2013 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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www.tomcoughlin.com

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Acknowledgements

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The Author

Tom Coughlin, President, Coughlin Associates has been working for over 30 years in the data storage industry at companies such as Ampex, Polaroid, Seagate, Maxtor, Micropolis, Syquest, 3M and other companies. He has over 60 publications and 6 patents to his credit. Tom is active with IDEMA, the IEEE Magnetics Society, IEEE Consumer Electronics Society, SNIA, SMPTE and other professional organizations. He is the
founder and organizer of the Annual Storage Visions Conference (before the International CES) as well as the Creative Storage Conference. He is also the general chairman of the Flash Memory Summit. Coughlin Associates provides market and technology analysis, technical reports and white papers, as well as Data Storage Technical Consulting services. For more information go to www.tomcoughlin.com.

Executive Summary

This report is the eleventh report on data storage and emerging applications and the ninth 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 and communication speed 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. The entire content value chain of content creation, editing, archiving, distribution as well as consumer electronics content reception devices provide an accelerating feed-forward mechanism. This drives growth in data storage for all entertainment content applications.

For many archiving and distribution applications where content is relatively static low cost/high capacity SATA HDD storage, optical discs and tape-based storage libraries will predominate. Hard disk drives as well as enterprise SSDs are also used in high performance storage applications where storage cost factors must be combined with performance requirements.

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

Due to input form from industry groups, SMPTE (and other media and entertainment workers) survey results and discussions with industry end users and equipment providers we have adjusted some of our models for future growth. Data back to 2012 is shown in this report to help past report clients in interpreting the new data. Some areas have gained in capacity and revenue while some have declined vs. earlier editions of this report.

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 and systems manufacturers
- As image resolution increases and as stereoscopic (and even more immersive) video becomes more common, storage requirements explode
- The development of 4K TV and other high resolution venues in the home and in mobile devices will drive the demand for digital content (especially enabled by high HEVC (H.265) compression.
- The slow down in areal density growth for HDDs will slow the historical $/GB decline until at least 2016.
- Activity to create capture and display devices for 8K X 4K content is occurring with planned implementation in common media systems by the next decade
- Active archiving will drive increased use of HDD storage for “archiving” applications, supplementing tape for long term archives
- Flash memory dominates cameras and will find wider use in content distribution systems
- From 2013 to 2018 entertainment and media digital storage TAM (without archiving and preservation) will increase by about 2.5X (from $2.5 B to $6.2 B).
- Between 2013 and 2018 media and entertainment storage revenue growth is expected to grow 90% (from $6.2 B to $11.9 B).
- In 2013 archiving and preservation is estimated to have been 59% of the total storage revenue followed by post production (20%), content distribution (17%), and content acquisition (4%).
- In 2018 the projected revenue distribution is 48% archiving and preservation, 26% post-production, 23% content distribution, and 3% content acquisition.
- Between 2013 and 2018 we expect about a 5.8 X increase in the required digital storage capacity used in the entertainment industry and about a 3.8 X increase in storage capacity shipped per year (from 26,756 PB to 102,661 PB).
- The greatest storage capacity demand in 2013 is for digital conversion and preservation as well as archiving of new content (about 98%). Content distribution follows in size with acquisition and post-production using less storage.
- By 2018 we expect 61% of archived content to be in near-line storage, up from 43% in 2013.
- In 2013 we estimate that 43.9% of the total storage media capacity shipped for all the digital entertainment content segments was in HDDs with digital tape at 42.3%, 13.6% optical discs and flash at 0.3%.
- By 2018 tape has been reduced to 37.1%, HDDs shipped capacity is 60.9%, optical disc capacity is down to about 1.6% and flash capacity percentage is still at 0.3% in 2018.
• Media revenue is expected to increase about 20% from 2013 to 2018 ($741 M to $892 M).
• 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 99 Exabytes of digital storage will be used for digital archiving and content conversion and preservation by 2018.
• Content distribution and post-production will drive the growth of network and direct attached/local storage in the projection period.
• Storage in remote “clouds” is beginning to play an important role in enabling collaborative workflows.
• Digital cinema is experiencing considerable growth, driven by the popularity of 3D content and the move to 4K display.
• Silver halide film as a content distribution media will vanish before the end of the decade.
• There is a pressing need to develop policies and procedures for format conversion to combat format obsolescence.
• Several petabytes of storage may be required for a complete stereoscopic digital movie production at 4K resolution and there is some production work as high as 8K.
• 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.
• 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 is in decline, particularly content capture.
• Flash memory appears to be reaching tipping point in professional video cameras with survey results showing about 59% utilization in 2013 (growing from 2009, 2010 and 2012 survey results).
• The continued need to storage for higher performance and high capacity workflows are driving strong storage growth in the projection periods—assuming no great negative economic trends.

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.
2013 DIGITAL STORAGE FOR MEDIA AND ENTERTAINMENT REPORT

This updated and expanded report is the ninth 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, cloud, real time as well as near-line network storage.

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