

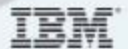
IBM CUSTOMER FACING SOLUTIONS

Innovative Ideas for our Multichannel World

Mobilizing the Web: A handheld experience

Mahmood Ashek
Solution Architect

July 15th, 2008

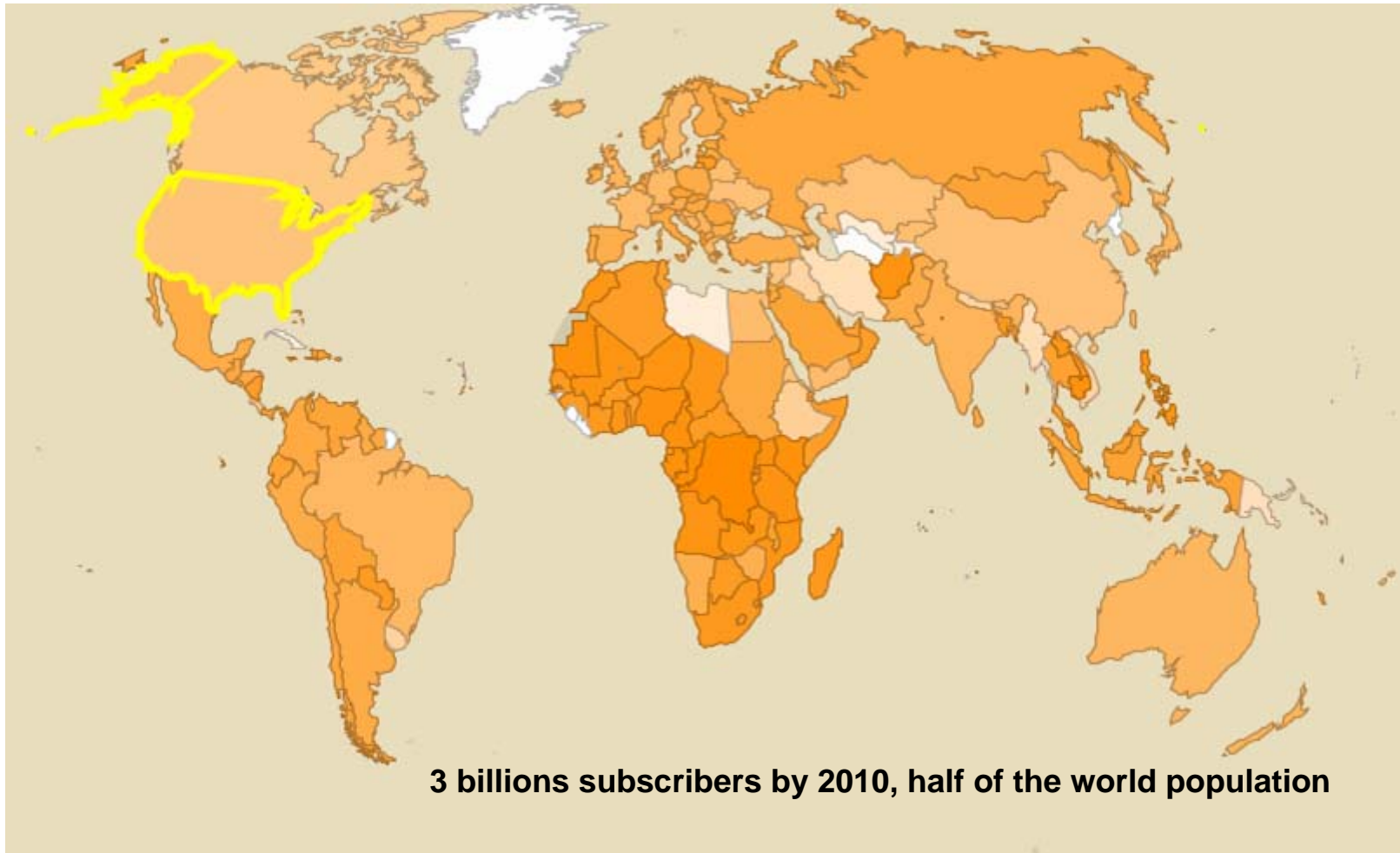


AGENDA



- **Mobile Overview**
- **Mobile Business Applications**
- **Mobile Design and User Experience**

