White Paper

CITRIX EXECUTIVE BRIEFING CENTER: A MISSION-CRITICAL VIRTUAL DESKTOP ENVIRONMENT ENABLED BY EMC UNIFIED STORAGE AND CITRIX XENDESKTOP

A Detailed Review

EMC GLOBAL SOLUTIONS

Abstract

This white paper describes how Citrix uses XenDesktop and EMC® Unified Storage to deliver a robust, efficient, and scalable virtual desktop solution for the Citrix Executive Briefing Center.

June 2011

EMC²

Part Number H8773.1

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Executive summary

Business challenge

The Citrix Executive Briefing Center in Santa Clara, California, supports Citrix's global sales force, its partners, and hundreds of customer demonstrations each month. Among the many product demos, Citrix displays the production environment of its XenDesktop product that delivers virtual desktops and applications to its top executives. To meet the efficiency, scalability and reliability challenges of this production XenDesktop implementation, Citrix needs to deploy a shared storage infrastructure that can be optimized for desktop performance, to meet service-level agreements (SLA), and to ensure a quality experience for Citrix's most demanding virtual desktop users including the company's top executives.

Business solution

For its own XenDesktop deployment, Citrix chooses an EMC® unified storage solution to power its virtual infrastructure. The EMC unified storage solution uses advanced technologies such as Fully Automated Storage Tiering (FAST VP), FAST Cache, and Enterprise Flash Drives to deliver a scalable, reliable, and performance-optimized solution that meets the SLAs imposed by its users.

Virtual desktop environments increase security and simplify management because the infrastructure is in a firewall protected, centralized datacenter that is easily managed by local resources. The combination of XenDesktop and EMC unified storage technology enables Citrix to realize a secure desktop infrastructure while reducing operational and capital expenses.

Citrix XenDesktop 5

Overview

A company's competitive advantage depends on its ability to get work done the right way, in the right place, at the right time. Fast, flexible virtual desktop delivery with Citrix XenDesktop 5 helps companies adapt quickly and cost-effectively to business changes from mergers to growth initiatives to strategies like workshifting and offshoring. Because global markets demand more fluid and responsive virtual organizations, XenDesktop enables organizations to deploy full desktop computing resources wherever they are needed.

Key benefits

Citrix XenDesktop transforms Windows desktops as an on-demand service to any user, any device, anywhere. The key advantages to a Citrix XenDesktop solution are:

- **Any device, anywhere with Receiver™.** Using Citrix Receiver as a lightweight universal client, XenDesktop users can access their desktops and corporate applications from the latest tablets, smart phones, PCs, Macs, or thin clients. This enables virtual work styles, business continuity and user mobility.
- **HDX™ user experience**. XenDesktop 5 delivers an HDX user experience on any device, over any network, while using up to 90 percent less bandwidth compared to competing solutions. With HDX, the desktop experience rivals a local PC, even when using multimedia, realtime collaboration, USB peripherals, and 3D graphics. Integrated WAN optimization capabilities boost network efficiency and performance even over challenging and high-latency links.
- **Beyond VDI with FlexCast™**. Different types of workers across the enterprise have various performance and personalization requirements. Some require offline mobility of laptops, others need simplicity and standardization, while still others need high performance and a fully personalized desktop. XenDesktop can meet all these requirements in a single solution with our unique Citrix FlexCast delivery technology. With FlexCast, IT can deliver a virtual desktop optimized to meet the performance, security and mobility requirements of each individual user.
- **Any Windows, web or SaaS applications.** With XenDesktop, you can provide your workforce with any type of application they need, including Windows, web, and SaaS applications. For Windows applications, XenDesktop includes XenApp™, the on-demand application delivery solution that enables any Windows application to be virtualized, centralized, and managed in the datacenter and instantly delivered as a service to users anywhere on any device. For web and SaaS applications, Receiver seamlessly integrates them into a single interface, so users only need to log in once to have secure access to all their applications.
- **Open, scalable, proven.** With industry-validated scalability and over 10,000 Citrix Ready products, XenDesktop 5 provides a powerful desktop computing infrastructure that is easier than ever to manage. The open architecture works with your existing Citrix XenServer, Microsoft or VMware, hypervisor, Microsoft system management products, all EMC unified storage platforms, including the VNXe™ and VNX™ storage families of products.
- **Single-instance management**. XenDesktop enables IT to separate the device, operating system, applications, and user personalization and maintain single master images of each. Instead of juggling thousands of static desktop images,

IT can manage and update the operating system and applications once, from one location. This feature allows IT to centrally upgrade an entire enterprise to Windows 7 in just a few days. Single-instance management dramatically reduces on-going patch and upgrade maintenance efforts, and cuts datacenter storage costs by up to 90 percent by eliminating redundant copies.

