

Technology Advantages of RDX® QuikStor™

RDX QuikStor is a removable media based data storage system offering a rugged, reliable and convenient solution for backup, archive, data transfer, and disaster recovery. RDX provides professional value and performance.



Invented in 2006, RDX has become the de facto standard for small to medium businesses and distributed enterprises when data needs to be removable for mobile data transport, on and offsite backup and archive storage applications. Hundreds of thousands of businesses storing their mission critical data on RDX. They are proving its reliability, robustness and ease of use every day.

Historically a product that has the high performance benefits of disk and the low cost, removable, offline value of tape has always been in demand. With RDX the industry has a reliable high quality solution that combines disk and tape benefits on one product that is easy to use.

This article explores RDX QuikStor a portable disk-based technology, which successfully and cost-effectively matches and surpasses tape in all of its key aspects AND provides the backup and retrieval performance of random-access disk with 99.999% reliability. The RDX QuikStor solution is the only viable removable backup technology for high-capacity desktops and low-end servers in any kind of storage application where removability is required.

What is RDX QuikStor?

RDX QuikStor is a removable disk drive system that handles and operates like a traditional tape drive and media, yet has all of the advantages of a disk system. The RDX QuikStor device allows for backups to be accomplished in the traditional fashion of working just like a disk or tape - moving data directly to a device with removable media. To the computer, RDX shows up as a disk drive-letter, but can be handled like a tape cartridge.

On a restore, the RDX QuikStor media has all of the read/write advantages of a hard disk drive. Compared to time consuming tape sequential access, RDX just needs milliseconds. In brief, an RDX QuikStor backup lets you vastly improve customer business availability by allowing you to recover or access customer files in seconds and minutes instead of hours. For bare metal restore, RDX media can be configured as a bootable media.

Removable and Portable

The RDX QuikStor drive system utilises a unique removable media that is ruggedly designed for portability. RDX QuikStor media consists of a mobile 2.5-inch hard disk drive (HDD) or solid state disk (SSD) suspended in a highly durable cartridge. With its protective, shock-proof and static discharge resistance cartridge design, the RDX QuikStor cartridge can survive falls in excess of one meter onto a tiled concrete floor without damage. The hard disk drive electronics inside are fully protected against electro static discharge events while handling the media while moved to another system or transported to long-term archive / off-site storage locations.

And while in operation the hard drive is protected against vibration and random shocks to ensure best RDX media performance and durability.



Cartridge Reliability and Archive Life

Small-form-factor HDDs like the ones used in RDX QuikStor are specifically designed for long term mechanical reliability. Design features such as ramp-load heads to lock the disk internals during transport and hydrodynamic bearings to keeps the disk spinning. Mobile HDDs specify a mean time to failure (MTTF) of 600,000 hours.

Simplicity and Compatibility

The RDX QuikStor system is compatible with most all systems, servers, operating systems and backup software. User experience a plug-and play operation with RDX, it works with new and existing software deployments meaning users do not need to update/change software or processes, to realize the benefits of using RDX technology.

Performance

Like all tape drives, hard disk drives vary in throughput and performance. The advantage of disk compared to tape is the ability to randomly access data once it's recorded. Even if data is written in a sequential format, RDX QuikStor can access and read data randomly, which essentially eliminates seek time and vastly improves single file restore times.

SuperSpeed USB 3.0 and SATA III interfaces offer high performance. With a selection of hard disk cartridges, users can choose the solution that meets their unique requirements. From professional workstations to the low-end enterprise, to small office environments, RDX QuikStor provides users with best-in-class backup and archive capability that is ideally suited to help users get their businesses up and running quickly in the event of data loss.

Reliability

Unlike any other removable storage technology, like tape or optical RDX has its isolated write / read unit built in the media and can be operated in harsh environments. There is no media wear and preventive maintenance or cleaning required. And the media are built to support more than 5,000 load/unload cycles which is well over 10 years of daily use and not considering any media rotation scheme.

Technology and Migration Costs

Some Data storage technologies require costly replacement of the hardware and migration of data periodically. It is very time consuming, expensive and significantly impacts IT budgets. The RDX technology features both backward and forward compatibility. As higher-capacity media are introduced, they will work with your existing RDX QuikStor drive. So, all RDX systems are compatible with all RDX media, now and in the future. For your IT budget, this means that the simplicity of the RDX technology design provides you with a very low initial cost and a superior total cost of ownership compared to other removable storage products.

