Agenda

- What is it?
- Why is it happening?
- What are the ramifications?
- What do I need in my toolkit?
- What should I do about it?
Agenda

- What is it?
  - Definition
  - History
  - Key Attributes
  - Examples
- Why is it happening?
- What are the ramifications?
- What do I need in my toolkit?
- What should I do about it?
What is it?
The Web Speaks: A Digest

- Text is often on paper
- Digital text is better
- Add hypertext and it gets even better
- HTML has had a big role
- However, form and content need to be separated, enter XML
- XML allows both websites and blogs to be easily populated
- Add rich multimedia data types (audio, video)
- Mix in some mashups
- Add metadata with tagging (del.icio.us) for smarter retrieval
- Databases are the key and you, the user, builds them
- Web 2.0 is really about linking people
- Web 2.0 causes us to rethink some things, many things
What is it?
Definition

- **Second generation** of web-based communities and hosted services
- **Focus on facilitating:**
  > Creativity
  > Collaboration
  > Sharing
- **Start contrast to Web 1.0, the “read-only” web**
- **Manifestations:** wikis, blogs, social networking
- **Prime examples:** Wikipedia, Flickr, del.icio.us, Facebook, Google Maps, Amazon

http://en.wikipedia.org/wiki/Web_2.0
## What is it?

### Definition

<table>
<thead>
<tr>
<th>Web 1.0</th>
<th>Web 2.0</th>
</tr>
</thead>
<tbody>
<tr>
<td>-- DoubleClick</td>
<td>Google AdSense</td>
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<tr>
<td>-- Ofoto</td>
<td>Flickr</td>
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<td>Akamai</td>
<td>BitTorrent</td>
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<td>mp3.com</td>
<td>Napster</td>
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<td>-- Britannica Online</td>
<td>Wikipedia</td>
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<tr>
<td>-- personal websites</td>
<td>blogging</td>
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<tr>
<td>evite</td>
<td>upcoming.org (Upcoming), EVDB (Eventful)</td>
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<tr>
<td>domain name speculation</td>
<td>search engine optimization</td>
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<tr>
<td>page views</td>
<td>cost per click</td>
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<td>-- screen scraping</td>
<td>web services</td>
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<td>-- publishing</td>
<td>participation</td>
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<tr>
<td>content management systems</td>
<td>wikis</td>
</tr>
<tr>
<td>-- directories (taxonomy)</td>
<td>tagging (&quot;folksonomy&quot;)</td>
</tr>
<tr>
<td>-- stickiness</td>
<td>syndication</td>
</tr>
</tbody>
</table>

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What Is Web 2.0: Design Patterns and Business Models for the Next Generation of Software by Tim O'Reilly 09/30/2005
What is it?

History

- “Web 2.0” coined in 2003 by Dale Dougherty, VP of O'Reilly Media
- “2.0” denotes next generation of the World Wide Web
- We aren't revising the spec ... we are changing the way we think about and use the web
- “Web 2.0” became the name of annual “Web 2.0 Conference” co-sponsored by O'Reilly and CMP Media
- CMP Media applied for a service mark in 2004

http://en.wikipedia.org/wiki/Web_2.0
What is it?
Key Attributes

• “Internet as platform" - Don't write to an OS any more

• "Software above the level of a single device" - Apps don't reside on a client or a server. They reside in the space between devices.

• The perputual beta” - Software isn't an artifact, but instead is a process of engagement with your users

• "Small pieces loosely joined" - Make data and services available to others and re-use from others whenever possible

• "Data is the Intel Inside" - Data is the source of competitive advantage and much of that data will be user-generated
What is it?
Examples: Mashups

- “A website or application that combines content from more than one source into an integrated experience”
- The Web as a Platform
  > Composed of services, not packaged software
  > Remixable data sources
- Today: *mashup = website + Google Maps*
- Tomorrow: *mashup = intranet app + intranet site + …*

Source: Integration Gets All Mashed Up: Bridging Web 1.0 and Web 2.0 Applications (TS-8544) – Java One 2007
What is it?
Examples: Mashups

• Approach: Lightweight programming
  > Less work, more results
  > “We are a cut and paste generation”

