

KROLL ONTRACK®



Tape Management Medium and Long Term Data Backup

Efficiency - Compliance - Security

White Paper | 2010

Efficiency - Compliance - Security

The data mountain is constantly growing. Storage landscapes are becoming more and more fissured. IT departments are facing a multiplicity of challenges. In 2009 the University of California in San Diego put a figure of 3.6 zeta bytes on the total of data resources in the USA alone in its study "How much information". This is equivalent to data resources per capita of 34 gigabytes. Secondly storage landscapes are devolving faster. It is becoming increasingly more difficult to access old data because storage systems have disappeared from the marketplace or are no longer supported by manufacturers. The more dated storage systems become, the faster nasty surprises may occur.

These problems are also valid, particularly so, for tape systems. Tapes are and remain the most important media for medium and long term backup of data.

Tape Management Services by Kroll Ontrack support companies who need to have their data accessible cost-effectively at any time, as standard, on current media. The conversion from outmoded, diversified tape libraries offers three benefits today :

- 1. Increasing IT efficiency**
- 2. Adhering to compliance requirements**
- 3. Quick recovery in the event of disaster recovery**

As the world's leading provider of data recovery, electronic disclosure, computer forensics and legal technology, Kroll Ontrack and its Tape Management Services can offer a comprehensive and cost-effective solution for cataloguing or consolidating stored data and saving relevant contents for the long term simply, securely and efficiently or processing them.

IT-Efficiency

Inefficient back-up landscapes which are variously composed are emerging quickly. For example, when companies merge. Production, bookkeeping and client data of both companies need to continue to be available. Frequently various back-up landscapes have to be harmonised in most cases e.g. proprietary backup systems in windows environments. To implement the calculated potential savings after a company merger Kroll Ontrack was able to consolidate 15,000 tapes from various archive systems or proprietary backups in one instance into one NetBackup system for the two companies using LT04 drives. Locally all stored data was catalogued, assessed and converted and superfluous data was deleted.

The consolidation of tapes optimises the corporate archive. Data can now be stored simply and recovered. Also back-up procedures can be automated more efficiently. The manual cost of archiving and recovery can be clearly reduced. A de-duplication operation which is now fast and simple to implement reduces storage space. Needing smaller premises and hardware reduces the electricity costs and also the general operating costs.

It is specifically at the time when media or equipment is at the end of its lifecycle that it is more costly to keep this infrastructure, and therefore the company data, active. Conversion to current and standardised media or archive systems is more efficient and also avoids costly loss of data.

Compliance

Statutory periods for retaining data are forcing companies to back up data for the medium and long term. Access to old information is also required for court proceedings or as part of audits. A wide variety of statutory sources provide for different holding periods. Generally speaking the principle to be applied is that all documents must be complete, correct, in the correct period, arranged in order, unable to be modified, always available and legible within an appropriate time. Also historical data must continue to be available during mergers or buy -outs of companies. This also applies to the answering of questions in court.

In an attempt to do justice to these requirements Kroll Ontrack supported a prominent firm of architects in changing the technology used for its backup software. This had to occur quickly and safely. Documents on building and operating safety have to be retained in the long term to protect against any claims for recourse

which may arise. Auditors may also request submission of old data records – such as, in the case of one bank, the submission of 17,000 sets of entries from the 1980s. The tapes were available, but the software and drives were no longer serviceable. Kroll Ontrack, with its know-how and hardware and software tools, was able to recover the sets of entries. Compliance is often only possible after conversion.

Disaster Recovery

Data recovery is an important component of Tape Services. Fire, water damage, mud, extraordinary cold, heat or other natural catastrophes are often the reasons for tapes becoming contaminated, damaged and no longer legible using the standard means. Such a sudden failure does not mean the end of the corporate memory. Even with apparently devastating damage, such as through water and fire, there is usually some sort of recovery possible offering the opportunity to arrange the company archive better at the same time. Here it is important to work fast, before media ultimately become unusable because of sticking together or corrosion.

By combining its experience in data recovery and tape management Kroll Ontrack can also be flexible in these instances and help quickly and cost-effectively.

In such a case Kroll Ontrack was able to clean, catalogue and recover 5,000 different tapes for a pharmaceutical company after water damage occurred.

