

# 4 Communities, the Web and Multimedia

4.1 Evolution of the Web

4.2 Social Networks and Social Media

4.3 Web Content Aggregation and Integration

4.4 Virtual Worlds in the Web

4.5 Embedded Social Media

Literature:

T. Berners-Lee: Weaving the Web. Texere 2000

T. O'Reilly: What is Web 2.0: Design Patterns and Business Models  
for the Next Generation of Software.

*Communications & Strategies*, No. 1, p. 17, 2007.

(<http://oreilly.com/web2/archive/what-is-web-20.html> – 2005)

# The Key Idea of the Web

- T. Berners-Lee: “Information Management: A Proposal”.  
CERN March 1989

“CERN is a model in miniature of the rest of the world in a few years time.”
- Discussions on Mosaic browser, 1993:

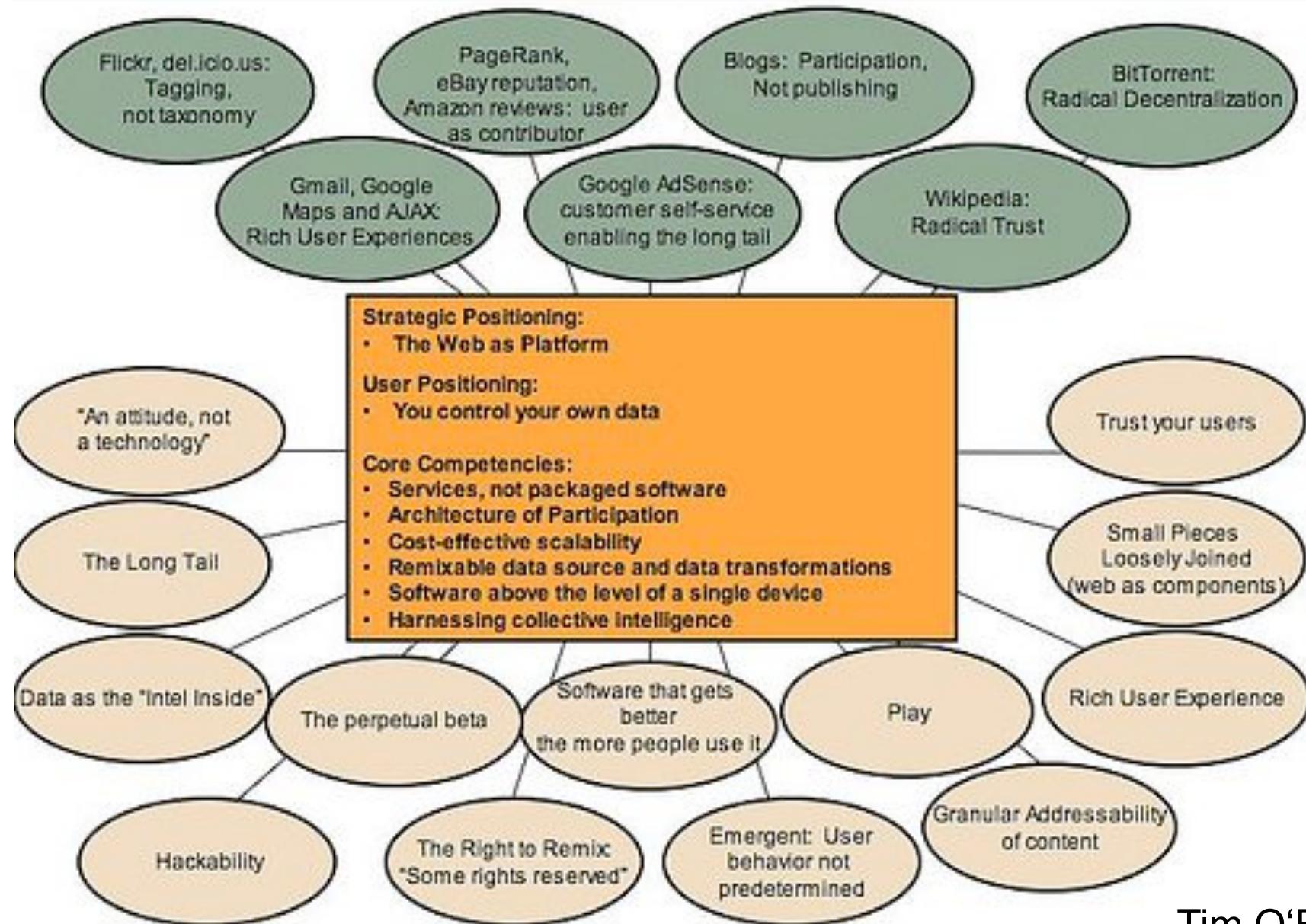
“I ... made my now-standard case for making the Mosaic browser an editor, too. Marc [Andreessen] and Eric [Bina] explained that they had looked at that option and concluded that it was just impossible.”  
(Weaving the Web p. 77)
- Tim Berners-Lee on the future of the Web:

“My hope and faith that we are headed somewhere stem in part from the repeatedly proven observation that people seem to be naturally built to interact with others as part of a greater system.”  
(Weaving the Web p. 223)

# Generations of the Web

- Web 0.5
  - 1988-1995
  - Only predecessors of WWW exist
- Web 1.0
  - 1996
  - Static HTML pages, few publishers - many readers
- Web 1.5
  - 1996-2001
  - Dynamic Web pages, E-Commerce
- Web 2.0
  - 2005?
  - Collaboration, communities
  - Openness, standardization, liberty

## Web 2.0 Meme Map



Tim O'Reilly

# What is the Meaning of „Web 2.0“ ?

- O'Reilly Conferences 2004/2005/2006
  - Tim O'Reilly, Dale Dougherty
  - Similar conference titles exist, e.g.: „Where 2.0“ (geospatial web)
- Basic question for the conference:
  - Which ideas have survived the burst of the dot-com bubble?
  - Creating the next wave out of the remains of the last
- „Web 2.0“ has become a „buzzword“
  - Extremely rapidly...
  - There is no agreed definition
- The conference lives on
  - Web 2.0 Summit (<http://www.web2summit.com>)



# Two Aspects of Web 2.0

- Social Aspect
  - Collaboration
  - User-Generated Content



- Technical Aspect
  - Huge bandwidth, therefore graphics, audio, pictures, videos...
  - Web browser as a universal platform for application software
  - Increasing interactivity in the browser
    - » Presentation based on server-side data (e.g. PHP, JSP, JSF)
    - » Direct response to user reactions (JavaScript, Flash, Silverlight, ...)
    - » Asynchronous interaction (Ajax)
    - » Real-time data (Reverse Ajax, Comet)

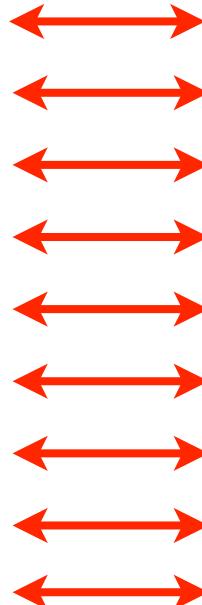
# Comparison by Examples

## Web 1.0

- DoubleClick
- Ofoto
- Akamai
- mp3.com
- Britannica Online
- Personal homepage
- Personal bookmarks
- Content management
- Taxonomy

## Web 2.0

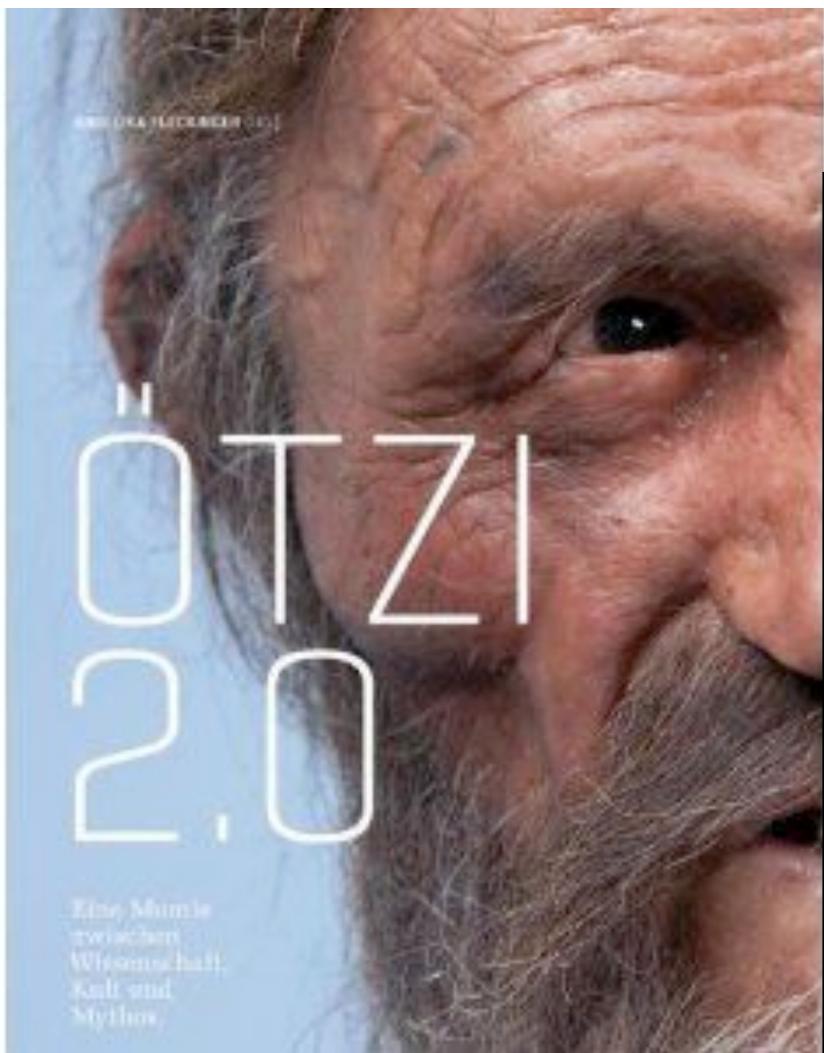
- Google AdSense
- Flickr
- BitTorrent
- Napster
- Wikipedia
- Blogging
- Del.icio.us
- Wikis
- Folksonomy



# Web 2.0 Principles

- Web 2.0 is about harnessing collective intelligence!
- Reach out to the entire Web, to the edges and not just the center, to the long tail and not just the head.
- The service automatically gets better the more people use it.
- Network effects from user contributions are the key to market domination in the Web 2.0 era.
- Web 2.0 companies build value as a side-effect of the ordinary use of their application.
- The race is on to own certain classes of core data (e.g. location, identity, calendaring, product identifiers)
- Consequences for software development:
  - Software will cease to perform unless it is maintained on a daily basis
  - Users must be treated as co-developers
  - Lightweight programming models and loose coupling are needed
  - Design for remixability