• Characteristics:
  > Uncontrolled reuse (your components will be remixed)
  > Collaborative composition
  > Internet-wide interoperability
  > User-focused design approach
  > Assemble (data-centric), don't code (logic-centric)
  > Ad-hoc application assembly
  > Often REST and RSS/Atom and APIs instead of SOAP

Source: Integration Gets All Mashed Up: Bridging Web 1.0 and Web 2.0 Applications (TS-8544) – Java One 2007
What is it?
Examples: Mashups - chicagocrime.org
What is it?
Examples: Mashups - housingmaps.com
What is it?
Examples: Mashups - “Memory Maps”
What is it?
Definition: Wikis

- **Website** that allows **multiple authors** to add and maintain content
- First Wiki installed in 1995 and term was coined based on the Hawaiian word for “fast”
- Key attributes:
  > Easy editing
  > Version review and reversion
  > Simple navigation
  > Flexible permission levels
  > Discussion pages for pages
- Wiki **acts as a database** that makes it **easy** for users to create, browse, and store information.
- **Wikipedia** is the most well-known wiki on the web

http://en.wikipedia.org/wiki/Wiki
What is it?
Definition: Wikis - Wikipedia

• Mission: "to create and distribute a free encyclopedia of the highest possible quality to every single person on the planet in their own language"

• Launched in January 2001 by Jimmy Wales as a non-profit organization

• Content is provided by volunteers ("Wikipedians") who have write access to most articles

• Current Stats: 7.5 million articles in 253 languages (1.8 million are in English accounting for 51% of cumulative traffic)

• One study of the English version showed:
  > Wikipedia had about 1,400,000 articles with 340 million words.
  > Britannica had about 85,000 articles with 55 million words.
  > Encarta had about 63,000 articles and 40 million words

What is it?
Definition: Wikis - Wikipedia
What is it?
Definition: Wikis - Wikipedia

Editing a Page
What is it?
Definition: Wikis - Wikipedia
What is it?
Definition: Wikis - Wikipedia

Comparing Versions
What is it?
Definition: Wikis - Wiktionary
What is it?
Definition: Social Networking - Facebook

- **Social networking** website founded by Mark Zuckerberg, a 23-year-old Harvard dropout, in February 2004
- Nurtures the “social graph”
- Started as a college phenomenon and as quickly expanded to be available to everyone
- 35 million active users, 30% are college students.
- 300 employees based in Silicon Valley
- May have comparable market value to MTV ($7-8B)
- Features:
  - Status
  - “Poking” and “Friending”
  - The Wall
  - Groups
  - Messaging
  - Gifting ($1 images of a cute item like a polka-dot thong, a champagne glass or sushi)
  - Hosted applications
    - iLike: a music-recommendation and band-tracking service
    - Forbes.com: track company stocks and access related financial information, along with the latest headline news

August 2007
Agenda

- What is it?
- Why is it happening?
  - New business revolution
  - Network effect
    - Wisdom of the crowds
- What are the ramifications?
- What do I need in my toolkit?
- What should I do about it?
Why is it happening?
Business Revolution

• Web 2.0 is the **business revolution** in the computer industry caused by the move to the internet as **platform**, and an attempt to understand the rules for success on that new platform. - Tim O'Reilly

• “Don't fight the internet.” - Eric Schmidt, Google CEO

Web 2.0 Compact Definition: Trying Again Tim O'Reilly
Why is it happening?
Business Revolution

- "Wikinomics: How Mass Collaboration Changes Everything" by Tapscott and Williams
  - Fundamentals: openness, peering, sharing and acting globally
  - Free agents coming together
  - Crowdsourcing: Tackling a task in the open with a large group of people ("With enough eyeballs, all bugs are shallow," - Eric Raymond)

Why is it happening?

Network Effect

- Value of a product or service depends on the number of customers who own or utilize the product or service.

- Coined by Eric Metcalfe (Ethernet inventor) to explain that the value of a telecommunications network is proportional to the square of the number of users of the system.

