

THANKS TO LTFS: TAPE ADVANCES TO BEING THE FAVOURITE STORAGE METHOD OF THE MEDIA INDUSTRY



When I sit in the cinema, I often cannot free myself of work-related thoughts. Especially when watching 3D movies, I inevitably think about the enormous amounts of data that are produced by the images we see. And then I quickly recall how often I have already heard complaints from colleagues in the media industry. They complain in particular about skyrocketing prices and the difficulties in handling data storage and archiving, since the media industry has started to produce and distribute its content as files (as opposed to the previously used video tapes) as a result of the ubiquitous digitalization.

In the attempt to use an efficient technology for each step, media companies have until now relied on a potpourri of hard disks, solid-state disks (SSDs) and tape. Especially thanks to the comparatively best price-performance ratio, its durability and excellent portability, tape has already won a significant role here. Therefore, it is strongly rooted, for example, in the production environment. Insurance companies, urging production houses to archive their newly created material at least once a day on LTO tape, have also significantly contributed to this. Thus, daily recordings were not only securely filed but the users learnt how to use the tape technology and value its advantages.

Besides these advantages, some disadvantages, such as the previously slightly troublesome accessibility, have prevented an even broader application of tape technology so far. Because in order to access stored files, it requires not only special software but also some patience in finding the data.

But thanks to a new development, which in my opinion is one of the most spectacular in the history of tape technology, this disadvantage is now more than mitigated: It has literally been transformed into an advantage. Thanks to the young *Linear Tape File System* (LTFS), a specification of the predominantly used LTO format, all users can now access tape content in the same way that data in a standard file system is accessed. Thus, one doesn't have to know more than how to use a mouse to browse through the files stored on tape and for instance, how to copy, move or delete them using drag-and-drop.

The background of this quantum leap is that, starting with the current fifth generation, LTFS equips the LTO tape with two partitions. The larger of the two takes on the function that was previously the exclusive function of backup tapes: the recording and storage of backup data. The smaller first partition, on the other hand, provides the technological progress. It records the metadata of the contents stored on the second partition and creates an index from them. Thus, it enables easy retrieval of all stored files as well as their uncomplicated processing.

And this has most rewarding consequences for all phases of the media production process. As a result, many incidental storage needs are now much cheaper and easier to use. Many of those involved assured me that the main advantage is the accelerated development of tape by LTFS, which makes it an ideal transport medium for all video and film content that doesn't have to be accessed particularly quickly.

This new feature of tape is exceptionally advantageous, because in this industry, which edits its content in many diverse processes within and/or between the production, post-production, distribution and archiving phases, a highly efficient and affordable material exchange is extremely relevant. On the other hand, data exchange in particular used to be complicated in the course of changing to data based workflows. No matter whether transfer takes place on disk, conventional tape or via a network, the users must operate with various formats, take manufacturer dependency into account and establish an expensive infrastructure in order to be able to record and edit video and image files at all.

Therefore, network-based solutions previously used for content transport, swallow up enormous bandwidths and huge amounts of funds for the necessary technology. Tapes, however, carry lots of data at significantly lower costs (up to 60 hours of high quality video data on one tape), are quick to send via the sophisticated services of logistic providers and thanks to LTFS only a computer connected to an LTO 5 tape drive at the recipient's end is necessary for reading the data. Companies are obviously not only pleased with all these advantages. They are also excited when it comes to the matter of distributing their movies, videos and other digital content to TV stations, cinemas or DVD/BluRay pressing plants for instance.

But also within the various stages of media production, the LTFS formatted LTO tape has developed numerous advantages. With the general simplification of backup processes, recordings on digital cameras for example can be saved directly on tape without having to be edited beforehand. Thanks to this, the expensive SSDs or portable hard drives that are built into the camera can be re-used more quickly, which in turn relieves the overall budget.

A manager of a post-production house recently explained to me that tiered storage solutions are mainly used for coping with the storage needs of this technologically very sophisticated process. The principle behind this application hierarchically assigns the files to different storage media according to their current importance. Why does he rate LTFS as highly useful? Because tape has the potential to significantly develop its traditional role as the best choice for archiving data. Tape can and will increasingly replace the disc when it comes to nearline storage, which is considered to put more pressure on accessibility. However, in certain cases, modern storage tape is recommended even for data that has to be available on site (online tier). And again, it can save money. The more data there is stored on tape instead of on the more expensive (high performance) disks, the bigger the saving.

At the end of the production process, the content is finally archived. With its traditional advantages, tape has been the preferred storage medium here for a long time. This advantage can

be expanded even more, thanks to LTFS, mainly because the saved files can now be restored even more effectively than with other storage technologies.

With all these advantages, LTFS has virtually no drawbacks. Storage tape, equipped with the new specifications, is often even more advantageous than those without it. Therefore, I am not sticking my neck out too far when I predict a golden future for LTFS and the entire tape industry. LTFS in particular, supports its further dissemination and promotes its benefits. For instance, thanks to tape library manufacturers who, by supporting the young specification transfer, allow easy accessibility to the entire library on tape drive level. Or especially in the media environment through manufacturers, whose solutions combine the advantages of LTFS with other industry specific utilities. If nothing else, LTFS is rightfully considered to be worth the money. That is why Linear Tape File System has won numerous important technology awards since 2010.

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