Tape IT

HP OEM Newsletter – January 2011

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2010 Storage Report Card: Tape gets an ‘A’

Continued server market recovery, strong shipment performance from LTO-5 and excitement over the new LTFS technology provide the foundations for a tape renaissance in 2011.

Throughout 2010 the server and storage markets continued to rebound from the impact of the general economic downturn. The tape storage market - including tape drives, tape automation and tape media - was particularly well positioned to capitalize on this return to growth with the introduction of a new generation of LTO Ultrium. As we enter 2011, many analysts are now predicting a strong performance for the tape market in the year ahead.

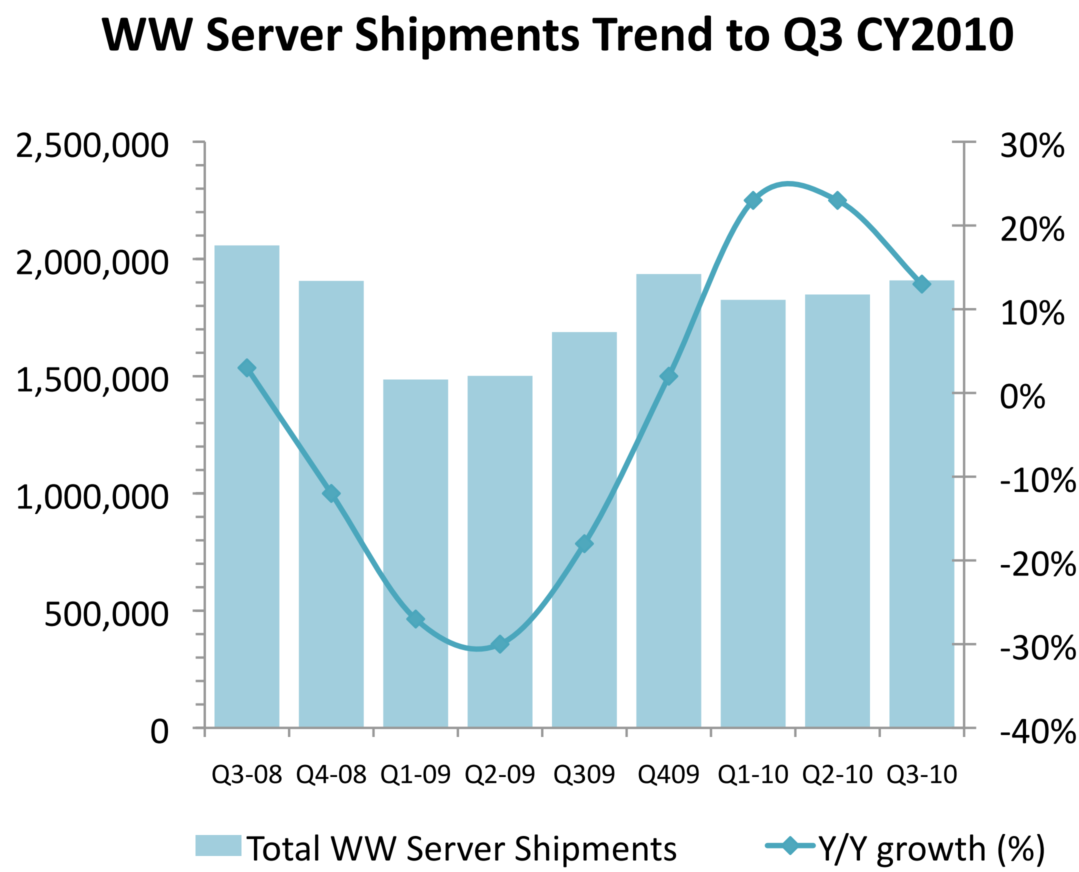
A more buoyant server market

The first signs of IT market recovery were reported in January 2010 with an upturn in server shipments, and a year later the latest IDC Server tracker reported a server shipment increase of 13.1% year-on-year in Q3 CY2010.

Referring to quarter-on-quarter revenue growth, Matt Eastwood, group vice president, Enterprise Platforms at IDC[1] said:

"The server market experienced its strongest growth in 10 years in the third quarter of 2010."