- Web 2.0 examples:
  - eBay: More buyers --> more competitive auctions --> higher prices --> better seller value --> more sellers --> more competitive auctions --> lower prices --> better buyer value --> [repeat]
  - Wikipedia: More editors --> better information quality --> more users (some become editors) [repeat]
  - Facebook: More users --> heightened collaboration opportunities --> more value/fun [repeat]

Network effect
http://en.wikipedia.org/wiki/Network_effect

Classic Examples:
Telephones and Fax Machines
Why is it happening? Wisdom of the Crowds

- The aggregation of information by groups of diverse individuals can lead to decisions superior to those from individual experts
- Wise crowd:
  > Diversity of opinion based upon some private knowledge
  > Independence where opinions aren't determined by peers
  > Decentralized drawing on local knowledge
  > Aggregated through mechanisms to move private opinions into collective decisions
- Examples:
  > DARPA's Policy Analysis Market
  > Iowa Electronic Markets

Why is it happening?
Wisdom of the Crowds: Iowa Electronic Markets

Agenda

- What is it?
- Why is it happening?
- What are the ramifications?
  - Long tail
  - Law of conservation of attractive profits
  - Software as a service
- What do I need in my toolkit?
- What should I do about it?
What are the ramifications?
The Long Tail


Source: Integration Gets All Mashed Up: Bridging Web 1.0 and Web 2.0 Applications (TS-8544) – Java One 2007
What are the ramifications?
Law of Conservation of Attractive Profits

• Inspired by the law of mass/matter conservation which holds that the mass of a closed system will remain constant regardless of the processes acting inside the system. Matter isn't destroy, but it can change form.

• Clayton Christensen (Harvard): “When attractive profits disappear at one stage in the value chain because a product becomes modular and commoditized, the opportunity to earn attractive profits with proprietary products will usually emerge at an adjacent stage.”

• Open APIs and standard protocols don't eliminate competitive advantage

• Leading beneficiaries are providers like Google, Amazon and salesforce.com who may never physically distribute their software (“Software as a Service”)

Tim O'Reilly in a Nutshell
http://www.oreilly.de/oreilly/oreilly_inanutshell.pdf
What are the ramifications?
Software as a Service

Google Docs & Spreadsheets

- Writely created by Upstartle and launched in August 2005 (acquired by Google in March 2006)
- Google developed Google Spreadsheets and launched it in June 2006
- Google Spreadsheets and Writely were bundled as Google Docs & Spreadsheets in February 2007
- It's software as a service and it's free (Up to 5000 documents and 200 spreadsheets)
- Available at: http://docs.google.com/

http://en.wikipedia.org/wiki/Writely
What are the ramifications?  
Software as a Service

Google Docs & Spreadsheets

• Documents
  > Upload and download Word, OpenOffice, RTF, HTML text or create new documents
  > Edit and spell-check
  > Invite others (via email) to do collaborative editing
  > Roll back to previous versions
  > Publish as web pages or blog postings
  > Email documents as attachments

• Spreadsheets
  > Import .xls, .csv, .txt and .ods files
  > Export as .pdf and html
  > Perform calculations and formatting
  > Chat in real time with others editing your spreadsheet
  > Export and embed spreadsheet data in a website or blog
What are the ramifications?
Software as a Service
What are the ramifications?
Software as a Service
Agenda

- What is it?
- Why is it happening?
- What are the ramifications?
- What do I need in my toolkit?
  - AJAX
  - REST
  - Scripting
  - RSS/Atom
- What should I do about it?
What do I need in my toolkit?
AJAX: Approach

Traditional HTML

AJAX

Source: Fast, Beautiful, Easy: Pick Three (TS-6475) - – Java One 2007
What do I need in my toolkit?

AJAX: Approach

• Continued evolution of HTML
• A set of programming techniques to provide desktop-like UIs in a web browser
• Use open standards without:
  > Browser plug-ins
  > Java technology
  > Flash
• The key: XMLHttpRequest
• The enablers: widget libraries, animation effects, data binding, local storage and server push

Source: OpenAjax Alliance: Driving Ajax Standards and Interoperability (TS-9917) – Java One 2007
What do I need in my toolkit?
AJAX: Example - HelloWorld

**index.html**

getServerResponse:
- Retrieve contents of *mode* field
- Address the server interaction
- Register a callback function (showServerResponse)
- Send request to server

showServerResponse (the callback)
- Get server response
- Populate user interface field

