



Welcome to the New Decade!

JANUARY 5 & 6, 2010

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CENTER, LAS VEGAS***

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- Dennis Waid, Storage Industry Analyst
- Troy Winslow, Intel



Special Thanks to:

- Ron Dennison
- Andy Marken
- Dennis Waid
- Tracy Laidlaw
- Denise De Leon
- Ellen Sesma
- Harold Adler and Harriet Ganz
- Fran and Connie Coughlin

Storage Visions Awards

To be given out during the reception Tuesday evening

- Visionary Products Awards
 - Mobile Consumer Electronic Storage
 - Home Consumer Electronics Storage
 - Integrated Home Entertainment
 - Media and Entertainment Systems
 - Media and Entertainment Storage
- Visionary Company Awards
 - Mobile Consumer Electronics
 - Home Consumer Electronics
 - Media and Entertainment
 - Services and Support
- Art of Storage Award

In addition there will be prize drawings for conference attendees at the reception and various other times

Future Conferences

- **Creative Storage 2010**, April 2010 (in conjunction with the NAB Show)
 - Focusing on Digital Storage and its Role in the Creation and Distribution of Entertainment and Personal Content
 - Now soliciting speakers and sponsors
- **Storage Visions 2011**, January 4 & 5, 2011 at the Riviera Hotel Convention Center, Las Vegas, Nevada
 - Our 10th year
 - Now soliciting sponsors



Entertainment Storage Alliance™

- On-going activities to provide resources and a forum for the integration of storage and entertainment
- **www.entertainmentstorage.org**
- Quarterly Updates on Storage and Entertainment (newsletter)
- Discounts on partner reports related to storage, entertainment and consumer electronics
- Discounts on Storage Visions and other ESA programs.

EMBEDDED TECHNOLOGY™ SERIES



Digital Storage in Consumer Electronics

The Essential Guide

Thomas Coughlin



Book
Signings
Scheduled
at Coughlin
Associates
Booth in the
Exhibit Area



STORAGE VISIONS® 2010

Drivers of Consumer Digital Storage

- Ease of content capture/creation\
- Content Sharing
- New methods of creating metadata automatically
- New ways to share and coordinate data around the home.
- Also see new UCSD study

