



**SV 2010, CES, Showstoppers  
and ICCE Storage Recap**

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# Storage Highlights

- Life-logs, e-Diaries
- Long term storage preservation
- Consumer metadata
- Network storage and plug computing
- New high speed/capacity SD card formats
- USB products and USB 3.0 first products
- SSDs and external SSDs
- 3D on Blu-ray
- Professional video products

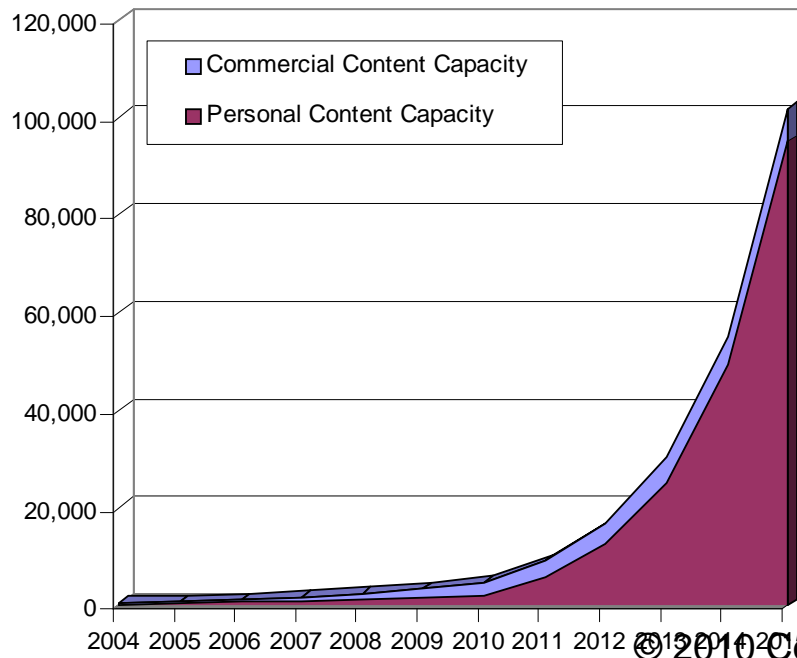
# Total Recall!



## VIEVU PVR-PRO 2

- o Enhanced low light
- o Improved resolution
- o 4 hours of recording
- o 4 GB memory
- o Waterproof
- o \$399.95

Capacity (GB)



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

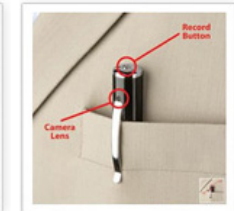
A pen with all the works. Why stop at writing, when you can record, replay and reuse? Leave the load at home. The MP9 is the latest in pen camera technology that offers all the benefits of a pen without carrying a camcorder around. Fully functional, portable, and well priced, the pen camera does not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

