WHY PURE STORAGE FOR MICROSOFT® APPLICATIONS?

Pure Storage® solutions deliver the capabilities needed for speed, agility, and intelligence across increasingly complex Microsoft® workloads and applications.
10 REASONS TO CHOOSE THE PURE DATA-CENTRIC ARCHITECTURE FOR MICROSOFT APPLICATIONS

Microsoft applications — whether databases, virtualization solutions, development environments, server operating systems, or collaboration tools — must remain available and deliver the performance needed to compete in a digital world without significant overhead. The Pure Data-Centric Architecture provides just that. Here are some of the reasons to choose Pure Storage solutions for Microsoft applications.

1. **INTEGRATION**
   Value-added integrations for Microsoft applications

2. **AGILITY**
   Maximum agility with maximum simplicity

3. **SPEED**
   Faster everywhere

4. **AVAILABILITY**
   Always-on customer data services with six-nines availability for Pure Storage FlashArray products¹

5. **EFFICIENCY**
   Increased efficiency with less hardware and Evergreen™ Storage model upgrades

6. **INSIGHT**
   Advantage from data at scale

7. **CONSOLIDATION**
   Consolidated workloads and environments on a single platform

8. **COST**
   Lower costs

9. **CREDIBILITY**
   A solution used by customers worldwide and recognized as a leader

10. **ALLIANCE**
    A strong partnership between Pure Storage and Microsoft

// CLICK ANY REASON TO FIND OUT MORE
1. INTEGRATION

VALUE-ADDED INTEGRATIONS FOR MICROSOFT APPLICATIONS

A variety of Pure Storage value-added integrations for Microsoft® SQL Server® software, the Windows Server® operating system, Windows® desktop operating systems, Hyper-V® technology, and the Microsoft® Azure® platform are currently available, and additional integrations are released regularly.

Some of the integrations with Pure Storage solutions that make Microsoft applications more efficient to manage include those that:

- Create management workflows with Microsoft® System Center Orchestrator, which uses the Pure Storage PowerShell™ SDK
- Perform centralized management and reporting with Hyper-V using the System Center suite
- View performance and capacity metrics for the Pure Storage platform using System Center Operations Manager
- Run Windows File Services (WFS) with best-of-breed Server Message Block (SMB) 2/3 and Network File System (NFS) 3/4 protocols on FlashArray products
- Access hybrid-cloud connectivity using Open Connect for Azure and Amazon Web Services® (AWS®)

“WITH PURE, WE’RE ABLE TO SPIN UP NEW SYSTEMS, ATTACH THE DATA, AND ALLOW THE BI GROUP TO DO ITS THING, WITHOUT CONCERNS ABOUT WHAT IT’LL DO TO OUR PRODUCTION ENVIRONMENT.”

— Chad Plemons, Director of Digital Operations, TTX
2. AGILITY

MAXIMUM AGILITY WITH MAXIMUM SIMPLICITY

Fast and Easy to Deploy

Pure Storage solutions for Microsoft applications are faster to deploy than other storage solutions. A Pure Storage all-flash array can be set up and optimized in as little as 30 minutes.\(^2\) Installation requires just one box with one chassis and six cables. All the instructions needed are in the "Getting Started Guide," which is the size of a business card.

30 MINUTES TO DEPLOY
compared to days for some solutions\(^2\)

Quick and Simple to Manage with On-Demand and Elastic Services

Once a Pure Storage solution is deployed, admins can use web-based management and allocate compute resources on demand. New development environments can be created almost instantaneously. Automation and simple management for Microsoft applications is accomplished using the Pure Storage PowerShell SDK, which includes cmdlets that map to all implemented REST APIs in Pure Storage all-flash arrays. Admins can also use System Center Orchestrator with the Pure Storage PowerShell SDK to easily create workflows when needed.

Automate Backup, Recovery, and Data-at-Rest Encryption

Pure Storage solutions automate backup, disaster recovery, and copy data management for Microsoft applications. Admins can automate everything with protection policies and achieve low recovery point objectives (RPO) and zero recovery time objectives (RTO) without investing in added tools or infrastructure. All data services are built-in and available for no added cost.

Pure Storage solutions use data-at-rest encryption to secure 100% of data as it is written to the array — a process that doesn’t impact performance. It also ensures that data stays secure even if someone gets ahold of the media from the array. Organizations can also continue using transparent data-encrypted databases to further protect data and increase performance.

“WE HAD THE PURE ARRAY UP AND RUNNING, AND OUR VIRTUAL INFRASTRUCTURE MIGRATED ONTO IT, IN ABOUT TWO HOURS.”

