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IBM Research

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Where We Have Been

- + TeX and the Digital (R)evolution
- + Open Source Dawning
- + Communication Improvements
- + Collaboration Along the Supply Chain
- + Network Transmission=New Opportunities





Early Benefits of TeX

- + High Quality Mathematics
- + Full Page Formatting
- + Collaborative Solutions
- + Worldwide Use
- + Platform Independent



Big Shift in Purpose

From Electronic Production...
...to Electronic Delivery

...from Cost Center to Profit Center

1996: 32%

1998: 54%

2000: 79%

Publishers with e-product revenue streams





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Award Winning Design Concept

The IBM Electronic Newspaper

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IBM Research World Wide





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Welcome to the New World!

We are on the threshold of sweeping change in telecommunications...

Improvements in infrastructure and evolving standards greatly impact newspaper and magazine publishing...



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We are on the threshold of sweeping change in telecommunications...

Improvements in infrastructure and evolving standards greatly impact newspaper and magazine publishing...

Newspapers are looking at new delivery and distribution models unlike anything they have considered before...



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What is the vision for newspapers?

- Deliver to multiple devices--even paper
- Deliver news items from intelligent databases
- Create One-to-One marketing schemes
- Exploit broadband capabilities with media add-ins





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What is the vision for newspapers?

- Deliver to multiple devices--even paper
- Deliver news items from intelligent databases
- Create One-to-One marketing schemes
- Exploit broadband capabilities with media add-ins
- Without losing our favorite qualities





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Pervasive Computing

IBM Design Group chartered with the task of incorporating computing in everyday life.

- + The question is not "How do we interact with computers?"
- + But "How can computers enhance our relationship with everything else?"



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A New Perspective

Human Centered Design:

- * Observe people interacting with their newspaper
- * What is important to the reader?

Emulate Qualities of Newspaper:

- * How people handle them; read, fold, and carry them
- * Pages that turn, bend, and roll



Newspapers Provide Perfect Technology Testbed

- * Widely distributed to huge audience
- * Full of digital content--news and ads
- * Constantly changing database
- * Multiple authors, editors, readers





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Electronic Newspaper

Design Concept Only

- + Pervasive Computing Study
- + How We Interact with Newspapers
- + How Technology Improves Interaction

Future Approaches to Display

- + Several Technologies Developing
- + Impossible to Predict Outcome



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Electronic Newspaper

Emulates Today's Newspapers

What people do...

*fold, roll, read, re-read,
clip, copy, turn pages*

Flexible Display on Plastic

Would allow people to...

*fold, roll, read, re-read,
clip, copy, turn pages,
and much more!*



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Electronic Newspaper



Subjective Qualities of Newspapers

- + Lightweight
- + Portable
- + Durable



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Electronic Newspaper



Subjective Qualities of Newspapers

- + 16 page sections
- + Dual sided pages



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Electronic Newspaper

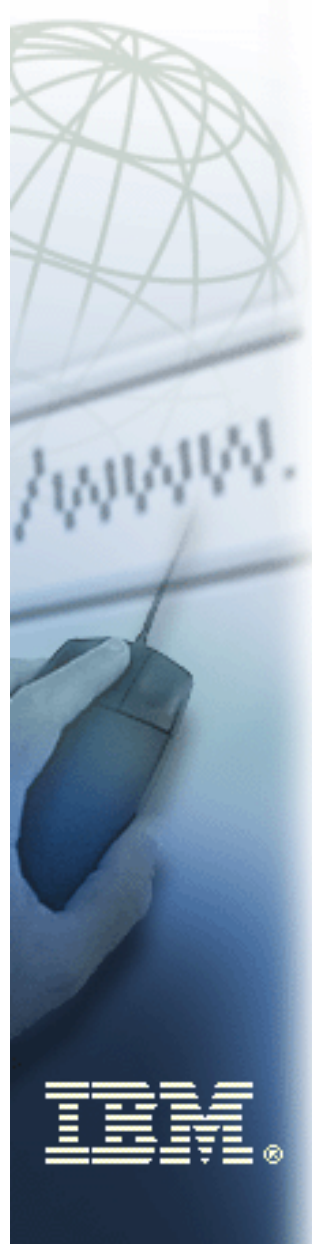


New Capabilities of the Electronic Newspaper

- + Digital delivery and storage
- + Electronically cut/paste articles
- + Page display fits copy machine or briefcase
- + Reduces environmental impact and costs



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How does it work?

