

Mobile Web Best Practices

By

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Organization of Presentation

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- **Characteristics of Mobile System**
- **Existence of Multiple Standards**
- **Fragmentation of Mobile standards and their fallouts**
- **Complexity and challenges of Indic Languages**
- **Challenges in mobile web**
- **Issues for enabling mobile web in Indian languages**
- **Comparison between different Indian language support handsets**
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- **Comparison between encoding standards for SMS**
- **Initiative by W3C**
- **W3C and SMIL**
- **3GPP2 standard**
- **Our aim**
- **Challenges and issues**

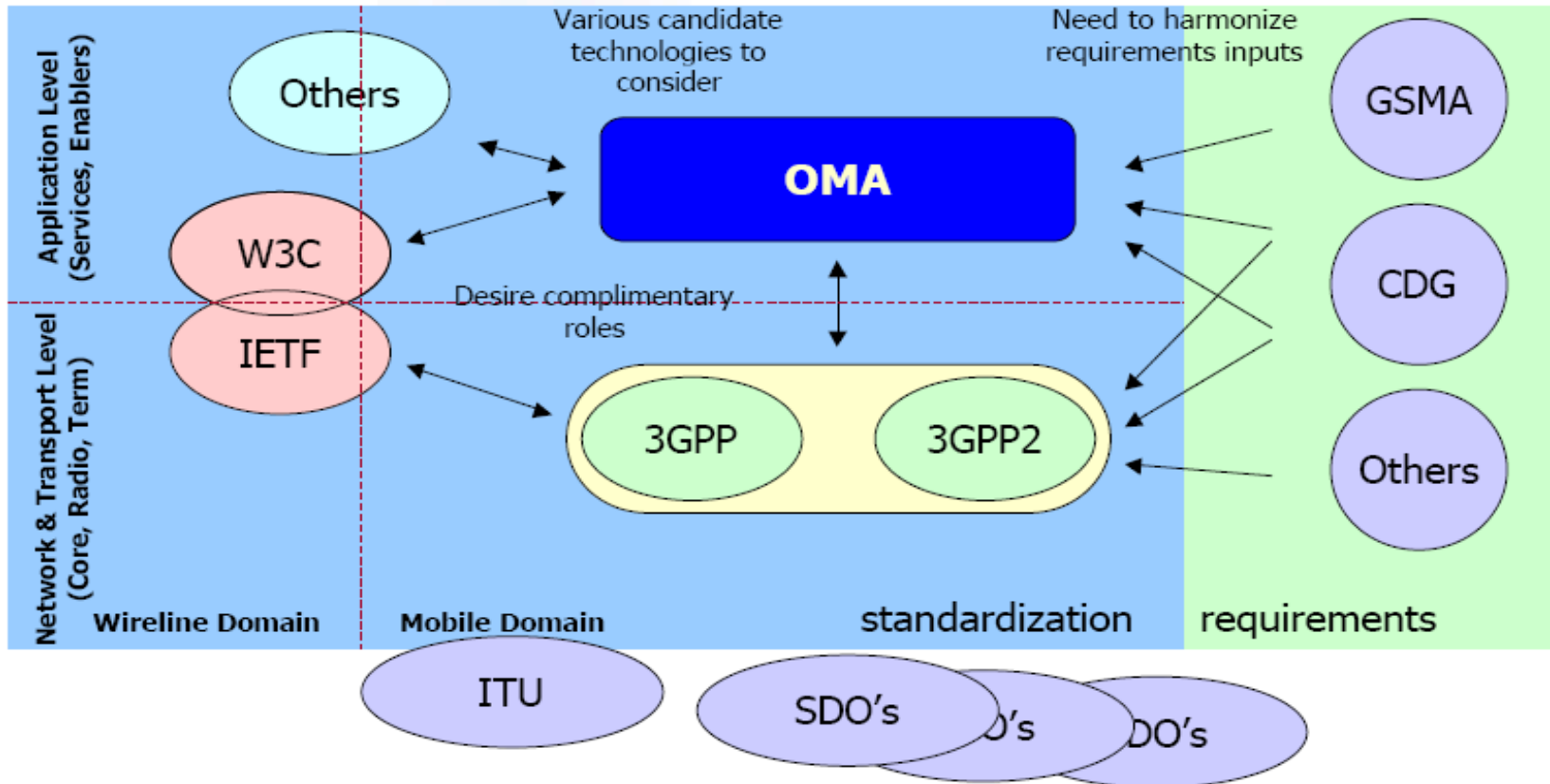
Mobile Environment

- Mobile media has increasingly becoming the preferred medium of communication
- Indian Mobile Market is one of the fastest growing – has overtaken China in terms of growth
- Useage of Mobile Web is growing besides the messaging services.
- In the top 10 list of countries, India moved up, switching spots with Ukraine. [source : <http://www.opera.com/smw>]