Mobile Society



The Age of Mobile



- Personal, portable, connected
- One-handed operation
- Universal alerting device
- Digital Identity
- Location awareness

- “Mobile is one of the top five innovations that will change the way we live.”
 - Global Technology Outlook, IBM
- “Mobile is going to be the next big Internet phenomenon. It holds the key to greater access for everyone - with all the benefits that entails.”
 - Eric Schmidt, CEO of Google
- “Folks, this is bigger than PCs.”
 - Steve Jobs, CEO of Apple

Understanding Mobile 2.0

The Six Principles

- ⦿ Openness
- ⦿ Context
- ⦿ Affordable pricing
- ⦿ More user choices
- ⦿ Intelligent 'aware' applications and devices
- ⦿ New business opportunities

"Mobile 2.0 is not 'the Future.' it is services that already exist all around us. These services are maturing at an amazing rate and what they are doing is effectively knitting together Web 2.0 with the mobile platform to create something new: a new class of services that leverage mobility but are as easy to use and ubiquitous as the Web is today."



PHOTO-ILLUSTRATION FOR TIME BY ARTHUR HOCHSTEIN

Emerging Mobile Technologies

- **Location Based Services (LBS)**
 - GPS
 - Cell Towers (Triangulation)
 - IP Address

Where is My...location?

**Where's the nearest...cup of coffee,
ATM or taxi stand?**

**Tell me more...traffic, weather, what's
on sale?**



COURTESY: APPLE

Emerging Mobile Technologies

○ Near Field Communication (NFC)

- 2 way communications chip
- Similar to RFID
- Device as a payment card
- Device as an electronic key
- 50% cell phones will have NFC by 2010

NFC enables mobile to interact with the world of physical things



Emerging Mobile Technologies

2D Barcode

- Mobile optimized, such as QR and Aztec Code
- Device as a barcode reader
- Camera and decoding software
- Back-end Analytics Tools
- Barcode as a digital pass



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IBM Customer Facing Solutions (CFS)

