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Citrix XenServer Administration for VMware Admins -- Part 1???

With the world of server virtualization changing at a lightning pace, folks who were once dedicated to the administration of just VMware are finding themselves with new responsibilities of being the overall Virtualization Admin. One of the dual-roles that I run into often is the person who administrates both VMware and Citrix's XenServer, although that is also changing and even adding Microsoft's Hyper-V to the mix. For the purpose of this article, I'll focus on some of the highlights that VMware admins should be aware of that apply to the XenServer environment. I emphasize "highlights" since you could literally write an entire book on the cross-administration of these two very different architectures.

First off, as a disclaimer, I am not suggesting by anything I write in this article that one platform is better or worse than the other. That said, for the die-hard VMware admins out there, you do need to come to realization that the world does not spin on an axis around VMware, and it would benefit you to broaden your professional career horizons. Secondly, you must be willing to learn about the two very different architectures of these Type-1 hypervisors. You should attempt to learn as much as you possibly can about the underlying core technology, understand the differences in terminology, and how to perform common tasks within the respective administration tools.

Let's go ahead and start with the basics and a bit of history. The roots of XenServer go back to 2003 under the original code developed by Ian Pratt called simply "Xen". Citrix came along and bought his company XenSource, and now distributes it as various flavors of Citrix XenServer. The XenServer code has since been open sourced by Citrix and the code is available to all for free, just as it all started. We will be talking about the branded Citrix XenServer product and not the code offered up by the more generic, but very actively maintained Xen Code Project.

Since XenServer is traced back to a Linux development base, everything can be done via the CLI (Command Line Interface). I actually once saw a Citrix Engineer perform an entire multi-host implementation of XenServer, from scratch, using only a terminal command line on his CentOS laptop (with my IT upbringing being in Unix, I felt a little pride seeing it done that way!). On the other hand, many VMware administrators were groomed on the vCenter GUI and may have never touched a command line, so this may take some getting used to. But all is not lost, as a GUI management client called XenClient was created to help ease the pain a bit. I say "a bit" since not all the functionality that can be done via the CLI is present in XenClient, but most admin tasks are. It is kind of ironic that XenServer started out as a CLI and added a GUI, whereas, VMware started out as a GUI and has since added more control via the CLI (PowerCLI and the vMA). It all sort of comes full circle, doesn't it?

One of the differences you will see right off the bat when working in XenCenter is that the interface is very basic compared to vCenter, as well as connectivity and the organization of things. vCenter has all sorts of what I call "switches and knobs" for fine-tuning the environment, whereas in XenClient, you can barely change resources of a host. XenServer's core hypervisor is based on what is called "DOM0", and it's architecture is a distributed model rather than a centralized one. That means that when you open up XenClient, it wants to connect to a host, not to a central server (vCenter server). The host you specify can be any host that is within the "server pool" (think "cluster" in vCenter). The reason it can be any of the hosts is because each host knows about the others, and the "pool master" role can be transferred to any host within that pool. This also introduces extra steps that you have to go through to add all of your server pools to the client rather than having them all presented at once (think "Datacenter" in vCenter).

Moving on, you'll notice that the Xen interpretation of "pools" isn't the same as VMware's. You have resource or server pools in XenClient, but they do not act the same way as "resource pools' in vCenter. The same is with resource scheduling and high availability, as these are simply checkboxes within XenClient compared to options galore in vCenter. But, keep in mind, many of those options can be tweaked for the XenServer environment via the CLI, just not with XenClient.

One more aspect to keep in mind that I have been asked multiple times about is the difference with storage. XenServer uses what are called "SR's" or Storage Repositories, and vCenter uses Datastores. But, a SR that is assigned to one server pool cannot be used by another server pool with XenServer, which is much different than VMware, and in my opinion, limits some seamless migration capability within the datacenter. The options for different types of SR's are quite a few in XenServer, which would be a welcome addition to VMware.

One last note is that while writing this article, I came across some interesting information from some folks over at Xen.org. It seems that several of their projects that are under open source development will work with Citrix's implementation of XenServer, which opens the door for even better and more complete administration tools for the environment. I must caution you, however, to try these additions at your own risk and not in production, as they are not supported by Citrix, the folks at Xen.org, or myself, and may void any paid support you may have with them. Also check out their new interesting news about their Project Satori, which is pretty cool.

In a future article, I'll definitely cover more topics and dig even deeper into the XenServer CLI. Until then, setup a test environment (you can run XenServer *inside* of VMware Workstation or ESX as a virtual machine, believe it or not) and shake the trees a bit to get a feel for it. In my opinion, it's one of the best ways to learn.