



SOLUTION BRIEF

FLASHSTACK AND VDI

INTRODUCTION

The current industry trend in data center design is toward shared infrastructures. By using virtualization along with prevalidated IT platforms, enterprise customers on their journey to the cloud are moving away from application silos toward a shared infrastructure that can be quickly deployed, thereby increasing agility and reducing costs.

Cisco and Pure Storage have partnered to deliver a powerful converged infrastructure, FlashStack, which uses best-of-class storage, systems management, server, and network components to serve as the foundation for desktop virtualization workloads, enabling efficient architectural designs that support not only VDI, but multiple workloads consolidated alongside VDI in a single solution.

FASTER

*Achieve Better Business
Outcomes Faster*

MORE EFFICIENT

*Deployments, Management
Processes, Cost Structure,
Expansion, and Upgrades*

AGILE

*Break Free from Data Center
Constraints*

CHALLENGES FACING TODAY'S IT ENVIRONMENTS: AN EVOLVING DIGITAL WORKPLACE

Today's IT departments face a rapidly evolving workplace environment. The workforce is becoming increasingly diverse and geographically dispersed, including offshore contractors, distributed call center operations, knowledge and task workers, partners, consultants, and executives connecting from locations around the world at all times.



This workforce is also increasingly mobile, conducting business in traditional offices, conference rooms across the enterprise campus, home offices, on the road, in hotels, and at the local coffee shop. This workforce wants to use a growing array of client computing and mobile devices that they can choose based on personal preferences. These trends are increasing the pressure on IT to ensure protection of corporate data and prevent data leakage or loss through any combination of user, endpoint device, and desktop access scenarios.

- **Consider this:** “For the vast majority of VDI deployments, the largest contributor to the cost of a

“For the vast majority of VDI deployments, the largest contributor to the cost of a virtual desktop is storage.”

**MARK LOCKWOOD AND
MATTHEW BRISSE**

Gartner analysts

virtual desktop is storage,” stated Mark Lockwood and Matthew Brisse (both analysts for Gartner) recently in their March 2015 report, Decision Point for Selecting VDI Storage Architecture. Thus, when designing a good VDI ecosystem, administrators must closely examine their storage environment, and how to best optimize it.

So why are there still barriers to adoption? Where are organizations still struggling when it comes to virtual desktop deployment and new types of end user computing (EUC) technologies? It boils down to three key concerns: [[should bullet the items]]

- **Too expensive:** VDI is often justified as a technology initiative to reduce desktop cost, but most organizations find that they are unable to achieve the promised ROI because of infrastructure costs. In particular, server, networking, and storage devices can be dramatically more expensive than dedicated desktops and laptops.

Poor end-user experience: If VDI isn't implemented properly, it can result in slow or unavailable desktops that lead to user frustration and lost productivity.

- **Too difficult to manage:** VDI shifts the desktop administration burden from the end users to IT staff. Although this shift affords many security and administrative benefits, it also means more work for often overburdened IT staff, especially if the VDI environment isn't architected correctly.

These challenges are compounded by desktop refresh cycles to accommodate aging PCs and bounded local storage and migration to new operating systems, specifically Microsoft Windows 10.

WHAT IS FLASHSTACK AND HOW CAN IT HELP?

The FlashStack platform, developed by Cisco and Pure Storage, is a flexible, integrated infrastructure solution that delivers prevalidated storage, systems management, networking, and



server technologies. Cisco and Pure Storage have carefully validated (Cisco Validated Design) and verified the FlashStack solution architecture and its many use cases while creating a portfolio of detailed documentation, information, and references to assist customers in transforming their data centers to this shared infrastructure model.

Highly efficient components reduce the costs associated with power, cooling, and data center space. Based on 100-percent flash storage and high-performance Cisco Unified Computing System™ (Cisco UCS®) servers, FlashStack Converged Infrastructure (CI) provides the performance and reliability business-critical applications demand.

Most of all, the entire solution creates a truly stateless architecture. Cisco UCS hardware is defined within a service profile, whereas the Pure FlashArray is defined within the software.

OVERCOMING VIRTUALIZATION AND SCALE CHALLENGES: UNDERSTANDING REAL-WORLD BUSINESS BENEFITS FROM FLASHSTACK

There has been a massive resurgence of interest in VDI over the past few years. More use cases and a mobile workforce require better experience and more ways to connect with their core workloads. However, challenges around scalability, performance, and even cost still limit VDI deployments for many organizations. For organizations dealing with those challenges, there is good news.

In the FlashStack ecosystem, the technology focuses on three key elements to deliver the best desktop virtualization data center infrastructure: simplification, security, and scalability.

