PA159

Net-centric computing
Social Media & Social Networks

What is Social Media

- A group of Internet-based applications that build on the ideological and technological foundations of Web 2.0, and that allow the creation and exchange of user-generated content.

- Kaplan, Andreas M.; Michael Haenlein (2010). "Users of the world, unite! The challenges and opportunities of Social Media". Business Horizons 53 (1): 59–68.


Trumba
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vimeo
HipCal
talk
skobsie
shadows
grovee
Zimbra
Smugmug
nexusgator
skype
Blogniscient
TiNYFINGER
flutterfly
PodDater
Feedster
flavor
ZAZZLE
Tailrank
TagWorld
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Renkoo
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Jotspot
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CalendarHub
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Google Spotlight Stories
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Google Earth VR
Google Street View VR
Google Arts & Culture
Google Cultural Institute
Google Art Project
Google Expeditions Pioneer Program
Google Science Fair
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How big is Social Media?

- **112.8 million blogs** and over **250 million pieces of tagged** social media in June 2008, a specialist blog search engine

- More than **13 million hours** of video were uploaded during 2010 and **48 hours of video per minute**, resulting in nearly **8 years of content uploaded every day**

- More than **800 million active users**

Sources: http://en.wikipedia.org/wiki/Technorati, http://www.youtube.com/t/press_statistics, http://www.facebook.com/press/info.php?statistics

Addiction to Social Media

- Social media services "may be addictive."
- The average user spends approximately 55 minutes a day engaging in a social media service, which may make the user develop a "fear of missing out," or withdrawal symptoms if such a user is deprived of it for a certain amount of time.

Source: A day without social media, University of Maryland, College Park, USA - http://withoutmedia.wordpress.com/

Addiction to Social Media

- Students use literal terms of addiction to characterize their dependence on media.
- Students hate going without media. In their world, going without media, means going without their friends and family.
- Students show no significant loyalty to a news program, news personality or even news platform. They get news in a disaggregated way, often via friends.
- 18-21 year old college students are constantly texting and on Facebook—with calling and email distant seconds as ways of staying in touch, especially with friends.
- Students could live without their TVs and the newspaper, but they can't survive without their iPods.

How addicted do you feel?

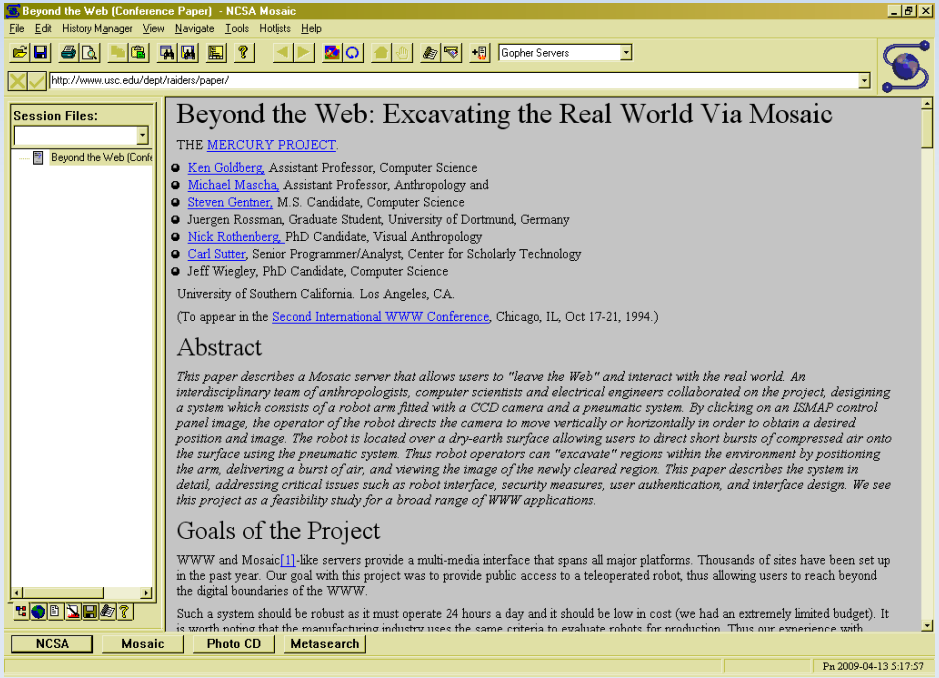
Characteristics of Social Media

- Participation: it blurs the line between media and audience.
- Openness: Everyone has a voice. Content seen as authentic and trustworthy?
- Conversation: Two (or more) way conversation between people rather than one-way broadcasting.
- Community: Support formation, growth and strength of communities around a particular shared interest.
- Connectedness: Thrives on being connected, making use of links to other sites, resources, people.

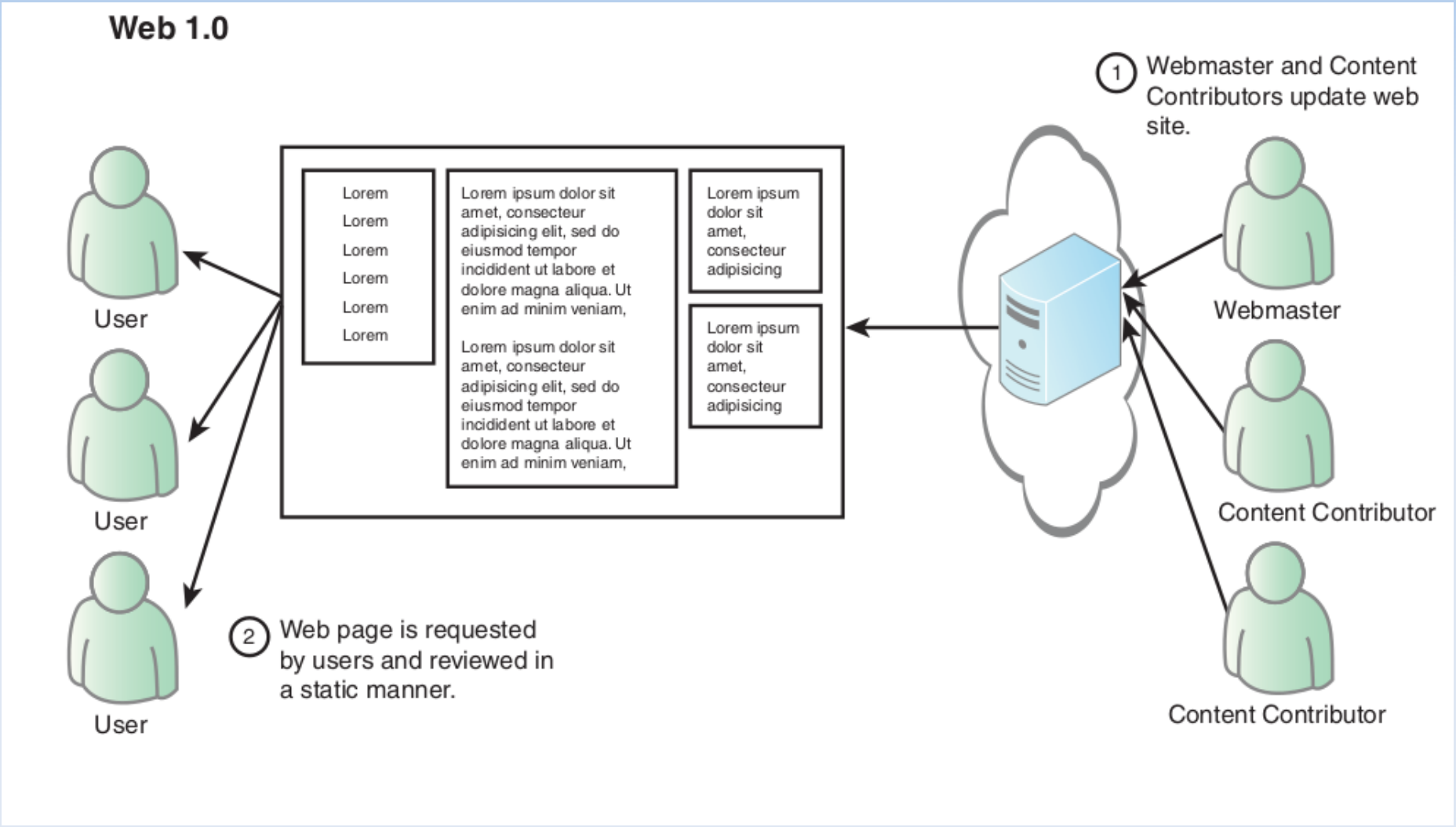
Source: Mayfield, Anthony. 2007. What is Social Media? (Online resource: http://www.icrossing.co.uk/fileadmin/uploads/eBooks/What_is_Social_Media_iCrossing_ebook.pdf). ICrossing.

First popular web browser: Mosaic (1993)

- Protocols supported: Archie, FTP, gopher, HTTP, NNTP, telnet, WAIS
- Display images inline with text instead of displaying images in a separate window



How the web worked during the 1990s



Web 2.0 Darcy DiNucci (January 1999)

- The Web we know now, which loads into a browser window in essentially static screenfuls, is only an embryo of the Web to come. The first glimmerings of Web 2.0 are beginning to appear, and we are just starting to see how that embryo might develop. The Web will be understood not as screenfulls of text and graphics but as a transport mechanism, the ether through which interactivity happens. It will [...] appear on your computer screen, [...] on your TV set [...] your car dashboard [...] your cell phone [...] hand-held game machines [...] maybe even your microwave oven.

