

Social Media: Creation, Distribution, and Access

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and
Several Collaborators

Discussions Today

- **Social Media and the issues. (1 hour)**
- **Some research at UCI in Social Media (1 Hour)**
- **Future Directions (30 minutes)**
- **Discussions (30 minutes)**

What is the most important invention in the last 1000 years?

- Einstein: Theory of relativity.
- Turing: Digital Computer.
- Curie: X-rays
- Gutenberg: Moveable print
- Edison: Electric Bulb
- .
- .
- .

Name 4 most popular companies that emerged in the last 4 years.

- **Flickr**
- **YouTube**
- **Facebook**
- **Twitter**

Name 3 most popular Internet concepts in the last 3 years.

- **Social Networks**
- **Micro-blogging (Ambient Awareness)**
- **Tags**

Interestingly, they did not come from Google Yahoo Microsoft or Academia.

Interesting!!!

- Flickr
- YouTube
- Facebook
- Twitter
- Social Networks
- Microblogging
- Tags

What does this tell us?

Messages are clear

People want:

- **New media:** Text based media is not enough.
- **Experiences:** People want to experience and share experiences – **with minimal latency.**
- **Socialize:** Family and friends remain a strong influence in all facets of life.
 - **Family and friends are closer to each other today than ever!!!**

It is all about

Experiential Communication among Humans



Events



Life = + Experiences

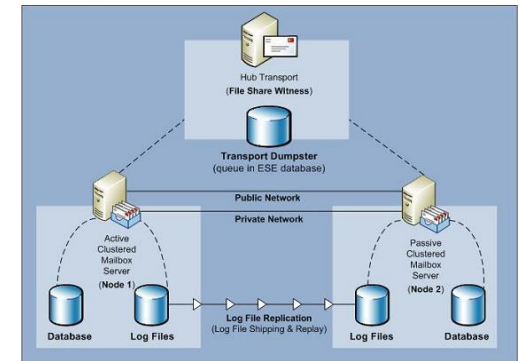
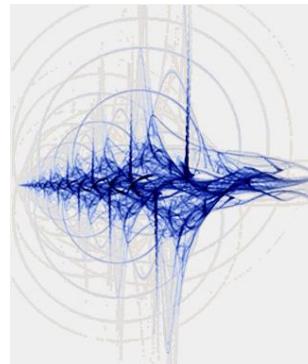
...can analyze and ...
 ...the mix of activities
 ...performed in terms of the
 ...a **knowledge** base for
 ...proprietary knowledge is
 ...used as a means of
 ...understanding complex...





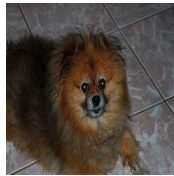
Data

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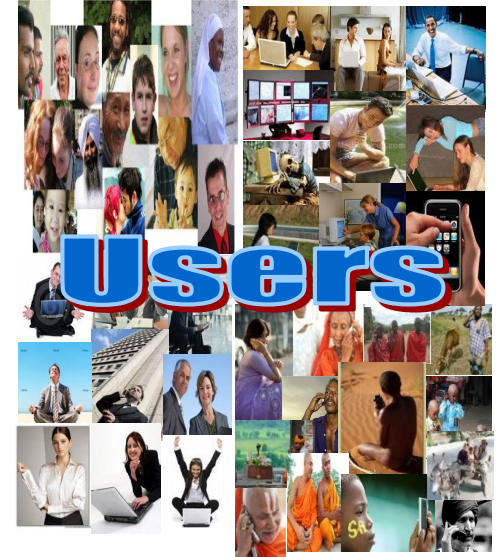
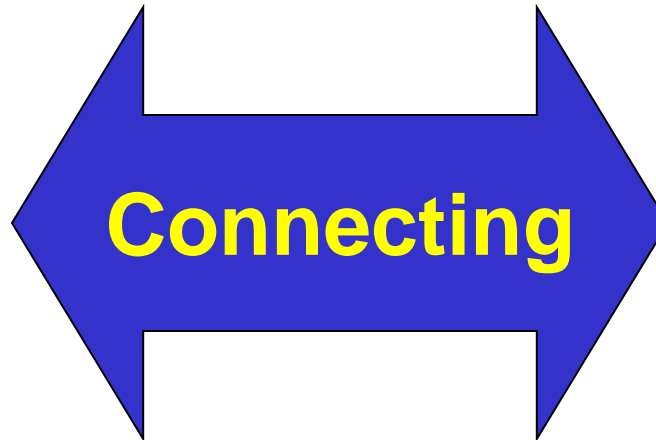




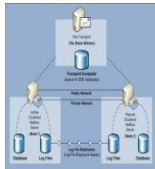
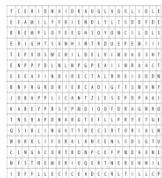
The Challenge



Data



Users

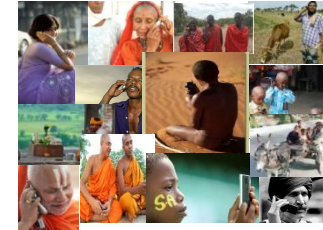


Major Components of the eco-system

- **Data (Content)**
- **Distribution/Dissemination/Sharing of Data**
- **Users**

Transformations

Users



Semantic Gap

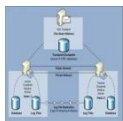
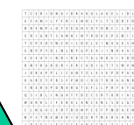
Lists, Arrays, Documents, Images ...

Alphanumeric Characters

Bits and Bytes



Data



Semantic Gap

The semantic gap is the lack of coincidence between the information that one can extract from the visual data and the interpretation that the same data have for a user in a given situation. A linguistic description is almost always contextual, whereas an image may live by itself.

Content-Based Image Retrieval at the End of the Early Years

Found in: [IEEE Transactions on Pattern Analysis and Machine Intelligence](#)

Arnold Smeulders , et. al., December 2000

Social Media

A Brief Personal Perspective

The Fabulous 4 of Social Media

- Flickr
- YouTube
- Facebook
- Twitter

What is unique about these sites?

What do they tell us about Social Media?

What is Social Media?

- Created and consumed by Many.
- Democratization of creation and consumption.
 - Web 2.0
- Multimedia
- It is all about SHARING
 - Very intriguing to privacy-sensitive people

Social Media is Event Driven

Events bring people together

Media Creation



Data Creation

- Acquisition of data
- Authoring/Production of Content
 - Tools
- Indexing
- Storage

Recording Experiential Data

■ Modes

- Visual
- Aural
- Tactile
- (not worry about smell and taste for the next few years)
- Text
- Log of activities

■ Influence of Technology for Sharing Experiences

Sharing/Dissemination/Distribution



Distribution

- Mechanism for spatial and temporal distribution
- Latency
- Control

Experience sharing and knowledge distribution have been very important to human society.