## 2.0 Everywhere!



Buch von Angelika Fleckinger 2011

Internet-Protest  
gegen Online-Überwachung

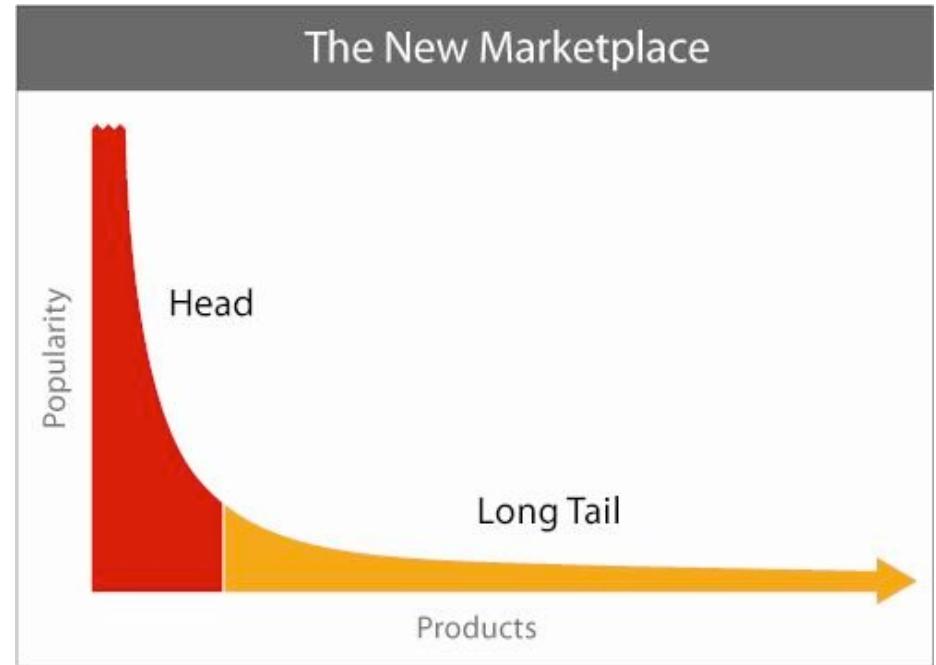


Deutschland 2.0

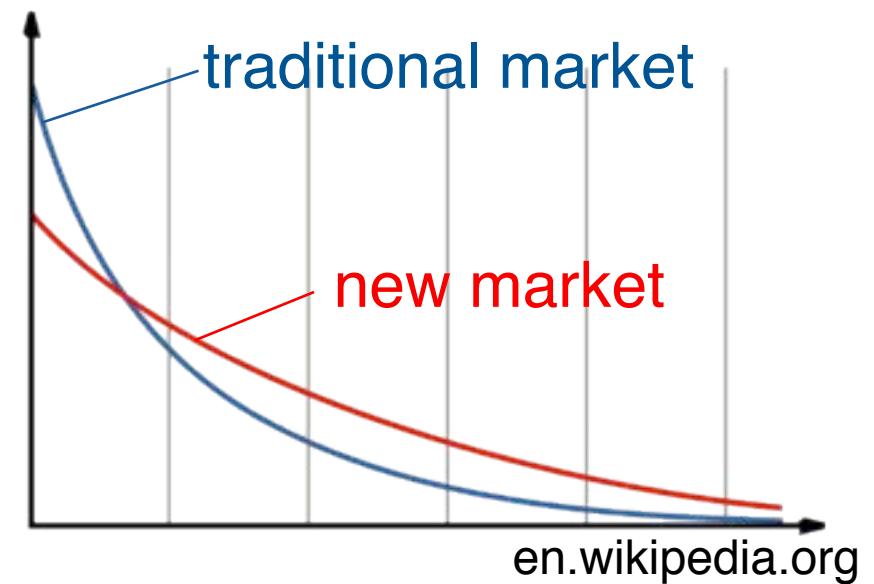
Buchtitel 2010

# The Long Tail

- Clay Shirky 2003, Chris Anderson 2004:
  - “The future of entertainment is in the millions of niche markets at the shallow end of the bitstream” (Anderson)
- Business models for online sales:
  - Can create large revenue out of low individual sales for many niche products
  - Driven by low production and distribution costs
- Theory under discussion
  - Alternative: Pareto distribution  
20% of products give 80% of sales volume



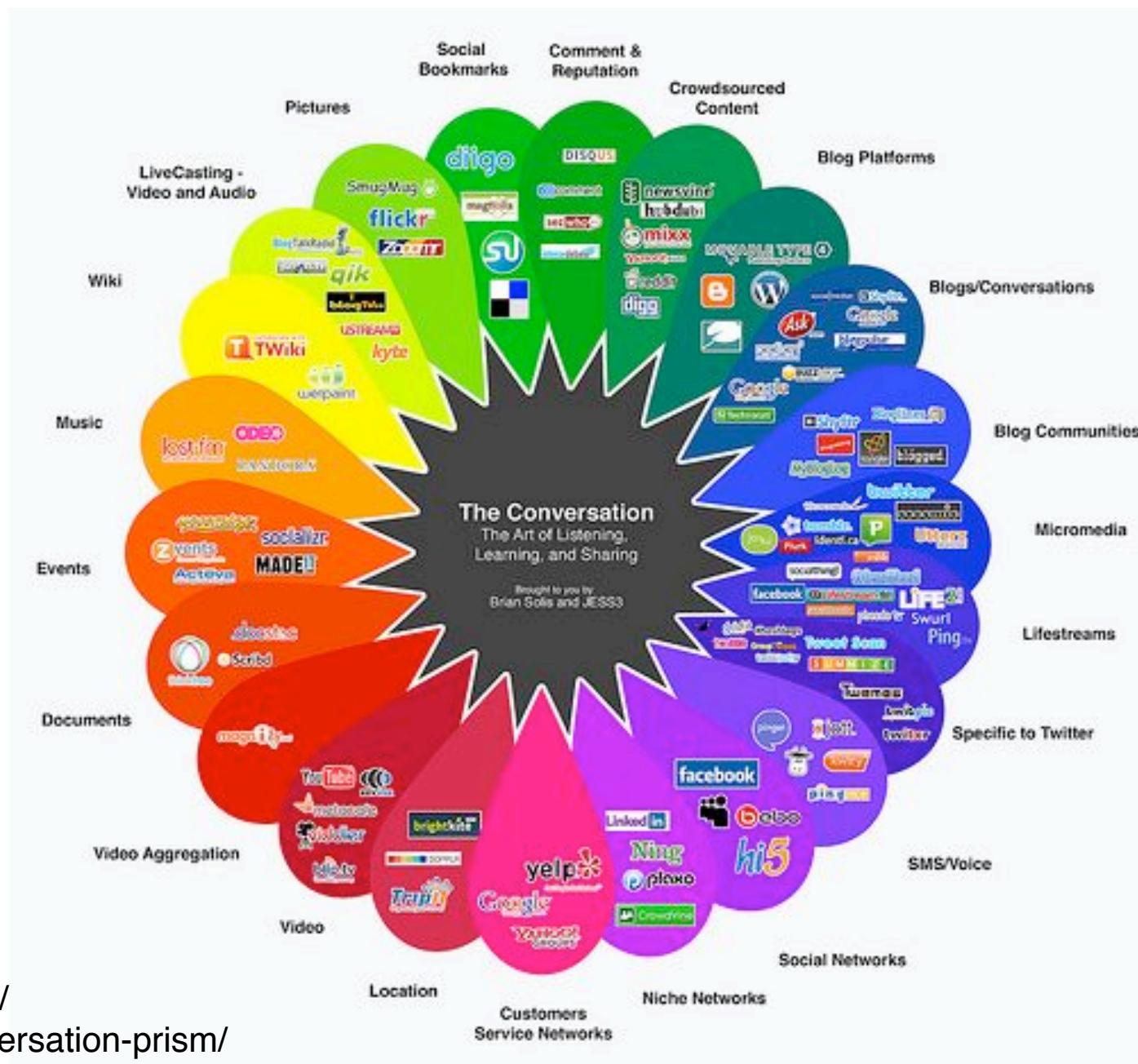
[longtail.com](http://longtail.com)



[en.wikipedia.org](http://en.wikipedia.org)

# The Conversation Prism

Brian Solis



<http://www.briansolis.com/2008/08/introducing-conversation-prism/>

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Literature:

Eigner/Leitner/Nausner/Schneider: Online-Communities, Weblogs  
und die soziale Rückeroberung des Netzes,  
Nausner & Nausner 2003

C. Stöcker: Die Zeit der Kopfjäger,  
Spiegel-online.de, 1. August 2006

Brian Solis: The Essential Guide to Social Media

<http://www.briansolis.com/2008/06/essential-guide-to-social-media-free/>

# Social Networks, First Generation



Hauptmenü

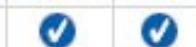
Anmeldung

Log in

- College traditions:
  - Class listings, alumni listings, freshman listings
  - Personal profiles
  - Keeping in touch (classmate reunions)
- 1995: Classmates.com
  - German version: stayfriends.de
- Many similar platforms
  - E.g. facebook.com

## Leistungen

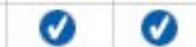
Klassenfoto einstellen und Mitschüler markieren



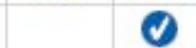
Aktives Auffinden selbst festlegen



Klassentreffen melden



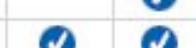
Alle Klassentreffeninformationen einsehen



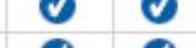
Mit dem Organisator des Klassentreffens in Kontakt treten



Mailingliste für Klassentreffen verwalten



»Eigene Seite« anlegen und Profil erstellen



Fotos auf »Eigene Seite« hochladen



»Eigene Seite« von anderen komplett einsehen



Fotos ansehen



Nachrichten hinterlegen



Nachrichten lesen und beantworten



Kontaktliste anlegen



Ein Poesiealbum führen



Jedes Poesiealbum lesen



# Social Networks, Second Generation

- From documentation of existing relationships to creation of new relationships
- General platform for self presentation
  - Easy way to personal homepage
- Examples:
  - MySpace.com
  - Friendster.com
  - StudiVZ.de
  - Xing.com (OpenBC)
- Establishment of “friend” link by mutual agreement
- Tracing of social network
  - 2nd degree contacts
  - Former colleagues



## Einzigartige Suchfunktionen

- Finden Sie neue Vertriebskanäle, Mitarbeiter und Jobs
- Finden Sie schnell die richtigen Entscheidungsträger
- Erreichen Sie Ansprechpartner tausender Unternehmen

