

Windows Server 2008 R2: The top 10 features that you will actually care about



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Greg Shields: Windows Server 2008 R2. Top 10 features that you will actually care about. Hello, my name is Greg Shields and I am a Microsoft MVP as well as partner with Concentrated Technology and over the next few minutes, I want to spend a little bit of time talking with you about Windows Server 2008, specifically the R2 release. You know you've probably been reading about all the new features and functionalities that you get with this new release of the Microsoft Server Operating System but really figuring out which of those things are really interesting to you. Which of the ones that are really going to compel you towards an upgrade can actually be kind of a difficult process. So I have been asked to actually present you some of the top 10 features that you really will actually care about when it comes to Windows Server 2008 R2. Now before we actually get into those top 10 features, what I want to do is spend a little bit of time and talk about the new operating system itself. Now if you have been around for any period of time you know that Microsoft has actually released two of these R2 operating system updates. The first was Windows Server 2003 R2. Now there is a big difference between that Windows Server 2003 R2 and what we are seeing with 2008 R2. If you remember back two years ago, Windows Server 2003 R2 arrived as a kind of Disk 2 to the original Windows Server 2003 installation. And if you had a Server 03 installation, you could install that disk too and it would a bunch of things over the top of that 03 installation, now where you can almost think of the first 03 R2 is kind of feature pack almost.

It included some new capabilities that added a few new services and honestly a lot of services that were added were things that not a lot of us really used. So for a lot of us, we kind of skipped the original R2 Server 2003. Now Server 2008 R2 is a completely different animal than the original version. It is a completely different operating system than the original version. Windows Server 2008 arrives as a completely new OS and so it has got some kind of improvements in that, it has got some low level optimizations in that making it a completely different OS, and thus you are going to be going through a full upgrade process or actually go from 2008 to 2008 R2. Now the other important point about 2008 R2 is Windows Server 2008 is the last operating system that Microsoft will release in 32 bit. R2 is only available in X64. This means that if you have servers in your environment today that don't support X64, well those servers are quickly going to become end of life because this is the last operating system that Microsoft has said they will support. And so when you move to R2 be aware that you have to have X64 on those servers to be able to make use of that operating system. And now with this in mind, let us actually take a look at the 10 of the features, 10 of the specific new capabilities that are in

R2 that you are actually going to want to use. You know as I said before, there are lots of them out there, but these are going to be 10 that should really compel your upgrade to this new operating system.

We'll start with Number One: I am a remote desktop services MVP, this is what my MVP is, so obviously I have got to make RDS the number one of all of these. There are not necessarily any particular order but this is the first new feature I think you really ought to take a look at because terminal service has moved to remote desktop services, add a lot of neat nifty functionality, more specifically if you have Windows 7 as your desktop environment. Now a couple of these and I am just picking up the most important of these features, the first is remote app and desktop connection which if you are familiar with Citrix MetaFrame or Citrix Xenapp, you are familiar with that little client that would actually go out up to a Citrix server and bring down all the applications automatically and so would put those applications on the start bar on the desktop for you. Well Microsoft has bought some of that technology into the Windows Operating System with Windows 7 with this remote app and desktop connection. Using that, that client will automatically go out to a server somewhere that hosts an XML file and pull down all those application links, so you can actually make a single click access to your remote Apps out in your environment, it is automatically updated. Of course it does require Windows 7 as the client but this makes the process of connecting to your remote desktop services and Remote Apps much easier for your clients. Now even if you do not have Windows 7, what are the new features with RDS that is very cool and is something that we have been looking for, we RDS admins have been looking for a very long time, is this concept a fair share CPU scheduling.

Now back in the old days, back in the original Windows Server 2008, we could actually have one user, you have probably experienced this, where one user did something very bad, may be they tried to compile some code or run a GIS application or do something that involved a lot of the CPU on that server and when one user would use too much CPU well it would obstruct the user experience of all those other users on that server. Well no more with R2. R2 includes this capability called Fair Share CPU Scheduling which is really, really cool in the way it operates. All of the available users on that server are limited to an equal share of the available CPU and this is a proactively based solution. So when one user uses 100% of their processing power, if there are 10 users on that server, they are really only using the 10% of the total use, and so no single user can oversubscribe that CPU resources and prevent them for use by the other users. That is a really useful tool and actually makes RDS much, much easier to use and much easier to manage than some of the older versions. And lastly, we have also have this thing called Remote Desktop Virtualization which is essentially Microsoft's first foray into the VDI space or into this concept of hosted desktops. Now I tell you the remote desktop virtualization has got a lot of pieces and parts but if you have the servers and if you have the desire to create a hosted desktop environment, you can build together today with simply instances of Windows Server 2008 R2 your own VDI, you own hosted desktop environment and now really this happens through an expansion of what we call the session broker. It is used to be called as Terminal Service or session broker and now it is called the RD session broker. That same session broker allows you to not only load

balance your different remote app applications but also your individual desktop connections, your individual hosted desktops as well. Now this is the first of the 10 tools.

