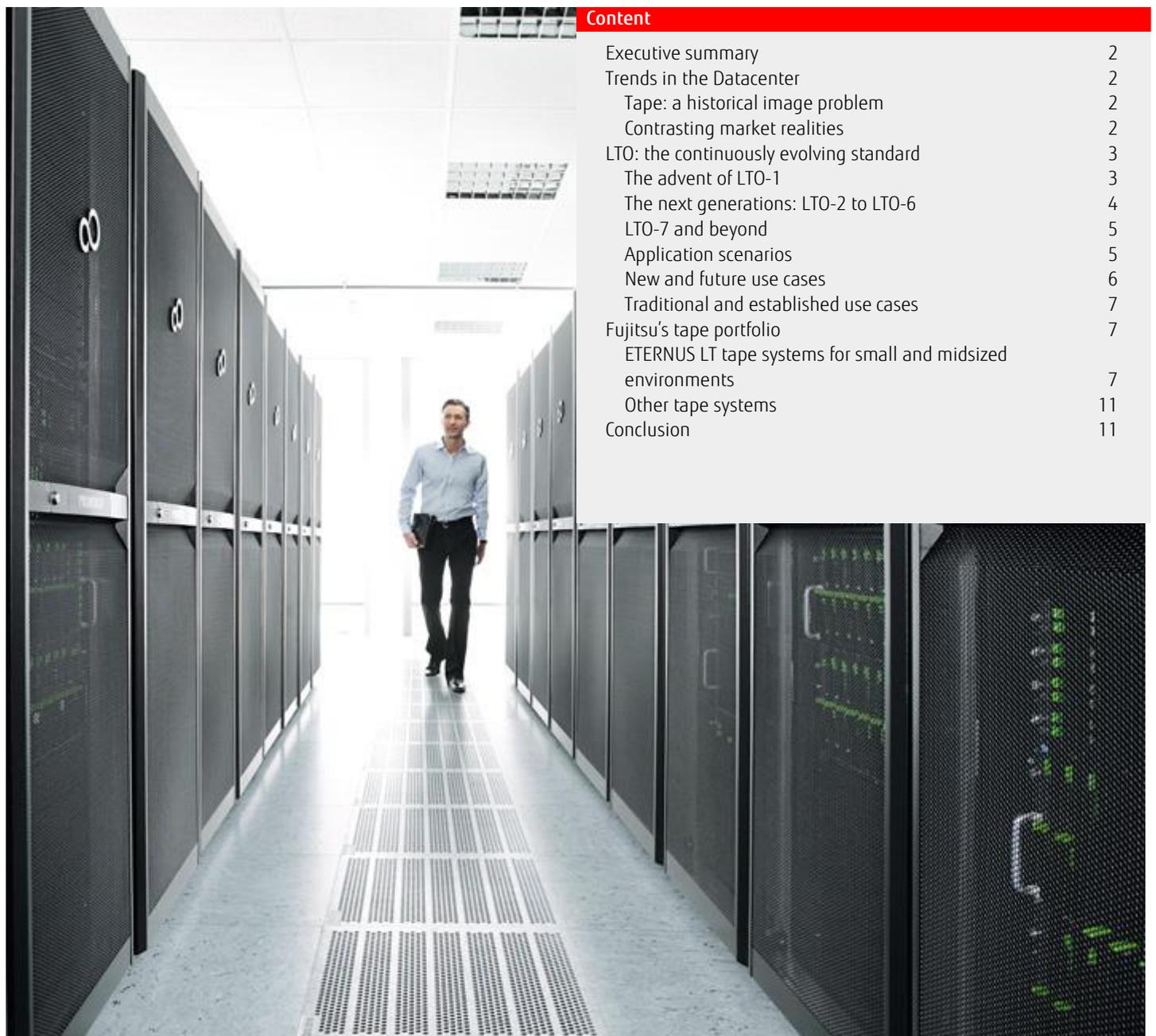


White paper

The Future of Tape

Following an age of indifference and at best neutral reviews, tape technology vendors are “striking back” just as computing itself shifts to larger, more virtualized infrastructures and platforms and matching delivery models.



