

# 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

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

# 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:

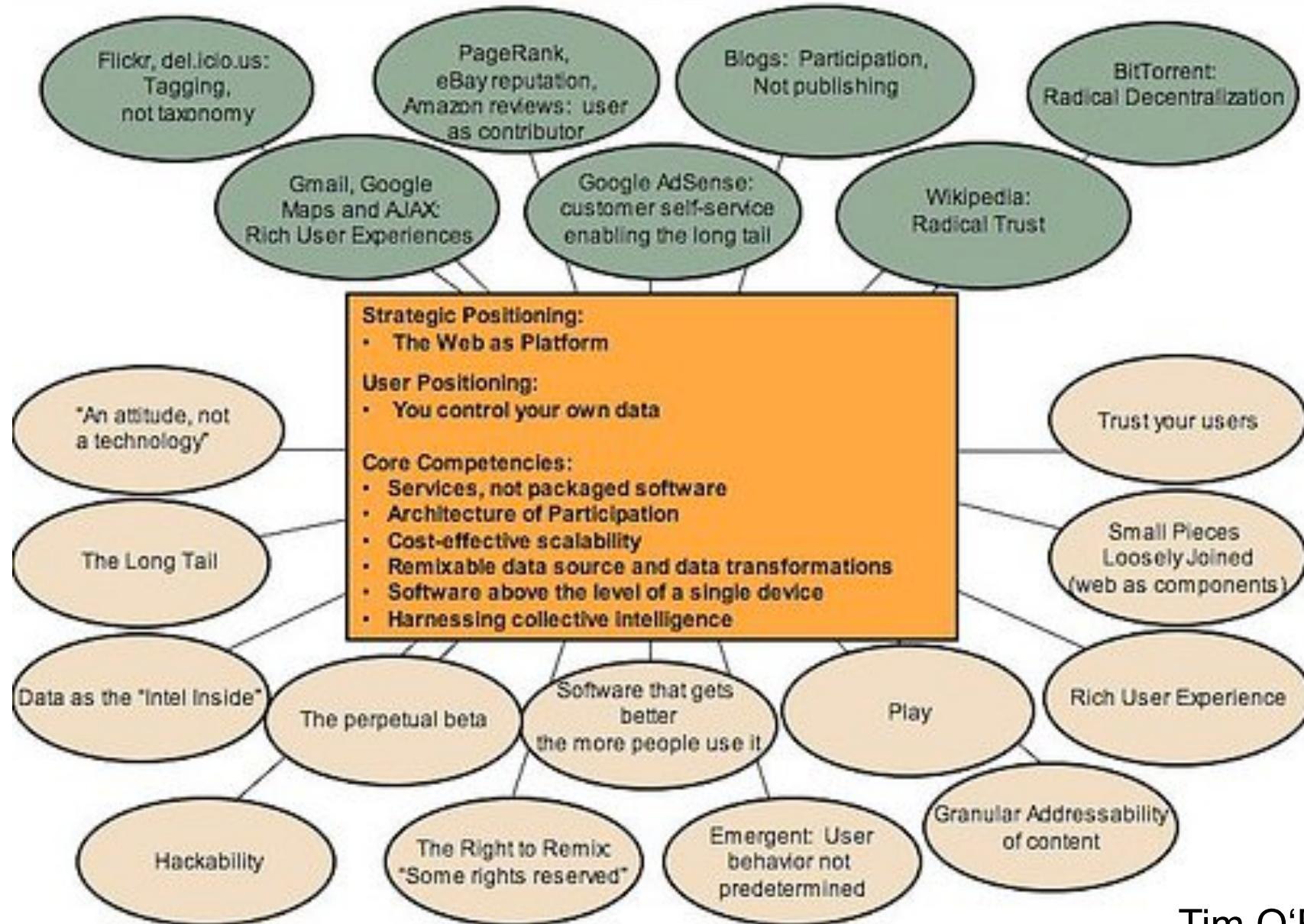
“I ... made my now-standard case for making the Mosaic browser an editor, too. Marc [Andreessen] and Eric [Bina] explained that they had looked at that option and concluded that it was just impossible.”  
(Weaving the Web p. 77)
- Tim Berners-Lee on the future of the Web:

“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

# Comparison by Examples

## Web 1.0

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

# Web 2.0 Five Years On: Web Squared

- Smartphones and other recent/upcoming developments:
  - Collective intelligence no longer being driven solely by humans but, increasingly, by sensors.
  - Talking to the Web becomes a reality (Google Mobile App on iPhone)
  - Information shadows, Internet of Things: Web meets World
  - Automatic geo-tagging of pictures by GPS built into cameras
  - Face recognition built into photo archiving software
  - Object recognition via smartphone camera
  - Infinite Images (Adobe MAX 2008, Shai Avidan, see <http://www.youtube.com/watch?v=QxNx2OyeCHA>)
- A key competency of the Web 2.0 era is discovering implied metadata, and then building a database to capture that metadata and/or foster an ecosystem around it.
- Systematic identities/primary keys are being replaced by clever recognition mechanisms (cf. CDDB/Gracenote signature of CD)

# 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

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

# 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

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

# Social Networks, First Generation



|   | Hauptmenü                           | Anmeldung                           | Log in                              |
|---|-------------------------------------|-------------------------------------|-------------------------------------|
| Leistungen  |                                     |                                     |                                     |
| Klassenfoto einstellen und Mitschüler markieren           | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |                                     |
| Aktives Auffinden selbst festlegen                        | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |                                     |
| Klassentreffen melden                                     | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |                                     |
| Alle Klassentreffeninformationen einsehen                 |                                     |                                     | <input checked="" type="checkbox"/> |
| Mit dem Organisator des Klassentreffens in Kontakt treten |                                     |                                     | <input checked="" type="checkbox"/> |
| Mailingliste für Klassentreffen verwalten                 |                                     |                                     | <input checked="" type="checkbox"/> |
| »Eigene Seite« anlegen und Profil erstellen               | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |                                     |
| Fotos auf »Eigene Seite« hochladen                        | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |                                     |
| »Eigene Seite« von anderen komplett einsehen              |                                     |                                     | <input checked="" type="checkbox"/> |
| Fotos ansehen   |                                     |                                     | <input checked="" type="checkbox"/> |
| Nachrichten hinterlegen                                   | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |                                     |
| Nachrichten lesen und beantworten                         |                                     |                                     | <input checked="" type="checkbox"/> |
| Kontaktliste anlegen                                      | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |                                     |
| Ein Poesiealbum führen                                    | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |                                     |
| Jedes Poesiealbum lesen                                   |                                     |                                     | <input checked="" type="checkbox"/> |

# 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:

- Leading social networking site  
(2009, according to *comScore*)
- 500 million active users (July 2010)
- Has overtaken MySpace.com  
in popularity by April 2008
- Alexa.com traffic rank:  
» Sept. 2006: Traffic rank 60  
» Nov. 2010: Traffic rank 2  
(rank 2 in Germany,  
rank 1 in 6 countries)
- Still high user growth (getting slower)

Wikipedia



# Example: facebook.com (2)

- Features:
  - Wall, Photos, Pokes, Status, Newsfeed, Notes (blogging), Gifts, Marketplace, Events, Video, ...
    - » More than 30 billion pieces of content shared each month
- Facebook Platform:
  - May 2007: Software development platform (PHP5, JavaScript, ActionScript, ...)
  - Nov. 2007: 7,000 applications
  - Nov. 2010: 550,000 active applications
- Financial side:
  - 2007: Microsoft buys 1.6% share for \$240 million
  - September 2009: First time positive cash flow
  - Value estimate 2010: \$41 billion

## Facebook Value Tops EBay, Becomes No. 3 U.S. Web Company

By Brian Womack - Nov 15, 2010 6:01 AM GMT+0100

<http://www.facebook.com/press/info.php?statistics>  
<http://www.bloomberg.com/news/2010-11-15/>

# 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



A screenshot of the MySpace Music homepage. On the left, there is a sidebar with three bullet points:

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

On the right, there is a large blue banner with the text 'Verbreite deine Musik bei 148 Millionen von Fans!' and a 'Search' button. Below the banner, there is a navigation bar with links: Web | MySpace | Leute | Musik | Music Videos | Blogs | Videos | Film. At the bottom right, there is a 'powered by Google' logo.