Volume systems experienced the sharpest improvement with year-over-year revenue increasing 22.8%, the fourth consecutive quarter of positive growth for the segment. Midrange server demand improved significantly with year-over-year revenue growth of 19.8%, the segment's second consecutive quarter of positive growth following nine quarters of decline and a sign that server market conditions are improving more broadly beyond volume systems.



Source: IDC's Worldwide Quarterly Server Tracker (December'10)

[1] http://www.idc.com/about/viewpressrelease.jsp?containerId=prUS22592710&sectionId=null&elementId=null&pageType=SYNOPSIS

The recovery of the server market during 2010 further supported a return to growth in the storage market. According to IDC[2], worldwide external disk storage systems factory revenues posted year-over-year growth of 19.0%, totalling slightly less than $5.2 billion, in the third quarter of 2010 (Q3'CY10). Total disk storage systems capacity shipped reach 4,299 petabytes in Q3'CY10, growing 65.2% year over year.

Tape market recovery

According to IDC, the worldwide tape drive market returned to growth in the second quarter of 2010. The latest IDC Quarterly Worldwide Tape Drive Factory Exit Report for Q3'CY2010, shows that the worldwide tape drive market continues to consolidate around two tape drive manufacturers (HP and IBM which together account for 94% of the market), and two tape technologies (LTO and DDS/DAT which together account for 96% of the market).

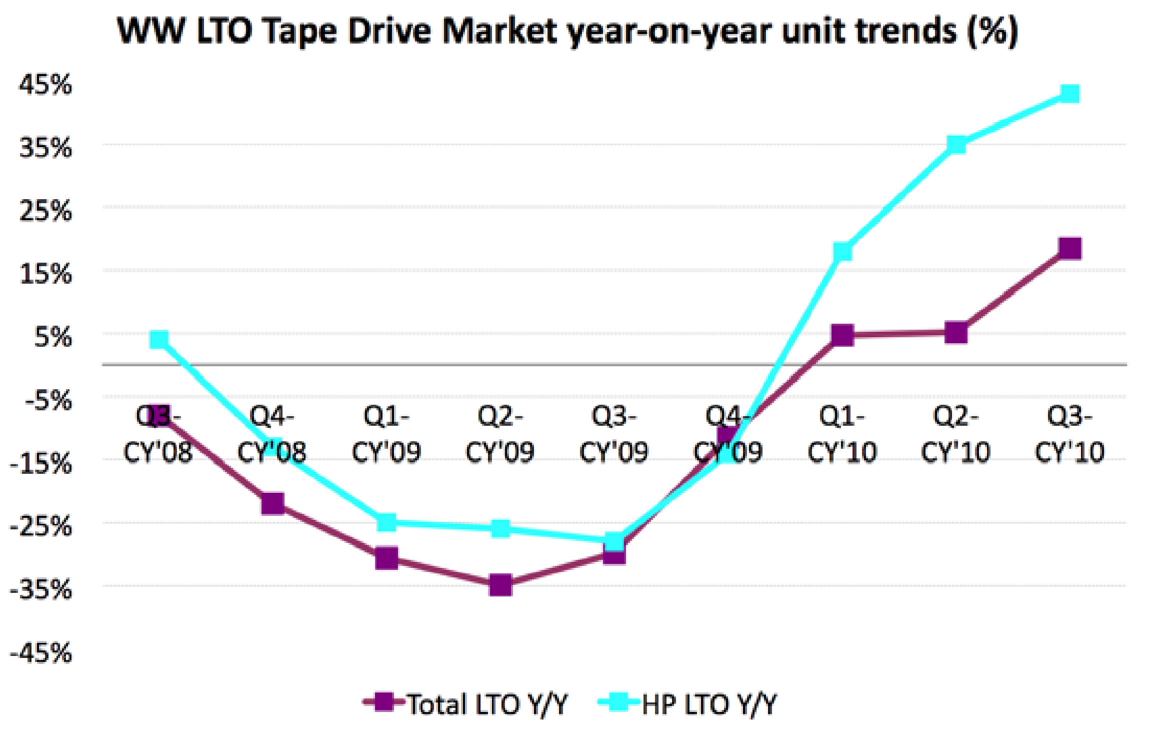
LTO delivers strong shipment performance and reaches new milestones in 2010

Tape market recovery is primarily driven by LTO technology which continues to show momentum, increasing unit volumes by 19% year-on-year between Q3'2009 and Q3'2010 (the third consecutive year-on-year unit growth), and with Q3'CY2010 delivering the highest LTO unit volume quarter since Q4'CY2008.