E-Ink

- ▲ Developed @ MIT Media Lab
- ▲ Spheres contain white particles in dark gel
- ▲ Electronic charge attracts or repels white

Flexible Display

- ▲ Coated plastic
- ▲ Durable
- ▲ Re-usable

Network Communications

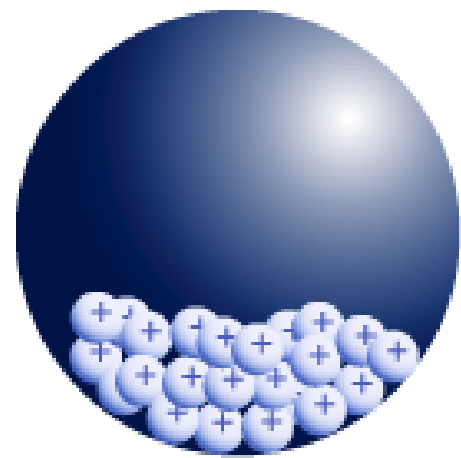
- ▲ WWW Servers
- ▲ Broadband Cable



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E-Ink Technology



Electronic Ink is a colored liquid made up of tiny spehers. Each has a clear shell filled with blue dye and very, very tiny chips of white pigment.

Millions of these tiny spheres coat each side of the flexible display material.

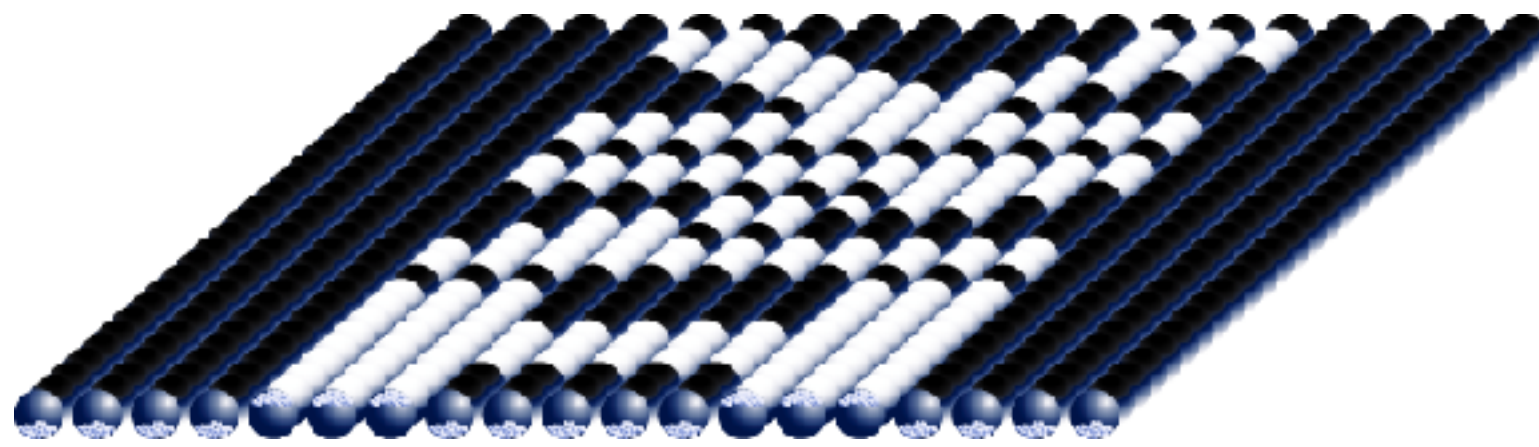


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IBM®

E-Ink Technology



Spheres display white or dark

- Depending on charge received
- Refreshed on demand

(visit <http://www.eink.com>)



Flexible Display

- + **Electronic Newspaper Design**
One concept based on fiberglass/plastic material coated with bi-stable E-Ink
- + **Flexible Transistors**
One key to flexible display is flexible transistors; experimental work underway using hybrid organic-inorganic materials.
- + **Display Similar to Today's Flat Panel**
Will someday be accomplished on flexible material, glass, perhaps even fabric



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Network Communications

- Content Downloaded Daily (Hourly?)
- Compression to 2Mb Not Enough
- Multicast Parallel Distribution May Work
- Broadband services increasing



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Converging Technologies

Digital News
& Ad Content

Flexible
Displays/
Personal
Devices

Secure
Delivery

e-Newspaper
Publishing



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my.newspaper





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my.newspaper

- * Content feed based on individual preferences
- * Advertising customized per demographic or chosen categories
- * Sections ordered per reading priorities
- * Control display





