

# Veeam and the End of Windows Server 2003 Support

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**AVAILABILITY™**  
for the Modern Data Center

## Executive Summary

Windows Server 2003 has been a great operating system! The biggest evidence of this fact are the millions of deployed instances of Windows Server 2003 that are still running in networks today. Microsoft has officially announced that as of July 15, 2015 that Windows Server 2003 will no longer be supported. The Windows Server 2003 Migration Datasheet says, "No more updates. No more service packs. No more compliance. No safe haven."

We have come to the End of Support (EOS) for this incredibly popular and reliable Operating system.

The questions are **"Where do we go from here?"** and **"How do we get there?"**

Windows Server in its current iteration Windows Server 2012 R2 is a fantastic operating system that provides significant opportunities for hosting workloads, services, and applications. The challenge is that, unlike days gone by when you could simply upgrade in place and directly from one Windows Server version to another, today, in almost every case, if we want to preserve applications, data, and services while moving from Windows Server 2003 to Windows Server 2012 R2 the only available options are migrations, and not upgrades. This means more work, more knowledge, and the use of additional 3rd party tools to aid in the process of migration. Every administrator would be wise to use the [Microsoft Migration Planning Assistant](#) tool to Discover workloads running on Windows Server 2003, Assess impact of moving those workloads, Target a destination for the workloads, and finally Migrate the workloads to their new hosted home.

Windows Server 2003 EOS not only requires the movement of workloads away from Windows Server 2003 but also carries with it the inherent transitions away from the 32 bit hardware platform, and the move to virtualization with Hyper-V or VMware. Finally and perhaps most important Windows Server 2003 EOS signals the end of traditional Client/Server networking and the official move to the Cloud network principles and paradigm.

The move from 32 bit physical environments to 64 bit virtual environments is not particularly difficult and there are several tools both free and for cost that can assist or automate the process. Changes in Microsoft Licensing as it relates to Windows Server 2012 R2 and virtual machines makes the process more cost effective for most businesses.

The Veeam Availability Suite can assist you in the form of data protection through backup, and the reduction of downtime through testing in virtual lab environments as you plan and implement migrations from Windows Server 2003 to Windows Server 2012 R2.

Finally, Microsoft has made some very specific recommendations around the migration of workloads such as Active Directory and we will review those suggestions.

In conclusion Windows Server 2003 EOS is an opportunity to transition from the past to the present. It will take work but that work will pay dividends in the form of better reliability, lower cost, higher availability, and increased scalability.

## Challenges and Solutions

*The Goal: Migrate from a Windows Server 2003, 32 bit, physical, Client/Server infrastructure to a Windows Server 2012 R2, 64 bit, virtual, cloud based infrastructure.*

Windows Server 2003 is almost 12 years old. When it was first released the landscape of IT was very different than it is today. The most reliable processors of the time were 32 bits, and we measured disk space in MB, and RAM in single GB increments. Windows Server 2003 was released on CD. The vast majority of Windows 2003 Servers were deployed on 32 bit hardware. Microsoft actually made a 64 bit edition of Windows Server 2003 but it was for the Itanium architecture. Everyone thought at the time that the Itanium architecture would take over the hardware world. It didn't happen. Itanium never panned out and a tiny percentage of Window Server 2003 Servers run on Itanium today. Microsoft did release an x64 edition of Windows Server 2003 as well but like the Itanium hardware x64 was new and the IT world was skeptical. There are certainly more instances of x64 Windows Server 2003 than Itanium but the majority of Windows Server 2003 instances were installed on 32 bit platforms.

### **Problem:**

There is no method for directly upgrading operating systems from a 32 bit platform to a 64 bit platform.

### **Solution:**

A side by side migration technique for moving applications and services can be used to move from Windows Server 2003 32 bit to Windows Server 2012 R2 64 bit.

