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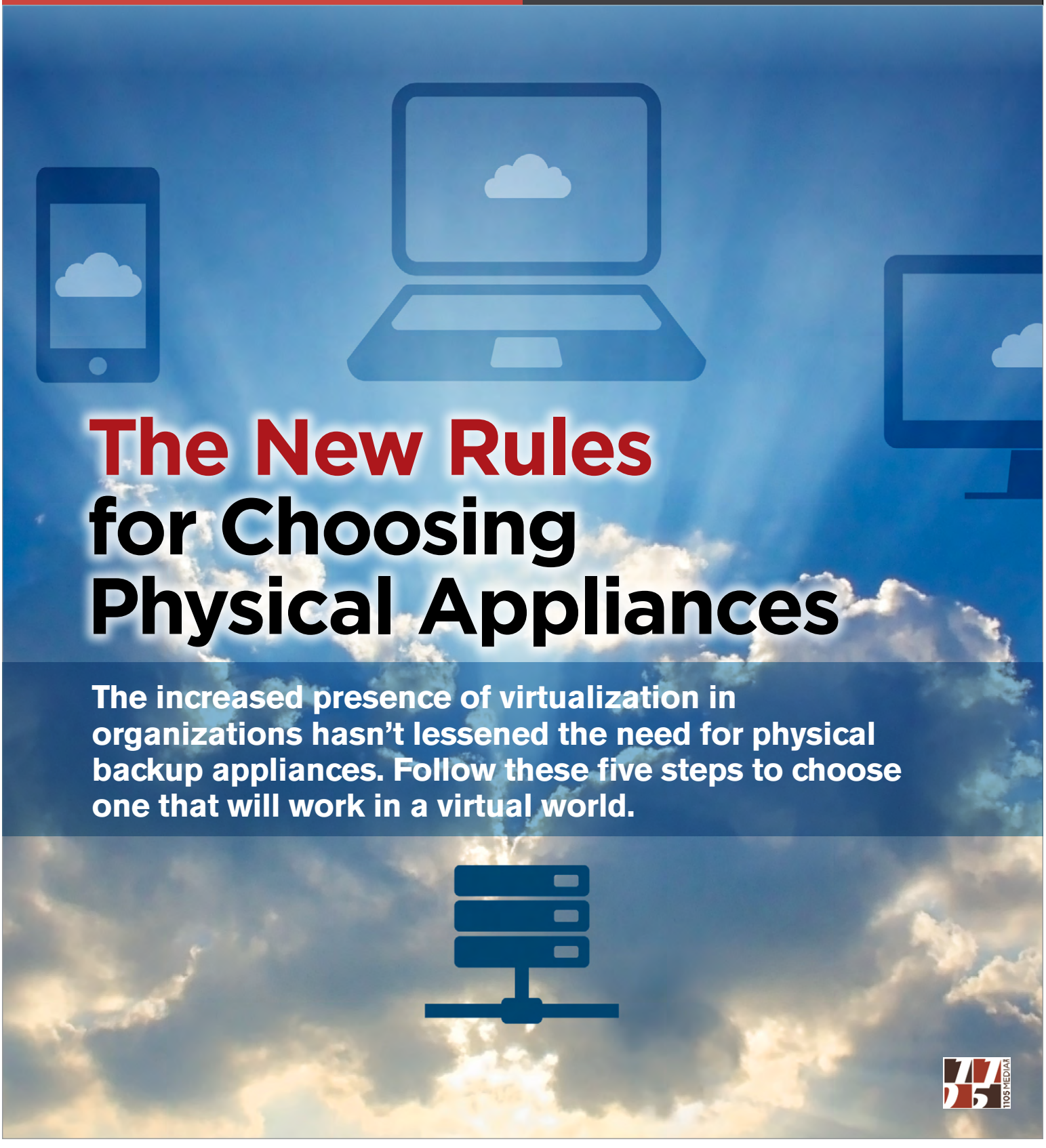

The New Rules for Choosing Physical Appliances

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BY DEREK SCHAULAND

Working with virtual machines simplifies things in some regard, but can change the way an organization thinks about the care and feeding of their environment.

