Storage Switzerland, LLC

Product Analysis

Datto Makes Virtual Hybrid Cloud Backup Easy

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Many businesses and service providers (SPs) are looking for ways to leverage cloud based backup solutions. For businesses, backing up data into the cloud represents a cost-effective way to manage the day-to-day task of protecting critical business data. For service providers, cloud backup technology presents an opportunity to gain new customers and increase their revenue. But the key to meeting the needs of both of these groups are solution offerings, like Datto's, that makes cloud backup and recovery simple and reliable.

Enterprise Class Recovery For The SMB

Datto provides an end-to-end backup solution composed of backup appliance hardware, lightweight backup agents and a remote, off-site cloud backup storage facility to provide businesses with fully redundant DR capabilities. Datto's backup appliances range in various sizes from small to large and can backup and recover physical and virtual machine data in a local office or data center.

This appliance also natively integrates into Datto's cloud infrastructure to give businesses and service providers a "turn-key" hybrid cloud DR backup solution. But the real power of Datto's offering is its ability to go beyond standard backup and recovery feature functionality. In short, Datto's solution enables small to medium sized businesses to obtain business application availability and recovery service levels that are typically only found in enterprise data center environments. For example, Datto claims they can recover a failed virtual machine almost instantaneously without the need for high availability clustering. And what's impressive is that they can deliver these types of capabilities within the SMB budget.

Appliance Powered Cloud Backup

Datto's offering consists of backup appliances that start out at 150GB's, ideal for small offices or remote branch locations, and appliances that scale up to 50TB's for data center environments. The software and user interface is consistent across every appliance model so as the business scales, the user experience remains the same. Furthermore, service providers can manage the backup appliance on behalf of the end-user by utilizing a management framework that enables them to view all of their clients systems at a glance.

Backup and restores of physical and virtual machines takes place locally and is then copied into Datto's multi-tenant backup cloud data center. Each appliance is configured with multi-core processors and SSD for accelerated backup and recovery performance and are available as free-standing or rack mountable units.

Appliance Family

Datto's appliance models start with the entry-level, "Alto" system which provides 1TB of raw storage capacity, 8GB of DDR3 RAM, a Quad Core 1.5Ghz processor and dual network adapters. These desk-side systems are ideal for small offices.

Businesses can choose to replicate all of the data on their Alto systems into Datto's cloud or they can choose to only copy a subset of their most critical data sets. Datto's cloud backup plans start with as little as 150GB's, so businesses can granularly control which information they want to protect in the cloud.

The Alto XL platform is next in the lineup and can start out at 1TB and scale up to 26TB's of raw storage capacity. This model is also a desk-side system but unlike its younger brother, it contains hot-swappable disk drive bays to simplify drive replacements and upgrades. The XL is available in a quad core or 2.4Ghz eight core processor, has 32GB of DDR3 RAM, offers unlimited workstation and server licensing and provides end-to-end data encryption.

The top-end Datto appliance is the Siris platform. The Siris system can start out with as little as 500GB of storage and scale up to 36TB's of raw capacity. The Siris was designed with large office or mid-sized data centers in mind. This rack mountable unit is configured with dual power supplies, is available in a quad

core or 2.4Ghz eight core processor and can be installed with up to 256GB of DDR3 RAM. Like the Alto XL, the Siris also provides unlimited workstation and server licensing and data encryption.

Datto Core Technologies

ZFS Enabled Data Protection

The one overriding principle and core architectural element that goes into every Datto backup appliance is the ability for the system to help guarantee business continuity. The Datto architecture utilizes several embedded software *Core Technologies* to ensure data protection, data integrity and above all else - ensure timely recoverability.

Datto's operating system was built-on and is designed to leverage the ZFS Filesystem. Originally designed by Sun Microsystems, ZFS is both a file system and volume manager technology that protects against data corruption by incorporating features like snapshots, continuous integrity checking and automatic repair. Datto protects data via image based backups of physical and virtual machines and then utilizes these images to perform either individual file level recoveries or to perform an entire system recovery - bare metal or virtual machine.

Deduplication and Data Encryption

Additionally, ZFS has built-in data efficiency capabilities like compression that when combined with data deduplication, allow Datto appliances to economize on backup disk space and network bandwidth. Assuming a 10:1 data reduction rate, which is conservative for most backup environments, Datto's 36TB appliance could actually store about 3.6PB's of backup data. This in turn allows businesses to cost effectively maintain multiple backup images onsite and offsite in the cloud.

Another standard feature of the Datto operating systems is data encryption. All Datto appliances utilize AES-256 bit encryption and for an added measure of security, encrypted data is stored in RAM. This makes it doubly difficult for hackers to steal sensitive business information. Encryption keys are stored on the local appliance so even when data is residing in Datto's cloud, only the end-user has the ability to unlock access to their information.

