2011 Digital Storage for Media and Entertainment Report

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

Thomas Coughlin

Coughlin Associates

Digital Entertainment Series

Coughlin Associates
408-978-8184
www.tomcoughlin.com

The Digital Storage for Entertainment and Media Report is published by:

Coughlin Associates
9460 Carmel Road
Atascadero, Ca. 93422

Tel (408) 978-8184

www.tomcoughlin.com

Table of Contents

Table of Figures

List of Tables

Acknowledgements

This report is the result of extensive interviews with many people and companies from throughout the entertainment content value chain as well as in-depth analysis of historical trends and future technology drivers. Companies contacted included 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, Active Storage, Amberfin, Aspera, Atempo, ATTO, Avid Technologies, BitCentral BlueArc, Cache-A, DataDirect Networks, CET, Dell, Discovery Channel, Dolby, Edit Share, EFILM, ESPN, Facilis, Fox, Front Porch Video, G-Tech, IBM Media and Entertainment Division, Imation, IMT, Isilon (now part of EMC), LaCie, LTO Consortium, Maximum Throughput, Mediakive, Media Technology Market Partners, NASCAR, NBC Universal, NetApp, Omneon (now part of Harmonic), Panasonic, Paramount, Plastercity Digital Post, Promise Technology, Qlogic, Quantum, Rourke Data, SeaChange, Seagate Technology, SGI, Sony, SpectraLogic, Sun/Oracle, Technicolor, Turner Broadcast, Technicolor, Versus, Warner Bros, Xendata.

Also thanks to the following individuals for their help: Al Kovalik, Brad Giles, Brad Winett, Carl Immediato, Clyde Smith, Colin Dixon, David Baril, David Crosthwalt, David Trumbo, Fred Fourcher, Geoff Stedman, Jim Lindner, Jim Wheeler, Joe Wojdacz, John Morgan, Pete Fasciano (for much discussion on earlier editions), Randall Dark, Rob Kobrin, Ron Tarasoff, Steve Zivanic, Paul Koopman, Scott Rinehart, Steve Canepa, Tom Inglefield, and Wayne Arvidson.

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. 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 ninth report on data storage and emerging applications and the seventh 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 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 as well as enterprise SSDs 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.

Due to input form from industry groups, SMPTE survey results and discussions with industry end users and equipment providers we have adjusted historical model data. Data back to 2008 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 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
- Active archiving will drive increased use of HDD storage for "archiving" applications, supplementing tape for long term archives
- Flash memory will find wider use in cameras and content distribution
- Between 2011 and 2016 we expect the media and entertainment industry will see about a 7.7X increase in the required digital storage capacity and about a 5.6X growth in storage capacity shipments per year (from 11,248 PB to 62,736 PB)
- Total revenue for media and entertainment storage systems will increase about 1.7X from 2011 through 2016 ($3.8 B to $6.4 B)
- About 57% of the total storage capacity will be used for content archiving and preservation in 2011. We believe that this will increase to 60% of total capacity by 2016 due to more efficient and cost effective conversion services, lower overall storage costs and a greater ROI on long tail content
- In 2011 we estimate that about 43.6% of the total storage media shipped for all the digital entertainment content segments was tape with about 39.1% HDD, 17.1% optical and 0.2% flash memory (mostly in digital cameras and some media distribution servers)
- By 2016 tape units will decline to 39.1%, HDDs increase to 60%, optical decline to 0.6% and flash increasing in percentage to 0.3%
- Total revenue for storage media and devices will increase about 1.6X from 2011 through 2016 ($485 M to $760 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 61 Exabytes of digital storage will be used for digital archiving and content conversion and preservation by 2015
- Content distribution systems will drive the growth of network and direct attached/local storage in the projection period.
- Digital cinema is experiencing considerable growth, driven by the popularity of 3D content
- 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
- Digital cameras using optical media, flash memory, and hard disk drives will gain momentum over traditional video tape
- The storage industry experienced some softness in storage demand growth since the 2008 recession but the continued need to storage for higher performance and high capacity workflows are driving strong storage growth in the projection periods.

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.

2011 DIGITAL STORAGE FOR MEDIA AND ENTERTAINMENT REPORT

This updated and expanded report is the seventh 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 cable 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. Available in Spring 2011.

ORDER FORM FOR THE 2011 DIGITAL STORAGE FOR MEDIA AND ENTERTAINMENT REPORT (PDF)

NAME: ______________________________________
TITLE: ______________________________________
COMPANY: ___________________________________
ADDRESS: ___________________________________
CITY: ___________________STATE:_____________
ZIP: ____
TELEPHONE: _________________________________
FAX: ____
E-MAIL: _____________________________________

Company License $7,000

☐ Visa ☐ Mastercard ☐ American Express

Credit Card Number: __________________________
Expiration Date: _____________________________
Signature: __________________________________

Make checks payable to: Coughlin Associates
Mail to 1665 Willowmont Ave., San Jose, CA 95124
Telephone: 408-871-8808 Fax: 866-374-6345
Email: info@tomcoughlin.com