The Social and Technological Web

- Evolution of the Web over time
- A timeline for the Social Web
- A categorization of Social Web
- Technologies underlying Social Web
- Problems in Social Web
- Trends for the future

The Informational Web

- HTML + HTTP + URL → Creation of WWW
- The first web server: info.cern.ch, on November 1990
- Several efforts to write platform-independent browsers
- Efforts to achieve standard protocols
- First WWW conference in 1994
- Mosaic Netscape released on October 1994

In these early years, Web was about looking up information compiled in lists of URLs.

The Commercial Web

- Netscape develops Secure Sockets Layer Protocol (SSL) which opens the door for financial transactions over the Web.
- 1995 – 2001, a creation of countless start-ups that wanted to become rich by using the Web (by building brands).
  - eBay (1995)
  - Amazon (1995)
- The bursting of “Dot-com bubble” was somehow similar to the current bursting of the “Housing bubble”.

METCALFE’S LAW:
The more people use the network, the more valuable it becomes

During the Internet boom Metcalfe’s law was frequently used during the dot-com-boom to offer a quantitative valuation for internet companies, supporting a “build it and they will come” attitude.
It implied that the value of a service is proportional to the square of the number of its consumers or users, while costs would grow only linearly.
But the value of the network grows really slower, as investors found out...
The Participatory Web

- The Web, not only as a marketplace for companies that want to sell, but as a social space for people.
- In this social space, communities of like-minded individuals are created by sharing news, ideas, information, stories, etc.
- The Web as a publishing medium: everyone is an author.
- The Web as an intelligent medium due to “the wisdom of crowds”.
- Google was the first one to recognize the “wisdom of the crowds” in search by taping into the value of the anchor text.

The Beginning of Social Web

- December 1997: the word “Weblog” was coined by Jorn Barger. In 1998, the word was pronounced “We blog” and shortened to “Blog”.
- August 2003: The launch of MySpace
- February 2004: The launch of Flickr
- December 2004: The launch of Digg
- February 2005: The launch of YouTube

Categories of Social Web

- Blogging
- Social Networking (MySpace, Facebook)
- Collaborative Knowledge Creation (Wikipedia)
- Content Sharing (Flickr, YouTube)
- Social Bookmarking (Digg, Del.icio.us)
- Recommendation Engines (Amazon, Netflix, Last.fm)
- Social Gaming
- Open-source software (Linux, Apache, Python, etc.)

None of these would be interesting without massive user-generated content.

Blogging

- Transition from personal websites to blogs.
- RSS (also known as Web feeds)
  - Really Simple Syndication (Dave Winner)
  - Rich Site Summary (Netscape)
  - Subscribe to one page and get notified when the page changes.
- Permalinks
- Trackbacks
- Free blog hosting services (Blogger, WordPress):
  - Templating (no need to write HTML)
  - rich editing (WYSIWYG)
  - adding photos, music, video (the widget technology)
Social Networking in 2009

- MySpace: 246,000,000 users
- Facebook: 124,000,000 users
- Windows Live Spaces: 120,000,000 users
- Friendster (80 M), hi5 (80 M), Tagged (80 M), Orkut (67 M), Bebo (40 M), LinkedIn (30 M)

- comScore MediaMetrix (August 2008)
  - Blogs: 77.7 million unique visitors in the US
  - Facebook: 41.0 million, MySpace 75.1 million
  - Total internet audience (US) 188.9 million

Collaborative Knowledge Creation

- Examples: Wikipedia, WikiTravel, Wiktionary
- Technology: wiki – a page that can be modified by anyone, using just a web browser.
- wiki has been around since 1995
- There are public and private Wikis.
- Problems: Bias, accuracy, vandalism
- Wikipedia ranks 8th in terms of global web traffic.

Content Sharing

- Examples: Flickr, YouTube, Picassa
- Content (videos, photos) is uploaded from users and made available to all.
- Everyone can tag and comment on the content.
- Tags can be used for retrieval of content.
- Content can be embedded in other social sites through feeds or widgets.
- YouTube is ranked 3rd (after Yahoo and Google) in terms of traffic ranking.

Social Bookmarking

- Examples: Digg, Del.icio.us, StumbleUpon
- Tags
- Folksonomy versus Taxonomy
- Thumbs-up, thumbs-down (voting system)
- Features like "most e-mailed", "most read" (in all other sites)
- Risks:
  - Users who promote sites that promote products and services
  - The cascade process of reinforcement
Social Gaming

- One of the first uses of Internet, well before Web 2.0.
- Origin: Text-driven MUD (Multi-User Dungeon) (played by telnet)
- Viral games: “Zombies”, “Vampires”, “Werewolves”
- Virtual Life (a social virtual world)
- Google Lively
- Facebook games:
  - Who has the biggest brain?
  - Scrabulous
- Games in other platforms (Xbox, Playstation, Nintendo) with Internet connection.

Recommendation Engines

- Examples: Amazon, Netflix, Last.fm
- Personalized recommendation: recommend things based on the individual’s past behavior
- Social recommendation: recommend things based on the past behavior of similar users
- Item recommendation: recommend things based on the item itself

Open-source Software

- Many Social Web apps are built on the Lamp architecture: Linux, Apache, MySQL, and PHP
- All these building blocks are open-source software
- The roots are on the GNU Project, started from Richard Stallman on 1983 (founder of Free Software Foundation)
- SourceForge – a location to store open-source software (180,000 projects, 1.9 Million contributors)

Other categories in the Social Web

- Podcasting
- Microblogging (Twitter)
- Live or on-demand streaming of TV shows, concerts, events, sport, etc.
- Chatrooms, Instant Messaging, Internet Telephonie
- Online communities (Craigslist)
- Social event calendars (Upcoming, Eventful)
- Coordination of offline activities (Meetup)
**Technologies**
- Editing within the browser
- Tagging
- XML, AJAX, Javascript, RSS, ATOM, Web Services, REST
- Advertising (e.g., AdSense, AdWords)
- Web Applications (Google Mail, Docs, Calendar, Maps, Earth, Picassa,) [Rich User Experience]
- Open APIs where users can plug-in their applications
- Mashups
- Increased scalability (computing utilities)

**Financing models**
- Serving advertisement
  - Ads are the first deployed web services
  - Ads are the first mashups
- DoubleClick (old model) vs. Overture (Yahoo), Google (new models)
  - DoubleClick serves advertising agencies and media companies
  - Overture, Google serve the "long tail", offering the possibility to bid for search queries.
- Voluntary donations (Wikipedia)

**Problems in the Social Web**
- Copyright infringement (e.g. Napster, BitTorrent)
- Privacy
  - Over-sharing details of personal life (“Facebook Sabotage”)
- Content Quality
- Identity (PayPal, Amazon versus MySpace)
  - OpenID platform
- Trust
- Who owns the data?

**Trends for the future**
- Web computing replaces Desktop computing
- Semantic Web
- Harnessing and integrating services provided by others
- Software written for several platforms (Google and Apple on the mobile telephony, Microsoft on Xbox, Netflix + TiVo)
- Look at Best 100 Web Applications at Webware.com
Where to learn more

- Tim O’Reilly article: “What Is Web 2.0” 09/30/2005
- Paul Graham article: “Web 2.0”, November 2005
- TechMeme Leaderboard (a ranking of most read technology blogs and websites)
- Blogs like: TechCrunch, ReadWriteWeb
- Wikipedia entries
- Web 2.0 Summit, Web 2.0 Expo