LTO-4 remains the unit volume sweet spot for the LTO market with 56% of all LTO units shipments in Q3'CY10, and LTO-4 half height (HH) is particularly strong accounting for 33% share of all LTO shipments in Q3'CY10. However, LTO-5 is ramping quickly, already accounting for 18% of total LTO market unit shipments in only its second full quarter of shipping.

[2] http://www.idc.com/about/viewpressrelease.jsp?containerId=prUS22596910&sectionId=null&elementId=null&pageType=SYNOPSIS

This rapid LTO-5 market unit ramp compares favourably with the initial market ramps of LTO-4 and LTO-3, with LTO-4 accounting for 13% of all LTO market unit shipments in its second full quarter of shipments (Q3 CY07), and with LTO-3 representing 11% of all LTO market unit shipments in its second full quarter of market unit shipments (Q1 CY05). One contributory factor to LTO-5's faster ramp as a percentage of the total market relates to the fact the LTO-5 full height (FH) and LTO-5 HH were launched concurrently, whereas with LTO-4 and LTO-3 the half height product market introduction lagged the full height product market introduction (by a few quarters in the case of LTO-4 and around 24 months in the case of LTO-3).



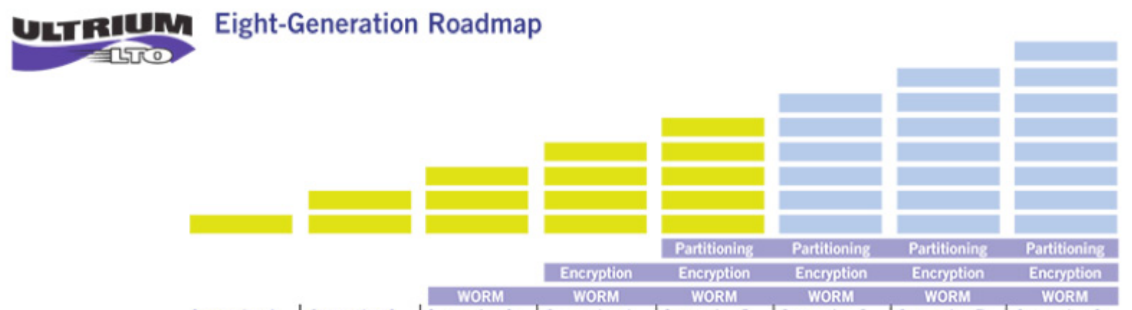
In the last ten years, more than 3.5 million LTO Ultrium drives have shipped worldwide, according to IDC[3]; that's the equivalent of one LTO Ultrium drive shipping every ninety seconds. Additionally, there have been over 150 million LTO cartridge shipments, according to Santa Clara Consulting, helping to establish the LTO Ultrium format as a highly dependable and reliable data protection technology.

Roadmap extended through eight generations

In April 2010, the LTO Program Technology Provider Companies announced the extension of the LTO Ultrium roadmap with new product generations: LTO-7 and LTO-8. The new product generations show native capacities of up to 12.8TB for LTO-8 or 32TBs with enhanced data compression functionality. The new roadmap also indicates that LTO data transfer rates are anticipated to increase by 50% with each new generation, delivering up to 4.2TB per hour compressed transfer rates for LTO-8.

The new roadmap signals that key Storage Vendors, including HP, intend to continue to invest in the open standard LTO tape technology and product development aligned with ongoing market needs.

