



Storage impacts in a Citrix Virtual Desktop Infrastructure

Does storage really matter in a VDI project ?

For companies who have profited from the enormous benefits of server consolidation through virtualization, the natural next step to extend the paradigm is to face the desktop challenges. In a Virtual Desktop Infrastructure, enterprise desktop computers are virtualized, moved to the data center, then presented over the LAN or WAN to the end users. Desktop data are moved from their usual local hard disk drive to shared storage within the data center.

As a result, having to manage storage for 100's or 1000's of desktops within a SAN / NAS:

- Involves new constraints such as storage provisioning, potential I/O performance peaks during boot and logon storms, or anti-virus updates, desktop storage availability and recovery.
- Provides new opportunities including easier backup of centrally managed user data, and security and compliance to corporate rules. Moreover, user data is increasing rapidly and storage techniques need to be applied to control cost.

SLA under pressure?

- **Performance concerns for the users** which can be due to boot and logon 'storms', anti-virus operations or simply the user experience: I/O bottlenecks can quickly impact 100s or 1000s of desktops!
- **Legal Compliance:** security and user data must conform to legal and/or corporate rules.

The Bull solution delivers an improved end-user experience, by eliminating boot and logon storms. It increases desktop performance and provides enough space for efficient backup of user data, and thus enables easy and self end-user recovery of data.

Unacceptable risks?

- **Data Protection and Business Continuity concerns:** desktops are centrally managed on SAN/NAS and failures can rapidly impact 100s or 1000s of desktops!
- **Implementation and management skills:** a VDI environment is a convergence of server, desktop, storage, networking technologies, and it can rapidly introduce complexity.

The Bull solution simplifies user, desktop and application management by bringing 1000's of desktops online in minutes, provisioning storage as quickly as virtual desktops, securing access, instant backup, and recovery. It guarantees the availability of desktops, even in the event of a disaster.

TCO too high?

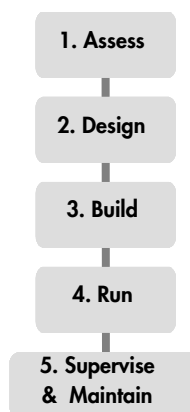
- **ROI (Return On Investment) uncertainty:** traditional shared storage is expensive.
- **Storage growth and associated costs:** user data are increasing quickly.

The Bull solution enables optimal storage usage. It guarantees 50% less storage, at least a 70% storage utilization and establishes zero-capacity desktop provisioning.

SLA & Agility



TCO & Risks



In industry sectors including Government, Education, Health care, Finance, and Retailing:

- You have virtualised your servers and want to go further with desktops (starting from 50).
- You plan O/S transition to Microsoft Windows 7.

- Bull proposes and delivers a complete solution, from consulting to architecture, design, delivery, support and maintenance.
- Differentiating services include expertise, storage performance enhancements, Advisory Services, Proof-Of-Concept, labs, and state-of-the-art StoreWay Solutions Centers.
- Bull has built preferred partnerships with Citrix (15+ years), NetApp, VMware and Microsoft.
- Bull has proven capabilities to install and manage projects involving more than 1000 desktops.

Questions	Facts	Bull offers	Best choice to
<ul style="list-style-type: none"> • Analyst reports show that standard storage utilization is around 30-40%. What is your current storage utilization? How do you reach this percentage? • In a VDI project, spending less money regarding storage is a reality. Would you like to know how? 	<p>'You can remove redundant data and reduce storage capacity requirements by 70% with deduplication.'</p> <p>LandAmerica</p>	<ul style="list-style-type: none"> • Resizing of storage on demand with thin provisioning and increase of storage utilization to 70% or more, • Removing of redundant data and reduction of power, cooling, and space needs with deduplication, • RAID 10 data protection with half the disk space by using RAID-DP[®], • Zero-storage capacity desktop provisioning due to cloning function, • Deployment of up to thousands of desktops in minutes, • Scalability up to thousands of desktops on a single system. 	<ul style="list-style-type: none"> • Feel confident about a mastered and controlled storage infrastructure, • Master the budget and show that IT can save money with the storage, • Provide agility and flexibility to the end user by offering instant provisioning of a desktop, • Reduce storage required for virtual desktops up to 95%, for user data between 20% and 50%, and double average storage utilization.
<ul style="list-style-type: none"> • What if you could perform instantaneous backups directly on your storage system, removing the major challenge of growing virtual infrastructures? • Many enterprises tell us they don't get the backup results they expected from their virtualized environment. What results have you experienced in your organization? • Can you describe any backup related SLAs within your organization? How successful are you in meeting them? • Do you manage to backup also user data from laptops or desktops? 	<p>'The main enterprise current issues with desktops are:</p> <p>#1: Non respect of legal compliance (66%),</p> <p>#5: Lack of regular backup and coherency of desktop (54%).'</p> <p>ESG 2009 Survey</p>	<ul style="list-style-type: none"> • Benefit from built-in backup functionality without any load on the host server, • Instantaneous backups at any time of the day, • Restore time reduction from hours to minutes or even seconds—faster than many other solution, • Automation and management of backup and DR as a single policy-based process, • Retain and use of up to hundreds of restore points to support backups and replication throughout the day. 	<ul style="list-style-type: none"> • Respect SLA regarding backup and provide quick and flexible restore capabilities to end-user, • Conform to legal compliance regarding user data, • Prevent risk of activity interruption.
<ul style="list-style-type: none"> • How do (or plan to) manage the morning 'boot and logon' step? Do you have SLA for that? • How do you spread a new anti-virus installation? • Even for the regular user activity, do you have SLA for response time or up-time guarantee? • How much downtime can your servers and desktop users tolerate? 	<p>'The main enterprise current issues with desktops are:</p> <p>- Recovery of desktops and user data in case of a disaster (53%),</p> <p>- Guarantee of desktop quality experience for remote and mobile users (54%).'</p> <p>ESG 2009 Survey</p>	<ul style="list-style-type: none"> • 99.999% system availability and fast recovery from unplanned outages, • More frequent backup and much better RTO/RPO than with tapes, • Boot time reduction by 45% or more, to minimize the impact of "boot storms" with usage of intelligent storage cache, and correct parameters set for File System alignments. 	<ul style="list-style-type: none"> • Bring satisfaction to the end user, offering good level of performance, good end-user experience, • Feel more secure regarding the availability of the desktops.

- For more information and reservations, contact your sales representative or email storeway_contact@marketing.bull.net
- To find out more about the Bull StoreWay Solution Center, connect to www.storewaysolutioncenter.com

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