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THE ADVANTAGES OF HYPERVISOR-BASED REPLICATION FOR SMBS

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Data services like snapshots, cloning and replication are moving out of the storage system and into the hypervisor. For example both VMware and Microsoft now include these capabilities as part of its hypervisor core. For example VMware now includes replication in Essentials Plus, Standard, Enterprise and Enterprise Plus versions of vSphere. Microsoft includes Hyper-V Replica in any version of Windows that includes Hyper-V.

Having these abilities included with the hypervisor is an ideal capability for the virtualized small to medium sized business because it reduces cost and complexity by virtualizing the data services. Hypervisor based data services should also change the way the SMB selects its storage hardware, and enable smaller organizations to implement DR. Features that were once important are no longer, while features like advanced RAID, thin provisioning, automated tiering and data protection are.

VM Aware Replication

Of these data services, the integration of replication may bring the most substantial benefit to the SMB IT infrastructure. Replication that is part of a storage system can force vendor lockin which increases costs and it has limited application or VM visibility meaning the replication jobs keeps the hypervisor in the dark as to what is going on. It also means unnecessary complexity learning and managing DR.

Most storage systems that provide their own replication can only replicate an entire volume. That means that every VM on that volume is replicated even though some may not need that level of protection. It also means that the remote site has to be sized so that it can receive an entire volume. The only workaround is to create multiple volumes for VMs of different criticality, which greatly complicates storage management.

The first advantage to hypervisor-based replication is that it is virtual machine (VM) aware. Even if multiple VMs share the same volume, specific VMs can be selected for replication, greatly simplifying storage setup and minimizing storage capacity requirements at the DR site.

Hardware Neutral

Most storage systems that provide a replication capability can only replicate to a like storage system. In other words the customer is forced to buy two of everything from the same vendor. This of course raises costs and complicates upgrades.

The second advantage of hypervisor-based replication is that it can replicate from any storage device to any storage device. This provides the administrator with greater flexibility in selecting storage solutions both locally and in the disaster recovery site.

Larger SMBs are likely to have more than one storage solution. This means multiple replication software interfaces need to be learned and of course multiple redundant purchases of storage hardware. Hardware agnostic also means that a single replication process and interface can be standardized across multiple vendors' solutions. It also means multiple primary storage systems from different vendors could replicate to a single vendor in the DR site. Doing so would reduce the cost and complexity of maintaining a DR site.

Cost Effective

Replication is often an expensive add-on option from storage vendors, plus again it requires the purchase of a second nearly identical system. Even when vendors claim to include replication there is a cost associated with the option (nothing is really "free"). There is the extra profit margin that the vendor makes on the hardware because the software is "included", there is the cost of a second storage system and there is the cost of having to support multiple replication solutions if more than one storage system is present in the data center.

By using the replication in the hypervisor, costs are dramatically reduced. There is no extra option to purchase or "value add" to factor in. It simply is there and ready to use. Again the secondary site can be outfitted with a single more cost effective system to be used as the DR target.

Hardware Matters

Despite the continual move of data services into the hypervisor there are functions best left in hardware and it is these features that will differentiate hardware vendors going forward. Storage suppliers need to move past software solutions that are now common to hypervisors like replication, snapshots and cloning. These are now becoming commoditized.

At the same time storage should not be evaluated on the cheapest per GB cost alone but also on what capabilities does the hardware have that reduce costs, improves data protection, improves performance and increases ease of use.

Costs can be reduced by allowing users to add their own enterprise class drives instead of being limited to the original vendor as a sole source. This also means that the vendors force the user to buy the storage system fully populated with drives, even if they don't need the capacity. One of two things happen; users either end up buying smaller systems which they outgrow, or they buy more than they need up front and miss out on lower capacity cost over time. Both result in higher cost.

Data protection at the storage system matters too. Increased data protection can be achieved by designing systems that can take advantage of redundant power supplies and network connections as well as drive protection schemes that can survive single or dual drive failure.

Automation is another key capability to look for in a hardware storage platform; essentially a storage system that can take care of itself. Ease of use can be achieved in hardware by designing systems that allow for easy expansion both by adding hardware and automatically expanding volumes. It can also be achieved by automatically setting data protection levels based on available hard disk capacity and available drives. Finally its performance potential can be utilized more advantageously by automating the movement of data between an SSD tier and an HDD tier.

An example of storage designed to complement hypervisor-based replication is Drobo. Drobo's line of business class products allow users to add their own enterprise drives as they need them, with automated configuration and expansion. With thin provisioning built-in, users buy a single unit to deploy for VM storage that can be scaled for capacity and I/O performance. Hybrid storage in a single system in the way Drobo B1200i has automated data aware tiering allows for both capacity and performance for sensitive applications and VMs.

Conclusion

Hypervisor-based replication is ideal for the SMB, it provides flexibility and the opportunity to reduce costs which can lead to the ability to implement DR. It also changes the way the SMB should evaluate storage hardware. Instead of worrying about which hardware solution has the most features, they need to look for hardware solutions that have the right features that compliment not compete with the capabilities that the hypervisor now includes for free.

IT managers and engineers interested in learning more about storage for VMs and for use with hypervisor-based replication can participate in live demo sessions lead by technical experts and chat with other users. More info @ http://www.drobo.com/live.