Share experiences: Languages



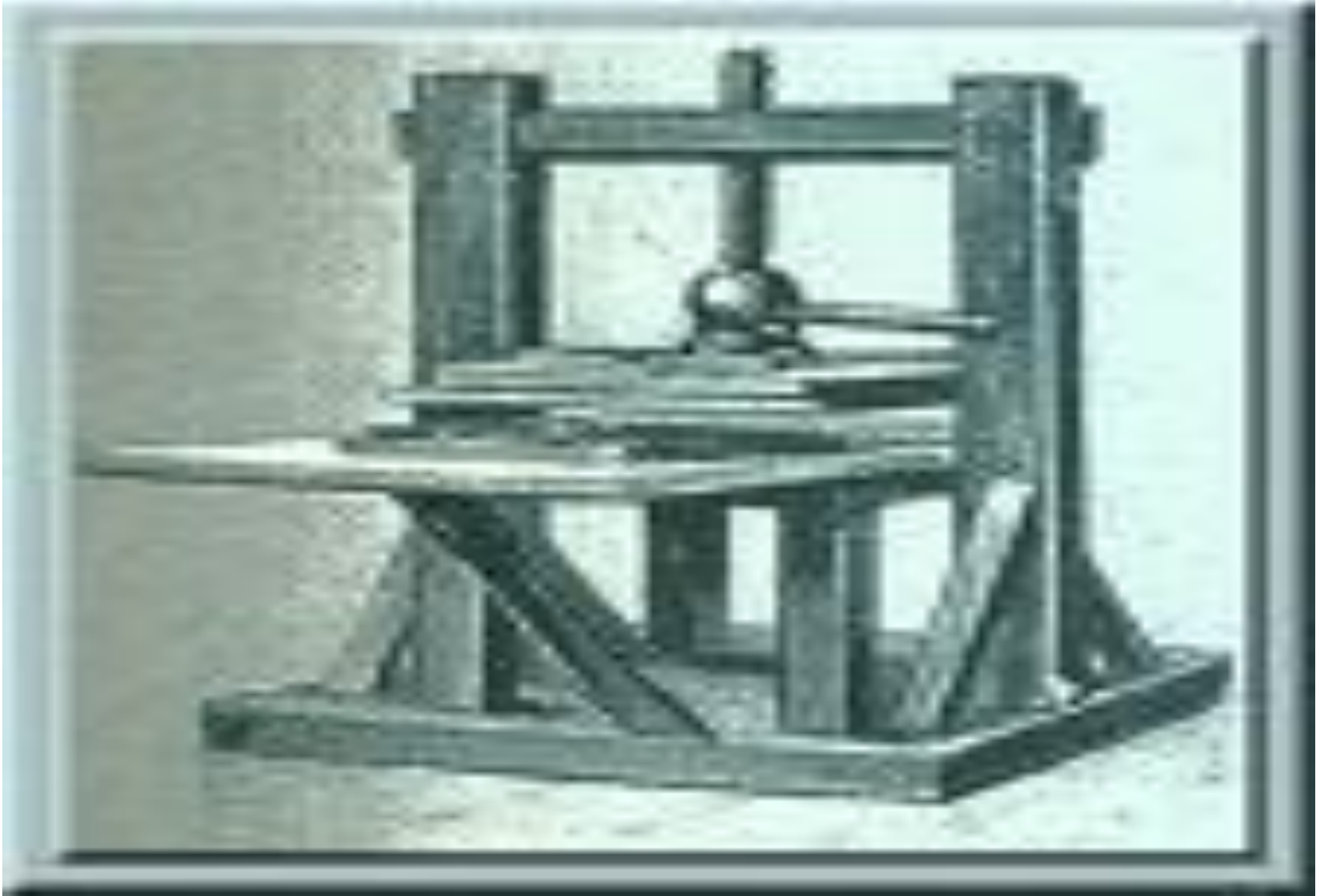
Across Time: Writing



Making it portable: Paper



Democratization: Gutenberg's Movable Press



Telegraph: Instantaneous Remote



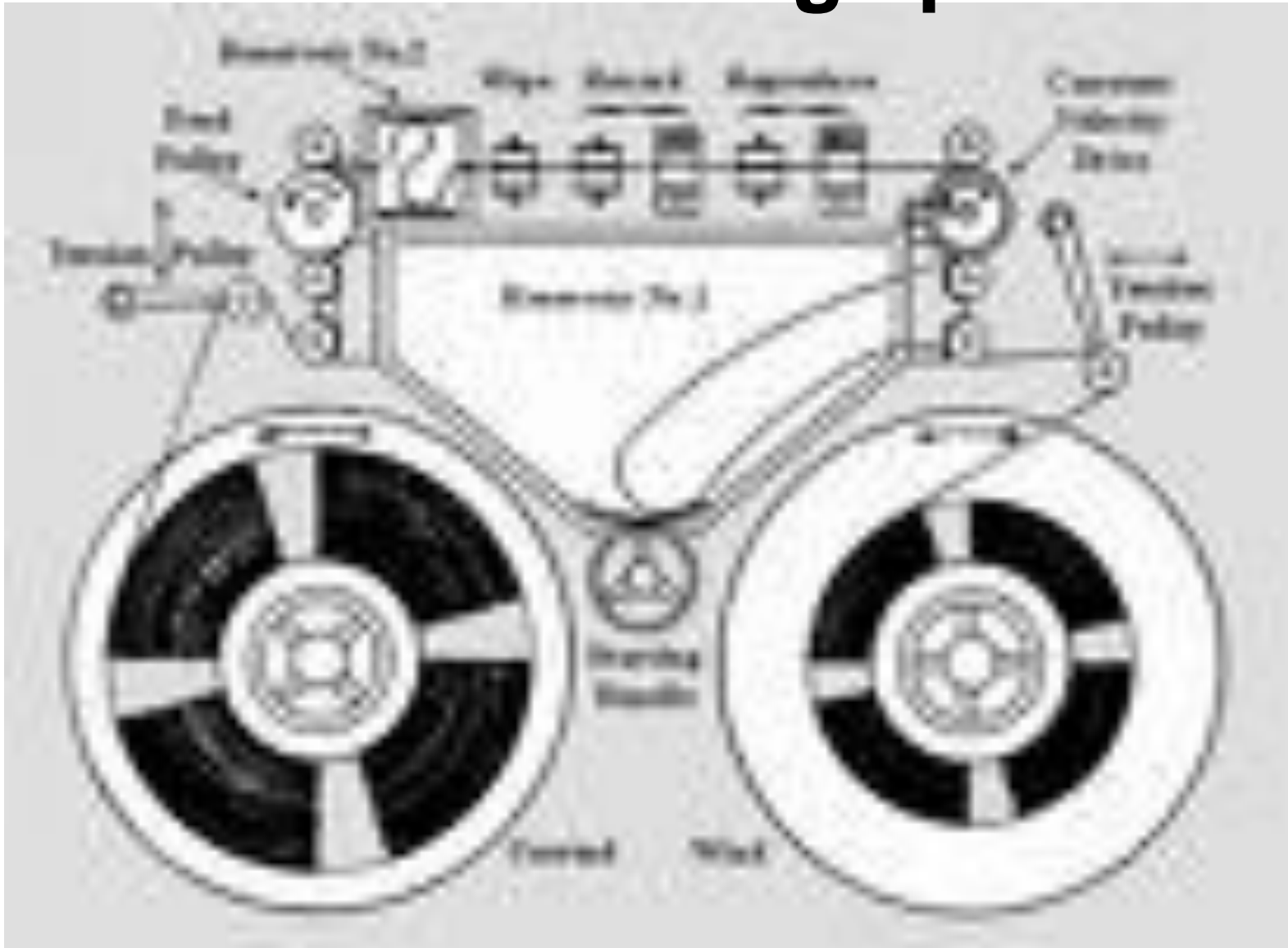
Telephone: Remote Speech



Photography: Recording Visual Experience



Audio Recording: Electrical Signals enter recording space



Radio: Live Broadcast



Television: Live Broadcast combines two Media



Digital Processing



Internet: The Game Changer



Medium is the message. – McLuhan was right **THEN.**
Medium is just that – Medium. **NOW**

Communicating Experiences: Spatial and Temporal

Inventions	Application Impact
Languages	Communicate symbolic experiences
Written Languages	Record Symbolic experiences (time)
Paper	Portability (space)
Print	Mass distribution (time and space)
Telegraph	Remote narrow communication (space)
Telephone	Remote analog communication (space)
Radio	Analog broadcasting of sound (space)
Television	Combining two senses – media (space)
Recording media	Photos, audio, video (time)
Digital processing	Machine enhancement and processing
Internet	Interactive Multimedia communication

Most influential
Invention in history

Future of
Communication

Modes of Distribution

- Broadcast
- Social
- Personal

Broadcast

- **Selected people create content for Mass consumption**
- **Newspaper, Radio, TV, ...**
- **Consume, no interactivity.**
 - **Access tools content centered.**

Personal Media

- Individual owns and creates for self and limited people.
- Limited sharing
- Complete control on your media.