- **Data security and access control.** With XenDesktop, users can access desktops and applications from any location or device, while IT uses policies that control where data is kept. XenDesktop can prevent data from residing on endpoints, centrally controlling information in the datacenter. In addition, XenDesktop can ensure that any application data that must reside on the endpoint is protected with XenVault technology. Extensive access control and security policies ensure that intellectual property is protected, and regulatory compliance requirements are met.

EMC Proven™ solutions for Citrix XenDesktop combine EMC unified storage platforms, advanced technologies like Flash and FAST Cache and Citrix XenDesktop 5 to deliver a robust, efficient and scalable solution for virtual desktops. The solution is easily scalable using a building-block approach and yields predictable high performance and high availability in a cost-effective manner.

EMC Proven Solutions for Citrix XenDesktop

Overview

The objective of the EMC Proven Solutions for Virtual Desktops is to build and demonstrate the functionality, performance, and scalability of a Virtual Desktop deployment enabled by the EMC VNX series of Unified Storage and XenDesktop 5. The solution supports 1,000 users and is designed using a building block methodology that can easily scale to larger deployments.

This section briefly describes the following key solution components.

- EMC Unified Storage
- EMC FAST Suite
- EMC Unisphere™
- Citrix XenDesktop 5
- Citrix Machine Creation Services (MCS)

Architecture diagram

Figure 1 depicts the overall physical architecture of the EMC Proven Solutions for Citrix XenDesktop.

