Mike Nelson – SSV article

~~Flexible and Free Automated Virtual (and Physical) OS Deployments~~

In our world of server virtualization, there are many solutions for automating an Windows OS deployment to your virtualized environment, Most of us don't have the expensive "Cloud Automation" tools and required infrastructure that vendors are selling today, but we stick to the static basics, like using clones, templates, unattended.xml files, and some home grown scripting to get our deployments done. But I don't think that these options go far enough, and I wanted to take it up a notch and make it a truly dynamic solution that can be adapted to fit the deployment needs, including it being able to do either Server or Desktop OS deployments. A definite plus is if it could do both virtual and physical bare metal deployment. I've been tinkering with this solution over the last few months and it is still very much evolving, but let me tell you a little about it so far.

In VMware, as well as other hypervisors, there is a very well-known and widely used practice to create multiple machines by using templates. Simply put, you create a VM by installing it with the original install media, configure it the way you want it, install applications, update it with patches and service packs, "sysprep" it, and then convert it to a static template. Now that it is a template, you can create what VMware calls "Customization Scripts" that will allow you to implement small changes to certain aspects of that machine when it is deployed from the template to an actual virtual machine. These "scripts" are really sysprep setup files, and they are very limited in what they can do, and it will require some extensive post-install work depending on the requirements of the deployment. In addition to that is the fact that you will have several templates, mostly all static in nature, and consuming quite a bit of valuable shared disk space. Overall, this is not my idea of a dynamic and scalable solution, and it does require vCenter which is nowhere near free. Let's move on.

There were some other options to look at. I have used an open source solution in the past, although mainly for Linux and ESX host deployments, called the Ultimate Deployment Appliance (or UDA). A few years back, it worked well for me, although it was somewhat difficult to navigate and to get everything just right the way you wanted without some manual configurations to each ISO proved an exercise in itself. Add to that the fact that Windows 7 deployments are still beta (how long has this OS been out?) with version 2.0 and I decided not to pursue it. I also found that Dell sells a Deployment Appliance called the Kace K2000. I liked what I saw from the description on the website, but two things bothered me about it – one, it is a much larger management solution, not just for deployments, which would be overkill for what I needed. And two, it wasn't free, so that was out too.

I was still looking for a good solution, and a friend of mine sent me a link to something called the MDT, the Microsoft Deployment Toolkit. I had researched the MDT back years ago when it was a very young and mostly OEM proprietary offering from Microsoft. Now at version 2010 Update 1, it is a much more mature product,

better integrated with the other "SC" management product from Microsoft, and best of all, it is completely free* to everyone. It has a few prerequisites, but all of those are free also, so I thought I would do the install and see what the possibilities were.

Using the MDT was very easy, with its MMC-style interface and very descriptive documentation. The AIK, or Automated Installation Kit, is also required as it contains the core WinPE components necessary for the deployments. Think of it this way, the MDT is the back-end configurator for the front-end WinPE installation and deployment. The MDT can be integrated with the SCCM (Systems Center Configuration Manager) product as a complete "Zero Touch" solution. The Office Customization Tool, or OCT, can also be added if you wish to automate and customize Office 2010 in your deployments, but isn't required. I liked the idea of doing a "Lite Touch" deployment scenario and to get further with SCCM isn't free. I was really starting to like this and dove right into the doc's to learn as much as could.

After I was into about my third or fourth virtual deployment, I started to pick up on some very intelligent folks on the web that had some really good implementations, ideas, and scripts around the MDT (I've noted some at the end of this article). I found that creating a single sequence that could do either virtual or physical deployments, providing selection screens and dropdowns for options, and install drivers and applications depending on which platform it was, was a relatively easy thing to accomplish. One of the aspects that really pinned this solution down for me was the ability to be able to dynamically change the deployment of the OS or Application, on-the-fly, incorporating dynamic option selections and scripting, for any install I wanted. It was a fit, and a really good one at that.

I soon had all my Windows 2003R2, 2008 (some vendors still do not support R2 – can you believe that?), and 2008R2 deployments solid. I then ventured into the Desktop OS, trying my luck with XP and Win7 as virtual desktops. Needless to say, after getting the little kinks, configurations, and scripting changes worked out when I built the server deployments, the desktop deployments went almost without a hitch. The only issues I encountered were the obvious single application installs, which I knew would happen given the complexity of some of their installation routines, and driver issues when I started to do physical bare metal deployments, which will always happen no matter what solution you have.

As I was going through this process with the MDT, I soon could see that the dynamic, scalable solution I was looking for was a real possibly with these products. With this solution, you have some very granular control over of not only the deployment of the OS, but also applications, drivers, and update packages. And, even given the wealth of options available within the MDT, it uses the solid base of WinPE, and some basics I mentioned above like unattended.xml files and home grown scripting. Overall, I was very pleased in my progress, but there is still more to learn and accomplish. For now, it fits the need, but it can always be made better and my aim is to do just that. Stay tuned…

MDT and General OS Deployment Resources-
http://www.deploywindows.net
MDT Technet Forums
The Deployment Guys Blog
MDT Team Blog
Michael Niehaus's Blog
The Sysadmin Lab

**The word "free' in 'Softie terminology usually means "not supported". However, the MDT and AIK are fully supported as they are considered a "Solution Accelerator".*