Social Media

- Created by many people
- Distributed using emerging channels designed for sharing with a group.
- Subscriptions, search, aggregation, ...

Access

- Retrieval
- Storytelling
- Interactivity
 - Comments
 - Participate

Access Methods

- Content Based
- Tag Based
- Context Based
- Event Based

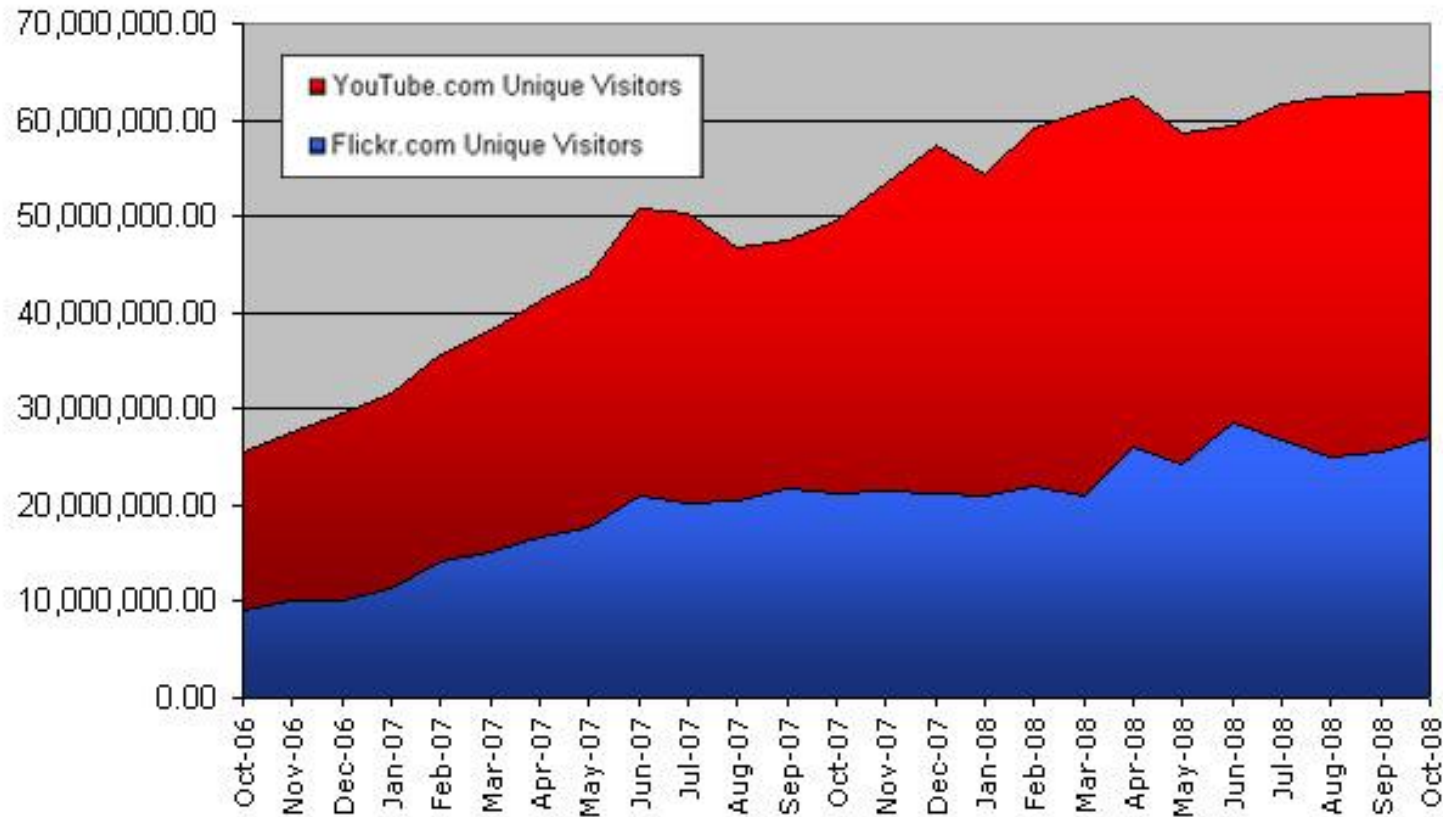
Understanding Social Media

- Created using highly scalable publishing techniques.
- Media designed to be disseminated through social interactions.
 - From broadcast media monologs to social media dialogs
- Accessed through your networks (coming to you) or by searching for it.

Tim O'Reilly and John Battelle

- Chief among our insights was that “the network as platform” means far more than just offering old applications via the network (“software as a service”); it means building applications that literally get better the more people use them, harnessing network effects not only to acquire users, but also to learn from them and build on their contributions.
- Web 2.0 is all about harnessing collective intelligence. Collective intelligence applications depend on managing, understanding, and responding to massive amounts of user-generated data in real time.
- Meaning is learned “inferentially” from a body of data.

