

# Quantum Invents Video Content Aware Tape

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**Abstract:** The Quantum SDLT 600A with DLTxchange tucks a processor and a brilliant bit of software into a standard tape drive package so that professional video developers can access video clips on data tape over Ethernet.

## Tape Optimized for the Professional Video Developer

The SDLT 600A with DLTxchange is a revolutionary new product which leverages the field proven performance, reliability and cost effective capacity of Quantum SDLT tape drives. Instead of accessing tape as a series of blocks over SCSI or Fibre Channel, professional video developers can now access video content by time code over Ethernet. This is a radical new invention which optimizes and simplifies the way that professional video is processed, distributed, archived and re-purposed.

To illustrate the significance of this new technology, consider the process I used recently to edit a vacation video. I shot about an hour of footage on a hand held recorder. To create an edited version I used a process similar to that used by professionals – I transferred the entire hour of video to my hard drive and then used editing software to cut and paste scenes and add effects. Imagine if I could have plugged the camcorder directly into an Ethernet port on my home network. Then imagine if I could select and access scenes by time code using a browser. Time wasted waiting for the entire video to be transferred from tape to hard drive would be eliminated. I'd save disk space and time which ultimately means I am saving money.

Professional video development as performed during broadcast editing and cinema post-production is a multi-stage process that is much more involved than the process I use at home. Many steps are involved as content moves through a workflow process from raw footage, through post-production, distribution, archival and content re-purposing. Tape has played a key role in that process for years. Professionals at each stage in the workflow historically begin by downloading scenes from tape to disk where it can be processed using software running on a workstation. Some time later, scenes are copied back from disk to tape to travel by hand to the next stage in workflow. A flurry of standardization efforts and technology advances has occurred in the past few years to improve the efficiency of this process.

One of the most significant technology advances to occur in professional video development has been fueled by the availability of affordable high capacity disk arrays. With a goal of reducing the steps in the video workflow process, vanguards are moving the entire process to network attached shared disk. The goals of processing video on network attached disk are obvious: increased productivity and faster post-production turnaround.

Even as massive amounts of video content migrate to network attached disk, tape continues to have a strategic role in the post-production workflow. The affordability and portability of tape make it the media of choice for professional video distribution, off-site archival and disaster avoidance. Even with the price gap narrowing between disk and tape in the past few years, raw tape capacity continues to cost as little as 1/10<sup>th</sup> that of RAID protected disk. This cost differential is magnified in the video development world where multiple copies of the same or similar content are common, and a push towards high definition standards is driving exponential capacity growth.

Tape continues to play a key role in the distribution and protection of video assets. The recurring costs of WAN bandwidth make it cost prohibitive for most organizations to consider a network as a means to distribute video content. Similarly, making copies of video content over a WAN for doomsday scenario planning can get very expensive very quickly. Tape on the other hand can be used to affordably distribute and replicate video content using a truck or a plane instead of a WAN. The Quantum 600A with DLTxchange is unique in its ability to deliver the benefits of shared network access (like network attached disk) with the economics and portability of tape.

## **The Technology**

The SDLT 600A adds a microprocessor to the field proven SDLT 600 tape drive with 300 GB of capacity per cartridge. A single SDLT tape can hold more than six hours of 100 Mb/s high definition content, or more than 30 hours of standard definition content. With a native sustained transfer rate of 36 MB/sec, the SDLT 600 is more than fast enough to transfer high definition content in real time.

DLTexchange software running within the SDLT 600A provides access to video content using the Material Exchange Format (MXF) standard. MXF is a widely deployed standard which is used to wrap video and audio and its associated metadata. MXF is compression, network and operating system independent. MXF standard video content residing on an SDLT600A is accessed over Gigabit Ethernet as a directly mountable file system using the FTP protocol. Partial file transfers are supported through Windows Explorer or a standard browser using a Quantum Java applet. For the storage savvy reader, the SDLT 600A with DLTexchange can be summed up as a tape drive with a built in network attached file system that is optimized for professional video processing, distribution, and archival.

## **Content Aware Tape**

Disk and tape drives use the SCSI protocol to handle blocks of data. Dealing only in low level blocks of data, a SCSI drive has no knowledge of what those blocks of data mean. The data could be an Email, a database table, an MP3 file or a video. DLTexchange software running on a processor packaged with an SDLT 600A tape drive makes it not only aware that blocks stored on the tape are a video, but also adds metadata (e.g. scene names and time codes) using the MXF standard. Storing metadata with data makes a storage system "content aware". In this context "content aware" actually comes from the ability to parse the header, access the metadata, and communicate or use it such as in the case of access and partial restore by time code. Storing metadata with data makes this possible.

Network attached content aware storage which is rich in metadata is easier to access, share and search than block based storage. This concept of content aware storage, has taken off in the disk array market recently with the availability of large capacity disk based archival systems like the EMC Centera. Just as compliance enabling applications have been shown to benefit from content aware disk based systems, DLTexchange brings the benefits of content aware storage to the professional video market. ESG is unaware of any other tape drive with this level of content awareness and application level integration.

## **The Bottom Line**

The SDLT 600A with DLTexchange uses the MXF industry standard and innovative technology to reduce the time and costs associated with professional video processing and protection. The Enterprise Strategy Group is impressed not only by the elegant simplicity and cost effectiveness of this technology (why didn't anyone think of this before?), but also by Quantum's solution focused product development and go to market strategy.

Quantum has a set of new challenges ahead as this technology is brought to market. Quantum sells products today through OEMS and value added resellers. This product is a solution sell which includes specialized high level software. An indirect solutions sell requires more education and training than the sale of a raw piece of hardware. In addition, this technology will have to compete with commodity disk arrays, scalable network attached disk arrays and disk based backup systems. Quantum will need to invest heavily to show how this technology can work alongside growing farms of hard disk drives to cost effectively compliment existing processes.

This product, which to date has only been pre-announced and is not yet generally available, has already garnered a lot of attention in the professional video market. At the 2005 National Association of Broadcasters (NAB) convention in Las Vegas it was awarded the "Editor's Pick of Show NAB 2005" by Digital TV Magazine and the "Government Video Salute Award" from Government Video Magazine. ESG is impressed not only by the ingenuity and usefulness of this technology in the professional video market, but also by the possibilities that this technology offers for the broader near-line and off-line storage archival markets. Content aware tape drives that know what is stored on them could be used to optimize workflow and speed up searches of all sorts of digital archives. Content aware storage systems that today support only spinning hard disk drives could be optimized to include the support a second tier of removable content aware tape. ESG looks forward to a future rich in content aware tape solutions from Quantum, a trusted supplier of near-line and off-line storage solutions.