Web 2.0 Core technologies

Client-side:

- Asynchronous JavaScript and XML (Ajax)
- Adobe Flash
- Adobe Flex framework
- JavaScript/Ajax frameworks such as YUI Library, Dojo Toolkit, MooTools, and jQuery

Server-side:

- PHP, Ruby, Perl, Python and JSP

REST (JSON and XML)

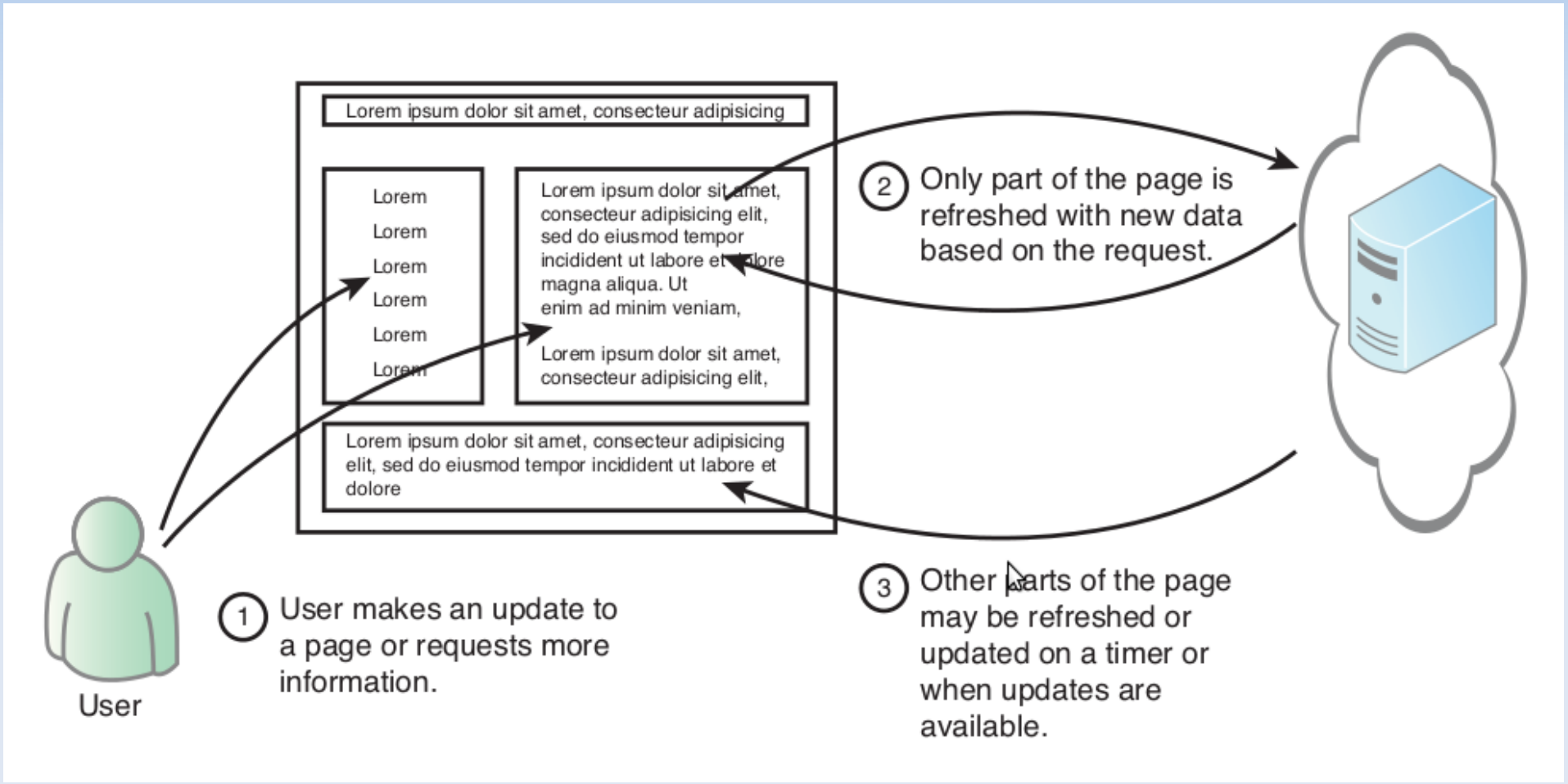
AJAX

- The term Ajax was coined on February 18, 2005 by Jesse James Garrett in an article entitled "Ajax: A New Approach to Web Applications"
- Outlook Web Access (2000) and Oddpost (2002), and later, Google made a wide deployment of Ajax with Gmail (2004) and Google Maps
- The keyword here is: **Asynchronous**

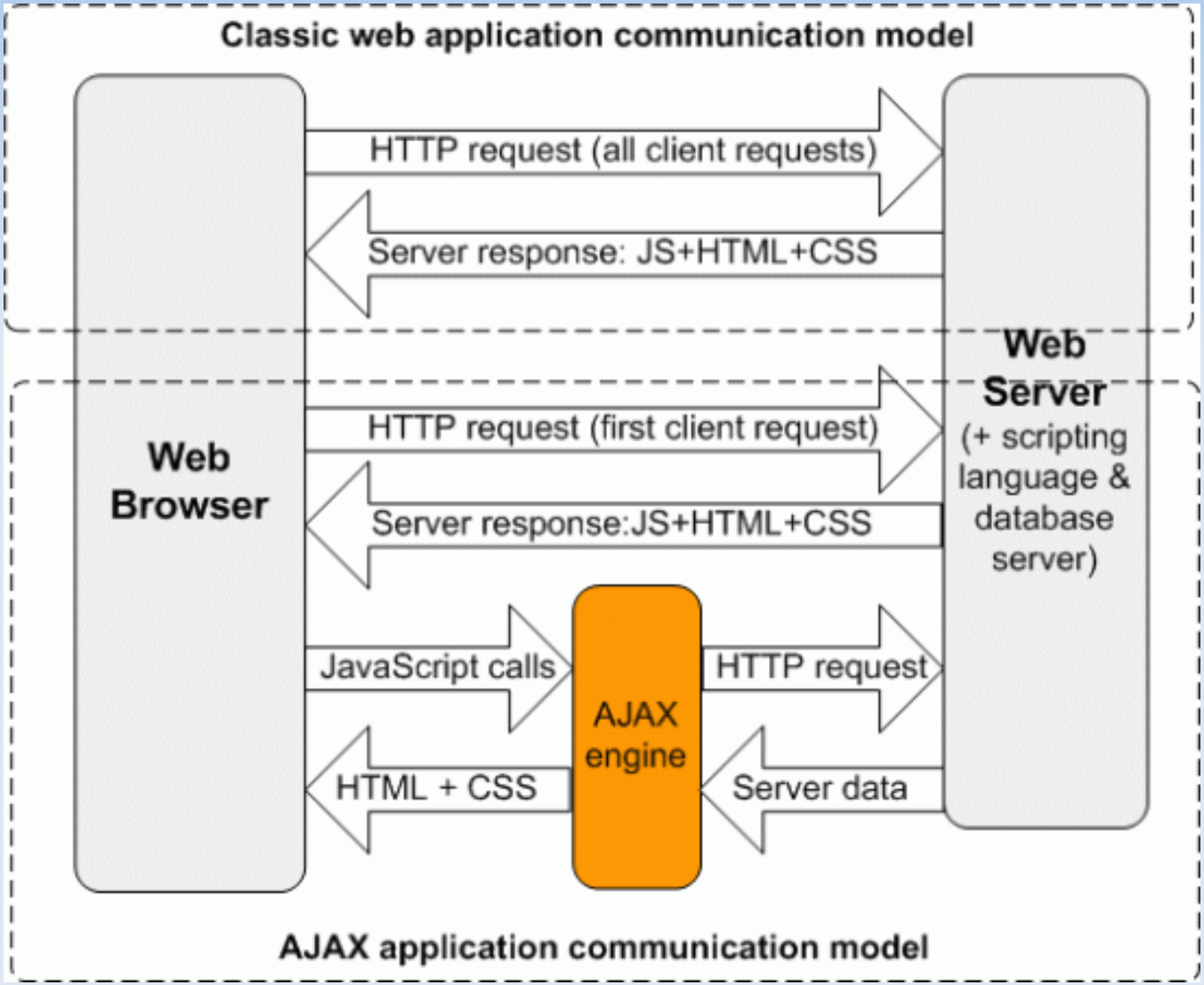
What is AJAX?

- HTML (or XHTML) and CSS for presentation
- The Document Object Model (DOM) for dynamic display of and interaction with data
- XML for the interchange of data, and XSLT for its manipulation
- The XMLHttpRequest object for asynchronous communication
- JavaScript to bring these technologies together

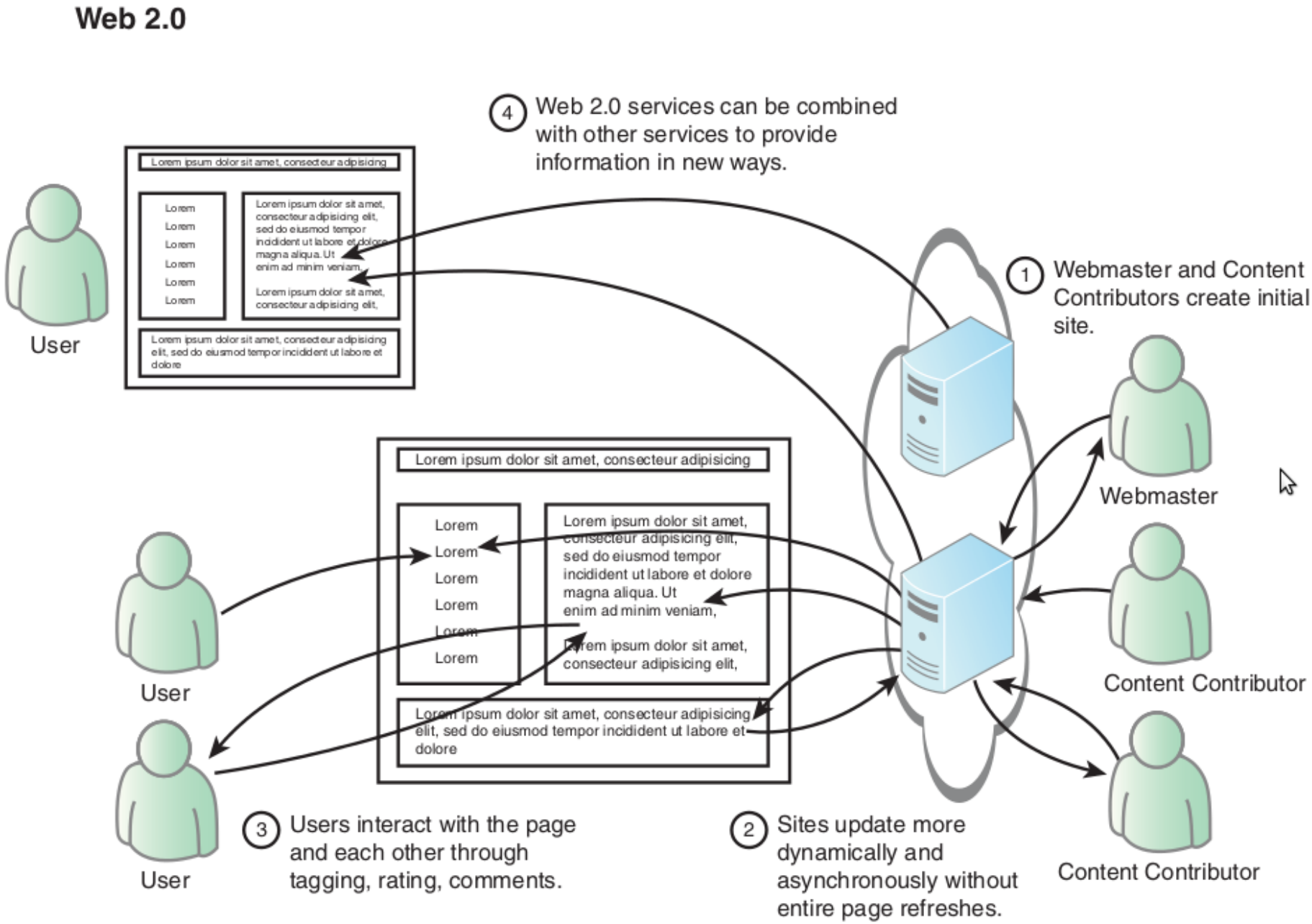
Graphical representation of AJAX



A more technical depiction AJAX



Web 2.0 and Social Media



Tremendous change in our lives

Social media is here to stay

Basic forms of Social Media

- Social Networks (MySpace, Facebook, Researchgate)
- Blogs
- Wikis (Wikipedia)
- Podcast (Apple iTunes)
- Forums
- Content communities (Flickr, Youtube)
- Microblogging (Twitter)

What is a social network?