**MyServlet.java**

doGet:
- Determine current date
- Get random number
- if *mode* is “date” return date
- else return random number
What do I need in my toolkit?
AJAX: Example – MyServlet.java

```java
public class MyServlet extends HttpServlet {
    protected void doGet(HttpServletRequest request, HttpServletResponse response)
        throws ServletException, IOException {
        Calendar now = Calendar.getInstance();
        int month = now.get(Calendar.MONTH)+1;
        int day = now.get(Calendar.DAY_OF_MONTH);
        int year = now.get(Calendar.YEAR)+1;
        String date = month + "/" + day + "/" + year;
        long seed = now.getTimeInMillis();
        Random generator = new Random(seed);
        String returnValue = "";
        if ("mode".equals("date")) {
            returnValue = date;
        } else {returnValue = Long.toString(generator.nextLong());
        response.setContentType("text/html;charset=UTF-8");
        PrintWriter out = response.getWriter();
        out.println(returnValue);
        out.close();
    }
}
```
What do I need in my toolkit?  
AJAX: Example - index.html

```javascript
request = new XMLHttpRequest();

function getServerResponse() {
    var mode = document.getElementById("mode").value; // Get value of UI mode field
    var url = "/HelloWorld/MyServlet?mode=" + escape(mode); // Set servlet to call
    request.open("GET", url, true);
    request.onreadystatechange = showServerResponse; // Identifies the callback function
    request.send(null);
}

function showServerResponse() {
    if (request.readyState == 4) { // Is server finished?
        var serverResponse = request.responseText;
        document.getElementById("serverResponse").value = serverResponse;
    }
}

<input type="text" size="14" name="mode" id="mode" onChange="getServerResponse();" />
```
What do I need in my toolkit?

Web Services (SOAP and REST)

• Standardized mechanism to allow any computer to exchange information over a network with other computers

• SOAP
  > “Simple Object Access Protocol” specifies structure of a XML message content sent between computers
  > Both ends of the connection understand SOAP
  > SOAP is typically transmitted over HTTP

• REST
  > “Representational State Transfer”
  > Collection of principles for defining resources and addressing them
  > Does not require a messaging layer like SOAP
  > In practice, REST relies on standard HTTP facilities

What do I need in my toolkit? RESTful Web Services

- **RE**presentational **State** **Transfer**
- **Architectural style** defining rules for defining and addressing resources
- Each **resource** is uniquely addressable as a URI
- **Client/server**, stateless and cacheable
- No protocol is assumed, but **HTTP** is usually involved

"Representational State Transfer is intended to evoke an image of how a well-designed Web application behaves:

- a network of web pages (a virtual state-machine)
- where the user progresses through an application by selecting links (state transitions)
- resulting in the next page (next state of the application) being transferred to the user and rendered for their use."

- Roy Fielding (REST inventor)

What do I need in my toolkit?
RESTful Web Services Example - Parts Depot

• Get Parts List
  > Sends: http://www.parts-depot.com-parts
  > Receives:
    <?xml version="1.0"?>
      <Part id="00345" xlink:href="http://www.parts-depot.com/parts/00345"/>
      <Part id="00348" xlink:href="http://www.parts-depot.com/parts/00348"/>
    </p:Parts>

• Get Detailed Parts Data
  > Sends: http://www.parts-depot.com-parts/00345
  > Receives:
    <?xml version="1.0"?>
      <Part-ID>00345</Part-ID>
      <Name>Widget-A</Name>
      <Description>This part is used within the frap assembly</Description>
      <UnitCost currency="USD">0.10</UnitCost>
      <Quantity>10</Quantity>
    </p:Part>

Building Web Services the REST Way
What do I need in my toolkit?

RESTful Web Services: Benefits

- Improves response times and server loading due to caching.
- Improves server scalability by reducing need to maintain state.
- Requires less client-side software because a browser can access any application and any resource.
- Doesn't depend on additional messaging frameworks atop HTTP.
- Provides equivalent functionality to alternatives (SOAP).
- Does not require a separate resource discovery mechanism due to the use of hyperlinks in content.

http://en.wikipedia.org/wiki/REST
What do I need in my toolkit?  
RESTful Web Services Adoption

• “Over the past 2.5 years, the REST/SOAP call ratio to AWS (Amazon Web Services) has held pretty constant at 80/20.”

