EBOOK

Realize the Promise of VDI With Flash Storage

Case studies about how organizations are benefiting from all-flash VDI.

PURESTORAGE®

EBOOK

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Introduction

IT managers and senior executives alike are drawn to the promises of virtual desktop infrastructure (VDI), including simplified management, enhanced security, and reduced costs. But these benefits are not guaranteed, nor are necessarily achieved overnight.

For some organizations, their first attempt at virtualization causes as many problems as it solves. This is particularly true when it comes to end-user performance, management complexity, and high costs. Or, VDI initially functions well, but fails to scale over time.

There's often a clearly identifiable cause: an inadequate storage system. Typically, this involves legacy spinning-disk systems, but can also be hybrid systems with hard disk and solid-state technologies. Fortunately, there is a solution: smart storage from Pure Storage©.

Pure Storage helps organizations—of all sizes and across multiple industries—overcome the most common reasons for disappointing results from a VDI. All-flash storage delivers:

1. **Always-on, always fast** and always secure VDI, ensuring a consistently superior end-user experience.
2. **Efficiency** with up to 2x better data-reduction rates, lowering capital and operating costs.
3. **Effortless storage management**, sharply reducing the demands on IT staff.
4. **Evergreen™ growth and scalability**, incorporating non-disruptive upgrades and clearly defined costs known well in advance.

Whether you're planning a VDI rollout, or have already implemented VDI that's delivering sub-par results, this white paper will provide valuable guidance—citing actual end-user deployments—that clearly illustrates how deploying flash storage can optimize your enduser productivity and experience with VDI.

Common Causes for VDI Disappointment

The reasons behind a disappointing VDI implementation can be sorted into four categories.

1. Poor End-User Performance

A key promise of a VDI is the speed and ease with which end-users can access the data and applications they need to do their jobs efficiently. But in many VDI deployments, end-user performance actually declines, mainly because legacy spinning-disk, hybrid, or retro-fit flash storage systems cannot deliver data fast enough to meet demand at peak times. One result can be a so-called "boot storm" or "log-on storm." In these instances, it can take minutes for an end-user to gain access to system resources or complete a critical transaction. End-user performance also can be negatively impacted repeatedly during routine system maintenance like virus scans, patching, recomposing and software updates.

2. High Costs

VDI deployments are frequently undertaken with the expectation that costs will decline for both equipment and management. But the savings from using "thin clients" can be swallowed up if the storage supporting the VDI still uses inefficient legacy spinning disk or poorly architected flash technologies. Many experts say storage is the single largest cost component in VDI. So, if the storage infrastructure is not efficient or scalable, the promised cost benefits of VDI may not be achieved. Four or five years after initial implementation, total cost of ownership (TCO) can look disappointingly different from original expectations.

3. Management Complexity

Another commonly expected outcome of VDI is simplified management of the computing infrastructure. But moving resources and functions from the desktop and into the data center can actually increase the burden on IT staff. VDI is expected to be always-on, always available, and always reliable. That means the IT staff must perform maintenance, upgrades, and expansions with as little impact on end-users as possible. Smart storage will substantially simplify management and operations, often freeing up one or more IT staff members to spend time on higher value projects. That's usually not the case with legacy storage.

4. Dead-End Growth Paths

Few VDI implementations cover all end-users from the start. Most often, groups of users are added over time—more departments, new categories of users, additional geographies. As this occurs, some organizations find that while their VDI was a success with hundreds of users, problems with end-user performance, management complexity, and soaring costs arise when the number of users doubles or triples. In situations where legacy storage infrastructure is stifling performance, incremental improvements are not possible; only expensive and disruptive forklift upgrades can possibly help.

All-Flash VDI Solves Your Problems

Smart storage arrays from Pure Storage address each of these VDI challenges.

1. End-User Performance

High performance is the hallmark of all-flash storage technology. An all-flash array from Pure Storage delivers consistent sub-millisecond response times, even during periods of peak demand. That means the best possible end-user experience and an end to support-call complaints and trouble tickets. The always-on resilience and reliability of Pure Storage arrays also help guarantee a consistently positive end-user experience. Security, another key motivator behind VDI, is enhanced by Pure Storage, which includes encryption-at-rest as a feature in all its arrays, at no extra cost.