IEEE Spectrum, 10/09



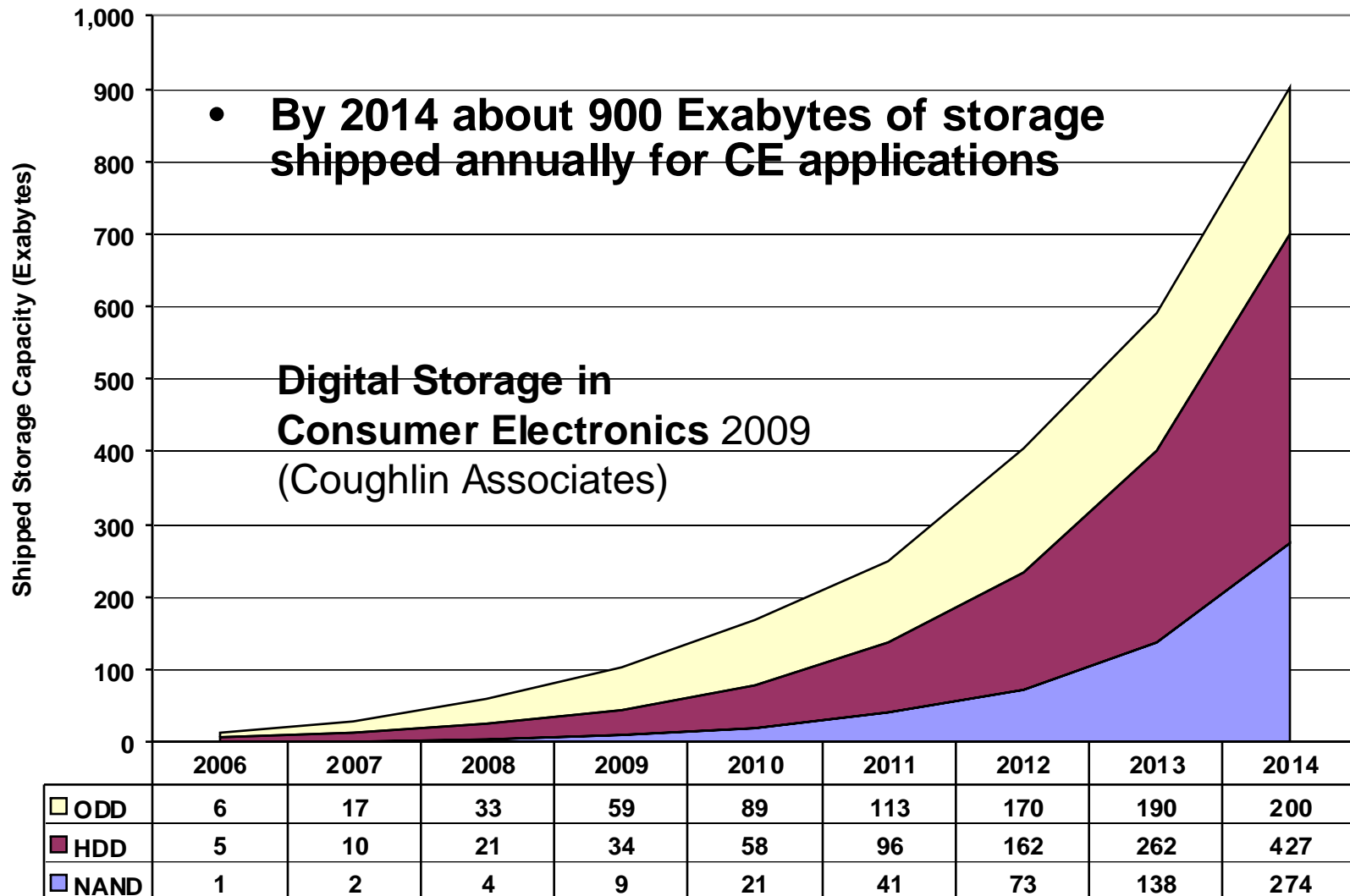
Metadata Layer Model

Meaning Levels	Contextual Layer	
	Semantic Layer	
	Textural Layer	
Basic Data Levels	Operational Layer	
	Dimensional Extent	
	Physiological Filter	Psychological Filter
	Physical Layer	

- We need a consumer metadata standard that obeys 4 criteria:
 - Flexible
 - Scalable
 - Upgradable
 - Simple
- Plus something that can also integrate the professional standards



Exabytes Shipped for Consumer (OPTICAL DISK, HDD AND FLASH MEMORY)



