4   Communities, the Web and Multimedia

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)

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."

- Disussions 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, standardisation, liberty

Web 2.0 Meme Map

Flickr, del.icio.us: Tagging, not taxonomy

PageRank, eBay reputation, Amazon reviews: user as contributor

Blogs: Participation, Not publishing

BitTorrent: Radical Decentralization

Gmail, Google Maps and AJAX: Rich User Experiences

Google AdSense: customer self-service enabling the long tail

Wikipedia: Radical Trust

Strategic Positioning:
- The Web as Platform

User Positioning:
- You control your own data

Core Competencies:
- Services, not packaged software
- Architecture of Participation
- Cost-effective scalability
- Remixable data source and data transformations
- Software above the level of a single device
- Harnessing collective intelligence

"An attitude, not a technology"

Trust your users

The Long Tail

Small Pieces Loosely Joined (web as components)

Data as the "Intel Inside"

The perpetual beta

Software that gets better the more people use it

Play

Rich User Experience

Hackability

The Right to Remix "Some rights reserved"

Emergent: User behavior not predetermined

Granular Addressability of content

Tim O'Reilly

What is the Meaning of „Web 2.0" ?

- O'Reilly Conferences 2004/2005/2006
  - Tim O'Reilly, Dale Dougherty
  - Current conferences, 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" became 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 geotagging 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 Obana campaigners
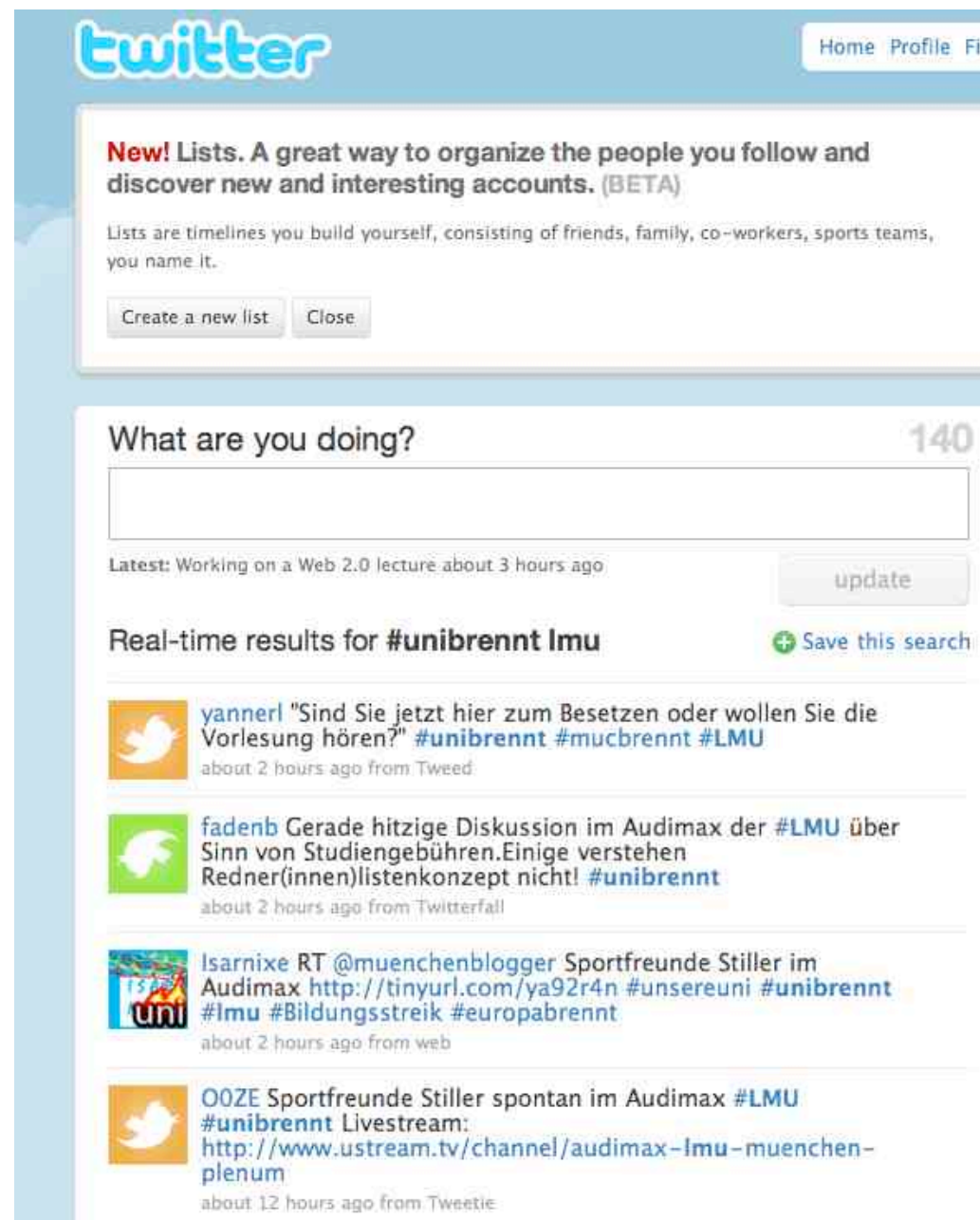
Web and World

O'Reilly/Battelle 2009:

The Web is now the world.