Self-Service



Kiosks

Web

Mobile

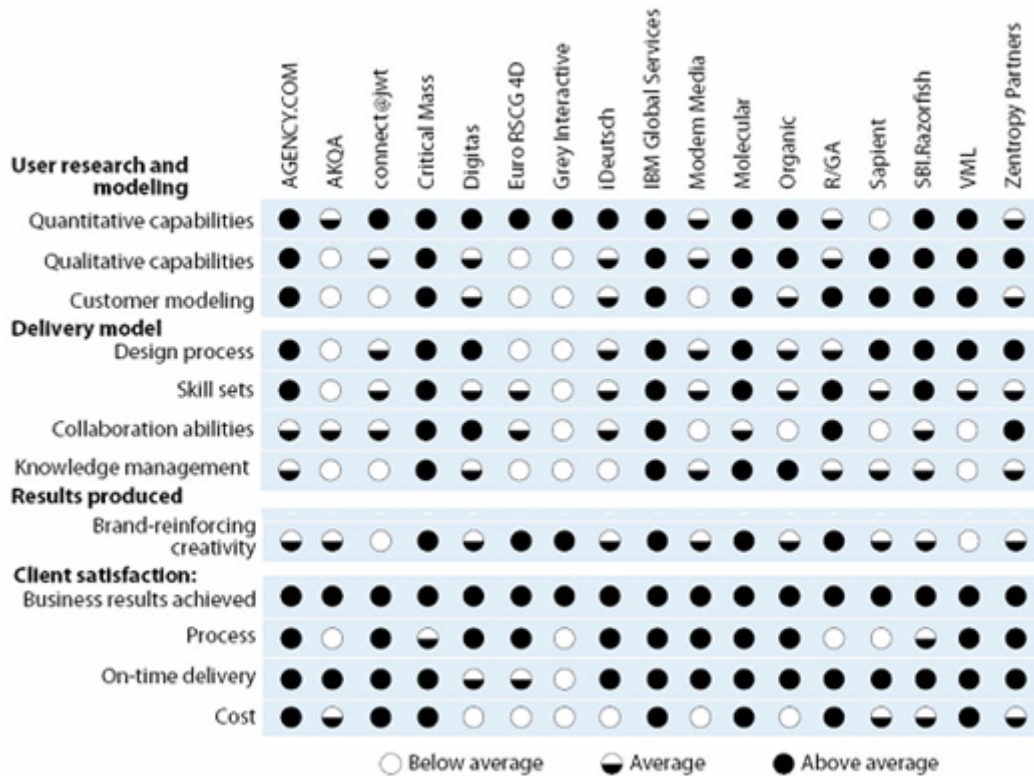
IVR/
Call Center

- Extending Customers Self-Service Reach**
- Choice and control handed to customers
 - Consistency of information across channels
 - Clear transition path across channels

www.customerfacingsolutions.com

IBM Interactive – Centres for Solution Innovation

Figure 1 Forrester's Wave Criteria For B2C Web Design Agencies



Source: Forrester Research, Inc.

Strategy

- Business consultants
- Web strategists
- Multi-channel strategists
- Content strategists

User experience

- Creative Directors
- Information Architects
- Interaction Design
- Art Directors
- Visual Designers

Technology

- Solution Architects
- Application Developers
- Content Modelers
- Database Architects

IBM Mobile Applications Practice (MAP)

- 1 Mobile Internet Services Strategy
- 2 Standards Based, Open Ecosystem
- 3 Consumer Insights
- 4 Offering & Partnering Strategy
- 5 Innovative Interactive Applications
- 6 Business and Marketing Transformation
- 7 Scalable and Cost Efficient Infrastructure

Benefits of Multi-channel

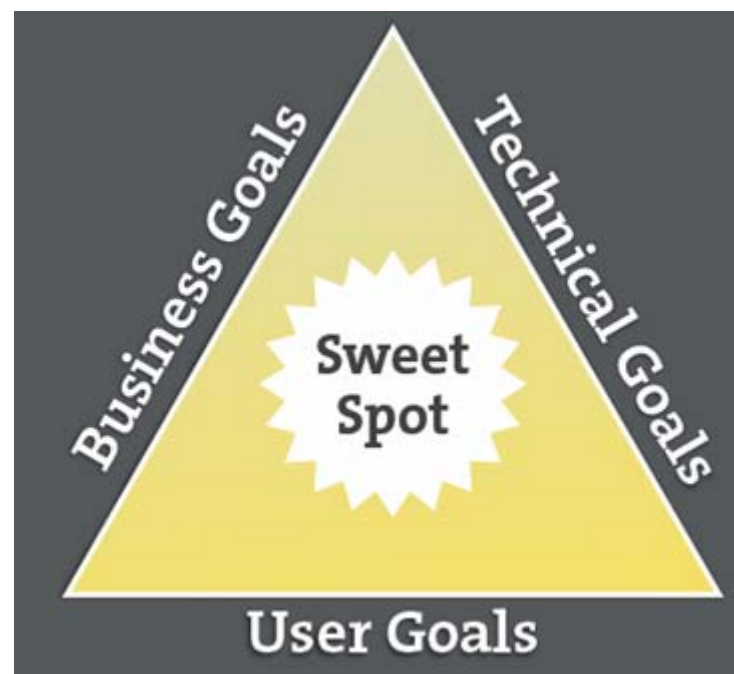
1. **Customer centricity.** Providers of services are to revolve around consumers
2. **Synergies** due to a centralized business model, which reduces overheads and time to market
3. **Brand value** is spread to new products and services.

User Experience, creative design and solution innovation are core to the success of the various customer touch points.

