



BRU™ Backup and Recovery Solutions

LTO Technology - Big, Fast, and Cheap

Yes, you can have all three, and it's GREEN for the Environment too!

Unlike what many disk drive storage providers would have you believe, LTO tape is both fast and cheap when you examine all the costs associated with retaining archived data for extended periods. Once data is written onto tape, the storage of that data no longer requires power or specialized cooling. This means that along with being more cost effective from a power consumption standpoint, tape storage is also the greenest large capacity storage mechanism available in the world of computing to date.

Additionally, the newer SAS LTO-8 and LTO-7 drives are capable of writing and reading data faster than normal, non-RAID hard drives (with ArGest® tape drives and the TOLIS Group drivers for our HBAs, expect an average of 322MB/sec write with LTO-7 and with LTO-8 SAS with increased performance and reduced latency using Fibre Channel).

What about tape cost?

LTO-5 holds 1.5TB native and is around \$19 per tape.

LTO-6 holds 2.5TB native and is around \$25 per tape.

LTO-7 holds 6TB native and is around \$94 per tape.

LTO-8 holds 12TB native and is around \$190 per tape.

Pricing as of January 2018

LTO Native Capacity and Performance (non-compressed data)Compatibility

One very important question that comes up concerning LTO tape is compatibility with older generations - i.e.: LTO-8 with regard to LTO-7 media.

Each generation of up to LTO-7 has one major design requirement - It must be read and write compatible with the previous generation media and read compatible with the generation 2 times removed. LTO-7 will read LTO-5 tapes, and read/write LTO-6 tapes for example. LTO-8 is slightly different it will read/write LTO-8 media, and read/write LTO-7 media, it will not read LTO-6 media.

LTO Backward Compatibility

This then leaves us with the question of how to read older tapes as we move forward beyond the backwards read capability. Do we keep an old LTO-2 drive around just in case? While

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retaining an old drive in your collection is one solution, it is also important to understand that even LTO-1 drives are still available under special order from HP (at least) even 13 years after LTO-1 was introduced. Current indications are that all the current LTO organization members will continue to provide LTO devices several generations back for quite some time after the release of the new devices.

What about 25 or 50 years from now?

While no one can say with certainty what the status of computer-based tape drives will be 50 years from now, there are mechanisms available to help you migrate archived data from one technology level or type to another. The method that most people readily understand is to restore the old archived data onto a standby system and then recreate the archives with the latest versions of the archive software and most advanced devices available at the time.

Another is to use tools that will directly copy the archives from one type of mechanism to the newer type - for example, from VXA-2 to LTO-8 directly.

In many larger operations, retaining a system capable of reading and recovering the old media is already part of the archival guidelines. This means buying one or more computers, archival software licenses and tape drives required to read and restore the archival media along with either an agreement with the manufacturer(s) to provide spare parts and support for an extended period or buying such spare parts yourself. These "legacy" systems are then stored and maintained to insure that the archives are recoverable for a period required to support the organization's needs.

As shown, LTO technology provides a very robust, high capacity, and cost effective solution for long term asset archival. One final word, unlike older analog tapes that can exhibit degradation in the quality of the video or sound on the tape, digital media retains the data in a digital format that remains the same 32 years from now as it was when it was written.