Innovations In Storage



**Micron:
RealSSD**



**Marvell: Plug
Computer**

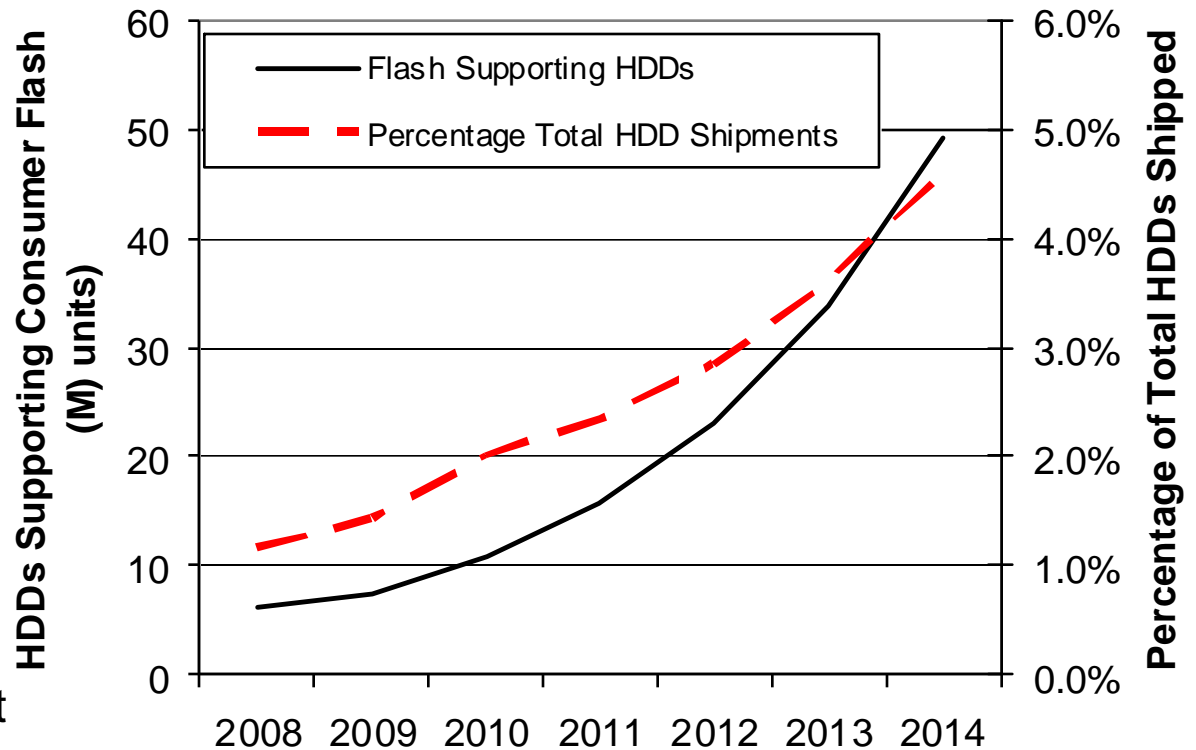
Flash Memory for Content Distribution

- Optical discs are disappearing from laptop computers—content distribution on-line or with flash devices such as USB drives or cards
- Will flash memory displace optical media?



