WHITE PAPER: VDI VERSUS STREAMING

VDI May Not Be The Right Solution

or Why Streaming Might Be A Better One

So You Think You Want VDI?

Virtual Desktop Infrastructure (VDI) is the most hyped client computing technology of the past few years. There can be great benefits for IT, but with them come increased costs and greater infrastructure complexity. Plus, VDI alone is not a whole solution – it's only starting point. What else will be required to make it all work? Is it worth it? Are there other options that should be considered? While VDI is a good solution for specific scenarios, many are finding that VDI should play a much smaller role in their environments than originally thought, since there are better and more efficient solutions to the biggest problems it claims to solve. Application Streaming, an Endpoint Virtualization technology, is probably the strongest contender, providing complete central control of the user's workspace, on existing systems. Streaming provides on-demand access for the end user, without compromising on productivity or performance, all for a far more reasonable cost than VDI.

Endpoint Virtualization is a collection of technologies whose purpose is abstracting the assets a user needs to be productive, like applications, profiles and data, from the operating system. These technologies have more to do with end-user productivity, and overall manageability of the user's workspace, by allowing applications and such to be independent of the operating system and device. Application Streaming, in particular, is a technology that has been widely used over the last decade to solve some of the same problems VDI aims to solve: centralized management, reduced desk-side visits, and increased IT control over end-user desktops. Streaming virtualizes the installation of applications, allowing them to be delivered to any Windows-based system anywhere, instantly and on-demand, according to a set of pre-defined rules, without IT intervention. This can be a much simpler and cheaper solution for IT departments looking to make their lives easier.

Why VDI?

VDI is all about creating a more manageable client computing platform to address the high support and management costs of traditional PCs. These costs come from two things: distributed systems that are difficult to access, and image variation that comes from the differing needs of users and their individual use over time. One hardware vender has claimed – "The PC is Personal", and users like it that way. Not only do they like it, but they tend to be more productive when the system is perfectly suited to their particular work, style and personality. IT managers generally have the opposite objective – to standardize and centralize – which is why VDI has so much initial appeal to those making the decisions. A closer look is required to make the best business decision to solve these problems.

VDI is a platform, not a solution

VDI was initially introduced by VMware as a collaboration of vendors to create a centralized client computing environment on top of ESX. Although there are now more options than just VMware to select from for the platform, the complete solution still requires a host of other products for it to be usable and manageable – simply moving the client OS to a VM in the datacenter is NOT a solution. Most people now acknowledge that for VDI to be successful, several problems must be solved. And their inability to solve these problems well is stalling the vast majority of production implementations. Following is a short list of the biggest issues to be overcome.

Storage – By moving distributed clients into the datacenter, storage requirements increase dramatically, and it is expensive storage compared to that found in PCs. Efforts to reduce this impact include the adoption of a non-persistent VDI approach, where desktops are deleted each time users log out. This tends to work in opposition to the need for individual computing environments, which become more comfortable and productive over time. Initial VDI trials kept each user's desktop complete on disk between logins, so storage requirements grew rapidly without any sign of relief.

The generally accepted approach to this problem is to adopt a non-persistent approach, where user desktops are discarded after each use. Here storage is only required for each active desktop, but only from log on to log off, and then the storage is recovered. This approach can save on cumulative storage requirements, but clearly can only provide very standard common desktops to each user, eliminating user productivity customizations that would naturally develop over time. For this reason, even the introduction of non-persistent VDI has not dramatically improved adoption rates.

And if you are wondering just how effectively companies have been keeping their storage requirements in check when implementing VDI, note that a large and profitable new technology segment has evolved specifically to address the failures to do so. Companies like Atlantis Computing can save VDI implementers tons of money, but their existence and success speak very loudly to this issue.

License Management – Application license costs can be a significant budget item, and managing these assets is challenging in any environment. Moving to a VDI platform does not improve this situation, as many of the same inventory, asset management and distribution tools are still required, yet may not be well suited to this new environment. Although in the best case, the problem is no worse, in reality, there are additional complicating factors in VDI. Maintaining compliance may require the purchase of MORE licenses to accommodate all VDI accesses plus the applications that must continue to be distributed. Also, asset management and delivery tools may be far less effective in an environment where, instead of a physical system to target, there are just some bits in a VM that may or may not be active during an inventory or application update task.

VDI is a platform, not a solution *continued...*

Compliance then becomes a big issue. And if there is not an effective and efficient way to manage the optimal number of licenses, the need to be in compliance will absolutely drive an organization to spend more than necessary on application licenses.

Productivity (or Access and Performance) – Since the users are not also moving to the datacenter with their desktops, continuous, high-bandwidth connections are a requirement. This may be a small issue for office-bound users, but they are rapidly becoming a smaller percentage of the workforce. Remote workers in satellite offices, home offices, and road warriors will not find this to be an optimal solution, and will continue to insist on local computing for productive work. Even those with sufficient bandwidth to connect may experience reduced performance and interactivity with their applications when working on distant, shared hardware. Workers not affected by these issues are those that report to a well-connected office every day, have a limited scope of work, and have little need for personalization of their desktops. Call center employees are perhaps the clearest examples. Most other groups will be negatively impacted to some degree.

