

IT'S EASY. IT'S RELIABLE. -EXACTLY WHAT YOUR BUSINESS NEEDS

EFFICIENT.
AFFORDABLE.
SIMPLE.
EFFECTIVE.



RDX BACKUP WITH DATA DEDUPLICATION

FIGHT DESTINY – WITH A WELL LAID PLAN

Your business moves at the speed of light and your customers expect nothing less than 24/7 availability. Any speed bump can result in lost market share, unexpected costs or worse – customer dissatisfaction. Critical data can be and will be lost. It's a reality faced by all businesses. However, businesses can overcome a data failure. With a well laid out disaster recovery plan, your business can continue without interruption.

This paper will investigate backup or disaster recovery challenges faced by businesses and provide a comparison between new RDX backup solutions and traditional backup solutions such as low-end tape backup and external hard drives. RDX is a hard-drive based technology that employs high reliability and greater use of media. When Lenovo® coupled this technology with data deduplication, the result was powerful – an efficient, affordable, reliable backup solution that is easy to deploy.

MAJOR PAIN POINTS FOR ENTRY-BACKUP AND THE LENOVO'S RDX ANSWER

Every business needs to plan for a disaster or data crisis. This involves implementing a disaster recovery plan that not only protects critical business data from being lost, but also allows quick recovery in the event of a failure. What's key is being able to set the right recovery point objective – implementing a backup schedule/rotation that is as close to continuous data protection as possible without interrupting critical business processes.

When it comes to backing up business critical data, it's not always easy to implement. That's because a good backup solution may be too costly or too complex to deploy when taking into consideration major pain points such as complexity of data encryption, maintaining proper media rotations and keeping up with growing media requirements.

Lenovo took great strides to eliminate these pain points in its recent launch of RDX backup solutions. Currently, Lenovo offers RDX bundles (Drive + Media) at 160 GB, 320 GB and 500 GB capacities which include unique RDX management software that leverages data deduplication and provides support for MS Exchange and SQL Database. Here's a look at how Lenovo's solution alleviates customers' pain points:

BACKUP PAIN POINTS	LENOVO RDX'S ANSWER
Inexperienced staff and backups not done regularly	Lenovo's RDX solution includes software that allows multiple protection plans that can be scheduled daily, weekly or monthly.
Tape backup on-site is costly and/or unreliable	RDX is less expensive than low-end tape and easily supports a media rotation plan on-site.
Potential exposure of sensitive data if misplaced	Data encryption is a "single-click" option in the RDX software – allowing users to secure every media in the rotation.
Hard Drives don't support rotation schemes	Creating protection plans applied to multiple RDX media easily allows users to setup media rotations.
Low disk utilization on disk-to-disk backup	Lenovo's RDX solution features Data Deduplication technology built-in to provide maximum utilization.
Too expensive or complex to backup databases	Lenovo's RDX solution features support for MS Exchange and SQL Database.
Backing up data that has not changed is inefficient	Unique with Lenovo, the RDX solution includes data deduplication that only backs up data that changed since the last backup job – increasing effective media capacity by as much as 20x.

This data deduplication software is not included in other RDX solutions and a stand-alone package can be as costly as \$200. What's more valuable is that while other backup solutions require additional purchase of agents to enable support for MS Exchange and SQL DB, Lenovo has included this in the same package as well – that's at least another \$1,100 per agent value built-into the solution!

¹ Based on pricing of Symantec™ Exec Backup Agent Add-On as of 4/26/2010 that shows support for support for MS Exchange for \$1,162 USD and support for SQL Server for \$1,162 USD.

STOP JUGGLING EXTERNAL DRIVES AND DROP INTO RDX

RDX is a hard-drive based technology and this presents a much simpler, user-friendly approach to data backup and archiving. Since the server views RDX backup device like an internal disk, users have the ability to “drag-and-drop” files to the device, browse files and folders and enable encryption easily.

RDX is a significantly better solution than hard drives:

- Greater reliability because the cartridge employs an enterprise-class hard drive in a rugged drive bay
- Support media rotation schemes which are essential for a disaster recovery plan because data is redundantly stored on multiple backup media

DESCRIPTION	RDX	EXTERNAL HARD DRIVES	RDX ADVANTAGES
Static Protection	✓	✗	Eliminates server failures caused by static charge on peripherals.
Drop Protection	✓	✗	Rugged case and shock protection translates into longer life and reliability.
Portable	✓	✗	Cartridges designed to be portable for offsite storage & archiving.
Data Protection Switch	✓	✗	Physical lock on the cartridges provide security to sensitive data.
Business Grade	✓	✗	RDX is designed for business grade applications to backup, archive and store business critical data.
Runtime Protection	✓	✗	Users cannot accidentally eject a cartridge during a backup job.

