applications to be run directly on the FlashArray in sandboxed KVM virtual machines.   It is helpful to call out the business benefits of some of Purity//FA's more unique features:

- ▪ The vendor's in-line data reduction uses five different algorithms to squeeze very high data reduction ratios out of the data – pattern removal, deduplication, compression, deep reduction and copy reduction – and typically delivers ratios that are twice as high as their competitors for similar data sets (10:1 is the average across the mixed workloads running in their installed base). Higher data reduction ratios translate directly to lower $/GB capacity costs.

- Purity//FA's EncryptReduce feature implements FIPS 140-2 compliant encryption for data both in-flight and at-rest while at the same time allowing the FlashArray to perform its standard data reduction, driving comprehensive security with very efficient network bandwidth and space utilization.
- Purity//FA Optimize provides quality of service capabilities to ensure that different types of workloads can be co-located on a single system without fear of "noisy neighbor" problems arising. Enterprises can meet defined SLAs and, when extra performance is needed, also configure the DirectMemory Cache option (FlashArray//X70 and //X90 only). DirectMemory Cache is based on storage class memory and can deliver latencies as low as 150 microseconds.

Key Recent Enhancements to Purity//FA

Two recent enhancements broaden the type of workloads which can benefit from the FlashArray//X storage platform: ActiveDR and expanded protocol support.

ActiveDR

While the FlashArray//X can already support "six nines" availability, there are workloads that require even higher availability (i.e. near zero RPO/RTO). Purity//FA has supported snapshot-based replication for years, as well as stretch cluster configurations that leverage this form of replication (the vendor calls these ActiveCluster configurations). Stretch clusters effectively create a single logical storage platform that can span long distances, enabling very rapid failover to a remote, secondary array that happens automatically in the event of a large-scale disaster like a site failure. Snapshot-based replication is the most bandwidth-efficient way to replicate data between systems, but it can realistically only support RPOs down to around 5 minutes. For those customers that require near zero RPO, Pure Storage has now introduced ActiveDR.

ActiveDR leverages continuous rather than snapshot-based asynchronous replication. It can support stretch clusters built from sites that can be thousands of miles apart to ensure that a catastrophic disaster like an earthquake or a storm will not preclude the ability to recover quickly. With ActiveDR, the replication is continuous rather than snapshot-based, so it takes up a little more bandwidth but brings the possibility of data loss on recovery to almost zero at the secondary site. Other nice features of ActiveDR are that it supports fast recovery (the failover is automatic once the primary site is compromised), it allows customers to test failover operations without losing data (zero RPO), and it enables customers to easily reverse replication for quick recovery once the primary site is back online.

Expanded Protocol Support

Since 2012, the FlashArray has supported block-based workloads. When Pure Storage introduced FlashBlade in 2016, that was specifically targeted at application file access for AI/ML and other more technically-oriented use cases (big data analytics, genomics, predictive data science, etc.). User file access, based on file-based protocols like NFS and SMB, have often required separate file-based servers. With Purity//FA 6, Pure Storage introduced unified storage support across the entire Flash-Array//X product line. Unified storage can simultaneously support both block- and file-based storage, providing opportunities for workload consolidation that streamlines IT infrastructure.

Unlike many competitors who have added file gateways to their storage platforms to support file-based services, Pure Storage has natively integrated file support into their storage operating system. Based on the intellectual property gained with the Compuverde acquisition in 2019, Purity//FA now supports full-featured versions of both NFS and SMB that deliver high (not "gateway") performance. Block and

file storage can now be simultaneously run on the same platform to consolidate infrastructure and enable more efficient data sharing for workflows that span block- and file-based applications. Purity//FA's quality of service capabilities ensure that individual workloads will be able to meet their defined SLAs, and both types of workloads (block and file) can now benefit from Pure Storage's highly efficient global data reduction, intelligent management (Pure1 Meta), consumption model choices and other enterprise-class features – as well as the unique CX delivered by the vendor's Evergreen Storage program.

Smaller FlashArray//X platforms like the //X10 and //X20 can help to streamline edge and distributed environment infrastructure by consolidating block and file workloads onto a single storage platform. Larger platforms like the //X50, //X70 and //X90 can help to bring those same consolidation benefits to core and other datacenter-based locations.

Pure Storage Agile Data Services: Delivering the Modern Data Experience

The modern data experience is tied to the IT infrastructure requirements associated with DX. It makes data a key strategic asset, driving changes in how it is stored, safeguarded, managed, accessed and mobilized. Storing data requires new technologies like NVMe that deliver the performance and IT infrastructure density and efficiency needed in particular by the NGAs being deployed to meet the business needs of DX. Safeguarding data requires strong, flexible, end-to-end security options that do not negatively impact application performance, support multi-tenancy, and have been proven to meet specific compliance and regulatory requirements. Managing data requires the agility of software-defined storage, a broad set of proven enterprise-class data services, and a unified view of all IT infrastructure regardless of location – all informed by policy-driven, AI/ML-infused intelligent management capabilities. Accessing data means the flexibility of multiple protocols and access methods that can make the data available in the form required by different applications, with support for protocols like FC, iSCSI and NVMe over Fabrics as well as block- and file- based access methods. Mobilization requires the ability to efficiently place or move data to the optimal location for its use with easy portability, secure data distribution, and end-to-end data reduction and encryption.

