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
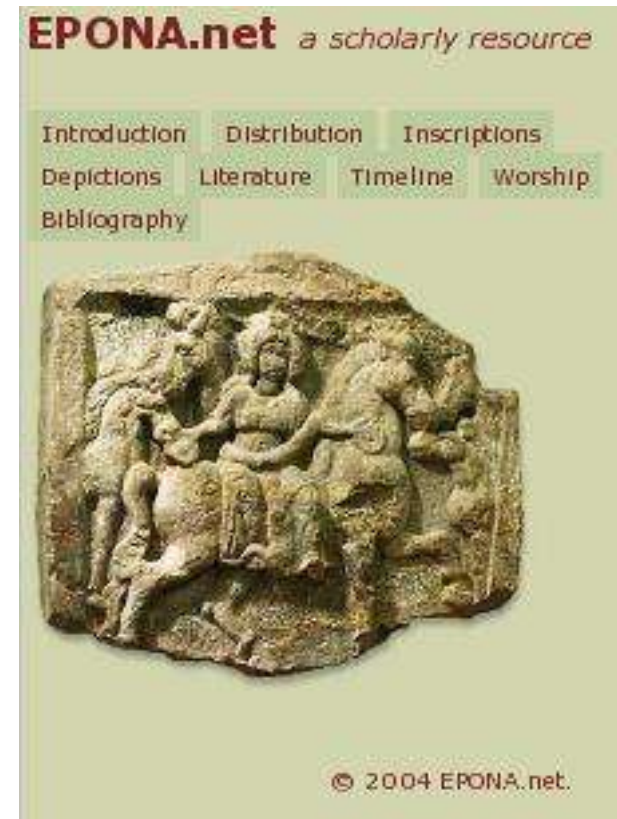
Problems with Tables

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 adaption 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

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