

When Disk is the Right Business Choice for SMBs That Need to Do Local Backups

By DCIG Analyst Jerome M Wendt



Looking solely at the cost of individual tape cartridges fails to recognize tape's true cost. While no one disputes that the per cartridge cost for LTO-3 is substantially less than an RDX cartridge, there is also no denying that the upfront cost for an LTO-3 tape drive is 10x the cost of an RDX docking station.



Company

RDX Storage Alliance
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Industry

Vendor neutral independent non-profit industry alliance community

Challenges

- LTO-3 tape cartridge costs viewed as the only buying criteria
- Upfront tape drive costs are overlooked
- Tape cartridge wear out and replacement costs not considered
- Selecting appropriate media for current and expected storage requirements
- LTO-3 tape drives can only write to LTO-3 tape cartridges

Solution

RDX Disk Cartridges

Benefits

- Negligible upfront RDX docking station acquisition costs
- Can write to any generation of RDX disk cartridge regardless of its capacity
- RDX disk cartridges include 5 year warranty
- RDX disk cartridges can be re-used almost indefinitely and do not wear out

It is easy to think that the arguments regarding the cost of disk versus tape have abated. While that may be true in some circles, it still rages in the circle of small and mid-sized businesses (SMBs) that purchase and use direct attached media for backup. However a careful analysis of the total cost of ownership between RDX and LTO-3 will show that an RDX disk-based backup solution can be more affordable than a comparably configured LTO-3 tape solution. To understand RDX Solutions see www.rdxstorage.com.

Most IT administrators of SMB environments recognize the benefits associated with using disk as a backup target. Faster backups, backup success rates that climb to over 99% and increased confidence that they can restore data are just some of disk's benefits. But these arguments alone are not always enough to convince cost conscious managers who may look solely at the \$250 price tag of a 500 GB RDX cartridge.

So to justify the use of RDX media they need a solid business case that supports the argument of using disk in lieu of tape. To do this, all costs associated with obtaining and then supporting an RDX solution must be compared and then contrasted with a comparable LTO-3 tape solution.

Where Disk and Tape Cross

Both RDX disk and LTO-3 tape media have associated acquisition costs and there is a point where these costs cross. To pinpoint where, information was extracted on the acquisition costs of these media from the websites of online retailers, CDW and Provantage.

\$30 for an LTO-3 tape cartridge is commonly cited as the primary reason to select tape. But what SMBs can overlook is the high upfront cost of an LTO-3 tape drive. While its price varies, it will cost anywhere from \$1200 for a half-height (HH) model to \$1800 for a full size LTO-3 tape drive.

RDX almost completely removes this cost from the equation. An RDX docking station costs about \$150 (as of March 2010 it is listed as \$390 but that price includes a 500 GB RDX disk cartridge) which is a fraction of the cost of the LTO-3 tape drive.

SMBs that find themselves with about 4 TBs of data may well find that RDX media are more than just the preferred choice from a technical and operational perspective. They become the right choice from a business perspective as well."

— Jerome Wendt, DCIG Lead Analyst

So when adding up the costs to obtain comparable amounts of capacity, RDX can actually be less expensive than tape until an SMB needs more than 2.5 TBs of capacity when the price of HH LTO-3 tape drive is factored in or more than 4 TBs of capacity when a full size LTO-3 tape drive is needed.

RDX versus Half-Height LTO-3 Tape Drive (Total Capacity - 2.5 TBs)

RDX Docking Station	\$ 150	HH LTO-3 Tape Drive	\$ 1,200
5 - 500 GB RDX Cartridges	\$ 1,250	6 - LTO-3 400 GB Cartridges	\$ 180
Total Cost	\$ 1,400	Total Cost	\$ 1,380

RDX versus Full Size LTO-3 Tape Drive (Total Protected Capacity - 4 TBs)

RDX Docking Station	\$ 150	LTO-3 Tape Drive	\$ 1,800
8 - 500 GB RDX Cartridges	\$ 2,000	10 - LTO-3 400 GB Cartridges	\$ 300
Total Cost	\$ 2,150	Total Cost	\$ 2,100

So the argument that LTO-3 tape media is cheaper than RDX disk media is only true when the 2.5 and/or 4 TB thresholds of capacity are crossed. It is at this point that LTO-3 can become more cost effective since LTO-3 cartridges scale more economically than RDX cartridges.

