

Laurus Technologies

White Paper: Virtual Desktop Infrastructure

“Virtual Desktop Infrastructure: The Solution to Inefficient Business Operations”

Introduction

To stay ahead of the competition, serve clients and maintain reputation, companies today need to operate efficiently and effectively.

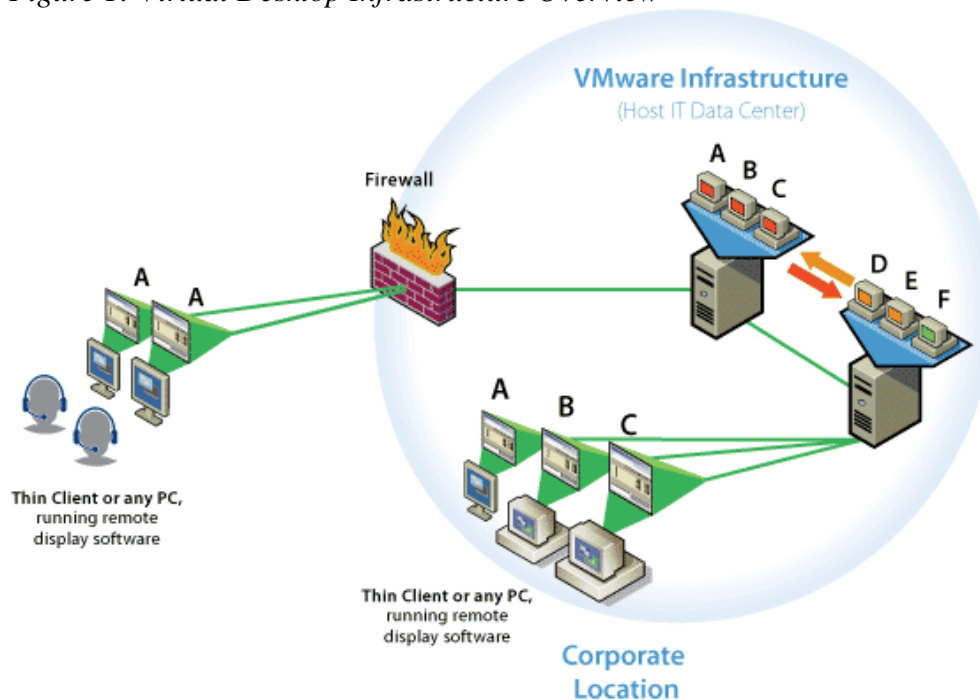
But they invariably hit a hitch. With a traditional IT setup of individual desktops, companies face a lack of user mobility, insecure data, unreliable systems, and an operation that strains costs and resources.

With today's virtual technology advances, a better way exists. Employees and users in any location, accessing their own individual systems. Employees reaching only the data they are supposed to, keeping that information secure even if a laptop is stolen. A reliable, powerful IT system working at significantly reduced cost to the company. That's what virtual desktop infrastructure (VDI) is all about.

The Need for Virtual Desktop Infrastructure

VDI does exactly what the name implies: it makes desktops virtual. Instead of having a desktop PC at every employee and user's desk, virtual desktops replace that big box with a "thin client," a piece of slim hardware that connects to a server in a central data center. Through the thin client connection, users access their own personal screens, applications and data. For employees who travel or work at home, connection to the centrally located virtual desktop occurs through a smart card thin client, web browser and an individual laptop.

Figure 1: Virtual Desktop Infrastructure Overview



Virtual desktops are a highly attractive option for businesses as they face major operational challenges, some of which may sound awfully familiar.

In a typical business environment, every employee and every user has a desktop filled with common work applications and individual files. Managing this vast amount of “stuff” across the company, and ensuring that essential items are in sync, is a major concern, one made nearly impossible through the traditional desktop setup. This system also limits employee mobility, outsourcing and alternative workspaces; the right application and access often won’t extend to off-site locations, meaning major opportunities lost.

The issues continue beyond mobility and manageability. Security is a growing problem for companies across industries. Whether a healthcare organization must comply with HIPAA regulations, or a financial business must conform to various government strictures, the traditional business environment of far-flung desktops test a company’s internal and external security. Also, one stolen desktop or laptop with locally stored information can compromise client confidentiality, company intellectual property, and much more. And don’t forget the worst-case scenario. Disaster recovery is made much more difficult with the individual desktop system.