In many cases, organizations are going virtual and making much better use of their server hardware simply by increasing the density of machines running on each host server. This fits in extremely well with the idea of doing more with less and can show a significant savings in operational costs for the organization. Great.

Now we have a reason to use virtualization firmly planted and can begin thinking about taking care of the infrastructure that is now virtual. Remember, working with virtual machines simplifies things in some regard, but can change the way an organization thinks about the care and feeding of their environment. Specifically in terms of backup and recovery.

There are a good number of applications and snapshot managers that will back up the virtual machines in your environment, the applications or hardware selected for backup can depend on what is in your environment besides the VMs, remember these need to be looked after as well. Since the backups of anything we touch need to land somewhere, and be recovered from that same somewhere, there will be physical hardware in the equation somewhere. In this whitepaper, I am going to look at five reasons why a physical appliance for backup might just be the best bet.

1. Management software simplification

Since the backups of anything we touch need to land somewhere, and be recovered from that same somewhere, there will be physical hardware in the equation somewhere.

With traditional disk based backup systems, there is an application that performs the backup jobs and a storage array or disk collection that the backup files land on during the process. This leaves two points of management to be considered to ensure backups are operating properly. With a physical appliance, there is still a software component but it is built right into the unit. This certainly simplifies the management process at least somewhat. Generally management of an appliance is done through a web application running on the unit or a management console installed on the admin workstations that connect to the device. The storage and partitioning of resources are handled right from this interface and managed by the appliance.

Aside from pure application simplification, replication is another feature available which allows the appliance to replicate backup data to other locations. Because bandwidth is a premium and often the biggest bottleneck to this situation, the replication process can be seeded to an external eSATA disk to physically move backup data to a secondary location. Once the drive has been attached and imported to the appliance or environment at the remote location, the replication process would only send data changes between the two sites. If a word document only changes twice per week, it will only be replicated offsite when the file changes. While immediately reducing the amount of data moving over the wire, it also allows scheduling to be used to further limit backup/replication bandwidth usage. Keeping replication limited during working hours will ensure that bandwidth is available for other processes that might need it, saving larger replication jobs for after hours.

2. Deduplication

Deduplication (or Dedupe) is something that can be hotly contested in the backup arena depending on who you ask about the topic. Dedupe can happen within the software performing a traditional backup, this will send only deduplicated information to the backup target. Doing this reduces the amount of storage used to keep backups available, but can significantly degrade the performance of the backup application because data needs to be dedpuplicated before being written to the backup. Another way to do this is to use a deduplication appliance that will allow backups to be stored on its internal storage and deduplicated at the target, and then this deduplicated backup may be copied to another target for longer term storage. Because the deduplicated data will also need to be re-hydrated during a restoration, this can slow down recovery performance as well.

Using a physical and dedicated backup appliance may help reduce the overhead suffered by the process of deduplication.

Using a physical and dedicated backup appliance may help reduce the overhead suffered by the process of deduplication because it is the final destination for backup data and the dedupe process can be handled on that appliance. This method will allow for faster replications to other appliances because deduplicated data can be sent to remote locations while keeping the original information on the local appliance for improved re-hydration and recovery.

It is possible that not every environment will have a need for deduplication or maybe the need exists, but other requirements, such as restoration time prohibit or severely limit the ability to use deduplication. In situations where the time can be afforded to work with deduplication, it is a very worthwhile process to undertake given the amount of storage space that can be saved by using it.

3. Plays both sides of the tech environment

A physical appliance for backup makes even more sense if an environment still has some physical machines around that need to be backed up. In many cases, using virtual solutions or software only solutions would require a good bit of configuration (or complete data offloading to another host) for the backup to succeed. Using a physical appliance can alleviate this by being aware of both physical machines and VMs in an environment, making backup a seamless process regardless of what needs to be captured.

In addition to working with physical and virtual machines in backup, there are features to consider for restoration as well. For direct file management, the situation comes to mind of a user in an office who is working on the best document in the world. Then, they experience some problem that requires a restart. When the restart happens, the document they were working on was not saved so changes were lost since last save. Then, someone else in the department sees the file as available and changes or overwrites the file with their information and allows these files to be compacted into a disk image which is browseable using Windows Explorer. This can allow the backup that contains this file to be mounted to a disk to allow it to be browsed using Windows Explorer. Then the file needed can be copied from backup to its original location or another location specified by the user. The restoration is as easy as drag and drop and can be done very quickly.