This scaling argument is relevant since SMBs have weekly and monthly media rotations and need additional cartridges for these backups. This media rotation would again appear to favor LTO-3 tape over RDX but it fails to take into consideration another benefit of RDX.

Big or Small, RDX Can Use Them All

A clear advantage that RDX provides is the freedom to use any generation of RDX cartridge regardless of its capacity. RDX cartridges are available in 80, 160, 320, 500 and 640 GB sizes with 750 GB capacities scheduled to become available in the summer of 2010. This is what gives RDX an edge over LTO-3 tape: any size cartridges may be used in an RDX docking station.

This is not the case with LTO-3 technology. While LTO-3 tape drives can read from prior generations of LTO tape technology (LTO-1 and LTO-2), *they can only write to LTO-3 tape cartridges.* So regardless if an organization has 20 GBs or 360 GBs of data to backup, they have to purchase a 400 GB LTO-3 cartridge.

This freedom to use any RDX media may bend the cost advantage back to RDX. If an organization only has 100 GB of data to backup, they can purchase a smaller 160 GB RDX media at around \$115/cartridge. So now the cost of a year's supply of 23 160 GB RDX disk cartridges (5 for daily backups, 6 for weekly backup and 12 for monthly backups) plus an RDX docking station is \$2795. Further, as larger RDX disk sizes become available, the price for the smaller capacity disk cartridges tends to drop.

In contrast, the cost for a competing LTO-3 tape solution with a full size LTO-3 tape drive and 23 cartridges is around \$2490. This puts the two on par when one looks at a full year of media rotation. However there is yet one more factor that favors RDX media over LTO-3.

The Nine Lives of RDX

RDX cartridges have a longer life than tape. Unlike tape cartridges, which may need to be replaced after 10 – 20 uses, there is no such limitation on RDX cartridges.

RDX cartridges can be re-used almost indefinitely and almost never need to be replaced. They come with a 5 year warranty so if an RDX cartridge fails for some reason, the cartridge can be replaced at no cost.

Finally, *the shelf life of an RDX disk cartridge is every bit as long as tape.* A recent study¹ reveals that an RDX cartridge has a shelf life of 30 years (equal to that of tape) and the data on RDX media can be more easily restored later on since they are not dependent on specific generations of tape drive models like LTO is.

To tie this back to the total cost of ownership, daily backup tape cartridges will need to be replaced about once a quarter; weekly backup tape cartridges about once a year; and, new tape cartridges are needed every month for the monthly backup.

In contrast, daily and weekly RDX cartridges may never need to be replaced with an appropriately sized new RDX cartridge purchased as needed for the monthly backup. This longevity of the RDX cartridge and downward price pressure further helps in its cost justification.

When RDX Media is the Right Business Choice

To look solely at the cost of individual tape cartridges fails to recognize tape's true cost. While no one disputes that the per cartridge cost for LTO-3 is substantially less than an RDX cartridge, there is also no denying that the upfront cost for an LTO-3 tape drive is 10x the cost of an RDX docking station.

The real determinant of whether to choose an RDX or LTO-3 cartridge likely comes down to how much data an SMB needs to protect. If the total amount of data that it needs to protect is no more than 2.5 - 4 TBs, RDX wins. Further, the use case for RDX only gets stronger for those SMBs that have less data to protect since they may use smaller capacity, less expensive RDX cartridges.

So those SMBs that find themselves with about 4 TBs of data may well find that RDX media are more than just the preferred choice from a technical and operational perspective. They become the right choice from a business perspective as well.

About DCIG

DCIG analyzes software, hardware and services companies within the storage and ESI industries. DCIG distributes industry, company and product analysis by way of viral marketing and community building using the burgeoning blog infrastructures created worldwide.

About RDX Storage Alliance

RDX Storage Alliance is a vendor neutral independent non-profit organization comprised of industry leading storage and technology companies, and the RDX user community. The Alliance is dedicated to supporting a community of professionals responsible for the management of data protection, retention, archive, and recovery at their companies. RDX Storage Alliance supports its community of members through offering engaging content contributed by customers, partners and members, which present best practices, use cases and other information that demonstrates how companies can make data storage more efficient and reduce IT costs.



¹ "Independent Lab Certifies 30-Year Archive Life for RDX Removable Disk Cartridge Solution," October 9, 2007, http://www.prostorsystems.com/News/Press-Releases/Press-Releases-2007/Independent_Lab_Certifies_30-Year_Archive_Life_for_RDX_Removable_Disk_Cartridge_Solution.aspx, Website last referenced on March 22, 2010.



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