REWIND THE TAPE: RDX PROVIDES GREATER SAVINGS UP-FRONT AND OVER TIME

Traditional Tape backup refers to a tape-based drive that uses magnetic tape to store data. Tape backup is fairly sturdy and reliable; however, it’s expensive and can be complex to manage for businesses that don’t have dedicated IT staff with technical expertise in data storage or data archiving.

What’s just as important is the savings from a simple solution like RDX. Up front, RDX drive bundles are much more affordable than most low-end tape drives. Furthermore, since RDX is more rugged and reliable, it supports more uses than low-end tape – increasing the life of your backup rotation plan. Finally, since it’s a hard drive based technology, so there is no cleaning required. Assuming a business will backup their data at least 5 times a week (daily backup) on a single server, the table below shows the 3 year TCO comparison with RDX and low-end tape solutions:

RDX solutions provide a more cost efficient solution by giving more life (uses) to your media and eliminating maintenance costs.

Total Savings per server:

\$ 721 over LTO-3

\$ 396 over LTO-2

\$ 286 over DAT-160

DRIVE TYPE	DRIVE PRICE	MEDIA PRICE	MEDIA CAPACITY	BACKUP ROTATION	MEDIA USERS	YEARS OF BACKUP	MEDIA USED	CLEANING COST	3 YEAR TCO
RDX 160	\$269	\$150	160 GB	5	5,000	3	5	\$ 0	\$ 1,019
DAT 160	\$675	\$30	160 GB	5	100	3	20	\$ 30	\$ 1,305
LTO - 2	\$950	\$30	200 GB	5	100	3	10	\$ 165	\$ 1,415
LTO - 3	\$1,225	\$35	400 GB	5	100	3	10	\$ 165	\$ 1,740

- DAT media life-span is assumed at 1.5 years with 100 uses
- DAT 160 with native capacity of 80 GB requires 2x number of media to store 160 GB
- Tape media can be used up to approx. 52 uses before cleaning is required
- RDX 160 is based on Lenovo’s RDX 160 GB Internal USB Bundle which includes 1 media

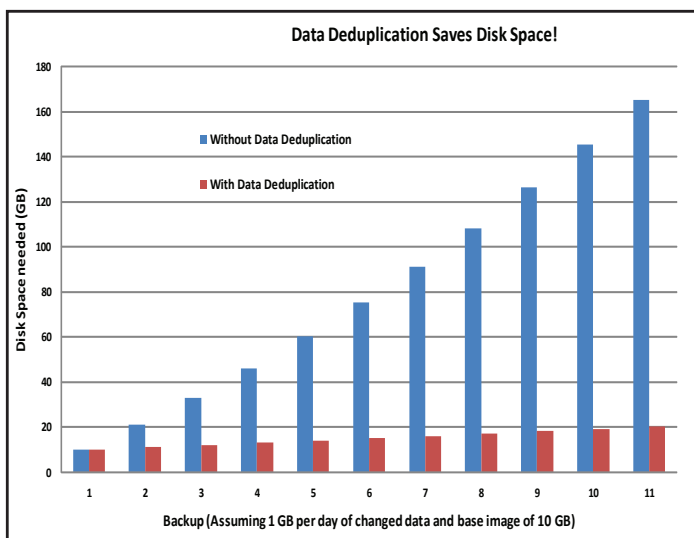
DATA DEDUPLICATION – ITS MONEY THAT STAYS IN YOUR POCKET

Not all RDX solutions are the same!

Lenovo's solution leverages data deduplication technology and it's worth taking a few minutes to really see how this benefits your business.

Data deduplication is a backup technique where redundant data is eliminated to increase disk utilization. In the deduplication process, only data that has changed since the last backup job is merged into the original backup job. For unchanged data, only pointers are placed in the backup files.

Over time, when additional backups are performed, the disk space savings can easily be seen. With higher utilization of backup media, the total cost of ownership improves since you are extending use of your media. Note that with smaller backup files and pointers to unchanged data, read access times will drastically improve during data recovery!



FILL IN THE GAPS – CONTINUOUS DATA PROTECTION

Lenovo's Single Server RDX Backup software allows you to easily schedule protection plans for near continuous data protection.

Multiple protection plans implemented with a solid rotation plans can be scheduled multiple times a day, week or month!

