

Hosted Desktop Model vs. SBC, VDI and Traditional Desktop

Position Document

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Date:	11/07/2008	Last Revision:	20/08/2008

Hosted Desktop Infrastructure is an innovative new method for delivering desktops to end-users. A hosted desktop looks and acts exactly like a traditional PC but, instead of residing locally, all software and data are housed in ThinkGrid’s state-of-the-art datacenters. Hosted Desktops offer numerous advantages in terms of cost savings, security, resilience, flexibility and reduced management.

Desktops have been an integral part of business infrastructure for many years, either running locally on users’ own PCs or, more recently, by accessing server-based desktops running on Microsoft Terminal Server or Citrix Presentation Server (so called Server-Based Computing / SBC). In addition, over the last year or so, vendors such as VMware & XenDesktop have started to introduce Virtual Desktop Infrastructure (VDI) into larger enterprise organisations.

Now ThinkGrid offers the next generation of desktop, as can be seen from the respective strengths and weaknesses of the traditional PC desktops model, server-based computing, VDI and hosted desktops.

Traditional PCs

The traditional method of providing each user with their own desktop PC, operating system and locally based applications and data

STRENGTHS	
Familiar	End users are generally PC literate, meaning little additional training is required.
Customisable	Individually customisable desktops allow for personalised end user experience.
Powerful	Providing that the hardware is up-to-date, today’s PCs generally offer good speed and performance.
Widespread	Because of near-ubiquity of Windows desktops, application compatibility is unlikely to be a problem.

WEAKNESSES	
Management Intensive	PCs have to be maintained on an individual basis, meaning mundane tasks like applying patches, upgrades and application management can be extremely time consuming.
Inflexible	A relatively lengthy procurement and set-up process is required to add new users. Deploying new applications or upgrading existing ones for multiple users is extremely cumbersome.
Vulnerable	Because end users own and control all their data, it’s extremely easy for vital company information to be lost or stolen. Similarly, direct end user control also

	makes PC desktops far more susceptible to viruses and malware.
Non-resilient	The costs and technical complexity of creating a fully-resilient, secure and backed-up desktop infrastructure are beyond the budget and expertise of most SMBs.
Limited Access	End user access is typically limited to a single location, namely the office itself, or certainly to a single device.
Cap-Ex Intensive	PC infrastructure requires relatively expensive initial hardware investment, putting pressure on budgets. This is equally true for upgrades, such as from XP to Vista.
Power Inefficient	Currently a single desktop can cost >£400 per year to power, with costs rising all the time as energy prices soar.
Limited Life-Cycle	Both hardware and software can rapidly become obsolete as technology advances.
Limited support	The simple economics of a small-medium business mean end users are likely to be able to access only very limited technical support or extremely costly 3 rd party support.
Limited Access	End user access is typically limited to a single location, namely the office itself, or certainly to a single device.

Server Based Computing / SBC

Server based computing is the basis of connection to a server via Terminal Services or Citrix over a remote connection using Remote Desktop Connection.

STRENGTHS	
Efficient	By sharing common components, SBC is a far more efficient deployment of resources than traditional PCs
Centralised	In centralising the desktop infrastructure, SBC allows for more effective, less time-consuming management and administration.
Allows Remote Connection	Provides access to the server based application from anywhere, so can be a suitable option for remote workers.

WEAKNESSES	
Poor Performance	The flip-side of the efficiencies of shared components is that system performance is adversely affected, meaning SBC often performs sluggishly, particularly with more demanding applications.
Expensive	Because SBC has to be implemented as a multi-component, large scale infrastructure solution, it demands significant capital expenditure. Costs for SBC solutions can run into £100's per concurrent user, plus additional management costs for specialist skill sets and additional server hardware.
Complex	SBC is a technically complex solution to design and implement as hardware, software and licensing all have to be accounted for. Licensing is typically bought twice, once for the user's desktop and again for the server they are accessing.
Compatibility Issues	Many applications are simply not designed to run in an SBC environment and so either won't work or will perform poorly. In addition, compatibility issues can arise around peripherals such as print drivers, USB devices etc
Unstable	One end user can affect all other users, either by consuming excessive resources and therefore strangling the usage of others, or by creating problems (crashes, viruses etc) that affect the whole system.
Impersonal	SBC only allows for limited personal customisation.
Unfamiliar	Users are generally unfamiliar with the SBC experience and so any switch from PC to SBC infrastructure means re-training end users. Environments of SBC are typically "server" environments rather than Windows XP
Different Interface	SBC services usually mean logging into different machines in the network which do not have the same applications or data available.

In House VDI (Virtual Desktop Infrastructure)

Virtual Desktop Infrastructure (VDI) means using a virtualisation technology such as VMware or XenDesktop to carve a server into multiple Virtual Machines (VM), each of which VMs runs its own, individual desktop.

STRENGTHS	
Centralised	VDI allows IT Managers and administrators to centralise control over their users desktops by taking them back into the datacenter.
Anywhere Access	Virtual Desktops can be access from anywhere with an Internet connection
Familiar	VDI provides users with a familiar desktop experience, indistinguishable from their desktop PC.
Hardware Independent	Virtual Desktops can be accessed from existing PCs, laptops or energy-efficient Thin Clients.

