Technical Trends of Mobile Web 2.0: What Next?

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http://blog.webservices.or.kr/
http://hollobit.tistory.com
Contents

- What is Mobile Web 2.0
- Compare for Mobile Web 1.0 and Mobile Web 2.0
- Nine Technical Trends of Mobile Web 2.0
- Conclusions
Pace of innovation across communication devices, services and networks continues to increase.

1975: Landline Phone

2008: Mobile, VoIP, IM, Blogs / Wiki, Email, SNS (Cyworld), Microblog, Game & Another Life, IPTV, Video / UCC, Photo Share, Attention.
Mobile
{Web, Multimedia, Internet}
2.0
“Mobile 2.0” is about creating value thanks to the ubiquitous nature of mobile devices and the user’s choice to mash personal & social content (address book, calendar, social networks) with personal context, such as location, and the ability to communicate & synch with other devices in an open environment (Rudy De Waele - Plugg.eu)


“Mobile Web 2.0 extends the principle of 'Harnessing Collective Intelligence' to restricted devices. The seemingly simple idea of extending Web 2.0 to mobile Web 2.0 has many facets” (Ajit Jaokar)

- [http://web2.sys-con.com/read/251673.htm](http://web2.sys-con.com/read/251673.htm)
Definition of “Mobile Web 2.0”

- Discussions on “Mobile Web 2.0” began in 2005
- “Mobile Web”
  - Accessing the Web from various mobile devices.
  - There are still different opinions on the concept and scope of “Mobile Web 2.0”
- Mobile 2.0 and Mobile Web 2.0
  - It means the same thing.
  - There are differences in the concept and definition according to what technology emphasized
    - “Web standard/technology/application”
    - “Mobile standard/technology/application”
  - Mobile {Web, Multimedia, Internet, … } 2.0
Definition of “Mobile Web 2.0”

Different definitions can be classified into three types:

1) mobile + “Web 2.0”
   - It means the simple adoption of Web 2.0 application and technology for the mobile environment

2) “Mobile 2.0”
   - It means the next-generation mobile data service environment

3) “Mobile Web 2.0” == Next Generation “Mobile Web”
   - My viewpoint
   - How to existing “Mobile Web” evolves into “Mobile Web 2.0”
Definition of “Mobile Web 2.0”

- How to define the Mobile Web 2.0
  - based openness, Web standards, OneWeb interoperability …
  - Will allow the free use of various mobile devices rather than the mobile phone only
  - For the business model for application and service, models linked to search and advertising, which used to be available only in the wired environment,

- Most important feature is “Platform”
  - the Mobile Web 2.0 environment is becomes the base platform that integrates various mobile services and mobile applications.
### Compare for Mobile Web 1.0 and Mobile Web 2.0

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<thead>
<tr>
<th></th>
<th>Mobile Web 1.0</th>
<th>Mobile Web 2.0</th>
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<tbody>
<tr>
<td><strong>Network</strong></td>
<td>Low speed (&lt;0.5MB)</td>
<td>High speed (&gt;0.5MB) – HSXPA, WiBro</td>
</tr>
<tr>
<td><strong>Protocol</strong></td>
<td>WAP protocol-based WAP browsing</td>
<td>(w)TCP/IP-based full browsing</td>
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<tr>
<td><strong>Contents</strong></td>
<td>HTML and WML-based contents</td>
<td>XML and XHTML-based contents</td>
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<tr>
<td><strong>Business Model</strong></td>
<td>Walled garden, backyard</td>
<td>Open business model and wired/wireless integrated</td>
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<td><strong>Technical Model</strong></td>
<td>Closed, proprietary</td>
<td>Open and standard based (MobileOK)</td>
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<tr>
<td><strong>Browsing Method</strong></td>
<td>Browsing of WAP sites</td>
<td>Ubiquitous browsing linked to RFID and LBS, real-world tagging and RSS reader function</td>
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<tr>
<td><strong>Terminal</strong></td>
<td>Connection through the mobile phone</td>
<td>Connection through various mobile devices</td>
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<tr>
<td><strong>Service</strong></td>
<td>Only hyperlink supported</td>
<td>REST-, SOAP-, and WSDL-based Mobile Web service</td>
</tr>
<tr>
<td><strong>Authentication</strong></td>
<td>Centralized authentication</td>
<td>Distributed authentication and identity management</td>
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<tr>
<td><strong>Connection</strong></td>
<td>Input the Entry URL</td>
<td>Automatic connection (WINC, mobile RFID, 2D barcode, etc.)</td>
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<tr>
<td><strong>UI</strong></td>
<td>One hand/Both hands/ Hands-free</td>
<td>Multi-modal/Ubiquitous Web access technology (voice, gesture, RFID, etc.)</td>
</tr>
<tr>
<td><strong>API Interface</strong></td>
<td>One service, some API</td>
<td>Mashups, Open APIs</td>
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<tr>
<td><strong>Fee</strong></td>
<td>Measured rate system (very expensive)</td>
<td>Flat rate system (normal)</td>
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<tr>
<td><strong>Advertising</strong></td>
<td>No advertising</td>
<td>New business model based on mobile advertising</td>
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<tr>
<td><strong>Characteristics</strong></td>
<td>Dedicated to browsing</td>
<td>Mobile Web as a platform</td>
</tr>
</tbody>
</table>
Why Mobile Web 2.0?
Mobile (Web) 2.0 Company