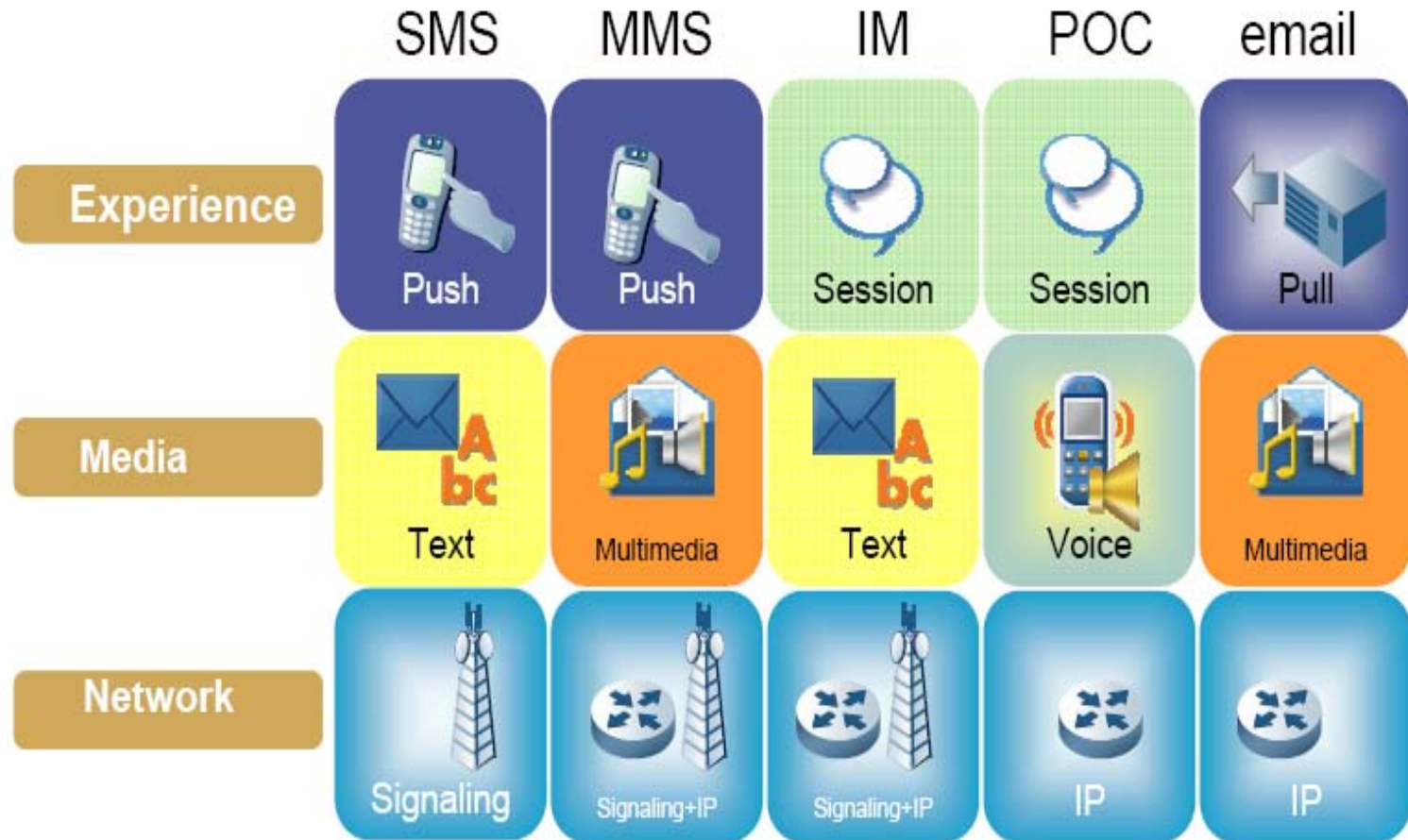
A Multi-polar World : Existence of Multiple Device , OS

