



## NEW DEPLOYMENT METHODS FOR DESKTOPS

Standard remote desktop technologies offer numerous benefits based on server consolidation, but may also restrict operating systems and deliver reduced functionality.

Virtualization and diskless desktops are two deployment methods that enhance remote desktops, offering consolidation with fewer limitations.

The benefits of storage consolidation and centralized management are well known – they include lower costs, better information protection, and improved IT efficiency. Server consolidation using virtualization software is aimed at generating these same results. A recent trend in many large IT organizations goes beyond server virtualization to desktop virtualization. There are two primary methods of desktop virtualization, each with strengths and weaknesses. A basic understanding of remote desktops and desktop virtualization will help you decide if an implementation of this type is right for your organization.

### STANDARD REMOTE DESKTOPS

The most popular remote desktop technologies are Microsoft® Terminal Services and Citrix® Presentation Server™ (MetaFrame®). These applications enable IT to employ server farms to run operating systems and business applications. Users access applications over the network, while their desktop machines are thin clients – configured with only a basic operating system and remote desktop access client (Microsoft RDP, VNC, Citrix ICA, or NX).

This configuration offers numerous benefits. Because users are sharing server hardware for applications and processing power, they can deploy thin clients that don't need fast processors or extensive memory or disk capacity. This enables an organization to buy less expensive desktop machines and to forgo the tedious desktop upgrade process that occurs all too often. In addition, since several desktops share the same server, IT gains consolidation benefits.

Equally important, applications and data are centrally protected, reducing management costs as well as improving security. IT doesn't need to worry about data on user machines not being backed up, or about users plugging in a USB memory stick and leaking data out of the company. With both data and server management centralized, IT can more easily implement high-availability solutions.

### RESTRICTIONS ON STANDARD REMOTE DESKTOPS

One significant challenge of these solutions is operating system restrictions. The Microsoft solution works only with Windows®; the Citrix solution works with Windows (extending the capabilities of Terminal Services) and UNIX®. But what if you have a broader mix of operating systems? How to you handle your combination

NetWare®/Windows/Linux environment? In addition, remote desktop technologies don't deliver the complete desktop experience – some capabilities are unavailable when a single OS copy is shared by multiple users. Another challenge is that the users sharing a server cannot be moved without downtime. Also, any user can create a bottleneck by consuming more resources, disrupting others sharing that hardware.

### COMBINING REMOTE DESKTOPS WITH SERVER VIRTUALIZATION

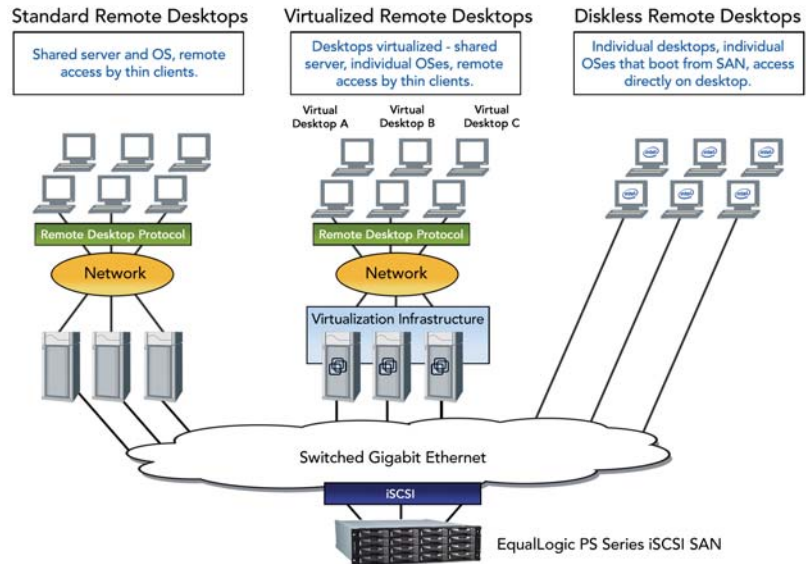
One solution to these problems is to use virtual server technology such as VMware® or Microsoft Virtual Server to logically provide remote desktops. Instead of serving out the application from a shared server and shared operating system, you virtualize the desktop environment, creating a more normal desktop experience with greater isolation. You retain thin clients, remote desktop protocols, and server centralization, but enable IT to more easily load balance the environment, moving virtual desktops among servers as needed. In many cases the desktop can be copied to a laptop for use during travel and then returned to the server infrastructure; it can also be used to provide local execution of applications on the PC.

### DISKLESS DESKTOPS

Another solution involves consolidated storage and standard, but diskless, desktop computers. By booting the OS from the SAN IT preserves storage consolidation and centralized management, but users retain processing power. This method eliminates remote terminal protocol application limits and makes application operation and performance more transparent.

### VIVE LA DIFFERENCE

When choosing a deployment method, the first decision to make is between thin clients with remote desktop protocols, and thick clients. In thin client methods, the computing is centralized and users must rely on the server for CPU power. In these configurations it is important to configure a highly



available server infrastructure – a server or storage outage will disrupt all the users. Another choice with thin clients is between traditional remote desktops and desktop virtualization. In environments with more diverse users, desktop virtualization is an effective way to provide different services to different users and provides additional portability.

With thick clients computing is distributed – processing power is on the desktop, so a user's only additional resource is the SAN. Users are not limited by server CPU or a remote desktop protocol or disrupted by bottlenecks created by server sharing. Some IT organizations configure a hybrid of the two methods, with lighter users sharing server hardware and power users processing on their own desktops.

All methods can create a more secure and better protected data storage environment with consolidated, highly available SAN storage. The economics of the storage infrastructure are critical – solutions such as an EqualLogic PS Series iSCSI SAN provide cost-effective and rapid deployments. By combining desktop virtualization or diskless desktops with PS Series storage virtualization, IT can create a seamless shared storage/shared server environment that can be load balanced without downtime, centrally protected, and scaled online.

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