## Side by Side Migration

The most common solution for businesses on Windows 2003 will be to use a side by side migration. Side by side migration is a technique where you will install a new instance of Windows Server 2012 R2 and then move the applications, and data, from Windows 2003 to Windows Server 2012 R2 while configuring the required roles, features, services, and settings on the new server and then decommissioning the corresponding Windows Server 2003 instances. You can find detailed step by step explanations for a side by side [Active Directory Migration from windows Server 2003 to Windows Server 2012 R2](#) from Microsoft's Anthony Bartolo on the TechNet Blogs. Please keep in mind that during the process of migration while running AD on both Windows Server 2003 and Windows Server 2012 there have been some challenges with computer account password changes that have not registered with the 2012 R2 AD server which does require a reboot of the client machine to reestablish the AES key with the 2012 R2 Server. It's not a really big deal but it is good to know. Read [this great TechNet article](#) for more info.

**\*\*\*Note:** Those of you thinking "Why not just upgrade from Windows 2003 to Windows 2008 R2, wouldn't that be easier?" Remember that like Windows Server 2012 R2 Windows Server 2008 R2 comes in only 64 bit editions.

Side by side migration offers some additional unique benefits when we consider additional software partners with their unique capabilities.

*Several vendors offer do- it-yourself tools to assist in the decision-making process and in the migration itself, including Dell ChangeBASE, Citrix AppDNA, AppZero, BlueStripe, and Microsoft Services JumpStart for Windows Server 2003. Other migration services are also available through system integrators, including several Microsoft partners.*

— Windows Server 2003 Migration Datasheet

## Physical to Virtual

### Problem:

How do we move Windows Server 2003 from the physical platform to the virtual world?

### Solution:

Software like the free Disk2Vhd or the Physical to Virtual wizard in System Center 2012 can help you build a .vhd from your existing physical Windows Server 2003.

## Disk2Vhd

The move from physical to virtual is not as big of an obstacle as you might think. Mark Russinovich, formerly of Sysinternals and now a distinguished engineer for Microsoft, and Bryce Cogswell built a great free tool called [Disk2Vhd](#) that makes use of Microsoft's Volume Shadow Copy Service (VSS), which incidentally was introduced in Windows Server 2003, to make images of partitions and then convert those images into a .vhd or a .vhdx file. Remember if you choose to go with .vhd instead of .vhdx that the .vhd format has a 64 TB maximum size limitation so if your disk is larger make sure to go with .vhdx. You can then create a virtual machine in Hyper-V and simply use the existing virtual hard disk you created with Disk2Vhd. Once you have a virtual machine running Windows Server 2003 you can proceed with the Side by side migration.

The following introduction comes from the Disk2Vhd website.

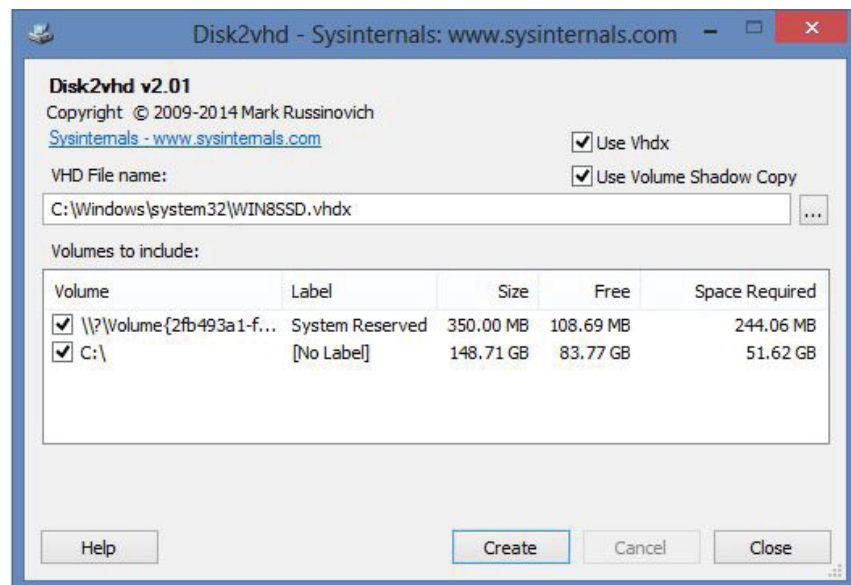


Figure 1: The Disk2Vhd interface makes moving from physical to virtual easy.