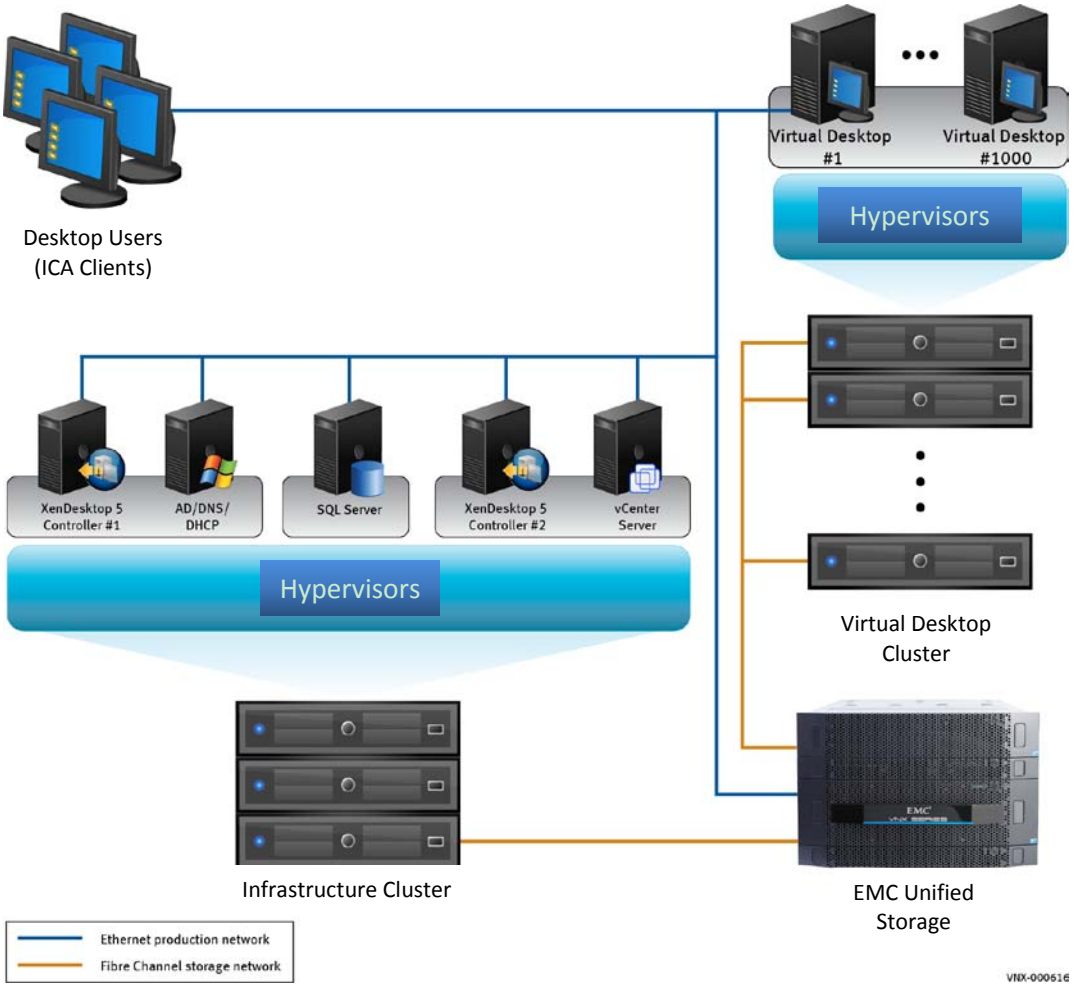

Figure 1. Solution architecture

EMC Unified Storage

EMC unified storage solutions, including the VNX and VNXe product families, are simple, efficient, and powerful storage solutions optimized for both file and block data access. EMC Unified Storage delivers easier management through its Unisphere interface and through its versatile plug-in technology. EMC FAST Suite improves efficiency by dynamically optimizing storage utilization. All unified arrays are highly reliable, scalable and flexible enough to deliver high-end features in an easy-to-use solution.

EMC FAST Suite

ENC FAST Suite includes FAST Cache and FAST VP. These features optimize disk utilization to ensure that the storage infrastructure delivers needed performance as part of an efficient total solution.

EMC FAST Cache enables Flash drives to be used as an expanded cache layer for the array. FAST Cache has array-wide features available for both file and block storage. FAST Cache works by examining 64 KB chunks of data in FAST Cache-enabled objects on the array. Frequently accessed data is copied to the FAST Cache and subsequent accesses to that data chunk are serviced by FAST Cache. This allows immediate promotion of very active data to the Flash drives, dramatically improves the response time for very active data, and reduces the data hot spots that can occur within the LUN.

EMC FAST VP works at the storage pool level, below the LUN abstraction at a far more granular level than previous versions of FAST. As an example, rather than move an 800 GB LUN to Flash drives, FAST VP now identifies and monitors the entire storage pool in 1 GB chunks. As shown in Figure 2, when data becomes active, FAST VP automatically moves only these “hot” chunks to a higher tier like Flash.

EMC Unisphere

Figure 2 shows the system dashboard in EMC Unisphere, which presents information in easy-to-read view blocks, providing users with information about storage capacity, replication information, storage pools, system alerts, and so on.

