

Technology Advantages of the RDX® QuikStor

The predicted marriage of tape backup with high-performance random access disk technology has been floating around the industry since the advent of disk drives. Both industry experts and storage vendors alike have predicted that customers will need to be able to choose between tape and disk in an attempt to define the ideal secondary storage solution.

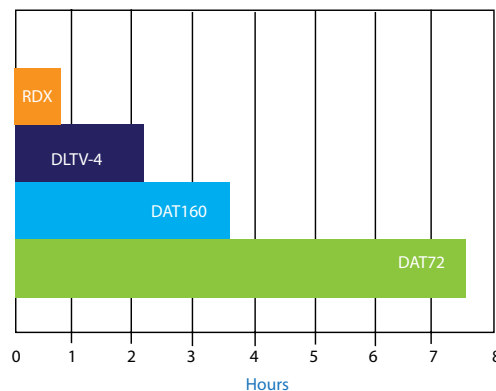
However, attempts to replace tape with various technologies have always failed because they could not match or surpass tape in its removal, capacity, archival or low-cost benefits that users demand. The industry has therefore been searching for and exploring technologies that both complement and address low-end tape's biggest detractors; its relatively low performance during both backup and retrieval operations, and its relatively high failure rates when compared to disk.

This paper explores the benefits of a new portable disk based technology, RDX QuikStor, 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.

What Is RDX QuikStor?

RDX QuikStor is a removable hard disk drive system that handles and operates like traditional tape drives and media, yet has all of the advantages of disk-to-disk (D2D) systems. The RDX QuikStor device allows for backups to be accomplished in the traditional fashion of working just like tape - moving data directly to a device with removable media. To the computer, the RDX cartridge looks just like a tape cartridge. However, backup performance and reliability are distinctly different.

Time to complete 80 GB backup (native)



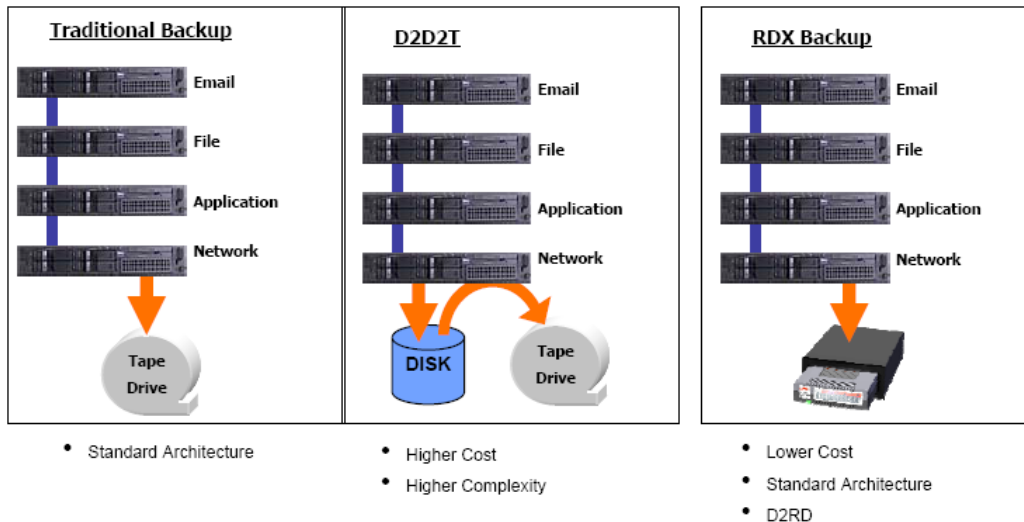
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It takes the RDX QuikStor drive less than half an hour to back up 80GB of native data at its 45MB per second transfer rate. For this same operation in the tape world, a DLT V4 drive takes over two hours, a DAT160 drive takes almost four hours, and a DAT72 drive requires over seven hours.

And on a restore, the RDX QuikStor media has all of the read/write advantages of a hard disk drive. What also takes hours of serialized search in the low-end tape world, takes milliseconds with the RDX QuikStor drive. In brief, a RDX QuikStor backup lets you vastly improve customer response times by allowing you to recover customer files in minutes instead of hours.

D2D Systems

The most successful tape replacement offerings to date have been the disk-to-disk (D2D) systems. Nonetheless, these systems do not really replace tape so much as they change the backup architecture. Instead of backing up data directly to tape, D2D systems are added as an interim step to increase performance. The backup application writes data to the D2D target, and then, at some later time, moves the data to tape for off-site disaster recovery and long-term storage. This architecture is commonly known as disk-to-disk-to-tape (D2D2T). While D2D2T has performance and availability advantages over a tape-only design, it doesn't really replace tape. And these advantages come at the expense of increased cost, more management, and system complexity.