Xing.com

Holtzbrinck zahlt Millionenpreis für StudiVZ  
03. Jan 2007 17:52, ergänzt 18:54



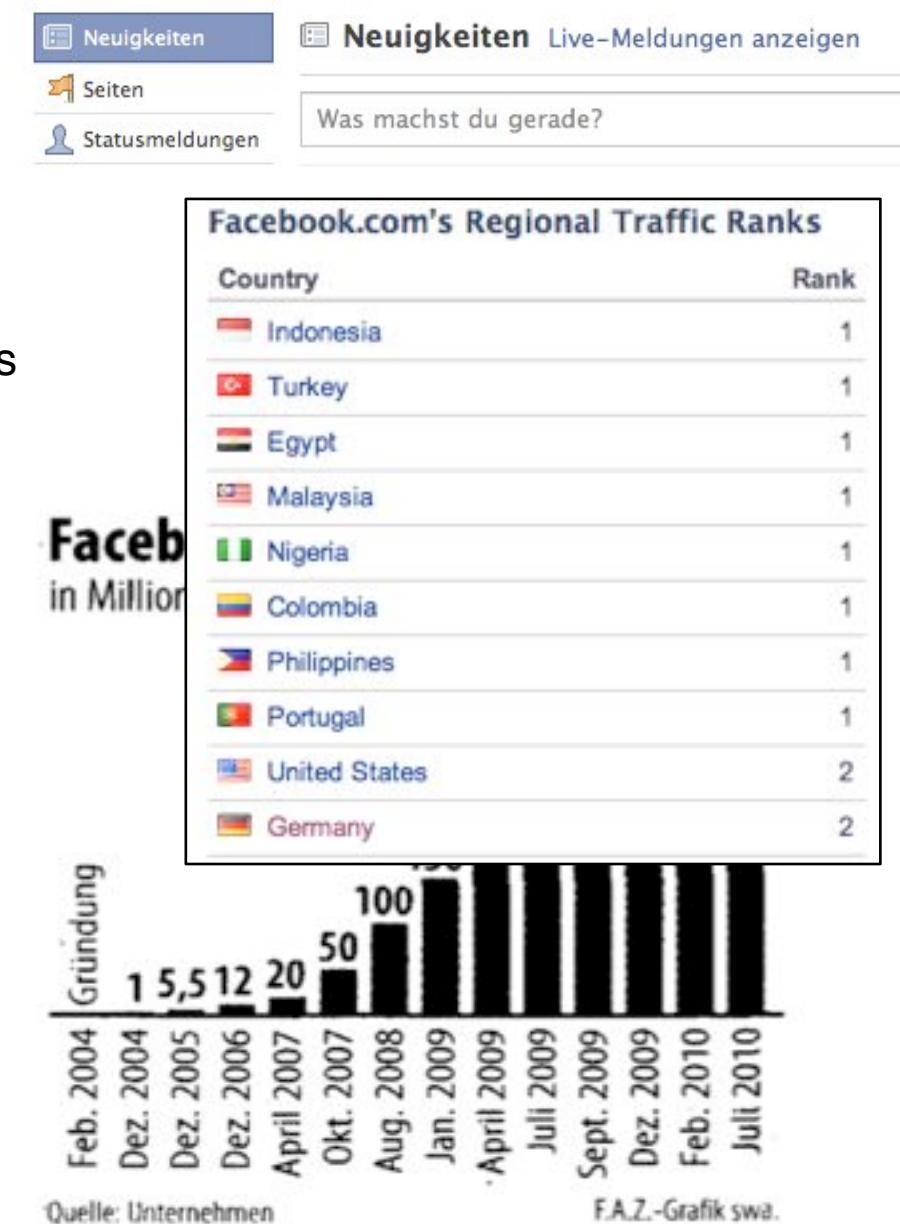
StudiVZ-Website  
Foto: StudiVZ

Quelle: netzeitung.de

Der Verlagskonzern Holtzbrinck hat das Internetportal StudiVZ vollständig übernommen. Mehr als 50 Millionen Euro zahlte das Unternehmen für die Kontaktbörsen.

# Example: facebook.com (1)

- History:
  - Mark Zuckerberg and friends, Harvard, October 2003:
    - » Facemash: Comparing student photos
  - Mark Zuckerberg, February 2004: "The Facebook" for Harvard students
  - Stepwise expansion to other universities, colleges and high schools
  - Sept, 2006: Open to everybody of age 13 and up
- Popularity:
  - Over 800 million active users (November 2011)
  - Alexa.com traffic rank:
    - » Sept. 2006: Traffic rank 60
    - » Nov. 2011: Traffic rank 2 (rank 2 in Germany, rank 1 in 8 countries)
  - Still high user growth



# Example: facebook.com (2)

- Features:
  - Wall, Photos, Pokes, Status, Newsfeed, Notes (blogging), Gifts, Marketplace, Events, Video, ...
    - » More than 250 million photos uploaded per day
- Facebook Platform:
  - May 2007: Software development platform (PHP5, JavaScript, ActionScript, ...)
  - Nov. 2007: 7,000 applications
  - Nov. 2011: More than 7 million apps and websites integrated with Facebook
- Financial side:
  - 2007: Microsoft buys 1.6% share for \$240 million
  - September 2009: First time positive cash flow
  - Value estimate 2010: \$41 billion, 2011: \$100 billion
  - IPO expected for 2012

[http://www.facebook.com/press/  
info.php?statistics](http://www.facebook.com/press/info.php?statistics)  
<http://www.cnbc.com/id/43339651>

## BREAKING NEWS FROM CNBC'S KATE KELLY: FACEBOOK VALUATION COULD TOP \$100B

Published: Monday, 13 Jun 2011 | 12:51 PM ET

By: Beth Goldman

T Text Size - +



# Multimedia and Social Networks

- Obvious parts of homepage:
  - Personal photograph
  - Private pictures
  - Background music
- Copyright for all uploaded content owned by the user
  - User-generated (multimedia) content
- Legal trading of public domain music and videos
  - MySpace Music



The screenshot shows the MySpace Music landing page. On the left, there is a list of tips in German:

- Völlig kostenlos
- Lade MP3s hoch -- nicht komprimieren!
- Hol dir deinen eigenen Band-URL

In the center, a large blue banner says 'Verbreite deine Musik bei 148 Millionen von Fans!'. Below the banner, there is a navigation bar with links: 'Web | MySpace | Leute | Musik | Music Videos | Blogs | Videos | Film'. To the right of the navigation bar is a search bar with the word 'Search' and a 'powered by Google' logo. At the bottom, there is a call-to-action: 'Musiker – HIER KOSTENLOS ANMELDEN!'.

# Social Media

- Media consisting of user-generated (multimedia) content
- Classics: Flickr.com (photo), YouTube.com (video)
- Tagging
  - By originator
  - By others
  - Folksonomy
  - Tag clouds
- Comments
  - Discussion
  - Feedback
- Ratings
- Automation
  - Most recent, most popular

Tag cloud from Flickr

All time most popular tags

amsterdam animal animals april architecture art australia baby barcelona  
beach berlin bird birthday black blackandwhite blue boston bridge building bw  
california cameraphone camping canada car cat cats chicago  
china christmas church city clouds color colorado concert day dc dog dogs england  
europe family festival fireworks florida flower flowers food france  
friends fun garden geotagged germany girl graduation graffiti green hawaii  
holiday home honeymoon house india ireland italy japan july june kids lake  
landscape light london losangeles macro march may me mexico moblog  
mountains museum music nature new newyork newyorkcity newzealand night  
nyc ocean orange oregon paris park party people phone photo pink portrait  
red reflection river roadtrip rock rome sanfrancisco school scotland sea seattle sign  
sky snow spain spring street summer sun sunset taiwan texas thailand  
tokyo toronto travel tree trees trip uk unfound urban usa Vacation  
vancouver washington water wedding white winter yellow zoo

# Giving, Exchanging, Buying

- Elementary way of exchanging goods
  - Reciprocal needs
- Buying:
  - Exchange is eased by money
- Media products may be different!
  - Artist has a need for being recognized, getting feedback
  - Consumer has a need for being entertained, informed
  - Reciprocal needs exist
- Amateur content producers
  - Do not in the first place expect revenue
  - “Giving” instead of exchanging
  - See Open Source software
- Global medium is more than its parts
  - Automatic creation of new valuable content by aggregation, filtering
  - “Wisdom of the crowd”

# Social Bookmarks

- Organizing Web content:
  - Hierarchical directories, taxonomy:
    - » Gopher, Yahoo
  - Personal bookmarks
    - » Retrieval problem, metadata
  - Sharing platform for links to information in the Web
  - Classics: Del.icio.us, digg.com, spurl.net, furl.net (with archive)
- Tagging:
  - Adds a semantic dimension to Web search
- Browser extensions for keeping personal bookmarks on server
- Digg effect:
  - Small web sites becoming quickly popular – overload situations
- Overview paper (found via del.icio.us...):
  - <http://www.dlib.org/dlib/april05/hammond/04hammond.html>

# Weblog, Blog

- Definition: A collection of chronologically (backwards) ordered, regularly added contributions to an umbrella topic.
    - Traditionally: Contributions comment on one specific hyperlink
  - Technical view:
    - Simple content management system
  - History:
    - First online diary by Simon Gisler 1994 (according to Wikipedia)
    - John Barger 1997: Term “Weblog”; Term “Blog” since 1999 (Peter Merholz)
    - Huge popularity since 2002
  - Platforms: e.g. wordpress.org, blogger.com
    - Links point to individual contribution and are permanent (“permalinks”)
  - Variants by media type:
    - Vlog, linklog, photoblog, moblog
  - Problematic issues:
    - Borderline between advertisement, propaganda, free speech
    - Law violations, offensive statements

# Blog as an “Oscillation Medium”

- Traditional web sites (including online versions of traditional media):
  - Closed content
  - Links mostly internal to web site
  - Plus a few “related links”
- Bookmark collections:
  - Completely open content
  - Only reference to outer location
- Oscillation media:
  - Both closed and open
  - Blog comments on a link and contains external links
  - Reader is “oscillating” between open and closed reading
    - » Shall I follow the link?
    - » Shall I read on?
  - Hypertextuality as a media creation force

