



W3C India

Draft Consultation Paper

for

Mobile Service Providers for enabling multilingual
mobile services

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1. Introduction

The Web has gone mobile. All of the dynamic and interactive services of the Web can now reach the mass markets of millions and millions mobile users. At first, all the different technologies and concepts related to mobile browsing may seem overwhelming.

Accessing internet through mobile is seen as the future, hence enabling Indian languages on the mobile with parallel efforts enhancing the languages content on the web coupled by the development of various standards supporting these initiatives and our participation in such a global platforms is the ultimate long term goal. Interoperability is the key issue so that the dissemination of multilingual news and information can be handled seamlessly across service providers and variety of mobile available in the market. Perceiving the cellular phone to be the agent of change for inclusive growth, the challenge lies in enhancing the variety of the mobile applications and their localization, which in turn will accelerate the growth of mobile business in the country. The Mobile Web Initiative's goal is to make browsing the Web from mobile devices a reality

2. Vision and Objectives

W3C's mission includes ensuring that the Web be available on as many kind of devices as possible. With the surge of powerful mobile devices in the past few years, the role of the Web as a platform for content, applications and services on these devices is increasingly important.

W3C accompanies this growth with its ongoing work in the following areas:

- Mobile Web applications can take full advantage of the technical progress in the Open Web Platform, including HTML5, CSS3, and numerous JavaScript APIs— in particular device APIs who allow deeper integration with the hosting device
- The Mobile Web Best Practices and the Mobile Web Application Best Practices offer guidance to developers on how to create content and applications that work well on mobile devices.

3. Mobile Operators statistics

Top five operators by different KPIs – worldwide					
Rank	Subscribers	Total revenues	Monthly ARPU	Monthly churn	Proportion of revenues derived from data
1	China Mobile	China Mobile	3 UK	NTT DOCOMO Japan	Smart Philippines
2	China Unicom	AT&T US	Bouygues France	KDDI Japan	Globe Philippines
3	Bharti Airtel India	Verizon US	Vodafone Ireland	SingTel Singapore	SoftBank Japan
4	AT&T US	NTT DOCOMO Japan	O2 Ireland	Chunghwa Taiwan	NTT DOCOMO Japan
5	Verizon US	Sprint US	Orange Switzerland	T-Mobile Germany	KDDI Japan
Source: Portio Research (June 2009)					via: mobiThinking

4. Requirements for Service providers

4.1.Spectrum

Spectrum forecasts require study in the following areas:

- Traffic demand: typically parameterized in terms of ‘peak’ or ‘busy’ hour throughput required, and highly sensitive to user profiles, devices in use, and services demanded.
- Network design: assumptions related to the network architecture, encompassing such factors as spectrum portfolio (e.g. high versus low bands), subscriber demographics (rural versus urban versus suburban), network topology (e.g. cell densities, degree of utilization of offloading via femto-cells and/or Wi-Fi, etc.); radio access technology (e.g., EDGE, HSPA, HSPA+, LTE, etc.)
- Network Costs: estimations of RAN CAPEX and OPEX levels required for a given network design, including potential spectrum costs, which factors into investment considerations, that is, tradeoffs among various options to address future capacity needs (e.g. cell splits versus additional spectrum purchases)

4.2. Transmission and Reception

In order to use the limited spectrum capacity of the wireless networks , content for efficient delivery of content requires use of data compression algorithms.

HTTP 1.1 compression, which uses the gzip and DEFLATE algorithms, is widely supported. Web servers should be configured to serve appropriately compressed responses.

It is to be noted however, that the cost (in time and battery usage) of decompressing data should be balanced against the gains in transport efficiency.

When configuring HTTP 1.1 compression it is to be noted that:

- Most image formats (especially JPEGs) do not benefit from compression, but Scalable Vector Graphics (SVG) does;
- Most other media formats (e.g. audio, video) do not benefit from compression;
- Very small files (e.g. <1k) generally do not benefit from compression.

Where supported, alternative compression formats (such as EXI [EXI]) that do not share some of the above impediments, may provide benefit.

4.3. Network Latency

Lowering perceived latency is an important factor in improving the overall usability of a Web application.