Differing desktops present a severe reliability issue. Individual systems can break down easily, requiring extensive loss of productivity and excessive costs from expensive drive replacements and other measures. Even general upkeep and support means time away from the desktop and additional costs.

In today’s environment of increasing demand for reduced operating costs and “green” business options, the typical desktop setup for businesses is also a major resource drain. An individual desktop system only uses 5 percent of memory and other built-in resources. This results in a very inefficient tool that costs businesses extreme amounts to maintain. In addition, the wasted power increases an organization’s footprint in a time when reducing our presence is more and more necessary.

Finally, the traditional desktop setup presents major impediments to day-to-day business operations. On each system, universal applications are installed. It’s nearly impossible to regulate the use of those applications and the files associated with them. What happens when employees access items they shouldn’t? How can certain divisions maintain consistency and security within their own group?

These business challenges are causing headaches for many business leaders working with the current method of desktop operations. That’s where VDI comes in.

Sun VDI vs. Business Challenges

Using a virtual desktop setup, companies can drive forward to better business, lower costs and more responsible operations.

Sun Microsystems offers VDI through Sun Ray, a thin client system that connects every employee with a central infrastructure, negating the need for individual desktops. This stateless existence means the ultimate in flexibility. The Sun approach to virtual desktop infrastructure ensures companies have choice, comfort and confidence in their system. It also empowers organizations to resolve those pressing business challenges exacerbated by traditional desktop systems:

Figure 2. Sun Ray Virtual Desktop Infrastructure Approach

Manageability

Virtual desktops rely on centrally deployed applications and data. By having one source with all applications, and thin clients that then log in to that source, there are no local memory issues. From a document manageability perspective, this means no more locally stored files causing inconsistencies and confusion. All work is centrally located with virtual desktops, and all information in one place.

Mobility

The virtual desktop setup allows employees to work in the office, on the road, from home, or overseas. The system enables any user to move their session from one client to another, immediately resuming exactly where they left off and finding their screen exactly the same as it was. This hot desk architecture, often accomplished with a smart card that plugs in, guarantees the same experience and same information in any location.

Security

With increasingly sensitive applications and data, it makes sense to move these off the traditional local desktops and into a centralized data center. The result is workstations that have no local data stored, meaning protection, immunity, and backup. With a virtual desktop, the effects of theft are minimized, and secure data kept secure. Additionally, with no local operation system and applications, the thin client is virtually immune to client side malware (virus, spyware, worm, trojan and other attacks). In cases of natural or manmade disaster, recovery is an easier prospect with centrally located systems and information.

Reliability

The benefits of centrally deployed applications and central administration extend to the reliability of data. It's infinitely easier to add new applications, retire old ones, or revert back with VDI. Any changes or refreshes can be done to thousands of desktops at once, at any time of day, by just making upgrades, patches or other changes on a few servers. Memory upgrades and data backups, the bane of the traditional desktop setup system, are simple processes done en masse. And with a central administration, there's no need to take people away from work for any of these tasks.

At the same time, the simplicity of the thin client means additional technological reliability. The solid state of the machinery at use means no moving parts, no fans to

break down, and no worries. The life of a desktop is at a maximum of eight years; the estimated life span of Sun Ray thin clients is almost 22 years.

Finally, the virtual desktop system enables reliable business continuity. The Sun Ray software has built in load balancing that distributes new sessions to the least loaded server(s), meaning you won't run out of resources. Additionally, if a server goes down, built-in failover ensures that all users will automatically be switched to the least loaded server and asked to login again.

Resource Utilization

The virtual desktop setup results in significantly less resources needed and used. The thin client uses only 4 watts of power versus 100 watts for traditional desktops. This translates immediately to lower energy costs and reduced waste.

Business Operations

Virtual desktops allow businesses to regulate the use of applications and files associated with them, resulting in better internal security and business operations. Control to specific areas and applications can be turned on or off centrally. Users participate in strict identity management means to control access, as well as a two-factor authentication for smart card use. This method also creates an audit trail, enabling employers to track who logs on to which applications. In addition, virtual desktop infrastructure allows companies to create user pools, establishing automatic rules for employees denoted as nurses, doctors, accountants, and other groups. This allows for collaborative work function, as well as dynamic bandwidth.