A social network is a social structure made up of individuals (or organizations) called "nodes", which are tied (connected) by one or more specific types of interdependency, such as friendship, kinship, common interest, financial exchange, dislike, sexual relationships, or relationships of beliefs, knowledge or prestige.

Anna Buss, Nancy Strauss define online communities as Web sites where user relationships develop.

Source: Buss, A. and Strauss, N., Online Community Handbook: Building Your Business and Brand on the Web, 2009

Comparison of Social Networks and Online Communities (1)

A social network:	An online community:
has an organizational structure focused around an individual user's one-to-one relationships	has an organizational structure focused around a shared purpose rather than one-to-one relationships
has weak secondary connections between members	has strong, predictable secondary relationships among members
allows its users to be members of many communities in the network at the same time	is distinct from other communities because of differences in purpose, policies, and computing environment

Source: Elsevier - Morgan Kaufmann Design to Thrive Creating Social Networks Edition 2010

Comparison of Social Networks and Online Communities (2)

A social network:	An online community
is good for sharing activities	is good for activities requiring sharing and cooperating
is less effective at activities requiring cooperation and collective action	is effective at providing the framework for activities requiring collective action
makes it easier for users to build communities	should not be confused with “adhocracies,” “discussion groups,” “forums,” or “lists”

Source: Elsevier - Morgan Kaufmann Design to Thrive Creating Social Networks Edition 2010

Shirky's ladder

- Sharing
  Ideal for social networks, i.e. exchanging photos
- Cooperation
  takes more effort and demands more complexity, organizing activity for gathering resources for a party, strong secondary connections needed
- Collective action
  dealing with large organizational structures, such as unions, government agencies, corporations.

Social network sites

Social network sites are defined as web-based services that allow individuals to:

- construct a public or semi-public profile within a bounded system
- articulate a list of other users with whom they share a connection
- view and traverse their list of connections and those made by others within the system. The nature and nomenclature of these connections may vary from site to site.

Source: boyd, d. m. and Ellison, N. B. (2007), Social Network Sites: Definition, History, and Scholarship. Journal of Computer-Mediated Communication, 13: 210–230.

“social network site” <> “social networking sites”

Two things to keep in mind, emphasis and scope

- ““Networking” emphasizes relationship initiation, often between strangers.”
- “Participants are not necessarily “networking” or looking to meet new people; instead, they are primarily communicating with people who are already a part of their extended social network.”

“What makes social network sites unique is not that they allow individuals to meet strangers, but rather that they enable users to articulate and make visible their social networks.”

Source: boyd, d. m. and Ellison, N. B. (2007), Social Network Sites: Definition, History, and Scholarship. Journal of Computer-Mediated Communication, 13: 210–230.

Ingredients for a social network site (1)

Construct a public or semi-public profile within a bounded system

Robin Hood

Activist/ Chief Fundraiser at Nottingham

Nottingham, United Kingdom | Fund-Raising

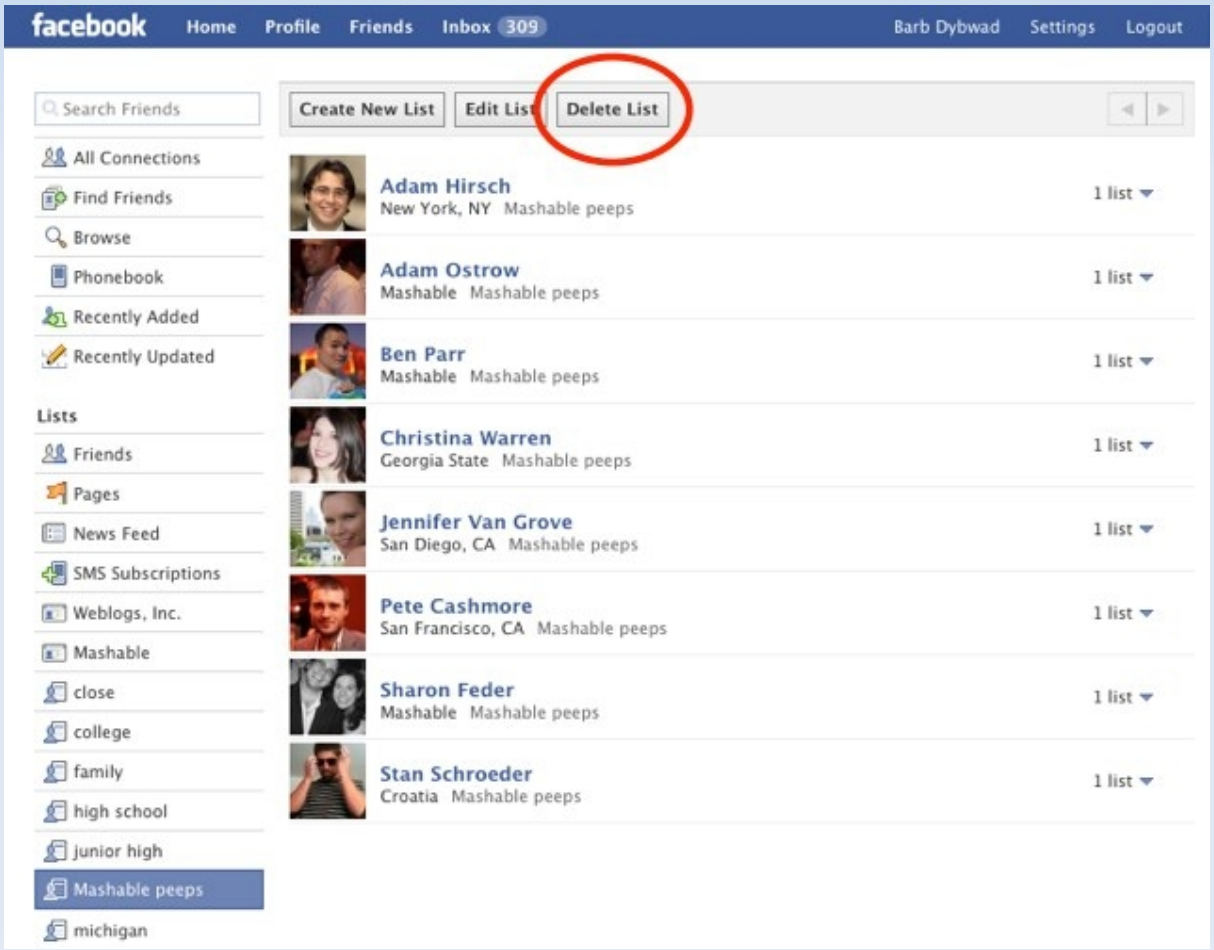
Current	• **Activist** at **Nottingham** • **Mortal enemy** at **Sheriff of Nottingham** • **Environmentalist** at **Sherwood Forest**
Connections	**6** connections

Summary

Accomplished fundraiser with over 15 years experience in robbing the rich to give back to the poor. Skilled at highway robbery. Charismatic leader that motivates and directs a band of 15 merry men.Skilled in forestry, archery, swordfighting, hand to hand combat. Great singing and dancing skills.

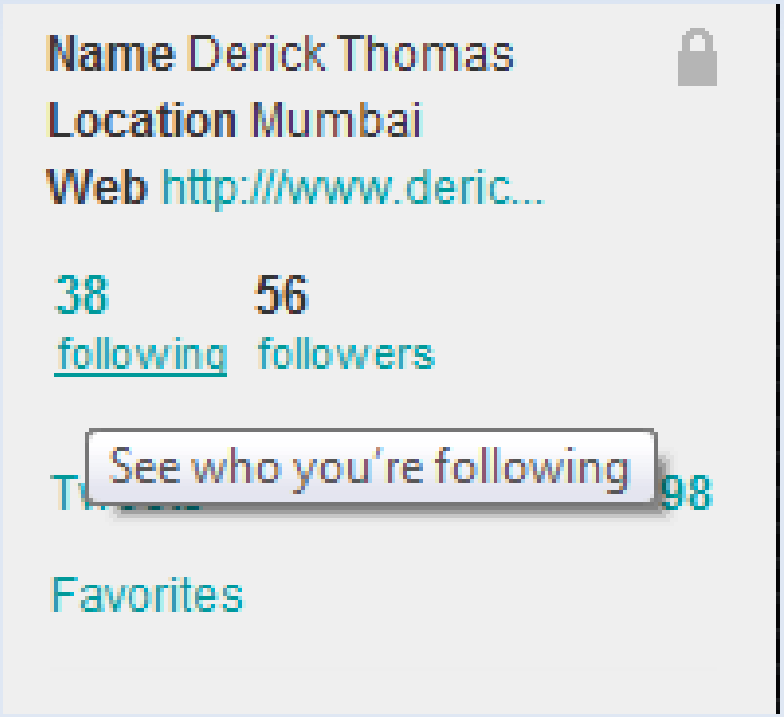
Ingredients for a social network site (2)

Articulate a list of other users with whom they share a connection



Ingredients for a social network site (3)

View and traverse their list of connections and those made by others within the system.



Technological Aspects of Social Media & SNS

Facebook technologies

- The company is the largest user in the world of memcached, an open source caching system, and has one of the largest MySQL database clusters anywhere.
- Second most-trafficked PHP site in the world (Yahoo is #1)
- Lightweight but powerful multi-language RPC framework that allows us to seamlessly and easily tie together subsystems written in any language, running on any platform.
- Facebook is built in PHP, C++, Perl, Python, Erlang, Java.
- We've created a custom-built search engine serving millions of queries a day, completely distributed and entirely in-memory, with real-time updates.