[Image of various logos related to mobile web 2.0 companies]
9 Technical Trends on Mobile Web 2.0

- Adaptation & Device Capability
- Web Phone
- Web Standard (MobileOK)
- Full Browsing
- Mobile UGC
- Mobile SNS
- Mobile RFID & 2D barcode
- Mobile Mash-up
- Mobile AJAX & Widget
- Mobile Search & Ads
- Security & Identification

Disruptive
Long-tail economy
Web 2.0
You
Open
Monetize

Smart Phone 2.0
Telco 2.0
Voice 2.0
[1] Full Browsing

- Full Browser = WAP + Web

Source: http://kidbs.itfind.or.kr/WZIN/jugidong/1278/127804.htm
[1] Full browsing

- Various technical requirements for the full browser and full browsing have been increasing
  - But there are still different opinion
  - “Could full browsing provide complete access to wired contents?”

- Many studies on effective mobile browsing considering the various limitations of mobile devices
  - Virtual mouse-based interface
  - Navigation technologies: Zoom In/Zoom Out, MiniMap, Thumbnail, Narrow viewing
  - Transcoding technologies

- Mobile UX
  - Study for how can we improve the mobile browsing user experience?

- Browser centric vs. standard centric
  - Full-browser is browser centric approach
  - Mobile web standardization or mobileOK: standard centric approach

- Mobile Web standardization
  - W3C MWI Activity led by W3C since 2005
  - It has begun the phase two after completing the phase 1 programs
  - Phase 1 activities
    - Guideline for Mobile Web

W3C Rich Web Client Activity

Open AJAX Alliance

W3C POWDER WG

OMA Browsing Technology

W3C HTML5 WG

OMA Device Management

W3C MWI Activity

WHAT WG

W3C Ubiquitous Web App. WG

Test Suite WG

W3C WAI Activity

Best Practice WG

Device Description WG

- **AJAX** (Asynchronous Javascript and XML)
  - An application technology based on the asynchronous HTTP request method, DOM engine for XML processing, CSS and javascript, and browsing event.
  - Mobile AJAX is also on the rise because it can deliver the graphical UI capabilities
  - Various mobile AJAX platforms and AJAX applications recently emerging, and compatibility between the AJAX platforms has become an issue

- Enabling AJAX applications on mobile phones

- Minimo Project

- A consistent user experience on desktop and mobile

http://www.opera.com/products/mobile/platform/

http://www.w3.org/2005/11/MWI-event/Panel1-FranceTelecom.pdf

- W3C/OpenAjax Workshop on Mobile Ajax
  - 28 September 2007, San Francisco Bay Area
  - CFP: submit a position paper by 15 August 2007

- Goals and Possible Topics
  - What user experiences can Ajax enable in mobile browsers that are different from a typical mobile browsing experience?
  - What tools for creating Ajax applications for mobile browsers do developers have available to work with today?
  - What are device manufacturers and browser vendors doing in the area of mobile Ajax?
  - What differentiates Ajax development for mobile browsers from Ajax development for desktop browsers?
  - Is there a need for standardization and/or development of best practices for mobile Ajax?
  - What should the scope of any mobile-Ajax standardization activity be?
Mobile Search is an evolving branch of information retrieval services that is centered around the convergence of mobile platforms and mobile handsets or other mobile devices. The services allow users to find mobile content interactively on mobile websites, and mobile content shows a media shift toward mobile multimedia.