There are nine other different features that we want to talk about here, the second of which is Hyper-V itself. Now with Hyper-V, Hyper-V has got a lot of press and I am sure you have been spending a lot of time looking at Hyper-V, looking at the different feature comparisons between Hyper-V and its competitors. But really with R2, Hyper-V gains two specific features that give it new levels of resiliency that make it worthwhile for the enterprise. The first of which is this live migration. Back with Windows Server 2008, to actually complete a migration from one host to the other virtual machine, the process to complete that involved a little bit of down time. A few seconds may be upwards of a minute that minute was really something that a lot of environments could not swallow and so Microsoft updated an R2 the capability to bring us live migration, just like what some of the competitors search for Hyper-V have, meaning the zero downtime migration of virtual machines from cluster node to cluster node. Now another of the real limitations with Hyper-V in the version one is since what the inability for you to really put more than one virtual machine on a connected LAN. You could, but when had failed over the virtual machine, all the other virtual machines on that LAN had to fail over at the same time. The reason for this was because in a clustered environment, the clustered resource has to be failed over once and not cluster resource was the actual disk or the connected LAN. Now in R2, R2 actually has some very brilliantly designed piece of code called cluster-shared volumes that actually adds cluster awareness to the existing NTFS file systems that were are used to seeing.

You are familiar with NTFS, it is not a new file system. It is not something you have to install and change your operating process. All cluster shared volumes does is layer over the top of the NTFS and allows the different nodes in your cluster to arbitrate for the individual files that are on that connected LAN. What this means is that a virtual machine, if there are multiple virtual machines on a LAN, one virtual machine can be moved over from one host to the other leaving the other virtual machines there. It is really cluster awareness for NTFS. Now a couple of other new pool capabilities, obviously we have Hyper-V server R2 which is arguably one of the worst named solutions but one of the greatest solutions in terms of the cost. If you are afraid to actually move to Hyper-V because of some of the cost, consider Hyper-V server which is a completely free instance of really Windows Server core that includes all the functionality of original Hyper-V including the high availability features. This is something that the other competitors do not necessarily have because they wanted to pay for those high availability features. Another feature two is called second level address translation or SLAT and what SLAT does is SLAT allows Hyper V to make users and processor optimizations on the mother boards if your mother boards actually support those processor optimizations that have a dramatic speed improvement for certain workloads. So Hyper-V has all kinds of different features, the two that you really need to be conscious of are the slide migration feature and this clustered shared volume features, because these two capabilities really make Hyper-V ready for the enterprise.

Number three has to do with Direct Access and Direct Access really means Always-on Access. If you are like me and you hate that when you go out to a coffee shop or you go out to the hotel or the airport, you have to use the VPN client of some form to actually connect into your environment or if you have to troubleshoot your users and their VPN clients as they are trying to get in, you know that VPN clients do not really mean always on access. It means sometimes on access. So Microsoft has spent a lot of time and effort in actually developing a product that allows users to be “on the LAN” even when they are not”. Now what this means is that applications, file access, E-mail updates, configuration management all of those normal things that you would do while you are on the LAN are all always on when your computers leave that LAN. Now think about this. If they go out to a coffee shop or if they go out to a hotel or if they go out to the airport, they can still make use of all the applications that are installed on their desktops or their laptops just as if they were plugged in at home and you can manage them just as if they were plugged in at home. Now this is kind of cool from an access standpoint but there are obviously some security concerns there and it may raise the hackles on the back of your neck, the hairs on the back of your neck because of some of those obvious security concerns, the idea of split tunneling between where they are connected in and where they are on their LAN. Obviously Microsoft would not have built a solution like direct access if it did not include all of those needed things for security encryption, authentication enforcement and even IPV6.

Now Direct Access has a great turn. There is a great return in terms of optimizing and making things easier for your users, but it can be a challenging implementation because of all those security things that need to get put in place to make this function. It requires the integration of a lot of different pieces and different protocols you may not have heard of before. But take a look at Direct Access because it alone has the capability of dramatically changing how your users operate with your LAN when they are away from your LAN. Now another capability that you may have heard a little about is this BranchCache feature and unlike Direct Access that is a little painful to install BranchCache is a really easy solution and BranchCache, I have said before in some of my writing that BranchCache may be one of those solutions, one of those new features that may be a dramatic reason or a substantial reason why you may want to move Windows 7 because BranchCache requires Windows 7 as a client. Now with branch case your branch office users those that are way out in another part of the world connected with a slow network connection, do not have to be second-class citizens anymore, because they are on the other side of that latent network connection, they do not have to have that slow process of transferring files from the main office to the branch office. Because what BranchCache does it actually caches documents at the local site at the point they are first accessed. Now obviously we have to transfer that document over onetime but then the changes can get transferred over in chunklets or little bytes. There is no longer the need after your transfer it the first time to transfer that full document over the wire.