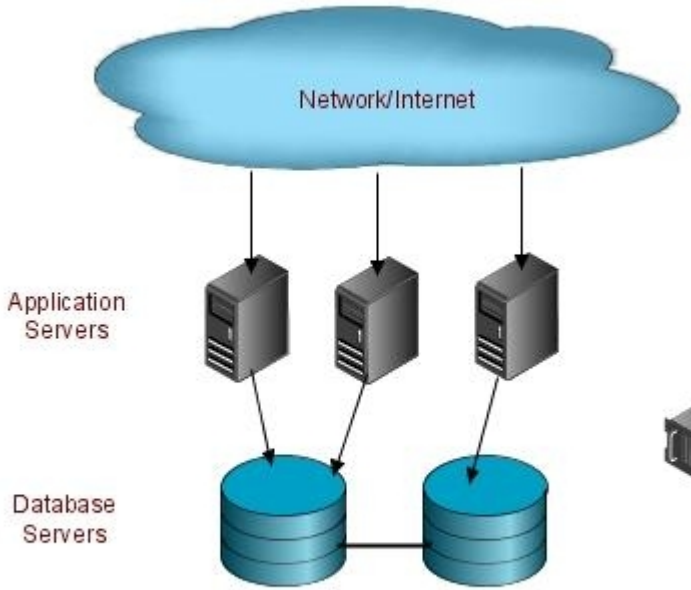
MYSQL

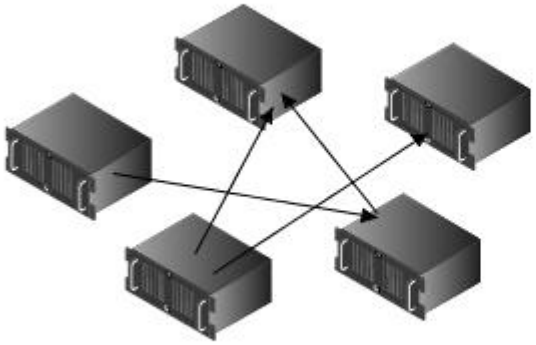
- Relational database management system (RDBMS) that runs as a server providing multi-user access to a number of databases.
- It is named after developer Michael Widenius' daughter, My. The SQL phrase stands for Structured Query Language.

What is memcached?

- Free & open source, high-performance, distributed memory object caching system, generic in nature, but intended for use in speeding up dynamic web applications by alleviating database load.
- Memcached is an in-memory key-value store for small chunks of arbitrary data (strings, objects) from results of database calls, API calls, or page rendering.
- Memcached is simple yet powerful. Its simple design promotes quick deployment, ease of development, and solves many problems facing large data caches. Its API is available for most popular languages.

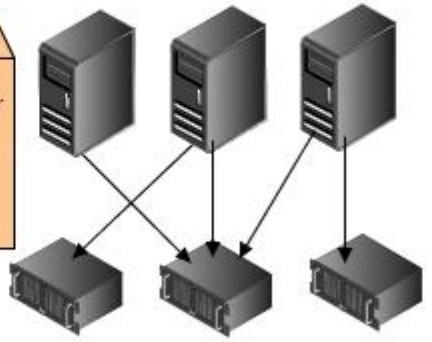
Why memcached?





Common load distribution. But memcached **do not** work this way.

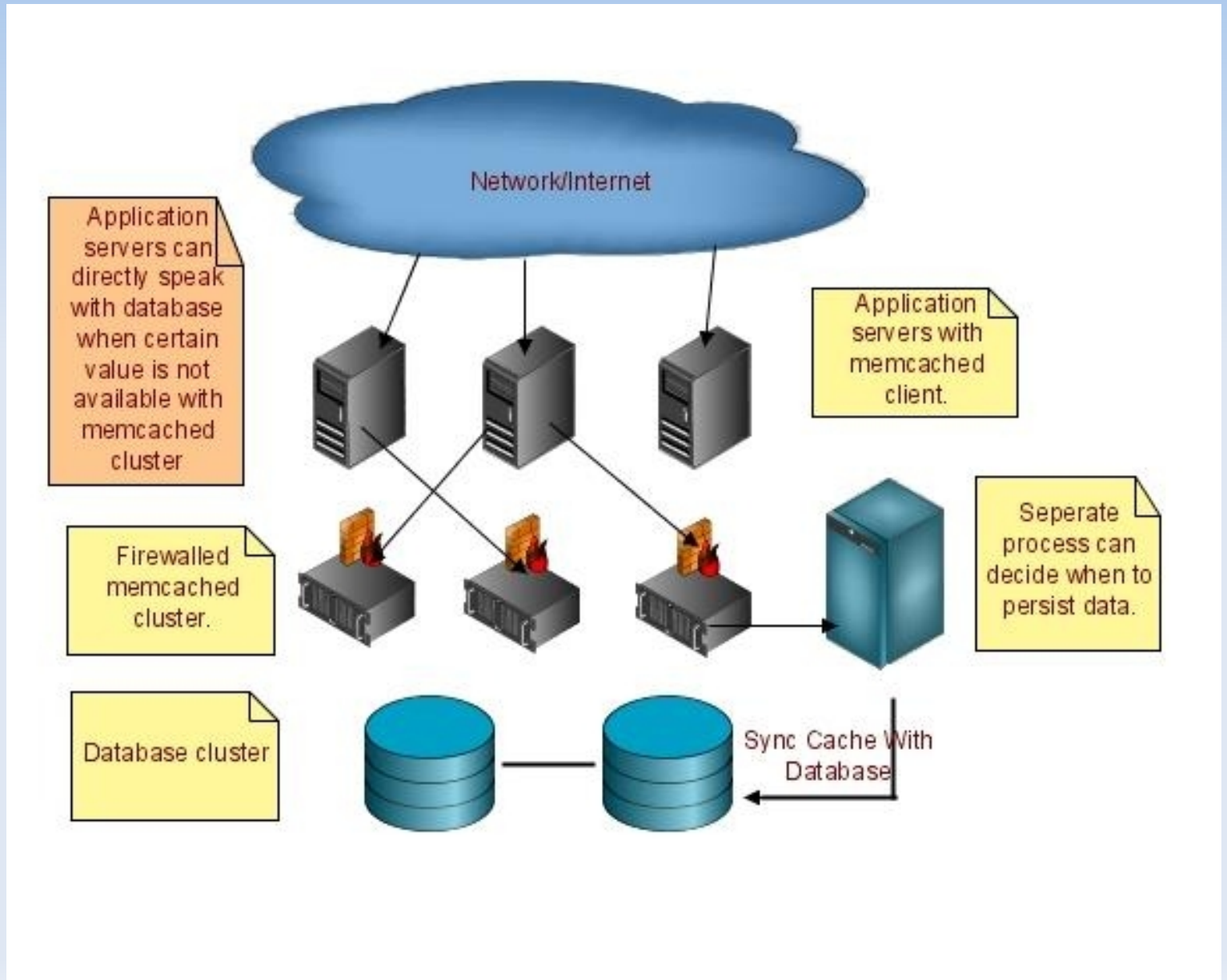
Client decides from which server to read or write based on hashing scheme.



Memcached client code running as part of application code.

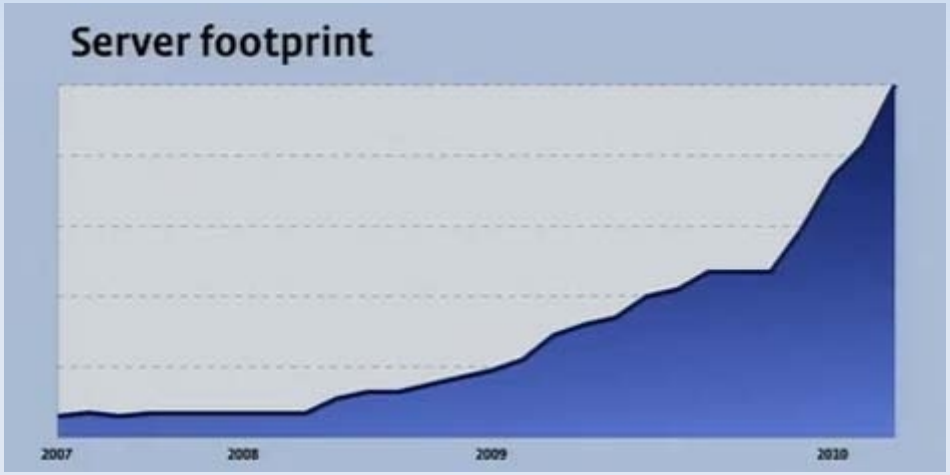
Memcached servers running independent of each other.

A memcached example



How many servers does Facebook have?

- In a presentation in November 2009, Facebook vice president of technology Jeff Rothschild disclosed that the company had more than 30,000 servers.
- Tom Cook at last week's Velocity 2010 conference presented this figure in his presentation. Effectively making the servers 60.000 or more!