VDI Implementation

Virtual desktop infrastructure is a major boon for any company facing the complicated issues of desktop manageability, security, reliability and more. However, many companies are scared off by the thoughts of implementing an entirely new system. Sun VDI provides options for implementation, simplicity in setup and maintenance, and immediate value, meaning a smoother process of change.

A major issue companies grapple with when considering VDI is determining the initial level of commitment. There are two options:

- *Transition Existing Desktops.* For some companies, it makes sense to slowly move into the virtual desktop realm, easing dependence on current desktops as they individually come off lease. This option requires less upfront costs, an attractive idea for some organizations. However, cost-effectiveness is ultimately low. By continuing to rely on existing desktops, energy costs to run the desktops remain exorbitantly high and operational expenses stay at painful levels.
- *Complete Replacement of Desktops.* Moving over to thin clients en masse seems like a big step, and may require more investment upfront. But as a tradeoff, companies immediately begin drawing less power, reducing energy costs and

cutting operational expenses. One important consideration for this move is the type of applications being used. Immediate transition to thin clients may result in reduced functionality if companies are relying on engineering 3-D modeling or other similar, complicated programs. If primary application use is limited to training media, Windows media, or the like, however, function will be at top levels.

Another major consideration for companies enlisting a virtual desktop infrastructure is implementation procedures. There are two options:

- *No Connection Broker.* In this setup, each thin client connects directly to the central data server. Each user is granted a userid/host name in order to connect from their desktop or remote location. This arrangement is simple, but not as flexible or secure. The problem lies in an inability to enforce user restrictions and assignments. Each user can theoretically access all company systems, even if the company wants to restrict them to certain areas.
- *With Connection Broker.* In this system, a local desktop broker sits between the user and the central data center, managing all connection requests. Users can be assigned to specific areas and function, and these restrictions enforced easily. This enables a much more dynamic virtual desktop setup and service.

When it comes to choosing the VDI system, company leaders naturally have many questions, most of which revolve around specific internal situations. But the major question is: why one system over another? Why Sun Ray over Citrix, or Blades?

As companies have increasingly realized the need for VDI, options have grown and expanded, and represent multiple methods of approach. To understand the advantages and disadvantages, the chart below compares the major VDI methods. Virtual clients like the Sun Ray solution offer flexibility in users supported, a wide range of client platforms, the utmost in external and internal security, reasonable costs, and several other characteristics that position it as the ideal solution.

Figure 3. Model Comparison

	Shared Services (Citrix)	Virtual Clients (Sun Ray)	WS Blades
Users Supported	70+	15+	1
User Exp.	W2K3 GUI	XP GUI	XP GUI
Fault Isolation	Some	Optimal	Optimal

Performance Isolation	Some	Optimal	Optimal
Application Compatibility	Depends on application	Optimal	Optimal
Remote KVM	ICA (best)/RDP	RDP (good)	RDP/Native HW
Shared Pools of Resources	Supported (multi sessions)	Supported (VM pools)	Supported (Blade pools)
Dedicated Client Environment	Not supported	Supported (Dedicated VMs)	Supported (Dedicated VMs)

Conclusion

Virtual desktop infrastructure allows companies to move to the next level of internal support with a dynamic, efficient, and flexible solution. By removing the burden of desktop management, IT resources can be focused on delivering key new services, planning for competition, and other valuable business building endeavors.

The reasons for enlisting virtual desktop infrastructure, including the major business concerns of enhanced manageability, security and reliability, are compelling. Even more important is the savings and value expressed in ROI. Forrester Research has conducted a study with several existing Sun Ray client customers and found ROI of up to 76% versus other desktop solutions.

To stay ahead of the competition, serve clients and maintain reputation, companies today need to operate efficiently and effectively. With Sun Ray VDI, you have a powerful means to do just that.

Sources

Rouse, Patrick. Virtual Desktop Infrastructure (VDI) Overview.
<http://www.msterminalservices.org/articles/Virtual-Desktop-Infrastructure-Overview.html>

About Laurus Technologies

Laurus Technologies is a mid-west regional provider of technology solutions. Laurus Technologies provides well-experienced resources to help its clients work through highly complex technology solutions. With a customer focused service offering that starts with strategy and planning, to proof-of-concept, implementation, training and support, Laurus boasts a 100% referencable customer base. The company is dedicated to adding value back into technology at every stage. Laurus Technologies is privately held and headquartered in the Chicago area with local offices in the mid-west. For further information, please visit our website at www.laurustech.com.