Disk2vhd is a utility that creates VHD (Virtual Hard Disk - Microsoft's Virtual Machine disk format) versions of physical disks for use in Microsoft Virtual PC or Microsoft Hyper-V virtual machines (VMs). The difference between Disk2vhd and other physical-to-virtual tools is that you can run Disk2vhd on a system that's online. Disk2vhd uses Windows' Volume Snapshot capability, introduced in Windows XP, to create consistent point-in-time snapshots of the volumes you want to include in a conversion. You can even have Disk2vhd create the VHDs on local volumes, even ones being converted (though performance is better when the VHD is on a disk different than ones being converted).

It will create one VHD for each disk on which selected volumes reside. It preserves the partitioning information of the disk, but only copies the data contents for volumes on the disk that are selected. This enables you to capture just system volumes and exclude data volumes, for example.

**Note:** Virtual PC supports a maximum virtual disk size of 127GB. If you create a VHD from a larger disk it will not be accessible from a Virtual PC VM.

To use VHDs produced by Disk2vhd, create a VM with the desired characteristics and add the VHDs to the VM's configuration as IDE disks. On first boot, a VM booting a captured copy of Windows will detect the VM's hardware and automatically install drivers, if present in the image. If the required drivers are not present, install them via the Virtual PC or Hyper-V integration components. You can also attach to VHDs using the Windows 7 or Windows Server 2008 R2 Disk Management or Diskpart utilities.

**Note:** do not attach to VHDs on the same system on which you created them if you plan on booting from them. If you do so, Windows will assign the VHD a new disk signature to avoid a collision with the signature of the VHD's source disk. Windows references disks in the boot configuration database (BCD) by disk signature, so when that happens Windows booted in a VM will fail to locate the boot disk.

Disk2vhd runs Windows XP SP2, Windows Server 2003 SP1, and higher, including x64 systems.

Disk2vhd includes command-line options that enable you to script the creation of VHDs. Specify the volumes you want included in a snapshot by drive letter (e.g. c:) or use "\*" to include all volumes.

**Usage:** `disk2vhd <[drive: [drive:]...][[*]> <vhdfilename>`

**Example:** `disk2vhd * c:\vhd\snapshot.vhd`



Once you have a virtual machine running Windows Server 2003 you can proceed with the side by side migration.

**\*\*Note:** There are lots of Windows Server 2003 instances that were originally installed as VMs in either Hyper-V or VMware negating any need for physical to virtual conversion before the side by side migration.

There are of course several other tools in the marketplace that will help you get from physical to virtual. You could use the physical to virtual wizard available in System Center. You could buy another 3rd party physical to virtual tool. This article focuses on Disk2Vhd because it is free, built to MS standards, and uses VSS without the addition of agents.

### Limiting Downtime and Data Loss

#### Problem:

You cannot afford downtime and data loss during the process of migration from Windows server 2003.

#### Solution:

Veeam Availability Suite can limit both downtime and data loss through the use of innovative backup solutions.