Facebook's infrastructure probably doesn't look like this

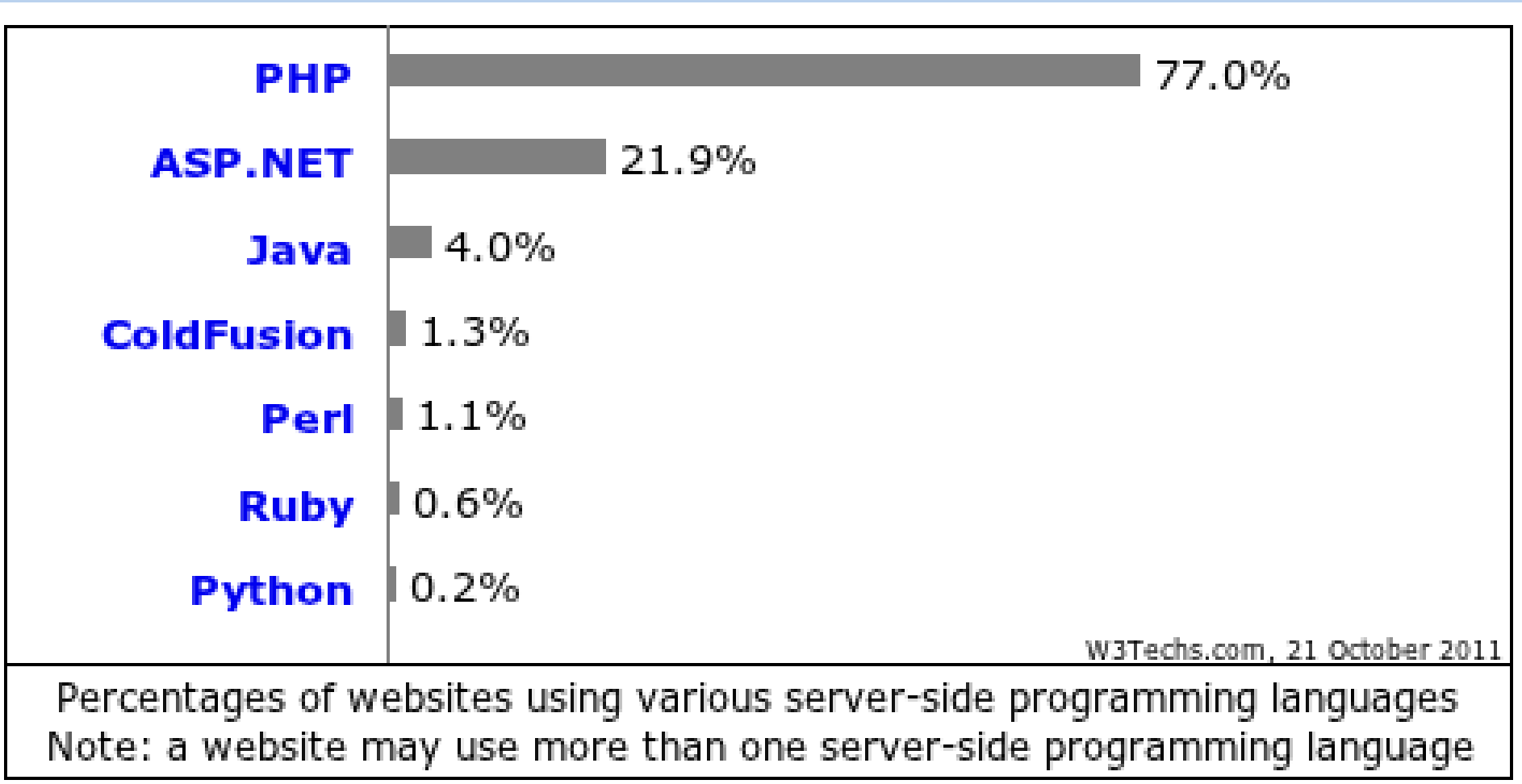
PHP

- Created by Rasmus Lerdorf and released in 1995

Can be used for:

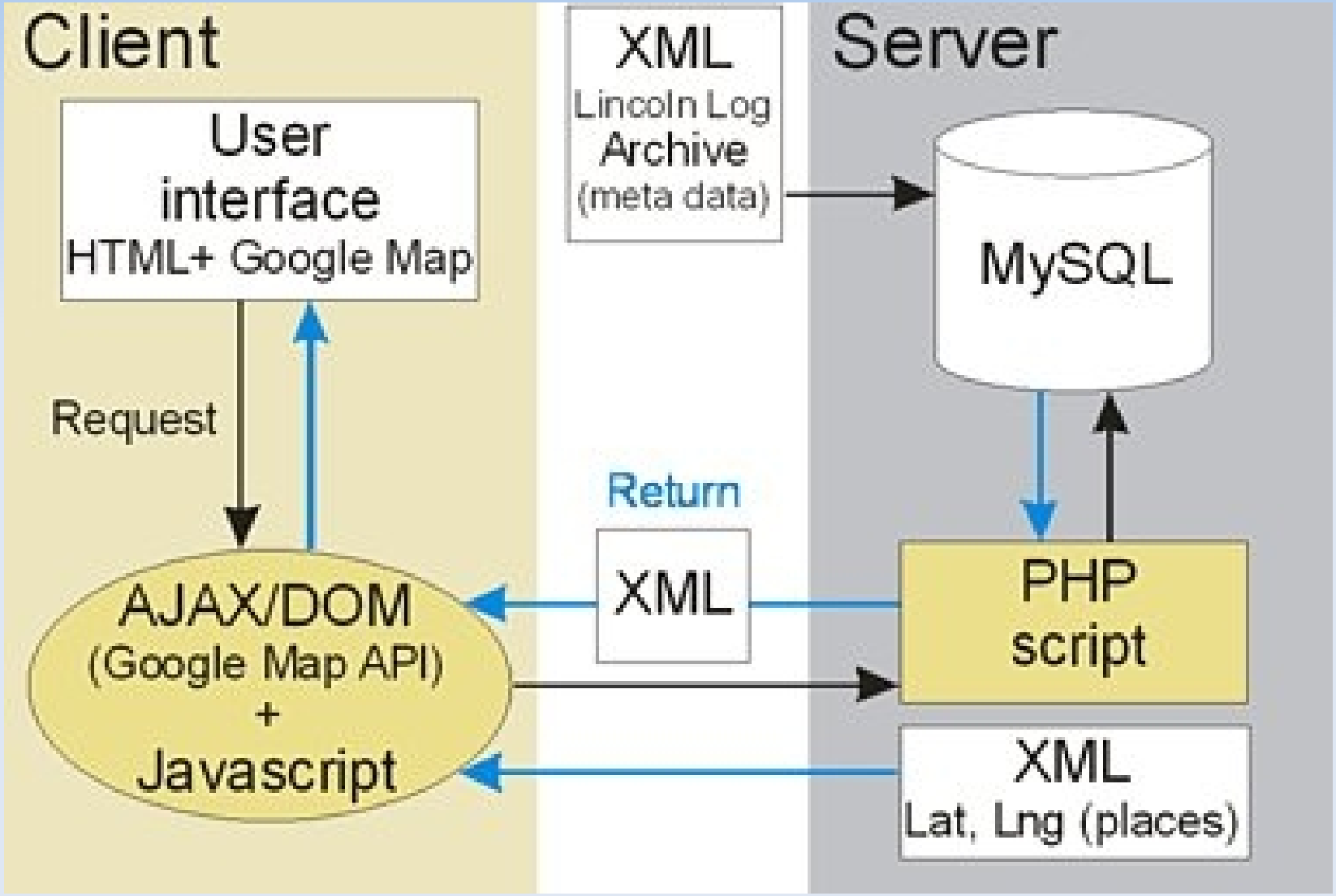
- Server-side scripting
- Command line scripting
- Writing desktop applications

PHP usage today

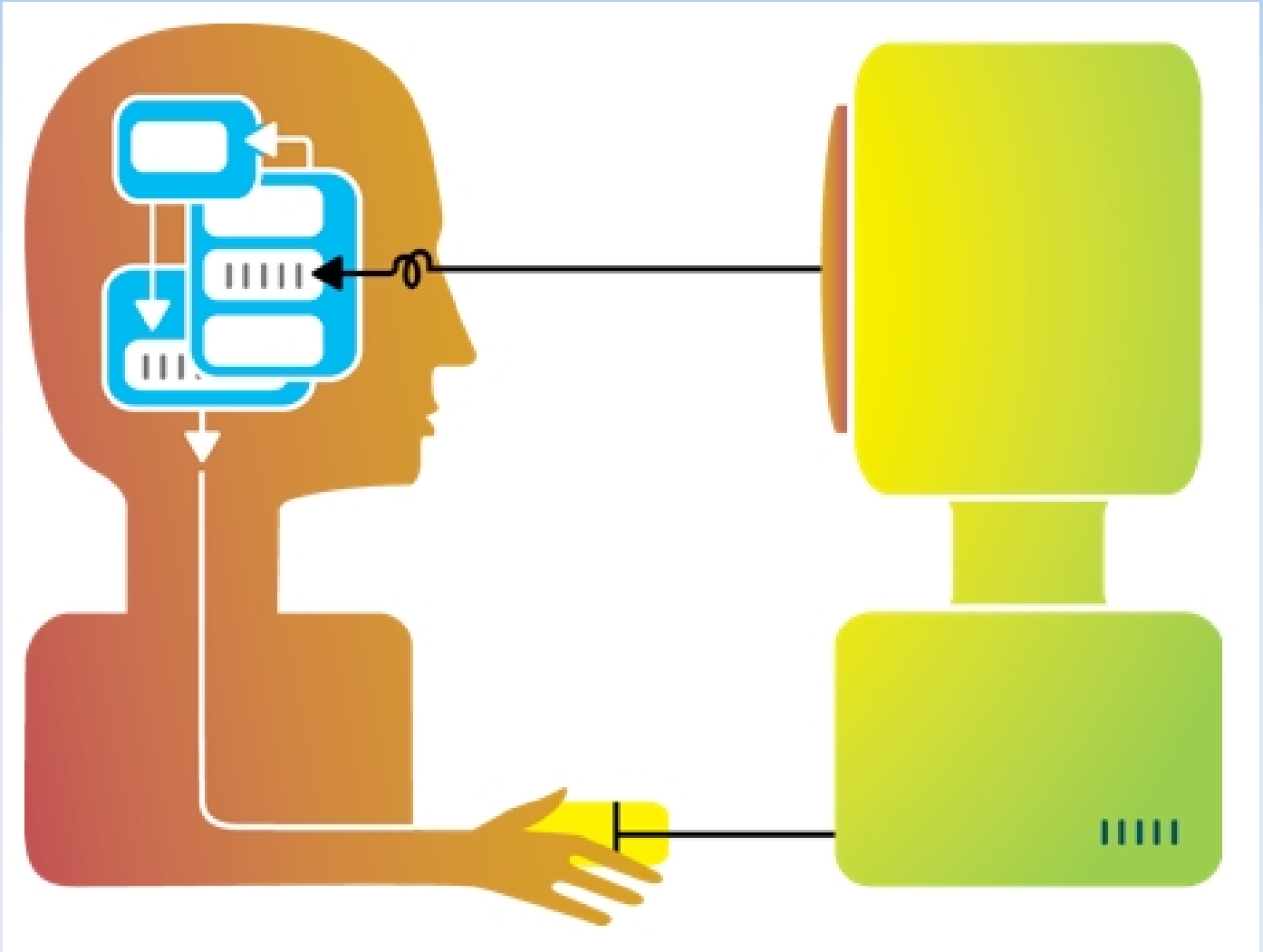


Percentages of websites using various server-side programming languages
Note: a website may use more than one server-side programming language

An example of binding all the technologies



Social aspects of Social Networks



Mazlow's Hierarchy of Needs

Needs	Real life	Online communities
Physiological	Food, clothing, shelter, health	System access, retain management of system identity
Security and Safety	Protection from crimes and war, living in a just society	Protection from hacking and trolling, privacy, level playing field
Social	Ability to give and receive love, belonging to a group	Belonging to a community as a whole and swarms (subgroups)
Self-esteem	Ability to earn self respect, respect of others and ability to contribute	Ability to contribute and be recognised for those contributions
Self Actualisation	Develop skills	Take on new roles and new opportunities