**Only \$24.99**

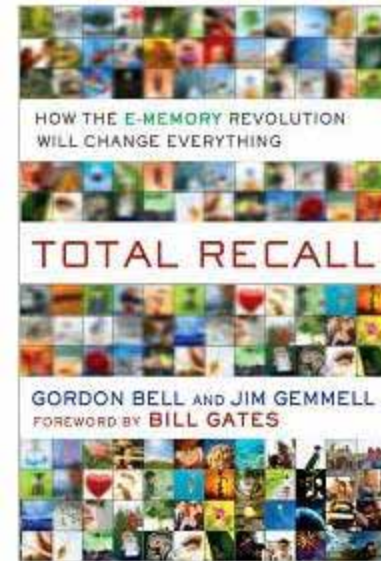


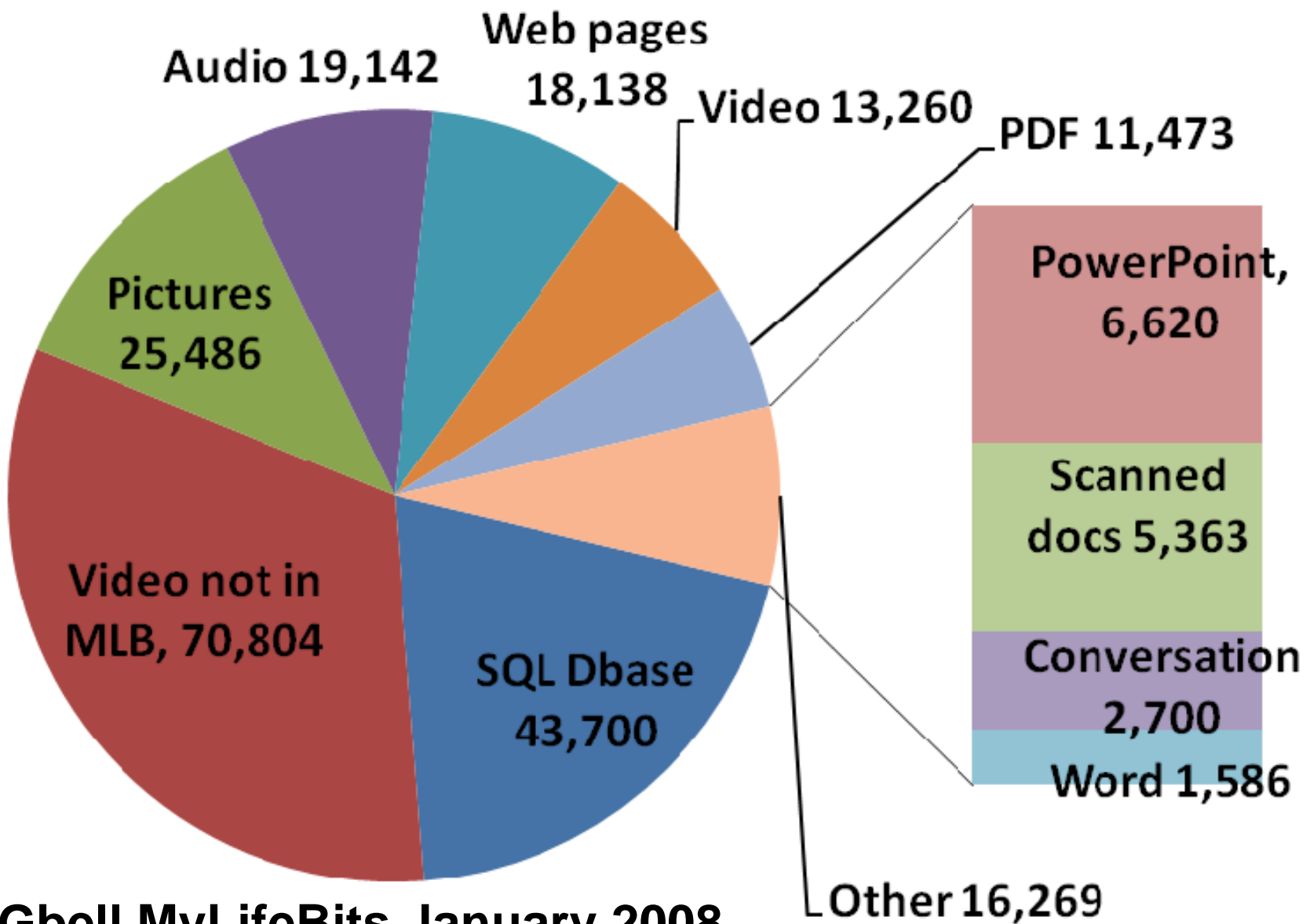
- 1GB** \$24.99
- 2GB** \$29.99
- 4GB** \$34.99
- 8GB** \$39.99

**Add to cart**



Publish Date  
September  
2009





**Gbell MyLifeBits January 2008  
219 Gbytes (460,000 items)**

# Everything a Recording Device

**Flashlight DVR**  
Compact Digital Video Recorder  
Monitoring & recording concealed in a portable flashlight  
MODEL NO.: GD7716

**GOSCAN**  
Built-in G-Sensor  
**Vehicle DVR**  
Model No.: GD

**NEW**

**GPS Logger**  
GPS location information logged for later reference with a removable SD card

**Record**  
With Memory Up To 16 GB  
Real-time video recording while driving  
High resolution crystal clear audio and video

**G-Sensor**  
Sensors automatically detect and record video of events such as impact, speed, braking, acceleration

**Portable Internet Broadcasting**

# Threats to long-term assets

- Large-scale disaster
- Human error
- Media faults

Long-term content suffers from more threats than short-term content

- Component faults
- Economic faults
- Attack
- Organizational faults

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

# SIRF: logical container format

- Being developed by SNIA
  - For long-term storage of digital information
- Logical data format of a mountable unit
- Facilitate transparent logical/physical migration for long-term preservation
- Several implementations envisioned
  - Preservation models, storage interfaces, storage devices, etc.