[3] Source: IDC Worldwide Tape QView, June 2010

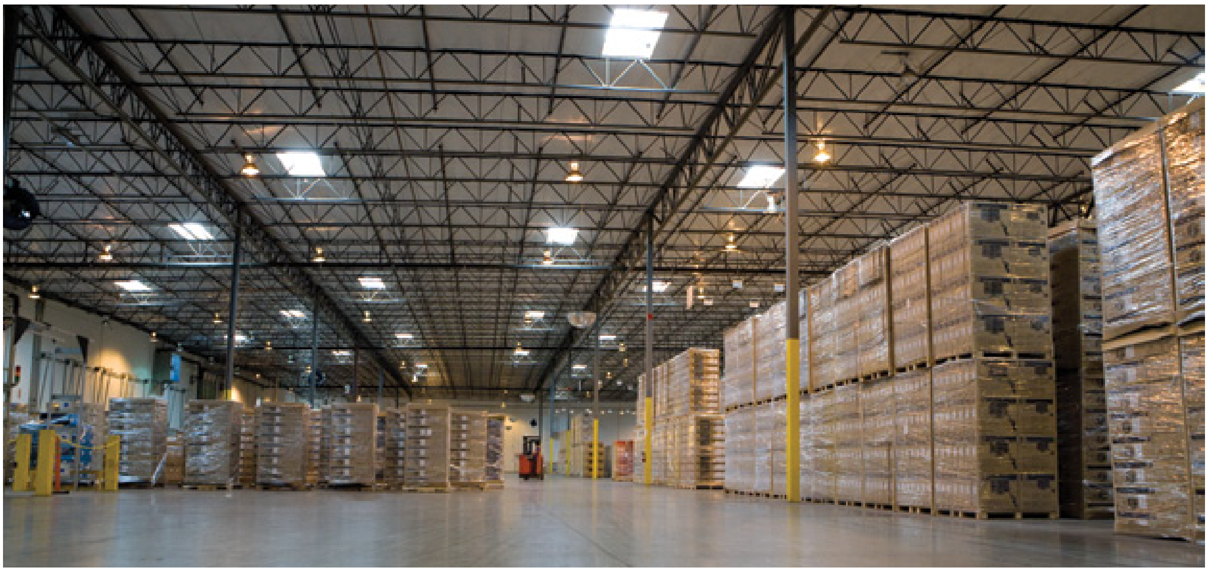


	Generation 1	Generation 2	Generation 3	Generation 4	Generation 5	Generation 6	Generation 7	Generation 8
			WORM	WORM Encryption	WORM Encryption Partitioning	WORM Encryption Partitioning	WORM Encryption Partitioning	WORM Encryption Partitioning
Compressed Capacity	200 GB	400 GB	800 GB	1.6 TB	3 TB	8 TB	16 TB	32 TB
Native Capacity	100 GB	200 GB	400 GB	800 GB	1.5 TB	3.2 TB	6.4 TB	12.8 TB
Compressed Data Rate	up to 40 MB/s	up to 80 MB/s	up to 160 MB/s	up to 240 MB/s	up to 280 MB/s	up to 525 MB/s	up to 788 MB/s	up to 1180 MB/s
Native Data Rate	up to 20 MB/s	up to 40 MB/s	up to 80 MB/s	up to 120 MB/s	up to 140 MB/s	up to 210 MB/s	up to 315 MB/s	up to 472 MB/s

Note: Compressed capacities for generations 1-5 assume 2:1 compression. Compressed capacities for generations 6-8 assume 2.5:1 compression (achieved with larger compression history buffer).
Source: The LTO Program. The LTO Ultrium roadmap is subject to change without notice and represents goals and objectives only.

Continued innovation – LTO-5 and LTFS

While much is made of disk-based technology advances, tape technology has also continued to evolve over the last decade to enhance reliability, data security and ease of use. Now with the introduction of LTO-5 tape drives in March 2010 which feature the Linear Tape File System (LTFS), all misconceptions about tape can be put to rest. LTO-5 with LTFS delivers a new class of portable storage media which is based on open standards, offers the economy, robustness, high density and low power of tape, with much of the functionality and usability of a hard drive. More on HP LTFS later in this newsletter.



