6. Mobile Web Initiative

World Wide Web technologies have become the key enablers for access to the Internet through desktop and notebook computing platforms. Web technologies have the potential to play the same role for Internet access from mobile devices. However, today, mobile Web access suffers from interoperability and usability problems that make the Web difficult to use for most mobile phone subscribers. W3C s Mobile Web Initiative (W3C MWI) proposes to address these issues through a concerted effort of key players in the mobile production chain, including authoring tool vendors, content providers, handset manufacturers, browser vendors and mobile operators.

Currently, the W3C MWI is focussing on developing best practices and a trustmark for Web sites (working name: mobileOK), work on device information needed for content adaptation, and marketing and outreach activities.

Mobile Web Initiative Working Groups

The Mobile Web Initiative is one of the W3C Activities. The mission of the Mobile Web Best Practice (MWBP) Working Group is to develop a set of technical best practices and associated materials in support of development of Web sites that provide an appropriate user experience on mobile devices.

The Mobile Web Best Practices Working Group has released the First Public Working Draft of Mobile Web Best Practices 1.0. The mission of the MWI Device Description Working Group (DDWG) is to enable the development of globally accessible, sustainable data and services that provide device descriptions in support of Web-enabled applications having an appropriate user experience on mobile devices.

Mobile Web Best Practices

The Mobile Web Initiative Best Practices Working Group identifies the nature of problems to be solved, outlines the scope of work to be undertaken and specifies the assumptions regarding the target audience and the anticipated deliverables.

1. Introduction

The mission of the Mobile Web Initiative Best Practices Working Group (BPWG) is to enable the reach of the Web to be easily extended onto mobile devices. The BPWG intends to specify and publish a set of technical best practices and develop a *mobileOK* trustmark for Web sites that support such practices and provide an appropriate user experience on mobile devices. The BPWG best practice guidelines - along with related testability checklists, where appropriate - should improve the delivery and display of content to mobile and other portable small-screen devices.

These guidelines produced are meant to enable content to be displayed as correctly as possible on a range of devices - either directly or, if and where necessary, assisted by some server, client or third-party adaptation mechanism which is transparent to the end user.

2. Scope

The present focus of the Mobile Web Initiative is primarily concerned with accessing content that are most pertinent to traditional browsing. Multimedia Messaging (MMS), ringtones or podcasting of out of the present focus of the Working Group.

3. Assumptions

3.1 Mobile User Experience Considerations

Most of the fixed vs. mobile user experience differences stem from

- the types of **content** involved
- the **capabilities of the devices and access networks** used (e.g., a small-screen mobile device vs. a desktop PC)
- the **context** in which the content is received by the user (e.g., sitting at a desk vs. sitting on a bus).

An example of **content** issues involved is a large bitmap which contains a sports photo. The bitmap may be unsuitable for use on a mobile device and it would need to be resized or cropped, while maintaining the relevant information, such as the position of the ball.

Examples of **device and access network capabilities** that need to be considered because of possible technical, ergonomic or economic implications for a mobile user include:

Bandwidth

Wireless access offers often lower bandwidth than a fixed connection

Battery

Battery capacity is very constrained in mobile devices - certain activities tend to increase power consumption and shorten battery life

Capabilities

Predominantly proprietary platforms from multiple vendors - based on highly integrated hardware and relatively differentiated software (e.g., operating systems) - increase capability divergences between mobile devices. Consequently, alignment of browsing capabilities becomes quite difficult, especially when transcending the existing Open Mobile Alliance (OMA) Browsing baselines.

Cost

Cellular network connectivity is commonly charged per data volume.

Input

Mobile device input capabilities tend to differ, but are usually more constrained than in desktop terminals - four-way navigation and softkeys are most common, but touchscreen-, stylus- and keyboard-based capabilities are improving. While many mobile devices offer predictive text input, data input tends to be relatively slow and cumbersome. Many mobile devices also do not offer as wide a character repertoire as desktop devices.

Memory

Significantly less working memory and storage is available on mobile devices than in desktop terminals.

Processing power

Significantly less processing power is available on mobile devices than in desktop terminals - hence stringent efficiency and optimization requirements that often lead to highly integrated and differentiated solutions.

Screen

Small screen is a major constraint for mobile devices - screen width, height, resolution, aspect ratio, color characteristics and performance under adverse viewing conditions (e.g., in sunlight) tend to vary and introduce additional content presentation and navigation complexities. Also, as currently only a few mobile devices are capable of multi-tasking, screen is typically owned by one application at a time and the user interface does not support multiple windows that are common on a desktop.

Text

Text input tends to be very slow and cumbersome on a mobile device

Voice and multimodality

Voice and multimodal technologies might supplement or enhance mobile device input and output capabilities, but currently multimodality is not commonly supported and should be viewed as an emerging technology.

Usability

Given highly differentiated capabilities and constraints of various mobile devices, making the user interface reasonably standardized, simple and efficient remains the main challenge.

Similarly, illustrative **context** characteristics that need to be considered because of possible usage implications include:

Partial attention

Mobile devices are often used in situations when the users are unable to give their full attention to the content. A user will typically be distracted within a few seconds. If there is no activity on their mobile browser for longer than that seconds, they will be lost as a user. They will often be easily distracted from what happens to be displayed at a time on their screens. Information must be concise and easily accessible.

Social situation or physical environment

In direct contrast to a desktop user typically sitting alone at a desk in the office or at home, a mobile user might often be in a number of very different situations

and environments - e.g., indoor or outdoor, at a party, in a meeting, on a beach, on a train etc.