# 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

# Network Storage



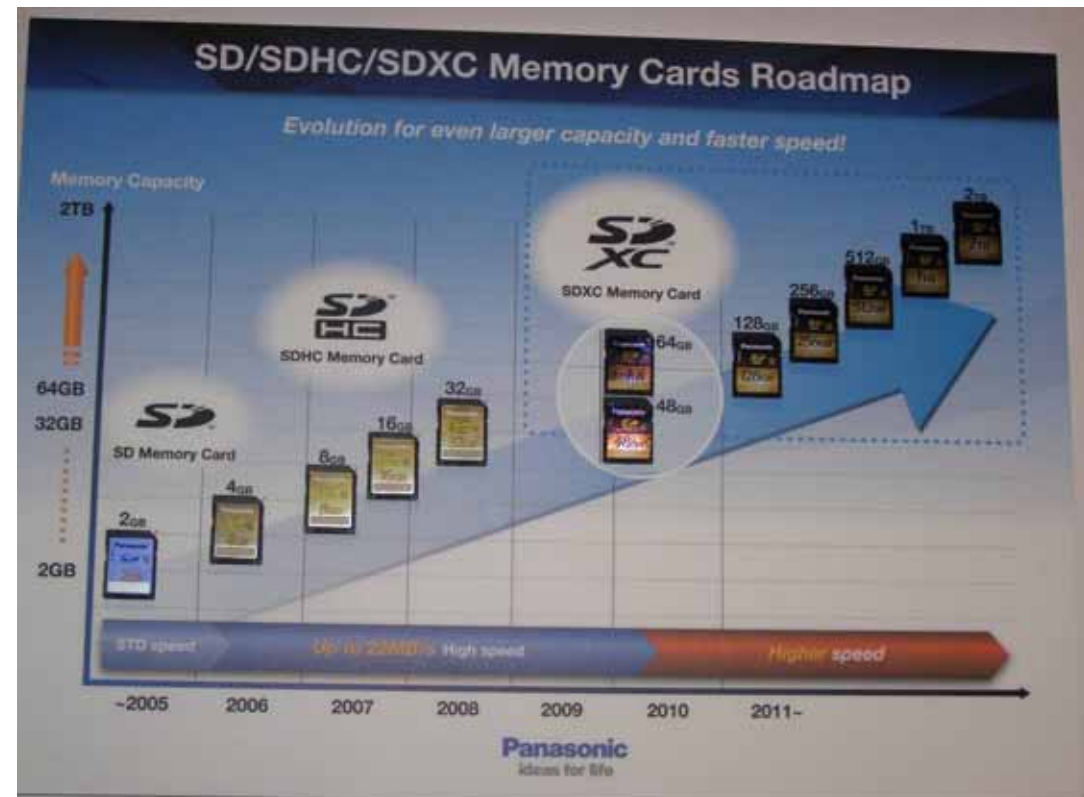
# Plug Computers



- Build networked computers into everything...



# Higher Capacity, Higher Speed SD Cards



- Last year the SD card association announced the SDHC format
- This year Toshiba was showing product
- CE Devices using this available by 2011

# USB Storage Devices



# USB 3.0

				
Typical File Size	1 GB	6 GB	16 GB	27 GB
USB Full-speed	22 min	2.2 hr	5.9 hr	9.3 hr
USB High-speed	<b>33 sec</b>	3.3 min	8.9 min	13.9 min
SuperSpeed USB	<b>3 sec</b>	<b>20 sec</b>	<b>53 sec</b>	<b>70 sec</b>