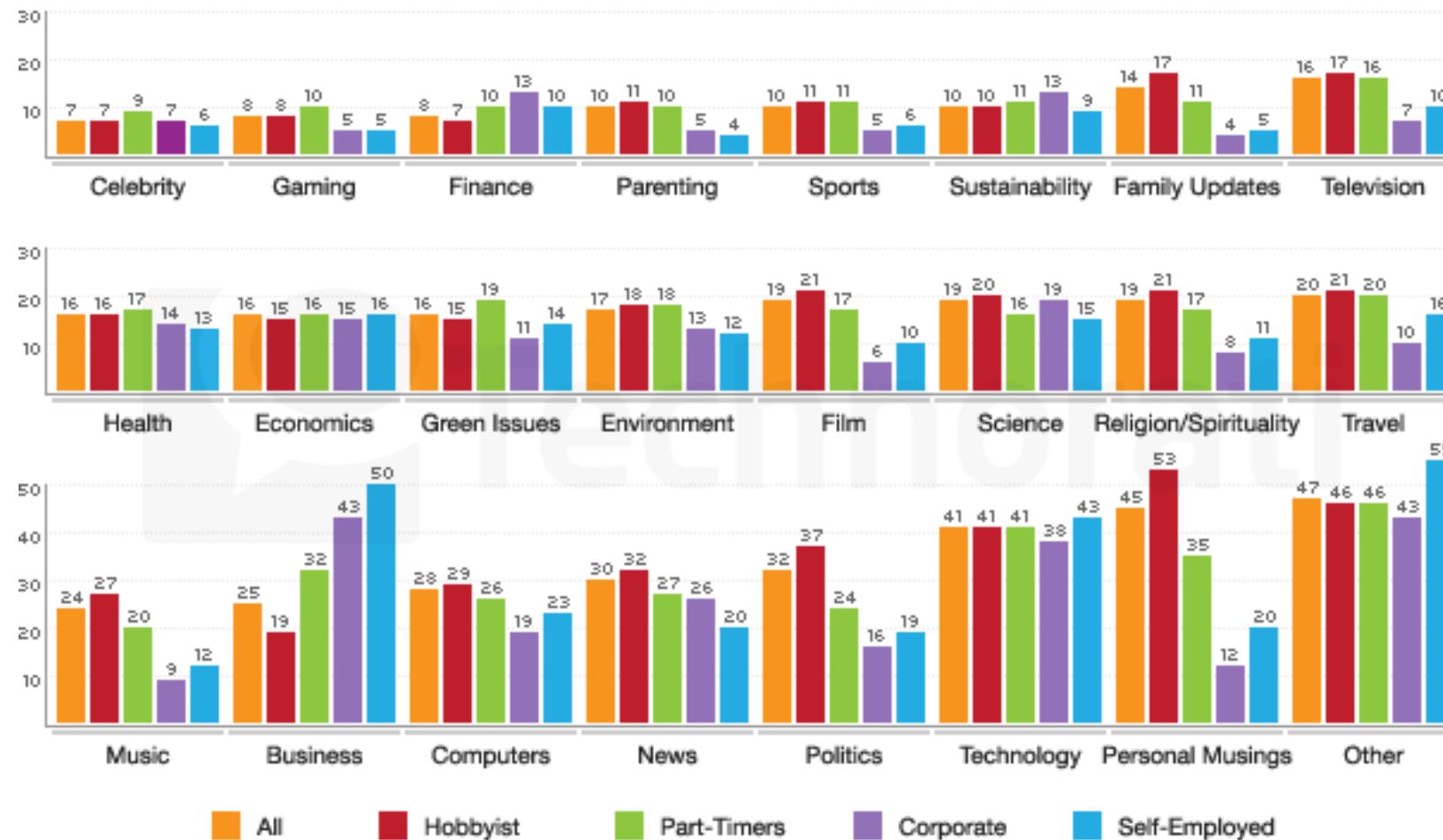
From Eigner et al p. 119

# Reading and Writing, Talking and Listening

- Traditional cultural techniques: writing and reading
  - Mostly separated activities
- Blogging:
  - Writing as a continuation of reading (external trigger)
  - Reading as a continuation of writing (e.g. reading comments)
- A new cultural technique? (Eigner et al.)
  - Reading-writing-reading-writing-...
- Publishing in a blog is not speaking to an audience spreading a message (Brian Solis)
  - Listening, participation
  - Self-organizing cultures

# Diversity of Blog Topics

What topics do you blog about?



Technorati.com State of the Blogosphere 2010

# Blog Search

- Blog search engine
  - Combining information from many blogs
  - Including tagging, rating etc.
  - Examples:  
Technorati.com,  
blogsearch.google.com
  - Being expanded towards multimedia
    - » Counting links from blogs to music albums, videos, movies etc.

The screenshot shows the Technorati blog search interface. At the top, there's a navigation bar with categories like Women, Technology, Business, Entertainment, Lifestyle, Sports, Politics, Videos, and Blogging. Below that is a secondary navigation bar with links for Blog Directory, Top 100, Tags, People, Write for Technorati, State of the Blogosphere, and more. A search bar at the top right contains the placeholder "Search for posts...". The main content area features a "Music Channel" section with a thumbnail image of the TV show "Glee" and a title link: "A Christmas Curmudgeon Takes on Glee". Below the thumbnail, it says "by Bob Etier — Glee does Christmas. Everyone does Christmas. It gets old, so is this version any fresher than the rest?". A "Read the entire article" link is also present. To the right of this, there's a large black sidebar with the text "CaptainCrawl" and "The Music Blog Index" in white, along with a search bar and a magnifying glass icon.



## The Hype Machine follows music blog discussions

Every day, thousands of people around the world write about music they love — and it all ends up here.

# Microblogging

Anarchaia

Experimental, impressionistic sub-paragraph  
tumblin' (think obstsalat)

- Tumblelog:
  - Relatively unstructured "stream of consciousness"
  - Small bits of information and media
- Simplified blogging platforms
  - Tumblr (2006)
  - Twitter (2006/2007)
- Microblog:
  - Brief updates (text or small media units), published on the Web
  - Submitted through various means, also from mobile devices
- Microblogs built into social Web platforms
  - "Status Update" on Facebook

April 2005: Term "tumblelog"

*Tumblr:  
Microblogging  
Done Right.*



*CEO Spotlight: Tumbling is a fast form of blogging, and it's catching on.*



tumblr.com

# Real Time Media

- Current main example: Twitter
  - Search, analytics and social networks built around real-time communication
  - Triggering of innovations:
    - » Example: Shorthand URLs
- ***Everything in the world is now real time.***
  - Technically, it is no problem notifying the manufacturer *immediately* if a certain type of shoe is not selling at a certain shop.
  - "Houdini" system used by Obama campaigners

The screenshot shows the Twitter homepage. At the top, there is a blue header bar with the Twitter logo and navigation links for 'Home', 'Profile', and 'Fir'. Below the header, a modal window titled 'New! Lists' is open, explaining that lists are timelines you build yourself, consisting of friends, family, co-workers, sports teams, etc. It includes a 'Create a new list' button and a 'Close' button. Below the modal, the main Twitter interface shows a search bar with the query 'What are you doing?' and a character count of '140'. A message 'Latest: Working on a Web 2.0 lecture about 3 hours ago' is displayed with a 'update' button. The search results for '#unibrennt lmu' are listed, each with a user icon, name, tweet text, and timestamp. The first result is from 'yannerl' (@yannerl), the second from 'fadenb' (@fadenb), the third from 'lsarnixe' (@lsarnixe), and the fourth from 'OOZE' (@OOZE). Each tweet includes hashtags like #unibrennt, #mucbrennt, #LMU, and #europabrennt.

New! Lists. A great way to organize the people you follow and discover new and interesting accounts. (BETA)

Lists are timelines you build yourself, consisting of friends, family, co-workers, sports teams, you name it.

Create a new list Close

What are you doing? 140

Latest: Working on a Web 2.0 lecture about 3 hours ago update

Real-time results for #unibrennt lmu + Save this search

yannerl "Sind Sie jetzt hier zum Besetzen oder wollen Sie die Vorlesung hören?" #unibrennt #mucbrennt #LMU  
about 2 hours ago from Tweed

fadenb Gerade hitzige Diskussion im Audimax der #LMU über Sinn von Studiengebühren. Einige verstehen Redner(innen)listenkonzept nicht! #unibrennt  
about 2 hours ago from Twitterfall

lsarnixe RT @muenchenblogger Sportfreunde Stiller im Audimax http://tinyurl.com/ya92r4n #unsereuni #unibrennt #lmu #Bildungsstreik #europabrennt  
about 2 hours ago from web

OOZE Sportfreunde Stiller spontan im Audimax #LMU #unibrennt Livestream: http://www.ustream.tv/channel/audimax-lmu-muenchen-plenum  
about 12 hours ago from Tweetie

# Podcasting

**PODCASTS**

Anzahl der Einträge: 166

1-25 | 26-50 | 51-75 | 76-100 | 101-125 >>

Datum ▲▼ Titel ▲▼

Datum	Titel
17.10.2009	Investitionen in Kultur sind Investitionen in die Zukunft
10.10.2009	Buchmesse unter wunderbaren Vorzeichen

**ARTIKEL**

- > Artikel
- > Mediathek
- > Reden
- > Interviews und Beiträge
- > Pressemeldungen
- > Pressekonferenzen
- > Podcasts
- > Archiv

- “History”:
  - Discussed since 2000, massive use since 2003
  - iPod & Broadcasting
  - Word of the year of the New Oxford American Dictionary 2005
- Media file distributed by subscription (paid or unpaid)
  - Playback on computers or mobile devices
  - Mainly audio, partly video information, may be any file technically
  - Automation of download by “feeds” (RSS or Atom)
- Often **User-Generated Content (UGC)**:
  - Amateur podcasts
  - Production of audio podcasts has minimal hardware/software requirements

# Corporate Blogs and Podcasting

- Companies use blogs and podcasts for:
  - General information on company
  - Brand formation, general public relations
  - Topic blogs, campaign blogs
  - Knowledge distribution and customer service
  - Internal information channels (intranet blogs)
    - » Executive blog, team blog
- Problematic issues (for the company):
  - Negative image campaigns (e.g. attac)
  - Confidential or problematic issues discussed openly in internal blogs (e.g. cases of mobbing)
  - Danger of emotional escalations
- Future of communications for marketing (Brian Solis):
  - Listening is marketing. Participation is marketing. Conversations are marketing. [...]