WEAKNESSES	
Complex	VDI is an extremely complex solution stack, involving servers, virtualisation software, connection brokers, end devices, licensing and many more components and that's before you get onto deciding which vendor's offering (VMware, Parallels, XenDesktop, Sun, Ericom, Leostream, Provision Networks etc) is right for you.
Expensive	Because of its complexity, VDI is an expensive solution, usually requiring the latest in server hardware to power it and prohibitively large amounts of SAN storage to support it, even before the respective licensing costs of the virtualisation software, connection broker and operating systems.
In-House Expertise Required	Because of it's complexity, VDI requires significant in-house expertise, not just to design and implement, but also to run. Installing virtualisation technology into your infrastructure effectively means giving yourself another OS to learn. And, if your in-house expert leaves, you're left with a complex infrastructure to run and facing an expensive hire to find someone with the requisite skills.
Reliant on Economies of Scale	Though VDI can offer an ROI over a desktop PC infrastructure, this is reliant on significant economies of scale, meaning VDI is only really appropriate for wholesale deployments for larger enterprise businesses.
Poor Performance	Hypervisor-based virtualisation technologies introduce a performance penalty because of the problem of context switching (aka double caching) will particularly affects I/O intensive applications.

Limited scalability	Though VDI is more flexible than PC desktops there are still various licensing complexities that have to be accounted for with each user you add and eventually more users will mean additional expensive hardware is required at the backend.
Not Supported	All maintenance and support requirements for the new virtual desktop infrastructure will fall on your shoulders.
	Disaster Recovery provisioning isn't built into a virtual desktop infrastructure which means that to have a truly resilient infrastructure you'll also need additional servers and storage – ideally at a second datacenter – on which to replicate your desktops. Needless to say, this means significant extra costs.
Immature Technology	VDI is new to the marketplace, has a limited number of implementations and a whole host of vendors jostling for position, some of whom won't make the cut. Most customers will find it far from clear which are the best technologies to implement, and in which combination. In addition, most IT partners are unlikely to have genuine expertise and experience in building a VDI solution.

Hosted Desktops

ThinkGrid's service, which allows each user to connect to a desktop environment remotely, provides each user with their own isolated, customised environment and applications, accessible anywhere in the world.

STRENGTHS	
Familiar	The end user experience is identical to that of a desktop PC so no additional training is required. Each desktop is fully customisable and fully functional and users get the same experience whether in the office, at home or on the move.
Easy to Manage	A centralised infrastructure makes for easy mass management of desktops. Moreover, customers can choose to be as hands-on or hand-off as they like in terms of day-to-day administration.
Flexible	Desktops can be provisioned on-demand, meaning new users can be seamlessly added to the infrastructure, all without incurring expensive capital expenditure.
Anywhere, Anytime Access	Provided you have internet connectivity, you can access your own, personal desktop from anywhere, at any time, making hosted desktops ideal for mobile workers. Users can roam between devices and locations
Lower, Predictable Costs	By saving on the multiple hidden costs of a traditional PC infrastructure, hosted desktops are cheaper to run and don't require costly capital expenditure. Moreover, the economies of scale involved mean small-medium businesses can have affordable access to enterprise class IT.
Reliable	ThinkGrid's fully resilient infrastructure means users have 99.99% uptime and extensive back-up and restore capabilities mean, in the event of end user error, desktops can be quickly restored to their previous state.
Safe	Because end users no longer store their own data locally, company information is secure and cannot be lost, stolen or inadvertently erased.
Secure	Individual desktops are fully isolated from one another, meaning one user cannot affect another, either in terms of performance or problems.
Simple	We take care of things so you don't have to. You no longer need worry about patching or administrating your desktops, about application compatibility or upgrades or about which vendor's technology is most suited to your needs, we do all that for you.
State of the Art	ThinkGrid ensures that its datacenters run the latest technologies so that you have direct access to ever improving IT without even having to think about it.
Hardware Independent	Hosted desktops can either be accessed via existing PC hardware or on Thin Clients, and now the desktop is no longer tied to hardware it isn't lost if the client device breaks or is stolen. In addition, Thin Clients are inexpensive and require little power and so are very cheap to run.

Supported

24/7 access to expert IT support as standard

WEAKNESSES

Graphic Intensive Applications*

Because some of the technologies behind hosted desktops are still evolving, they're not ideally suited to graphic intensive applications or media streaming. However, this is rapidly changing and hosted desktops will soon be suitable for delivering both of these. Moreover, neither graphics intensive applications nor media streaming capabilities are necessary for most businesses.

Requires Connectivity*

Hosted desktops require the user to be connected to the internet via Broadband, Leased Line, 3G or WiMax. Although for large businesses this connectivity can almost normally be assumed, it is a point which requires due diligence. Numerous options also exist to increase the resilience of existing connections and to provide for back-up methods of connecting.

Conclusion

The Hosted Desktop model, made possible by recent developments in technology, promises to be the future of the delivery of desktops to businesses of all sizes. In addition to the various specific innovations it introduces, it means that, for the first time, enterprise class IT is available to all. Moreover, the broader concept of IT infrastructure on demand – with its flexibility, efficiency and cost-savings – is perfect for today's uncertain economic climate, with budgets being squeezed and businesses operating in rapidly shifting circumstances.

To learn more about Hosted Desktops, visit www.thinkgrid.co.uk where you can find a range of other White Papers and Datasheets or contact us on 0131 777 3111 to find out how the Hosted Desktop model could fit your individual circumstances.