Lighting up the Mobile Web!

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Mobile versus Desktop

- Some factors of interest
  - Display size
  - Bandwidth
  - Latency
  - Computational power
  - Integration with telephony
  - Always on
  - Always with you
  - Location sensitive
Today's Mobile Web Woes

- Outside of Japan, few people are using it
  - Few users and small number of content developers
  - Put off by combination of technical and billing issues

- Incompatibility between mobile browsers
  - A nightmare for would be developers

- Problems in identifying device characteristics
  - Causes difficulties for server-side adaptation

- Browsers lack access to interesting features
  - Location, Battery level, Speech recognition, etc.
Variations in Support for Standards

- Degree of support for CSS
  - CSS media queries
    - Device based adaptation for mobile vs desktop
  - CSS positioning
    - Flexible layout avoiding problems with tables
  - Some browsers have limited support for CSS

- Scripting and DOM support
  - Access to device characteristics like display width
  - document.write() and W3C DOM for adaptation
Problems with Tables

On a PDA

On a cell phone
CSS Media

Without support for @media handheld

With support for @media handheld
Deployment Considerations

- If only a few people have new devices this limits investment by Web developers
  - Greatly slows growth of new services
- Backwards compatibility can help
  - Same content for old and new devices
  - Reduced effort for Web developers
  - Lucky few get to benefit from enriched experience
  - Boosts growth of new services a virtuous circle
- Major releases with lots of new features
  - Compelling reason for users to upgrade en masse
Way Forward

- Standards support mandated by network operators
  - Reduce effort for Web developers
  - Boost satisfaction for network users
- Identifying pages as mobile ready
  - Tell customers that your site is *mobile ready!*
  - Make it easy and reliable to search for mobile sites
  - Make it easy to people to enter URIs directly (1 URI)
    - Simpler than sending a text message!
- Mobile aware syndication formats
  - RSS and Atom are biased towards desktop
Making Adaptation Work

- While device-based adaptation is attractive it is wasteful of bandwidth and device memory
- Proxies can be a pain when roaming
  - Use home proxy for simplicity, but standards based solution would allow use of local proxy
- Solution could be based upon strong standards mandated by network operators
- Combination of server and device based adaption
  - Gets the best out of both techniques
Adaptation

- Use core device characteristics for server-side adaptation
  - Document adaptation metadata
    - Templates for creating customized content
    - What to keep or discard for mobile use
  - Image size/format conversions
- Device side adaption for finer control
  - Dynamic adaption to user preferences/device config
    - CSS Media Queries, DI Select or scripting
    - W3C Dynamic Properties Framework
More Compelling Applications

- The Web is easy to use, you just point your browser at the website and away you go
  - No need to purchase, download and install midlets

- Huge opportunity to enrich browser to support a much wider range of applications
  - Access to user preferences, device configuration, device capabilities and environmental conditions
  - Use of network events to coordinate browser with simultaneous telephone call
  - Access to embedded and network based speech
    - Improvements in speaker independent recognition
Embedded Multimodal Apps

VoiceSignal provides embedded speech applications.

Voice Dial is a Speaker Independent (no training required) application that lets you dial any number in your phone book, even if the contact list is over 1,000 names with multiple phone numbers for each contact.

Please say a command:
Click to say “Voice Dial”
Multimodal with networked speech

V-Enable's ring-tone application with network based speech
Users prefer speech

- From a sample of 240,000 accesses for V-Enable's “Say It. ToneFinder” application
  - 64% of users preferred speech for the artist name
  - 62% of users preferred speech for the title name
- Easier and faster to use speech than to key in the search string on the phone's keypad
- Midlet application, necessitating users to download and install on the phone
- A browser based application would have even higher usage, *just click and go!*
Skin-able Web User Interfaces

- Separate user interface from the application
  - Make it easy to provide multiple user interfaces
  - Customize UI for different classes of device
  - Allow users themselves to pick from a range of skins

Examples of interface skins from www.smartphone2000.com
Summary

*Lighting up the mobile Web!*

- We need to make it easier for developers and more compelling for end-users alike
  - Mandate standards support for access to network
- Identify content as *mobile ready!*
  - For search, syndication and direct access
- Enable efficient content adaptation
  - Optimal use of server and device-based adaptation
- Enrich browser for much wider range of apps
  - UI skins, multimodal interaction, voice+browser