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

# Reading and Writing

- Traditional cultural techniques: writing and reading
  - Mostly separated activities
- Blogging:
  - Writing as a continuation of reading
  - High motivation to start writing, by external trigger (commented link)
  - Often very short texts
  - Reading as a continuation of writing (e.g. reading comments)
  - Continuous process of sign production
- A new cultural technique?
  - Reading-writing-reading-writing-...

From Eigner et al p. 122

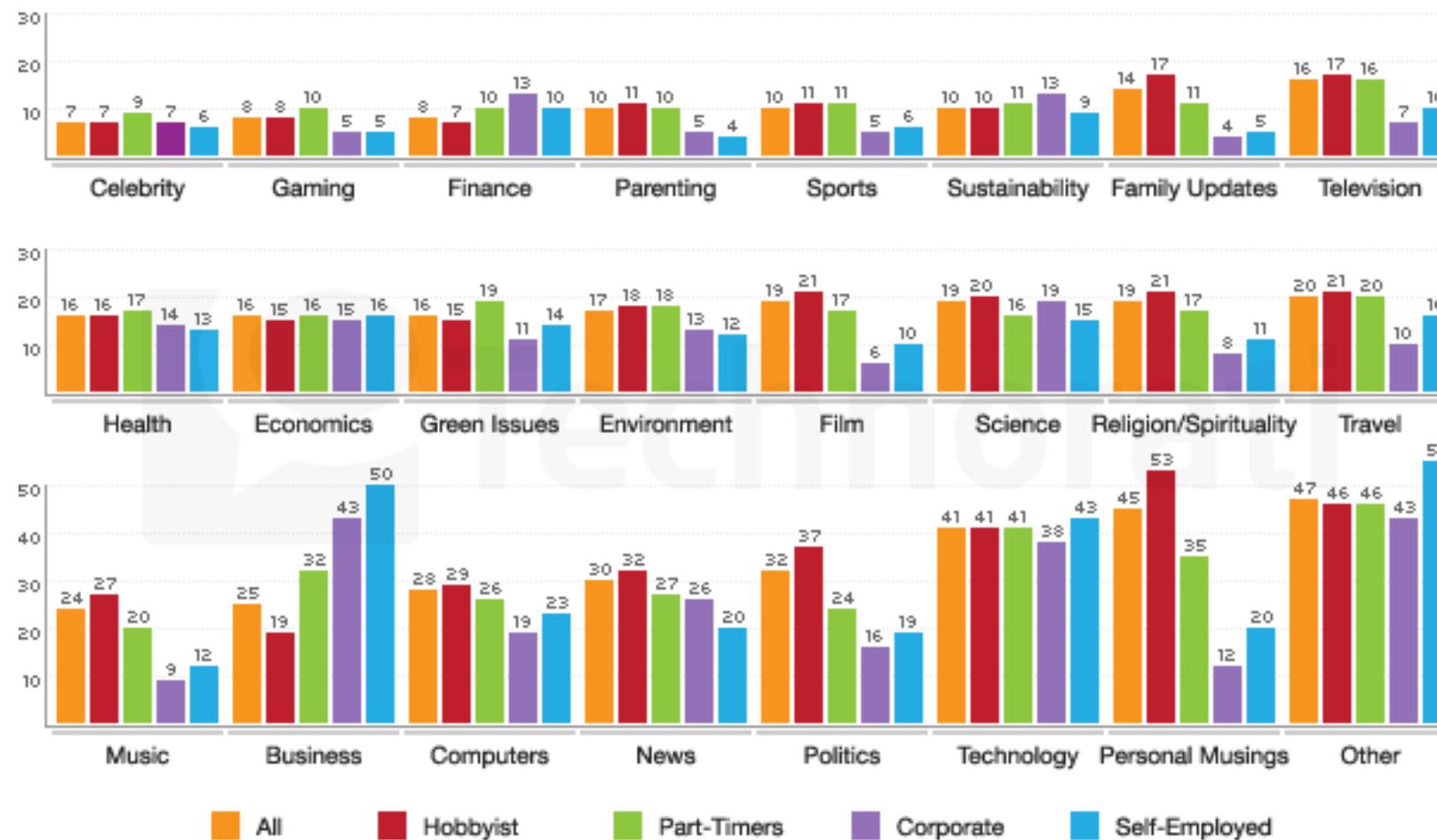
# Blog as an “Oscillation Medium”

