



2010 Digital Storage for Media and Entertainment Report

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



Thomas
Coughlin

Coughlin
Associates

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Acknowledgements

This report is the result of extensive interviews with many people and companies from throughout the entertainment content value chain including storage component and systems companies as well as companies that incorporate storage into their content creation applications. The list of companies contacted is extensive and the data we gathered over several months is pretty comprehensive, not all of it is included in this report. Our thinking and projections were shaped by many inputs. In particular we would like to thank the following companies and organizations for their help and information: ABC News, Avid Technologies, BlueArc, Chan and Associates, Inc., DataDirect Networks, Discovery Channel, Dolby, Edit Chair, EFILM, ESPN, Exavio, Facilis, Fox, Front Porch Video, IBM Media and Entertainment Division, Imation, IMT, Isilon, Maximum Throughput, Mediakive, NASCAR, NBC Universal, NetApp, Ocarina Networks, Omneon, Panasonic, Paramount, Plastercity Digital Post, Qlogic, Quantum, Rourke Data, SeaChange, Seagate Technology, SGI, Sony, SpectraLogic, Sun/Oracle, Turner Broadcast, Technicolor, Versus, Warner Bros.

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Executive Summary

This report is the eighth report on data storage and emerging applications and the sixth report on data storage and the entertainment and media market published by Coughlin Associates.

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 the growing familiarity with digital editing, digital intermediates and various forms of digital distribution are key components in the continued growth and development of entertainment. Because of the large file sizes required for high resolution and stereoscopic images there is increasing demand for high capacity storage devices to support the resulting large video files. 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, optical disks and tape-based storage libraries will predominate. Hard disk drives are also used in high performance storage applications where storage costs must be combined with performance enhancement.

For applications requiring rugged field use or fast playback response flash memory either as cards or solid state drives (SSDs) are becoming more popular.

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

Key Points

- Creation, Distribution & Conversion of video content creates a huge demand driver for storage device manufacturers
- As image resolution increases and as stereoscopic video becomes more common, 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 2009 and 2015 we expect the media and entertainment industry will see about a 10X increase in the required digital storage capacity and about a 12X growth in storage capacity shipments per year (from 4,094 PB to 47,291 PB)
- Total revenue for media and entertainment storage systems will increase about 2.1X from 2009 through 2015 (\$3.0 B to \$6.2 B)
- About 93% of the total storage capacity will be used for content archiving and preservation in 2009. We believe that this will increase to 96% of total capacity by 2015 due to more efficient and cost

effective conversion services, lower overall storage costs and a greater ROI on long tail content

- In 2009 we estimate that about 86% of the total storage media shipped for all the digital entertainment content segments was tape with about 10% HDD, 4% optical and 0.3% flash memory (mostly in digital cameras and some media distribution servers)
- By 2015 tape units will decline slightly to 83%, HDDs increase to about 14%, optical decline to 2% and flash doubling in percentage to 0.6%
- Total revenue for storage media will increase about 4X from 2009 through 2015 (\$415 M to \$1,642 M)
- Total shipped storage media capacity will increase about 12X from 2009 through 2015 (4,094 PB to 47,291 PB)
- The single biggest application (by storage capacity) for digital storage in the next several years as well as one of the most challenging is the digital conversion of film, video tape and other analog formats
- Over 46 Exabytes of digital storage will be used for digital archiving and content conversion and preservation by 2015
- Content distribution systems are driving the growth of network and direct attached/local storage
- Digital cinema is experiencing considerable growth and this growth will be aided by 3D content
- There is a pressing need to develop policies and procedures for format conversion to combat format obsolescence
- More than 1,600 Terabytes may be required for a complete digital movie production at 4K resolution and there is some production work as high as 8K as well as growing stereoscopic production to support 3D content delivery
- Non-linear editing requires high performance storage devices. Over the forecast period lower network storage costs and higher performing low cost storage networks will result in faster growth of network storage than direct attached and local storage during the forecast period.
- ATA HDD arrays are becoming the dominant mode for readily retrievable fixed content storage.
- Magnetic tape will remain as an archival media although use in other applications will lessen, particularly content capture
- Hard disk drives for “active archival” applications will begin to gain some momentum, many of these solutions may include energy saving features such as MAID
- Digital cameras using optical media, flash memory, and hard disk drives will gain momentum over traditional video tape
- After recovering from the recession of late 2008 and the first half of 2009, increasing demand and profitability are resulting in capacity increases and capital equipment spending by storage and component companies

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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.

2010 DIGITAL STORAGE FOR MEDIA AND ENTERTAINMENT REPORT

This updated and expanded report is the sixth annual comprehensive reference document on this topic. The report analyzes requirements and trends in worldwide data storage for entertainment content acquisition; editing; archiving and digital preservation; as well as digital cinema; broadcast; satellite; cable; network; internet and VOD distribution. Capacity and performance trends as well as media projections are made for each of the various market segments. Industry storage capacity and revenue projections include direct attached storage, on-line as well as near-line network storage.

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