

Web 2.0 To Go



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Abstract

This paper gives a brief guide and overview of Web 2.0, a concept that loosely covers a recent intersection of Web technologies, content and communities.

Web 2.0 describes a range of increasingly popular web services that offer users dynamic interactive models of communication combined with the ability to create and share content. This collaborative environment has sparked new levels of interest and discussion around the future of the Web.

Some Web 2.0 applications can be seen as communally constructed virtual libraries and as a profession, librarians have been quick to seize on the potential of Web 2.0 to deliver services incorporating greater models of patron interaction and collaboration—sometimes referred to as Library 2.0.

This paper outlines a number of popular Web 2.0 sites, and also touches on local and international examples of libraries incorporating Library 2.0 tools into their services.

Finally the authors briefly examine the term Semantic Web and its impact on the future of web based services.

Web 2.0

Background

Hot, or over-hyped, take your pick. The concept, “Web 2.0” currently generates huge interest and discussion among communities, professions and companies eager to explore and exploit new ways of interacting online with users and content. This year the ubiquitous term has frequently surfaced in the mainstream media, [1] often in association with the emergence of popular social networking sites like MySpace. [2]

Such is the interest that we even have two leading trend endorsements—ceremonies [3] and satire [4] to signal that Web 2.0 has come of age.

But despite the marketing, the cynicism, and volume of commentary (every Web 2.0 pundit has their own definition), something very interesting is currently happening on the Web exciting everyone from librarians to venture capitalists. Under the Web 2.0 moniker a convergence of emerging technologies, content, and online communities has allowed users to dynamically interact with content and other users in novel collaborative ways.

Web 2.0 is a term initially coined by Dale Dougherty in 2004 and subsequently popularised by Tim O'Reilly of O'Reilly and Associates, (a leading computer software manual publisher) through articles and a branded series of conferences. In his seminal 2005 article [O'Reilly 2006] O'Reilly noted that since the 2001 dot-com collapse current successful websites shared a similar set of features, principles and technologies, which invite user interaction through content use and sharing.

This new or second generation of web development is often contrasted with a previous “Web 1.0”, typified by a technology where connected computers enabled surfers to only passively search, retrieve proprietary information, (largely text based) from static web pages.

From personal home pages to blogs, personal computers to online communities, directories to “tags”, a more interactive Web today offers users services that invite active participation through the use of tools that remove the need to learn programming code. And Web 2.0 sites and projects are increasing in number and popularity. [5] As of July 2006 five of the fastest growing web brands were those found under the Web 2.0 umbrella. For example, MySpace's growth increased from 16.2 million visitors in July 2005 to 46.0 million in July 2006. [6]

Definition

Is it a marketing concept, a raft of technologies, or a philosophy? The term Web 2.0 is such a nebulous (and evolving) concept it's almost impossible to pin down a clear definition, let alone understand its accompanying jargon. [7]

On a broad level, Web 2.0 covers a second wave of web tools and services, (including; blogs, wikis, Ajax, RSS, and tagging) which allow users to generate, describe, post, harvest, search over, annotate, and exchange online content. This content ranges from music and bookmarks to photographs and documents. The ability to create and manipulate this content is fuelled by; the increasing uptake of broadband, a rise in PC

processing power, and Web 2.0 services offering (often) free online storage of user content.

Popular examples include Amazon.com, where you can not only buy books but “look inside them”, read reviews, post your own and submit keywords that help describe items.

Others include Google, which not only offers a range of specialised search options (most recently video) but free online Web 2.0 tools like the recently acquired Writely.

But it’s also an evolving definition that shifts as users and commentators become aware of the implications of these growing networked content services. An early Web 2.0 definition appearing on Wikipedia [8] in January 2005 took a technical approach:

“Web 2.0 defines a newer incarnation of the web typified by the transition from the typical site hosting HTML/XHTML pages, to a platform that provides a point of presence...”
[Wikipedia 2005]

That initial definition has undergone literally hundreds of revisions with the latest, (20 August 2006) advancing a much more community centric interpretation:

“The phrase Web 2.0 was created by O’Reilly Media to refer to a supposed second generation of Internet-based services that let people collaborate and share information online in a new way—such as social networking sites, wikis, communication tools, and folksonomies...” [Wikipedia 2006]

However, one common theme noted by commentators is how Web 2.0 may lead to a fundamental new approach in the way personal computers and the Web are used.