Peter Wolff: Die  
Macht der Blogs,  
Datakontext 2006

# Context-Sensitive Advertisement

- Important source of revenue in Web 2.0 sites
  - Advertisement precisely targeted at customer
- Market leader: Google AdSense
  - Ad server operated by Google
  - Websites register with Google
    - » Advertisement placed based on analysis of content of page to be shown (Javascript)
    - » Generate revenue per click or per thousand impressions
  - Selection among relevant ads and order of ads by real-time auction
    - » Ads creating highest revenue are shown
    - » Using bid price of advertised and quality score of the ad (e.g. Click-Through-Rate)
    - » Paid price may be lower than the bid (minimal price to keep position on the list)
  - Advertisers arrange fixed budgets in advance
- See: <http://www.google.com/adwords/displaynetwork/control-your-costs/pricing.html>

# Improper Placement of Advertisement (1)

News/Opinion  
California | Local  
National  
World  
Business  
Sports  
Washington  
Science  
Environment  
Opinion

Arts/Entertainment  
Entertainment  
The Hot List  
Company Town  
Arts & Culture  
Calendar  
The Envelope  
TV Listings  
Movie Showtimes

Living  
Travel  
Health  
Autos  
Home & Garden  
Food  
Image  
Books  
Brand X  
Magazine  
Data Desk  
Photography  
Obituaries  
Crosswords/Sudoku  
Your Scene

Blogs  
Columnists  
Print Edition  
Readers Rep  
Corrections  
All Sections



Farrak Fawcett in a 1979 publicity portrait.  
[More photos >>>](#)

## Fawcett dies at 62; actress rose above 'Charlie's Angels'

A rare cancer claims the 1970s pinup beauty. First known for her looks and hairstyle, she captivated critics with 'Burning Bed' and other serious roles. Later, she chronicled her illness.

By Valerie J. Nelson  
12:12 AM PDT, June 25, 2009

Farrah Fawcett, who soared to fame as a national sex symbol in the late 1970s on television's campy "Charlie's Angels" and in a swimsuit poster that showcased her

feathery mane and made her a generation's favorite pinup, died today. She was 62. Fawcett, whose celebrity overshadowed her ability as a serious actress, was diagnosed with a rare anal cancer in 2006, died about 9:30 a.m. at St. John's Health Center in Santa Monica, said Paul Bloch, her publicist.



Photos: Farrah Fawcett  
| 1947-2009



Farrah Fawcett: a legacy bigger than her...

- » Discuss: Share your memories of Farrah Fawcett
- » Farrah Fawcett: Forever Generation X's favorite pinup

ADS BY GOOGLE

Three months after she was declared cancer-free in 2007, doctors at UCLA Medical Center told her the cancer had returned, spreading to

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### Most Viewed

### Most E-mailed

1. Farrah Fawcett dies at 62: actress rose above 'Charlie's Angels'
2. Farrah Fawcett dies at 62: actress rose above 'Charlie's Angels'
3. Strip search of teen was unconstitutional, Supreme Court rules
4. Apple's silence on Steve Jobs' health may have broken federal securities rules
5. Farrah Fawcett: a legacy bigger than her hair
6. Lakers prefer a deal to a draft pick
7. Why California can't be governed
8. Farrah Fawcett Dies After 3 Year Battle With Cancer
9. Shaquille O'Neal steals the NBA draft's thunder
10. They're crying foul over apology for Manny Ramirez

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OVERSIZED  
STEEL & WOOD  
CAVE REAL CAN

LA Times,  
7 July, 2009

jimparsons.posterous.com

## Improper Placement of Advertisement (2)



<http://img34.imageshack.us/img34/7545/bilddetail.jpg>

# 4 Communities, the Web and Multimedia

4.1 Evolution of the Web

4.2 Social Networks and Social Media

4.3 Web Content Aggregation and Integration

4.4 Virtual Worlds in the Web

4.5 Embedded Social Media

Literature:

R. Yee: Pro Web 2.0 Mashups, Remixing Data and Web Services,  
Apress 2008

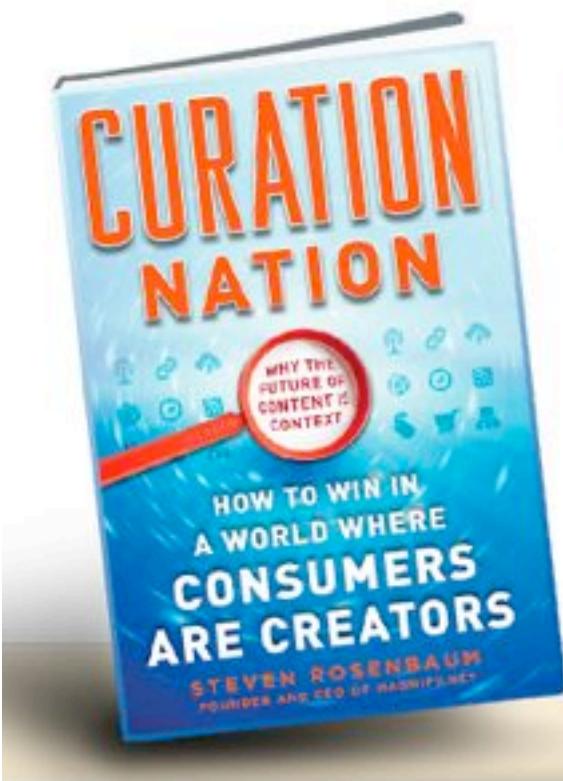
# Content Aggregation, Indexing, Curation

- Content aggregation:
  - Combination of content on specific topics from various sources
  - Essential steps:
    - Finding content (indexing), filtering content, publishing combined content
- Indexing:
  - May address different types of source (web, blogs, local sources)
- Filtering:
  - Automatic filtering
  - Careful manual selection of content: *Curation*
  - Community-based automatic filtering (voting, tagging, counts)
- Publishing
  - User-configurable content (personal news)
  - Syndication to other online media
  - Basis for non-online media (e.g. print media)

---

<http://emediavitals.com/article/1005/how-publishers-curate-world-content>

# Curation



Mc  
Graw  
Hill

## Steven Rosenbaum's Curation Nation

**"With the explosion of content, curation is the next great frontier."**

"Curation Nation is a must-read to succeed in this hyper-connected age where community and contribution is of utmost important to creating value and relevancy."



-*Shira Lazar*,

Creator / Host "What's Trending" CBS News

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[Sooceoread](#)

[BORDERS](#)

[BARNES & NOBLE  
BOOKSELLERS](#)

[BUY IN BULK](#)

[curationnation.org](http://curationnation.org)

# Content Indexing + Automatic Filtering: Examples

The screenshot shows the Google News homepage. On the left, there's a sidebar with "Top Stories" including links to TSA, Roy Halladay, Initial public offering, Kate Middleton, Geno Auriemma, Mitch McConnell, Ronni Chasen, Viktor Bout, iTunes, and Cholera. The main area is titled "iTunes" and features a news item: "The Beatles' Abbey Road leads to top 20 on iTunes". Below the headline are several links: "Vancouver Sun - 50 minutes ago", "The now-settled battle between the Beatles and iTunes isn't the first time the band has fought to protect its profits. LOS ANGELES - The Beatles soared up ...", "Video: BEATLES AND ITUNES STRIKE DEAL", "Artisan News Service", "Beatles storm iTunes charts on first day of sale", "The Guardian", "Techtree.com - NEWS.com.au - Los Angeles Times - Wikipedia: Apple Corps v Apple Computer", and "all 3,636 news articles >". There's also a link to "AAPL". At the bottom right of the main area, it says "Advanced news search".

The screenshot shows the homepage of the HPANA (Harry Potter Automatic News Aggregator) website. The header features a large image of Harry Potter and his friends, with the text "THE HARRY POTTER AUTOMATIC NEWS AGGREGATOR" above it. Below the header, there are social media sharing buttons for Google+, My Yahoo!, AOL, and RSS, along with a "Translate to:" dropdown menu with options for Espanol, Francais, Português, Italiano, and Deutsch. The navigation menu includes "Home", "News Browser", "Community", "Shopping", "Members", "About", "Front Page", "HP Fan Trips", and "MugglePost.com". The URL "hpana.com" is visible at the bottom right of the page.

# News Curation Tools and Services: Examples

The screenshot shows the LOUD3R website. At the top, there's a navigation bar with links for Solutions, About, News, and Contact. The central logo consists of the word "LOUD3R" in white on a red speech bubble-like background. Below the logo, a large headline reads "LOUD3R gives publishers and brands powerful content curation tools". A section titled "Why do I need LOUD3R?" contains text about the challenges of content overload and the need for efficient tools. To the right, a blue box lists "LOUD3R helps Publishers & Marketers:" with three numbered points: 1. Quickly add content areas to sites, apps and campaigns (with sub-points: build topic sites as sections, launch standalone sites, create content-rich newsletters); 2. Complement in-house editorial (with sub-point: add 3rd party content adjacent to in-house editorial); 3. Leverage social media for real-time publishing (with sub-point: find highest value tweets). At the bottom left, a screenshot of the "Glaci3r - Stream Manager" interface shows an inbox with items like Stories, Tweets, Photos, Videos, and Outbox with Twitter Summarized. On the right, there's a description of the LOUD3R Curation Platform and a call to action for publishers to outpublish competitors.

LOUD3R.com

The screenshot shows the daylife website. It features a large search bar at the top with the placeholder "Search news & the largest editorial photo archive on the web". Below the search bar, there's a "Search" button. A "daylife" logo with a yellow circular icon is prominently displayed. At the bottom, there's a "Trending" section with names like Michael Vick, Kate Middleton, Charles Rangel, and Mark Zuckerberg. The overall design has a dark, modern aesthetic.

daylife.com

# Video Curation and Aggregation: Example

The screenshot shows the magnify.net homepage. At the top left is the magnify.net logo with the tagline "The Realtime Video Curation Engine". To the right are links for "Support", "video powered by Akamai", "Solutions", and a search bar. Below the header is a large callout box with the heading "Content" and sub-headings "Make, Gather, Curate" and "Magnify Multi-Source Curation". It includes a description: "Build a curated collection of high-quality content, fast, brand-safe. And it drives traffic." To the right of this box is a section titled "Your Pro Content" featuring silhouettes of cameras and a smartphone icon labeled "User Submitted". Below this are logos for "Web Curated" and various platforms: Dailymotion, YouTube, metacafe, hulu, blip.tv, and Veoh. On the right side of the page is a sidebar with links for "Recently Posted", "Watched This Week", and categories like Entertainment, Fashion, Food, New York City, News, Real Estate, TV Clips, and Vlog. At the bottom of the sidebar is a link to "video.nymag.com". The main content area features a navigation bar with links for "NEWS & FEATURES", "RESTAURANTS", "BARS", "ENTERTAINMENT", and "FASHION". Below the navigation is a "MOST RECENT VIDEOS" section with thumbnail images for "Karin Sparks: Two Beavers Are Better Than One" (featuring Jessie J) and "Late Night: Kathy Griffin Spoons Justin Bieber Hitting Pulpit" (featuring Jessie J). The URL "video.nymag.com" is also present at the bottom of the sidebar.

[video.nymag.com](http://video.nymag.com)

# Print Media from Curated Online Content



**Dr. Pierce's  
Modern  
Cure**  
by Evan Ratliff

[More selections from  
Issue Zero](#)

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In May 2010, we conducted a two-day media experiment. 8,000 people signed up, 1,500 submissions came in, 35 editors selected 70 pieces to fill a 60-page magazine.