Growth: YouTube, Flickr

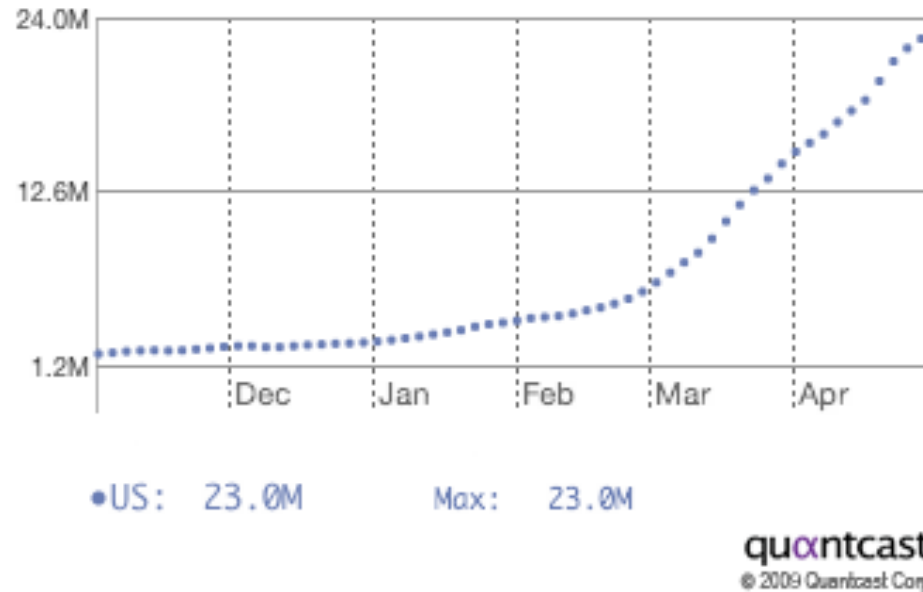


Source: comScore Media Metrix, Nov. 2008

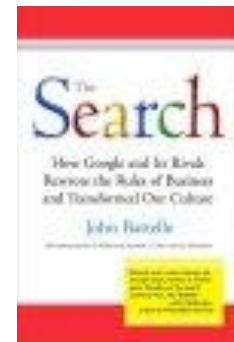
Twitter's Growth

Monthly U.S. People
twitter.com

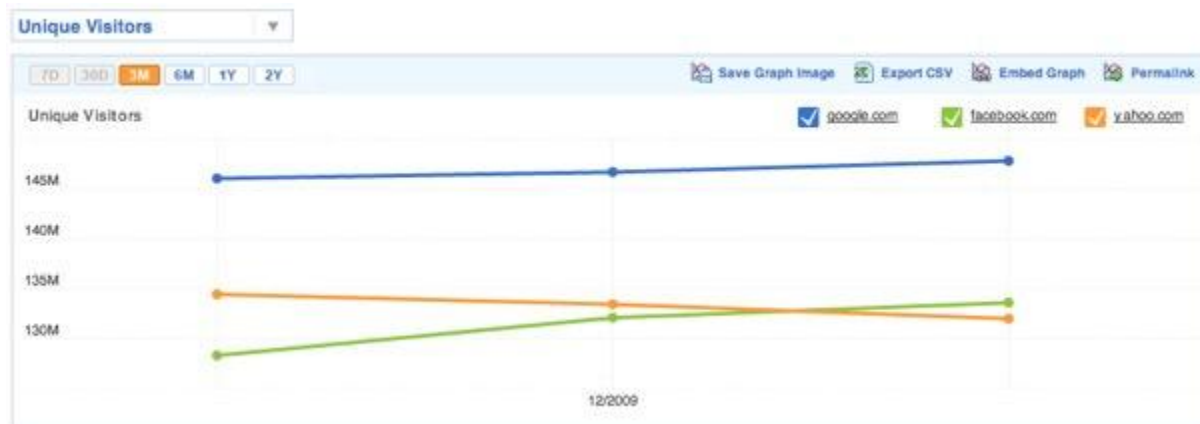
Rough Estimate
04/30/09 ⚠



This is a growth pattern I have never seen in terms of speed - not in the nearly 25 years I've been watching this industry. --- **John Battelle**



Facebook near 'beating' Google



Can we take the Web beyond the Cyberspace?

- Can things in real world be connected to other things?
- Does this even make sense?

Connectors

- My 5 **Senses** are connectors between ‘me’ and the world.
- We use our sensors (vision, audio, ...) to experience the world.
- Sensors could be the interface between the Cyberspace and the Real World.
- Sensors are placed for ‘**detecting events**’.
 - How do you decide what sensors to put at any place?
 - Would you put a sensor if nothing interesting ever happens at a place?

Evolution of 'Thought'

- Objects -- popular in the West.
- Relationships and Events – popular in the East.
- Objects **and** Events – seems to be the new trend.
- The Web has reemphasized the importance of every object and event being connected to others -- **East Meets West.**

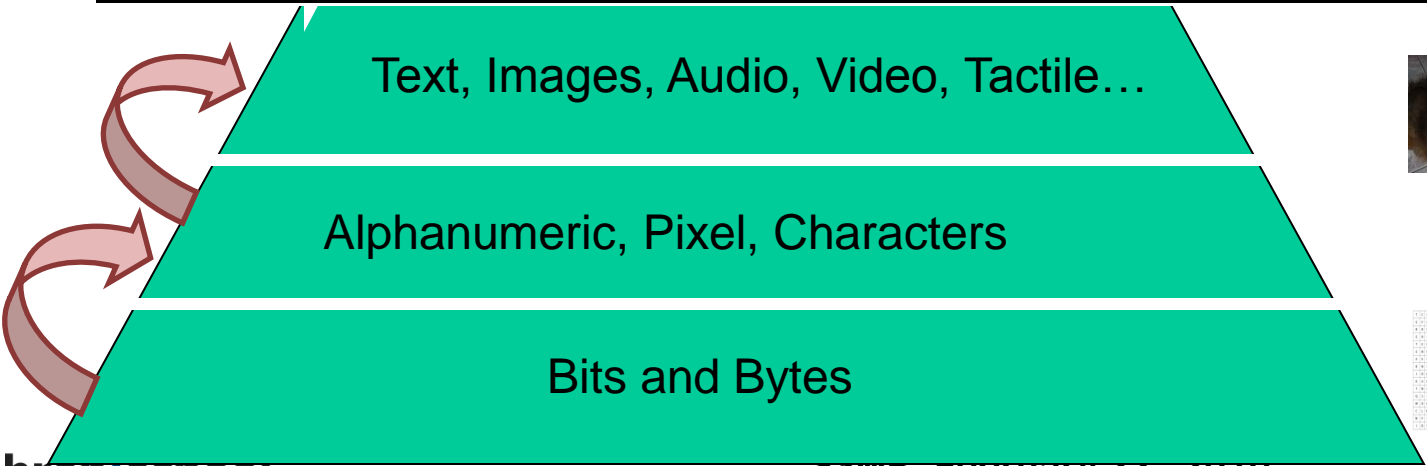
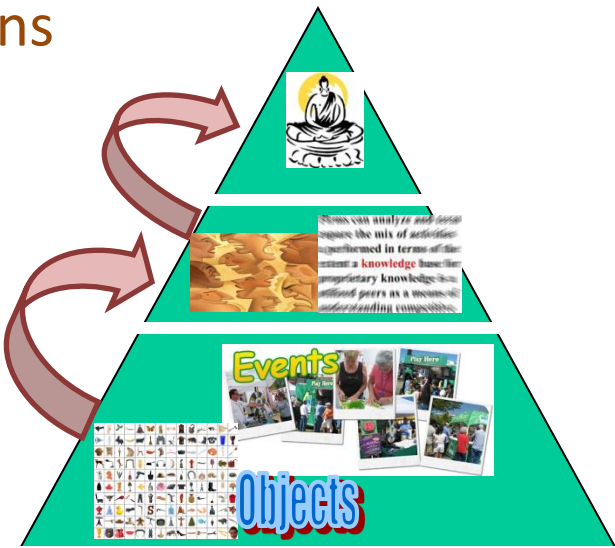
(See 'Geography of Thought by Richard Nisbett.)

Events

- Take place in the real world.
- Captured using different sensory mechanism.
 - Each sensor captures only a limited aspect of the event.
- Can be used to bridge the semantic gap.

