Qsan's Storage Disaster Recovery Solution for SMB

Keep your data highly available.

Data loss happens in all kinds of situations such as hard drive failures, power failures, and even natural disasters. Qsan provides array-based Storage Disaster Recovery Solution which includes QSnap writeable snapshots wish Windows VSS support, clone, and QReplica remote replication. The storage planning varies with the main purpose of data volumes. When a data volume is simply a backup for employees' data, a quick snapshot setup would be great idea. But if a data volume contains important data such as contract records, purchase orders, or itself is a online database storage and cannot accept any downtime, the data volume's recovery plan should include multiple, local, and remote site backup. The local backup can minimize the recovery time and the remote site backup is perfect for immediate replacement for the original data volume. The remote site backup also gives IT administrators more time to figure out and resolve the issues of the original data volume. When a natural disaster happens, the recovery may take longer than expected which may involve rebuilding new data center.

Qsan's Storage Disaster Recovery Solution includes:
Qsan's Storage Disaster Recovery Solution contains default enabled snapshot with Windows VSS support, volume cloning, and very price competitive remote replication function. QReplica remote replication is well programmed with multiple features activating in the same time. It supports up to 8 data volumes per system for replicating. Each data volume can be setup manually or with schedule. The transmitting throughput is guaranteed with a dedicated Gigabit port support per RAID controller and protected with failover mechanism. Qsan QReplica allows IT administrators to set up the replication tasks in network. Each source storage system can be a destination storage system to backup other storage systems in the same time. This feature is designed to fit any storage planning and circumstance. And when the private line has some problems or the traffic is jammed, the schedule tasks retry and restart in well-defined topology all the time. When there is a large amount of data to be replicating, the task is able to automatically start the transmitting when reaching the anteriorly configured threshold value. The automatic synchronization mechanism can avoid too many data waiting to be replicated, and the private line bandwidth may not be able to digest the amount of data in time before next task starts.
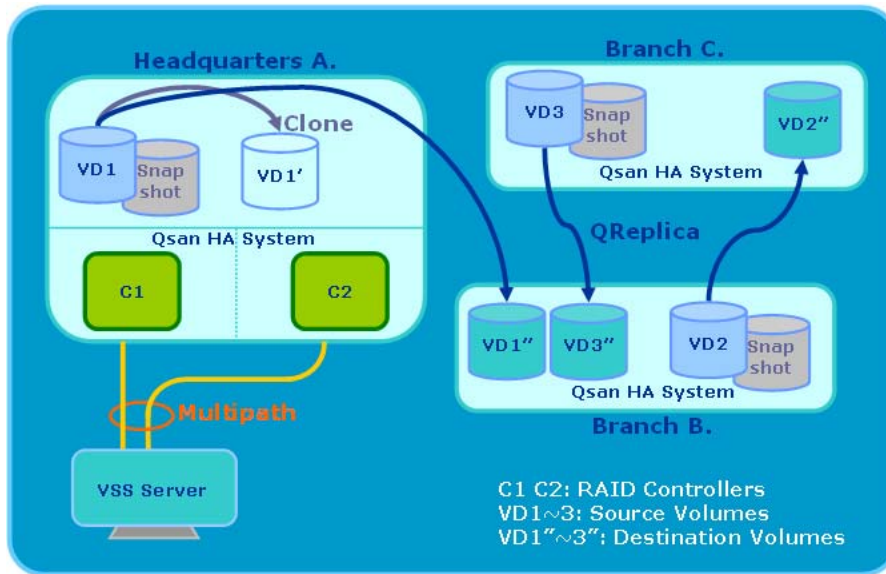
The advantages include:
- Fast rollback when virus attacks or mis-deleting
- Reduce the risk of hard drive failures
- Protect data against disasters
- Increase application availability
- No performance impact to hosts, the array-based solution is independent of hosts' resources
- Multipath / Failover support
- Automatic data synchronization to avoid traffic jam
- Flexible configurations for different storage plans

A storage plan with multiple backup solutions is suggested to reduce and minimize the data lost chance. The well-configured local backup solution can resolve hard driver failures, virus attack, and file system crash in a very short time and bring the service back online immediately. With remote backup solution installation, it can solve unknown outages and data loss from disasters and the IT administrators can use the remote backup storage for temporary service or replacement. In the same time, the original site can have more time to be rebuilt and replicated rollback without service interruption.

Qsan QReplica Remote Replication is the most cost-effective disaster recovery solution in SMB (Small and Medium Business). QReplica provides array-based remote data replication, independent of the host. By

increasing higher data availability rate, it allows SMB to focus on their opportunities, productivities, and reduce costs.

Many companies have branch offices, and some branch offices are connected to each other and to headquarters for data consolidation. Consider a company having several branches over separated locations. The data safety can be increased by those braches have data volume back remotely. The following figure illustrates a typical branch office model and the storage systems in the headquarters and branches have data volumes with backup remotely in other office.

The following table illustrates Qsan's installation suggestions for different applications to comply their availability rates of data volumes.

Availability Percentage (Yearly Downtime)	Applications*	Installation Suggestions
99% (87.6 Hours)	Archiving, Data pool,	RAID 5** volume + QSnap
99.9% (8.76 Hours)	Employee data backup, Branch data,	RAID 5** volume + QSnap + VSS
99.99% (52.56 Minutes)	Email server, Surveillance data, SQL, Exchange,	RAID 6 volume + QSnap + VSS + Clone + (QReplica)
99.999% (5.256 Minutes)	Online nonstop service, Confidential data, Tax data,	RAID 6 volume + QSnap + VSS + (Clone) + QReplica

Table: Installation Suggestions for applications.

* The application's availability rate may differ in various environments. Please estimate the importance of your data volumes before arranging the installation plan.
** When using large capacity SATA hard drives (>=500GB) for building RAID volume, Qsan suggests using RAID 6 or SAS hard drives to reduce failure rate. Single SATA hard drive BER (Bit Error Ratio) is around 1 out of 10^{14} and the AFR (Annual Failure Rate) is depending on the hard drive type (desktop or enterprise), when a RAID 5 volume is built with 8 x 1TB enterprise SATA hard drives (AFR=0.0075), the error rate of when 1 hard drive is rebuilding is 56% which is too risky. And the error rate increases with larger hard drives. For more details, please contact Qsan for RAID 5 & RAID 6 Average Failure Rate Analysis.

Note: Qsan QReplica is array-based remote replication. The replica tasks are completed by the RAID controller processor inside. To avoid normal data throughput dropping, the QReplica tasks are arranged with lower portion of CPU time. The guaranteed throughput is around 8MB/s which is capable for most cases of private line constructions (up to 64Mbps).

Qsan delivers total iSCSI storage applications to reduce data risks and increase service availability. Please contact Qsan sales for free trial version of the Storage Disaster Recovery Solution for SMB. For more information, please call us at +886-7720-2118, or visit our website at www.QsanTechnology.com.