People liked it. We broke our distributor's sales records, received positive reviews in *The New York Times*, PBS, and the *Village Voice*, and won a Knight-Batten Award for Innovation in Journalism. Here, we present selected work from the print edition of Issue Zero.

---

48hrmag.com

# Content Sources

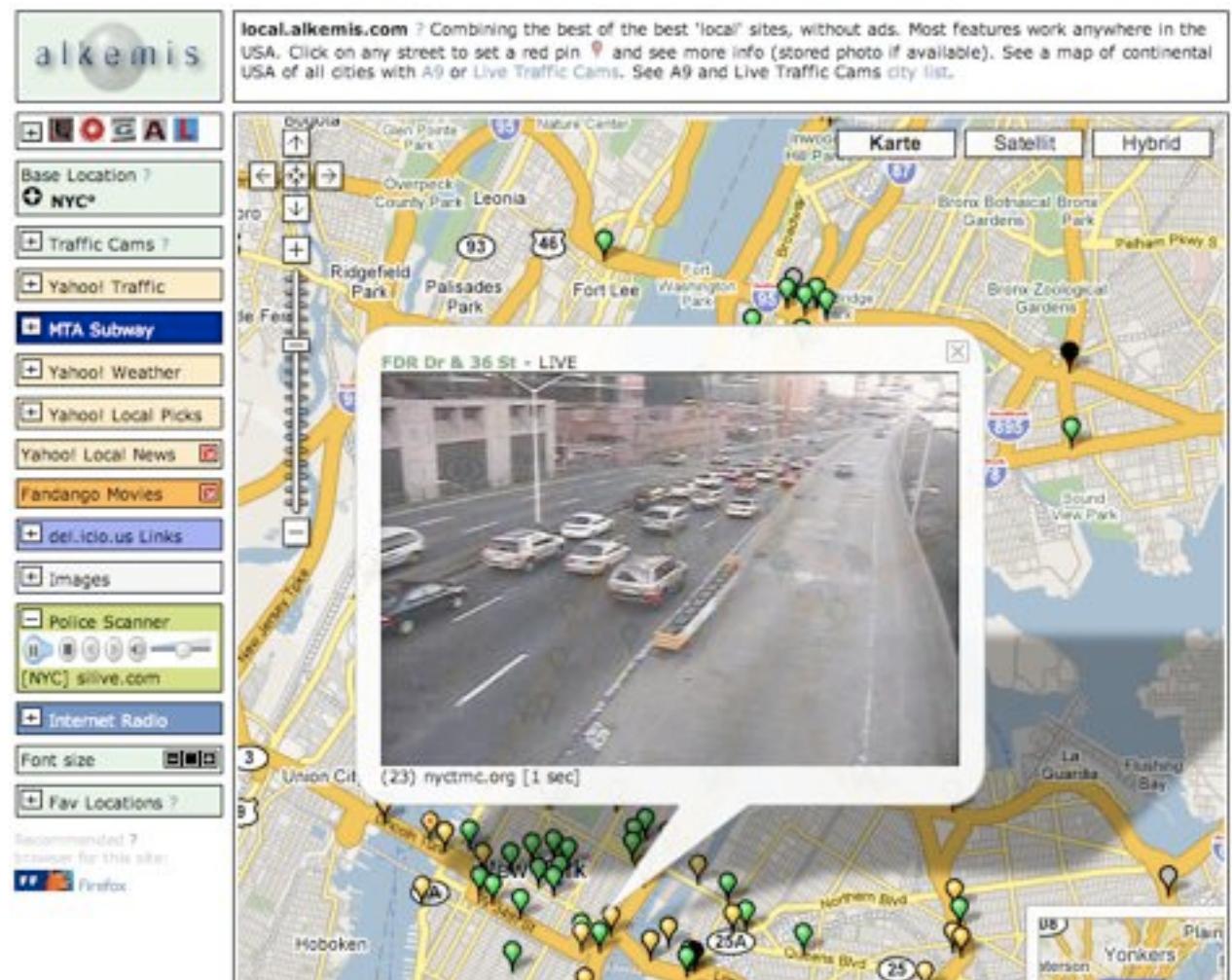
- Data feeds (XML files)
  - RSS (Really simple syndication)
    - » Channels and items
  - Atom, Atom Syndication Format (ASF)
    - » Successor for RSS
    - » IETF Standard
  - Proprietary file formats
- Database access
  - Often databases specific for application domain (e.g. in a company)
- Public Web Services
  - Access to information provided by large Web sites
  - E.g. Amazon, Google Maps
  - See later for details

# Mashup

- Application integrating diverse Web content seamlessly
- Presentation screen and layout:
  - May be based on existing Web site
  - May be created specifically
- General architectural principle:
  - Web sites provide program access (API) over the Internet (Web Services)
  - Several Web Services are contacted and results are evaluated
- Basic alternatives:
  - Client-side mashup
  - Server-side mashup (more frequent)
- Various technologies for transmission/invocation:
  - REST
  - SOAP
  - XML-RPC

# Example: Alkemis Local

- local.alkemis.com
- NYC live traffic cams
- Yahoo Traffic News
- Flickr images
- Del.icio.us links
- A9 Blockview photos
- APIs:
  - [Amazon A9](#)
  - [OpenSearch](#)
  - [del.icio.us](#)
  - [Flickr](#)
  - [Google Maps](#)
  - [Yahoo Traffic](#)
- See  
[programmableweb.com](http://programmableweb.com)



# Web Service APIs

- Example: Flickr API
- Existing methods are grouped in packages
- For each method, allowed parameters are defined
- Often a registration key is required which has to be obtained from Web service provider

## flickr.photos.getInfo

Get information about a photo. The calling user must have permission to view the photo.

### Authentication

This method does not require authentication.

### Arguments

#### api\_key (Required)

Your API application key. [See here](#) for more details.

#### photo\_id (Required)

The id of the photo to get information for.

#### secret (Optional)

The secret for the photo. If the correct secret is passed then permissions checking is skipped. This enables the 'sharing' of individual photos by passing around the id and secret.

## people

- [flickr.people.findByEmail](#)
- [flickr.people.findByUsername](#)
- [flickr.people.getInfo](#)
- [flickr.people.getPublicGroups](#)
- [flickr.people.getPublicPhotos](#)
- [flickr.people.getUploadStatus](#)

## photos

- [flickr.photos.addTags](#)
- [flickr.photos.delete](#)
- [flickr.photos.getAllContexts](#)
- [flickr.photos.getContactsPhotos](#)
- [flickr.photos.getContactsPublicPhotos](#)
- [flickr.photos.getContext](#)
- [flickr.photos.getCounts](#)
- [flickr.photos.getExif](#)
- [flickr.photos.getFavorites](#)
- [flickr.photos.getInfo](#)
- [flickr.photos.getNotInSet](#)
- [flickr.photos.getPerms](#)
- [flickr.photos.getRecent](#)
- [flickr.photos.getSizes](#)
- [flickr.photos.getUntagged](#)
- [flickr.photos.getWithGeoData](#)
- [flickr.photos.getWithoutGeoData](#)
- [flickr.photos.recentlyUpdated](#)
- [flickr.photos.removeTag](#)
- [flickr.photos.search](#)
- [flickr.photos.setContentType](#)
- [flickr.photos.setDates](#)
- [flickr.photos.setMeta](#)
- [flickr.photos.setPerms](#)

(excerpt)

# REST (Representational State Transfer)

- REST is one of many possible methods to call a Web Service API
- History:
  - Roy Fielding 2000, Ph.D. thesis
    - » Analyzes and generalizes architecture of the Web
- Main features which made the Web architecture successful:
  - Identification of resources (in most cases by URIs)
  - Manipulation of resources through these representations
  - Stateless operation of server (regarding application state)
  - Hypermedia as base engine
- Applying REST to Web Services:
  - All resources on the server are identified by URI strings
    - » API method plus parameters coded in URI
  - Client uses only standard HTTP methods, mainly GET
  - Response contains clear metadata about the used language and an information body containing hyperlinks (to further resources)
- Atom feeds also provide a REST-based API

# Example: REST Request/XML Response

- Request:

```
http://api.flickr.com/services/rest/
?method=flickr.photos.search&api_key=8c...93
&tags=puppy&per_page=3
```

- Response:

```
<?xml version="1.0" encoding="utf-8" ?>
<rsp stat="ok">
<photos page="1" pages="276125" perpage="3"
total="828375">
    <photo id="41150XXXX20" owner="41905YYY@N03"
secret="13a...1c" server="2638" farm="3"
title="MY PHOTO TITLE!" ispublic="1"
isfriend="0" isfamily="0" />
    <photo id="4116JJJ47" owner="225GGG@N08"
...
    <photo id="4176GGG653" owner="45HHH06@N00"
...
</photos>
</rsp>
```

# **SOAP and XML-RPC**

- Remote procedure call (RPC):
  - Technology to execute a procedure (method) with certain parameter values on a different (remote) computer
  - Various technologies exist (e.g. CORBA, DCOM) outside the Web area
- Web Service Invocation:
  - Invoking a Web Service using Web standards
- SOAP (earlier acronym: Simple Object Access Protocol)
  - XML-based syntax for messaging between applications
  - Independent of transport protocol
  - Web Services are a special application of SOAP
  - W3C standard
- XML-RPC:
  - Similar to SOAP (somehow its predecessor)
  - Transport protocol is HTTP
  - Simpler but limited in functionality

# SOAP Example

- From Flickr.com:

```
<s:Envelope  
    xmlns:s="http://www.w3.org/2003/05/soap-envelope"  
    xmlns:xsi="http://www.w3.org/1999/XMLSchema-instance"  
    xmlns:xsd="http://www.w3.org/1999/XMLSchema">  
    <s:Body>  
        <x:FlickrRequest xmlns:x="urn:flickr">  
            <method>flickr.test.echo</method>  
            <name>value</name>  
        </x:FlickrRequest>  
    </s:Body>  
</s:Envelope>
```

- SOAP makes use of XML namespaces
- Relatively high organizational overhead
- Compare equivalent REST request format

```
http://api.flickr.com/services/rest/  
?method=flickr.test.echo&name=value
```

# XML-RPC Example

- From Flickr.com:

```
<methodCall>
  <methodName>flickr.test.echo</methodName>
  <params>
    <param>
      <value>
        <struct>
          <member>
            <name>name</name>
            <value><string>value</string></value>
          </member>
        </struct>
      </value>
    </param>
  </params>
</methodCall>
```