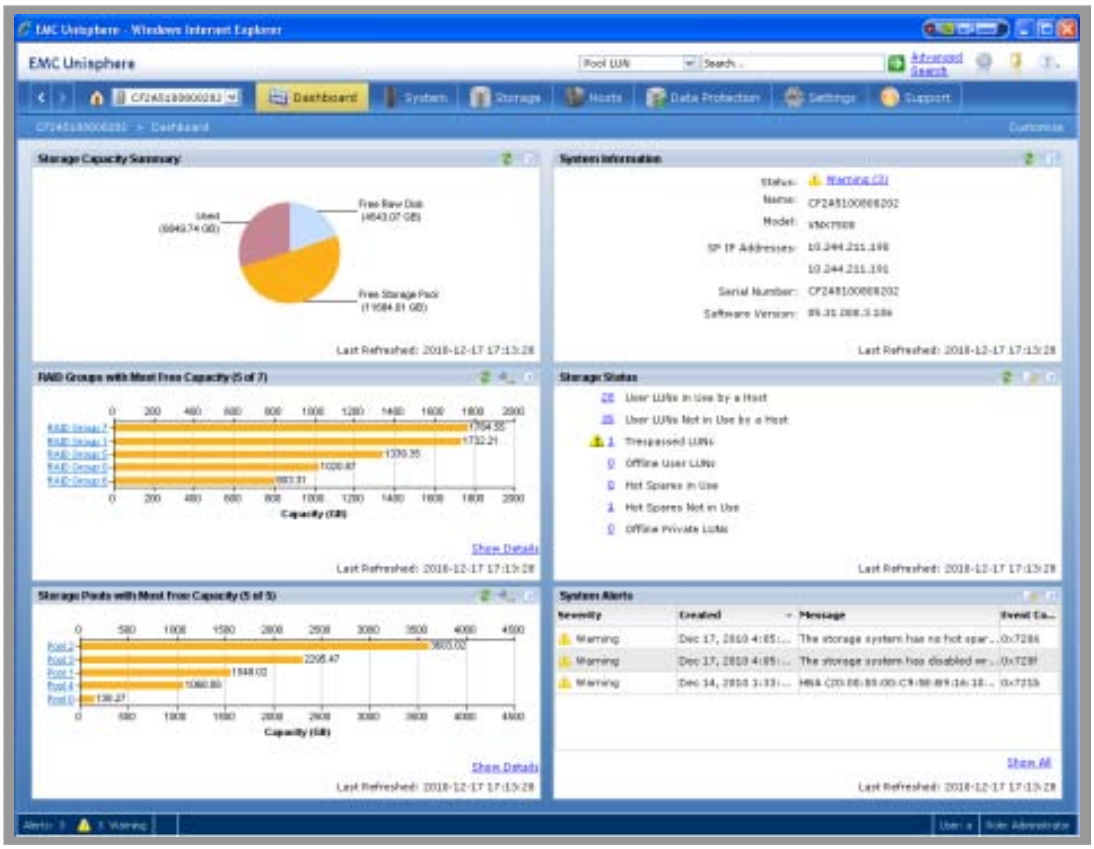

Figure 2. System dashboard in EMC Unisphere

This dashboard view is customizable to users' needs and has easy-to-use menus for commonly used tasks such as Create Storage Pool or Create LUN. This helps users increase their effectiveness by spending less time clicking through to achieve their daily tasks.

Citrix XenDesktop 5

Citrix XenDesktop transforms Windows desktops as an on-demand service to any user, any device, and anywhere. XenDesktop quickly and securely delivers any type of virtual desktop or Windows, web, and SaaS application to all the latest PCs, Macs, tablets, smart phones, laptops and thin clients – all with high-definition HDX™ user experience. FlexCast™ delivery technology enables IT to optimize the performance, security and cost of virtual desktops for any type of user, including task workers, mobile workers, power users, and contractors. XenDesktop helps IT rapidly adapt to business initiatives, such as offshoring, M&A and branch expansion, by simplifying desktop delivery and enabling user self-service. The open, scalable and proven architecture simplifies management, support, and integration.

Citrix Machine Creation Services (MCS)

To further enhance scalability, EMC Proven Solutions support both Citrix Provisioning Services and Citrix Machine Creation Services (MCS). MCS is a provisioning mechanism introduced in XenDesktop 5. It is integrated with the XenDesktop management interface, Desktop Studio, to provision, manage, and decommission desktops throughout the desktop lifecycle management from a centralized point of management. MCS allows several types of machines to be managed within a catalog in Desktop Studio, including dedicated and pooled machines.

Conclusion

Summary

EMC enables you to centralize your desktop environment, your most at-risk information, with a proven architecture. Using EMC Unified Storage and advanced technologies from EMC and Citrix, you can optimize performance, improve scalability, and reduce storage costs for the virtual desktop environment. EMC builds and validates solutions for Citrix XenDesktop virtual machine-based desktops, enabling you to support and scale to thousands of virtual desktops in your environment. EMC can help accelerate the assessment, design, implementation, and management of a virtual desktop solution based on Citrix XenDesktop 5 while lowering the risks and costs associated with the solution. To learn more about this and other solutions, please view the below references or contact an EMC representative.

References

EMC documentation

The following documents, located on EMC Powerlink®, provide additional information. Access to these documents depends on your login credentials. If you do not have access to a document, contact your representative.

- Reference Architecture: EMC Infrastructure for Virtual Desktops Enabled by EMC VNX Series, VMware vSphere 4.1, and Citrix XenDesktop 5
- Reference Architecture: EMC Infrastructure for Virtual Desktops Enabled by EMC VNX Series, VMware vSphere 4.1, Cisco UCS and Citrix XenDesktop 5
- Proven Solution Guide: EMC Infrastructure for Virtual Desktops Enabled by EMC VNX Series (FC), VMware vSphere 4.1, and Citrix XenDesktop 5
- Proven Solution Guide: EMC Infrastructure for Virtual Desktops - Enabled by EMC Unified Storage (FC), Microsoft Windows Server 2008 R2 Hyper-V, and Citrix XenDesktop 4
- Reference Architecture: EMC Infrastructure for Virtual Desktops - Enabled by EMC Unified Storage (FC), Microsoft Windows Server 2008 R2 Hyper-V, and Citrix XenDesktop 4