This paper was written using MS Word, a proprietary application with established release cycles. But Web 2.0 services allow users to increasingly treat the Web, not their PC, as their preferred platform of use. Web 2.0 sites and services now provide a range of increasingly sophisticated and often (free applications) that are beginning to resemble (and challenge) desktop programs in terms of functionality. For example Jumpcut [9] gives users access to free editing tools that lets them upload edit, remix and publish video footage.

Extend this trend and effectively the Web becomes your operating platform of choice where in future you will be able to access and use free web based alternatives to software like MS office. As one commentator notes:

“As a result, the Web is even starting to challenge Windows as the foundation on which people are creating software -- which is now morphing into services on the Web.”
[BusinessWeek Online 2005]

O’Reilly also touches on this concept of the “network as platform” in his somewhat cryptic definition:

“Web 2.0 is the network as platform, spanning all connected devices; Web 2.0 applications are those that make the most of the intrinsic advantages of that platform: delivering software as a continually-updated service that gets better the more people use it, consuming and remixing data from multiple sources, including individual users, while providing their own data and services in a form that allows remixing by others, creating

network effects through an "architecture of participation," and going beyond the page metaphor of Web 1.0 to deliver rich user experiences".[O'Reilly 2006]

Web 2.0: Some Key Aspects

Some key aspects of Web 2.0 services that allow users an active role in connecting and interacting with communities and content include:

- The use of emerging technologies like AJAX—which in-part covers a mix of web page coding standards like JavaScript and XML (a data format that allows for the generating and reading of data) allowing users to interact directly with web pages (which don't have to reload, i.e. the "world wide wait") as if they were using a desktop application. For example see Protopage. [10]
- Content can be exposed or generated, described and freely manipulated by users. They are able to gather and present information from a range of sites and in new innovative multimedia ways. For example a blog posting on a favourite Indie rock band may link to a Flickr photograph pool, feature a MP3 audio file the band has made available on MySpace, a video from YouTube, a news item from a fan site and an updated discography from Wikipedia. The blog posting would also invite interaction (through comment posting) from a user community sharing the same interests.
- User centred design, simple intuitive interfaces and "lazy" registration combined with easy to use, intuitive tools, making the experience of locating, creating and sharing information as simple as possible—like facebook's homepage. [11]
- An underlying philosophy of "don't be evil" where Web 2.0 services value and trust their community of users as co-developers, content generators and keyword (metadata) contributors. Web 2.0 services actively and regularly inform users of updates while also soliciting them for their opinions and thoughts on service enhancements. For example see LibraryThing Blog. [12]
- Small, frequent and rapid updates of data and software (fixes and features) released on a continual basis - a concept termed "perpetual beta", as opposed to the release cycles of shrink-wrapped software which can be months or years.

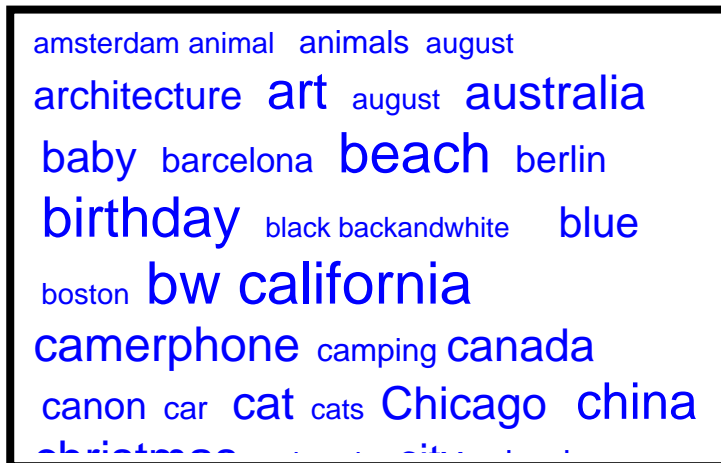
To illustrate the above, the following selection of popular Web 2.0 sites demonstrates the range of content generated and shared by their respective online communities.