- Simple structure, deep nesting, also large overhead

# Conceptual Difference REST vs. SOAP/XML-RPC

- Tradeoff between
  - diversity of method names and
  - complexity of parameter structure
- Simple classical example
  - Special method name: fib
    - » Call: fib(13)
    - » SOAP style
  - Universal method name: exec
    - » Call: exec(fib, 13)
    - » REST style (GET is universal method name)
- Programs as data structures
  - Universal interpreter (compare Turing machine)
  - Basic idea of all current computer technology

# API Toolkits

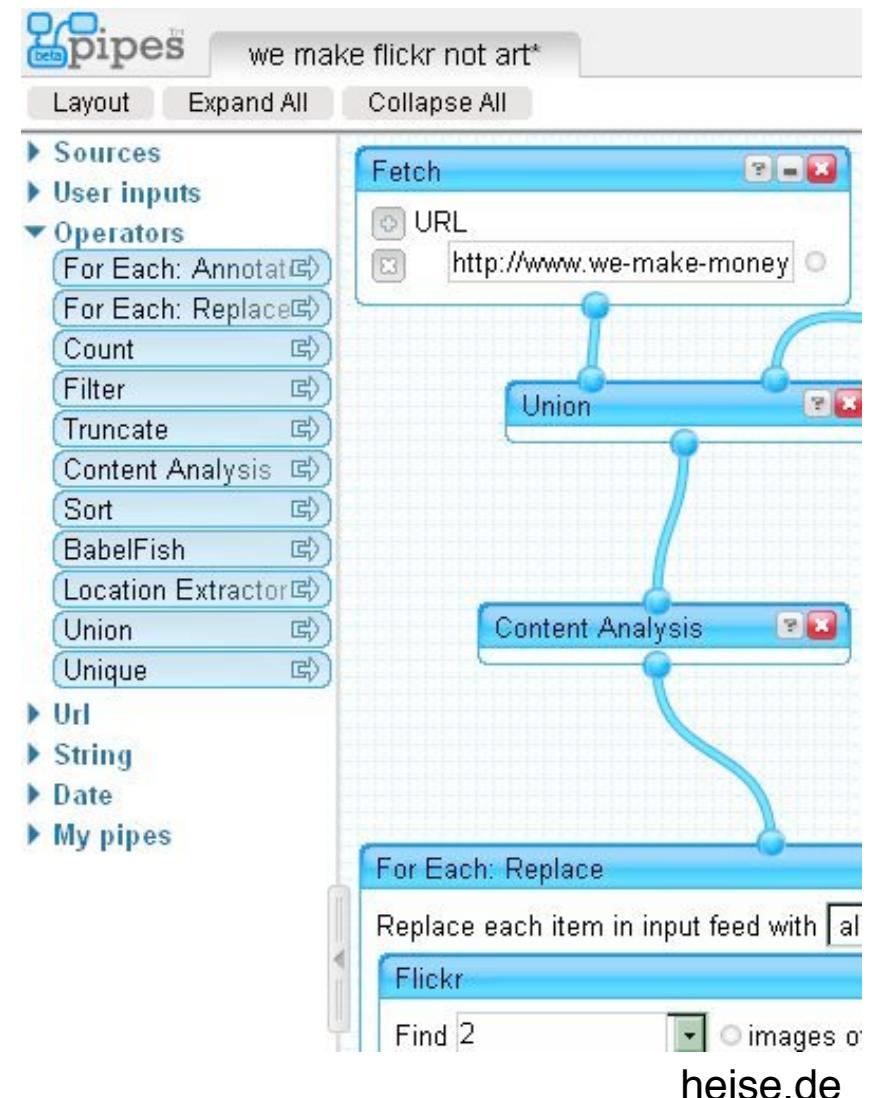
- Requests are constructed and responses are evaluated in scripts
  - Mostly server-side scripts, e.g. PHP
  - Constructing a request in PHP:  
`$content = file_get_content($url);`
  - Evaluating the response:  
XML parsing is standard part of PHP since version 5
- Simplifying development for specific API:  
*API toolkits*
  - Example: [phpflickr.com](http://phpflickr.com)
  - "Wrapper" around API functions and invocation
  - Direct PHP call to required functionality
  - Response processed and data array returned
    - » Example functions:  
`people_findByUsername() , getPhotos()`

Selected(!) API toolkits  
for Flickr

- ActionScript
  - [flickr api \(docs\)](#)
  - [Flashr](#)
  - [Flickr API Interfaces REST](#)
  - [as3 flickr lib](#)
- C
  - [Flickrcurl](#)
- Cold Fusion
  - [CFlickr](#)
- Common Lisp
  - [Clickr](#)
- cUrl
  - [Curlr](#)
- Delphi
  - [dFlickr](#)
- Java
  - [flickrj](#)
  - [jlickr](#)
- .NET
  - [Flickr.NET](#)
- Objective-C
  - [ObjectiveFlickr](#)
- Perl
  - [Flickr::API 0.03](#)
  - [Flickr::Upload 1.06](#)
- PHP
  - [PEAR::Flickr API](#)
  - [phpFlickr](#)
- PHP5
  - [Phlickr](#)
- Python
  - [Beej's Python Flickr API](#)
  - [flickr.py](#)

# Yahoo Pipes

- Example of a tool (Web application itself) for *data mashup* development:
  - Interactive feed aggregator and manipulator
- Graphical environment to
  - Fetch data from source
  - Extract data
  - Apply filters
  - Apply simple programming tools



[pipes.yahoo.com](http://pipes.yahoo.com)

# Screenscraping

- Technically the following is possible ("*Screenscraping*"):
  - Send HTTP request from server script to a Web site  
(even if it does not offer a Web Service API)
  - Analyze the returned HTML code
  - Proceed depending on the result
- The script simulates a human person using a Web browser
  - "Web Robot"
  - Frequently used by search engines
- Most Web site providers do not agree with automated access
  - Dangerous in particular in the area of authentication
  - Recommendation:  
Check Terms of Use carefully, or better refrain from Screenscraping

# 4 Communities, the Web and Multimedia

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# Virtual Worlds

- Online communities and online games are merging
  - Example World of Warcraft
- Non-Game online communities with virtual world
  - Old idea, see
    - » Gibson: Neuromancer
    - » Stephenson: Snow Crash
  - Was tried several times, but this time a bit more successful...
- Secondlife.com
  - Created and run by Linden Labs
  - Sixteen million accounts (2009), twenty thousand concurrent users
  - Full virtual environment, avatars, extensive creative tools
- Many simpler virtual worlds
  - E.g. [www.habbo.de](http://www.habbo.de)
    - » Virtual hotel for kids

# Example: Habbo.de

The screenshot shows the homepage of the Habbo Hotel website. At the top, there is a banner with the text "Hallo! Bitte einloggen bzw. registrieren." (Hello! Please log in or register.) and two buttons: "Kostenlos registrieren!" (Free register!) and "Einloggen" (Log in). To the right of the banner is a large circular badge with the text "Check eint! HABBO HOTEL". The header also includes links for "Mein Habbo", "Meine Taler", and "Habbo Club". The top navigation bar features several tabs: "START", "NEU HIER?", "TALER KAUFEN", "EVENTS", "GAMES", "COMMUNITY", "SHOP", "HILFE & SICHERHEIT", and "MOBILE". Below the navigation bar is a menu bar with links: "Habbo Hotel", "Willkommen im Habbo Hotel", "Haustiere", "Möbel", "Renovierung", "Habbo Homes", "Habbo Web", and "Habbo Games". The main content area is titled "HABBO HOTEL". It contains several sections: "Neu im Habbo?", "Wichtigste Funktionen", "Werbung", and "Wohin möchtest du gehen?". The "Wichtigste Funktionen" section describes the Habbo Console, Habbo Geldbörse, and Hotel Navigator. The "Werbung" section features advertisements for "JACKIE CHAN ADVENTURES" and "SNOWSTORM". The bottom of the page has a footer with links: "Check ins Hotel ein!", "Erstell dir einen Habbo", and "In den Raum gehen".

# Second Life



Linden  
Gallery  
Of Resident Art

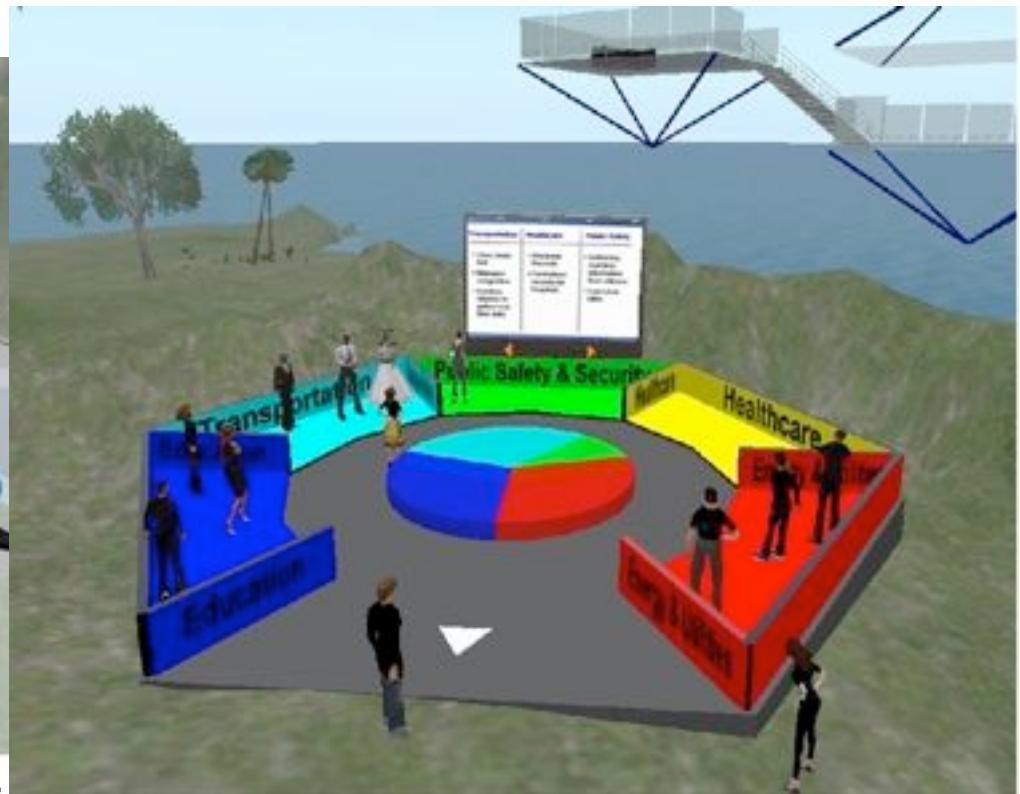
<http://video.google.com/videoplay?docid=-5182759758975402950>

# Second Life and Business

- Large companies are/were using Second Life
  - For meetings, conferences, customer care
  - As sales channel