• “Q: Does Yahoo! plan to support SOAP?  
  A: Not at this time. We may provide SOAP interfaces in the future, if there is significant demand. We believe REST has a lower barrier to entry, is easier to use than SOAP, and is entirely sufficient for these services.”
  http://developer.yahoo.com/faq/
What do I need in my toolkit?

RESTful Web Services: Tim Bray Speaks

I did an interview and a podcast [Update: here] at that Rails conference and the question came up in both, and in the hallway talk too: “What do you think we should do about SOA?”

Which weirdly, nobody had asked me before, and I could find only one answer: “Don’t do anything. ‘SOA’ may have meant something once but it’s just vendor bullshit now.” Looking back, what happened was, certain software architects were uncomfortable with the framing that goes with the words “Web Services”; maybe because people think anything with “Web” in the name should be simple and lightweight and easy to set up. Thus SOA, which is so much more Enterprisey. Me, I want to go the other way. The crucial point is that Web-like things should be simple and lightweight and easy to set up; so I think the “Web” part of “Web Services” is more important than the “Services” part. SOA isn’t the future, Web style is.

http://www.tbray.org/ongoing/When/200x/2006/04/17/SOA-or-not

Updated: 2006/04/18

- What do you think we should do about SOA?
  - “Don't do anything. 'SOA' may have meant something once but it's just vendor bullshit now.”
  - People thought 'web' made 'web services' sound lightweight and easy to set up
  - Architects got uncomfortable with that and made web services more “Enterprisey”
  - “Web” part is more important than “services” part so “SOA isn't the future, Web style is”
What do I need in my toolkit?
Scripting: Driven by Web 2.0

- PHP (LAMP)
- JavaScript (Project Phobos)
- Ruby and JRuby (on Rails)
- Groovy (on Grails)

Java Ramifications:
- Emphasis on Java as a platform
- Emergence of special-purpose scripting languages like Java FX Script
What do I need in my toolkit? RSS & Atom

• A blog (short for “web log”) is a website with entries arranged in chronologically
• BBS (bulletin board systems) and and Usenet moderated newsgroups were precursors
• Blogs began to take off in the mid to late 1990s
• Collective world of blogging is called the “blogosphere”
• Genres: political, travel, fashion and project
• RSS (“Really Simple Syndication”)  
  > Format for an XML “feed” used to publish updated blog entries  
  > A feed can contain headlines, full-text articles, excerpts, summaries, and/or links  
  > User subscribes to a feed
• Atom  
  > Alternative to the “frozen” RSS 2.0  
  > Relies on standard XML features and specifics payload of feed
What do I need in my toolkit? RSS & Atom: Atom 1.0 Feed

<?xml version="1.0" encoding="utf-8"?>
<feed xmlns="http://www.w3.org/2005/Atom">
  <title>Example Feed</title>
  <subtitle>A subtitle.</subtitle>
  <link href="http://example.org/">
  <updated>2003-12-13T18:30:02Z</updated>
  <author>
    <name>John Doe</name>
    <email>johndoe@example.com</email>
  </author>
  <id>urn:uuid:60a76c80-d399-11d9-b91C-0003939e0af6</id>
  <entry>
    <title>Atom-Powered Robots Run Amok</title>
    <link href="http://example.org/2003/12/13/atom03"/>
    <id>urn:uuid:1225c695-cfb8-4ebb-aaaa-80da344efa6a</id>
    <updated>2003-12-13T18:30:02Z</updated>
    <summary>Some text.</summary>
  </entry>
</feed>

http://en.wikipedia.org/wiki/Atom_%28standard%29
Agenda

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- What should I do about it?
  - Skills
  - Mind Set
  - Opportunities
What should I do about it?
Skill Set: Web 2.0 Adoption
What should I do about it?

Mind Set

• **Network as the platform** (the Web operating system), embrace the web, build applications around Internet features

• Focus on **assembly** by pulling together distributed capabilities built by distributed developers (most likely working in the open source community)

• Users must be treated as **co-developers** ... Design for "hackability" and remixability

• **Participatory** rather than access-controlled, user ownership and control will be new

• Advent of the **perpetual beta** (no scheduled software releases, Flickr recently revealed that they deploy new builds up to every half hour!)

• Software is delivered **as a service**, not as a product. (Salesforce.com provides enterprise-scale applications such as CRM.)