- 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

# 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, Blogging, and links for Blog Directory, Top 100, Tags, People, Write for Technorati, and State of the Blogosphere. Below the navigation is a search bar with the placeholder "Search for posts..." and a magnifying glass icon. The main content area has a breadcrumb trail: Home / Entertainment / Music. A section titled "Music Channel" displays a thumbnail image of the TV show "Glee" with the title "A Christmas Curmudgeon Takes on Glee" and a brief description by Bob Etier. A link to "Read the entire article" is provided. To the right, there's a large black sidebar with the text "CaptainCrawl" and "The Music Blog Index". Below it is a search input field with the placeholder "Search within 3.400.000+ music blog posts" 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 (2006/7)
- 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

# Podcasting

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

## PODCASTS

Anzahl der Einträge: 166

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

Datum ▲▼ Titel ▲▼



17.10.2009

Investitionen in Kultur sind Investitionen in die Zukunft



10.10.2009

Buchmesse unter wunderbaren Vorzeichen

- “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

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>

# **Lead User Innovation Process with Online Communities**

- Traditional Lead User Innovation Process:
  - Workshops with selected users
  - Bring together product developers and end users
  - Discuss ideas for new products and product improvements
  - Create new ideas through creativity techniques
- Closed Online Communities:
  - Lead user community organized through web-based platform
  - Specific software tools in addition to community-platform functions
- Example:
  - TMG München projects with Baluff and Webasto
  - Ideas for automotive products created and tested with large group of Chinese participants

# Innovation Community: innocentive

The screenshot shows the homepage of the INNOCENTIVE website. At the top, there is a navigation bar with the INNOCENTIVE logo, a search bar, and links for Register, Log In, Help, and Contact Us. Below the header is a large banner featuring a woman looking at a whiteboard with a flowchart and the text "INNOCENTIVE Maximize your RETURN ON INNOVATION". A "Learn More" button is also present in the banner. To the right of the banner, a blue box asks "Interested in having a problem solved?" with a "Contact Us" button. On the left side, there is a sidebar with links for Products, Seekers, Solvers, Challenges, and FAQ, each with a plus sign icon. Below the sidebar, a quote by Mark Bent is displayed: "The ability to pick and choose your customized solution from a number of applicants ensures you get the best of the best." - Mark Bent, CEO, SunNight Solar. At the bottom, there are two buttons: "Solution Seekers" and "Problem Solvers". A "Featured Challenge" section highlights a challenge titled "Novel Approaches to Protecting Maize from Insect Damage" with a \$20,000 USD reward, categorized as Theoretical-IP Transfer, and ID INNOCENTIVE 8836928. The challenge description states: "The Seeker is looking for novel approaches to protecting maize from insect damage. This Challenge requires only a written proposal."

INNOCENTIVE WHERE THE WORLD INNOVATES

Search Challenges:

• Register • Log In • Help • Contact Us

Interested in having a problem solved?  
[Contact Us](#)

Products [+](#)

Seekers [+](#)

Solvers [+](#)

Challenges [+](#)

FAQ [+](#)

*"The ability to pick and choose your customized solution from a number of applicants ensures you get the best of the best."*  
- Mark Bent, CEO, SunNight Solar

[Solution Seekers](#) [Problem Solvers](#)

**Featured Challenge**

**Novel Approaches to Protecting Maize from Insect Damage**

Challenge Reward: \$20,000 USD      Challenge Type: Theoretical-IP Transfer INNOCENTIVE 8836928

The Seeker is looking for novel approaches to protecting maize from insect damage. This Challenge requires only a written proposal.