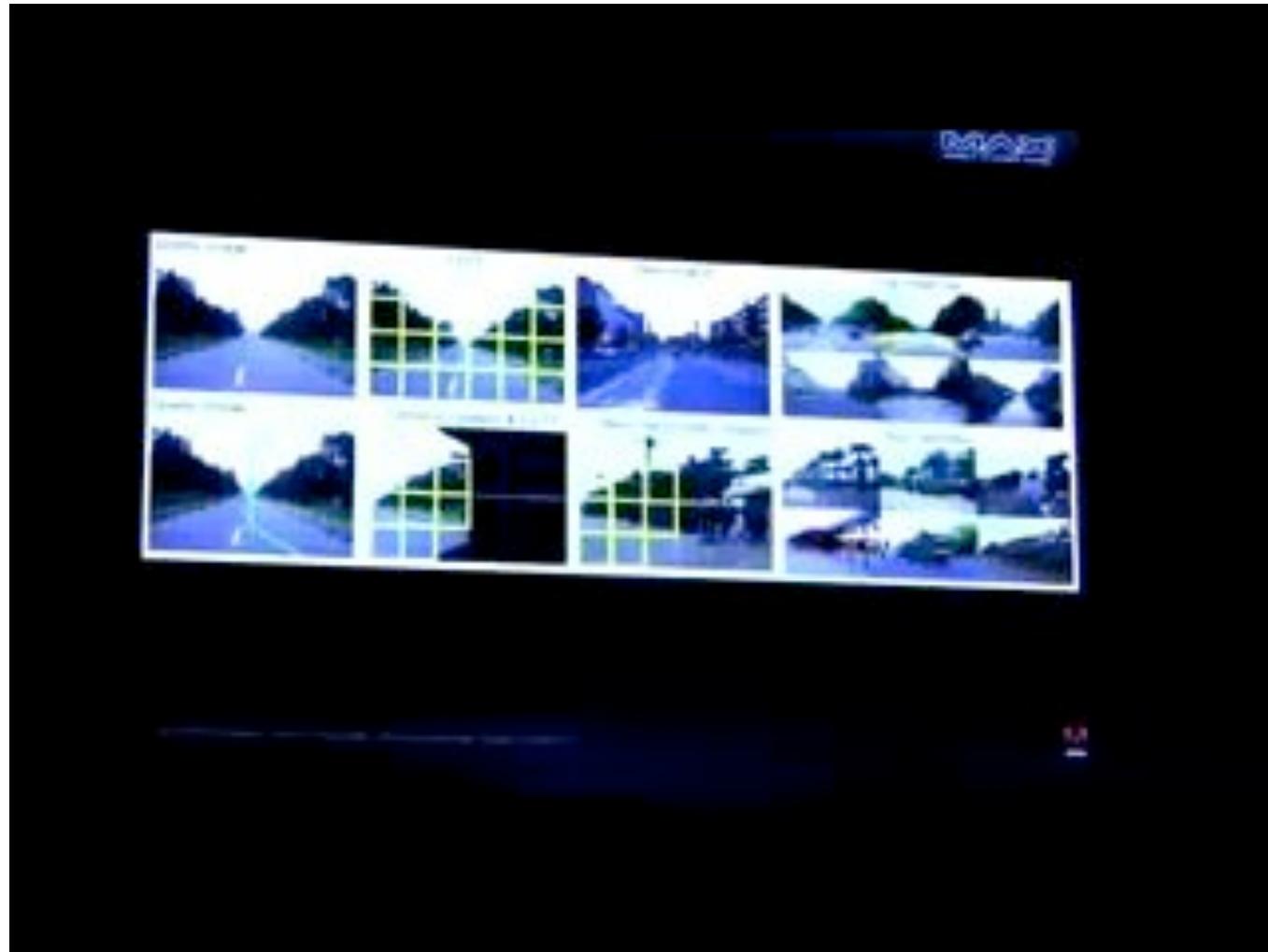


IBM Conferences, using Opinionator



<https://www.ibm.com/developerworksopensource/library/os-social-secondlife/>

# Infinite Images



- Shai Avidan,  
Adobe MAX 2008
- see YouTube  
[v=QxNx2OyeCHA](https://www.youtube.com/watch?v=QxNx2OyeCHA)

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Literature:

T. O'Reilly, J. Battelle: Web Squared: Web 2.0 Five Years On  
[www.web2summit.com/websquared](http://www.web2summit.com/websquared) – 2009)

# Web 2.0 Five Years On: Web Squared

- Smartphones and other recent/upcoming developments:
  - Collective intelligence increasingly being driven by sensors.
  - Talking to the Web becomes a reality
    - » Google Mobile App on iPhone, Siri
  - Information shadows, Internet of Things: Web meets World
  - Automatic geo-tagging of pictures (GPS built in cameras)
  - Face recognition built into photo archiving software
  - Object recognition via smartphone camera
- Key competency of the Web 2.0 era:  
Discovering *implied metadata*
- Systematic identities/primary keys:
  - Being replaced by clever recognition mechanisms (cf. Cddb/Gracenote signature of CD)



Casio prototype of GPS camera  
(2010) [dpnow.com](http://dpnow.com)

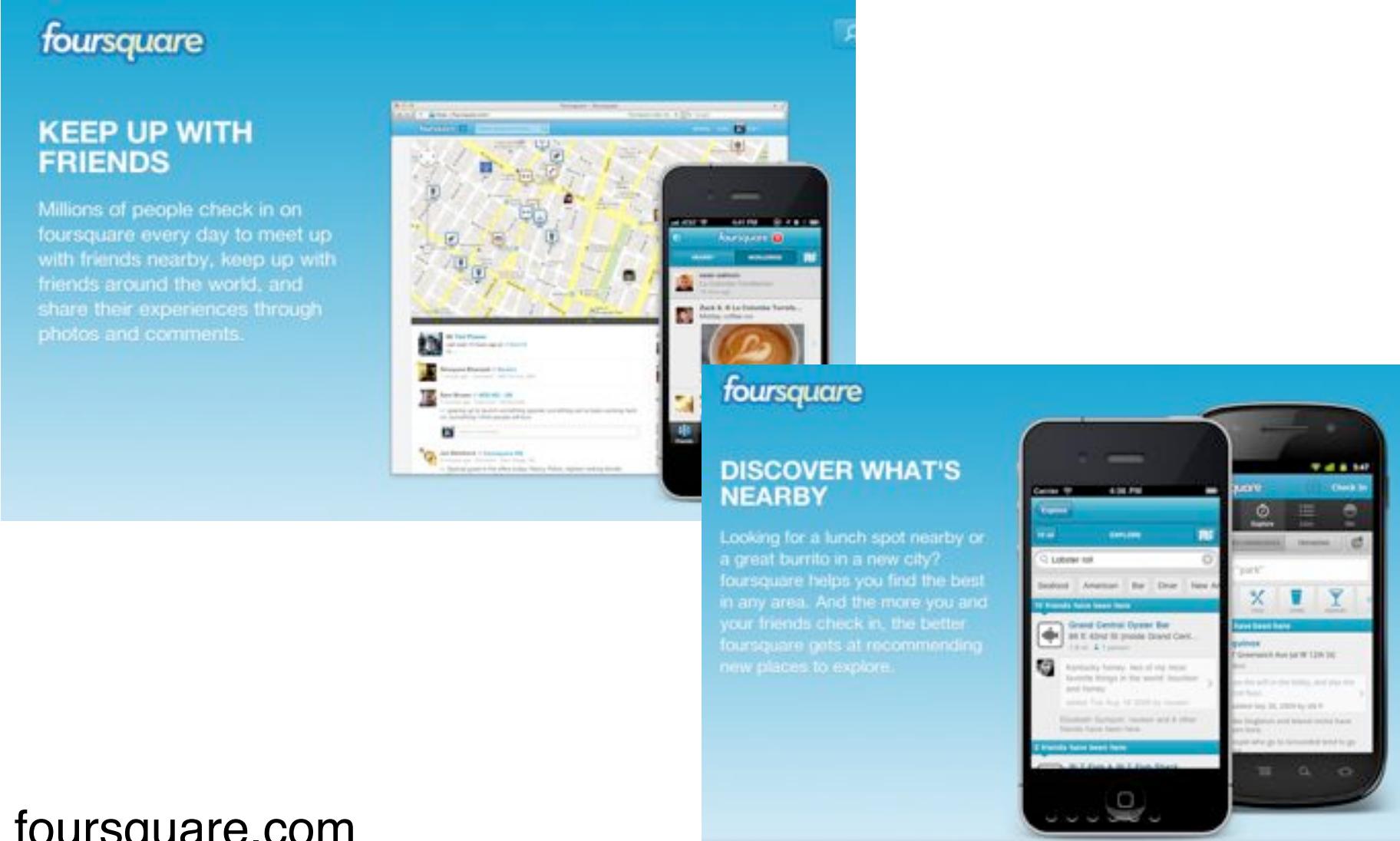
# Facebook and Mobility

- Mobile access to the social network:
  - “More than 350 million active users currently access Facebook through their mobile devices.” (Press information 2011, facebook.com)
- Facebook Places (August 2010):
  - “Check in” with mobile device to share current location
  - Discontinued after one year (competition FourSquare?)
- Facebook Location Tagging:
  - Sharing the current location as an attribute to posts, messages etc.
  - Works also for fixed network access, WLAN etc.

## Share where you are

Let people know where you've been, where you're heading and where you are now.

# Foursquare Location Based Services



The image displays two promotional screenshots for Foursquare. The left screenshot shows the desktop version of foursquare.com with a map of a city street and a sidebar showing user check-ins. The right screenshot shows the Foursquare mobile app interface on two phones, one displaying a list of nearby places and the other showing a detailed view of a specific location.

**foursquare**

**KEEP UP WITH FRIENDS**

Millions of people check in on foursquare every day to meet up with friends nearby, keep up with friends around the world, and share their experiences through photos and comments.

**foursquare**

**DISCOVER WHAT'S NEARBY**

Looking for a lunch spot nearby or a great burrito in a new city? foursquare helps you find the best in any area. And the more you and your friends check in, the better foursquare gets at recommending new places to explore.

[foursquare.com](http://foursquare.com)

# HTML5 Geolocation API

- Very simple high-level JavaScript API to deal with geolocation
- Implementation automatically uses best available information source
  - GPS for mobile devices if available
  - GSM/CDMA cell
  - WLAN/Bluetooth/IP data
- Getting a position:
  - `navigator.geolocation.getCurrentPosition  
 (successCallback, errorCallback)`
- Reading out location:
  - `function showMap(position) {  
 // Show a map centered at  
 // (position.coords.latitude, position.coords.longitude).  
}`
- Supports “one-shot” requests as well as continuous updates