- Variety of hardware architectures :
 - Nokia, HP, Samsung, Palm, Motorola, DoCoMo, Sharp, Sony-Ericsson, KDDI, Sony, Dell, Sagem, Fujitsu, ...
 - They represent different architectures, processors, displays, user interface styles, ...
- Operating systems evenly spread the field :
 - Proprietary, Symbian, PalmOS, Windows Mobile/CE, Linux, ...
 - none of them is dominating market force
- Thriving software industry for all variants

Multiplicity of Standards



Today's Fragmented Messaging Systems



Fragmentation of Mobile Standards and their Fall-outs

- Lack of Common Industry view on architectural framework
- Lack of uniform interoperability plans and applications
- Standardization work driven by different technology frameworks and not by services and applications

Fallouts:

- Lack of multi-standard interoperability detracts from the mobile consumer experience
- Impacts innovation in services and applications
- Increases costs for all involved
- Slows down third-party content and application

Limitations of Mobile Devices

Restrictions:

- small memory, slower processors, small bandwidth
- these are cited often, but less and less relevant
- modern mobiles are like PC-s 10 years ago and getting stronger every day

Constraints:

- small overall size, screen and keyboard (or no keyboard at all)
- different usage environments (on the street, on a train...)
- hands-free, one handed, or two handed usage
- Support of Unicode is increasing on mobile phones

But, the problems come with displaying complex Languages , like Indic Languages

- Most devices are first designed for simple left to right text
- Later the software is converted to handle multilingual text

Complexity and Challenges for Indic Languages:

- Large linguistic diversity with 22 officially recognized languages and 12 scripts.
- **One-language Many Scripts ; Many Languages – One Script**
- **Specificity for each language and script is unique in nature and can not be easily replicated , even if they share common characteristics**
- **Difference in perceptions of usage among various stake holders, e.g. State Governments , Academia and industry**
- **Some of the languages have coverage across different nations across SAARC countries.**
- Involves interdisciplinary research in advanced and sophisticated computer processing involving **Artificial Intelligence** and **Machine Learning** in one hand ; **linguistic knowledge** for incorporating human communication techniques on the other hand.
- Still in research stage in many areas despite huge efforts by academia and scientists in India as well as abroad

Characteristics and complexity of Indian Languages:

- What You Speak Is What You Write (WYSIWYW)
- Non-linear in nature
- Script grammar describes transformation rules
- Relatively word-order-free
- Common phonetic based alphabet

CHALLENGES IN MOBILE WEB

- Availability on handsets
- Access to all handset features
- Usability of Web browser
- Must Support standards and specifications

ISSUES FOR ENABLING MOBILE WEB IN INDIAN LANGUGAES

- Character encoding
- Bandwidth and Cost
- Backward Compatibility with Legacy Devices
- Presentation Issues
- Input
- Fonts and Rendering issues
- Lack of standardization
- Input

Comparison between different Indian language support handsets

Handset	Company	Model	Hindi	Tamil	Marathi	Gujarati	Bengali	Kannada	Telugu	Punjabi
Nokia2610	Nokia	2610	Y	Y	Y	Y	Y	Y	Y	Y
Nokia6085	Nokia	6085	Y	N	Y	N	N	N	N	N
Nokia2600	Nokia	2600	Y	N	Y	N	N	N	N	N
Nokia1600	Nokia	1600	Y	Y	Y	Y	Y	N	N	N
Nokia1100	Nokia	1100	Y	N	Y	N	N	N	N	N
Nokia6020	Nokia	6020	Y	N	Y	N	N	N	N	N
Nokia3120	Nokia	3120	Y	N	Y	N	N	N	N	N
Nokia3220	Nokia	3220	Y	N	Y	N	N	N	N	N
SamsungS GH-X210	Samsung	SGH- X210	Y	N	N	N	N	N	N	N
SonyEricss onJ230i	SonyEric son	J230i	Y	N	N	N	N	N	N	N