Web 2.0 Sites

Photographs

The jewel in the Web 2.0 crown is undoubtedly Flickr, often seen as the quintessential Web 2.0 service. This image photo sharing site lets you upload, share, comment on, and categorise your photographs. You label your photographs using "tags" or keywords (effectively subject indexing but without a controlled vocabulary). These describe the photographs and help other users to identify and locate images. You can also post photos to a blog, create or join photo pools (groups that post photographs relating to a particular theme or subject) and also explore photographic clusters—like photographs of libraries. [13]

Two Web 2.0 terms often used in conjunction with Flickr are cloud tags and folksonomies. Cloud tags are visual groupings of hypertext tags—their font size relating to their popularity as a search term. Folksonomy is the name given to a collection of tags, effectively a “bottom-up” user generated taxonomy as opposed to an authoritative top down hierarchical taxonomy like LC Subject Headings.



Sample Cloud Tag from Flickr, August 2006.

Bookmarks

A few years ago fed up with his ever-growing list of bookmarks, Joshua Schachter created another Web 2.0 icon, del.icio.us [14] This social bookmarking service allows users to store their bookmarks online. Favourite bookmarks can be described, tagged, collaboratively shared, and searched for by others. As the most popular bookmarking services currently available on the Web, del.icio.us offers ease of use coupled with an ideal way to keep track of things your favourite sites and content.

Word 2.0

Both Flickr and del.icio.us are part of the Yahoo stable but Google has recently acquired Writely.com, [15] a free online word processor. With just their browser users can create, format, spell check, change fonts and font size and also place images in documents. Writely also allows uploading and downloading of word documents. In addition users can collaborate with others in editing documents online and subsequently blog them.

Music

Web 2.0 has been described as Me Media—the ability to select, customise and broadcast information according to individual tastes. Enter Pandora.[16] Simply type in the name of your favourite band then listen to a customised radio station or channel that plays songs from your requested band, and with a click of a button, others like it within the same genre—from Electronica to Delta Blues. You can create up to hundred channels, add songs and musicians, share your channels, and also listen to those created by others. The success of Pandora lies in its database of songs and their analysed elements/ [17]

Cataloguing Records

Why leave it to the experts, just do it yourself! This catch-cry typifies a number of Web 2.0 services as LibraryThing [18] testifies. This site connects users through books. It's a self-cataloguing service where users can virtually catalogue, organise and comment on their book collections, and others. As of August 22 2006, its online database of catalogued books hit 5,000,000. [19]

The service also supplies users with a rich vein of related information: view book cover images, comment on recommend and review books, form groups, [20] even rearrange personal book collections on a virtual shelf. As with Flickr and del.icio.us, users tag their books with descriptive tags. Other features include adding a star rating, a Dewey Decimal number, and the date you acquired the book and currently there's a hint of a possible interloan service-all interactive interface features that Library ILS vendors will certainly be taking note of. Another interesting Web 2.0 service that operates as a lending library is PaperBackSwap. [21]

Video

Broadcast yourself! Millions do. The phenomenally successful YouTube [22] lets you upload, tag, watch, rate, review, view, and blog video footage, and even create playlists. Simple to use and view, YouTube is one of the fastest growing websites today. In June 2006, 2.5 billion videos were viewed and in August 2006 the rate is tracking at over 100,000,000 clips viewed daily. [Abram 2006] A new enhancement even lets content creators create and customise their own broadcast channel. YouTube has just over 30 employees.

Social Networking

Currently the fourth most popular website in the English speaking world, MySpace [23] allows users to set up interactive and personalised web profiles detailing personal information like; education, age, interests, and hobbies. After users sign up for a free MySpace account they are able to edit and customise their profile page. They can also chose to display friends, upload photographs, videos, music, create a blog, post comments on other user profile pages, and send messages to other users.

News Stories

Digg [24] is an interactive news site where users submit and decide what (largely technology) stories are shown. Once showcased, users can then click on the digg button attached to the story to indicate they like the story. If a story receives enough diggs it appears on the home page listing and can further be commented on by users. Like the previously mentioned Web 2.0 sites these stories are tagged to allow for easy searching.

The Virtual World

There are a host of social networking sites available but in another direction lies Second Life, [25] a subscription based virtual world where registered users (through customisable avatars) interact by building, playing, working, and flying alongside other virtual characters—some definitely nonhuman.