As hardware ages the risk of its failure increases. Faulty data carriers can quickly and suddenly lead to loss of data. This also applies to tapes and libraries. Forward-looking conversion to current tape formats reduces the risk of data loss because of ageing.

Project Tape Management

Tape Management Services and conversion projects are extensive projects requiring comprehensive experience with a variety of hardware and software systems. At Kroll Ontrack a conversion project consists of five different service fields :

- 1. Project analysis / specification**
- 2. Cataloguing / indexing**
- 3. Restoring and reduction / de-duplication**
- 4. Processing data / migration and conversion**
- 5. Media conversion**

1. Project analysis / specification

Each data landscape looks different. The first stage is always a comprehensive analysis of the current status. Motivations are important here. For questions of compliance we need to act faster than with precautionary conversion.

The recording of media (type and condition) is just as important as clarification of the suitable target medium. Data protection guidelines are also important. Sometimes it is unavoidable that conversion will be done on site, because data carries may not leave the company. Or obsolete servers have to be rebuilt in a way which is exactly identical so that the previous access entitlements can be reconstructed as well. Depending on the project, the scope of the project and the technical and personnel resources have to be laid down.

Through its Tape Management Services Kroll Ontrack offers :

- a way of proceeding which is specific to the project,
- professional and personal advice at the beginning and throughout the project,
- accurate determination of the necessary technical and personnel resources,
- fast and flexible reaction to critical situations.

Kroll Ontrack makes every tape management inquiry its own project as well as yours.

2. Cataloguing / indexing

In the next stage cataloguing procures a summary of the stored data. It is not rare for undocumented or inadequately documented backups to be recorded manually, according to type and status. The expert can determine the backup procedure used by reading off individual tapes if necessary. After cataloguing, the client has a table of contents of all data, which is the basis for any further processing of data and also can be used to assess the obligations regarding data retention. The directories provide information about the type of data carriers, the status, the backup used and its structures and type of files (databases, mail, images etc) and operating systems used (Mainframe, Unix, Windows etc). Even if the sequence of the tapes was muddled sets of tapes can be reconstructed even for stripe recording procedures which describe various tapes in parallel.

Through its Tape Management Services Kroll Ontrack offers :

- fast recording of tape libraries,
- the necessary competence and technical know-how to catalogue undocumented and complex backup stored data as well,
- comprehensive documentation, cataloguing and indexing services according to client's specifications.

Kroll Ontrack experts have seen many tape archives and can also create order from the worst disorder.

3. Restore and reduction / de-duplication

The cataloguing of stored data makes it possible to distinguish data which is needed from data which is no longer needed. We have to consider compliance regulations specific to the industry here. Also de-duplication takes care of deleting double ups and thereby reducing the data set. This can result in an often astonishing reduction in data volumes even before cutting the data. Such de-duplication is fast and easy after achieving the cataloguing and indexing. Once the cataloguing is complete, it is usually only a small step to de-duplication. Now the relevant data can be read off efficiently and copied to new media.

Through its Tape Management Services Kroll Ontrack offers :

- fast and secure reduction of stored data and therefore saving of IT resources,
- efficient recovery and storage of data,
- an integrated Wetlab in which physically damaged media can be analysed, dissected, cleaned and mechanically repaired,
- in-house developed software tools with the help of which tapes can be read without the appropriate backup software (particularly important for unknown or exotic backup processes),
- the secure disposal of files and data carriers no longer needed,
- in continuous dialogue with the client, taking account of the relevant compliance regulations.

If necessary Kroll Ontrack will also cooperate with additional partners to :

- thermally stabilise tapes with apparent decomposition,
- develop additional software, e.g. for rewinding/cleaning,
- modify the firmware of drives which are adapted to a special solution,
- produce or amend a GUI for data access at the client's request.

Kroll Ontrack experts do not stop at drawing up inventories of existing data, but they go on to create the prerequisites for effective slimming down of company backups.