- Web companies were able to grow rapidly advertising-based BM

  - Online Ads enabled the creation of a large online advertising market and Internet industry.

<table>
<thead>
<tr>
<th>Mobile Internet vs. Mobile Phone Users Who Use Mobile Search, March 2007 (% of respondents in each group)</th>
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<tr>
<td>Mobile Internet users</td>
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<td>Mobile phone users</td>
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</table>

- Use mobile search □ Do not use mobile search

  Note: n=300 mobile Internet users, n=1,001 mobile phone users ages 16+

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<th>Frequency of US Mobile Search Usage via Smartphones vs. Other Mobile Devices, March 2007 (% of respondents in each group)</th>
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<td>Daily</td>
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<td>Several times a month</td>
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  Note: mobile search users ages 16+

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<th>Third-Party Mobile Search Engines Used by US Mobile Search Users, March 2007 (% of respondents)</th>
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<td>Google</td>
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<td>Yahoo!</td>
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<td>MSN</td>
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<td>Other (eg AOL or Ask)</td>
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</table>

  Note: n=156 ages 16+ who use third-party (ie non-carrier) mobile search engines

- **General Web Search**
  - Text input based search

- **On Device Search**
  - Address book, SMS/MMS, media files

- **Local Search**
  - User location based search

- **On Portal Content Search**
  - Search on MNO’s portal

- **Off Portal Content Search**
  - Search on other player’s portal

Source: http://www.mobizen.pe.kr/473

This is what I wish the internet search will be able to do with a mobile device in the NEAR future. Touch screen, built in camera, scanner, WiFi, google map (hopefully google earth), google search, image search... all in one device.

Source: http://petitinvention.wordpress.com/2008/02/10/future-of-internet-search-mobile-version/

□ Mobile Mash-up

- a web application adapted to mobile devices combining content from several sources into an integrated experience

Web 2.0 Mashup Matrix

An experimental matrix of Web 2.0 mashups: Usage, definitions, FAQ. As of 17 Jan 2006 (generated ~daily). Or view with all APIs (large). + View options.

http://www.programmableweb.com/matrix

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[delicious] + [Flickr] =

[flickr][delicious][feedme][foodhunter][esy][feedz][ey][fdl][ebay][blogger][ddc][amazon][alexa][a9][411sync][411]

Your Mashup = API calls + Data Manipulation + UI
[5] Mobile Mashups

Client: Browser
Service Mashup: Web Server Side

Browser
AJAX Capability
(Scripting, XML Processing, CSS, rendering)

Mashup Sites
Data Source 1
Data Source 1

Client: Mashup Application
Service Mashup: Server / Client

Mashup Application
XML & Web Services Processing API
Platform API
(Graphic, Communication..)

Data Source 1 (API)
Data Source 1 (API)

- The biggest weakness of mobile browsing is the difficulty in entering the URL address to connect
  - Mobile device input is often difficult when compared with use of a desktop device equipped with a keyboard.
  - Mobile devices often have only a very limited keypad, with small keys, and there is frequently no pointing device.
  - Can you type it easy?
    - [http://www.w3.org/TR/mobile-bp/#iddiv2126638152](http://www.w3.org/TR/mobile-bp/#iddiv2126638152)

- So, studies on the various methods of automatically acquiring the initial URI (or URL) address are being conducted
  - 2D barcode (QR code of Japan, ColorZip of Korea, data matrix and mCode of US) have emerged

- In the future, 2D barcode and RFID are expected to be mutually complementary, playing the important role of bringing up physical browsing.

