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TAPE DRIVE SUCCESS BLUEPRINT



- ***3 Simple tips to ensure that your tape drive and tape media remain reliable***
- ***How to choose the tape drive that satisfies your backup needs and avoid making the common mistakes that would jeopardise your investment***
- ***Tape Drive Reference Sheet: Capacities, transfer rates and duty cycles of a range of tape drives***



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3 Simple Tips to ensure that your tape drive and tape media remain robust and reliable

Contrary to popular belief, tape drives are generally robust and reliable. However, there are three common mistakes that people make that dramatically increase the probability of tape drive failure.

1. First Tip: Don't overwork your drive

Tape drives have a specified duty cycle, which is an indication of the workload a drive can endure day in, day out. While a drive with a duty cycle of 100% may operate continuously with no ill-effects, a drive with a duty cycle of 50% should not be operated for more than 12 hours a day.

2. Second Tip: Supply your data fast enough

Make sure your system is supplying data to the drive at a sufficient rate. If data transfer to the drive is significantly slower than the drive's data transfer rate, the tape drive will suffer from start-stop motion as it waits for more data to arrive. It's easy to imagine the wear-and-tear this places on the tape, and how the integrity of data on the tape can be severely degraded.

3. Third Tip: Handle & store your tapes properly

Poor handling and storage can affect the lifespan of tapes and drives. Be careful not to drop tapes when carrying them, and storing tapes in a sturdy fire-proof safe will keep them out of harm's way. As an added precaution, take tapes off-site periodically so that a backup always exists at a second location. When operating tape drives, keep them away from carpets and other sources of contaminants.

By following these simple tips, your tape backups should run reliably, and you'll avoid the costly exercise of replacing your tape drive



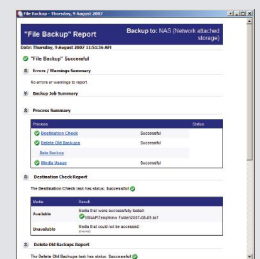
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How to choose the tape drive that satisfies your backup needs and avoid making the common mistakes that would jeopardise your investment

Tape drives remain the leading technology used by organizations for backup and archiving. However, the plethora of tape drives on the market can make choosing the appropriate tape drive a confusing task. How do you select a tape drive that satisfies your needs without blowing the budget? The following are just some of the main factors to consider.

1. Capacity

Select a tape drive that has sufficient capacity to store your backups. Tape drives are able to compress data so that more data may fit on the tape, which is why manufacturers specify both a native capacity and a compressed capacity, usually with a compression ratio at 2:1. However, highly-compressed files such as those in video and sound formats are hardly compressible at all. For this reason, do not heed the specified compressed capacity when choosing a tape drive.

A good way to determine the size of the backup job after compression is to study logs of past backups. If these are unavailable, it is safe to assume that the data can be compressed at a ratio of 1.4:1, unless the hard drive contains an usually large number of highly-compressed files.

2. Transfer rate

The transfer rate of the tape drive becomes important when there is limited "window of opportunity" in which backup jobs may run. It is often desirable for backups to take place during the night when network use is at its lowest. Select a tape drive that is capable of completing a backup job within your window of opportunity. For instance, to back up 400GB per night, you will require a transfer rate of about 30GB/hour.

A little known fact about tape drives is that data must be supplied to them at a sufficient rate in order to keep them streaming, or else the tape suffers from start-stop motion. This motion severely degrades the life of the drive and tapes and the reliability of backups.

There are two usual reasons why tape drive are not be supplied with data at a sufficient rate. Firstly, the rate at which data is read from the hard disk of the server is insufficient. This rate is dependent on the sizes and

locations of the files on disk and is generally unpredictable, but can be determined by the use of specialised software.

Secondly, if data is being transferred over a network of computers to a backup server, the network may be incapable of supplying data at a sufficient rate. The maximum throughput of a network is predictable and easy to measure, based on previous network performance.

Consider a network using 10BaseT Ethernet. This transfer rate through this type of network cannot exceed 10MB/s, so it is immediately apparent that a tape drive requiring 20MB/s is inappropriate.

3. Reliability and duty cycle.

A simple way to gauge the reliability of a tape drive is to find out the Mean Time Between Failure (MTBF) as specified by the manufacturer. You should note, however, that the MTBF is usually specified at a certain duty cycle. For example, consider a Travan tape drive with a MTBF of 370,000 hours at 20% duty cycle. The drive will only have an average of 370,000 hours between failures if it is run less than 20% of the time (about 4.8 hours per day), and running the tape drive for any longer will significantly reduce the reliability of the drive.

4. Price

There is no point purchasing the highest-range tape drive if it's simply too expensive. Consider how much value-for-money the tape drive will give you. Are you willing to pay more for extra performance? Or do you need to sacrifice some performance to save on costs?