• **Organic applications** leveraging the network effect and wisdom of the crowds
What should I do about it? Opportunities

- **New types of applications**
  - Mashups
  - Social networking
  - Wikis
  - Blogs
  - Tagging to create folksonomies
  - The Long Tail (collective power of small apps might provide most benefit)

- **User interface is very, very important**
  - Blurring the difference between the desktop and the Internet
  - Sexy UIs in the form "Rich Internet Applications"

- **New technologies**
  - AJAX, AJAX, AJAX (Asynchronous JavaScript and XML)
  - Web services (SOAP, REST)
  - RSS, Atom
  - Vendor-provided APIs
  - Composite application building and SOA
Agenda Summary

- What is it?
  - Second gen coined in 2003 by O'Reilly folks
  - Read-Write
  - Creativity, collaboration, sharing
  - "Internet as Platform"
  - Data is key
  - Wiki (Wikipedia), Mashup (Google Maps), Social Networking (Facebook)

- Why is it happening?
- What are the ramifications?
- What do I need in my toolkit?
- What should I do about it?
Agenda
Summary

- What is it?
- Why is it happening?
  - Business Revolution
  - Network Effect
  - Wisdom of the crowds
- What are the ramifications?
- What do I need in my toolkit?
- What should I do about it?
Agenda Summary

- What is it?
- Why is it happening?
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  - Long Tail
  - Law of conservation of attractive profits
  - Software as a service
- What do I need in my toolkit?
- What should I do about it?
Agenda Summary

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  - AJAX
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  - RSS/Atom
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  - Skills
  - Mind Set
  - Opportunities
Making Sense of Web 2.0

Houston User Groups

December 11, 2007

Tom Barrett
SOA/BI Technical Specialist
SCJP, SCJD, SCWCD, SCEA
Sun Microsystems – Dallas

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Overview
Definitions: Are there degrees of Web 2.0ishness?

- **Level 0**: Primarily taken hold online, but would work just as well offline if you had the data in a local cache. *(MapQuest, Yahoo! Local, Google Maps)*
- **Level 1**: Can and does exist successfully offline, but it gains additional features by being online. *(Writely)*
- **Level 2**: Could exist offline, but it is uniquely advantaged by being online. *(Flickr)*
- **Level 3**: Could only exist on the net and draws its essential power from the network. They harness network effects to get better the more people use them. *(eBay, craigslist, Wikipedia, del.icio.us, Skype, Dodgeball)*

Levels of the Game: The Hierarchy of Web 2.0 Applications, Tim O'Reilly
Overview
Terms: How do SOA and mashups compare?

• Server-centric vs. client-centric
• Well-defined vs. ad-hoc
• Connecting systems vs. linking users
• Can be web-based vs. always web-based

Source: Integration Gets All Mashed Up: Bridging Web 1.0 and Web 2.0 Applications (TS-8544) – Java One 2007
Key Attributes
And much more

- Web 2.0 is the "participatory Web" while Web 1.0 is "web-as-information-source" - Bart Decrem, CEO of Flock ("social browser")
- Fosters the notion of "the network as platform" and casts the Internet as a "web operating system"
- Has become a social phenomenon:
  > Social networking
  > "Architecture of participation" - John Battelle
  > Social phenomenon focused on conversation:
    > Crowdsourcing ("With enough eyeballs, all bugs are shallow,") - Eric Raymond
    > "Wisdom of crowds" (Groups can outperform individual experts) - James Suriowecki
- Highly decentralized where web sites aren't just information silos
- Freedom to share and reuse, focus on "assembly of systems"
- Rich user experience (Flash, Silverlight, Java FX)
- May tackle different types of apps (mashups): "The Long Tail" - Chris Anderson
Web 2.0 in Action
Examples

- Google Maps (Level 0)
- Writely (Level 1)
- Flickr (Level 2)
- del.icio.us, craigslist, Wikipedia (Level 3)

“Web 2.0ishness”

**Level 0**: Primarily taken hold online, but would work just as well offline if you had the data in a local cache.

**Level 1**: Can and does exist successfully offline, but it gains additional features by being online.

**Level 2**: Could exist offline, but it is uniquely advantaged by being online.

**Level 3**: Could only exist on the net and draws its essential power from the network. They harness network effects to get better the more people use them.
Web 2.0 in Action