Inverse Chain Technology

Datto protects data via image based backup snapshots of physical and virtual machines and then utilizes these images to perform either individual file level recoveries or to perform an entire system recovery - bare metal or virtual machine. Datto's "Inverse Chain Technology" saves each backup image in a universal file format (VMDK) to make each backup a fully bootable virtual machine image. As a result, there is no "roll-up" or reclamation process (merging of multiple snapshot images) that has to occur to obtain a full backup image. Since there are no co-dependencies between snapshot images, users can delete a snapshot or change retention policies on the fly without worrying about corrupting their backup chain.

The benefits here are several fold. First, backup storage can be more efficiently managed. Secondly, a failed application can be recovered almost instantaneously directly off the backup appliance (recovery-in-place) as the VM image is fully contained on any snapshot. Moreover, Datto's use of SSD in the appliance makes recovery-in-place a viable option since the recovered application will have access to high performance storage resources. Other recovery-in-place backup appliance architectures are hampered by slow RPM, rotational disk drives that typically make this feature a non-starter. In fact, Datto claims that they can typically recover a failed system in under 6 seconds while providing production level storage performance. This is a dramatically higher recovery service level than most cloud backup providers can offer.

Screenshot Verification

Another valuable feature contained within Datto's solution is their Screenshot Verification technology. Some traditional backup applications contained a feature called "verify". Basically the backup application would read back the data it had just protected to validate that the backup event was successful and the data was in a restorable format. The problem is this process typically is very resource intensive so most backup administrators turn it off. This means that the only time you would really know if the backup is good, is when it comes time to do a restore. Not an ideal approach.

Screenshot Verification allows backup administrators to non-disruptively mount a VM on the backup image to prove that the backup was successful, by actually running the applications. This is far more conclusive than just reading the data. This allows businesses to conduct DR testing "at will". If, for example, a test VM "blue screened" after mounting the backup image, the administrator could investigate to see if there were any changes made to the OS prior to that particular backup event and take corrective action. This can give organizations a much higher degree of confidence in their DR environment and help demonstrate that they are in compliance with application service levels and recovery mandates.

Backup Insights

Another tool in the Datto arsenal is their Backup Insights feature. This tool allows end-users and service providers to identify file and application changes between any two backup points. So if a SQL database suddenly spiked in growth by 20%, the backup administrator would see this change, through Backup Insights, and could then investigate whether the sudden increase was due to organic data growth or other factors. Perhaps the primary storage system, in this instance, would need to be configured with additional storage capacity or maybe a database administrator forgot to clean up multiple instances of the SQL application following a test.

Backup Insights can also be used to assist with E-Discovery activities. The tool provides user level views into file creation, modification and deletion (user files, email, etc.) and displays it all in an easy to read file tree.

Retention Based Cloud Billing

Many organizations have a need to archive data long-term in the cloud to meet corporate data governance requirements and to comply with regulatory mandates. But typically only a subset of business data, like financial records, email and certain documents, needs to go into an off-site archive. Predicting how much data will need to go into the archive over a 1, 3 or 7 year timespan is at best a "thumb in the wind" exercise, however, businesses still need to forecast these numbers for budgeting and financial planning purposes.

Datto's retention based cloud billing program takes the guesswork out of long-term financial planning for data archiving by providing businesses with guaranteed backup data archival pricing, regardless of data growth. Datto provides 1, 3 and 7 year retention configurations and provides one simple price, based on the appliance model in use. This keeps archival billing consistent and removes the specter of having to "go back to the well" for additional funding.

Service Provider Customized Interface

To make the management of multiple client accounts easy for service provider partners, Datto has created a customized portal which provides a global view of all customer appliances configured in the cloud. This interface allows SP's to perform file restores, on behalf of the customer, both on the local appliance at the customer site, as well as from the DR appliance resource in the Datto cloud. End-users can still perform their own file restores and interestingly, remote users in the field can access their Datto cloud backup repository to access files.

Conclusion

Choosing a cloud backup solution from amongst all the myriad offerings on today's market can be confusing for businesses as well as SPs. Businesses need a way to guarantee the protection of their data without introducing complexity into their environment. This is especially true for those businesses that have limited or no IT resources. And SPs that wish to enter a potentially lucrative cloud backup solutions market, need technologies that enable them to rapidly and non-disruptively roll out hybrid cloud backup services for their clients.

Datto's backup solution offering provides SP's and businesses with enterprise grade, hybrid cloud backup capabilities that can intelligently and securely protect physical and virtual machine platforms. Furthermore, unique application recovery features like Datto's Inverse Chain Technology, allow SP's to provide recovery point and recovery time objectives (RPO/RTO) that rival some of the most sophisticated, high-end enterprise class solutions. This gives SP's a highly differentiated solution offering and it provides their business clients an affordable DR solution to ensure business data protection and recoverability.