Connectivity

The connection between a mobile device and the internet may involve a public mobile network. Such connection may drop out from time to time as the user moves into a poor reception area. Connections may also involve non-cellular networks and other wireless technologies - e.g., Wi-Fi, Bluetooth, etc.

Demographics

There are already many more mobile phones in the world than there are desktop computers and increasingly these devices are equipped with Web browsing capabilities. The phone may be the only way of accessing the Web that is available to some people, who may have no experience of accessing the Web using a desktop computer.

In the light of the above examples, assumptions made by content authors about mobile users, their devices and usage contexts may have to reflect some awareness of possible constraints and their technical, ergonomic, economic and environmental implications.

3.2 One Web

The social value of the Web is that it enables human communication, commerce, and opportunities to share knowledge. One of W3C s primary goals is to make these benefits available to all people, whatever their hardware, software, network infrastructure, native language, culture, geographical location, or physical or mental ability.

The number and nature of devices through which the Web may be accessed continues to grow. At one extreme, web content may be displayed on enormous plasma screens in public places with stadium-filling sound systems. However, the Mobile Web Initiative is primarily concerned with the opposite end of the spectrum small, mobile devices. Given their proliferation and increasing diversity, making any general assumptions about specific device capabilities and/or particular circumstances of their use are, at best, unwise.

It is often in the commercial interests of content providers to maximize the reach of their materials. It is axiomatic therefore that all web resources should be equally accessible, in that they should be made available using standard communication and formatting mechanisms. It is good practice to create user experiences that do not depend upon the particular implementation of standards or the end-user s choice of a particular browser.

That said, it is legitimate for content providers to target particular classes of user or to provide material and services that are tailored to particular situations. What is appropriate and desirable in one environment might be inappropriate or impractical in another.

This leads us to characterize One Web by postulating that:

- The representations of a resource identified by a given URI should provide thematically similar information targeted and formatted appropriately for the user s context
- Access to a URI from different devices or different locations should result in thematically similar information but may result in both the appearance and the specific content being different
- The user should have the choice of accessing exactly the same information whatever the device used in whatever environment.

3.3 Adaptation Layer

Due to increasing diversity of terminal devices the BPWG s working assumption is that multiple versions of content representation or adaptation of content to a particular set of device capabilities will be commonly used for the foreseeable future. For example, adherence to XHTML-MP can lead to different results on different devices running the same browser software. The context in which a web resource is to be displayed must therefore be addressed and hence the concept of an adaptation layer .

As discussed above, One Web does not mean that precisely the same information must always be available in precisely the same way from a given URI. The context in which a web resource is to be displayed must therefore be addressed hence the concept of an adaptation layer becomes an integral, if transparent, element of the web.

In order for the adaptation layer to do its job, content must be created in a way that makes adaptation

relatively simple and, critically, makes the results predictable.

The BPWG will therefore strive to develop Best Practice Guidelines that will:

- Advise on when and how best to create content that renders across fixed and mobile devices
- Advise on how to structure and mark-up content to ease adaptation
- Advise on the limits of adaptation and situations in which providing alternative content with thematically similar information might be the only practical approach to ensure its rendering across fixed and mobile devices
- Strongly discourage the creation of thematically different content - for mobile only or fixed only users - at the same URI.

3.4 mobileOK Trustmark

Development of a *mobileOK* trustmark is a key objective of the Mobile Web Initiative. The intention is to establish a set of validation tests to which content resources can be subjected. If passed - possibly subject to some content adaptation - a particular resource will be deemed to be mobileOK. This information will be presented in a visual form by means of a logo and in a machine processable form - e.g., for use by content aggregators.

The development of a *mobileOK* trustmark implies two work areas for the BPWG: defining the criteria a resource must meet to be mobileOK - based on the best practice guidelines - and defining the process and platform through which the trustmark is to be delivered.

Given the necessity of an adaptation layer in certain circumstances and the plethora of conflicting demands made by the real world , the BPWG will have to define the interdependencies between the Best Practice Guidelines and the *mobileOK* trustmark.

The *mobileOK* trustmark is intended not only to help authors to create content that will render correctly on mobile devices, but also encourage software manufacturers to develop a range of compatible tools, including authoring tools and clients. The *mobileOK* trustmark is envisaged to have relevance across the entire content production chain.

3.5 mobileOK Conformance and Best Practices

Levels of *mobileOK* conformance in relation to different dimensions of the specified best practices - as applicable in certain target contexts - will be addressed in detail by the Best Practice Recommendations.

3.6 Open Issues

The BPWG anticipates that it will be necessary to structure the work on the Best Practice Recommendations into two or more phases, with the initial focus on best practices that are most pertinent to traditional browsing. However, no specific decisions have been taken yet by the group with regards to which particular issues might be deferred to Phase 2 in the interest of accelerating the completion of the Phase 1 work. The exact scope of work in these two phases remains an open issue.

4. mobileOK Validation and Delivery Requirements

The exact requirements for the methods and platforms for *mobileOK* validation as well as types of the underlying validation criteria will be addressed in detail by the Best Practice Recommendations.

5. Internal and External Liaisons

The principles developed by the W3C Device Independence Working Group (DIWG) are recognized as being highly relevant to the Mobile Web Initiative. In particular concepts such as authoring units, delivery units and display units are important. The BPWG may have to extend this into a broader conceptual architecture. It is anticipated, for instance, that the group s best practice guidelines will include conditional statements in the form if feature X is supported by the target device then a delivery unit must/should be used in this way (else in some other way).

The BPWG tries to coordinate their work with the related efforts within the W3C.

References:

www.w3.org