“Second Life is intended to be a canvas, rather than a world that constrains residents to a specific theme or style... Residents have already created areas with fantasy, sci-fi, dystopian, western and dozens of other themes. Their skills and desires determine how they experience the world...”[26]

Second Life even boasts its own Public Library [27] where inhabitants can access archived information relating to Second Life. It's already held its first book discussion group and Library Director Jade Lilly says, *“We had people stopping by to check it out and even ask reference questions.”*[Spaight 2006]



A Second Life Library Reading Room taken from The Second Life Herald January 2005

Information Mashups

In Web 2.0 parlance mashups are defined as web pages or applications that take data from more than one (often unrelated) online source and combine it to create new hybrid services unintended by the original content owners. Different genres of mashups include; mapping, image and shopping. For example Music Portl [28] allows you to assemble a range of media featuring a popular musician (or band) from sites across the web including YouTube, Flickr and Wikipedia. Or try Unthirsty, [29] which takes Google Maps and Happy Hour finder to show the closet happy hour near you. [30]

Blogs

Blogs represent an increasingly quick and popular [31] way to share your thoughts with the world. Coupled with the relative ease of self-publishing, beginning bloggers (people who blog) can quickly create a blog, through a free automated blog publishing provider like Google's, blogger.com. [32]

Blog is short for web log--an online journal where information (not only text, but also audio, photographs and video) is posted on a regular basis and appears in chronological order. While it's true many blogs are personal, opinionated, unfiltered and often abandoned after six months, subject specialist blogs offer a rich mine of information for those wanting current updates in their area of interest or expertise. Take Web 2.0, in August 2006 there were 3,833 blogs covering that topic alone according to Technorati. [33]

In fact it's estimated that 75,000 blogs are created every day and currently the blogosphere (A term that collectively describes all blogs) is tracking at 50 million blogs, 100 times more than three years ago. [34]

A blog, though, is also an interactive tool. It allows and invites feedback and commentary on what is posted as well as providing extensive linking to content from other blogs and sites. This cross-linking creates an interrelated network of communities and information where ideas and information are consistently shared, republished, aggregated, linked to, excerpted, and discussed.

Wikis

If blogs represent the personal end of the online publishing spectrum then at the other lies the wiki, (*wiki wiki* means “quick” in Hawaiian). This type of website allows collaborative creating, editing and storage of content by a group of users. Free, simple to use and set up (like blogs, wiki users need no knowledge of HTML), wikis are ideal for specific projects and collaborative knowledge sharing, especially if your group members are in more than one location. Levels of access and content security can be set; and users can create pages and edit content using a “edit this page” button.

Currently the most well known wiki is Wikipedia, the free online encyclopaedia that harnesses the collective intelligence of its contributors (any member of the public who registers) to add and update articles. Another fascinating example is The National Curriculum of South Africa, now available via a wiki. [35]

RSS

RSS is a tool often used by bloggers to alert users to new postings. Short for the term (among others) “Really Simple Syndication”, it allows users (after subscribing) to receive any new content added by a website, thus avoiding the necessity of continually visiting sites to check for updates.

To subscribe to these information feeds from blogs and news sites you need to download a content aggregator (a piece of software that delivers the content). You can also customise your RSS to locate content that’s appropriate to your needs. [36]

Podcasts

Another fashionable tool associated with Web 2.0 is Podcasting, [37] which is simply making audio files (most commonly in MP3 format) available online so that users can then download them to their desktop media player like iTunes and Windows Media Player etc) then listen to them whenever they want. To do this users need a podcatcher, a piece of software that allows you to download podcast episodes via a RSS feed.

Library 2.0

Librarians have been quick to pick up on Web 2.0 and its potential to extend interaction between content and clients. Enter Library 2.0 (a term reputedly coined by Michael Casey on his LibraryCrunch blog) [38], which borrows from the philosophy underpinning Web 2.0, in part the user’s active and central role in shaping services.

Like Web 2.0 Library 2.0 (or L2) is surrounded by a fog of attributes and definitions, [39] but there is broad recognition that the concept has the potential to change and shape library services in new ways, both through the uptake of the new Web 2.0 technologies described above and incorporating patrons as service co-developers.

Adopting a culture of active user participation means libraries would increasingly be able to tailor, respond, and interact to the needs of their library (and local) community through a participatory cycle of feedback, service development and reevaluation. In other words:

“Library 2.0 simply means making your library’s space (virtual and physical) more interactive, collaborative, and driven by community needs. Examples of where to start include blogs, gaming nights for teens, and collaborative photo sites. The basic drive is to get people back into the library by making the library relevant to what they want and need in their daily lives...to make the library a destination and not an afterthought.” [Cohen 2006]

On a practical level some libraries, particularly in the United States, have begun to actively use podcasting and blogs to alert patrons to new library acquisitions, database updates, events, book readings and other services etc. A blog though is a two-way communication tool, one that also invites feedback from library users (and staff) allowing them to add their own perspectives and ideas.