DAT Shipments Stabilize with DAT160

With a proven track record of over 20 years, and an impressive installed base estimated to be around 1.5million drives[4], DAT technology has long been the tape data protection solution of choice for the low-end server market, and accounted for 97% unit share of the low-end tape market in Q3'2010. During 2010, overall DDS/DAT unit shipment declines stabilized as DAT160 drive shipments boosted volumes. DAT160 shipments grew 33% year-on-year between Q3'CY09 and Q3'CY10. DAT 160's significant ramp is underlined by the fact that Q3 CY'10 represented the fourth consecutive quarter of year-on-year double digit growth for this sixth generation DDS/DAT drive. DAT 160 now holds 42% of overall DAT unit volumes. However, DAT72 remains the market sweet-spot with 49% unit share in Q3 CY10.

[4] Source: SCCG Tape Drive and Media Tracker Q4'09 (published April 2010)

HP Tape in 2010

As the leading manufacturer of the most popular tape technologies; DDS/DAT and LTO Ultrium, HP has also maintained a long-term leadership position in the tape drive market as a whole. According to IDC, at the end of calendar Q3 2010:

- #1 HP leads the world wide tape drive market with 67% unit share of the market in Q3 CY2010
- #1 HP has been leading the worldwide tape market in units shipments for 29 consecutive quarters
- #1 HP increased overall world-wide tape drive factory exit unit share leadership by 13.7 percentage points year-on-year, and 4.2 percentage points quarter on quarter to Q3 CY2010
- #1 HP is the number one LTO Ultrium drive manufacturer accounting for 62% of all shipments
- #1 HP ships more LTO Ultrium half-height drives than any other manufacturer
- #1 HP leads the DDS/DAT tape drive manufacturer market accounting for 96% of all shipments

HP remains the number one LTO drive manufacturer with 62% unit share, growing LTO unit volume by 43% year-on-year, and increasing unit market share by 10.5 percentage point's year-on-year. This gain in market share has been predominantly driven by LTO-4 HH and LTO-5 HH share increases. HP also increased its DDS/DAT market unit share leadership to 96%, growing unit share by 4.1 percentage points quarter-on-quarter, and 15.1 points of unit share year-on-year due to DAT160 and DAT320 volume share gains.

Industry analysts make positive predictions for the Tape Market in 2011

Explosive data growth continues to drive the demand for cost-effective tape storage. New forms of multi-media data, increasing pressure for high data availability, longer retention timeframes, regulatory and security requirements, are all contributing to substantial rises in data volumes. With the lowest cost-per-gigabyte of storage, low energy consumption, portability and a long shelf-life, tape remains a crucial component of managing the data lifecycle. According to recent research published by the Enterprise Strategy Group (ESG), 82% of organizations still use tape to support all, or a portion of, onsite backup processes[5].

[5] http://www.enterprisestrategygroup.com/2010/06/tape-remediation-providing-measurable-capital-and-operational-cost-reduction-options

Henry Newman, Enterprise Storage Forum[6] predicts that in 2011:

"declines in tape unit sales will significantly slow - the number of PB of tape shipped will actually increase in 2011 and tape unit sales could exceed 2010 levels."

An IDC Report on Storage Predictions for 2011[7] states that:

"Tape will become once again a topic of conversations as volumes of data to be stored for long-term archiving will drive users to leverage tape as a less expensive alternative to disk for infrequently accessed data."

Greg Schulz of StorageIO[8] predicts that in 2011:

"Tape...is being enhanced, purchased and utilized at higher rates with more data stored than in past history. Instead of being killed off by the disk drive, tape is being kept around for both traditional uses as well as taking on new roles where it is best suited such as long term or bulk off-line storage of data in ultra dense and energy efficient not to mention economical manners."