Google Maps

- Free web mapping service offering street maps, route planner and business locator
- Announced February 2005 and exited beta in October 2005
- Display modes
  - Map (street map)
  - Satellite (aerial)
  - Hybrid (streets plus aerial)
  - Traffic (congestion display)
  - Street view (ground level 360 degree view)
- Published APIs have empowered mashup builders
  - Crime data overlay: http://www.chicagocrime.org/
  - Apartment rental overlay: http://www.housingmaps.com/
  - Memory map: http://flickr.com/photos/mathowie/8496262/

“Web 2.0ishness”

Level 0: Primarily taken hold online, but would work just as well offline if you had the data in a local cache.

Demo Time!
“I'd like to explore Pier 39. I have fond memories of strolls there.”
“I want to see the sights, so I’ll enter Street View.”
Web 2.0 in Action
Google Maps

“I see me, and the blue streets show where ground imagery is available. I’ll take a look.”
Web 2.0 in Action
Google Maps

“Cool. I'll go full screen and pivot around a bit.”
“Sweeeet”
Web 2.0 in Action

Flickr

- Photo sharing and online community platform
- Developed by Ludicorp (Canada) in 2004 using tools they created for an online game
- Acquired by Yahoo! in March 2005
- Features
  - Free upload photos (up to 100MB per month)
  - Photos can be marked public or private
  - Tag them with keywords (metadata) to create a “folksonomy”
  - Search for photos by tags and display “tag clouds”
  - Can categorize photos into sets and collections
  - Organizer provides desktop photo management capabilities and dexterity and can place photos on a map
  - Supports syndication via RSS and Atom
  - Searchable by Yahoo! search

“Web 2.0ishness”

Level 2: Could exist offline, but it is uniquely advantaged by being online.

Demo Time!
"I am at my Flickr home page. I'll enjoy slideshow mode for a moment."
Web 2.0 in Action
Flickr

“This the Maroon Bells in Colorado near Aspen.”

I'll geotag this photo for alternate access.”
Web 2.0 in Action
Flickr

“I’ll find Aspen.”
Web 2.0 in Action

Flickr

“I’ll geocode (geotag) my picture by dragging it to where I took the shot.”
Web 2.0 in Action
Flickr

“I’ll turn on the satellite view and geocode a bunch of pictures I took there.”
"I wonder what other geocodings I have done.
Ah yes, and here are some pictures from my son's school in Michigan."
Web 2.0 in Action

del.icio.us

• Social bookmarking service for storing, sharing and finding web bookmarks
• Founded in 2003, acquired by Yahoo! in 2005
• As users save bookmarks, they tag them with keywords instead of organizing them into hierarchical categories
• Collection of tagged bookmarks provides a user-generated taxonomy called a “folksonomy”
• Lets users find bookmarks from people with similar interests
• By default, all bookmarks are public, but they can be private
• You can set up networks of users and be notified when members of your network submit new bookmarks

“Web 2.0ishness”

Level 3: Could only exist on the net and draws its essential power from the network. They harness network effects to get better the more people use them.

Demo Time!
Web 2.0 in Action
del.icio.us

“I am interested in “SOA”
Web 2.0 in Action
del.icio.us

“Whoa, nearly 9 million hits! Too much!!
I am really interested in Sun's involvement in SOA.”
“Looks interesting, I’ll bookmark it so I can get at it from any browser”
Web 2.0 in Action
del.icio.us

“I’ll use the slick browser plug-in to make it easy to bookmark at del.icio.us”

I’ll enter a few notes and “tag” this URL with “SOA” and “Sun” keywords.
Later ... ”I want to read that piece on SOA ..."

Didn’t I bookmark something on Sun’s SOA technology?

I’ll use the browser plug-in to see what I have tagged for “SOA.” Ah, I see a bunch my tags relate to SOA and there’s that “Sun” tag.

I see I have one document on the SOA / Sun combination. That must be the one I remember.”
Web 2.0 in Action
del.icio.us

“Ah, and if I look under Sun, I can find the SOA entry.

Neat, I get to a document from many directions.”
“Let me see all the bookmarks I've stored at del.icio.us.”
“Neat. 79 of them that I can get at from any browser. I could add and delete more here without any browser plug-in.