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4. Dedicated processing for Near-CDP performance

Continuous Data Protection is in many cases the ultimate goal for backup and recovery projects, when a file is written it is backed up and nothing is lost. Many organizations can settle for Near-CDP, where files written are backed up on a preset schedule (once every 5 or 10 minutes) to ensure backups happen regularly and quickly to prevent loss of key information. Sure, there are environments that still schedule overnight backup jobs to capture the day's data and information changes, but advancements in disk based backup technology make the CDP and Near-CDP even more attractive solutions.

The problem with these solutions is resources on either the backup server or the storage target(s) accessed during the process. If a backup server has to hit a production file server every three minutes for Near-CDP or constantly for CDP, there will likely be performance degradation on the production servers which may or may not be noticeable to those using the system. In addition, the backup target is likely to be busy almost all the time with the writing of this data. Using a dedicated appliance can help to alleviate some of this stress on an environment. When configured to support CDP or Near-CDP backup, there will still be reading happening against production equipment but the appliance is the storage target so the writing of data does not have to travel the wire to land somewhere, reducing network traffic for these jobs. While it may not solve the traffic

problems that can be seen by Near-CDP, the dedicated appliance removes pieces from the puzzle in CDP and Near-CDP backup environments.

5. Run from Backups quick and easy

Sometimes there may be problems with a server that is being backed up, or an organization may be experiencing a failure with a server and need to get that box back online and accessible as soon as possible. The Unitrends appliance supports two types of "instant" recovery, Windows and VMware. The Windows Instant Recovery solution allows a backup VM to be spun up and used from the backup appliance. This can help get a machine back online in a very short time period in a scenario where that particular workload is needed even though the actual machine might be having problems.

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VMware instant recovery is similar to Windows Instant Recovery in that machines can be spun up from backups, but with VMware instant recovery, the machines running on the backup appliance can be seen and used by storage v-motion in a VMware environment. When this happens the VMs are moved back where they belong when those resources are again available to reduce downtime and improve business continuity. These features are end user friendly or end user experience positive because they can help ensure that workloads are available for those who need them.

Bonus item: Licensing – one license to rule one size

Unitrends has a simplified licensing model that allows systems administrators to put the solution in place and not worry about exceeding the use rights for the product based on the number of backup or restore jobs being run against the unit. The physical appliances are purchased by storage size and hardware specifications, not by the number of machines they will be working to backup. This prevents rapid growth and server sprawl from increasing the backup licensing costs for an organization. When combined with the scalability between physical and virtual instances, the solution will allow for growth and reuse to meet ongoing needs. When the initial appliance needs to be upgraded to accommodate growth, consider moving that appliance to branch office after the initial data has been moved or using the device as a replication target to save money on backup and recovery long term.

This list is of course non-exhaustive given the number of features in the Unitrends product, but this list contains some of the key features to test and ask questions about within the product. The Unitrends physical backup appliance is a device that can help get an organization of any size on a clear path to successful backup.

There are a good number of options available and worth consideration when building a backup and disaster recovery solution. The Unitrends Physical Backup Appliance handles many of the things that other solutions need additional components to complete. In addition, combining a physical appliance with the Unitrends software solution will not require any learning curve because the application that exists on the appliance is the same software used by other Unitrends solutions. This can help the solution scale for organizations of any size, for example, a small appliance might be used in a remote location with few things to backup and a software or virtual solution might be used in a datacenter that already has dedicated storage for backup.

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Using the application and appliance together can help ensure the reuse of existing storage hardware to avoid a rip and replace situation. Because backup and recovery are so important to business and business continuity these days, spending the time and effort to try out a solution, even with a partial set of data might make the purchasing decision easier or at least provide some real data to discuss with your organization around disaster recovery.

The advanced features, instant recovery and mountable images, are features that might be very useful depending on your production and recovery environments. Remember, keeping your business up and running is the overall goal of a disaster recovery solution. R

Derek Schauland has worked in technology for 15 years in everything from a help desk role to Windows systems administration. He has also worked as a freelance writer for the past 10 years.