Transformations

Users



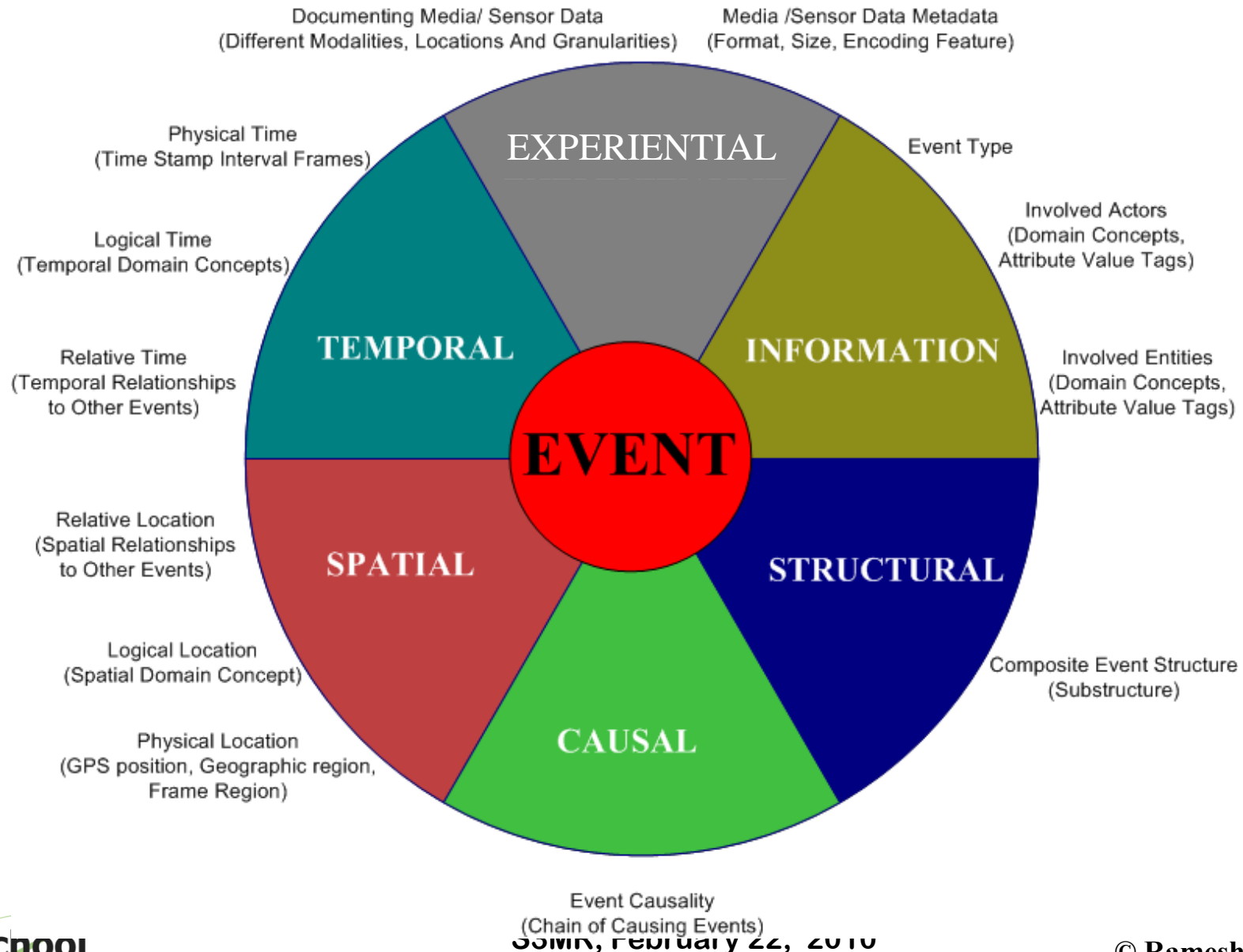
Data



Continuing the Evolution of the Web

- Consider a Web in which each node
 - Is an **event**
 - Has informational as well as **experiential** data
 - Is connected to other nodes using
 - **Referential links**
 - **Structural links**
 - **Relational links**
 - **Causal links**
 - Explicit links can be created by anybody
- This EventWeb is connected to other Webs.