# 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

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>

# 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, Artisan News Service, The Guardian, Techtree.com, NEWS.com.au, Los Angeles Times, Wikipedia: Apple Corps v Apple Computer, and a link to "all 3,636 news articles >". There's also a link to AAPL.

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 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 homepage and a preview of its Stream Manager tool. The website has a dark header with navigation links for Solutions, About, News, and Contact. A large red speech bubble graphic contains the word "LOUD3R". Below the header, a sub-headline reads "LOUD3R gives publishers and brands powerful content curation tools". A section titled "Why do I need LOUD3R?" discusses the challenges of managing content in an era of information overload. To the right, a blue sidebar lists "LOUD3R helps Publishers & Marketers:" with three main points: 1. Quickly add content areas to sites, apps and campaigns (with sub-points for building sections, launching standalone sites, and creating newsletters); 2. Complement in-house editorial (with sub-points for adding 3rd party content); 3. Leverage social media for real-time publishing (with a sub-point for finding high-value tweets). Below the sidebar is a screenshot of the Stream Manager interface, showing an "Inbox" with categories like Stories, Tweets, Photos, Videos, and an "Outbox" with Twitter Summarized. On the right, a "Topics" list includes All, Acute Toxicity, Agricultural Economics, Agricultural Engineering, Agriculture, Agroecology, and Agroforestry. A "Delete" button is visible next to the topics. A text box explains the LOUD3R Curation Platform as a powerful admin tool for curating and publishing content. A call-to-action at the bottom encourages publishers to "Outpublish your competitors, don't outspend them".

LOUD3R.com

The screenshot shows the daylife website homepage. 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 is a "daylife" logo consisting of a yellow spiral icon followed by the word "daylife" in white. At the bottom of the page, there is a "Trending" section with names: Michael Vick, Kate Middleton, Charles Rangel, and Mark Zuckerberg. Navigation links include "Learn more" and "Publisher Login".

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 central box with the heading "Content" and sub-headings "Make, Gather, Curate" and "Magnify Multi-Source Curation". It includes a section titled "Web Curated" featuring logos for Dailymotion, YouTube, metacafe, hulu, blip.tv, and Veoh. To the right of this box is a smaller box titled "Your Pro Content" showing silhouettes of people with cameras, and "User Submitted" showing a smartphone icon. At the bottom of the magnify.net section is the URL [video.nymag.com](http://video.nymag.com).

**video.nymag.com**

The screenshot shows the New York Video website. At the top right is the "New York VIDEO" logo. Below it is a navigation bar with categories: NEWS & FEATURES, RESTAURANTS, BARS, ENTERTAINMENT, and FASHION. A sidebar on the left lists "Recently Posted" and "Watched This Week" sections, along with links for Entertainment, Fashion, Food, New York City, News, Real Estate, TV Clips, and Viral. The main content area features a "MOST RECENT VIDEOS" section with thumbnail images for "Robin Sparkles: Two Beavers Are Better Than One" and "Late Night: Kathy Griffin Spoons Justin Bieber Hitting Poverty". Below these thumbnails is a small note: "Plus: Bruno Watson charms Letterman with his American accent... on our regular late-night roundup."