Examples of libraries and librarians already incorporating aspects of Web 2.0 into their service delivery models include:

- Kankakee Public Library, USA, which provides podcasting and news blog with a RSS feed. [40]
- Library Success: A Best Practices Wiki is a clearinghouse for innovative ideas, programs, technology and information for librarians. [41]
- Kansas City Public Library's use of RSS feeds to allow you to subscribe to one or more of their subject guides. [42]
- Ann Arbor District Library’s (AADL) blog-based site features audio, video, and book blogs. [43]

Other examples are:

- libraries using social bookmarking sites to store web bibliographies and making them available to patrons via their library site [44]
- posting best library practice photos to Flickr [45]
- online interactive video tutorials promoting library services [46]
- moving from email reference services to real time co-browsing reference services like AnyQuestions.co.nz. [47]
- Upgrading the OPAC [48] to take advantage of Web 2.0 tools and greater user functionality expectations. For example book jacket display, the ability to tag, comment on, review add user ratings and “look inside” a book. [49]

National Library of New Zealand School Services: Web 2.0

On a local level in 2005 the authors of this paper began to think about how they could use blogs and wikis as service delivery and internal communication tools. It also seemed essential for staff to become familiar with these tools for their professional development.

During the 2005-06 summer one of the School Library Advisers in Auckland experimented with setting up a wiki using pbwiki, [50] which would allow advisers to share favourite web sites and resources.

While a wiki works really well in bringing together source documents, links and user comments the advisor found it important to both plan the wiki layout and management in advance for it to be effective, and to also encourage other advisers to find the time to contribute to it.

To familiarise our wider staff with these and other Web 2.0 technologies the National Collections Adviser made presentations to all staff during regional area meetings. The staff enjoyed these presentations and became enthusiastic and motivated to learn more about Web 2.0.

In the Central Area, the Manager set up a challenge for the advisers to add a favourite information literacy link to a wiki. The aim was to familiarise advisers with how a wiki operates, and to also allow some sharing of resources. With controversy over the use of Wikipedia as an increasingly popular research tool, advisers needed to understand what a Wiki was and how it worked. Again finding time proved a challenge but advisers found that taking part added to their understanding of what a wiki was. Again we used free Wiki software, in this case Schtuff. [51]

Following exposure to a new range of Web 2.0 technologies, Palmerston North staff have decided to experiment with del.icio.us to share favourite web sites. The del.icio.us features that make it preferable to wikis for sharing of web sites are ease of adding URL links from the toolbar and the ability to use tagging to automatically group the websites into subject areas.

Upgrade now! Web 3.0

For those familiar with Web 2.0, the news that Web 3.0 is on the horizon may be equal cause for jubilation or despair. Web 3.0 though, is still very much at the conceptual stage though the idea has surprisingly been around for some time (within the context of the web's short but phenomenal life). In fact Web 3.0 is sometimes referred to (though not exclusively) as the Semantic Web [52] a concept coined by Tim Berners Lee, who along with colleagues at CERN, first established the programming language underpinning the Web.

At the heart of the Semantic Web is the application of rich descriptive tools like URIs (Uniform Resource Identifiers) and RDF (Resource Description Framework)--the Semantic web comes with its own jargon set, to identify and link information that can then be easily read by machines.

This deep level of description allows for deductive and intuitive decision making by sophisticated software agents when they access and process the information. For example when searching from webpage to web page they will not only "read" keywords but make meaningful inferences based around the context and content of the pages in relation to

others--unlike current search engines. How would this look? One small example according to Berners-Lee could be:

"... a Web site that announces a conference would also contain programming with a lot of related information embedded within it. A user could click on a link and immediately transfer the time and date of the conference to his or her electronic calendar. [Shannon 2006]

Or say you wanted to know the closest Italian restaurant to the conference venue. Today you might Google for a local restaurant guide. In the short term future accessing a mashup of Google Maps and a restaurant guide could pin point the location even quicker. With the semantic web though, your agent could quickly retrieve details of the closest restaurant including; directions, menu, pricing, opening hours, while also offering to make a booking.