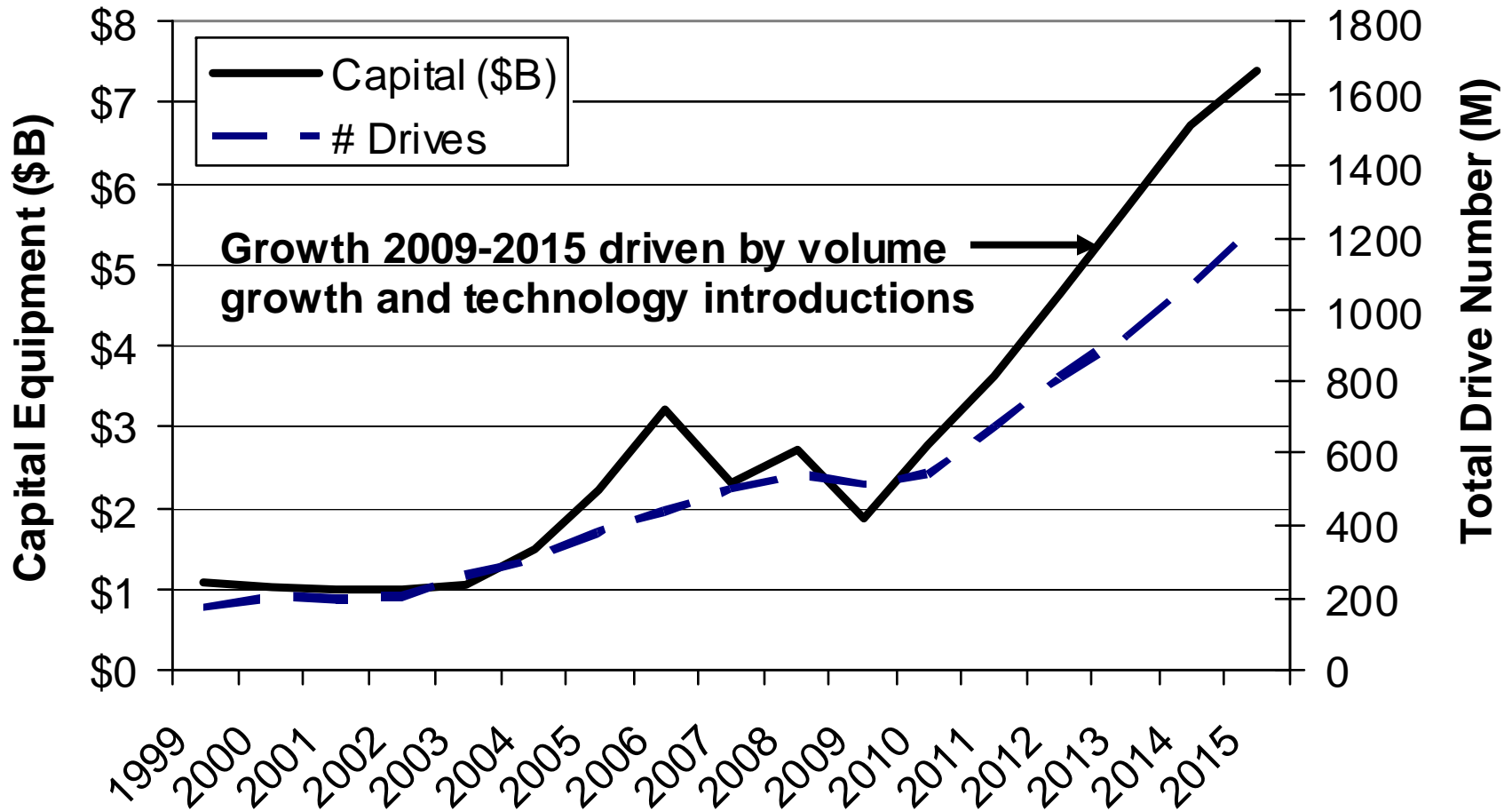
Symbiotic Relationship Flash and HDDS

- Almost all consumer flash applications require HDDs
 - Music and video players
 - Cameras
- Consumer flash applications have created greater demand for HDDs
 - Downloads
 - Uploading photos and videos
 - Backup of Consumer Content



White Paper: Flash and HDD: Symbiosis or Survival of the Fittest? (with Objective Analysis)

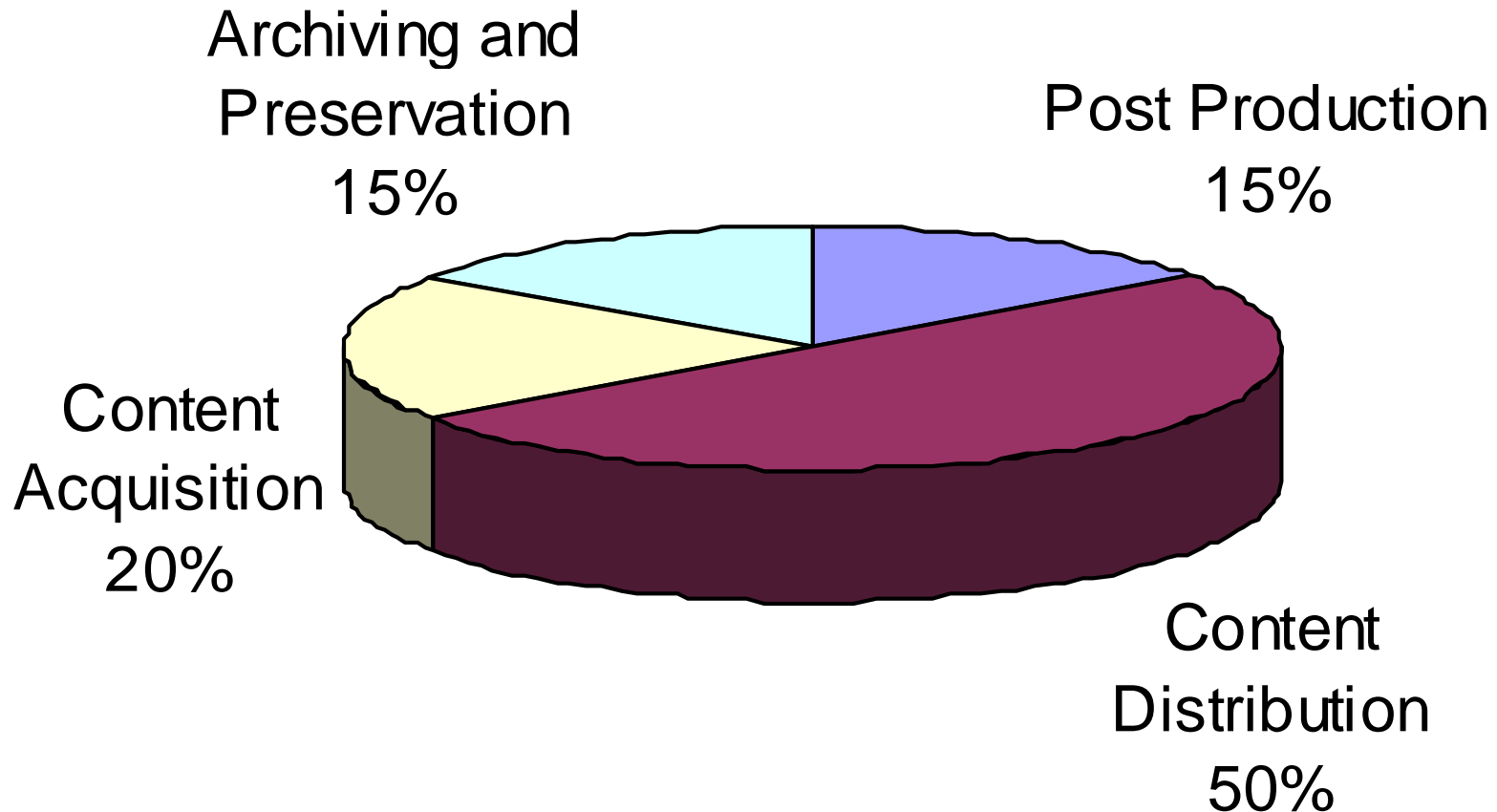
Estimated Capital Equipment Spending per shipped HDD