— David Woolley, Senior Director, Network Operations, San Francisco Giants
3. **SPEED**

**FASTER, EVERYWHERE**

**Better Throughput**

Microsoft applications are sensitive to the speed and resilience of an underlying storage solution. With Pure Storage, organizations can expect generally consistent sub-millisecond — even deterministic — latency and 3–5 times better throughput for transactional and business-intelligence (BI) systems.³

Microsoft applications are sensitive to the speed and resilience of an underlying storage solution. With Pure Storage, organizations can expect generally consistent sub-millisecond — even deterministic — latency and 3–5 times better throughput for transactional and business-intelligence (BI) systems.³

Organizations can also run OLTP in parallel with other workloads and still achieve high throughput for transactional databases.

### Faster Data

Pure Storage solutions include immutable FlashProtect™ snapshots, which means deleting a snapshot won’t impact the snapshots around it. With immutable snapshots, organizations achieve faster data processing, better data analysis, and easier administration.

Pure Storage solutions also offer integration with the Microsoft ODX API for fast, transparent, and automatic data copy and move services for files and VMs, on to Pure Storage solutions.

By offloading the data transfer to the storage array, the Pure Storage ODX implementation minimizes latencies, maximizes throughput, and reduces resource usage, such as CPU and network consumption on the host systems.

---

**“PURE STORAGE IS ABSOLUTELY SMOKING OUR SQL TRANSACTIONS COMPARED TO WHAT WE HAD DEPLOYED BEFORE. ... WE ARE SEEING IMPROVEMENTS OF 150% OR MORE IN THESE TRANSACTIONS. ... WE WERE SEEING IOPS IN THE LOW THOUSANDS. ON PURE, WE’RE SEEING AS HIGH AS 260,000 IOPS.”**

— Patrick Welch, Network Services Manager, Mississippi Department of Revenue

---

| **20x** | database transaction performance improvement for Mississippi Department of Revenue⁴ |
| **0.3–0.7 ms** | average latency⁵ |
| **Up to 80x** | increase in performance for data-copy and file-transfer operations with ODX⁶ |
| **SUB-MILLISECOND** | performance for over 98% of IOPS for SurveyMonkey⁷ |
4. AVAILABILITY

ALWAYS-ON CUSTOMER DATA SERVICES WITH SIX-NINES AVAILABILITY FOR PURE STORAGE FLASHARRAY PRODUCTS

Six-Nines Availability

Pure Storage FlashArray products deliver 99.9999% availability for business-critical workloads, such as SQL Server and Hyper-V. This gives organizations always-on customer data services, which helps ensure data is always accessible and always protected without any loss in performance.

- A clustered-controller design allows for the complete failure of a controller or any controller component without impacting operations.
- Flash modules, non-volatile RAM (NVRAM) modules, and controllers are hot-swappable for continuous operation, even when recovering from a failure.
- A stateless-controller architecture means a team can simply unplug a failed controller, cable up a new one, and get back to full availability — all without any impact on performance.

99.9999% AVAILABILITY FOR FLASHARRAY PRODUCTS

Global Predictive Intelligence

Predictive support lets Pure Storage anticipate vulnerabilities to known issues and take preemptive action to minimize downtime risk. Pure Storage® Pure1® Meta™ uses an artificial-intelligence (AI) engine for global predictive intelligence. Telemetry data continuously captured from thousands of customer deployments is used to protect Pure Storage arrays from known vulnerabilities and alert customers to potential issues not related to the array that might affect performance. Pure1 Meta uses its AI engine to learn and become even more effective over time.

Reinforced Availability for Microsoft Applications

Innovative RAID-HA with Pure Storage FlashArray products ensures data availability with adaptive data protection. Organizations can continue to use the AlwaysOn Availability groups in SQL Server to further maximize and ensure availability.

In the rare event that a human-caused outage occurs, policy-driven Pure Storage FlashRecover snapshot and replication capabilities facilitate a fast recovery.

Not Just Availability, but Predictive Resiliency

DirectFlash™ software gives organizations the ability to predict and manage potential failures. DirectFlash is the world’s first software-defined flash module. It gathers detailed telemetry down to the flash block level and continuously calls home through the Pure1® cloud-based management platform. Pure1 Global Insight technology’s predictive analytics and machine learning technologies also help predict and manage potential failures.

“THANKS TO PURE’S SCALABLE CAPACITY, OUR SAAS-BASED SERVICES ARE ASSURED OF UNINTERRUPTED UPTIME, WHICH IS CRITICAL TO MEETING OUR CUSTOMERS’ DEMANDING SLAS.”