Point in Time Recovery allows you to view and restore specific files from a specific restore point!

Results

Protection Plan	Action	Result	Start	Finish
Custom Protection Plan (1... 1 total				
Daily Backup since 3 10 2...	27 total			
Daily Backup since 3 1...	Restore	6 errors	5/11/2010 12:17:17...	5/11/2010 1:23:07 PM
Daily Backup since 3 1...	Archive	Success	5/10/2010 2:52:05 PM	5/10/2010 2:58:10 PM
Daily Backup since 3 1...	Archive	Success	5/10/2010 9:09:16 ...	5/10/2010 9:15:30 ...
Daily Backup since 3 1...	Archive	Success	5/6/2010 4:00:06 PM	5/6/2010 4:07:19 PM
Daily Backup since 3 1...	Archive	Success	5/5/2010 9:37:28 AM	5/5/2010 9:42:32 AM
Daily Backup since 3 1...	Archive	Success	5/3/2010 4:00:04 PM	5/3/2010 4:04:14 PM
Daily Backup since 3 1...	Archive	Success	5/3/2010 10:13:52 ...	5/3/2010 10:22:31 ...
Daily Backup since 3 1...	Archive	Success	4/30/2010 11:02:44...	4/30/2010 11:14:15...
Daily Backup since 3 1...	Archive	Success	4/26/2010 4:00:06 PM	4/26/2010 4:06:59 PM
Daily Backup since 3 1...	Archive	Success	4/22/2010 9:41:24 ...	4/22/2010 9:50:54 ...
Daily Backup since 3 1...	Archive	Success	3/30/2010 5:13:13 PM	3/30/2010 5:18:33 PM
Daily Backup since 3 1...	Archive	1 error	3/30/2010 5:11:47 PM	3/30/2010 5:13:09 PM
Daily Backup since 3 1...	Archive	Success	3/30/2010 11:39:02...	3/30/2010 11:45:27...
Daily Backup since 3 1...	Archive	Success	3/29/2010 11:52:39...	3/29/2010 11:59:59...
Daily Backup since 3 1...	Archive	Success	3/26/2010 11:07:26...	3/26/2010 11:11:58...
Daily Backup since 3 1...	Archive	Success	3/26/2010 10:37:55...	3/26/2010 11:04:41...
Daily Backup since 3 1...	Archive	1 error	3/24/2010 5:00:47 PM	3/24/2010 5:01:27 PM

Result Details - Daily Backup since 3 10 2010 (DPATHMAN\K2001)

Task completed successfully.

