2007
Digital Storage for Entertainment Content Creation and Distribution Report

-- Digital Storage and the Creation, Editing, Archiving and Distribution of Entertainment Content --

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Acknowledgements

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Executive Summary

This report is the sixth annual report on data storage and emerging applications and the fourth annual report on data storage and the entertainment market. This is the second year we have created a separate report focusing on digital storage and content creation and distribution.

Data storage is a key element in the digital transformation of content creation, editing, distribution and reception. Data capacity increases, form factors, lowered product prices and growing familiarity with digital editing and distribution are key components in the continued growth and development of entertainment. Because of the large file sizes required for high resolution images there is increasing demand for high capacity storage devices. The entire content value chain of content creation, editing, archiving, distribution as well as consumer electronics content reception devices provide an overall accelerating feed-forward mechanism. This drives growth in data storage for entertainment content applications.

For many archiving and distribution applications where content is relatively static low cost/high capacity ATA storage, holographic optical disks and tape-based storage libraries will predominate. New optical technology, such as advanced Blue Laser DVD technology and now holography will be used for archiving as well as content distribution.

Access density requirements and increasing volumetric density requirements for storage systems used for content creation, editing, archiving and distribution drives the use of smaller form factor storage devices in this market. It may also open up additional requirements for the various elements in the high end storage hierarchy.

We list some key points of the report in the following list.

Key Points

- Creation & Conversion of video content is a huge demand driver for storage device manufacturers
- As image resolution increases storage requirements explode.
- The development of HD TV and other high resolution venues in the home and in mobile devices will drive the demand for digital content
- Between 2005 and 2012 we expect a 10X increase in the required digital storage capacity and over 8X growth in storage capacity shipments per year (from 259,406 TB to 2,287,547 TB).
- About 54% of the total storage capacity will be used for content archiving and preservation in 2006. We believe that this will increase to 72% of total capacity by 2012.
• In 2006 we estimate that 72% of the total storage media shipped for all the digital entertainment content segments was tape with about 15% optical, about 10% hard disk drives and 3.4% flash memory (mostly in some digital cameras).
• By 2012 tape units should decrease to about 28%, optical increase to about 30%, hard disk drives increase to 35% and flash doubling to 7.4%.
• The conversion from real-time (analog) to packet-based (digital LAN) broadcasting has increased significantly.
• The single biggest application for digital storage in the next several years as well as one of the most challenging is the conversion from film and other analog formats to digital content
• The creation of content retrievable databases make new distribution models possible
• Adoption of digital cinema is proceeding apace with new DCI standards
• There is a pressing need to develop policies and procedures for format conversion to combat format obsolescence
• Up to 1,600 Terabytes may be required for a complete digital movie production at 4K resolution
• Non-linear editing requires high performance disk drives and increasing amounts of network storage.
• ATA HDD arrays are becoming the dominant mode for fixed content storage.
• Magnetic tape will remain as an archival media although use in other applications will lessen
• Hard disk drives for “archival” applications will begin to gain some momentum
• Digital cameras using optical media, flash memory, and hard disk drives will gain momentum over traditional video tape
• Increasing demand and profitability are resulting in capacity increases and capital equipment spending by storage and component companies.
• Digital Theater projection uses new projection technology and inexpensive fixed content storage.

The data presented in this report is subject to change as the content storage market develops. We have additional information that we have gathered in addition to that included in this published report. We will continue to monitor and develop our models of this market as time goes on. We would be glad to work with customers on specialized presentations or reports and in general to conduct research to answer specific questions on a project or ongoing basis.
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