# Print Media from Curated Online Content



---

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

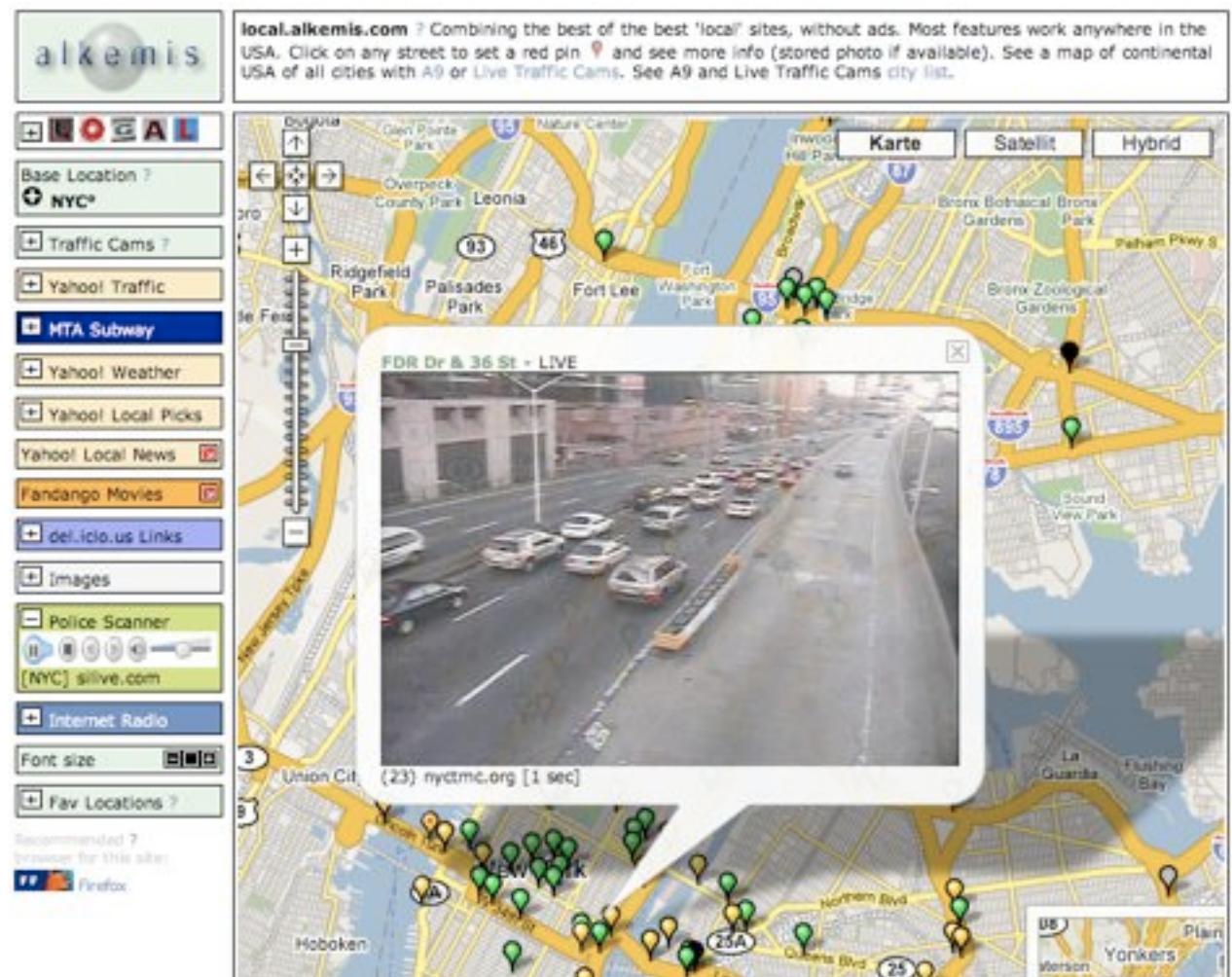
- Data feeds (XML files)
  - RSS (Really simple syndication)
    - » Channels and items
  - Atom, Atom Syndication Format (ASF)
    - » Successor for RSS
    - » IETF Standard
  - Proprietary file formats
- Database access
  - Often databases specific for application domain (e.g. in a company)
- Public 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