And the world needs our help.

10 Communities, the Web and Multimedia

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

- 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

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

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

StudiVZ-Website
Foto: StudiVZ

Quelle: netzeitung.de

Example: facebook.com (1)

facebook **Startseite Profil Freunde Postfach**

Neuigkeiten | Neuigkeiten Live-Meldungen anzeigen
Seiten | Was machst du gerade?
Statusmeldungen

- 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
  - September 2006: Open to everybody of age 13 and up
- Popularity:
  - Leading social networking site (2009, according to *comScore*)
  - 300 million active users (Nov 2009)
  - Has overtaken MySpace.com in popularity by April 2008
  - Alexa:
    - » Sept. 2006: Traffic rank 60
    - » Nov. 2009: Traffic rank 2 (rank 5 in Germany)
  - Growth: **276%** in 6 months among 35-54 year old

Facebook.com users come from these countries:

30.0%	United States
5.2%	France
5.1%	United Kingdom
4.9%	Italy
4.0%	India
3.5%	Indonesia
3.0%	Canada
3.0%	Germany

alexa.com

Wikipedia, facebook.com, istrategylabs.com

Example: facebook.com (2)

- Features:
  - Wall, Photos, Pokes, Status, Newsfeed, Notes (blogging), Gifts, Marketplace, Events, Video, ...
    - » Facebook Photos said to be most popular online photo archive (10 billion photos, Photobucket: 6.2 million, Flickr: 2 billion)
- Facebook Platform:
  - May 2007: Software development platform (PHP5, JavaScript, ActionScript, ...)
  - November 2007: Seven thousand applications November 2009: 350,000 active applications
- Financial side:
  - 2007: Microsoft buys 1.6% share for $240 million (total implied value $15 billion)
  - September 2009: First time positive cash flow

http://tech.blorge.com/Structure:%20/2008/10/16/facebook-holds-10-billion-photos-beating-photobucket-and-flickr/
http://www.cbc.ca/technology/story/2009/09/16/tech-facebook-300-million-users.html

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 copyright-free music and videos
  - MySpace Music

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 Flick'r

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.

  (adapted from Ebner/Baumann/Krcmar)

  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. Xanga.com, 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

- 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 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.

Microblogging

April 2005: Term "tumblelog"

- 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

Tumblr: Microblogging Done Right. cnet

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

tumblr.com

Podcasting

- "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: https://adwords.google.com/select/afc/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

10 Communities, the Web and Multimedia

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

Content Aggregation

- Combination of content on specific topics from various sources

- Creation of an individualized information offer:
  - Adaptable to personal preferences
  - Often selected according to community processes (voting, tagging)

- Examples:
  - wikio.com
  - Netvibes.com
    - » User-configurable
    - » Extremely easy configuration of feed modules
  - Daylife
    - » Publisher-configurable
    - » Focus on multimedia: E.g. photo covers

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)
- Using public Web Services
  - Access to information provided by large Web sites
  - E.g. Amazon, Google Maps
  - See later for details

Example: Wikio.com

Example: Netvibes

Example: Daylife

Styles of Content Aggregation

- Presenting various information sources in one screen, side by side:
    - Simple *portal* collecting links, or
    - Sophisticated portal synchronizing the components ("portlets")
    - Complex syndication algorithms computing the component contents
- Integrating information from another Web ressource into the presentation interface of a certain Web site
    - Requires an add-on mechanism for the carrier Web site
    - Example: Google Maps
- Fully integrated presentation of information computed from several Web resources

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
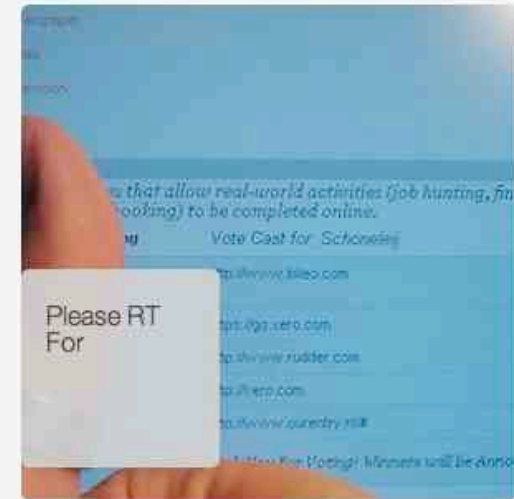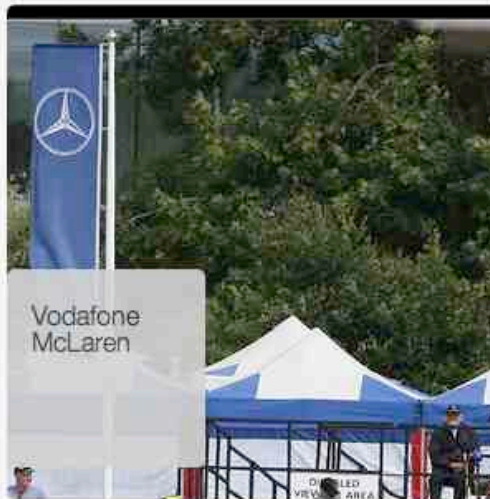 - Google Maps
  - Yahoo Traffic
- See programmableweb.com