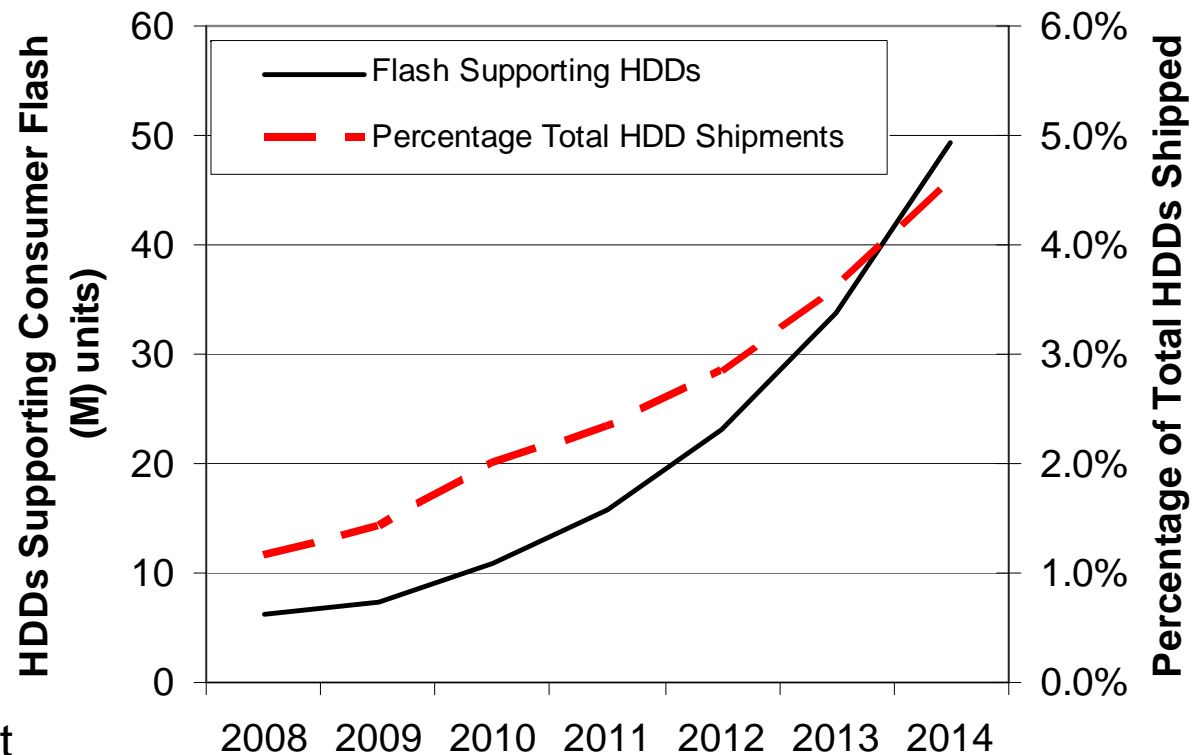
USB 3.0 is Here!  
These exciting new products incorporate  
NEC Electronics USB 3.0 silicon





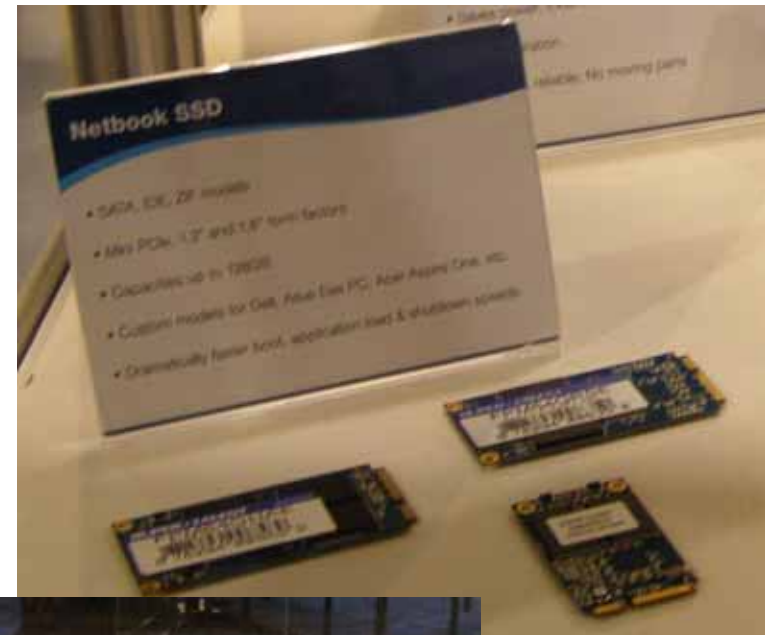

# Symbiotic Relationship Flash and HDDS

- 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? (Coughlin Associates & Objective Analysis)