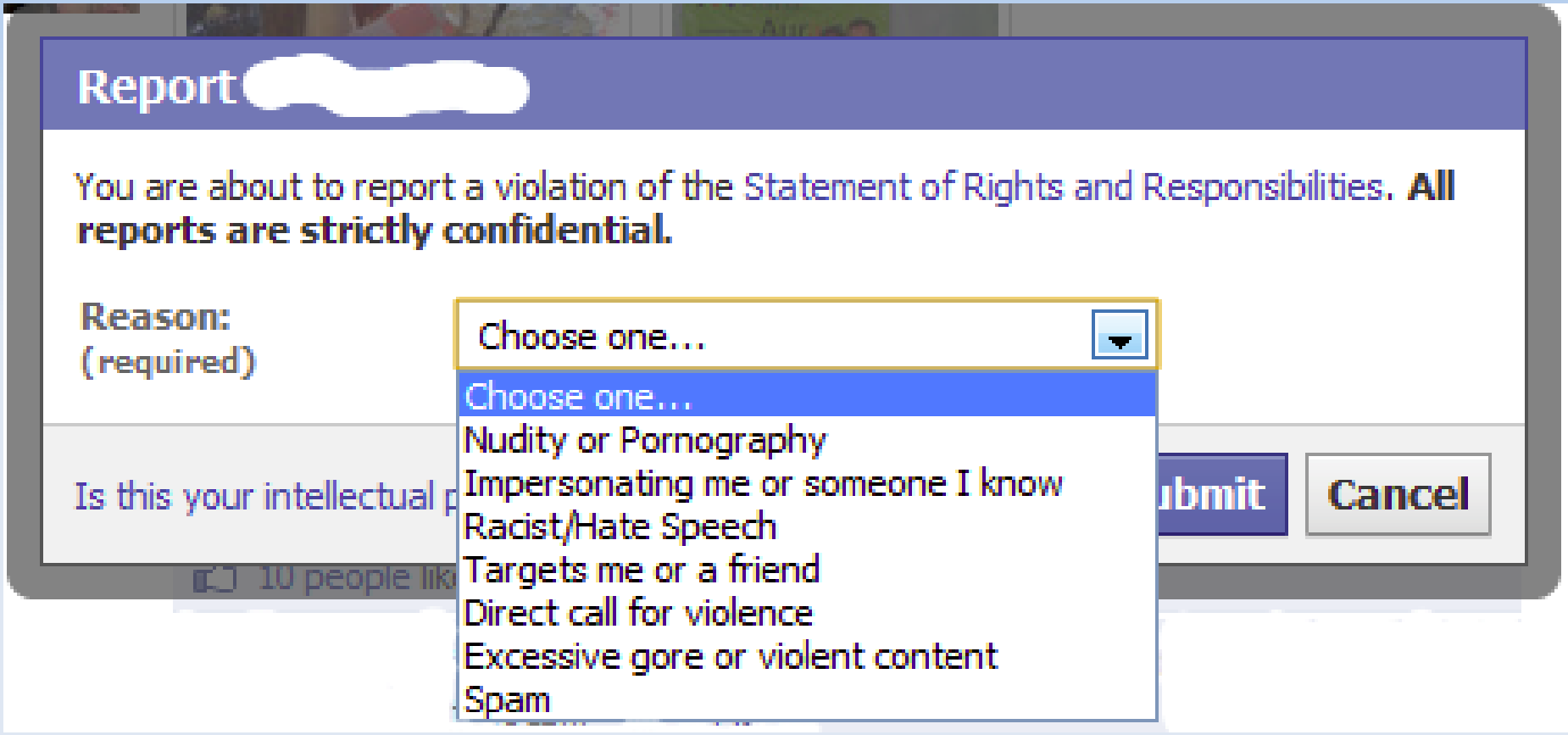
Source: Amy J. Kim. Community Building on the Web : Secret Strategies for Successful Online Communities. Peachpit Press, April 2000.

Security and Safety & Self-Esteem

Eliminating:

- Aggressive content
- Racist content
- Pornographic content
- Misinterpret content
- Abuse
- Cyber bullying
- Copyright issues

Moderating the content



Youtube's automated approach: What is the Content ID tool?

The Content ID tool is the latest way YouTube offers copyright holders to easily identify and manage their content on YouTube. The tool creates ID files which are then run against user uploads and, if a match occurs, the copyright holders policy preferences are then applied to that video. Rights owners can choose to block, track or monetize their content.

Source: http://www.youtube.com/t/contentid

Youtube's Content ID Video

Software moderation: Bullytracer's example

- Rules based on a dictionary of key words are used to classify a window of posts.
- A truth set of MySpace threads was created.
- found correctly windows containing cyberbullying 85.30%, and it identifies innocent 51.91%
- The overall accuracy is 58.63%.

Source: Bayzick, Jennifer and Kontostathis, April and Edwards, Lynne (2011) Detecting the Presence of Cyberbullying Using Computer Software. pp. 1-2. In: Proceedings of the ACM WebSci'11, June 14-17 2011, Koblenz, Germany.

Best approach: Mixed-Methods(?)

- Moderators as the main protective force of a social network site
- Users contributing by reporting what moderators cannot see or do not have enough time to see(such as personal messages)
- Software used to detect suspicious messages which moderators can investigate later on and evaluate them

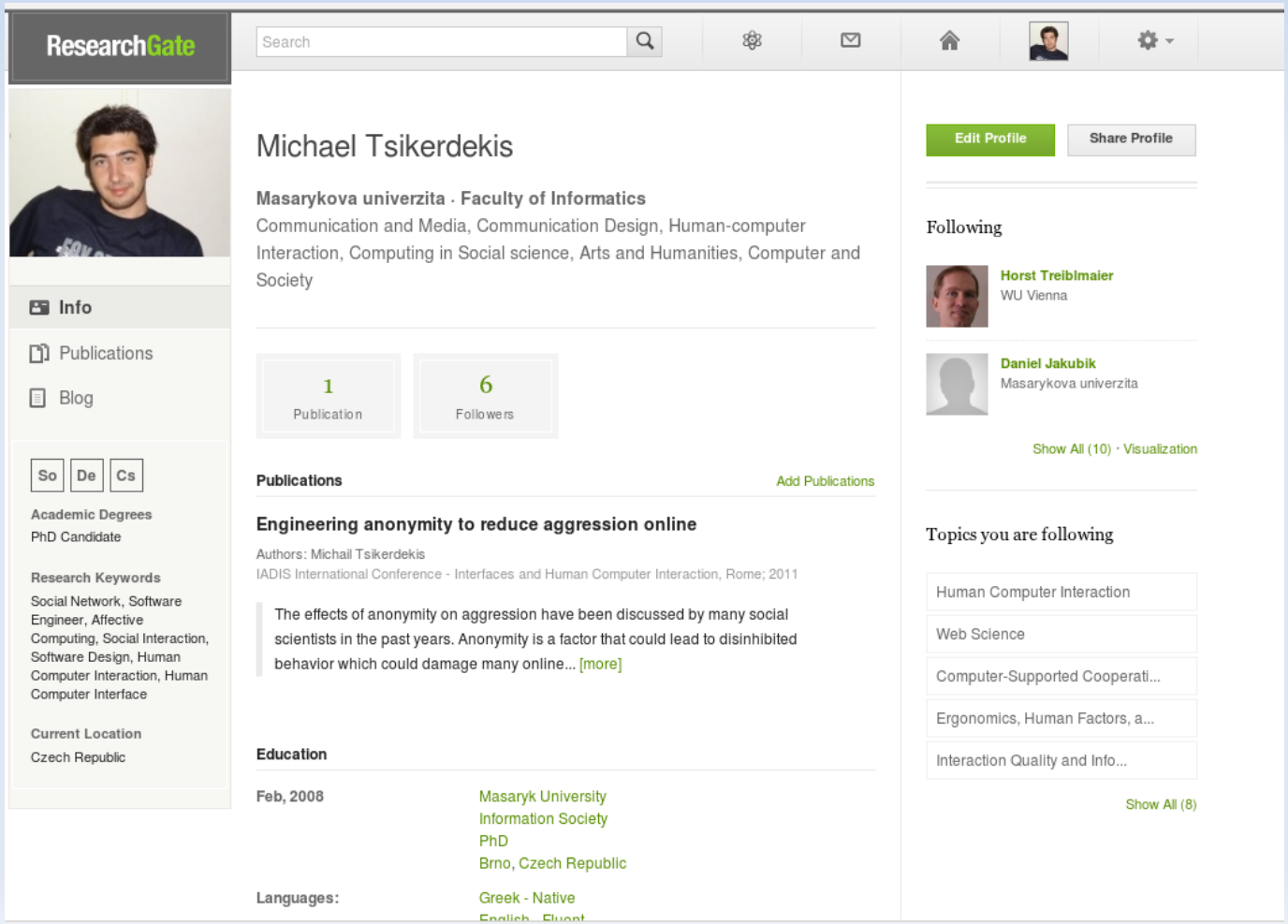
Cooperative principle

- Maxim of Quality: Be Truthful: Do not say what you believe to be false. Do not say that for which you lack adequate evidence.
- Maxim of Quantity: Quantity of Information: Make your contribution as informative as is required. Do not make your contribution more informative than is required.
- Maxim of Relevance: Relevance: Be relevant.
- Maxim of Manner: Be Clear: Avoid obscurity of expression. Avoid ambiguity. Be brief (avoid unnecessary prolixity). Be orderly.

Source: Grice, Paul (1975). "Logic and conversation". In Syntax and Semantics, 3: Speech Acts, ed. P. Cole & J. Morgan. New York: Academic Press. Reprinted in Studies in the Way of Words, ed. H. P. Grice, pp. 22–40. Cambridge, MA: Harvard University Press (1989)