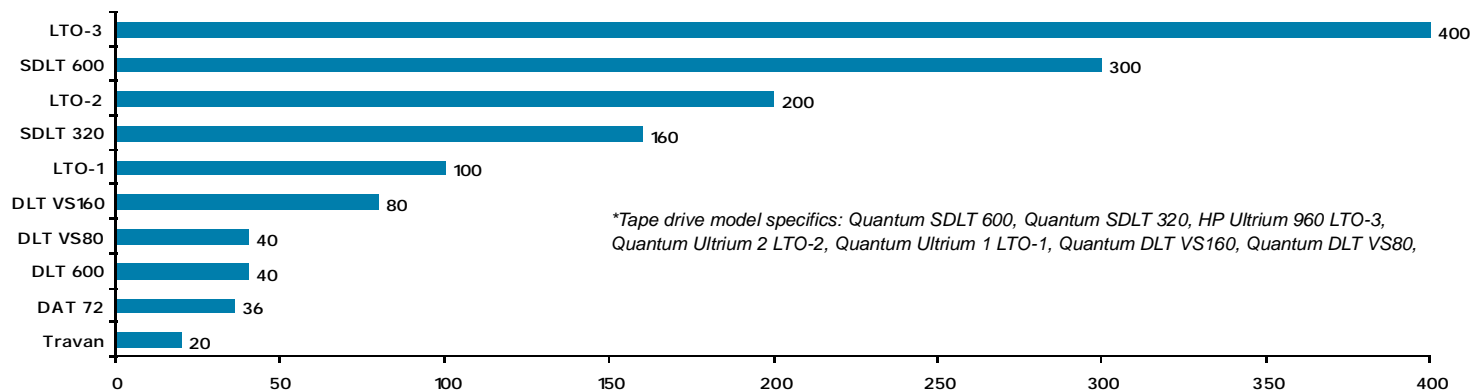
If you choose wisely, you should end up with a tape drive that fulfils your organization's needs, without blowing the budget.

TAPE DRIVE SUCCESS BLUEPRINT

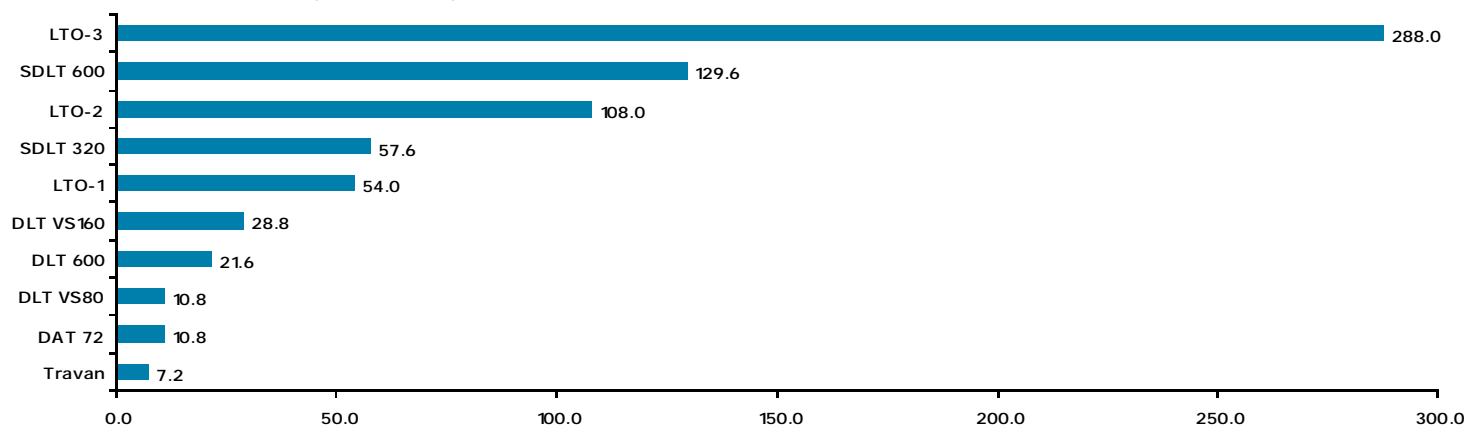
Tape drive reference sheet: capacities, transfer rates and duty cycles

The following charts are intended as guides only and specifications may differ between manufacturers. Check manufacturer specifications before purchase.

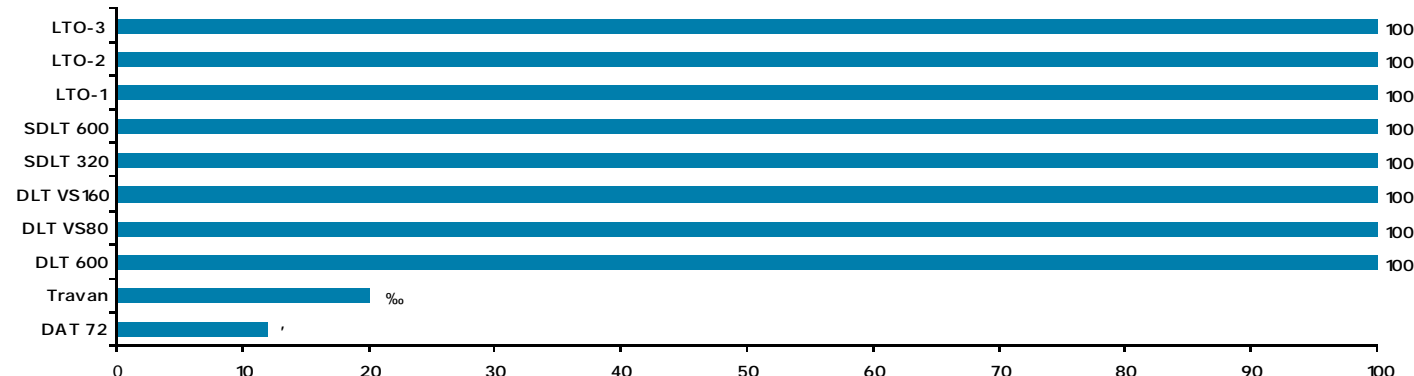
Native capacity (GB)



Native transfer rate (GB/hour)



Duty cycle (%)



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The Seven Critical Factors in Choosing Backup Software

This mini-course reveals the little-known facts that every business owner or I.T. consultant should know before purchasing backup software. Learn from the experience of backup expert, Linus Chang, about the hidden pitfalls and blunders that even experienced I.T. technicians make, and how you can avoid them.