4. Processing data/migration and conversion

With conversion, data from a variety of environments frequently has to be dubbed. In the mainframe area there are already various formats with IBM alone. The generally available UNIX brings other variables into play. UNIX has three basic formats: TAR, cpio and Dump. Such files now frequently have to be dubbed in Windows environments to be available for servers and PC. At desktop level there are different backup formats in the individual operating system environments through the countless different software solutions. Another problem is the different encryption of the digital contents which differ between mainframe, midrange and desktop systems. IBM and AS/400 computers encrypt the alphabet with the EBCDIC code, while in most instances the ASCII code is the norm. Translation work is required here. This includes conversion of an AS 400 database in EBCDIC format of a fixed length into an ASCII code of flexible length or a csv-file for PC. Similarly, contents of various database systems may migrate, such as from ACCESS to SQL. E-mail data is extracted direct from the tape backup.

Through its Tape Management Services Kroll Ontrack offers :

- comprehensive worldwide know-how and long years of experience in all backup environments,
- technological and personnel capacity for working with the most exotic data formatting,
- automated tools for converting various file formats.

The Kroll Ontrack experts bring their experience to all areas – from mainframe computer to PC – and can therefore work with a large variety of data sources.

5. Media conversion

When data in a file environment which is already standardised is dubbed onto new media carriers, media conversion is sufficient. If you wish to dub data from various media you are looking at the constant interchange of the styles of various tapes and drives. Technologies have changed and manufacturers have disappeared from the market. Even within individual recording processes there are various variants which can be solely distinguished by their style. To give just one example, DLT is not always the same DLT. Wikipedia for example currently describes more than 20 variants with various styles, track layouts and data densities. Also, depending on the variant, files are being encrypted or recorded openly. In the end result therefore the various variants are only partly compatible. All data must therefore be dubbed onto a standard tape. A bit-wise 1: 1 copy of the data can be obtained simply and quickly according to the steps described above and backs up data on new media which still have a long life cycle ahead of them.

The backing up of old tape stocks on new standardised target media simplifies and consolidates the stored data. The dubbing into tape format of a variety of operating systems (e.g. UNIX on Window) is therefore possible. The fast duplication of data and the producing of one or more bit-wise identical backup copies is a possible option.

Through its Tape Management Services Kroll Ontrack offers :

- experience with a large variety of data carriers and software solutions,
- the laying down of the safest and most efficient data dubbing best adapted to the current data stocks,
- the fast production of backup copies.

Kroll Ontrack experts have the technological and personnel resources to implement dubbing quickly as the client wishes.

Not only for IT archaeologists - data backup with added value

Tape Management facilitates long term safe and efficient data backup. Conversion is not a technical operation for its own sake, but offers many benefits. By standardising your storage systems you will save on maintenance costs. Only one system has to be monitored rather than several. As part of the data conversion stored data can simultaneously be catalogued and slimmed down. The de-duplication of data which is now possible minimises the surplus redundant copies. Storage space, hardware and therefore electricity costs can be lowered through the cooling required.

Generally operating costs are also reduced. At the same time conversion contributes to the fact that statutory rules on data retention are adhered to. Data conversion is only possible at a cost which is economically justifiable and also accurate for individual data stocks. In the end you will have safe, simple and long term data access. Order has been brought to the corporate store of knowledge.

Kroll Ontrack can use know-how, personnel and also technology to the full because of its long years of international experience in the data recovery, data deletion and computer forensics sectors. The professional practical expertise of Kroll Ontrack employees allows safe and efficient data backup specific to a project.

Ask the Kroll Ontrack experts - and use their global expertise.

Virtualisation will not solve the problem

Virtualisation is an outstanding technology which facilitates optimum flexibility and transparency of storage media. But virtual machines must support obsolete systems too. Loopholes in the supporting of formats will not be absent in this area. Also virtualisation is a complex technology. With data backup there is no way around expert advice and often data conversion.

Who needs data conversion ?

- Companies with important long term archived data,
- Companies of all industries (manufacturing businesses, economy, banks and insurance companies, health sector, public service sector etc.,
- Small and medium-sized companies , for corporate mergers,
- Organisations from research and culture,
- Companies with obligations to retain their data for the long term.