2. Cost

Pure Storage arrays lower capital and operating costs in several ways. Pure's superior deduplication and compression features result in data-reduction rates often 2x greater than typical alternatives, which means 8:1 or better for VDI environments. That means more data can be stored in far less space, lowering capital expenditures as well as operating costs, like co-location charges based on the amount of rack space used, and power and cooling fees. Pure Storage also slashes long-term costs through its breakthrough Evergreen Storage business model, which eliminates the cycle of replacing storage systems every three or four years[1]. Instead, maintenance pricing remains constant, controller upgrades are included every three years, and investments are protected for the long-term. The result is that storage makes a large contribution to an attractive TCO for VDI. Moreover, long-term costs are known well in advance, with no surprises. In many implementations, customers have further reduced their overall costs when they find that after accommodating all their VDI needs, a Pure Storage array may still have storage capacity to spare. In these cases, other workloads can be moved onto the Pure array, which is capable of handling mixed loads without performance contention. These new workloads will also be beneficiaries of the performance, security, and data-reduction features of the Pure array.

End-User Performance

Cost

Management

Growth Path

1 For Evergreen Gold subscription.

3. Management

IT managers and staff consistently praise Pure Storage for the simplicity of its installation and effortless ongoing management. Because the management requirements of a Pure array are so minimal, and the interface so intuitive, most customers find they can free up resources and time to handle more valuable projects when they reduce the bandwidth required to handle storage tasks. Managing smart storage from Pure is so easy, it can be handled by IT generalists or virtualization admins and does not require special storage expertise. VDI-related tasks are accomplished in significantly less time using our advanced all-flash arrays. For example, real-world testing shows that recomposing 100 virtual desktops can be accomplished in under 4 minutes, booting 100 VMs takes less than a minute and provisioning a 50GB desktop from a template takes less than five seconds with a Pure array deployed. Another significant feature of Pure Storage arrays is non-disruptive upgrades. Software upgrades, system expansion—even a complete controller upgrade—can be accomplished with no interruption in system availability, even during production runs on a workday.

4. Growth Path

Pure Storage removes any doubts about the ability of VDI to scale into the future. With Pure, an organization can start with a small array capable of supporting as few as 100 users with 5-10TB of raw capacity. With the “Love Your Storage” offer, a prospective customer can use a Pure array in a proof-of-concept trial for as long as 30 days, with no obligation, and return it at no cost if not satisfied for any reason. Once purchased, that array can be the foundation for a storage infrastructure that can eventually grow—without any disruption to ongoing operations, and without obsoleting any previous investment—into supporting more than 5,000 users and hundreds of terabytes of usable storage capacity.

The commitment of Pure Storage to helping customers realize all the benefits of VDI is exemplified in its FlashStack™ offering. FlashStack is a flexible, all-flash converged infrastructure solution that combines the latest in compute, network, storage hardware, and virtualization software into a single, integrated architecture. These validated reference designs help to accelerate time to deployment, lower overall IT costs, and reduce deployment risk.

Highly efficient components—from industry leaders Pure Storage, Cisco Systems, VMware, and Citrix—reduce the costs associated with power, cooling, and data center space. FlashStack is available from accredited FlashStack Partners who collaborate to provide the right converged infrastructure best suited to the specific needs of each customer.

IT Transformation with Flash Storage

WOOLPERT

Geo
North America

Industry
Professional Services

Solution Area
Enable Multi-Cloud

Use Cases
VSI – VMware® vSphere®
VSI – VMware® Horizon®

Challenges

- Geographically dispersed professionals were hampered in gaining fast access to large CAD files.
- Optimal productivity of a small IT staff was stymied by complex infrastructure management.
- Extending high-performance and reliable VDI to branch offices and remote workers was impacted by subpar infrastructure performance.

Woolpert is an architectural, engineering and geospatial firm that serves clients involved in large and complex infrastructure projects throughout the world. Collaboration is at the heart of the company's business. To support this collaborative environment, Woolpert's IT department wanted a virtual desktop infrastructure (VDI), which would lower hardware costs, improve security and ensure that data files are centrally maintained for maximum consistency and availability.

Business Transformation

Professionals in multiple locations across the country have quick, easy access to the data and applications they need to effectively collaborate with other team members on architectural and engineering projects. The IT staff spends far less time on system management, thanks to the pre-tested reference design of the FlashStack infrastructure that seamlessly integrates best-of-breed compute, networking and storage products from multiple suppliers.

