Andrews Software, Inc.

Divide and Conquer: Realizing the Benefits of Virtualization

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As a developer, I'm often required to write software programs for different Operating Systems, and inside different environments. For instance, I may develop a website that runs under Windows Server edition or in some cases Linux. Another example would be that a new program works great in Windows XP, but how well will it work in Windows Vista? There are hundreds, if not thousands, of different settings in each OS, and many programs want to change those settings to suit their particular needs. This can lead to a lot of resource management. I often have three or more computers up and running to help build, test, and run various programs that I'm working on. Each machine has a different OS on it, and performs different tasks. It can be daunting to manage all of these machines, but it's nothing compared to our server room at Andrews Software.

ASI's Server Room contains a large number of machines, each assigned to very specific tasks. For instance, we have one for email, multiple InfoKeeper machines, multiple file servers, a security server, DNS servers, and a lot more. Each of these machines is connected to redundant power systems, network patch boards, routers and the like. Your server room at your operation may look similar to ours, perhaps larger or smaller, but a variety of computers all performing 24/7 operations.

At ASI, we put different applications on different servers, primarily, because we want to keep certain applications from interfering with existing applications. For instance, we have a server dedicated to our contact management software. It uses a special version of Microsoft's SQL Server to handle its data. Unfortunately, mixing in any other version of MS-SQL on the same server breaks the application. So we couldn't, for example, place it on our Customer Support server, because support uses a more recent version of MS-SQL. So we have to separate the two applications onto two different servers, otherwise one would break the other and either we couldn't contact people or we couldn't support them, which is not a good situation for a software company. Unfortunately, neither application actually uses very much horsepower, so it's a waste of resources to have to dedicate an entire server to one application. However, our hands our often tied in cases like this until we upgrade our applications, and sometimes an upgrade isn't available.

In recent years, virtualization software (VS) has taken off as a means of helping to control these kinds of situations. VS is a way of installing multiple operating systems on one computer, be it a desktop machine, or a server, and sharing the hardware resources between them. For instance, on my development computer, I am running a copy of VMWare's Workstation 6. This application allows me to create a virtual space that I can use to install a new version of any Operating System, and run that Operating System inside my desktop. The new Operating System runs in a window (Or full screen) and I can switch between them by just moving my mouse out of the window, or by pressing a hot-key when in full screen mode. My development computer runs Windows Vista 64bit edition. Some software that was written for Windows XP doesn't work properly under Vista 64bit. The solution was to create a virtual space that runs Windows XP. Now I can run XP from the same desktop that I run Vista on, and I can see and use both Operating Systems at the same time. When I'm finished working with Windows XP, I can just shut it down like I would a normal computer, and the resources it was using are now freed up for my main OS.

Where it becomes advantageous is when you need to run many different kinds of Operating Systems for a variety of reasons. For instance, I can run Windows Server 2003 in a virtual space under Windows Vista, and at the same time run Windows Server 2008 in another virtual space under the same Operating System. (You are only limited by how much RAM you have available.) In this way, I can do development on an application and verify that it will work in both versions of Microsoft's Server Operating System. And if something doesn't work, I can select any of the Operating Systems and continue to do work within them; all of this being done on one computer. Fantastic stuff!

Let me give you a less technical example why virtualization is great. Many people have family members at home that share a single computer. You probably have your machine setup the way you like it, and you don't want to worry about someone else installing something, or breaking something, or getting a virus on your machine, and ruining everything you recently setup. By setting up a virtual space for each family member to use, everyone has their own OS that they can launch without impacting each other. If something infects one of the virtual spaces, it can't harm anyone else's OS. If one of the Operating Systems is broken beyond repair, you can simply erase the virtual space, and start over. Nothing has harmed the original OS or changed its settings. Even better, you can backup an entire virtual space, and whenever you want to recover, you can bring it all back exactly like it was before. Not just pieces of files or parts of programs, but the entire virtual space can be restored to the exact point in time that you backed it up.

Microsoft's Windows Server 2008 will be their first server OS to come with VS standard. This will allow you to build out multiple Operating Systems on one piece of hardware. In ASI's case, we could put our contact manager software and customer support management software on one machine, but keep the Operating System virtualized, so that they never impact one another. In fact, we could put four or five of our servers on one, if we wanted to. Reducing the expense of managing extra servers and the associated resources they use.

Now, you don't have to wait for Windows Server 2008 to try this out for yourself. Microsoft provides a free application that lets you run any Windows OS on it. If you have a copy of XP laying around, or want to install an old version of Windows 98 or some other supported OS, you can run them altogether on your desktop machine right now. Need an old version of Excel to work for you, but don't want to uninstall your current version of Office? There are many reasons where having a virtual OS is not only handy, but also very productive. You can read more about it and download a free copy directly by following this link: http://www.microsoft.com/windows/products/winfamily/virtualpc/default.mspx

There are also more robust and server oriented applications available from Microsoft as well as VMWare. The future of server and desktop resource management is moving quickly in the direction of virtualization. It's a whole new way of using the products we have today efficiently, and in a cost effective manner. And that means more money in your pocket at the end of the day.