Amongst other things conversions are possible from and into the following environments

PC / Windows / NetWare			
Arcserve	Backup Exec	NT Backup	Novell Sbackup
Norton Backup	Sytos	Sytos Plus	Proserve CX
Maynard	Mountain	Colorado Power Tape	Power Save
Sysgen	TapeXchange	Dosarch	Everex
Iomega Backup	Eztape	Fastape	QICstream
Legato	Pallindrome		
Mainframe			
AS / 400 Saveobj / Savelib	AS / 400 CPYTOTAP	IBM MVS Backup	IBM MVS Selcopy
DEC VAX / VMS Backup	DEC VAX / VMS Copy	ICL 2900 / 3900 Copy	
Unix			
tar	Cpio	ufsDump	Multisoft Backup
Sun bar	HP9000 Fbackup	Veritas HSM	Solaris BRU

The following backup softwares and tape drives are supported

Backup-Software	Alias	Manufacturer
Arcserv	Bright Store	Computer Associates
Backup Exec		Symantec
Backup Express	Syncsort	Syncsort
Commvault	Galaxy Commvault	
CPIO		
Data Protector	HP Data Protector, Omniback	
DUMP	UNIX Dump	
Legato	Legato Networker, EMC networker	EMC
NetBackup		Symantec
Microsoft Backup	MTF	Microsoft
Retrospect		Dantz
Tapeware		Yosemite Technologies
Tar	UNIX TAR	
Tivoli	TSM	IBM
UltraBac		UltraBac

LTO tapes			
Ultrium LTO1	LTO2	LTO3	LTO4
DLT tapes			
Compaq I / TK50	Compaq II / TK52 / TK70	DLT III /	
DLT IV / TK88	DLT4000	DLT7000	
DLT IV	DLT1	VS80	
VS160	SDLT 1	SDLT 2	
8mm-tapes : Exabyte			
15M	300/600mb	Exabyte	
22M AME	2.5/5gb	Mammoth / 8900	
45M AME	5.3/10gb	Mammoth / 8900	
54M	1.2/2.4gb	Exabyte	
75M AME	20/50gb	Mammoth2	
112M	2.5/10gb	Exabyte	
125M AME	14/28gb	Mammoth / 8900	
150M AME	40/100gb	Mammoth2	
160M	7/14gb	8505xls / 8700	
170M AME	20/40gb	Mammoth / 8900	
225M AME	60/150gb	Mammoth2	
8mm-tapes : Sony			
170M SDX-25C	25/65gb	Sony AIT	
170M SDX2-36C	36/93gb	Sony AIT2	
230M SDX1-35C	35/91gb	Sony AIT	
230M SDX2-50C/W	50/130gb	Sony AIT2	
230M SDX3-100C	100/260gb	Sony AIT3	
8mm-tapes : VXA / Exabyte			
62M	12/24gb	VXA	
107M	20/40gb	VXA	
170M	33/66gb	VXA	
230M	80/160gb	VXA2	
4mm-tapes			
60M DDS	90M DDS	120M DDS2	125M DDS3
150M DDS4	DAT72 DDS5		
QIC			
DC600A	DC6150	DC6250	DC6525
SLR3 / Magnus 1.2gb / C9120	SLR4 / Magnus 2.5gb / C9250	SLR5	SLR7
SLR24	SLR32	SLR50	SLR60
SLR100			

min-QIC			
DC2000		SCSI / Floppy	10/20mb
DC2120		Floppy	120/240mb
TR-1		Floppy	400/800mb
TR-2		Floppy	800mb/1.6gb
TR-3		Floppy	1.6/3.2gb
TR-4		SCSI	4/8gb
TR-5		SCSI	10/20gb
NS8		SCSI	4/8gb
NS20		SCSI	10/20gb
TR7		Die	40gb
Ditto 2gb		Floppy	2/4gb
Ditto Max		2mb Floppy	3/10gb
Super Station		Die	5/10gb
ADR30		SCSI	15/30gb
ADR50		SCSI	25/50gb
Irwin		SCSI	40/120mb
3xxx, STK			
3480 (300mb)	3490 (800mb)	3490DLX (850mb)	3490E (810mb)
3490EL (910mb)	3570 (7gb)	3590 (10gb)	3590B (10/30gb)
3590E (20/60gb)	3592 (60/300gb)	9840 (20/80gb)	9940 (20/60gb)



Kroll Ontrack België

Sint-Annadreef 68B
1020 Brussel

+32 (0)2 787 02 07

www.ontrackdatarecovery.be

Copyright © 2010 Kroll

KROLL ONTRACK®