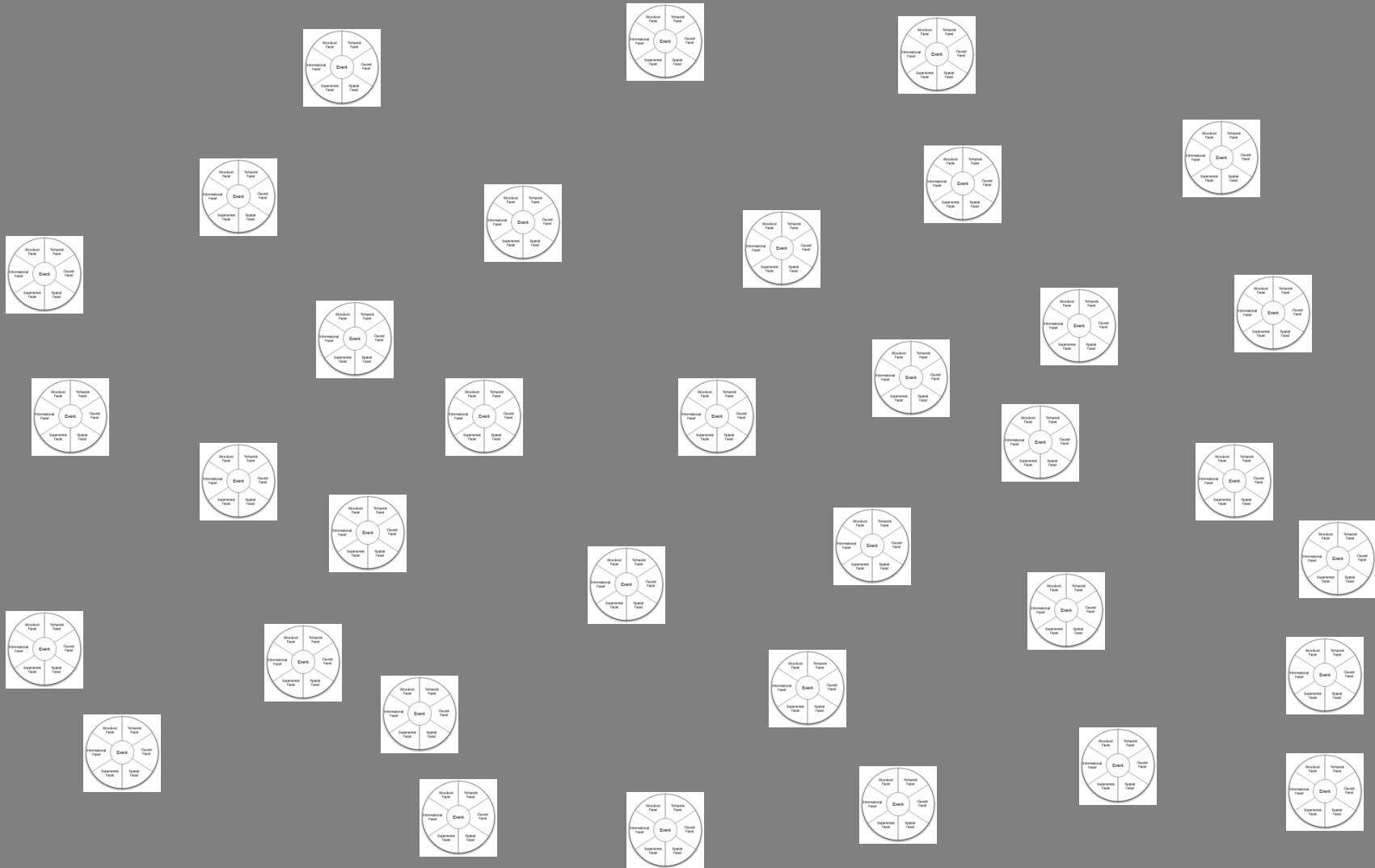
Event Representation



Events

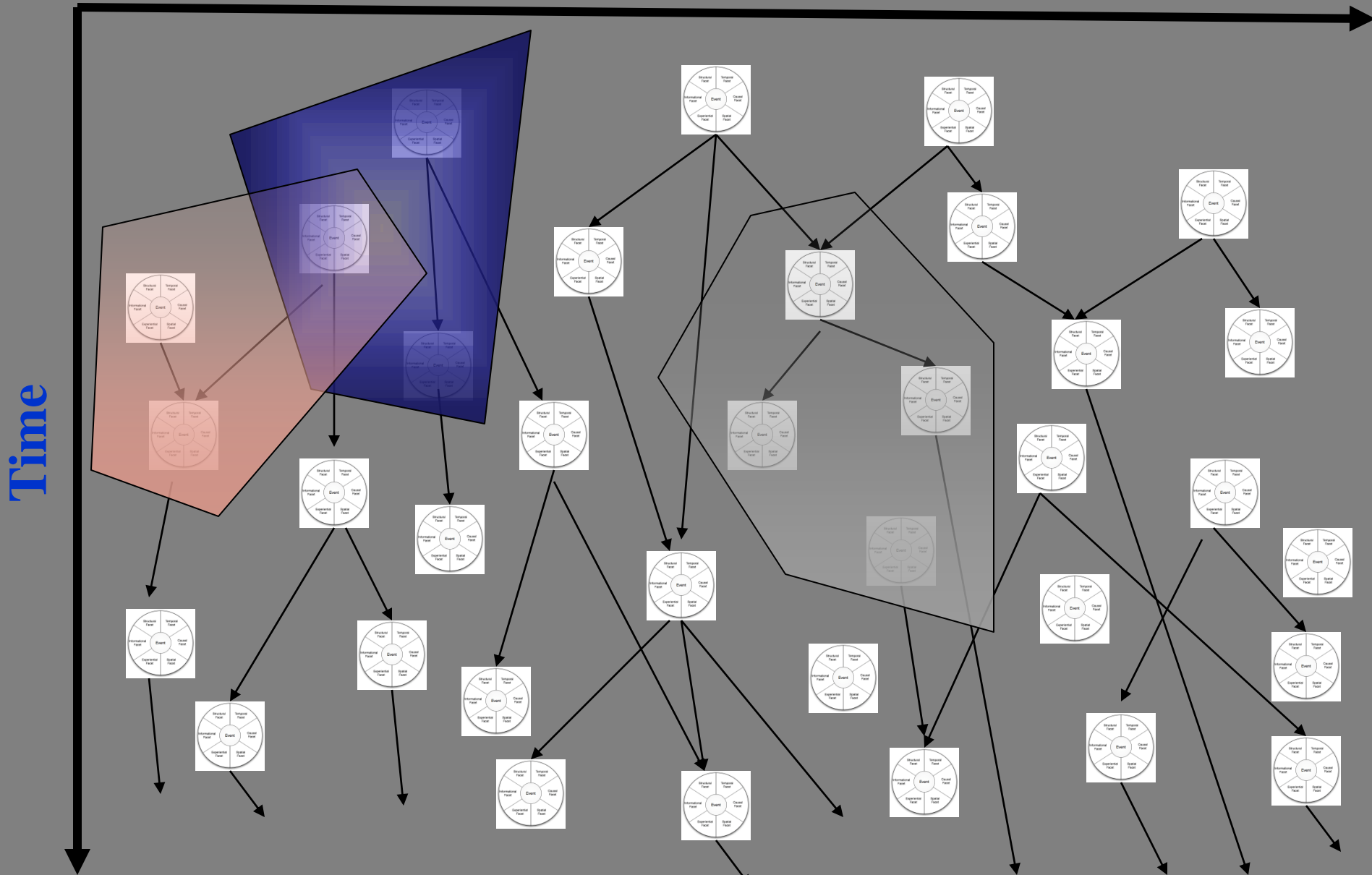
1- dimensional Space

Time



EventWeb

1- dimensional Space



Stages in EventWeb

- **Cyberspace:** Every event is 'created' in cyberspace and exists there.
- **Physical and Cyberspace:** Events in real space are also linked. We have Sentient EventWeb linked with the Cyber Web.

Impacts of these developments

- 1. Many. But lets focus only on:**
- 2. Future of Information Access**
- 3. Implications for Digital Divide (or Digital Dividend)**

Searching Documents

- **Create Document Graph**
- **Inverted Index of Content**
- **Ranking using content and document graph**

Searching Social Networks

- **Create Social Graph**
- **Inverted Index of Content**
- **Rank using content and Social Graph**

Copernican Revolution in Computing



**Who is the King:
Content (Data) or User?**

The last few years of the Web have resulted in another challenge to researchers.

Is SEARCH the right tool?

Is it Collect?

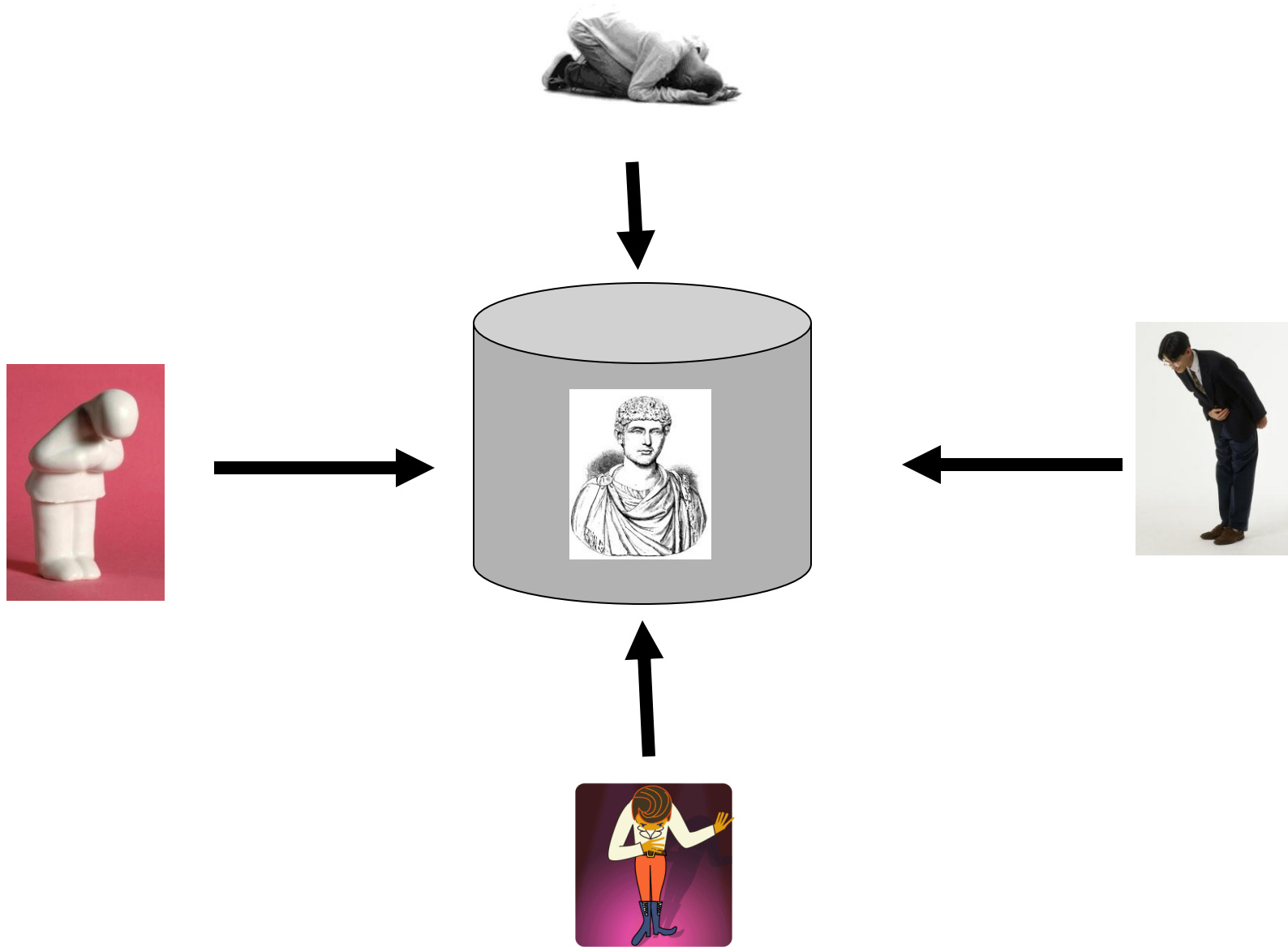
Is it RECEIVE?

Is it ALERT?