Example: Twittertimes

http://silverbranchdesign.com/twittertimes/

Mashup

- Application integrating diverse Web content seamlessly
- Presentation screen:
  - 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

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 ressources 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="45HHHH06@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

  - "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
- Flickcurl

Cold Fusion
- CFlickr

Common Lisp
- Clickr

cUrl
- Curlr

Delphi
- dFlickr

Java
- flickrj
- jickr

.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

heise.de
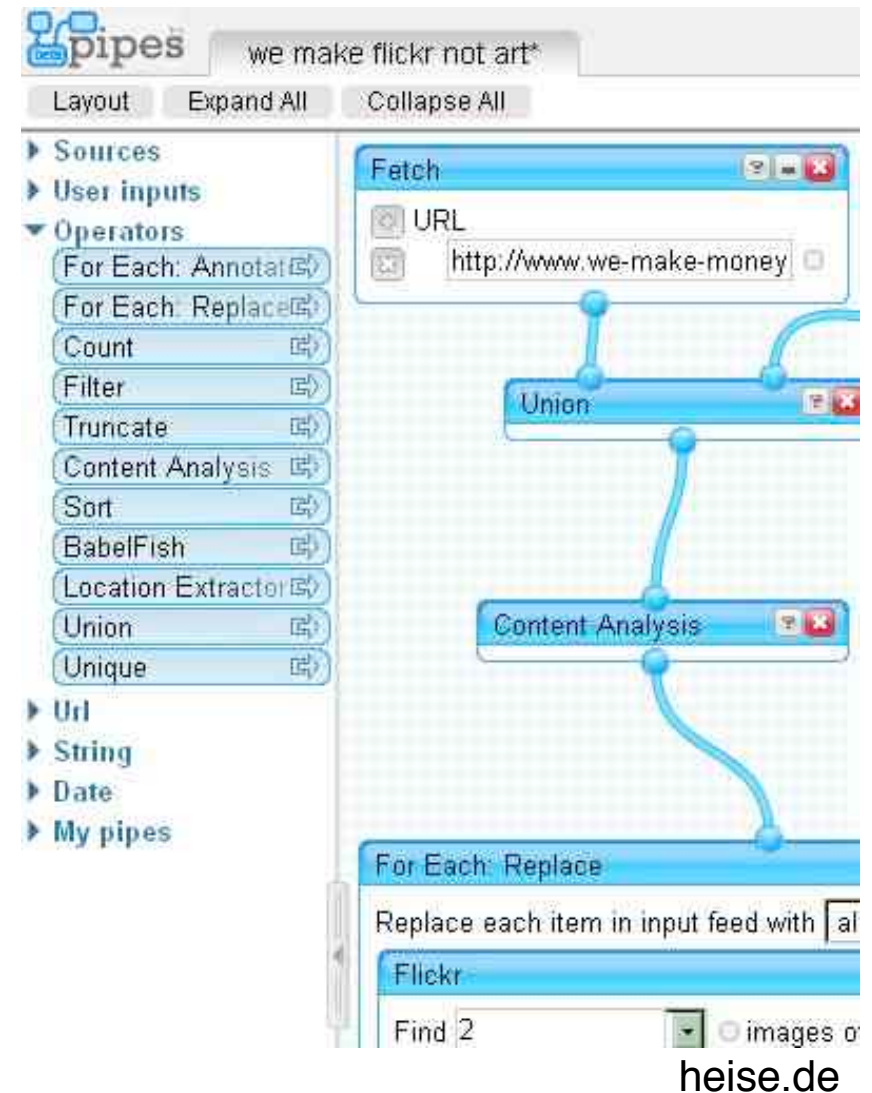
pipes.yahoo.com

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

10 Communities, the Web and Multimedia

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 successful...
- Secondlife.com
    - Created and run by Linden Labs
    - Two million accounts, twenty thousand concurrent users
    - Full virtual environment, avatars, extensive creative tools
- Many simpler virtual worlds
    - E.g. www.habbo.de
        - » Virtual hotel for kids

Example: Habbo.de

Second Life

Linden
Gallery
Of Resident Art

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

Second Life and Business

- Large companies are 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. |

Web Two Point Oh

http://www.andrewwooldridge.com/myapps/webtwopointoh.html