And although progress has been slow to date, (there has been huge discussion around the appropriate taxonomies required to describe information), there have been recent intriguing suggestions to harness the Wikipedia community in applying the appropriate semantic tools. [Evolving Trends 2006]

Conclusion

The Web simply isn't a destination anymore, more a terminal where users have the opportunity to interact in countless ways with media and other users in a far more interactive manner than previous. And if "Web 1.0" was about finding information, Web 2.0 is more about finding communities of people – and their information finding you. Users today can:

"Google, Flickr, blog, contribute to Wikipedia, Socialtext it, Meetup, post, subscribe, feed, annotate, and above all share. In other words, the Web is increasingly less about places and other nouns, but verbs." [Business Week 2005]

In other words Web 2.0's "distributed convergence" of information allows users to actively personalise, create, view, remix, absorb and redistribute media from a range of locations and to suit their recreational and informational needs.

Services under the Web 2.0 umbrella will increasingly impact on what we do in the online environment as we incorporate them into our professional and personal lives. How will this affect librarians? One obvious area is professional development, as Janes points out:

"Should we be teaching XML, syndication, podcasting skills? Maybe. Cataloging? Of course. Programming, internet protocols? Why not? You never know what might come in handy someday There's always another 2.0." [Janes 2006]

But the challenge not only lies in learning how Web 2.0 services work as part of our professional development but also in determining and implementing the most appropriate Web 2.0 tools that will provide useful Library 2.0 patron centred services. As one commentator notes:

"I've always believed that good public (and academic) libraries should pay special attention to the records and ideas of their own communities. Using "Web 2.0" tools to make that operation more powerful is in the long tradition of library creativity and change." [Crawford 2006]

And the future? One scenario might be a Web 2.0 MyLibrary-like service sporting a customisable dashboard of Web 2.0 tools served up on an open source blog platform, all with the functionality surpassing today's desktop applications. Welcome to your very own personal, wireless, portable virtual library. The question is though; will this come from your library or a Web 2.0 start-up company?

Notes

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9. Jumpcut, <http://www.jumpcut.com/>
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11. See facebook for an example of a minimal front-page design, <http://www.facebook.com/>
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13. See <http://www.flickr.com/photos/tags/library/clusters/>
14. See del.icio.us, <http://del.icio.us/>

15. See Writely.com, <http://www.writely.com/>
16. See Pandora, <http://www.pandora.com/>
17. See the Music Genome Project, <http://www.pandora.com/mgp.shtml>, which allows for Pandora's tailoring of playlists to personal musical tastes.
18. See LibraryThing, <http://www.librarything.com/>
19. "The 5,000,000th book was, Stuffed: Adventures of a Restaurant Family by Patricia Volk. It was entered at 4:02pm by **cookingthebooks**, "a theatre professional" and "Londoner by birth now living in rural Scotland." The LibraryThing Blog August 22, 2006: *Five million books!* viewed 22 August 2006, <http://www.librarything.com/blog/>
20. Like, Librarians who LibraryThing, <http://www.librarything.com/groups/librarianswholibrar>
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25. Second Life, <http://secondlife.com/>
26. For a brief introduction to Second Life see Cook, B. 2005, *Second Life: Build Anything, Be Anyone, Set Your Own Agenda* viewed 20 August 2006, <http://www.apple.com/games/articles/2005/07/secondlife/> For a more negative assessment of Second Life see <http://www.web2.0blognetwork.com/?p=117>
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39. For an insightful review of "Library 2.0" see Cites & Insights: Crawford at Large, *Library 2.0 and "Library 2.0"*, Cites & Insights 6, Number 2: Midwinter 2006 viewed 20 August 2006.
<http://cites.boisestate.edu/v6i2a.htm> has a comprehensive list of 62 views and seven definitions of Library 2.0
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42. Kansas City Public Library, <http://www.kclibrary.org/guides/>
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44. Thomas Ford Memorial Library, <http://www.fordlibrary.org/links/>
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46. YouTube, <http://www.youtube.com/watch?v=i-t0LHnw-fc>
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49. See <http://www.techsource.ala.org/blog/2006/01/library-20-in-the-real-world.html> for another example of a prototype OPAC
50. pbwiki, <http://pbwiki.com/>
51. Schtuff, <http://www.schtuff.com/>
52. For a fuller definition of the Semantic Web see, http://en.wikipedia.org/wiki/Semantic_Web

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