Simplified. Simplification also leads to more successful desktop virtualization implementation. In keeping with that theme, Cisco and its technology partners have

developed integrated, validated architectures. FlashStack is an example of their predefined, converged architecture infrastructure packages. Furthermore, simplified also means easier management and deployment. Consider the fact that Cisco UCS Director abstracts the underlying FlashStack hardware and software into programmable tasks that can be tailored to your specific business needs. For example, these tasks can be used to create automated workflows, design end-to-end orchestration, and even manage FlashStack as a unified whole. Advanced features help management go even further by bringing in features such as:

- Capacity and Inventory views and reports
- Hypervisor end-to-end workflow automation for Small Computer System Interface over IP (iSCSI) and Fibre Channel
- Cisco UCS Bare metal agent (Preboot Execution Environment [PXE])boot) image bootstrapping
- Provisioning tasks with rollback



- Virtual-machine FlashArray provisioning

Secure. Although virtual desktops are inherently more secure than their physical predecessors, they introduce new security challenges. Mission-critical web and application servers using a common infrastructure such as virtual desktops are now at a different risk for security threats. Inter-virtual machine traffic now poses an important security consideration that IT managers need to address, especially in dynamic environments in which virtual machines, using VMware vMotion, move across the server infrastructure. Through the use of

FlashStack focuses on three key elements to deliver the best desktop virtualization data center infrastructure: simplification, security, and scalability.

FlashStack for VDI, you introduce greater levels of both protection and security. This includes resilient, highly available, redundant architecture, native disaster recovery and business continuity features, and encryption of all data at rest.

Scalable. To create the FlashStack architecture, Cisco partner Pure Storage helps maintain data availability and optimal performance during boot and login storms as part of the Cisco Desktop Virtualization Solutions. Recent Cisco Validated Designs based on VMware Horizon View and Citrix XenDesktop, Cisco UCS and Pure Storage joint solutions have demonstrated scalability and performance, with up to 5000 desktops operational in 30 minutes. The beauty of FlashStack is that you can scale all of your components extremely efficiently. For example, FlashArray controllers are upgraded in a similar manner as Fabric Interconnects (FlashArray front-end ports are all active but back-end ports are active/passive). And FlashArray Shelves can be

expanded in a similar manner as Cisco UCS Blade Chassis (capacity becomes available instantly and I/O begins to be balanced immediately).

The simplified deployment of Cisco UCS for desktop virtualization accelerates the time to productivity and enhances business agility. IT staff and end-users are more productive more swiftly, and the business can respond to new opportunities quickly by deploying virtual desktops whenever and wherever they are needed. The high-performance Cisco UCS Blade Servers and Cisco Nexus® switches deliver a near-native end-user experience, allowing users to be productive anytime and anywhere. Furthermore, the Evergreen Storage model from Pure revolutionizes storage: You'll pay one simple flat fee. And you'll have maintenance performance scale and features for years—no sudden, sharp increases in support costs in year 3. Thus you can upgrade a storage controller every 3 years at no additional cost.



REAL-WORLD CUSTOMER USE CASE

The Business Challenge:

Texas Children’s Hospital (TCH) tried twice, unsuccessfully, to get VDI running to support desktop applications and mission-critical EPIC software. TCH’s SVP and CIO couldn’t afford to experience another failed attempt.

Technical Outcomes:

Texas Children’s Hospital used FlashStack to realize some real-world benefits. FlashStack dramatically shortened implementation time, and POC testing (vs. Nutanix, for example) demonstrated two to three times

faster end-user response times; three times data reduction vs. competition. The converged infrastructure environment never experienced an impact on performance when heavy workloads were placed on the environment. Furthermore, ease of scaling was critical because they rolled the FlashStack out from the pilot at one hospital to all nine campuses. Finally, TCH was able to use both VMware View as well as Citrix XenDesktop to their fullest business potential.

Business Benefits:

The FlashStack single number support model delivered by a

FlashStack Authorized Support Partner simplified a previously complex technical support situation. FlashStack was able to reduce the footprint from two cabinets to half a cabinet. And, simplified management and ease of reporting provide much more granular insight into performance than the hospital had before.

Finally, Pure1, a management and support tool, allows TCH to monitor everywhere compared to other siloed operations that exist today.

Final Thoughts: VDI on FlashStack: A Winning Business and Data Center Design

GET STARTED WITH FLASHSTACK

Delayed infrastructure rollouts can affect your organization’s bottom line. FlashStack makes it easy to deploy the right virtual desktop infrastructure right from the start. This verified, lab-tested architecture helps reduce risk and guesswork by giving your IT architects and administrators a guidebook for implementation.

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