Encoding Schemes for Indian Language Messaging

Currently prevalent 3 SMS encoding schemes

- ISCII based encoding
- 7 bit default encoding
- UTF-8

Comparisons between Encoding Standards for SMS

Propoerties	ISCII	Proposed by CEWIT	UTF-8 ENCODING
ENCODING PROPERTIES	7 bit encoding	7 bit encoding	UTF-8 is a one-octet encoding unit.
BANDWIDTH REQUIREMENTS	Less	Less for Indian language (one Octet per character)	More for Indian language 3 octet per character
AVAILABILITY OF ALL CHARACTERS	Does not support all characters	<p>May not be possible encoding in all characters</p> <p>Do not that several languages are used in a massage, which require different national</p> <p>In case of language tables, it is recommended to encode the message in UCS-2 (Unicode)</p>	All character of Indian language is available

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	ISCI	3GPP-CEWIT	UTF-8 ENCODING
CONJUNCT FORMATION	Not possible always	Standardization of glyph support, syllable composition logic is also an important aspect and is dependent on the implementation level of handset manufacturer	Almost all combination as in Unicode
MOBILE-KEYBOARD ENABLEMENT	May be same	May be same	May be same
COMPATIBILITY WITH OTHER INTERNATIONAL STANDARDS -like SMIL of W3C	Not at per SMIL of W3C	Not at per SMIL of W3C	The members of the W3C SYMM Working Group recommend that For plain text encoding type will be US-ASCII ([ASCII]) or UTF-8 ([UTF8]) encoding, As per the http://www.w3.org/TR/SMIL2/smil21-mobile-profile.html

Initiative by World Wide Web Consortium(W3C)

Mobile Web Best Practices

- Specify Best Practices for delivery to mobile devices
- Provides a set of guidelines for making content work well across a wide variety of mobile devices.

MobileOK Checker

- The W3C mobileOK Checker is a free service by W3C that helps check the level of mobile-friendliness of Web documents, and in particular assert whether a Web document is mobileOK.

Mobile Web for Social Development

- focused challenges and barriers encountered by practitioners in developing, deploying and leveraging access to mobile content, applications and services
- The actions that could accelerate the adoption and impact of the mobile platform for development

W3C AND SMIL (Synchronized Multimedia Integration Language)

- Synchronized Multimedia Integration Language (SMIL) is an integrator language. W3C has first defined several profiles, harmonized with 3GPP:
- SMIL 2.1: the full set of possibilities
- SMIL 2.1 Mobile Profile: essentially the Multimedia Messaging Profile of 3GPP
- SMIL 2.1 Extended Mobile Profile: looking toward the future for more elaborate devices
- The W3C Mobile Web Initiative Group (MWI) and Web Accessibility Group has strong interaction with 3GPP standard

3GPP2 Standard:

- The 3GPP2 standard envisions that “MMS” User Agent shall support the media type “text” as follows:
- Shall use any character encoding (charset) that contains a subset of the logical characters in **Unicode (e.g. US-ASCII [3], ISO-8859-1 [4], UTF-8 [5], GSM 7-bit default alphabet [6], Shift_JIS, etc.)**.
- It uses W3C SMIL 2.0 as messaging framework

What we want ? Our Aim:

Our VISION should be

No matter what device I have,

No matter what service I want,

No matter what carrier or network I'm using,

I can communicate, access and exchange information.

Challenges & Issues:

- Development of common messaging framework which is transparent to device ,platform and network
- **The UNICODE and UTF-8 should be preferred encoding standard for Indian Languages Messaging Standard – though it may require higher bandwidth**
- This will ensure interoperability and proper display of characters for all 22 officially recognized languages
- The UNICODE standard should be adopted as this is the most preferred framework for internationalization and Localization
- The backward compatibility issue also need to be addressed
- **The W3C SMIL framework for mobile multimedia messaging should be adopted as most of the SMIL parameters are embedded in 3GPP/3GPP2 standard**
- Any future development of SMS/ Multimedia standard needs participation from all stakeholders especially state governments , linguists and language experts.

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- Proposed Messaging Standards would also be used by some of the SARRC countries .
- Therefore , consultations / vetting also necessary with the national bodies of these countries.

Challenges

- In order to increase further penetration of Indian languages support given by handset manufacture should not be limited to SMS only. It should support the Unicode data send across using all type of connectivity like GPRS , 3GPP , and future Mobile Standards like 4G.
- The browser support Mobile Web Initiative of W3C is addressing these issues holistically.
- The data sent from the desktop also needs for reception on mobile.

धन्यवाद
Thank You