Now this is particularly cool and I really, really, really like the way in which Microsoft has implemented this because Microsoft has really said we are putting this together as a set it and forget it sort of implementation. Once you have enabled BranchCache, your clients are automatically redirected to local copies with no change whatsoever to the user

behavior. Your user will simply go and do whatever they need to do, go find the documents they need to find and they will automatically be redirected to a local version of that document if it is available locally. You don't even have to have servers at your branch offices. You could actually use the various desktops in that branch office as a cache host and with disk drives being the way they are these days, there is plenty of space in those disk drives, so you know adding a little bit of space to host some copies of documents is not that bad and the processing power is relatively small in those desktops as well. So you do not have to spend money to actually implement this, more importantly though this service operates at a level below HTTP and the SMB protocol. What this means is that your existing applications as well can automatically use it with no changes. Your HTTP applications anything that uses SMB will automatically be redirected with no changes of those applications and you can secure that cache using a solution like EFS or BitLocker if you want to further lock down those files to prevent those from being used by prying eyes. BranchCache is a really, really, really cool feature and is one that you definitely are going to want to implement if you have branch offices.

Number five, Applocker really turns the concepts of conventional security wisdom all on its head. Think about how we have done security for very, very long. We have installed anti-Malware, we have installed antivirus, we have installed all these anti everything solutions that reactively sort of clean up situations after bad things happen right? You know, once the virus is already on the computer, then that anti-Malware then cleans it off but the problem with all of these anti anything solutions is that there always an after the fact solution, on the other hand Applocker becomes more of a before the fact solution. Once you get with Applocker when you use Applocker and the combination of R2 and Windows 7, is a whitelist of applications. This whitelist of applications effectively determines which applications are allowed to execute in your environment, which axes, which DLLs if you want to go that far can actually be executed in your environment. Each operating system, each desktop, each laptop, each server will verify against that whitelist before they actually execute any code. If it is not on the whitelist, it is simply not executed. What it does is it eliminates many forms of Malware execution because unless you are doing something wrong, you probably are not going to put Malware on your whitelist. It also eliminates those inappropriate apps if is somebody is downloading Kazaa or any of those applications that you don't want on your network, you can prevent those from being accessed because they are simply again not on those whitelist. There are many ways you can select which applications are there, you can do it by path, you can do it by file hash, you can even do it even by publishers so that different versions of that same file are automatically approved when the publisher releases updates. Applocker in R2 fantastically, big improvements to this solution. We have a Monitor-only-mode now that allows you just to monitor the applications in your environment so that you know you will make sure you have the right applications on your whitelist before you turn it on. And believe you me there is nothing worse than having the CEOs application that they need and only they have that is not on your whitelist when they need to make use of it. So Applocker and R2 definitely take a look at this. This is our feature number five.

Feature number six is the File Classification Infrastructure and it is one feature that I do not believe is getting a lot of press in the blogosphere these days, in the IT press locations

these days but FCI has some really neat capabilities for your environment to help you classify your files and help you do something with those files based on their classification. Now let us think about this for a second. We Windows admins have not traditionally been content administrators. Our job is to keep the servers running. Our job is to keep the data secure but not as necessarily to read the data and verify that the right people have the right data, generally if the file is in the right folder then that is all we care about. But the requirements of security and the requirements of regulatory compliance are really changing our jobs. They are really requiring us to be content administrators. Now until just recently until FCI, there were not really great tools out there for us to be able to identify what source of content were on our file servers. Think about this. If you have a very secret project that we will call project X and project X for example anytime that a document has the words project X into it, you want to have that document protected in a certain way. Maybe you want to delete it after 12 months, maybe you want it moved to a certain folder, maybe you want a special labeling put on the document, so something different when it has that word project X in it.

Now if you are told you had to do this without some sort of tool, you have to go and scan every single document in your environment to see if that word was in there. Well that's what FCI does, FCI allows you to classify those documents based on where they are located if this document in this folder or what sorts of content is in them. Do they include the text project X and if they include that text project X, put a little label, a label on that document that now follows that document wherever it goes. So if that document moves to another file server to a laptop or a desktop somewhere in your environment that label will stick with it and you can use FCI to manage those labeled documents as a group using scripts or actions or whatever tools you want. Now this combination of classification and then being able to do stuff with those classified documents, it means that you can better protect your environment against those data loss incidents which will be very, very painful for you, so definitely take a look at FCI, it is even extendable to include third party solutions to add further features and functionality, but the basic things that you can do with FCI very remarkable and very cool solutions by Microsoft.

