Cloud-Based VDI vs. DaaS – Is There a Difference?

August 29, 2014 / 1 Comment / in Best Practices, Blog, Cloud Computing, DaaS, VDI, Virtualization, Windows 7, Windows 8 / by Sid Herron

With nearly all new technologies in the IT space comes confusion over terminology. Some of the confusion is simply because the technology is new, and we're all trying to understand how it works and how – or whether – it fits the needs of our businesses. Unfortunately, some of the confusion is often caused by technology vendors who want to find a way to label their products in a way that associates them with whatever is perceived as new, cool, innovative, cutting-edge, etc. Today, we're seeing that happen with terms like "cloud," "DaaS," and "VDI."

"VDI" stands for Virtual Desktop Infrastructure. Taken literally, it's an infrastructure that delivers virtual desktops to users. What is a virtual desktop? It is a (usually Windows) desktop computing environment where the user interface is abstracted and delivered to a remote user over a network using some kind of remote display protocol such as ICA, RDP, or PCoIP. That desktop computing environment is most often virtualized using a platform such as VMware, Hyper-V, or XenServer, but could also be a blade PC or even an ordinary desktop PC. If the

virtual desktop is delivered by a service provider (such as VirtualQube) for a monthly subscription fee, it is often referred to as “Desktop as a Service,” or “DaaS.”

There are a number of ways to deliver a virtual desktop to a user:

- Run multiple, individual instances of a desktop operating system (e.g., Windows 7 or Windows 8) on a virtualization host that’s running a hypervisor such as VMware, Hyper-V, or XenServer. Citrix XenDesktop, VMware View, and Citrix VDI-in-a-Box are all products that enable this model.
- Run multiple, individual instances of a server operating system (e.g., 2008 R2 or 2012 R2) on a virtualization host that’s running a hypervisor such as VMware, Hyper-V, or XenServer. In such a case, a policy pack can be applied that will make the 2008 R2 desktop look like Windows 7, and the 2012 R2 desktop look like Windows 8. In a moment we’ll discuss why you might want to do that.
- Run multiple, individual desktops on a single, shared server operating system, using Microsoft Remote Desktop Services (with or without added functionality from products such as Citrix XenApp). This “remote session host,” to use the Microsoft term, can be a virtual server or a physical server. Once again, the desktop can be made to look like a Windows 7 or Windows 8 desktop even though it’s really a server OS.
- Use a brokering service such as XenDesktop to allow remote users to connect to blade PCs in a data center, or even to connect to their own desktop PCs when they’re out of the office.
- Use client-side virtualization to deliver a company-managed desktop OS instance that will run inside a virtualized “sandbox” on a client PC, such as is the case with Citrix XenClient, or the Citrix Desktop Player for Macintosh. In this case, the virtual desktop can be cached on the local device’s hard disk so it can continue to be accessed after the client device is disconnected from the network.

Although any of the above approaches could lumped into the “VDI” category, the common usage that seems to be emerging is to use the term “VDI” to refer specifically to approaches that deliver an individual operating system instance (desktop or

server) to each user. From a service provider perspective, we would characterize that as cloud-based VDI. So, to answer the question we posed in the title of this post, cloud-based VDI is one variant of DaaS, but not all DaaS is delivered using cloud-based VDI – and for a good reason.

Microsoft has chosen not to put its desktop operating systems on the Service Provider License Agreement ("SPLA"). That means *there is no legal way* for a service provider such as VirtualQube to provide a customer with a true Windows 7 or Windows 8 desktop and charge by the month for it. The ***only*** way that can be done is for the customer to purchase all the licenses that would be required for their own on-site VDI deployment (and we've written extensively about what licenses those are [https://www.virtualqube.com/blog/the-elusive-windows-companion-subscription-license-a-solution-in-search-of-a-problem/]), and provide those licenses to the service provider, which must then provision ***dedicated hardware*** for that customer. That hardware cannot be used to provide any services to any other customer. (Anyone who tells you that there's any other way to do this is either not telling you the truth, or is violating the Microsoft SPLA!)

Unfortunately, the requirement for dedicated hardware will, in many cases, make the solution unaffordable. Citrix recently published the results of a survey of Citrix Service Providers [http://www.citrix.com/solutions/hosted-desktops/daas-market-trends.html] . They received responses from 718 service providers in 25 countries. 70% of them said that their average customer had fewer than 100 employees. 40% said their average customer had fewer than 50 employees. It is simply not cost-effective for a service provider to dedicate hardware to a customer of that size, and unlikely that it could be done at a price the customer would be willing to pay.