Backing up Disk Volumes with RDX QuikStor

RDX combines the benefits of tape, like removability, but also the benefits of disk, like random access and high transfer rates, which enables RDX to be used in backup scenarios with deduplication and compression features. This significantly reduces the number of media needed and offers two advantages:

- Users can store more backup data on a media
- The number of rotated media needed is reduced, making media management easier

But there is another important advantage:

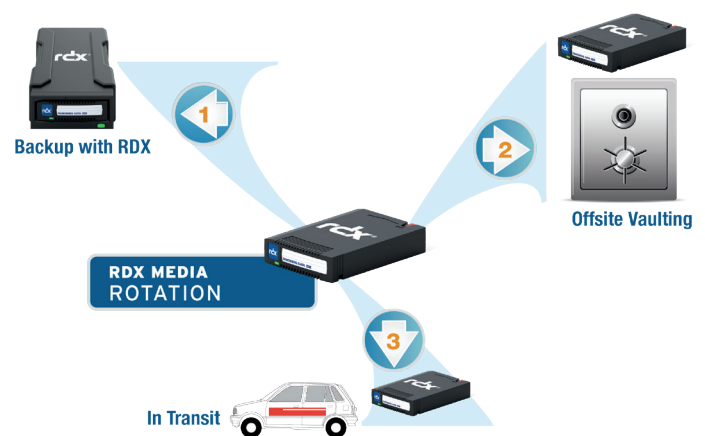
Administrators always have a full backup available with multiple recovery points for individual restores of older versions or restores of files which might be deleted by accident. With the typical incremental backups used by tape users, recovery of an entire backed-up disk volume requires the time-consuming process of going through every piece of tape media that has been used in the backup process. And if the backup catalogue is somehow contaminated, it can only be recreated by a time-consuming search of every piece of affected media. Even with an intact catalogue, finding a targeted file requires a slow serial search of the correct tape cartridge.

RDX QuikStor cartridges are available in capacities ranging from 500GB to 5TB. High native storage capacity combined with the RDX drive's 500GB/hr. speed means full backups can be performed every day in much less time than it takes to do incremental backups to low-end tape.

Media rotation with RDX removable Disk Systems

Media rotation with RDX provides multiple layers of protection using one type of backup media. It enables businesses to recover from local disasters as well as from virus and ransomware attacks. In addition, RDX allows system restores and can even be used as a boot device for a full disaster recovery solution after a total system crash. RDX can also be mounted into a virtual environment for restore purposes.

Unlike regular USB disks, RDX keeps its drive letter, even if a new media is inserted or more local storage drives like USB disks/sticks or flash drives are attached. Therefore, there is no need to change the backup target of backup jobs, and you can automate your backup jobs to reduce the risk of user introduced backup failures. The RDX QuikStor drive is always connected to the backup software as a backup storage target, no matter if there is a media available / loaded in the drive or not.



Secure Data Transport with Encryption

The rugged design of the RDX media is perfect for data transport. Because transport exposes the media and as such your business data to potential unauthorized access. RDX drives with SATA III interface include the RDX PowerEncrypt feature, an AES 256-bit hardware encryption. RDX hardware encryption with SATA III drives has been FIPS 140-2 validated and fulfils the standards for cryptography modules. Data access is allowed to only those having a password key added with the RDX Manager software. Without the password key, the data that resides on the RDX media cannot be accessed. The media and the data on it is useless to an unauthorized user as he cannot even access the disk volume. RDX QuikStor USB drives and QuikStation products will also work with many other software based encryption products available on the market.



For further information on RDX PowerEncrypt, [download our white paper](#).

Regulatory compliance Archiving with RDX WORM

With RDX WORM, RDX QuikStor can also be used as storage for regulatory compliance archiving. The Windows®-based software rdxLOCK enables the WORM functionality and manages read-write access. Its software product compliance has been assessed by KPMG AG Wirtschaftsprüfungsgesellschaft, Frankfurt am Main. RDX WORM is transparent for archiving applications and document management solutions. Even files that are copied to the media via drag and drop are secured immediately by the WORM functionality.



For more information on RDX WORM, download our [data sheet](#) and the [KPMG certification notice](#).

NAS backup with RDX

Mostly, users feel confident that RAID is a sufficient method for protecting their data, but what about a NAS system failure, a simple data deletion, a virus attack or if a disaster happens? The RAID technology does not protect against any of these incidents. It is not a backup of your data.

RDX QuikStor simply attaches to most NAS systems on the market via USB and can be used as a backup repository for NAS data.

The drive should be constantly connected to

the NAS system, and at least three pieces of media should be used for alternating usage. In addition, most NAS systems in the market provide built-in applications for data backup. They are either pre-installed or available for download at online stores or marketplaces. The backup routines are usually able to perform a backup to an external device and to eject the RDX media after a backup job is finished for media rotation and compliant off-site storage for full disaster protection.



RDX QuikStor and Others

Backup to Cloud

Backup to Cloud (Backup as a Service, BaaS) is becoming more popular, but there are still concerns about security, bandwidth and cost. Users question if their data is safe against spying or manipulation.

Network bandwidth is still an issue for cloud backup. Most SMBs are struggling with getting backups to the cloud with full-system protection. And what about restores? How fast can users get their data downloaded and their systems up and running? Are they even able to establish a network connection to restore their data?