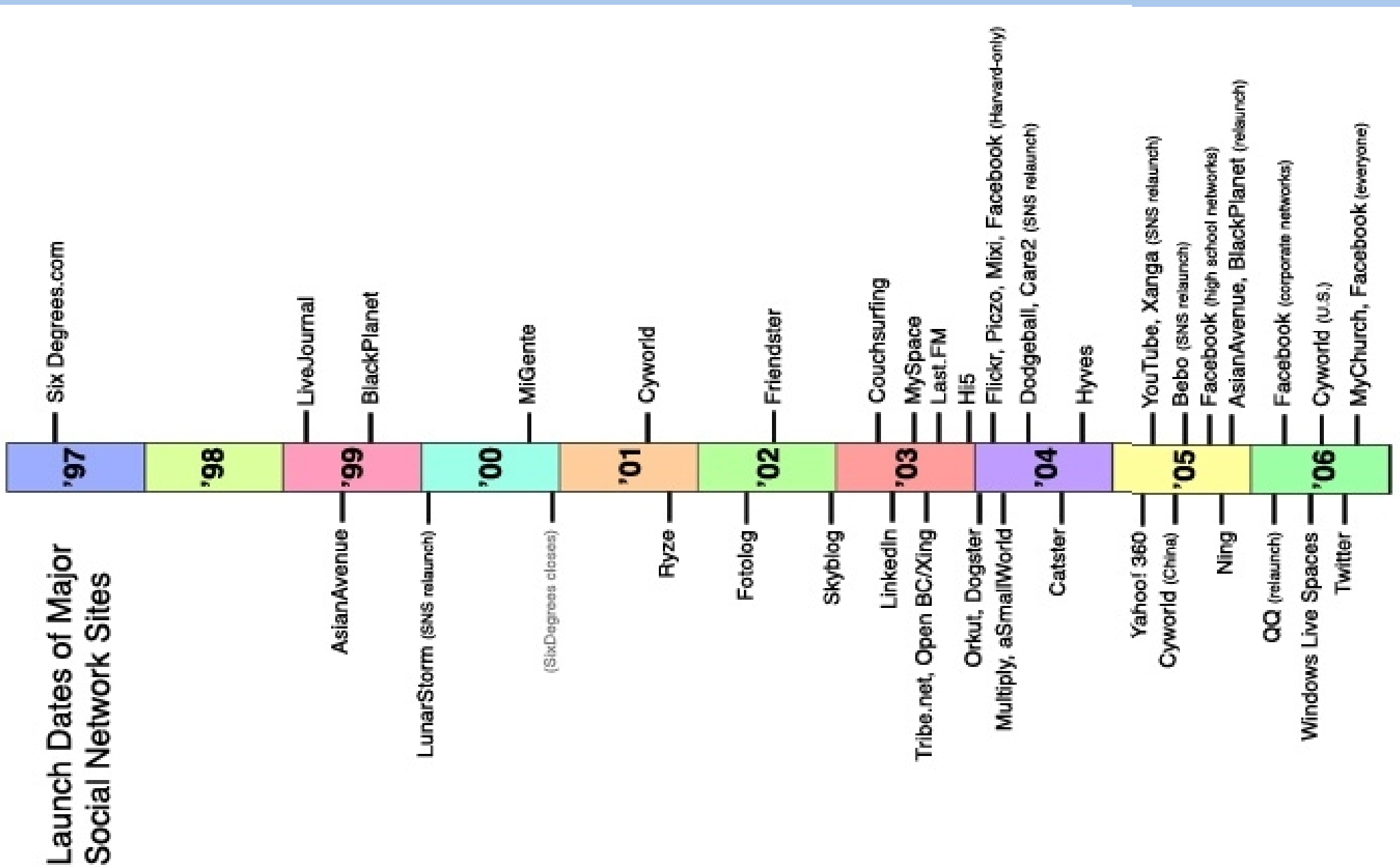
Example: Maxim of Quality

65% of people believe in ghosts.[citation needed]



The Friendster case

How old is Friendster?



Friendster highlights

- Friendster is built on the assumption that friends-of-friends are more likely to be good dates than strangers.
- While Stanley Milgram argues that everyone is connected within 6 degrees, Friendster only allows you to see or communicate with those who are within 4 degrees.
- Friendster encourages users to join even if they are not looking for dates Friendster launched into public beta in the fall of 2002. By mid-August 2003, the site had 1.5 million registered accounts and was still growing exponentially.

danah boyd (2003). "Reflections on Friendster, Trust and Intimacy." Ubiquitous Computing (Ubicomp 2003), Workshop application for the Intimate Ubiquitous Computing Workshop. Seattle, WA, October 12-15, 2003.

Technical Difficulties

- Friendster's servers and databases were ill-equipped to handle its rapid growth, and the site faltered regularly, frustrating users who replaced email with Friendster.

Social difficulties

- Upset cultural balance
- Collapse in social contexts
- Fakesters & Trophy Friends

Friendster's solution

- Active deletion of Fakesters (and genuine users who chose non-realistic photos) signaled to some that the company did not share users' interests.
- Many early adopters left because of the combination of technical difficulties, social collisions, and a rupture of trust between users and the site

Source: boyd, d. m. and Ellison, N. B. (2007), Social Network Sites: Definition, History, and Scholarship. Journal of Computer-Mediated Communication, 13: 210–230.

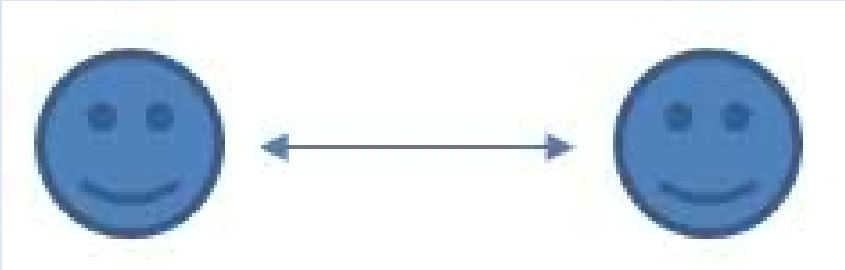
Friendster's Violations of Mazlow's Hierarchy

- Psysiological (Restricting access either intentionally or unintentionally)
- Social (Not allowing users to form subgroups based on their interests)
- Self Actualization (Not allowing users to form their identities as they wish or use pictures other than the ones with their real faces)

Social network analysis

Social Network Analysis

- It is useful for investigations of kinship patterns, community structure, interlocking directorships and so forth
- It is mainly an analysis for **relational data**



Kinds of Nodes

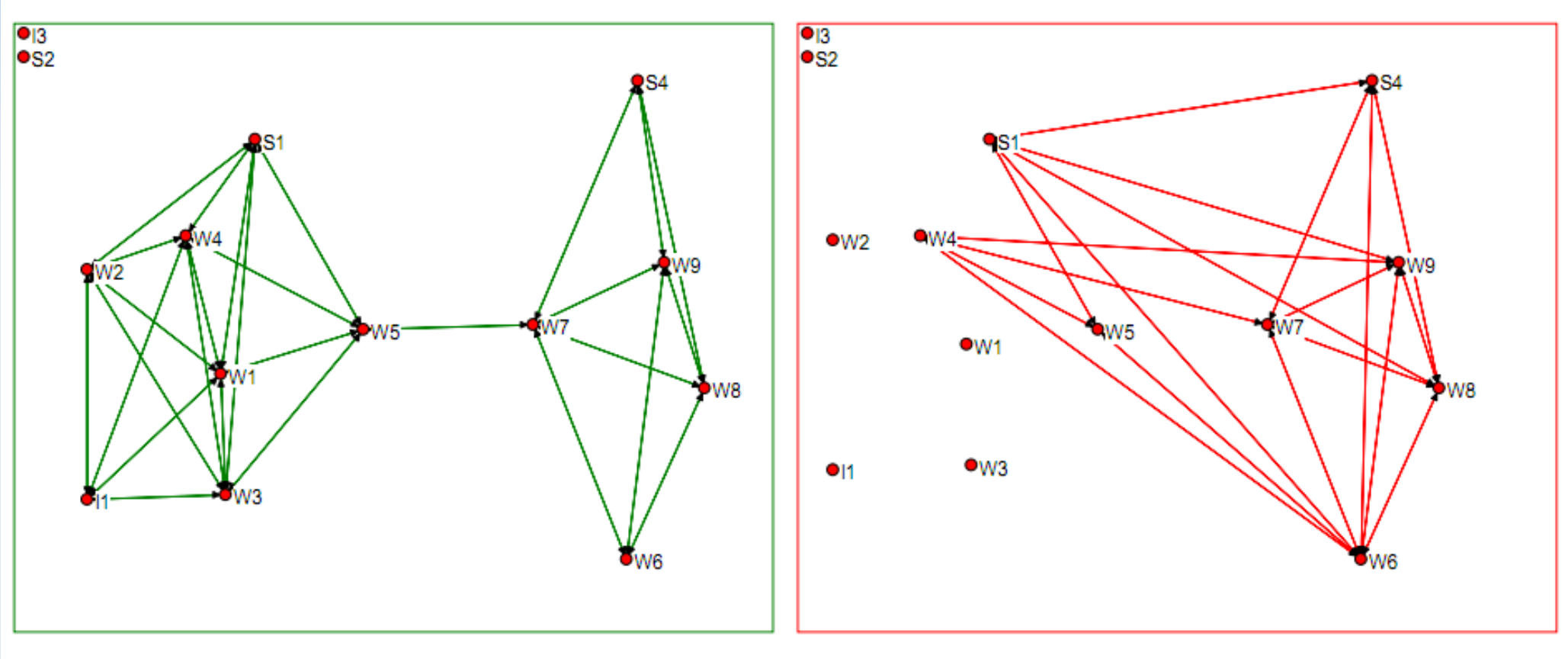
- Individuals: persons, other animals
- Collectivities: organizations, departments, teams, troops, countries, cities, species

Relations Among People

- Kinship: - mother of, wife of
- Other role-based: boss of, teacher of, friend of
- Cognitive/perceptual: knows, aware of what they know
- Affective: likes, trusts
- Interactions: give advice, talks to, fights with
- Affiliations: belongs to same clubs, is physically near

Each relations yields a different structure & has different effect!

Examples of Networks



An example of Social Network Analysis study

Goals

- How network analysis could allow us to capture the social structure of the high school staff and teachers at the start of a whole-school health promotion intervention?
- Identify key players or gatekeepers who might be crucial to getting the intervention off the ground
- Mapping networks systematically at the start of an intervention, and analyzing them mathematically