Number seven is BitLocker. Now BitLocker is not new. BitLocker has been around for a while but BitLocker for your servers and particularly your branch office servers certainly becomes a compelling sort of architecture because BitLocker in R2 now has the capability of encrypting more than just a system drive. Now with the early versions of BitLocker you could only encrypt the C drive, the system drive, the drive where the OS is installed and that is great except for most of us put our data in other locations. So Microsoft realizes they are on mission and with R2 now it supports the encrypting of all drives. I tell you there are two great solutions for this, one is obviously those remote office servers right, do you have a file server out of that remote office? Is that file server behind the locked doors or is it sitting underneath the desk of the administrative assistant? Those semi-protected servers can now be protected against theft because you can BitLocker them or somebody takes them off the network, they cannot be hacked and I mean it is functionally impossible for them to be hacked at this point. Also BitLocker to go supports the encryption of removable drives. So if you have a removable drive, if you have a USB stick to get plugged in, you can through group policy actually enable greater

security by requiring those drives to be encrypted. And this just makes your process of securing that data even easier.

Number eight is IIS. An IIS has made a few moderate improvements, I know a lot of us are accidental IIS administrators. And for those of us that are accidental IIS administrators, there are a couple of great improvements. The IIS manager has got some new functionality that makes it easier for us to manage it through the GUI. If you are a developer or if you are somebody who is actually using IIS to create webpages, we now have the IIS PowerShell Provider which improves management at the command line. If you are using Server Core, which I do not believe many of us are doing with IIS at least right now, R2 includes the supportive .NET and Server Core which means you are going to be able to support more kinds of websites. We now have configuration logging which allows us to verify when things have changed and how they got changed. We have a dedicated Best Practice to analyze it to ensure that you are doing the right things with your website and we have now integrated URLscan 3.0, we call it the Request Filter Module. Again moderate improvements with IIS but definitely ones that are desired for by IIS administrators.

Number nine is power consumption, now this is not necessarily something you are directly going to see in your OS but buried deeply under the covers is this new technology called Core Parking. Core Parking allows the Windows Operating System when it identifies that there is not a lot of processing going on and maybe it is the end of the day, maybe it is the middle of the night and there is just not much going on that server when Windows can automatically shift the threads that are being processed across all its Cores to a smaller number of Cores and shut down those cores and the processing is light. You can also, there are actually some changes to this P-state configuration that reduces power consumption by reducing CPU capacity. The combination of these two capabilities which again happened automatically once you have enabled them can really reduce the amount of power that you are consuming during periods of time that you are not really using those servers. Now again you have to enable Core Parking this command line that you are going to use to actually enable it but once you enable it all the real meat of Core Parking actually occurs in the background.

Couple of another smaller features, there is a new power namespace root/cimv2/power and that is going to enable you, you PowerShell scriptors, you VB script scriptors, you people who have monitoring solutions those people with monitoring solutions and scripts will be able to monitor and react to power conditions on those servers. So you will definitely be able to have a better sense of the power consumption in your environment and do things based off of what you are reading out of that power consumption and also there has also been a slight expansion of power oriented Group Policy settings, if you have not yet taken a look at the power oriented Group Policy settings especially if you have moved to Vista or even Windows 7 by now though probably very few of you have at this point. You really might take a look at those group policy settings, so you can reduce your total amount of power in your environment today. And most pertinently power plants are now remotable, you can actually use WMI to remote those power plants if you want.

Number ten has to do with management and number ten is great for all of us windows admins out there. PowerShell and Server Manager both gain new awesome features, new awesomeness. PowerShell with R2 is installed and available by default and so the presence of a partial runtime is really no longer a concern on those target systems. Now this is important because PowerShell is now fully remotable, that means you can use PowerShell command against another computer which is something that was always difficult to do. You could always remote a WMI but you could never necessarily remote PowerShell commands. There are also more PowerShell commands that is Microsoft is continuing to its support of making everything PowerShell aware, IIS, Remote Desktop Servers, Active Directory Group Policy, everything these days has PowerShell command lists for it and if you have not yet learned PowerShell now is the time because PowerShell version 2 is with everything gets really, really cool and then lastly Server Manager can now remote other servers, hurray!! Microsoft has heard from us. They have heard what we have wanted and really made Server Manager a useful tool so that we can remote other servers in our environments.

Those, my friends are the 10 features that you will actually care about in Windows server 2008 R2. I want to thank you for the opportunity of talking to you today. I look forward to helping you and to seeing you successfully upgrade to Windows server 2008 R2. Once again my name is Greg Shields and I am a partner with Concentrated Technology. Have a great day.