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my.world

Cell Phones
Newspapers

Pagers
Magazines

Books Palmtops

e-Books





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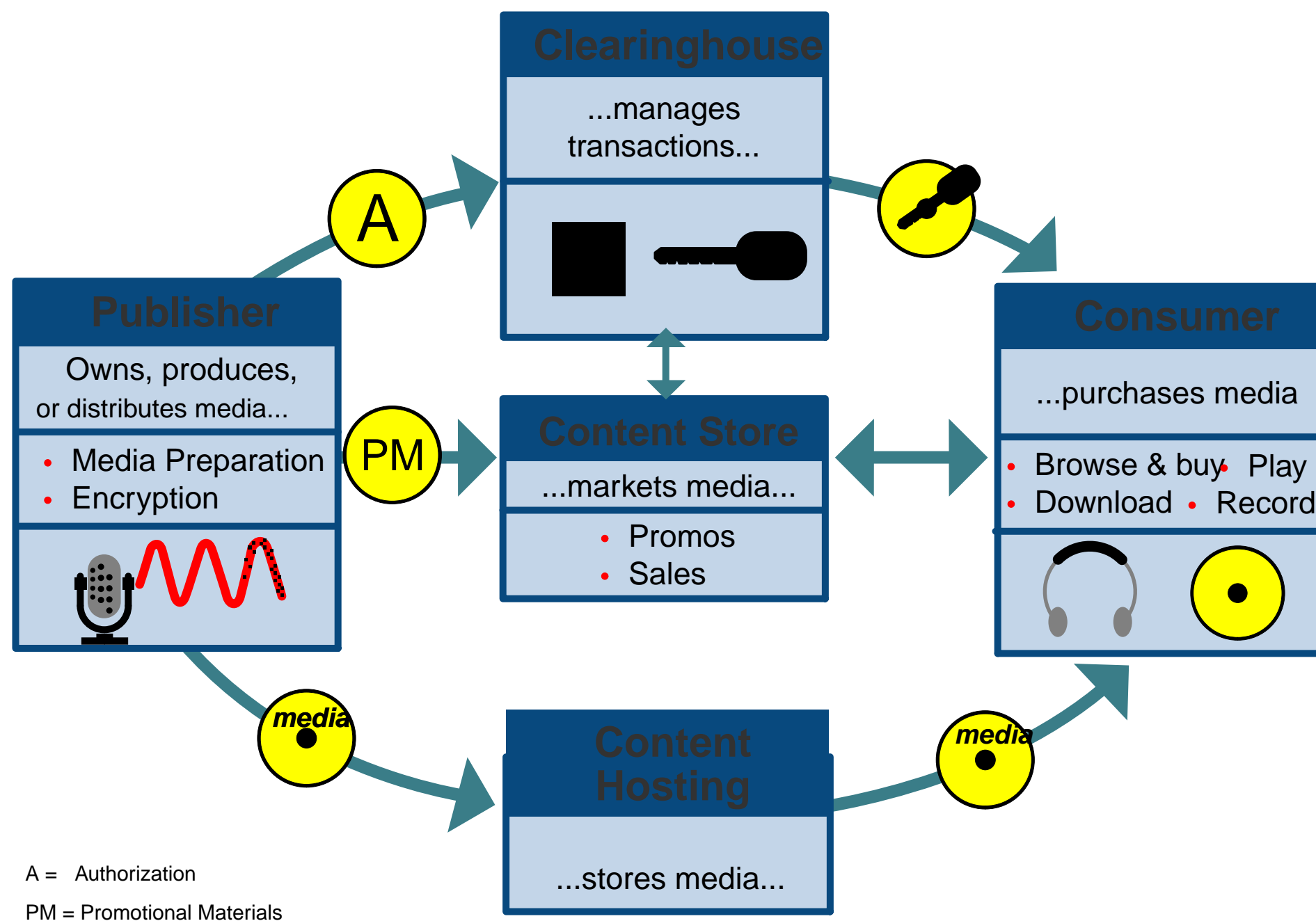


The Reality of Digital Publishing

- * More than delivering electronic files
- * More than protecting media assets
- * More than managing transactions
- * More than all of the above

Effective e-publishing requires an
Electronic Media Management System

IBM Electronic Media Management System





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Electronic Newspaper



- + Design Ahead of Technology
- + Design May Change
- + Flexible Displays Fabricated



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Long Live the Newspaper!

- ▲ Quality Editorial Content
- ▲ Comprehensive Reporting
- ▲ Understanding the Community
- ▲ Positive Relationships with Sponsors

Fundamentals, regardless of the delivery method or reading device.

How will you use the new technologies?



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Thank you!

Mimi Jett

T.J. Watson Research Center

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