— Ray Nichols, Senior Database Administrator, Geographic Solutions
5. EFFICIENCY

INCREASED EFFICIENCY WITH LESS HARDWARE AND EVERGREEN STORAGE MODEL UPGRADES

Increase Data-Management Efficiency
Pure Storage solutions offer 3:1 data reduction for Microsoft applications, such as SQL Server and Hyper-V. Some customers have realized higher data reduction in their own environments. Organizations can also achieve higher reduction by deploying availability groups.

With Pure Storage Solution for Microsoft Applications, Less Is More
The FlashArray//X product is a 100 percent NVM Express® (NVMe™) all-flash array and uses Pure Storage DirectFlash software, which makes it 100 percent software-driven. Software-driven NVMe flash management eliminates conventional solid-state drives (SSDs). And compared to those conventional SSDs, NVMe flash management delivers maximum efficiency with:

- Up to 50% lower latency
- Deterministic latency
- 5x greater density
- Up to 30% more usable capacity from the same media

Organizations can use FlashArray//X to reduce the amount of hardware needed. Organizations can also save up to 10x power, cooling, and space with any Pure Storage FlashArray product.

Start Out Right — Guaranteed
The Pure Storage Right-Size Guarantee provides guaranteed effective capacity, risk-free and in writing, for six months. Organizations achieve better data reduction and efficient, cost-effective storage without any risk of undersizing resulting from thin provisioning.

“WE ARE SEEING A DATA-REDUCTION RATE OF 3.8:1 ON THE PURE STORAGE ARRAY, WHICH NOT ONLY REDUCES FOOTPRINT IN THE DATA CENTER, BUT ALSO GIVES US THE ABILITY TO SPIN UP ADDITIONAL DATABASES FOR APPLICATION DEVELOPMENT WITHOUT IMPACTING PERFORMANCE OR CONSUMING PRECIOUS STORAGE CAPACITY.”

— Ray Smith, Assistant Executive Director for Technology, Mississippi Community College Board

UP TO 50%
average savings on power, cooling, and space

79%
data reduction in data footprint by storing 35 TB of data in 7.5 TB capacity for Sierra Nevada Brewing Co.
6. INSIGHT

**ADVANTAGES FROM DATA AT SCALE**

Scale on Demand

The Pure Data-Centric Architecture can take an organization from a single application to an all-flash cloud. This unique architecture is defined by software that is modular, stateless, scalable, field-serviceable, and field-upgradable.

The FlashStack™ solution is designed to let organizations scale capacity and performance independently. FlashStack can consolidate and scale hundreds of application instances without compromising availability. And organizations can scale from 5 TB to 1.5 PB with no migration and no downtime.

Scale from **5 TB TO >1.5 PB**

with no migration and no downtime with the FlashStack solution

Storage That Never Grows Old

**Pure Storage Evergreen Storage** model lets organizations deploy once and upgrade when they need more storage, for up to a decade or more — with no downtime, no performance impact, and no data migration. Organizations never have to deploy a Microsoft application on an undersized or over-utilized storage infrastructure. They can mix and match components online without performance disruption to keep storage dense, efficient, and modern. Benefits include:

- Access to annual controller upgrades
- Continuous software upgrades and innovations
- Flat maintenance pricing

**Evergreen Storage** capacity consolidation lets organizations keep their media modern and dense as they expand. They can deploy Microsoft applications on any FlashArray implementation — from 5 TB up to 3 PB — without migrating data between storage arrays. And organizations receive credit for terabytes they already own when expanding or consolidating, so organizations never pay for a terabyte more than once.

1X

Deploy once and upgrade as needed for 10 years or more

“IT'S A HUGE PLUS TO KNOW THAT A FEW YEARS FROM NOW, I WILL NOT HAVE TO DO A FORKLIFT UPGRADE.”

— David Woolley, Senior Director, Network Operations, San Francisco Giants
7. CONSOLIDATION

CONSOLIDATED WORKLOADS AND ENVIRONMENTS ON A SINGLE PLATFORM

One Platform for All Your Needs

Flash storage eliminates the performance delays caused by the inherent latency of disk storage. With latency removed, Pure Storage solutions enable organizations to run applications; versions of applications; OLTP, OLAP, and DSS workloads; and dev, test, quality assurance (QA), and production environments in parallel on a single platform — with the same or better performance than with traditional disk storage.

The Pure Data-Centric Architecture also provides all the storage services needed to support evolving needs — block, VM, file, or object — and to consolidate databases, VMs, analytics, or web-scale applications.

Add More Storage Anytime

The FlashArray//X product provides even greater consolidation with up to 3 PB of storage in just 6U. The product meets all Microsoft application storage needs and provides database acceleration, entry-level workload acceleration, top-of-rack shared attached storage (SAS) replacement, and tier-1 and all-flash cloud consolidation — whatever is needed.