George Crump, Network Computing[9] suggests that:

"Tape is back, it never really left, and I believe it may be time for it to thrive...LTO-5 adds some capabilities that will lead to this being a great decade for tape"

[6] http://www.enterprisestorageforum.com/article.php/3917876/Top-10-Storage-Predictions-for-2011-and-Beyond.htm
[7] http://www.idc.com/research/viewdocsynopsis.jsp?containerId=226404&sectionId=null&elementId=null&pageType=SYNOPSIS
[8] http://storageio.com/blog/?p=1060
[9] http://www.networkcomputing.com/tapes-and-disks/tape-is-back-when-did-it-leave.php

HP LTO-5 with LTFS – innovation that opens a new world for tape

The December 2010 edition of this newsletter focussed on the new and exciting HP Linear Tape File System (LTFS) available with HP LTO-5 drives. This introduction has captured the imagination of many customers, vendors and analysts in the storage industry. LTFS not only delivers a very simple way for users to access the directories and files stored on their LTO-5 tapes through the standard and familiar tools available on their system (such as file explorer, open menus etc.), it also provides a platform for easier interchange of media without requiring any specialised ISV applications. Tapes can be easily interchanged between systems, reducing the complexity of data management and improving business response times.

While the characteristics of LTFS may be beneficial to a wide range of applications, it is particularly relevant to the media and entertainment industry where it can help to provide cost-effective, easy to use file archiving solutions. This is evidenced by the recent LTFS development announcement by Cache A and HP.

In January 2011, Cache-A Corporation, a leading supplier of network-attached archive appliances for the digital film, broadcast and video professionals, announced collaboration with HP to develop an easy-to use implementation of LTFS (Linear Tape File System) for the professional media and entertainment industries.

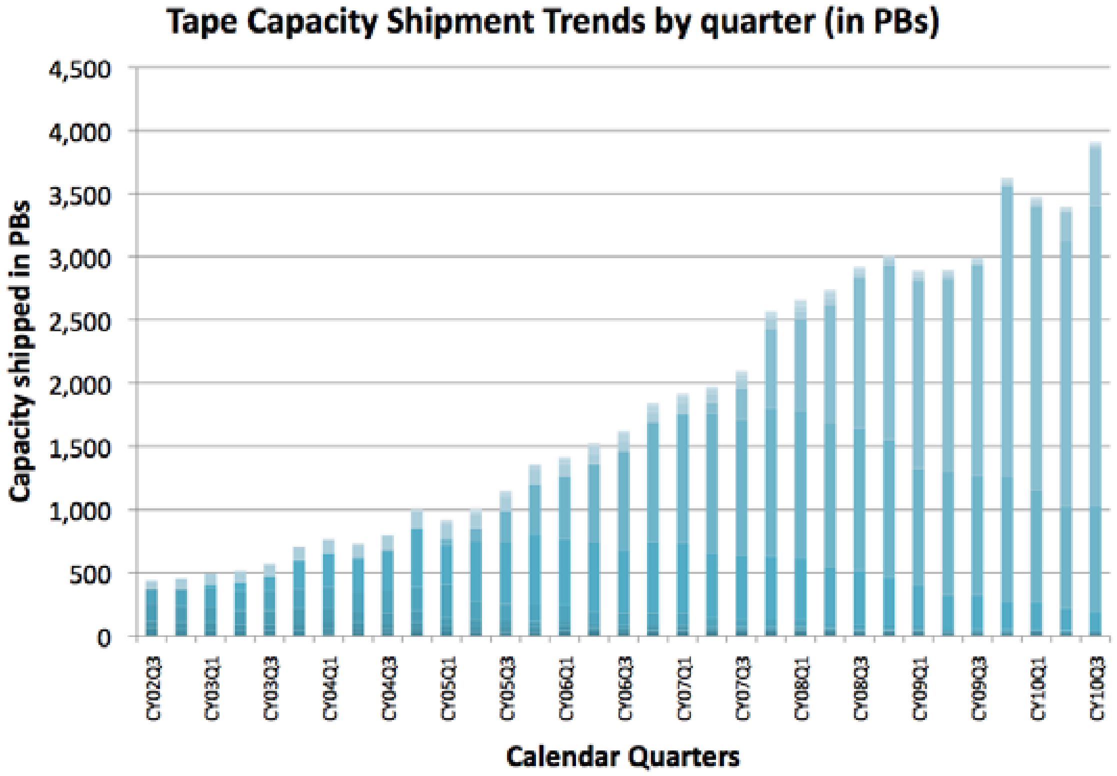
When Cache-A and HP complete the integration of LTFS into the Cache-A archive appliance, customers will benefit from a seamless file management that is critical to managing a secure archive where quick accessibility is key. Cache-A appliance customers previously used the mature 'tar format', and will now have the choice of either continuing with tar or using LTFS going forward, without any additional cost. LTFS provides application independence, transportability and protection from obsolescence.