IT Transformation

- New VDI users are added easily, and receive immediate access to large files and vital applications.
- Overall efficiency reduces the cost and footprint of the VDI infrastructure. High data-compression rates provided by all-flash arrays reduce the amount of storage capacity needed to handle all centralized files.
- Pre-tested FlashStack reference design reduces the time and cost of deploying new IT infrastructure.

> "The totality of the FlashStack implementation is impressive."

CHRIS PEARSON
IT INFRASTRUCTURE ANALYST, WOOLPERT

Atlantic Health System

Geo
United States

Industry
Healthcare

Solution Area
Accelerate Core Applications

Use Cases
Virtual Server Infrastructure:
Citrix, VMware vSphere

VDI: Citrix XenDesktop and XenApp

Database: Cache

EHR: Epic

Challenges

- Impending move to Epic EHR required higher-performing storage platform.
- Complex legacy storage systems required constant attention, incurred high maintenance costs.

Atlantic Health System has standardized on Pure Storage® solutions for all its mission critical applications, increasing system responsiveness, cutting the demands on IT staff for storage management, and saving more than $1.3 million over six years.

As medical record-keeping is now digital, the keyboard or tablet is as important a piece of equipment in the examining room as a stethoscope or blood-pressure cuff. Keeping those modern tools reliable and instantly available is the job of IT departments. And one of the most forward-looking of those departments is at Atlantic Health System (AHS), a non-profit New Jersey organization with five hospitals, over 1,600 beds and relationships with thousands of practitioners statewide. AHS has award-winning programs in numerous fields, including cancer care, stroke care, cardiology and heart surgery, and workplace environment.

Business Transformation

Physicians and other clinicians have fast, reliable access to the information and applications they require to deliver outstanding patient care. Business analysts can perform their work faster and run more complex analyses, thanks to better access to greater volumes of data. And IT professionals can focus on high-value priorities without having to allocate key resources to manage complex legacy storage platforms.

IT Transformation

- Processing time for key reports and functions slashed by more than 80%.
- Pure Storage delivers 100% uptime, exceeds all Epic requirements for storage performance.
- Data-center footprint for storage cut by more than 90%.

> "Our goal is to ensure that physicians can spend more time in front of patients and not worry about the technology. I'm proud to say we get reports from Epic that show we've had 100% availability since the day we installed Pure Storage."

PAT ZINNO
DIRECTOR OF TECHNOLOGY SERVICES
AND SUPPORT, ATLANTIC HEALTH SYSTEM

Lafayette General Health

Geo
United States

Industry
Healthcare

Solution Area
Accelerate Core Applications

Use Cases
Virtual Server Infrastructure: VMware vSphere

VDI: VMware Horizon

ERP: Infor

Challenges

- High-performing, reliable storage is essential to support a mission-critical virtual desktop infrastructure relied upon by LGH's 7 hospitals and 60 professional medical clinics.
- Changing healthcare economics demand that IT do more with less.

Lafayette General Health provides outstanding patient care by reliably delivering critical data and applications to caregivers through a high-performance virtual desktop infrastructure (VDI) anchored by Pure as-a-Service all-flash arrays from Pure Storage.

Business Transformation

Physicians and other caregivers have achieved greater levels of efficiency thanks to fast, reliable access to critical information and applications wherever they are, while storage-related costs are sharply reduced.

IT Transformation

- Pure Storage FlashArray consistently delivers sub-millisecond latencies that translate into greater physician and clinician efficiency, regardless of location.
- Pure as-a-Service reduces CAPEX expenditures, eliminates over-provisioning and simplifies forecasting and procurement.
- 100% uptime since installation, including software updates.
- Data reduction of 3.7:1 provides capacity for long-term growth in line with executive management's ROI expectations.

> "Pure as-a-Service allows us to reduce CAPEX expenditures, eliminate over-provisioning, and simplify our forecasting and procurement."
>
> **WILL LANDRY**
> ASSISTANT VICE PRESIDENT, INFORMATION TECHNOLOGY, LAFAYETTE GENERAL HEALTH

Conclusion

Smart storage all-flash arrays from Pure Storage can solve many common causes for under-performing VDI deployments by sharply boosting performance and reliability, making storage management effortless, ensuring evergreen expansions, and markedly improving your return on investment. If your organization is considering implementing VDI—or, if you already have VDI but it isn't meeting your expectations—talk to the experts at Pure Storage.

For more Information about VDI Solutions.

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