6U: Up to 3 PB

"WE ARE GETTING A PHENOMENAL AMOUNT OF DATA IN A VERY SMALL SPACE, AND IT RUNS INCREDIBLY FAST. YOU SIMPLY CANNOT ARGUE WITH THE PERFORMANCE."

— Brian Moffitt, Information Security Manager, First Rate
8. COST

LOWER COSTS

Spend Less, Get More

When organizations choose Pure Storage solutions for Microsoft applications, organizations can reduce physical storage requirements by up to 10x. That's less floor space to pay for and less hardware to power and cool. Data reduction also enables buying less storage to begin with.

UP TO 10X

reduction in physical storage requirements

If security is the only reason an organization runs SQL Server Enterprise edition, the data-at-rest encryption capabilities in the Pure Storage platform support downgrading SQL Server Enterprise edition to Standard edition, which can potentially reduce SQL Server licensing costs.

Reduce Data Volume and More

Less data volume further reduces space and infrastructure costs.

- Data reduction starts at 3:1
- The Evergreen Storage model lets organizations avoid expensive and disruptive forklift upgrades
- Immutable space-efficient snapshots serve all copy-data needs

$200,000 savings in hardware for Sierra Nevada Brewing Co.

“PURE SAVES A LOT OF MONEY, A LOT OF POWER, AND A LOT OF COMPLEXITY.”

— Sasha Kipervarg, Senior Manager, Workday
9. CREDIBILITY

A SOLUTION USED BY CUSTOMERS WORLDWIDE AND RECOGNIZED AS A LEADER

Don’t Take Our Word for it, Take Our Customers’ Words

More than 4,000 customers deploy and run Pure Storage solutions — including Microsoft itself.

- Microsoft uses Pure Storage for workload performance validation and testing of SQL Server on Linux in the SQLCAT Lab in Redmond, Washington.
- One of the biggest global social networks uses Pure Storage for its AI initiatives.
- An innovative automaker uses Pure Storage to develop autonomous driving capabilities.

Other customers that deploy and run Microsoft applications on Pure Storage include LinkedIn, the San Francisco Giants, SurveyMonkey, Intuit, the Australia and New Zealand Banking Group (ANZ), Glasgow Science Centre, and The Boston Globe.

Consider a 2017 Net Promoter Score (NPS) of 83.7

With a 2017 NPS, audited by Satmetrix, of 83.7, Pure Storage is the number one recommended technology vendor by a wide margin.

[Image showing a comparison chart with Pure Storage’s NPS of 83.7 vs. Apple’s iPhone NPS of 55]

As of July 2017, Gartner had named Pure Storage a leader in solid-state arrays for four years in a row in its “Magic Quadrant for Solid-State Arrays.”

“NOW WE HAVE A BETTER ENVIRONMENT TO WORK IN. WHEN YOU LOOK IN THE PORTAL 100 TIMES AND IT’S ALWAYS ‘ALL GOOD’ YOU BEGIN TO SEE A PATTERN.”

— Bob Smith, Senior Project Manager, University of Louisville School of Dentistry

10. ALLIANCE

A STRONG PARTNERSHIP BETWEEN PURE STORAGE AND MICROSOFT

Microsoft is a strategic partner to Pure Storage, with a dedicated alliance team, a technical-solutions team, and engineering resources.

Pure Storage all-flash arrays are deployed in Microsoft Technology Centers worldwide, such as in Paris, France, and Dallas, Texas. Microsoft also uses Pure Storage for workload performance validation and testing of SQL Server on Linux in the SQLCAT Lab in Redmond, Washington.

The FlashArray//X70 product is certified for Windows Server 2016, Windows Server 2012 R2, and Windows Server 2012; see the Windows Server Catalog for full details.

“HOW IMPORTANT IS SELECTING THE RIGHT DATA PLATFORM WHEN RUNNING MICROSOFT APPLICATIONS? HUGE!”

— Axel Streichardt, Global Lead — Applications Solutions, Pure Storage
The Pure Data-Centric Architecture is effortless, efficient, and evergreen, and it offers integrations for today’s Microsoft applications and workloads. The Pure Storage portfolio includes the FlashArray//X family; the FlashStack solution, Pure Storage’s converged-infrastructure solution that includes FlashArray//X products along with additional networking components; the Pure Storage FlashBlade™ array, which is purpose-built for modern analytics; and the AIRI™ solution, a joint offering from Pure Storage and NVIDIA for AI at scale.

THE NEXT STEP

Customers can contact the Pure Storage sales team or Pure Storage’s Microsoft specialists to learn more and ask to see a demonstration of Pure Storage solutions for Microsoft applications.

800-379-PURE (7873) // sales@purestorage.com