In addition to these LTFS benefits, Cache-A archive appliances provide:

- Network archiving serving multiple users anywhere on a network
- Cross platform Mac/PC/Unix/Linux access from a single networked appliance
- Database of every file on every cartridge making it easy to find content
- Drag and drop operations including restores from database searches
- Extending LTFS into an automated robotic library appliance

For more information visit: www.cache-a.com or www.hp.com/go/ltfs

Spotlight on Tape Media



The Santa Clara Consulting Group (SCCG) has released a quarterly update to their Worldwide Tape Media Tracker, citing unit shipment/ revenue/market share figures for the 3rd calendar quarter of 2010 (3Q10). The results provide a positive proof point for the ongoing robustness of tape market demand with total tape storage media shipments reaching a record level of almost 4,000 Petabytes (3,905 Petabytes to be exact) for the quarter, a capacity shipped growth of 15% quarter on quarter (Q/Q) and 30% year on year (Y/Y). This compares to 4,299 Petabytes of total external disk storage capacity shipping in Q3 CY'10 (according to IDC). A high percentage of the tape media capacity shipment growth was driven by LTO-4 media capacity shipped (up 13% Q/Q and up 23% Y/Y) and LTO-5 media capacity shipped (up 23% Q/Q).

In the third quarter of 2010, tape media sales amounted to almost $203 million in revenue, a figure which is expected to increase slightly to $205 million in Q4 CY2010, according to SCCG. LTO media shipments remain strong at 6.2 million units; an increase of 13% year-on-year between Q3CY09 and Q3CY10. LTO media shipments accounted for 86.1% of total media shipments in Q3 with volumes up in generations 3, 4 and 5. Media shipments of LTO-5 cartridges increased by over 100% between Q2 and Q3 CY10, to hold a 5% share of unit sales and 15% of dollar revenue. LTO-4 also increased shipments by 13% to hold 48% of unit volumes and 46% of dollars.

HP continues to lead the branded LTO media market with a 32% share of overall unit volumes in Q3 CY2010.

Introducing real time tracking for HP LTO Cartridge Tapes in transit

When a data cartridge goes missing, it can be very costly for a business, regardless of its size. A recent £2.3 million fine for a large insurance company in the UK shows that regulators come down very hard on organisations that have lost tapes in transit, potentially releasing personal or high security information into the public domain. While not all data losses will land the organization in court, they will hit performance, profit, brand and customer confidence.

The solution that many enterprises are turning to is Radio Frequency Identification (RFID), and HP storage media can now be an integral part of an RFID solution.

New HP LTO Ultrium RFID Labeled media is a breakthrough technology for tracking, auditing and security of HP Data Cartridges. HP RFID enables organizations to track data assets in real time, anywhere in the world, radically reducing the risk of data loss and theft and protecting customers with a fast, fully compliant and globally compatible tracking system.

Utilizing wireless technology, organizations can now monitor their cartridges as they leave organizational boundaries. As cartridges come and go in the vault, they can be rapidly identified and recorded. Instead of laboriously scanning each cartridge individually, an entire 20-cartridge carton may be scanned in under two seconds, at a range of up six feet. Plus, unlike barcode labels, RFID Labels can be written to as well as read: the label on the cartridge may be continually updated to identify the data inside.

HP RFID label cartridges are tested to extremes, so customers can rely on its accuracy to know the instant a cartridge is moved within the organization. HP RFID cartridges can prevent a minor incident becoming a major disaster.

For more information, visit www.hp.com/go/storagemedia