### Why Veeam?

Once you have migrated your physical Windows Server 2003 machine to a virtual machine the first thing you are going to want to do is to get a quality backup of your new VM. Backup is one of the easiest and least expensive ways to prevent data loss. When you create a backup of a virtual machine the Veeam Backup software makes use of the same Microsoft VSS infrastructure that you used with Disk2Vhd. The VSS process allows Veeam to write the contents of the .vhd or .vhdx file and the associated configuration, settings, xml, binary, and snapshot files. Veeam backs up the entire virtual machine. Veeam is easy to install and configure in your environment. There are no agents to install on the VMs. There is no complicated configuration for Hyper-V or VMware hosts. Veeam supports both hypervisors natively in the same interface. The Veeam Availability suite is hardware agnostic meaning you can use whatever backend hardware and disk systems your business has chosen to support your data protection needs with Veeam. Veeam comes in several editions, including a free edition which allows for Ad-hoc backups of virtual machines, so you can pick and choose the edition that is right for you. Veeam Availability suite is licensed on a per socket basis on the hypervisor host machine. If you are running Hyper-V on a pair of 2 CPU servers then you would want 4 licenses for Veeam. Easy!



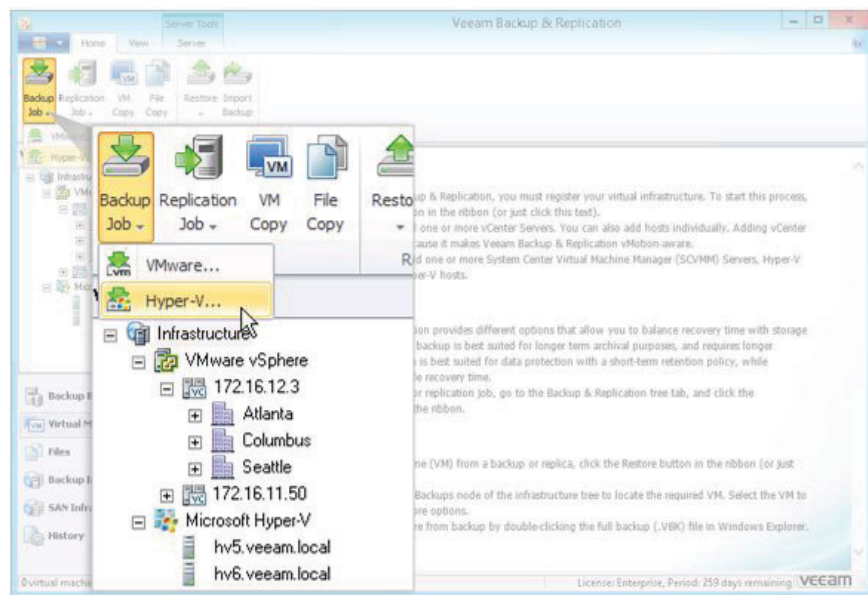


Figure 2: Easily backup Windows Server 2003 VMs from either Hyper-V or VMware.

### The 3-2-1 Rule

There is a rule in the world of data protection called the 3-2-1 rule. The rule says that you should keep 3 copies of your data, on 2 different storage types, and at least one of them in an offsite location. This rule applies as we go through the process of migration from Windows Server 2003 to Windows Server 2012 R2. The nice thing is that you likely still have the original physical Windows Server 2003 box up and running, you also have a virtual machine you created with Disk2vhd, and now you have a backup copy of the VM. If we assume that you have stored the VM on a different disk than the local drive on the physical host from which you made the VM, and you stored the backup of the vm on a yet a 3rd disk, we have met the 3 and the 2 segments of the rule. At this point you will simply need to find a way to get one of those copies of data to an offsite location. The 3-2-1 rule is one key cornerstones of preventing data loss.

**\*\*\*Note:** Please don't think that because migration is a temporary process ending in the decommissioning of Windows Server 2003 that the rules of data protection do not apply. If anything the rules are more applicable during the migration process than any other time in the Windows Server product lifecycle.