Media and Entertainment Growth Factors

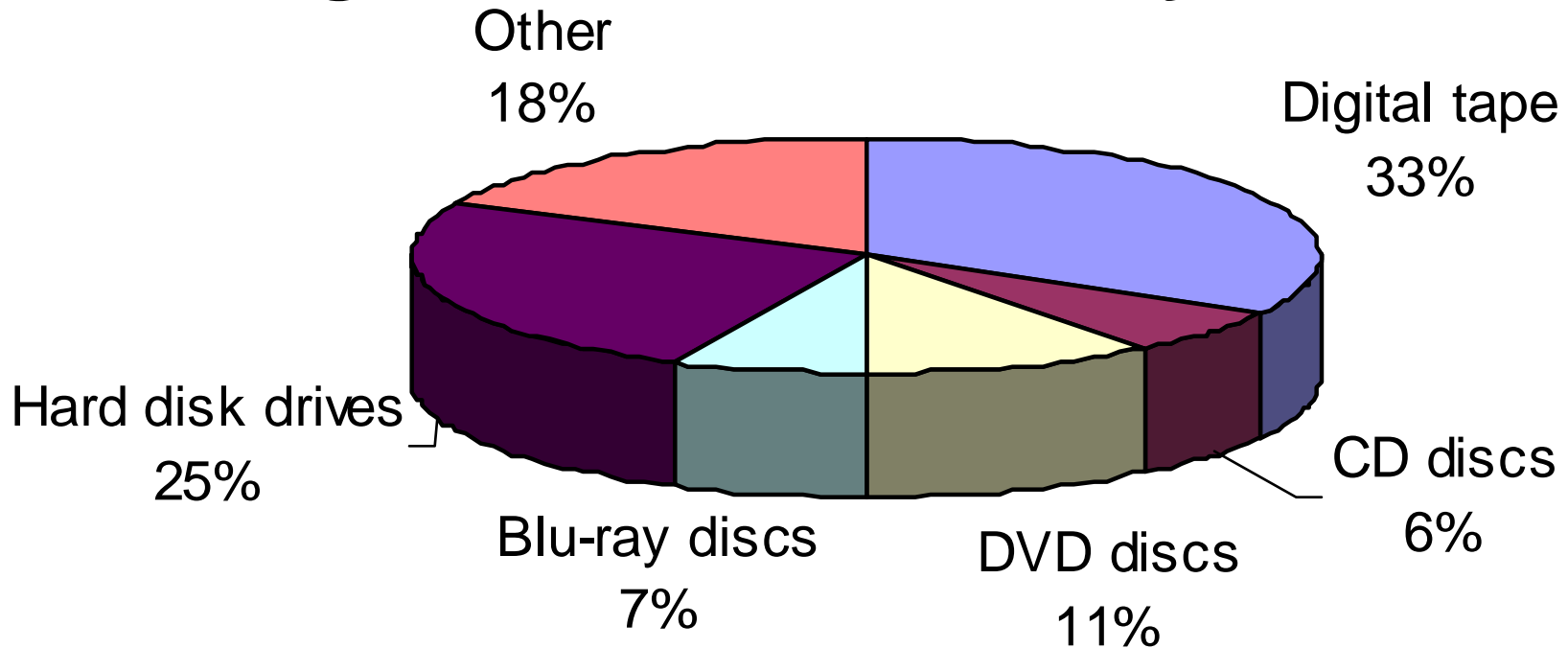
- Conversion to HD content current growth driver
- Stereoscopic content (3D) growing in use and could double storage capacity for a given resolution
- Ultra-HD in active development—a factor starting in the middle of the next decade
- Conversion and preservation projects more prevalent and costs are dropping