Disneychannel’s QR-code on the rooftop mobile site

Website of the European Central Bank mobile site

QR-Code

www.eurotechnology.com

You create easily websites for cellphones - no programming skills needed. Link them to BeeTags. Do not worry about hosting, do not worry about costs. It is absolutely free!

- Toward the Mobile RFID Service 2.0
  - "Mobile" RFID?
    - Microsoft, MediaCart, Textual Ads, Video ads

- A **social network** is a social structure made of nodes (individuals or organizations)
  - tied by one or more specific types of interdependency, such as values, visions, ideas, financial exchange, friends, kinship, dislike, conflict, trade, web links, sexual relations …

- A **social network service** focuses on the building and verifying of online social networks
  - Connecting people together, share what they know, learn from one another’s experiences – all about conversations
  - Most social network services are primarily web based and provide a collection of various ways for users to interact, such as chat, messaging, email, video, voice chat, file sharing, blogging, discussion groups, and so on.
  - Mobile Social Networking?
    - when + where + who + what = mobile media metadata.
    - A means for temporal, spatial and social location in space.

- Potential of SNS
  - The recent growth of EZ GREE, Mixi, and mobagetown in Japan and linking of user-generated contents suggest the potential of various social networking applications
  - Facebook and iPhone also shows the potential of SNS platform and the potential of mobile SNS

- In the future, SNS is expected to advance to the platform linking various Internet application and services in the wired and wireless integrated environment

“... There are currently nearly 50 million members in "mobile social communities" and is expected to reach 174 million worldwide by 2011… “

ABI Research
Mobile SNS Statistics

Japanese SNS market prediction

Japanese SNS user

World Wide Mobile SNS users

<table>
<thead>
<tr>
<th>Social Networking Site</th>
<th>Total Unique Visitors (000)</th>
<th>Jun-06</th>
<th>Jun-07</th>
<th>% Change</th>
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<td>1,506</td>
<td>13,167</td>
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</table>
[8] Mobile UGC

- Technical issues for Mobile UGC (User Generated Contents) has been increasing
  - Downstreaming technology using the mobile devices
  - Creation/distribution of mobile contents using the built-in camera and camcorder function in the mobile devices
    - LBS and automatic location tagging technologies are expected to bring about many benefits related to the storage and utilization of UGC

- becoming the information creators, not just information consumers – raising mobile/PC/web sync issues (like OVI)
iPhone has been considered a milestone

- Showing how the mobile phone has evolved from voice-oriented terminal to data service-based

- **Apple iPhone Users Do All but Talk (iSuppli’s survey)**
  - This usage pattern shows Apple has succeeded in producing a true convergence product that consumers like to use for multiple purposes
“I am certain that the mobile telecoms world will count its time in two Eras. The Era BI: time Before the iPhone, and the ERA AI: time After the iPhone”

Author of “Digital Korea”, Tomi T Ahonen
http://www.tomiahonen.com/
[9] Smart Web Phone

Browsing Interface

- Tap any application to open it.
- Flick or drag up or down to scroll. On some screens such as webpages, you can also scroll side to side.
- Flick to scroll quickly.
- Double-tap the column. The column expands, so you can see more content.
- When viewing photos, web pages, email, or maps, you can zoom in and out. You can double-tap quickly twice to zoom in, then double-tap again to zoom out. Or just pinch to zoom in or out.
- Tap 'X' and flick left or right.
- Rotate iPhone sideways. Safari automatically reorients and expands the page.
- To edit text, touch and hold to see a magnified view.
[9] Smart Web Phone

- Which is better mobile UX?
Conclusions

- The term “Mobile Web 2.0”
  - was first recognized as the mobile application of some Web 2.0 technologies
  - Today, accepted as the Next Generation Mobile Web

- In this paper
  - We defined Mobile Web 2.0 and classified its nine technical key trends as the framework for the analysis

- Individual technologies are confirmed to be undergoing convergence with other technologies as well to create many changes and forms and that can only accelerate further in the future
Ubiquitous Web & Real World Web

people, devices, always connected Web
If you have any question, please send mail me. 😊

Thank you for your attention

감사합니다.