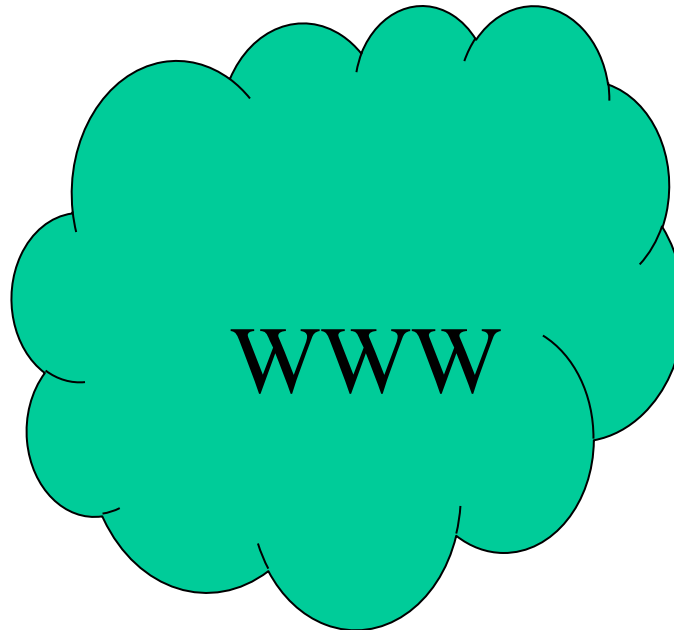
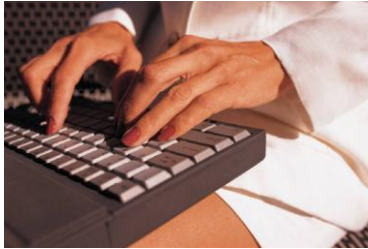
What is more important to you

- An airplane crash in Timbuktu killing 286 people.
 - Your brother in a bike accident resulting in bruised leg.
 - A car accident resulting in 1 death and 2 injuries in your town.
-
- Which one do you want to be alerted about.

In good old days we had databases.



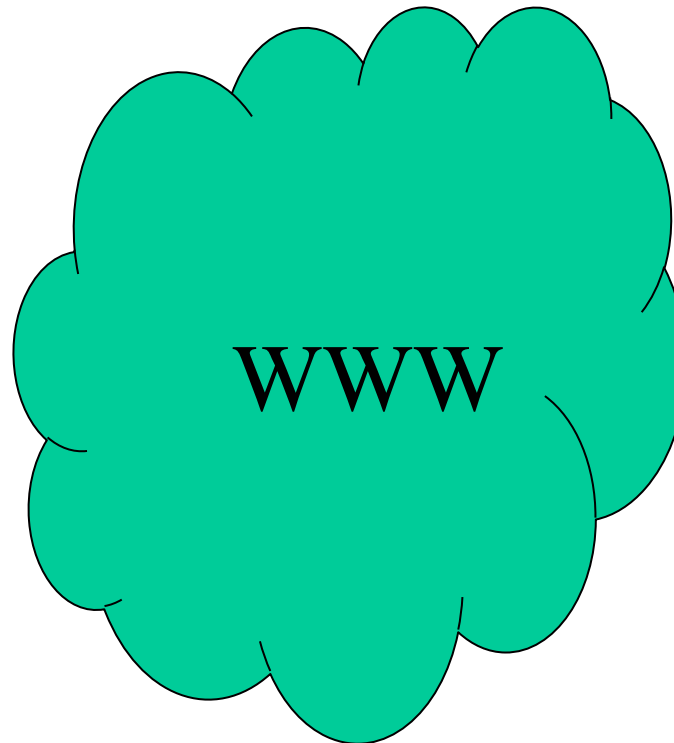
Then came the World Wide Web.