Media and Entertainment Market Storage Revenue Share by Segment



2009 Digital Storage for Media and Entertainment Report, Coughlin Associates

Long Term Archive Survey Results



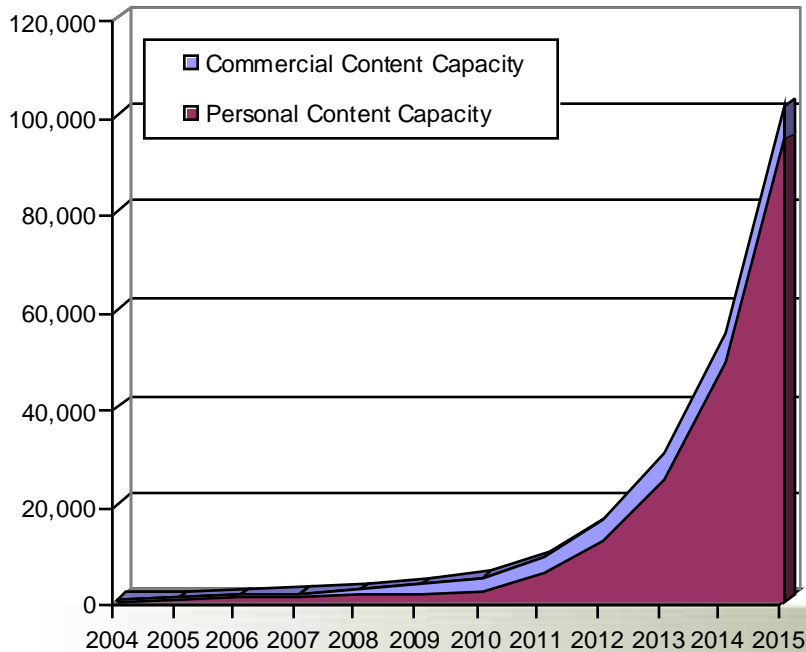
- Tape and HDDs predominate in long term archival media and are projected to show greatest growth in the future
- About 41% never update their digital archives
- 75% used different storage for archiving and working storage

Coughlin Associates Professional M&E Survey, 2009

Total Recall!



Capacity (GB)



PEN VIDEO CAMERA FOR FUN, TO SPY, TO WRITE!

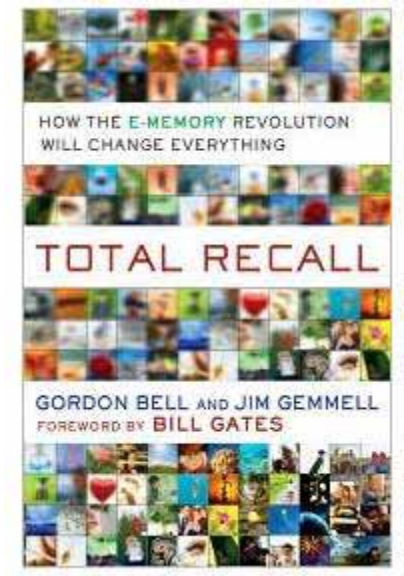
A pen with all the works. Why stop at writing, when you can record, replay and reuse? Leave the load at home. The MP9 is the latest in pen camera technology that offers all the benefits of a pen without carrying a camcorder around. Fully functional, portable, and well priced, the pen camera does not weigh down your pocket or your wallet.