Infrastructure Costs (CAPEX)

Certainly one of the largest costs will be storage, as indicated above, and it will likely grow over time. In addition to that, there are several components that make up the capital expense costs for a VDI solution, including: thin client devices ($200 - $300 per device), VDI licensing ($150 - $350 per user), and various servers ($60K - $80K for 1000 users or less). Note that most organizations will also have to pay for additional OS licenses in the form of VECD or VDA, which could run as high as an additional $100 per user per year.

When calculating these costs it is strongly recommended to perform your own user density studies in your own environment with your own applications. It is not uncommon to install a solution that claims 8 – 10 users per server, only to find out in practice that it is more like 4 or 5. This will depend largely on what applications and usage patterns can be found in your organization, but this number must be known because it is a significant factor in the overall cost. Note that if minimizing CAPEX is the overriding factor, then Terminal Services is the superior solution, coming in with far lower numbers for support and much greater user densities. This should always be considered an option for centralizing client desktops.

As countless articles have stated over the last several years, VDI is rarely a break-even financial decision, with the CAPEX often outweighing any predicted OPEX savings. A financial justification will rarely, if ever point to a VDI solution. Instead, it will likely be other factors that push the decision, like regulatory requirements forcing data and or applications to be locked in the datacenter.

Infrastructure Costs (CAPEX) *continued...*

Certainly this will still be more equitable if there is a relatively homogeneous user base with limited computing needs, as in the call center example above. But if the implementation can be limited to the specific areas where these factors line up favorably, then justification may still come, probably for a relatively small percentage of the enterprise.

Maintenance Costs (OPEX)

Here is the promise of VDI. By centralizing the entire computing environment, management and administration become simpler and less expensive. This may be true but for two significant factors.

1) Rarely is VDI implemented pervasively enough to reap the benefits. At near 100% VDI deployment, OS management, patching, etc. does become far simpler. But at 15% - 25 % (the high end of most implementations), the existing landscape doesn't change dramatically from what it was before. There are still significant numbers of distributed systems that will be maintained using the old model. And VDI now adds to that burden, not only by adding incremental costs, but by doubling the number of supported infrastructures. It is easy to underestimate the impact of multiple platforms, but consider the impact on both IT to manage both and users to learn additional systems.

2) The promise of VDI really only addresses the OS, or plain desktop. It is true that an OS on a server should be simpler to manage and maintain than one in a distant city, or even a distant cubicle. But nothing about the VDI platform itself changes the need to manage and maintain the applications and user customizations. In fact, we have discussed that it may even be more challenging to do so in a VDI environment. In the breakdown of maintenance costs for end-user desktops, maintaining the OS (or base image), is generally the lesser amount when compared to managing the "workspace", or all of the stuff that the user needs to do his job, like applications and user customizations. Unfortunately, the VDI platform does not address the larger of these two factors.

What About Streaming?

Consider the two parts of the client computing equation – the desktop itself (base OS image), and the workspace (all the stuff that is added so users can be productive). VDI directly affects how the desktop is delivered and accessed, but the workspace is left to other vendors to solve. The big question is where to spend money to get the best return and business value. Each company will have to ask that question of themselves, but it should be very clear that any environment that is not nearly 100% VDI, virtualizing the workspace (Endpoint Virtualization) will have the biggest impact on the organization as a whole because it can benefit everyone, and not just those who can justify VDI.

What About Streaming? *continued...*

Aside from situations where regulatory requirements demand that desktops be locked up in the datacenter, what is the big problem that so many companies are looking to VDI to solve? Simplify management and lower the costs of client computing. If desk-side visits can be reduced by 40%, and license costs can be reduced up to 30%, and support calls costs can be reduced by 25% or more, all while maintaining a high standard of end-user productivity, would it matter if it was NOT accomplished using VDI?

Application Streaming, along with Application Virtualization, is one of the most mature of the Endpoint Virtualization technologies, and is widely recognized as one of the smartest approaches to simplifying workspace management, optimizing license costs, and reducing support costs. Streaming was satisfying these needs in traditional distributed computing environments long before VDI was introduced, and it continues today, in cooperation with those environments.

One of the many advantages of application streaming, especially as implemented in Symantec's Workspace Streaming product, is that it works seamlessly across multiple platforms, eliminating the need for redundant solutions in each environment. The second big advantage is that it is significantly less expensive to install and maintain than a full VDI solution. This means that whether VDI is selected or not, great advantages can be realized.

What About Streaming? *continued...*

Summary Comparison of VDI vs. Application Streaming

Decision Factor	VDI	Streaming
User Experience	• Constant high bandwidth is required • No offline use • Reduced performance and interactivity	• Supports connected and offline use • Zero impact to application performance and interactivity • No change in user behavior
CAPEX	• Thin clients (or PCs) - $200-$300 / user • VDI licensing - $150 - $350 / device • Servers - $60K - $80K / 1000 users • Increased VDA licenses - $100 / user • Increased expensive network storage • May increase application license costs	• Existing client systems (p or v) • Servers - $8K / 5000 users (p or v) • SWS licensing - $40 / node • Cheap distributed storage (existing) • Decrease in application license costs o Automated license compliance o Automated license reharvesting • Overlays existing infrastructures
OPEX	This “simple” solution is usually only a portion of the overall enterprise solution, so is additive to that of the physical environment and terminal servers. This only becomes compelling if the environment is nearly 100% VDI	• Central management • Self-service application delivery • Automated updates and app patching • Reduced application-related support costs • Instant break fix

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