Unchanged: 14.8 GB

Stored: 33.2 MB

Processed: 823 MB

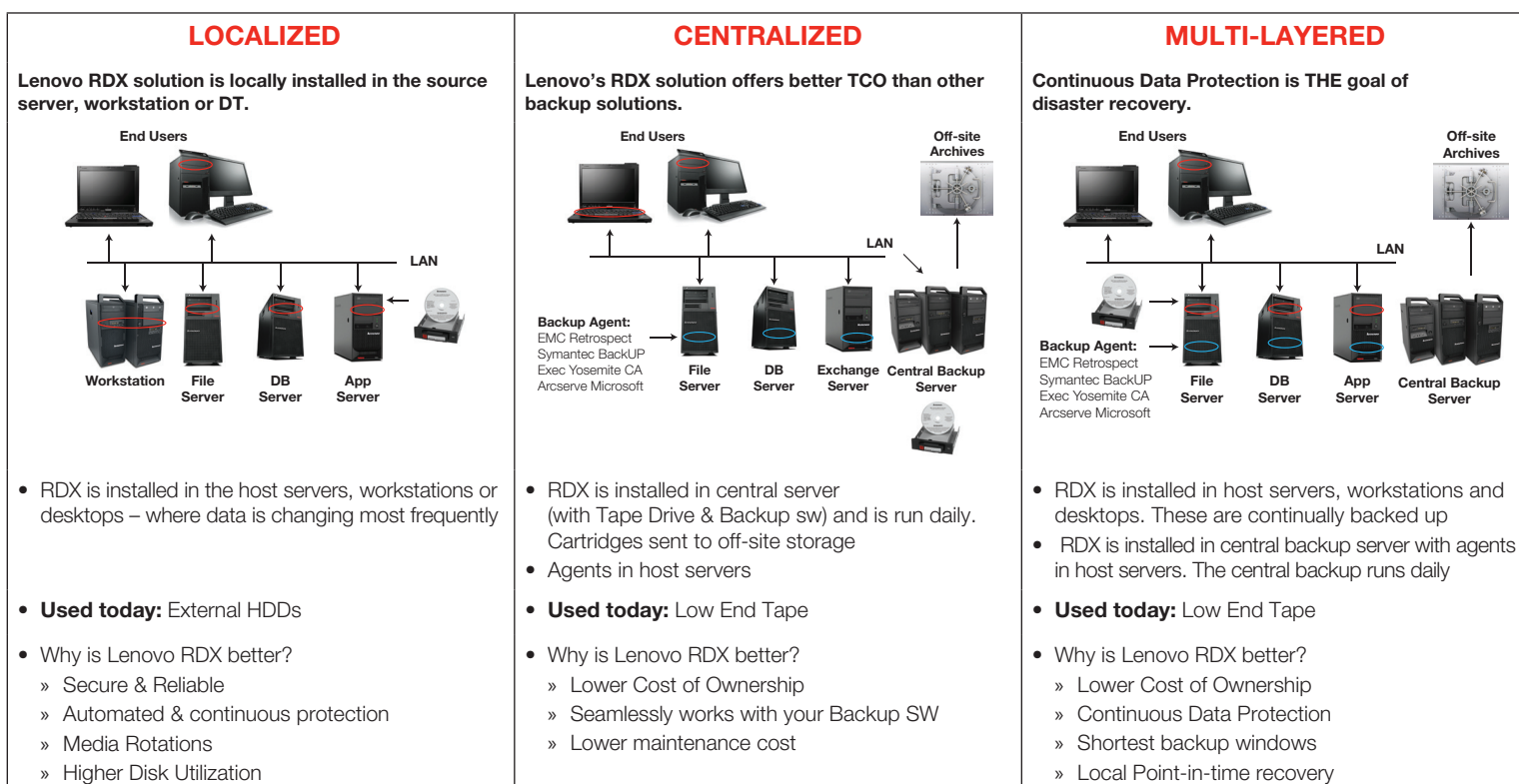
Data reduction: 9.83:1
 Files protected: 10985
 New files: 174
 Changed files: 134
 Total processed: 15.4 GB
 Total changed: 918 MB
 Total stored: 93.2 MB

**LENOVO® RDX –
FITTING INTO YOUR BACKUP SOLUTION**

Data backup can be categorized in three categories: Local backup, Centralized Backup and Multi-Layered Backup. Local Backups are performed on local source systems and archived on-site. Traditionally, this is done using external HDDs. Lenovo RDX on each system provides more reliability, solid media rotations, automatic backups and a high level of security. Centralized backups utilize dedicated backup servers and backup agents deployed on client systems such as desktops, workstations or servers. These backups are stored on these dedicated servers and archived off-site. RDX can be deployed on the backup server to improve disk utilization. Traditionally, this is deployed using low-end tape backup. Lenovo RDX provides lower cost of ownership and seamlessly works with existing backup solutions such as EMC Retrospect,

Symantec Backup Exec or Yosemite Backup! In a multi-layered approach, systems are backed up locally and backup agents archive the backup media to dedicated servers. This provides near continuous data protection locally with the shortest data backup window. Lenovo’s solution excels at this with data deduplication and automated protection plans. Lenovo’s solution provides benefits in all three scenarios that are unique in the marketplace.

As RDX technology continues to grow and mature, there will be solutions that will offer global data deduplication or multi-server support. Lenovo is working to enhance its current offering in the future to incorporate these enterprise level features. Lenovo’s solution seamlessly integrates today and is “future-proof” to seamlessly integrate in the future.



CONCLUSION

For departmental or regional office servers, near continuous data protection, security and disk utilization are very important. Lenovo’s RDX solution provides the perfect backup solution for these servers – leveraging data deduplication for high disk utilization and providing easy-to-use RDX software to create protection plans for near continuous data protection. Lenovo’s solution also enables media level encryption easily by a single click of the mouse.

Disaster recovery shouldn’t be hard or complicated or expensive. Businesses already invest considerably in their business and investing in a data backup solution should be easy, affordable and cost effective. While other existing

backup solutions will charge extra for features like MS Exchange and SQL DB support, Lenovo has bundled this into a single package without increasing the cost to businesses. What’s more impressive is that Lenovo’s solution has integrated data deduplication into the software to really maximize media utilization – providing real value, not cost to its customers.

Lenovo understands that disaster recovery is vital for any businesses to compete in today’s marketplace and it’s gone over and beyond to keep the solution affordable and attractive.