# SSDs



# External SSD Torture Test



**ioSafe Demo-  
Lition  
January 8, 2010**

# Optical Disc Technology





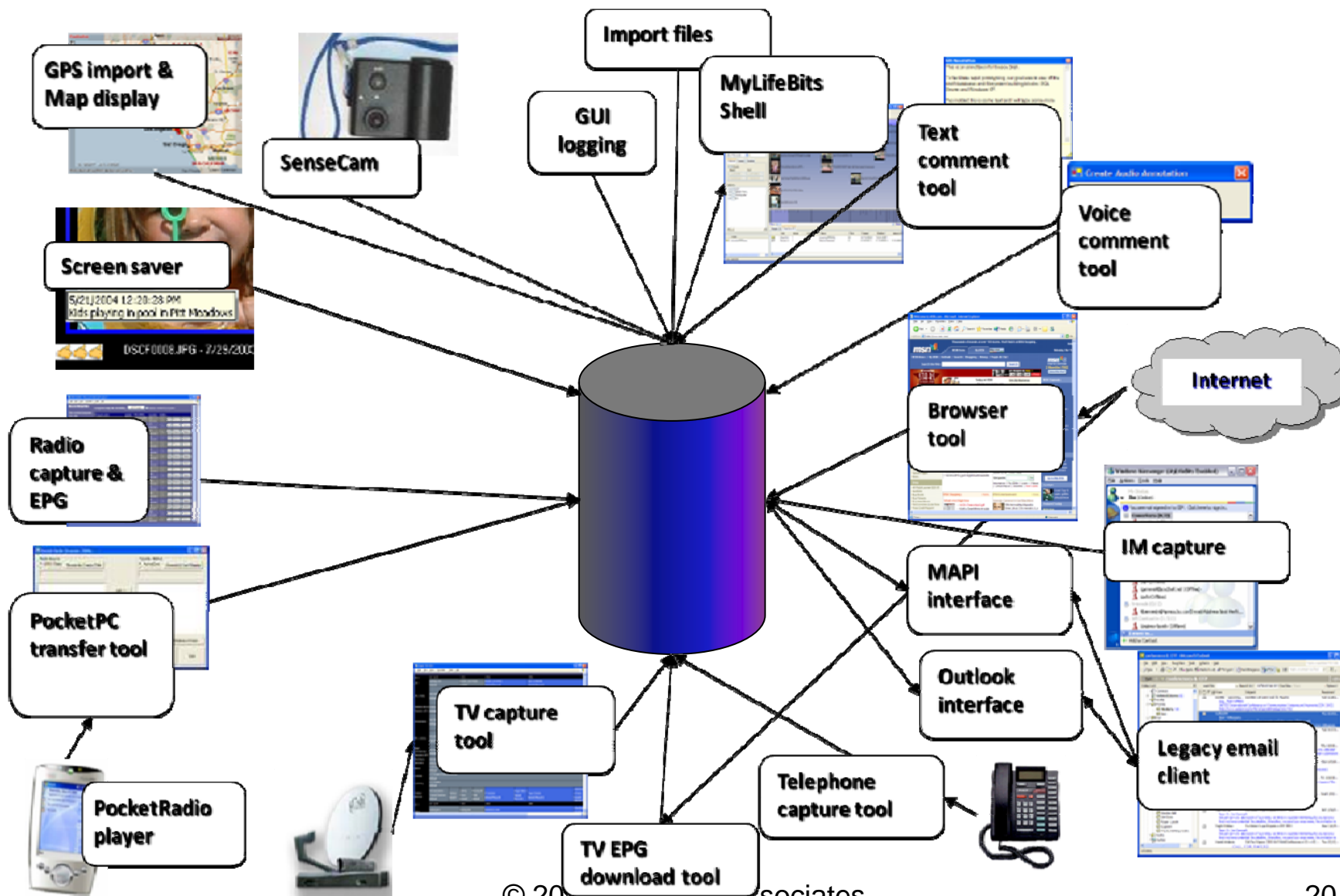
# In the next decade

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



***Thanks***

# MyLifeBits Software Suite



# Preservation storage formats

- We can't predict the future
  - Systems will change, formats will change, systems will fail
- Preservation objects need to be
  - **Self contained** – to ensure objects are complete
  - **Self describing** – so software can interpret it
  - **Extensible** – so it can meet future needs
- A preservation storage format must
  - Facilitate storage of preservation objects
  - Map to a wide variety of storage devices and technologies
  - Be resilient to failures and change

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# Professional Video



**Sony Stereoscopic  
Projector (what every  
home needs!)**

**iVDR for Content  
Capture and Editing**

# Odds and Ends