A number of techniques can be used to lower perceived latency:

- **Enable Incremental Rendering:** Place JavaScript at the bottom of the page (since browsers rendering halts while parsing JavaScript) and configure the page so that any useful information that might be available is viewable while the main content of the application is still loading.
- **Keep the User Informed of Activity:** Use spinners progress bars to keep the user informed during network and device API accesses so that they do not think the application is halted.

- **Avoid Page Reloads:** To reflect changes in state or show different views within an application, update pages dynamically (by manipulating the DOM) rather than reloading them.
- **Preload Probable Next Views:** Preload data for frequently traversed paths in the application so it can be displayed more quickly when the user requests it.

4.4.Optimized Network request

Establishing the necessary connections in order to complete an HTTP request can take significantly longer on a mobile network than on a fixed network. Even though bandwidth is typically more restricted on a mobile network it is still preferable to make fewer, larger requests.

Consider the following possibilities when designing an application:

Batching requests:

Since a single request for more data is likely to provide a better user experience than several smaller requests, wherever possible, batch up multiple requests at the application level.

Throttle low-priority requests:

In some applications certain requests may be less critical than others (e.g. logging requests). Throttle low-priority requests to ensure they don't block the network and prevent more critical requests from being serviced quickly.

Back off during periods of inactivity:

If the application polls for updates, it should monitor user activity and poll less frequently during inactive periods.

Device Context:

If supported by the device, use awareness of current connectivity (e.g. WiFi) to select an appropriate level of interaction.

4.5. Optimization of network bandwidth

Mobile networks can be slow compared with fixed data connections and often have a measurably higher latency. This can lead to long retrieval times, especially for lengthy content and for content that requires a lot of navigation between pages.

Mobile data transfer often costs money. The fact that mobile devices frequently support only limited types of content means that a user may follow a link and retrieve information that is unusable on their device.

Even if the content type can be interpreted by their device there is often an issue with the experience not being satisfactory - for example, larger images may only be viewable in small pieces and require considerable scrolling.

Web pages can contain content that the user has not specifically requested - especially advertising and large images. In the mobile world this extra material contributes to poor usability and may add considerably to the cost of the retrieval.

5. W3C - Web of Devices domain

W3C has developed a number of Web technologies that explicitly take into account the specificities of mobile devices:

5.1. Mobile Web Best Practices

This document sets out a series of recommendations designed to improve the user experience of the Web on mobile devices. This Standard provides

Sixty Guidelines to specifies best practices for delivering Web content to mobile devices. Visit <http://www.w3.org/TR/2008/REC-mobile-bp-20080729/> for more details

5.2.Mobile Web Application Guidelines

This standard sets out a series of recommendations designed to facilitate development and delivery of Web applications on mobile devices. The recommendations are offered to creators, maintainers and operators of mobile Web sites. **Visit <http://www.w3.org/TR/mwabp/> for more details.**

6. Indic language requirements in India

	Issue	Proposed solution
1.	Bandwidth and Cost	All data must be passed related to user agent capability so that the content can be tuned (at the point of delivery) for best usage to reduce transfer cost.
2.	Advertising	POP-Ups can be replaced by Audio POP-Ups or something similar , because it would not occupy the limited size of Screen.
3.	Cache Header	Cache could be made additionally available with the service provider. Using caching information effectively can reduce the need to reload data such as style sheets, images and pages, thus improving performance and reducing cost of use.
4.	Variation in Delivery Context	Handling variation in Delivery Context by adjusting the content, navigation or page flow, with a view to offering a good user experience on as broad a range of devices as possible.

7. Indicative list of issues to which could be taken for collaborative problem solving developments by TCOEs

1. Detailed Study of current standards which are being used for SMS in mobile environment
2. Process of transmission and reception of text in Indian languages
3. Challenges for implementation of various, W3C Mobile Standards e.g. Scalable Multimedia Integration Language (SMIL), MWBP etc in Indian Languages and prioritizing the areas.
4. More efficient compression techniques to be developed for Indian language data.
5. Mobile protocols for language negotiation.
6. How much percentage of rural initiated traffic demand currently.
7. Current user profile of rural users & Services demanded.
8. Network topologies should be followed to reach the village level users.
9. The potentials of providing e-governance services through mobile devices especially using Indian Languages and associated research & development issues.
10. Compile the stakeholders who could be engaged for addressing the identified issues.