On the other hand, both Microsoft and Citrix have clean, easy-to-understand license models for Remote Desktop Services and XenApp, which is the primary reason why nearly all service providers, including VirtualQube, use server-hosted desktops as their primary DaaS delivery method. We all leverage the policy packs that can make a Server 2008 R2 desktop look like a Windows 7 desktop, and a 2012 R2 desktop look like a Windows 8 desktop, but you're really not getting Windows 7 or Windows 8, and Microsoft is starting to crack down on service providers who fail to make that clear.

Unfortunately, there are still some applications out there that will not run well – or will not run at all – in a remote session hosted environment. There are a number of reasons for this:

- Some applications check for the OS version as part of their installation routines, and simply abort the installation if you're trying to install them on a server OS.
- Some applications will not run on a 64-bit platform – and Server 2008 R2 and 2012 R2 are both exclusively 64-bit platforms.
- Some applications do not follow proper programming conventions, and insist on doing things like writing temp files to a hard-coded path like C:temp. If you have multiple users running that application on the same server via Remote Desktop Services, and each instance of the application is trying to write to the same temp file, serious issues will result. Sometimes we can use application isolation techniques to redirect the writes to a user-specific path, but sometimes we can't.
- Some applications are so demanding in terms of processor and RAM requirements that anyone else trying to run applications on the same server will experience degraded performance.

There's not much that a service provider can do to address the first two of these issues, short of going the dedicated-hardware route (for those customers who are large enough to afford it) and provisioning true Windows 7 or Windows 8 desktops. But there is a creative solution for the third and fourth issues, and that's to use VDI technology to provision individual instances of Server 2008 R2 or Server 2012 R2 per user. From the licensing perspective, it's no different than supporting multiple users on a remote session host. Once the service provider has licensed a virtualization host for Windows Datacenter edition, there is no limit to the number of Windows Server instances that can be run on that host – you can keep spinning them up until you don't like the performance anymore. And the Citrix and Microsoft user licensing is the same whether the user has his/her own private server instance, or is sharing the server OS instance with several other users via Remote Desktop Services.

On the positive side, this allows an individual user to be guaranteed a specified amount of CPU and RAM to handle

those resource-intensive applications, avoids “noisy neighbor” issues where a single user impacts the performance of other users who happen to be sharing the same Remote Desktop Server, and allows support of applications that just don’t want to run in a multi-user environment. It’s even possible to give the user the ability to install his/her own applications – this may be risky in that the user could break his/her own virtual server instance, but at least the user can’t affect anyone else.

On the negative side, this is a more expensive alternative simply because it is a less efficient way to use the underlying virtualization host. Our tests indicate that we can probably support an average of 75 individual virtual instances of Server 2008 or Server 2012 for VDI on a dual-processor virtualization host with, say, 320 Gb or so of RAM. We can support 200 – 300 concurrent users on the same hardware by running multiple XenApp server instances on it rather than an OS instance per user.

That said, we believe there are times when the positives of cloud-based VDI is worth the extra money, which is why we offer both cloud-based VDI ***and*** remote session hosted DaaS powered by Remote Desktop Services and XenApp.

Share this entry

You might also like

What is Storage Virtuali: (Part 1 of 2)

Let the Reader Beware

Citrix Branch Repeate VPX Is Here

So You Want to Be a Hosting Provide (Part 2)

Just Sign the Check Right Here - We'll

Will My Applica Work?

Great Advice? Look Deeper

Windov Server 2003 - Four Months and Countir

Fill In the Amoun Later

1

REPLY

Trackbacks & Pingbacks

1. VirtualQube Announces Cloud-Based VDI | VirtualQube News and Events
   January 12, 2015 at 4:23 pm

   [...] VirtualQube is pleased to announce the availability of Cloud-Based VDI as an option for Hosted Private Cloud customers. Historically, most customers have been well-served by Cloud desktops delivered from shared servers using Microsoft Remote Desktop Services and Citrix XenApp. However, there are some situations where this approach may fall short. For example, there are still some applications that will not run properly in a multi-user environment. There are also situations where a power user may need dedicated processor and RAM resources to run applications that require substantial resources and may cause “noisy neighbor” problems when run on a shared server platform that is servicing other users as well. Both of these situations can often be addressed by dedicating an Operating System instance per user. More information on the distinction between Cloud-Based VDI and other forms of Desktop-as-a-Service (DaaS) can be found in our blog post entitled Cloud-Based VDI vs. DaaS – Is There a Difference? [...]

   Reply