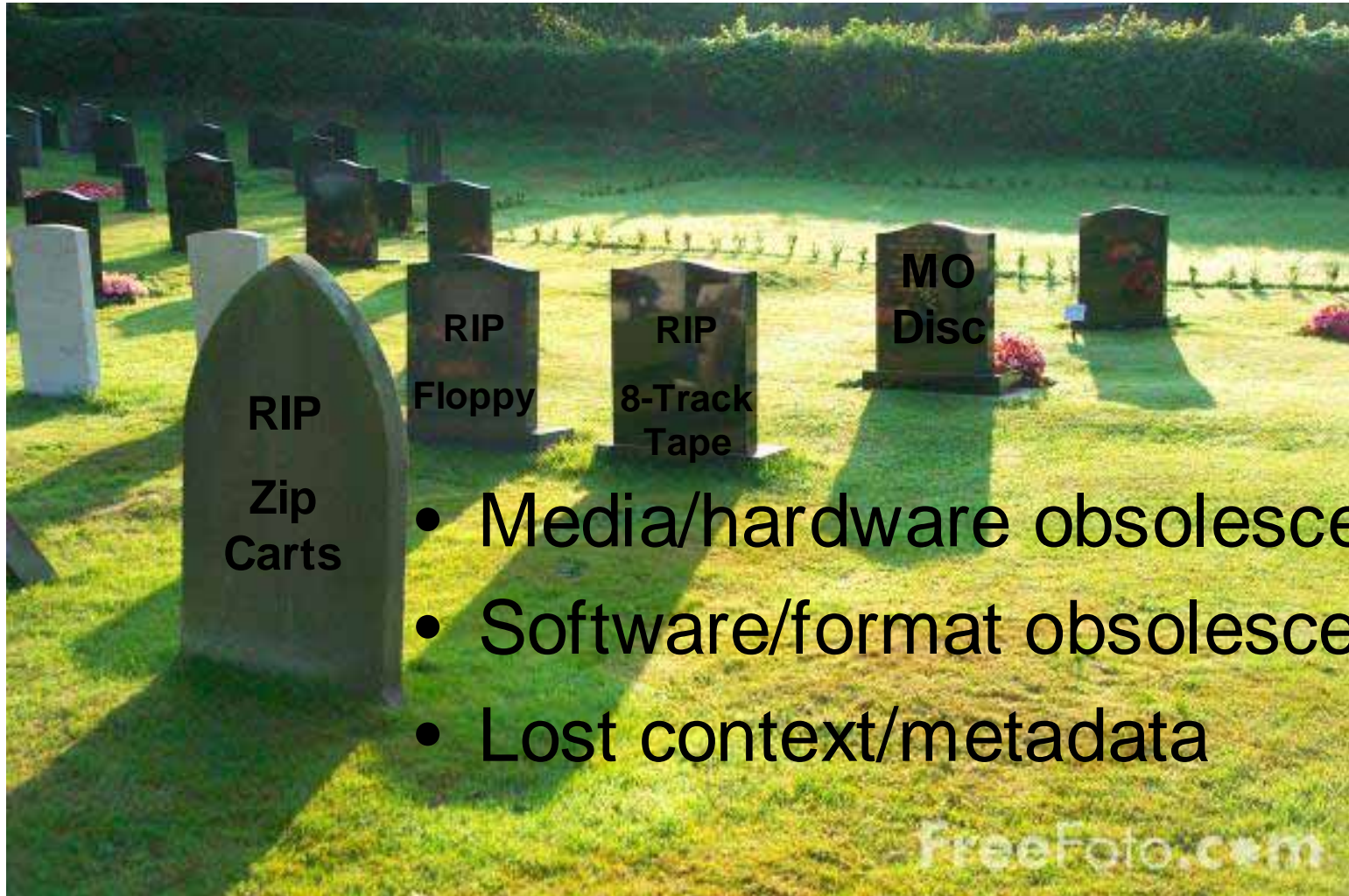
- 1GB** \$24.99
 - 2GB** \$29.99
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September
17, 2009



Digital Forgetfulness



- Media/hardware obsolescence
- Software/format obsolescence
- Lost context/metadata



In the next decade

- A terabyte in your pocket
- A petabyte in your home
- Exabytes in datacenters
- Zetabytes in the world

Thanks



Sources

- 2009 Digital Storage in Consumer Electronics, Coughlin Associates
- 2010 Digital Storage in Professional Media and Entertainment (in progress), Coughlin Associates
- 2010 Capital Spending for Magnetic Storage (in progress), Coughlin Associates