RDX QUIKSTOR ADVANTAGES

Removability and Portability

The 3.5-inch form factor RDX QuikStor drive system utilizes a unique removable media that is ruggedly designed for portability. RDX QuikStor media consists of a mobile 2.5-inch hard disk drive (HDD) suspended in a highly durable cartridge. The same 2.5-inch drives are most often used in laptop computers due to their size and locking head feature. With its protective, shock-proof cartridge design, the RDX QuikStor cartridge passes drop tests in excess of one meter onto a tiled concrete floor without damage.

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Archivability and Reliability

Small-form-factor HDDs like the ones used in RDX QuikStor have undergone significant advancements in the most recent generation to significantly improve their mechanical reliability and life. Design features such as ramp-load heads and fluid dynamic bearings eliminate any concern about head-media contact or disk sticking. In fact these mobile HDDs now boast a mean time to failure (MTBF) of 500,000 hours.

Compatibility

The RDX QuikStor system is compatible with all common backup applications and will plug-and-play in all backup architectures. IT professionals do not need to change designs, complicate backup processes, or even add cost to derive the benefits of using RDX QuikStor backup technology.

Simplicity and Security

Anyone who has ever configured a multi-disk server can tell you that setup and security are never as simple as advertised and can often be quite complex. The RDX QuikStor device has all of the benefits of using a disk drive, with no special setup required. In fact, managing an RDX QuikStor device with a backup application is easier than using a tape device with simple drag and drop icons.

RDX QUIKSTOR ADVANTAGES OVER LOW-END TAPE

Performance

Like all tape drives, hard disk drives vary in throughput and performance. The advantage that disk drives have over 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.

Reliability

RDX QuikStor has a level of reliability never before seen in low-end tape backup. The life span of a tape drive might potentially be limited by the magnetic head that is in actual contact with the tape media as it reads and writes data. The physical contact causes wear of both the head and the tape, limiting their life and might eventually result in failure of both drive and media. The RDX QuikStor system has no such direct contact and features a much less complex design that is inherently more reliable in its simplicity. This gives the RDX QuikStor drive an expected reliability that is at least 10 times better than that of most tape drives.

RDX QuikStor media is a complete, self-contained HDD and, as such, has a simple connector as its interface. Since the RDX QuikStor HDD essentially never wears out, the cartridge's life is limited only by the life of this connector. This physical advantage means that the RDX QuikStor cartridge is specified to handle more than 5,000 load/unload actions, giving the RDX QuikStor media a usage life span that is more than 50 times that of low-end tape media.

Affordability

The progression of tape drives and media is well known. To take advantage of storage capacity advancements, you must purchase new tape drives and new media. The RDX QuikStor system has no system obsolescence! RDX QuikStor features both backward and forward compatibility. Each year as higher-capacity cartridges are introduced they will work with your existing RDX QuikStor drive. This means that all RDX QuikStor systems are functional with all RDX QuikStor media, now and into the future. For your budget, this means that the simplicity of the RDX QuikStor design allows for a very low initial cost and a superior total cost of ownership when compared to any tape products.

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Backing Up Disk Volumes with RDX QuikStor

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 catalog is somehow contaminated, it can only be recreated by a time-consuming search of every piece of affected media. Even with an intact catalog, finding a targeted file requires a slow serial search of the correct tape cartridge.

RDX QuikStor cartridges are available in capacities ranging from 40GB to 300GB (native). High native storage capacity combined with the RDX drive's 160GB/hour speed means full backups can be performed every day in much less time than it takes to do incremental backups to low-end tape.

RDX QuikStor drives automatically keep track of how many times a cartridge has been loaded. This saves the user from the tedious task of keeping track of how many times each cartridge has been used, especially in complex media rotation systems.

RDX QuikStor Head-to-Head with Today's Tape Technologies.

In a nutshell, the following table clearly shows how the RDX QuikStor drive and cartridge surpass existing tape technologies in overall cost and performance.

	RDX QuikStor	Travan	DAT72
Capacity (Native)	40-300 GB	20 GB	36 GB
Max. Performance (Native)	45 MB/s	3 MB/s	4 MB/s
Backward and Forward Compatibility	Yes	No	No
Reliability (MTBF)	550 000	40 000	50 000
Media Uses	5 000	50-100	50-100
Relative Price	1x	1.5x	2x

IN CONCLUSION

Before the arrival 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. Now there is a viable alternative—the RDX QuikStor. The RDX QuikStor is the only backup technology that offers the best of both worlds: tape (removability, affordability, archivability) and disk (higher performance, simplicity, reliability) — all in one cost-effective package.

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FURTHER INFORMATION

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

Tandberg Data is a leading global supplier of backup and archiving technologies. Tandberg Data offers a complete range of tape libraries, tape autoloaders and tape drives (based on the LTO™, SLR™, and VXA® technology platforms), storage software, data media and disk-based storage such as the RDX™ QuikStor, designed to meet storage requirements of small and medium-sized businesses.

Please contact Tandberg Data on 00 800 8263 2374 (EMEA) or 800 392 2983 (US) or contact your regional office directly.

You can also visit Tandberg Data online at www.tandbergdata.com.

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