11.2 Mobile Device Solutions

Dr. Arun Tanksali, Jatayu Software

Mobile Device Solutions

Arun Tanksali
Jataayu Software
tanksali@jataayusoft.com

What's driving it?
- Information on the move
- Ability to club mobile-specific attributes like location and push to provide truly compelling services
- Convenience of accessing information when required
- In addition, particularly relevant to India and countries in a similar position, mobile web is possibly the first web access for a large number of people (and almost certainly for private use)
- Enormous potential spilling up

Why Web?
- High content availability
- Rich and varied content
- WAP, though increasing usage rapidly, is still not popular enough
- Web-based services have changed the way we think, work and live; having it available all the time (via a mobile device) is a kind of utopian ideal now

Mobile web
- Mobile web – an outcome of device limitations
- Its definition has evolved – proprietary access, WAP1, WAP2, i-mode, and now MWI
- Its real today – WAP1, WAP2 and i-mode today generate significant traffic
- In comparison to earlier years, the full web, still very small

State of the mobile web
- Defining mobile web broadly, to include all data services,
  - the mobile web is having pockets of success
    - i-mode, browsing in Japan
    - Instant Messaging in the US, and China
    - WAP browsing in UK
    - WAP browsing and MMS in regions of India
    - SMS services on airlines, trains
    - Push small services by RJ 9, Good and others
  - Device management services in Japan
- Amazing possibilities exist
  - and success in these pockets promise widespread adoption

Web Browsing Challenges
- Multiple levels
  - Specification
  - Compatibility
  - Expectation
- Apart from the "usual" mobile constraints
  - Bandwidth
  - Processing power
  - Battery life
[Specification Challenges]
- Markup
  - Frames, iFrames
  - Image maps
  - Nameless tables
- Apple
  - Fonts
- Scripting
  - Complex DOM
  - Textual ECMA Script execution
- Protocol
  - Large object and content sizes

[Compatibility Challenges]
- Rich and varied content
  - Too rich and widely varying quality of standards adherence
- Content formats
  - Flash, P2P, Apple, Video, ActiveX etc
  - Many difficult to implement
- Content designed for PC form factor
  - Mobile phones have screen real estate 2.5%
  - Most often no touch screen

[Expectation Challenge]
- User expectation conditioned by desktop experiences
  - Increasingly that of broadband access
- Navigation of virtual widescreen content
  - May be non-intuitive for many
- Features may be limited in scope or complex in usage
  - Printing, saving, multiple windows, memory-aids
- Downloadable enhancers
  - Yahoo, Google toolbars and the like

[Solving the Challenges]
- Specification
  - Some are too, often fixed
  - Some need workarounds
  - Some need more device resources
- Compatibility
  - Aim for installation
  - Graceful failure handling
  - Expectation
  - Consider usability features and packaging
  - Expectation management by carriers, media
- Many organizations are working towards addressing these challenges over a period of time
  - Leading this is the Mobile Web Initiative of W3C
  - ICANN in a Pioneer Scion of this initiative

[Mobile device evolution]
- The mobile web definition has kept pace with increasing device capabilities
  - Today’s high end smartphones are no less capable than desktop PCs a few years ago
  - More memory, more processing power, more battery life, larger and richer screens, better bandwidths
  - Everything is either more or better
  - Except input – which has remained largely unchanged since mobile devices came up, save perhaps the arrival of predictive input
**Mobile device - inscide**

- Very high similarity of basic phone usage
- Differences in complexity and diversity of what is inside
- Practically, every aspect of the phone differs from model to model and from manufacturer to manufacturer
- Processors, chips, radio components, operating environments, protocol stacks, applications, amount of memory, display resolutions, ...
- What a user can switch phones without a second thought on whether he can use it or not is a tribute to the standards organizations and the specifications they produce
- Unfortunately, the moment we move from basic phone usage, this simplicity of use breaks and switching phones for "advanced" services requires another relearning.

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**Mobile Handset**

- Multimedia, voice, hardware, power, network protocols, software, applications, entertainment, navigation
- Multifaceted companies work with Nokia

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**Differentiation**

- Key differentiators
  - Applications
  - Look and Feel (Personalization)
- Design globally
- Adapt locally
- Applications - key layer

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**Consumer**

- Communication
  - Information access
- Others
  - Entertainment

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**Industry Stratification**

- Different layers
  - Software
  - Operating System
  - Telco
  - Network
  - MANUFACTURING
  - Components
  - Modems
  - Applications
  - Interworking

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**Converging tech**

- Cellular
- SMS
- 3G
- UMTS
- 3GPP
- IP
- IMS
- VoIP
- All packets over IP - universal

Ultimately, a mobile phone is a communication technology with various means of achieving that.

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**Information access**

- Downloaded Apps
- Voice
- Messaging
- Applications
- Network
- OS
- Cellular
- EDGE
- GPRS
Which buzzwords?

- Communication
- Richer
- More interactive
- More immediate
- More intimate
- More available
- Less intrusive

- More senses?
  - Feeling?
  - Smell?

Standards

- Customer-expectations, interoperability, industry readiness
- Traffic proportional to size of users
- W3C
- 3GPP
- OMA
- IETF
- ETSI
- ECMA
- Others

Mobile Browser

Other mobile devices

- Car navigation systems
- Handheld scanners
- Cordless phones
- Non-mobile constrained devices

Mobile Web Services

Jatayu

Unwiring the Internet

Whatever shape communication takes, Jatayu will be there with the technology to make it happen

www.jatayusoft.com
brikasal@jatayusoft.com