Executive summary

Following an age of indifference and at best neutral reviews, tape technology vendors are “striking back” just as computing itself shifts to larger, more virtualized infrastructures and platforms and matching delivery models. As the history recapped in this white paper shows, the positive trend for tape storage mainly results from the continuous development of the Linear Tape-Open (LTO) standard, a technology that has finally succeeded in making information retrieval on tape as easy, if not quite as fast, as it is on disk. Moreover, LTO has added many features over the years – write protection, encryption and partitioning – that have turned tape into a tamper-proof, secure storage medium. Add in the technology’s inherent capacity and cost advantages – both benefits accentuated with the LTO-6 standard –, and it’s easy to see why an increasing number of storage experts believe that the “real age of tape” is yet to come.

As a leading IT provider, Fujitsu has supported LTO since its inception and is an official Licensing Partner of the LTO Consortium. Our comprehensive portfolio of tape storage solutions ranges from entry-level desktop drives through the scalable line of ETERNUS LT systems for small and mid-sized companies, workgroups, and branch offices to enterprise-class tape libraries. Fujitsu builds individual, scalable data protection architectures and brings the benefits of current and future LTO generations to companies of all sizes.

Trends in the Datacenter

With exponential data growth increasing between 50 and 70 percent a year, compliance requirements tightening, service level agreements calling for on-the-spot access to structured and unstructured information, distributed computing, and the ‘webification’ of all content and services - the demands on datacenters for backup and archiving have seemed relentless and unlimited. For a good while, the response has been to deploy ever more and ever bigger disk arrays, creating enterprise-wide data pools accessible to multiple users and applications. While this approach clearly has had its merits, both professionals and analysts are increasingly critical of its limitations, especially when it comes to costs.

Despite a constant decrease in prices, disk-based solutions suffer from a comparatively high cost per gigabyte, given its complex administration that often requires extra software and personnel expenditures. A lack of robustness and durability has also jeopardized long-term retention and compliance objectives. And its heavy electricity usage brings with it high costs and large carbon footprints that complicate meeting TCO as well as environmental objectives. Consequently, a growing number of experts are looking for viable alternatives. To master the new challenges, organizations may have to revert to a technology that was often subject to ignorance and bad press, and was thought to be obsolete. We are talking about tape storage.

Tape: a historical image problem

“Tape Technology on the Decline,” “Disk Arrays Take over Datacenters” – headlines like these have dominated the storage sections of both on- and offline IT magazines in recent years. This penchant for sensationalism is understandable. Despite its importance as a core technology in all kinds of IT environments, tape storage has garnered little positive publicity since its inception in the early 1950s. Unlike careers in managing PCs and servers, application programming, and web development – much of it associated with the aura of Silicon Valley – tape storage deals with heaps of cartridges, streamers and massive drive cabinets known as libraries. This work has not been considered attractive, even if it was usually the lab-coated nerd among nerds in the backroom who routinely saved the day with comprehensive restores after a network crash.

Data availability and protection as well as business continuity have traditionally depended on thorough, systematic backup and archiving methods typically associated with tape storage. They still do today. But as the rise of the Internet and exploding data volumes changed the landscape, availability and fast access became much more of an end-user demand, and storage had to leave its steadfast sanctuary and become easier to handle. At the same time, new usage scenarios such as server virtualization and streaming media called for different, innovative online and nearline storage architectures to fulfill frenetic demands for immediate, hassle-free information access. This change in demand brought about a shift in technology; so for a while, the gloomy outlook for tape storage expressed in IT magazine headlines seemed appropriate.

Contrasting market realities

Survey data of IDC¹ indicate that enterprises invest more in backup and archive environments. Following a growing demand for backup, archive, and replication software, the overall investment in tape systems increased as well as they still offer a cost-effective storage option with the lowest cost/ GB.

IDC research shows that most companies that use tape now in their data protection environment will do so in the future. In most scenarios tape will serve as an archive medium, but in special cases they will also play an important role in large-scale backups, in vaulting concepts, or in disaster recovery operations, including the cloud.

¹ Source: IDC White Paper: Meeting Backup and Archive Challenges – Today and Tomorrow, October 2013, Nick Sundby and Donna Taylor.
< [Link to White Paper](#) >