Then came the Social Media



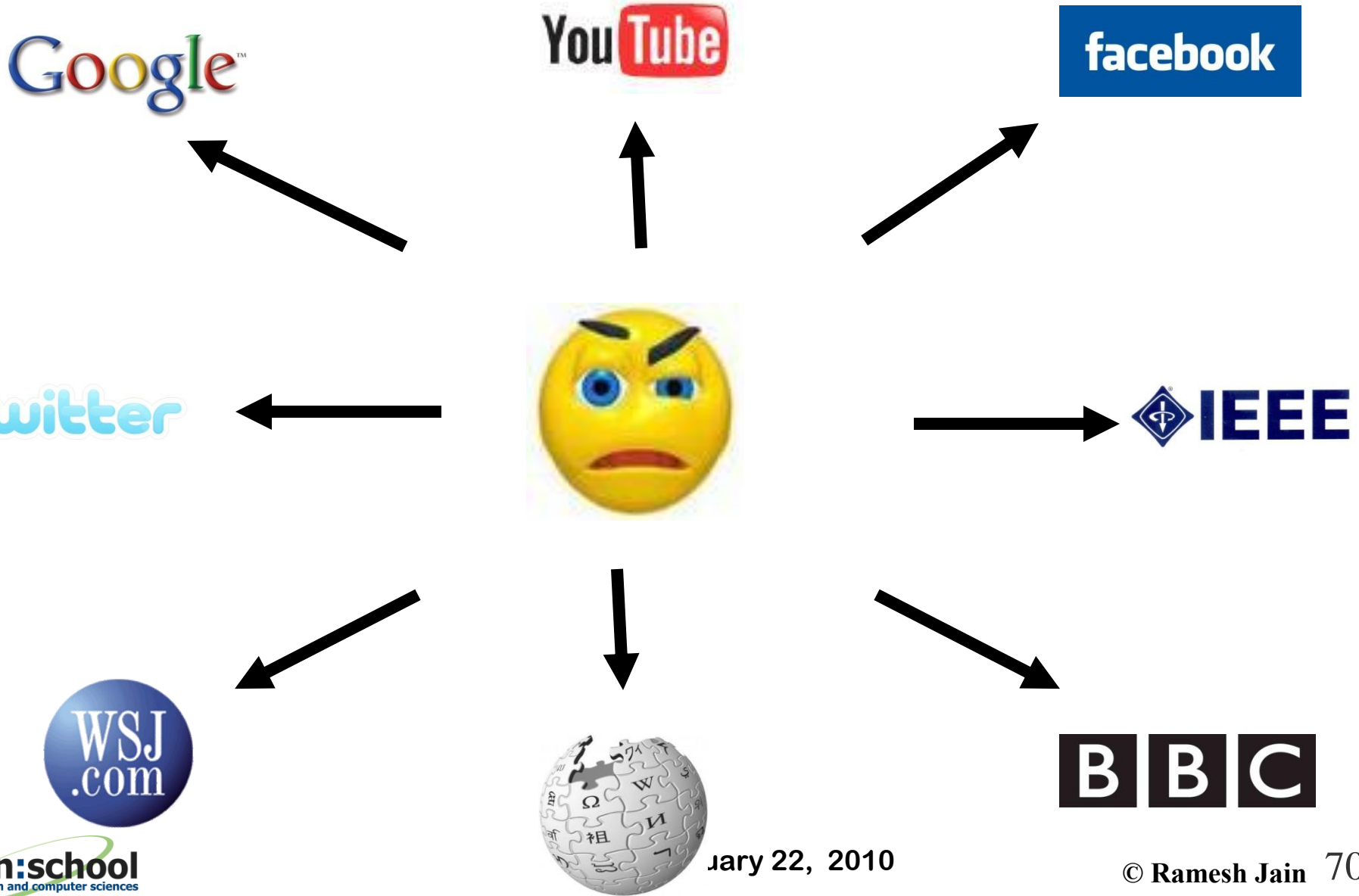
Sentient EventWeb



Creating a Sentient EventWeb

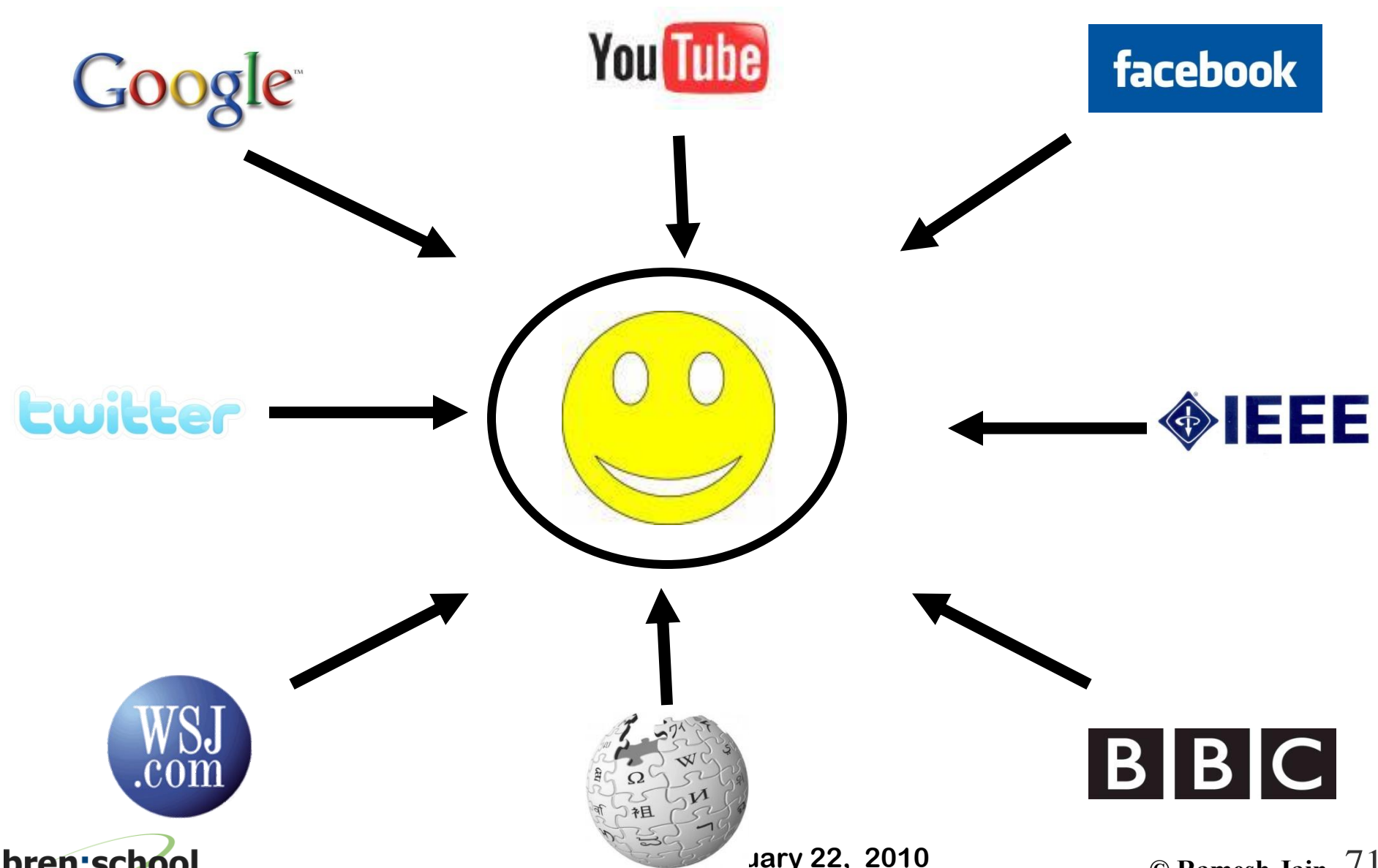
- **Imagine Sensors **Tweeting** – in addition to human sensors.**
 - All video cameras
 - Your refrigerator
 - Each Phone
 - Many more ...
- **Infrastructure to create and link all such events.**
 - **Filter – in Real Time**
 - Detect Situations
 - Create proper Situation Indexes
 - Create alerts for relevant recipients.

All Information is Available, BUT I need to **GET** this!!!



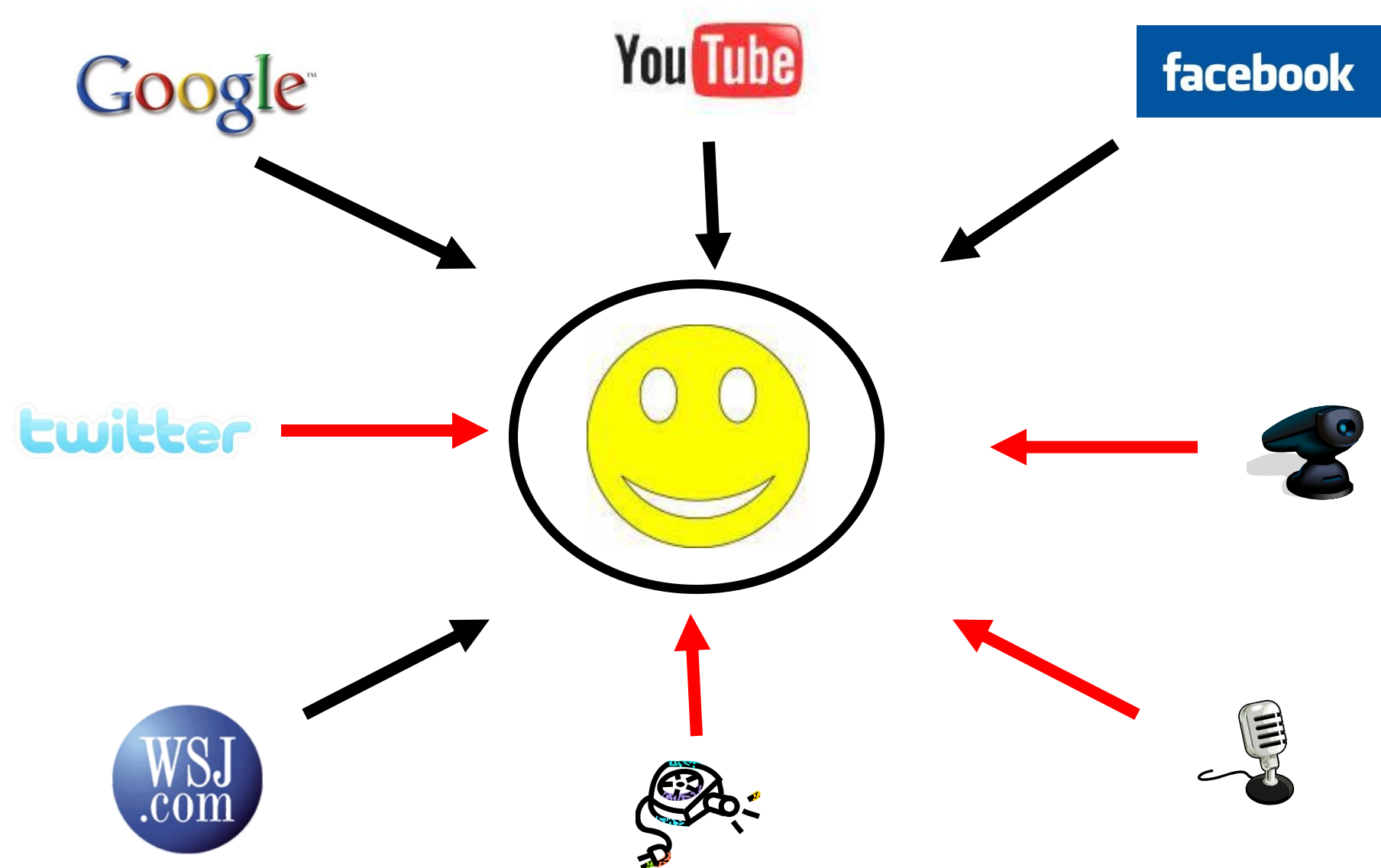
January 22, 2010

Can I **RECEIVE** Right Information, at Right Time, at Right Place?



Including Alerts: Personalized Breaking News.

(Your student just won the best paper award.)



Right Information, at Right Time, at Right Place!

- Requires knowing where and what the information is, but also
- Who the person is, and
- What is the personal context.