

Maxta Solution Brief

Maxta Storage Platform for Virtual Desktop Infrastructure (VDI)

Introduction

A growing number of businesses today are adopting virtualization technology for their data centers for consolidation, efficiency, ease of management, and greater mobility. Virtualization has also radically changed the storage requirements for the IT environment.

Drawn by the success of server virtualization and the growing challenge of managing desktops, businesses are exploring Virtual Desktop Infrastructure (VDI) for their desktops to extend the benefits of virtualization to their desktop environment.

A VDI environment promises to deliver a great user experience including several benefits, such as better security, ease of management and provisioning as compared to traditional desktop environments. However, VDI is unable to meet this promise and is not popular due to high storage costs and poor end-user experience. In a VDI environment, though the server hardware could be a low-cost hardware, as the virtual desktops and applications are located centrally, the demands on storage are high. In trying to provide a better user experience, than that of a traditional PC environment, storage administrators often need to use enterprise storage arrays with large number of hard disks or employ expensive solid-state drives (SSDs). This increases the storage costs and management complexities that the project becomes non-viable.

This solution brief discusses the challenges associated with storage for VDI and recommends a viable cost effective storage solution to support the VDI environment.

Storage Challenges with a Virtual Desktop Infrastructure

Setting up a virtual desktop infrastructure can be complicated, with the most vital and difficult part being the design of the supporting storage. For example, even a medium-sized VDI deployment consisting of a few hundred desktops demands ease of use, enterprise class functionality, performance, and scalability. The primary challenges in setting up storage for a VDI environment are as follows:

Meeting performance expectations of end-users

The goal of VDI deployment is to provide a better end-user experience than traditional stand-alone desktops at a lower cost. The performance of VDI deployment that drives the end-user experience has to address not only the steady state workload but also the peak workload due to boot storms, login storms and antivirus storms. The dilemma that most administrator face is that the storage



system should be designed for steady state or peak I/O workload. Designing for steady state will have a negative end-user experience during boot storms, login storms, and antivirus storms versus designing for peak workload will increase the cost of the storage system thus increasing the overall cost of the VDI deployment.

A successful VDI deployment requires a storage system that can handle a broad range of storage scenarios beyond just boot or login storms.

Complex administration and difficult to scale

Provisioning and updating desktop images in a VDI environment is time consuming and complex. In a typical VDI environment, administrators have to deploy 1000s of desktops in minutes. This requires the storage infrastructure to support the ability to quickly create clones that can be used to deploy the virtual desktops. The mismatch in the virtual machine constructs (VMs) and storage constructs (LUNS and volumes) increases the complexity. In a persistent desktop deployment adding patches and applying updates preserving the user preferences is time consuming and inefficient. Additionally the ability to scale capacity and performance independently on-demand without having to over-provision resources is a challenge.

High Storage Costs

Storage costs have limited the ROI on VDI deployments. Networked storage (SAN and NAS) solutions that are most widely used for VDI deployments are significantly expensive and require specialized skills for provisioning and managing storage. Although the all-flash storage appliances deliver the performance they are very expensive and nullify the cost benefits derived by adopting VDI.

The Solution

Maxta has developed a groundbreaking, highly resilient, scalable distributed Software-Defined VM Storage Platform (MxSP) that enables IT to fully realize the benefits of a virtual desktop infrastructure. Maxta Storage Platform (MxSP) addresses all the challenges related to storage for a virtual desktop infrastructure and dramatically simplifies IT, delivering enterprise-class services, and maximizing CAPEX and OPEX savings.

The innovative, peer-to-peer architecture aggregates storage resources from multiple industry standard servers, assimilating a global namespace and all the storage functionality that a virtual desktop environment requires. The key benefits of MxSP are:

- Eliminate Storage Arrays and Storage Networking
- Dramatically simplify IT by eliminating Storage Management
- Provide VM-centric Enterprise-class Data Services
- Optimize for flash performance and hard disk capacity
- Enable compute/storage convergence on standard servers maximizing capital and operational savings



Eliminates performance issues associated with traditional storage and delivers good end-user experience

Delivering an end-user experience that is better than the traditional desktop deployment is critical for a successful VDI deployment. Invariably 1000s of users power-on the virtual desktops at almost the same instant of time creating a boot/login storm. MxSP leverages SSDs as read/write cache to alleviate the performance issues during this boot and login storm.

The boot image and frequently accessed (“hot data”) information is cached on the SSDs and enables all the desktops to boot from the SSDs without performance degradation. Additionally, updates are written and acknowledged from the SSDs minimizing write latency.

MxSP leverages HDDs to deliver capacity to the virtual desktops. This approach delivers the required performance and capacity at relatively low cost.

Simplify virtual desktop management

Administrators spend time and resources to manage the 1000s of desktop images which include provisioning, patching, upgrading these images. The ability to create 1000s of snapshots or clones in minutes is paramount for VDI deployments. MxSP delivers unlimited number VM-level snapshots and zero-copy clones that can be used to provision the virtual desktops. These snapshots and clones are time, capacity, and performance efficient. 1000s of snapshots and clones can be created in minutes.

Upgrading or patching these virtual machines is as simple as incorporating the changes to the base or golden image and creating new snapshots or clones that can be used by the virtual desktops. MxSP provides enormous flexibility and greatly simplifies the ability to scale performance or capacity independently on-demand by adding industry standard servers.

MxSP further simplifies IT by aligning the virtual machine constructs and storage constructs and delivering all enterprise-class functionality at the VM-level granularity thus dramatically simplifying the virtual desktop management.

Maximize Savings on VDI Deployments

Storage has been the most expensive component in the data center especially with networked storage solutions. MxSP delivers significant savings by leveraging industry standard components and yet deliver the required performance for VDI deployments. By using SSDs as read/write cache, MxSP delivers the required performance without having to invest in an all SSD appliance, significantly reducing the cost of VDI deployments.

Snapshots and clones do not consume any capacity when created and there is no upfront space reservation for configuring snapshots or clones. Additionally, creating snapshots or clones does not impact the performance of the primary virtual machine. Combining with capacity optimization features such as thin provisioning, compression and de-duplication provides the ability to create 1000s of virtual desktops with huge capacity savings.

In addition, MxSP provides significant OPEX savings by virtual desktop management, eliminating the need for specialized skills for array-specific storage management and storage networking.



Summary

In summary, the storage solution that MxSP offers allows organizations to fully exploit the potential of VDI deployments. MxSP delivers the essential end-user experience, significantly simplifies virtual desktop management, and dramatically reduces capital and operational costs.