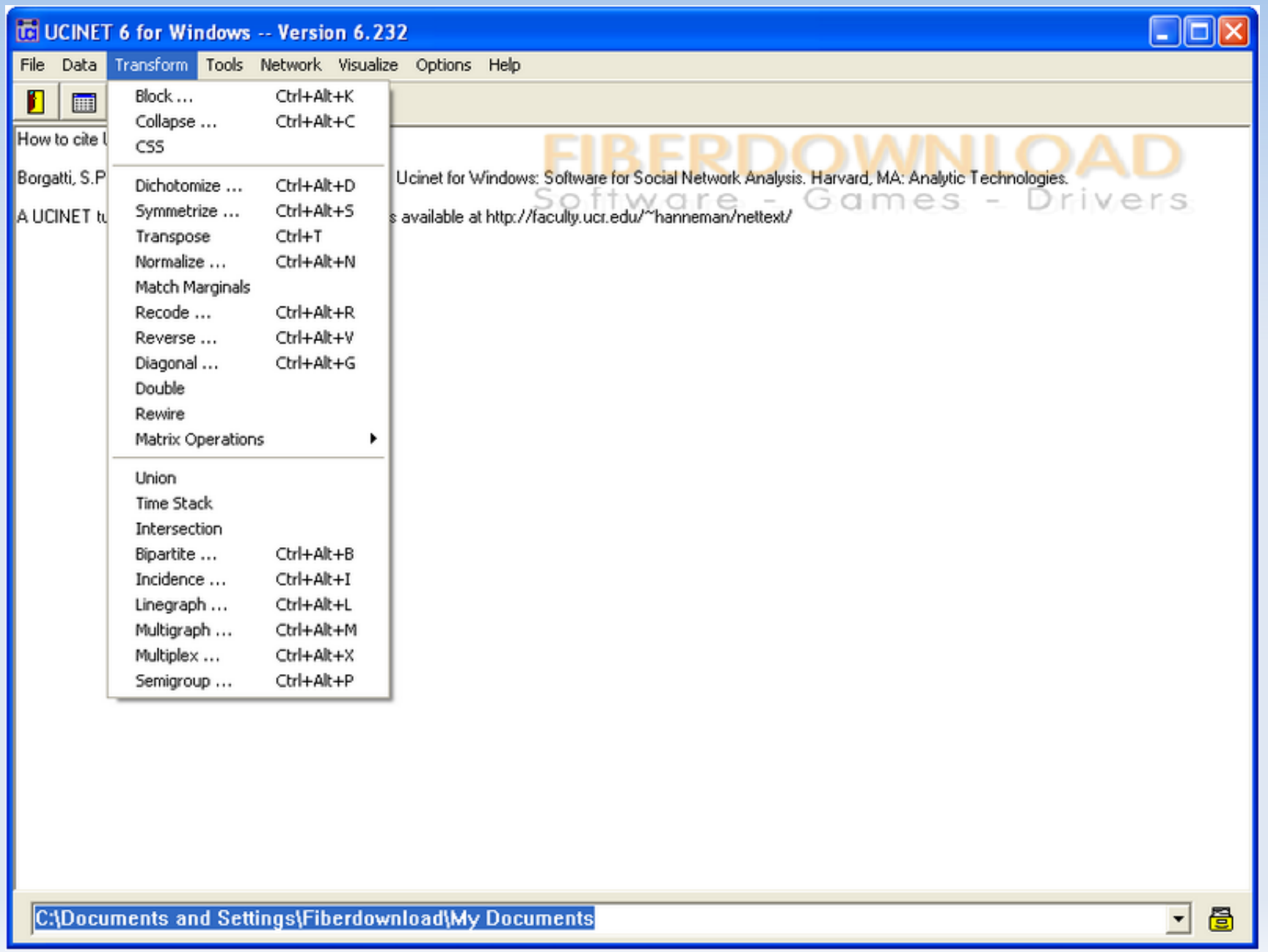
Location and sample

- High school in Alberta, Canada with total student population 556.
- Mental health promotion intervention modeled on the experience of the successful Gatehouse project in Australia
- Staff and teachers were our focus for the first stage of the intervention.

Design method

- Map five relations across all teachers and staff in the school based on initial consultation and pilot.
- Relations:
  - knew a person by name
  - knew a person more personally
  - engaged in regularly occurring conversations with a person
  - sought advice from a person in relation to a school matter
  - socialized with that person outside of school hours
- Self administered questionnaires sent to staff and teachers with questions focused on usual transactions and routine relationships.

UCINET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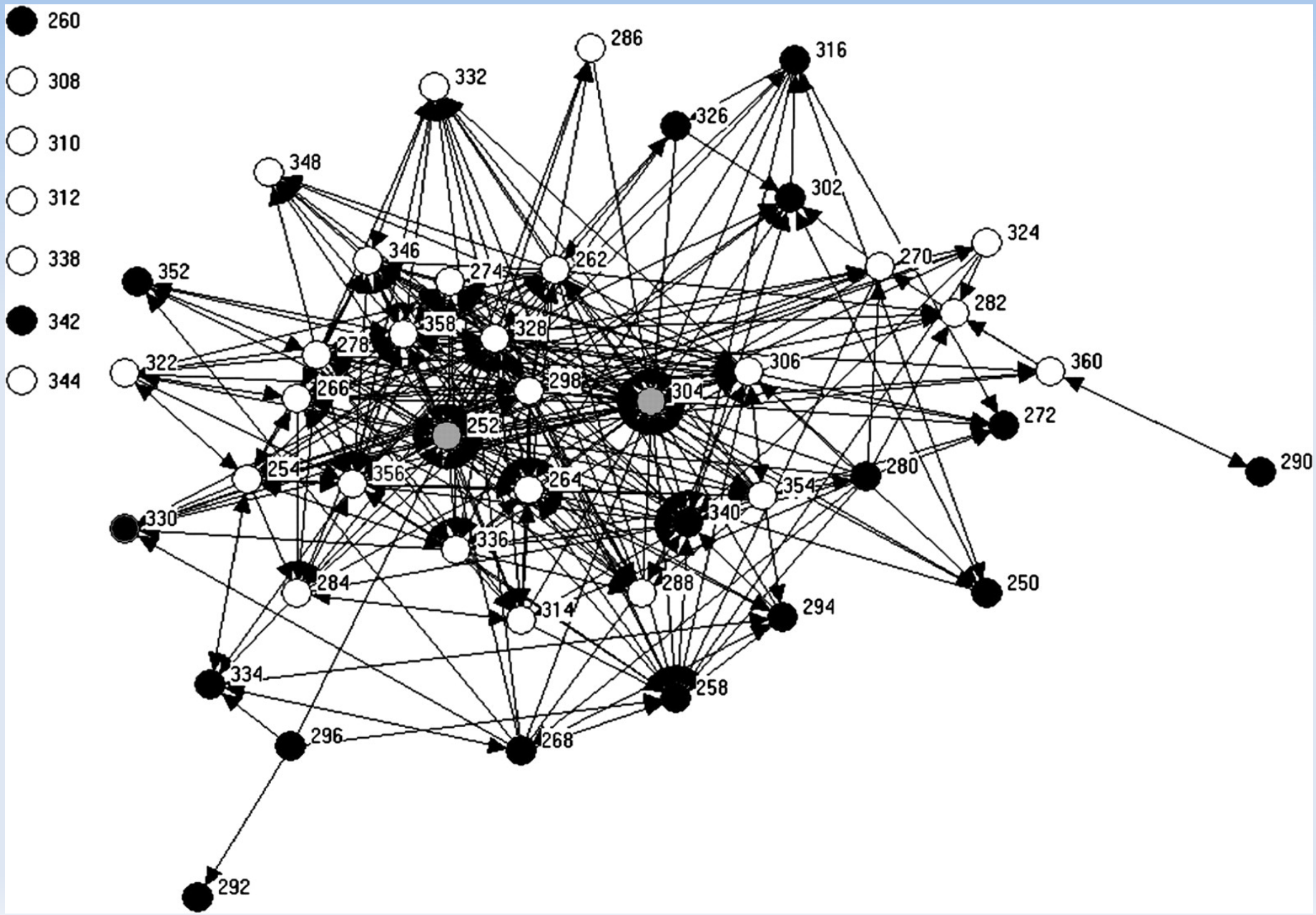
Analysis Methods

- Network degree centralization score
- Network betweenness centralization score: measure of strategic advantage and information control.
- Two-step reach measure of the extent to which any person could mobilize resources or convey information by reaching out to others.
- Others are measures about an individual person's position in the network.
- Classified people as: teachers, support staff, administration
- Also conducted analysis of gender

Basic characteristics of the five networks (n = 50)

Relationship	Density score(%)	Degree centralization score(%)	Betweenness centralization score (%)
Socialize with outside of school	5.9	19.4	14.4
Seek advice	15.2	54.0	23.4
Engage in conversation regularly	25.5	39.3	4.8
Know personally	29.0	38.9	4.63
Recognize by name	65.9	27.4	1.47

Advice seeking network



Principal and Vice principal

- The Principal has 37 direct ties and the Vice Principal has 35 direct ties in the advice-seeking network.
- Freeman's degree centrality measure: 76%, 71%
- Betweenness centrality: The Principal has four times the score of Vice Principal for betweenness centrality because the Principal is connected to some people who otherwise seek advice from no one.
- This increases his power and potentially makes him more important or crucial.

Conclusions (1)

- Density was related to what might thought of as the intensity of the relationship.
- Network density was higher for more superficial relationships, such as knowing a person by name, and smaller for socializing.
- The density for knowing-by-name was lower than we had expected at 65%.
- That is, more people are in that awkward position of encountering other staff and teachers, but not being addressed by their name.

Conclusions (2)

- No isolates in the know-by-name network. Everyone was linked to someone, including all 10 newcomers.
- Seeking advice was centered around the Principal and Vice Principal
- Seven people were unconnected in the advice-seeking network, a phenomenon which could be addressed, if perceived as a problem.

Applications

- As an example, low density in the socializing network is acceptable, but that low density, and in particular the presence of isolated people, in the advice-seeking network is not
- Another common type of analysis is to search for cliques or closely connected subgroups. Diagnostics depend on the goals and purpose of the researcher.
- Identifying people of strategic influence, so that interventions can be tailored to them. Identify and recruit natural leaders or helpers in communities.

Summary (1)

- Social media and social network sites are tools, online communities may use many of these tools
- There is a great variety of technologies out there for developing social media & social networks (php, HTML5, python, MySQL, Memcached, Javascript, AJAX, Adobe Flash)
- Scaling up poses multiple technological and sociological challenges even for famous social network sites today
- There are many ways of developing and maintaining a social network site. The options for the software and the overall design are highly depended to each site.

Summary (2)

- Technology changes rapidly; Humans don't! Social media & SNS science is an interdisciplinary field where the social part is intertwined with technological.
- Mazlow's hierarchy applied for online user needs can help as a general guideline for developing tools. Providing access and security should be the first and most important steps for building a community.

Further Reading

- John P. Scott. Social Network Analysis: A Handbook. Sage Publications Ltd; 2nd edition (March 2000)
- John P Scott (Editor), Peter Carrington (Editor). The SAGE Handbook of Social Network Analysis. Sage Publications Ltd (May 25, 2011)
- Penelope Hawe and Laura Ghali Use of social network analysis to map the social relationships of staff and teachers at school Health Educ. Res. (2008) 23(1): 62-69 first published online February 7, 2007 doi:10.1093/her/cyl162

Further Reading

- Tharon Howard, Elsevier - Morgan Kaufmann Design to Thrive Creating Social Networks Edition 2010
- Amy J. Kim. Community Building on the Web : Secret Strategies for Successful Online Communities. Peachpit Press, April 2000.
- boyd, d. m. and Ellison, N. B. (2007), Social Network Sites: Definition, History, and Scholarship. Journal of Computer-Mediated Communication, 13: 210–230.
- Mayfield, Anthony. 2007. What is Social Media? (Online resource:http://www.icrossing.co.uk/fileadmin/uploads/eBooks/What_is_Social_Media_iCrossing_ebook.pdf). ICrossing.
- Kaplan, Andreas M.; Michael Haenlein (2010). "Users of the world, unite! The challenges and opportunities of Social Media". Business Horizons 53 (1): 59–68.