### Testing in the Veeam Virtual Lab

The virtual lab is an isolated virtual environment in which Veeam Backup & Replication verifies VMs and where you can test all kinds of migration options without fear of downtime or data loss on the servers hosting your production workloads. You can test migration strategies from start to finish in an isolated network. A virtual lab does not require provisioning of additional resources. You can deploy it on the existing Hyper-V host in your virtual environment. The virtual lab is fully fenced off from the production environment. The network configuration in the virtual lab mirrors the network configuration of the production environment. For example, if verified VMs are located in two logical networks in your production environment, the virtual lab will also have two networks. The networks in the virtual lab will be mapped to corresponding production networks. VMs in isolated networks have the same IP addresses as in the production network. This lets VMs in the virtual lab function just as they would function in the production environment.

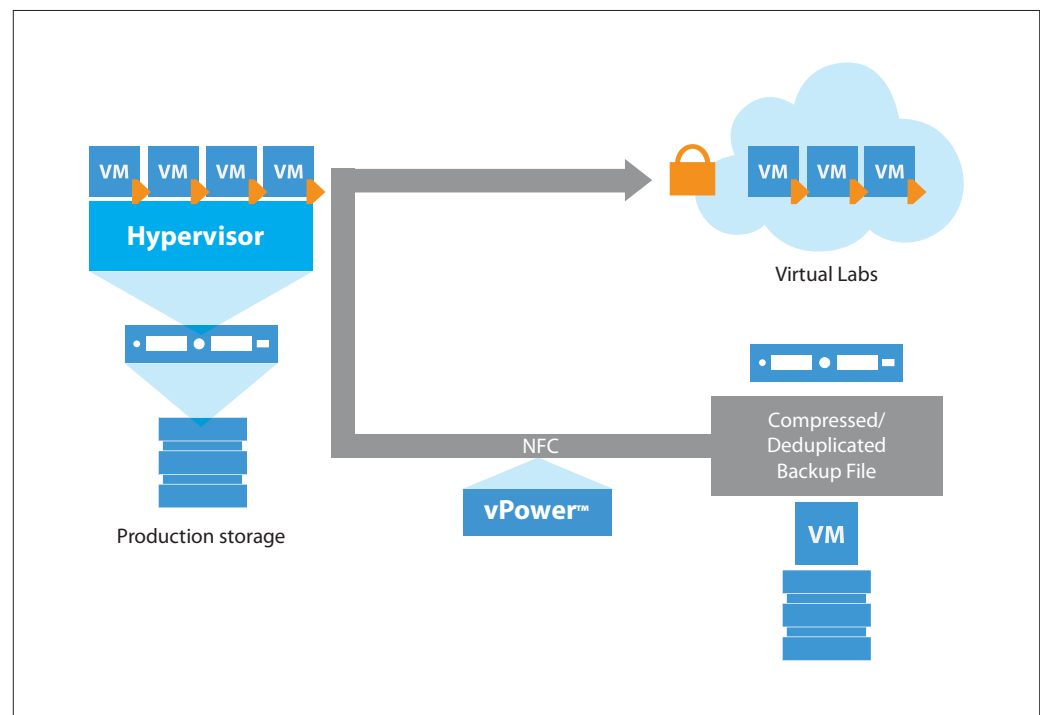


Figure 3: Virtual Lab enables testing and verification in an isolated network that is a replica of the production environment.

The virtual lab supports running multiple vm's at the same time. You can easily start your Window Server 2003 vm and your Windows Server 2012R2 vm and test your entire side by side migration. Find all of the challenges and gotchas in an isolated virtual environment. When your testing is complete and you are confident in your migration you can proceed with that confidence knowing that your process will not result in downtime or data loss.

## Cloud Services as a Potential Replacement for Windows Server 2003 Workloads

One of the considerations that every business will encounter as they move away from Windows Server 2003 is whether or not they would like to take their existing workloads and migrate them offsite to a publicly hosted cloud provider. It is not unlikely that a large number of Windows Server 2003 Servers that are running Exchange could easily end up decommissioned as part of a move to Microsoft's Office 365.

A Windows Server 2003 box hosting a company's websites and services would almost certainly benefit from the move to a public cloud implementation that allows elasticity and cost controls that are just not available in an on premises server solution. Even something as simple as a large Windows Server 2003 File server archive might be considered as a good candidate for a move to public cloud storage.

