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**TWO SEPARATE STUDIES DEMONSTRATE THAT TAPE CONTINUES TO PROVIDE A
CONSIDERABLE COST ADVANTAGE OVER DISK**

SILICON VALLEY, CALIF. — (August 24, 2011) — The Linear Tape-Open (LTO) Program Technology Provider Companies, HP, IBM and Quantum, announced today that two recently-released separate studies found that tape had significant total cost of ownership (TCO) benefits over disk, including lower cost per GB, lower operating expenses and lower energy costs.

The two studies, from the Enterprise Strategy Group and The Clipper Group, evaluated the costs of long-term storage for various scenarios that included tape and disk as the primary storage medium. In each case, the studies found that tape had considerable long-term cost advantages when compared to a scenario that relied on a disk-only solution.

“The notion that ‘tape is dead’ ignores the substantial evidence that favors tape as a lower cost, environmentally friendly removable medium that is well suited for offline data protection as well as high growth compliance, fixed content and archiving applications,” said Senior Analyst Mark Peters who conducted the study by ESG.

The TPC sponsored ESG study evaluated a common disk environment with an industry-standard deduplication system versus a tape library with LTO-5, with full nightly backups, over a five-year period. The scenarios included replicated systems and offsite tape vaults. In all circumstances, the TCO for VTL with deduplication ranged from about 2 to 4 times more expensive than the LTO-5 tape library TCO.

A separate study on archiving very large data collections by The Clipper Group also found that tape is much less expensive than disk, using significantly less energy when measured on a per petabyte basis over a 12-year period. In short, the TCO under The Clipper Group scenario found the disk solution for long-term archiving to be more than \$67M, approximately 15 times greater than the cost to deploy a tape solution of \$4.5M over the 12 year scenario with the cost of energy alone for disk at \$4M and only about \$18k for tape. In the end, The Clipper Group concluded that the vast majority of archived data should reside on tape.

“Tape continues to play an important role in the protection and preservation of an organization’s digital assets,” said Rob Clark, Senior Vice President, Disk and Tape Backup Product Group, Quantum. “These studies from leading figures further reinforce to the industry that tape is the optimal low cost storage medium for long term data retention. LTO Ultrium generation 5 capacity and performance enable highly efficient archive and data protection solutions, with all the benefits that an open standard brings.”

Mark Peters of ESG will be hosting a webinar on Tuesday, September 27 at 10 am PST to discuss his findings. For more information and to register, please click [here](#).

For more information on the ESG study *A Comparative TCO Study: VTLs and Physical Tape* visit www.ultrium.com.

For more information on The Clipper Group study *In Search of Long-Term Archiving Solution* visit www.ultrium.com.

How to License LTO Ultrium Technology

The LTO Program has historically offered several different license packages – from enhanced packages that provide the specifications and licenses to manufacture LTO Ultrium products, to basic packages providing LTO format specifications.

Buyers seeking LTO Ultrium format-compliant products should look for the LTO Ultrium format compliance verification trademarks on both tape drives and data cartridges. Storage and media manufacturers interested in licensing LTO formats may obtain information by contacting the LTO Program through www.ultrium.com.

About Linear Tape-Open (LTO)

The LTO Ultrium format is a powerful, scalable, adaptable open tape format developed and continuously enhanced by technology providers HP, IBM and Quantum (and their predecessors) to help address the growing demands of data protection in the midrange to enterprise-class server environments. This ultra-high capacity generation of tape storage products is designed to deliver outstanding performance, capacity and reliability combining the advantages of linear multi-channel, bi-directional formats with enhancements in servo technology, data compression, track layout, and error correction.

The LTO Ultrium format has a well-defined roadmap for growth and scalability. The roadmap represents intentions and goals only. There is no guarantee that these goals will be achieved. Format compliance verification is vital to meet the free-interchange objectives that are at the core of the LTO Program. Ultrium tape mechanism and tape cartridge interchange specifications are available on a licensed basis. For additional information on LTO, visit www.trustlto.com and the LTO Program Web site at www.ultrium.com.

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