Finally, cost needs to be considered. Most cloud providers offer low entry-level prices, but with increasing capacity needs, pricing climbs up. Also the cost to get advanced backup functionalities or the cost of restoration can be significantly higher than the normal backup operation. So RDX QuikStor is an affordable alternative to all users who share these concerns. Backup data is secure as it resides in a known and protected environment. Backup is fast, as RDX drives are directly connected to the computer system and the backup is done locally, not over the network/Internet. Restores can be performed easily even if the system needs to be rebuilt from scratch, and cost is manageable and predictable.

RDX is a best practice strategy to maintain a local copy for business or workflow continuity. RDX can be used for local primary backup and restore tasks as customers recover quicker by having a local copy of their data. Cloud should be used as an offsite repository for business data that is archived and accessed infrequently or for another layer of protection.

External USB Disks

The RDX QuikStor is a system that includes significant removable cartridge features and value as described on the previous pages. USB External Disk subsystems do not include these valuable benefits. Users might argue that external USB disks would do the job of RDX at a lower price. But they should consider that USB disks are not built for professional environments. RDX media are business grade and provide a higher level of reliability and durability. It is tough and withstands drops, shocks and electrostatic discharge and provides a much longer lifetime and the media ventilation (airflow) ensures cool operation and best write and read performance whenever you need it.

For backup automation to ensure business continuity you need to be able to do media rotation and have an “Air Gap” between your system data and your backups. RDX shows up as a removable storage device, you can rotate the media (usage of multiple media and off-site storage for full disaster protection), span backup data across multiple media during a backup job and eject the media automatically upon completion, while the RDX drive maintains the device path (drive letter) for the operating system and backup software.

Furthermore RDX simplifies handling as it doesn't require unplugging any cables compared to an USB disk and can be integrated in server systems. This simplifies backup automation and eliminates user-induced problems.

Backup to NAS Systems

Using NAS systems as the only backup repository is very common. But as NAS systems can be threatened by virus and ransomware attacks, backups aren't secure. There must be a secondary backup implemented to removable media. Furthermore, NAS systems are complex in deploying and usage.

RDX provides flexible and easy to use backup storage. As a removable disk system, RDX provides full disaster, and virus and ransomware protection with off-site storage capabilities. In case of a local disaster, backups on NAS systems would also be lost. By implementing media rotation with RDX, at least one copy of backup data is still available.

Numerous backup software are able to span backups across multiple media in case the media is full or backup sets exceed the capacity of one media. As RDX is a removable device, media spanning is fully supported.

RDX is more economical. Off-site media doesn't require power, media rotation is more efficient than operating on several NAS systems with replication functionality, which also replicates virus and ransomware. With features like WORM, RansomBlock ransomware protection or PowerEncrypt FIPS 140-2 validated hardware encryption, RDX provides powerful and business-grade backup storage.

Backup to Tape

Tape provides advantages like removability and high data transfer rates for streaming read and write operations. In addition, the tape write format prevents infection by virus and ransomware attacks.

In comparison to RDX, tape needs special care in handling. Tape users must adhere to special environment parameters. Harsh environments with dust and dirt can destroy the tape surface and with this, the data. Read/write heads require cleaning on a regular basis due to tape debris. Tape cartridges do not withstand drops or shocks. Their insert/eject cycles are limited to 350, where RDX offers 5000 cycles.

Also, temperature and humidity tolerance is limited with tape. The archive temperature of a tape cartridge is between 16°C and 32°C. The archive temperature of RDX is between -40°C and 65°C. This makes RDX ideal for media transportation and off-site storage.

Tape customers need to be aware of compatibility issues between media and drive when switching to a new generation of tape as well. LTO drives are only able to read one or two prior media generations. Drives also need to be renewed when customers want to benefit from new media. Existing data must be migrated to the new media.

RDX is ready to install and easy to use. It is fully backward and forward compatible. So no data migration is required when more capacity is needed. RDX just appears as a new drive letter, so every read and write operation can be performed without drives or other special software. This makes, RDX ideal for SMB and SME environments or enterprises with branches. Tape fits perfectly in enterprises and in environments with very high storage capacity requirements.

In conclusion

Prior to the availability of RDX technology, users had to choose between tape, disk, or a combination of both to back up their high-end desktops and low-end servers - each with architecture, performance, and cost issues. The alternative is RDX QuikStor. RDX technology offers the best of both worlds:

Tape (removability, affordability, archivability) and disk (higher performance, simplicity, reliability) - all in one cost-effective package.

Further information

If our White Paper on the RDX QuikStor has not answered all your questions about your backup challenges, Overland-Tandberg storage specialists are available globally to offer you help in finding the best solution for your business.

Visit our [contacts page](#) to reach out to a specialist in your region.