Cloud services are broken into 3 categories.

Software as a service – Salesforce, Office 365 and a host of others fit in this category. Your business simply subscribes to the service and uses the software for the benefit of the business.

Platform as a service – Microsoft Azure and Amazon are the 2 big examples. They provide the operating system platform and you get to run your applications on their rented platform. The beauty is you get your applications your way without the cost of the operating system or the underlying hardware.

Infrastructure as a Service – Maybe you want to run your VM your way. Your Operating system configuration complete with your applications. You just don't want to buy the underlying hardware. In that case you want IaaS.

In general cloud services such as Office 365 offer the following benefits over on premises solutions.

1. Lower cost of acquisition.
2. Lower cost of operations.
3. Higher SLAs for uptime and availability.
4. Easy Compliance and Auditing

Not every role or service can or should be moved to the cloud, but it certainly makes good sense to evaluate each role and service on a case by case basis and determine the best opportunity for the business.

## Summary

Windows Server 2003 EOS represents an enormous opportunity for the adoption of technology innovations that have occurred over the course of the decade since the release of Windows Server 2003. 64 bit platforms, virtualization, and cloud all provide significant improvements to the way we think about IT. As your business adopts the core innovations in technology such as virtualization it also is exposed to additional innovations that can change the way you think about data protection and availability. Granular data recovery, Instant VM restore, and application level data recovery back to running virtual machines become a reality.

Windows Server 2003 EOS is the signal for innovation in your datacenter. Large or small, on premises or off, Hyper-V or VMware the opportunities abound, seize them. Use the recommendations in Microsoft's Migration Datasheet in conjunction with amazing tools from trusted partners and you will find solutions that will help you as you migrate from Windows 2003.

In conclusion Windows Server 2003 EOS is an opportunity to transition from the past to the present. It will take work but that work will pay dividends in the form of better reliability, lower cost, higher availability, and increased scalability.



## About the Author



**Chris Henley** is a Veeam Product Strategy Specialist with extensive expertise with Windows Server and virtualization. He is a Microsoft Certified Professional (MCP), a Microsoft Certified Solutions Expert (MCSE) and Microsoft Certified Systems Administrator (MCSA). Chris is a published author, and popular speaker, who loves technology. He has developed a wealth of experience over the course of his long career in IT.

## About Veeam Software

**Veeam®** enables the Always-On Business™ by providing solutions that deliver Availability for the Modern Data Center™, which provides recovery time and point objectives (RTPO™) of less than 15 minutes for the majority of applications and data. Veeam recognizes the challenges in keeping a business up and running at all times and addresses them with solutions that provide high-speed recovery, data loss avoidance, verified protection, risk mitigation and complete visibility. **Veeam Backup & Replication™** leverages technologies that enable the modern data center, including VMware vSphere, Microsoft Hyper-V, NetApp storage, and HP 3PAR StoreServ and StoreVirtual Storage, to help organizations meet RTPOs, save time, mitigate risks, and dramatically reduce capital and operational costs. Veeam Availability Suite™ provides all of the benefits and features of Veeam Backup & Replication along with advanced monitoring, reporting and capacity planning for the backup infrastructure. **Veeam Management Pack™** extends Microsoft System Center monitoring to enterprise vSphere environments and also offers monitoring, reporting and capacity planning for the Veeam Backup & Replication infrastructure. The **Veeam Cloud Provider Program (VCP)** offers flexible monthly and perpetual licensing to meet the needs of hosting, managed service and cloud service providers. VCP currently has more than 4,500 service provider partners worldwide. Monthly rental is available in more than 70 countries from more than 50 Veeam aggregators.

Founded in 2006, Veeam currently has 25,000 ProPartners and more than 101,000 customers worldwide. Veeam's global headquarters are located in Baar, Switzerland, and the company has offices throughout the world.



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