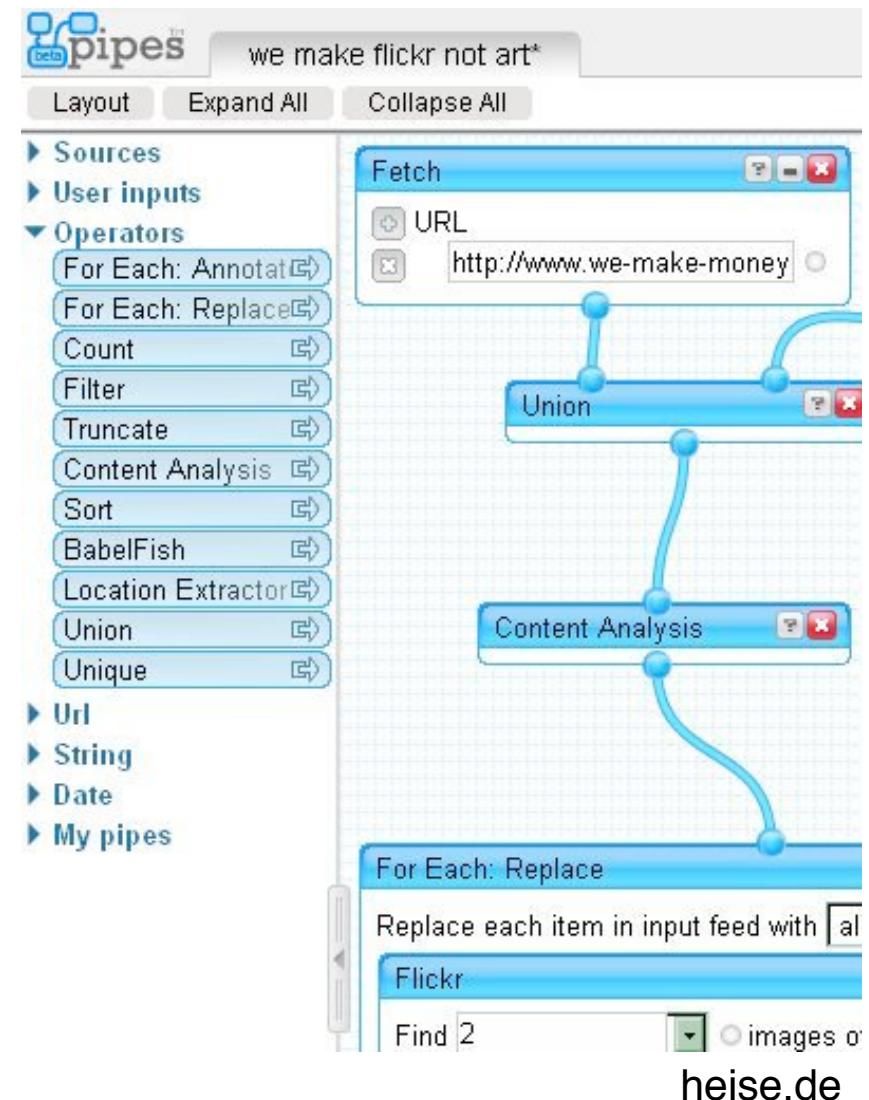
- Requests are constructed and responses are evaluated in scripts
  - Mostly server-side scripts, e.g. PHP
  - Constructing a request in PHP:  
`$content = file_get_content($url);`
  - Evaluating the response:  
XML parsing is standard part of PHP since version 5
- Simplifying development for specific 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)
  - Analyse 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