I remember that I have decided to not share some of my bookmarks with other del.icio.us users (“not-shared” notation).”
“I wonder what other SOA pages I should know about. I’ll search bookmarks of other users.

I see over 31,000 pages are tagged for SOA. I wonder which ones I should investigate. The counts give me a feel for what’s most popular.”
“On my website, I'd like to add a tagcloud to make it easy for visitors get to what I think is interesting.”
“I have about wrapped up my work day. I wonder what’s hot in the world of folksonomies.”
“Folksonomy? Where did that word come from? Just popped into my head!

I'll search del.icio.us (not Google this time) for help.”
Web 2.0 in Action
del.icio.us

“Oh, I remember now.”
Web 2.0 in Action

**craigslist**

- Collection of online postings for *urban communities*
- Offering *classified ads* and *list forums*
- Founded by Craig Newmark in 1995, eBay acquired 20% equity in 2004
- Staff of 24 people supports *450 cities* worldwide
- SF Bay Area was first city (3/1995) with Dallas added 4/2003
- 7 *billion page views* per month (7th busiest in the U.S.)
- 17 million new classified ads, 1 million new job listing, 10 million uploaded images and 60 million user postings (in 100 forums) each month

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**Level 3:** Could only exist on the net and draws its essential power from the network. They harness network effects to get better the more people use them.

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**page view rank vs number of employees**

(english language page view ranking by Alexa, headcounts from Yahoo! Finance)

<table>
<thead>
<tr>
<th>pages</th>
<th>employees</th>
<th>company</th>
<th>(subsidiary sites)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>10000</td>
<td>Yahoo!</td>
<td>(Hotjobs, Flickr, etc)</td>
</tr>
<tr>
<td>2</td>
<td>90000</td>
<td>Time Warner</td>
<td>(AOL, CNN, Netscape, etc)</td>
</tr>
<tr>
<td>3</td>
<td>10000</td>
<td>Google</td>
<td>(YouTube, Blogger, etc)</td>
</tr>
<tr>
<td>4</td>
<td>70000</td>
<td>Microsoft</td>
<td>(MSN, Hotmail, etc)</td>
</tr>
<tr>
<td>5</td>
<td>50000</td>
<td>News Corp</td>
<td>(Myspace, Fox, IGN, etc)</td>
</tr>
<tr>
<td>6</td>
<td>12000</td>
<td>eBay</td>
<td>(Paypal, Skype, etc)</td>
</tr>
<tr>
<td>7</td>
<td>23</td>
<td>craigslist</td>
<td>(N/A)</td>
</tr>
<tr>
<td>8</td>
<td>25000</td>
<td>BBC</td>
<td>(N/A)</td>
</tr>
<tr>
<td>9</td>
<td>130000</td>
<td>Disney</td>
<td>(ESPN, Go, ABC, etc)</td>
</tr>
<tr>
<td>10</td>
<td>12000</td>
<td>Amazon</td>
<td>(IMDB, A9, etc)</td>
</tr>
</tbody>
</table>

*updated october 2005*

http://www.craigslist.org/about/pages.and.peeps.html

http://www.craigslist.org/about/factsheet.html
Technologies
Microformats and Folksonomies

• Microformats
  > XML-based syntax to add meaning to web content
  > 52.48,-1.89 might not mean anything, but if wrapped in a geo microformat, the meaning becomes clear:
    <span class="geo"><span class="latitude">52.48</span>, <span class="longitude">-1.89</span></span>
  > This text isn't very smart:
    <div>
      <div>Joe Doe</div>
      <div>The Example Company</div>
      <div>604-555-1234</div>
      <a href="http://example.com/">http://example.com/</a>
    </div>
    but this hCard microformat makes it smart:
    <div class="vcard">
      <div class="fn">Joe Doe</div>
      <div class="org">The Example Company</div>
      <div class="tel">604-555-1234</div>
      <a class="url" href="http://example.com/">http://example.com/</a>
    </div>

• Folksonomy
  > User-generated taxonomy for web content using labels called “tags”
  > Focused on making a body of information easier to navigate over time
  > A shared vocabulary familiar to the primary users
  > Flickr and del.icio.us are the best examples today