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iSeries Data Protection with Disk Backup vs. Backup Virtualization

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The iSeries platform from IBM is used for mission critical applications that often are the very lifeblood of an organization. These systems directly support applications that generate revenue or impact the customer experience. They also typically contain information that must be retained for a legally-specified period of time, thanks to industry regulations or corporate governance. As a result, protecting these systems is a critical function within the data center. Disk backup vendors that started in the Windows/Unix market now feel ready to take on this responsibility. Are these solutions right for iSeries administrators or should they stick with their traditional tape based systems? Or maybe they should look at a technology like backup virtualization that combines the best of both disk and tape. For the iSeries administrator it comes down to finding the solution that can meet all their requirements.

iSeries Requires Speed

As mentioned, iSeries servers almost always host mission critical applications. When the data protection process occurs it must capture the data on the iSeries server as quickly as possible. While many disk backup appliances can provide this functionally, they also have to deal with the overhead of deduplication. While that overhead can be compensated for with additional processing power in the appliance, this also adds cost to the disk backup solution. Backup virtualization on the other hand uses native disk to provide a backup landing area. This area can be configured with high speed disk and can bypass the overhead of deduplication for situations when the absolute fastest backup speeds are required.

Another way to generate speed from an iSeries server is to stream multiple backup jobs on each physical server. This can mean performing one backup job per Logical Partition (LPAR) simultaneously or even multiple backup jobs per LPAR. Some disk to disk backup appliances are limited to providing only one job per LPAR and only one job at a time, no matter how many LPARs there are. Backup virtualization is transparent to the iSeries server being protected and places no limitations on how many backup jobs can be performed at one time. In short, if the server can generate the data streams, a backup virtualization appliance can handle the request.

iSeries Requires Cost Effective Retention

The data that resides on an iSeries server is often sensitive financial or personal information and, as such, almost always has a legal requirement for long term retention. This can be seven years on financial information and twenty plus years on personal information, like medical records. It's also fair to assume that the bulk of this data will never actually be needed again, but a majority of it must be kept just in case. That means this data should be stored in an alternative location and on a cost effective medium. While disk has become a popular archive location in the open systems data center, it has not been nearly as popular in environments like the iSeries. Instead, this environment continues to rely on tape. It is ideal for a long term, cost effective, seldom restored storage tier.

Tape support is an area where backup virtualization has a distinct advantage over disk backup appliances. Backup virtualization creates tapes without having to send data back through the iSeries server, thanks to its direct to tape capabilities. This provides low impact, high speed transfers from the backup virtualization appliances disk to the attached tape drive. Also, the resulting tapes are native to the iSeries platform, meaning they can be directly read with Backup Recovery and Media Services (BRMS) and don't require that a separate disk system or server be implemented. Very few disk backup appliances on the other hand, have native tape support at all. Most do not support a directly attached tape library, nor do they have the ability to make the resulting tape readable by utilities like (BRMS). For tape creation to be possible, the backup process must be re-run with the job going directly to tape. Unfortunately, with backup window is shrinking, very few environments can sustain running two backups on the same data.

iSeries Requires Off-Site (DR)

Closely related to retention is the ability to move data off-site. The challenge that disk to disk only strategies have is that every solution requires additional disk space. For example, off-site data movement requires replicating from one disk backup appliance to another at the remote location. Sometimes tape transport for DR purposes is more than adequate because many mission critical applications don't rely on any form of backup when a rapid recovery is needed. There is typically some sort of high availability feature like primary storage replication or WAN clustering in place. In these cases, getting backup data off-site is not needed for rapid recovery but for data retention.

Backup virtualization's ability to directly create iSeries compatible tape devices allows the portability, storability and cost effectiveness of tape to be leveraged when a high level, more rapid recovery method is in place. However, backup virtualization also has the ability to replicate data between sites via disk the same way that disk backup appliances can. In essence, the backup virtualization method gives the iSeries administrator the choice to use tape when time to rapid recovery is already being handled by another process, or when the time to recover can be easily handled by tape. Then disk can be used for the other instances when a medium recovery window is needed.

iSeries Requires Compatibility

The iSeries is a platform where compatibility is key. It has very specific backup applications, very specific supported devices and very specific tape backup formats. Changes to these can break the flow of the iSeries operation as well as the recovery viability of the platform in jeopardy. Any enhancement to the backup process has to seamlessly integrate into the environment without alteration. This is a key strength of backup virtualization, it looks to the iSeries environment exactly like the library it expects to see and creates a tape exactly like what the iSeries backup application would have created. This leads to non-disruptive improvement in the backup process and a recovery process that does not require that backup virtualization be in place first in order to proceed. Most disk backup appliances do not support iSeries backups and if they do, it's through a complicated OEM relationship that may lead to finger pointing when something goes wrong.

Part of compatibility is being able to support the past and to propel the iSeries into the future. Once again, backup virtualization delivers. Many companies have thousands of tapes that over the number of years they have generated from their legacy environments. Backup virtualization allows customers to move that older data from older drives and media to a newer tape technology that has greater performance and is more cost effective. Some backup virtualization technologies like Tributary's Storage Director can use its Tape Stacking capability to write multiple smaller volumes to one larger volume. Storage Director keeps track of the location of the stacked volumes on media, much the same way it tracks where data exists on a piece of media, and streams the tape cartridge to the exact location, allowing very fast and efficient restores. Backup virtualization brings this same concept to tape advancement. As technology continues to improve and become even more economical and reliable backup virtualization allows the iSeries customer to move forward with minimal effort.

Summary

Most backup vendors treat the iSeries as a group of servers off in the corner of the data center, like uninvited guests at the family reunion. When trying to address the iSeries, it's often done by cobbling together disparate products from a variety of vendors into a 'solution' that alters the backup process and does little if anything to improve tape operations. Backup virtualization solutions like Tributary's Storage Director product family provide near seamless integration into the iSeries environment to enhance the backup process without changing backup operations.