- 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

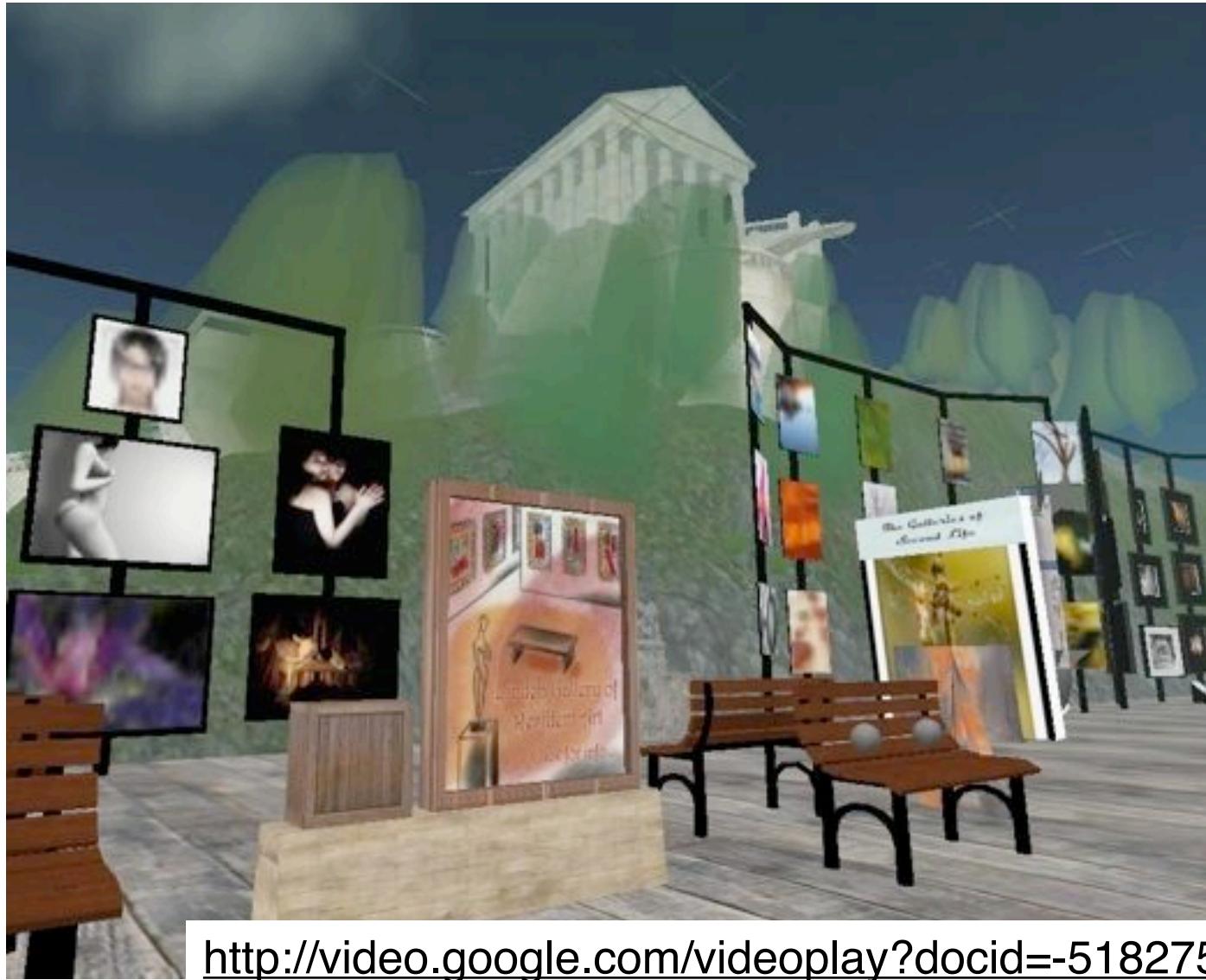
# Virtual Worlds

- 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 yellow circular badge with the text "Check eint! HABBO HOTEL". The top navigation bar includes links for "Mein Habbo", "Meine Taler", "Habbo Club", and "Nicht eingeloggt" (Not logged in). Below the banner, there is a large "HABBO" logo and a 3D rendering of a hotel building. A character in a red coat is holding a key. The main menu bar features links for "START", "NEU HIER?", "TALER KAUFEN", "EVENTS", "GAMES", "COMMUNITY", "SHOP", "HILFE & SICHERHEIT", and "MOBILE". A secondary navigation bar below the main menu includes links for "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 for "Check ins Hotel ein!", "Erstell dir einen Habbo", and "In den Raum gehen" (links to various rooms).

# 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



☆ AP Photo by IBM Corp. - 1 month ago

In this screen grab provided by IBM Corp., one of their virtual islands which will open to the public next week is shown. |