Pure Storage is helping their customers meet the requirements of DX with Agile Data Services. Agile Data Services is not a single product. It is rather the combination of products and services that customers choose to implement as they deploy technology solutions from Pure Storage. The vendor's portfolio includes structured and unstructured data platforms, all flash-optimized and software-defined, to cost-effectively meet the performance, availability, and ease of use requirements of the modern, digitally transformed enterprise. They are recognized leaders in how they are leveraging AI/ML-driven management to simplify and improve the reliability of administrative operations, have proven enterprise-class capabilities, support a variety of different consumption models, and have created the same "cloud-like" experience for both on-premise and public cloud-based infrastructure. And the vendor has done all this while delivering on a new class of CX that has changed the industry forever.

CHALLENGES/OPPORTUNITIES

The most recent Purity//FA enhancements – ActiveDR and expanded protocol support – give Pure Storage the opportunity to talk to types of customers that may not know the vendor's reputation. The vendor's new file-serving capabilities are targeted at user file shares, and many user file share environments will be coming from HDD-based arrays. As Pure Storage looks to consolidate those onto their FlashArray platforms along with other block-based workloads, they may have to revisit TCO arguments that the vendor effectively put to bed on the block side as far back as 2014. The

consolidation play brings end user benefits – simpler management (due not only to Pure Storage's use of AI/ML but also because customers will end up managing fewer platforms), higher availability, better scalability, streamlined infrastructure with lower energy and floorspace consumption, and of course, better performance through all-flash.   But a vendor must offer the tools to address the "noisy neighbor" concern which can be a challenge in unified storage environments. Pure Storage has the needed capabilities already built into their Purity//FA storage OS.

These new features do present clear opportunities for Pure Storage. For the vendor themselves, the expanded total available market (TAM) – in particular for the new file systems feature – provides them ample room to continue their revenue growth (which for 2019 bested all their competitors). The ability to address the user file share market should be a boon to the vendor's prospects in 2020 and beyond. The ActiveDR capability opens the door to hosting extremely high availability workloads that in the past customers may not have been comfortable putting on a FlashArray. This gives Pure Storage an additional competitive weapon it can use when displacing legacy equipment from other vendors on technology refresh.

The concept of Agile Data Services gives Pure Storage an effective marketing framework from which to explain not only the new storage requirements of DX but also how their comprehensive offerings drive value for customers who are in the midst of their DX journey. But Agile Data Services is more than just a framework – it is chock full of the functionality that drives the modern data experience.

CONCLUSION

By 2023, 65% of enterprises will be modernizing their IT infrastructure to help them better achieve the goals of DX. Those modernizing storage infrastructure will be looking to integrate key new technologies like NVMe, software-defined flexibility, intelligent management operations driven by AI/ML, and hybrid cloud integration capabilities administered from a single pane of glass. The over-arching objective behind this evolution is to create information-based competitive advantage in an increasingly digitized world. To transform their business models, enterprises will need to re-think how they store, safeguard, manage, access and mobilize their data assets, implementing new best practices and workflows that view data as a key strategic asset. To achieve that, IT organizations will need to prepare for and deliver on the modern data experience.

With Agile Data Services, Pure Storage is delivering on that modern data experience. Their portfolio has included some of the key technologies, like NVMe and software-defined, longer than most of their competitors, they were early to leverage AI/ML-infused analytics to drive direct value to customers and still set a high bar for their competitors in this area, and they have a strong hybrid cloud integration strategy that meets the storage, safeguard, manage, access and mobility requirements for data in the digitally transformed world. In simplifying hybrid cloud management, the vendor delivers the "cloud experience" not only through public cloud offerings but also with their on-premise infrastructure solutions. And on top of all that, they deliver a CX that is the envy of their competitors and rewards them with an extremely high level of repeat purchase business.

Enterprises that will be moving into the digital era would do well to look at Pure Storage. DX requires a modern data experience, and Pure Storage delivers on that with a quality CX that is a truly meaningful differentiator for their customer base.

About IDC

International Data Corporation (IDC) is the premier global provider of market intelligence, advisory services, and events for the information technology, telecommunications and consumer technology markets. IDC helps IT professionals, business executives, and the investment community make fact-based decisions on technology purchases and business strategy. More than 1,100 IDC analysts provide global, regional, and local expertise on technology and industry opportunities and trends in over 110 countries worldwide. For 50 years, IDC has provided strategic insights to help our clients achieve their key business objectives. IDC is a subsidiary of IDG, the world's leading technology media, research, and events company.

Global Headquarters

5 Speen Street
Framingham, MA 01701
USA
508.872.8200
Twitter: @IDC
idc-community.com
www.idc.com