Mobile Strategy

- Identify your sweet spot by balancing goals
- Pick out opportunities that have strong fit to target markets & competencies
- Leverage connections to online solutions to speed up transition to mobile services

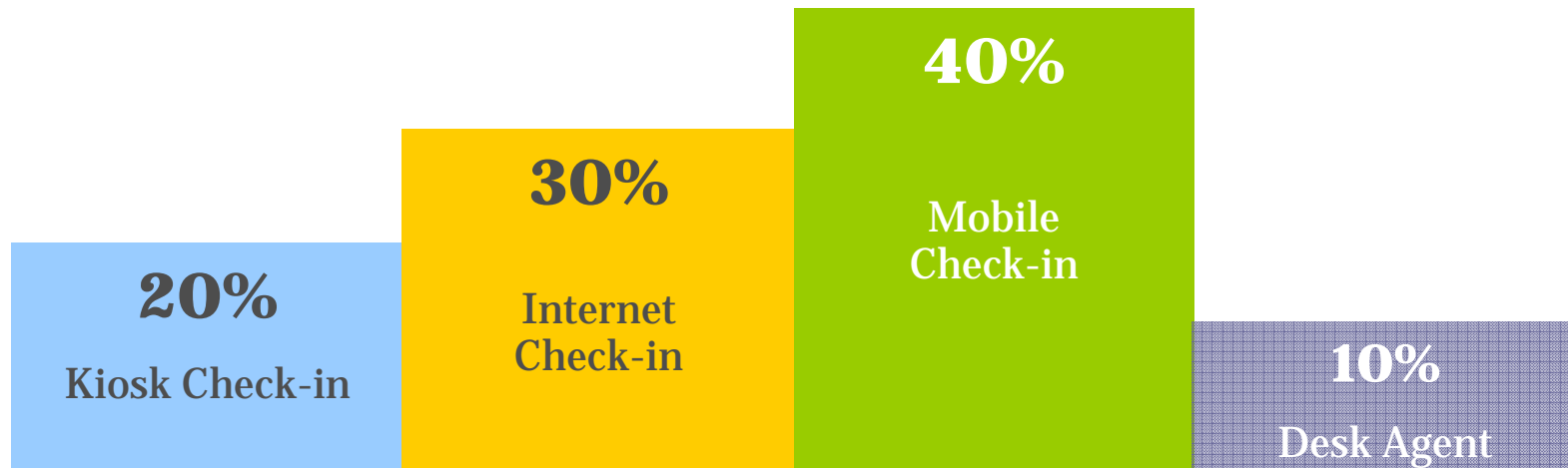
“Do business anywhere, anytime.”



Mobile Travel Services

○ Airlines, hotels, and public transportations

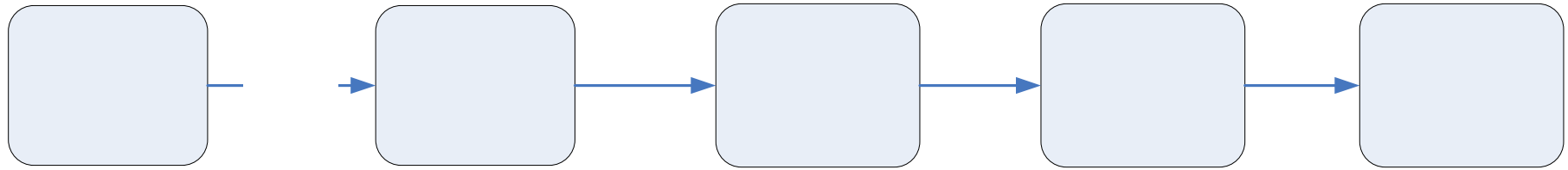
- Check-in Services
- Check status and schedules
- Find destination information
- Book and view reservations
- Location based alerts



"The Web Will Overtake Kiosks, but Mobile Is The Future"

Forrester Research, February 2007

IBM Mobile Check-in (MCI)



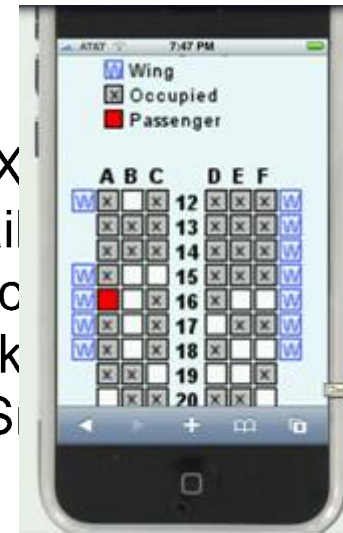
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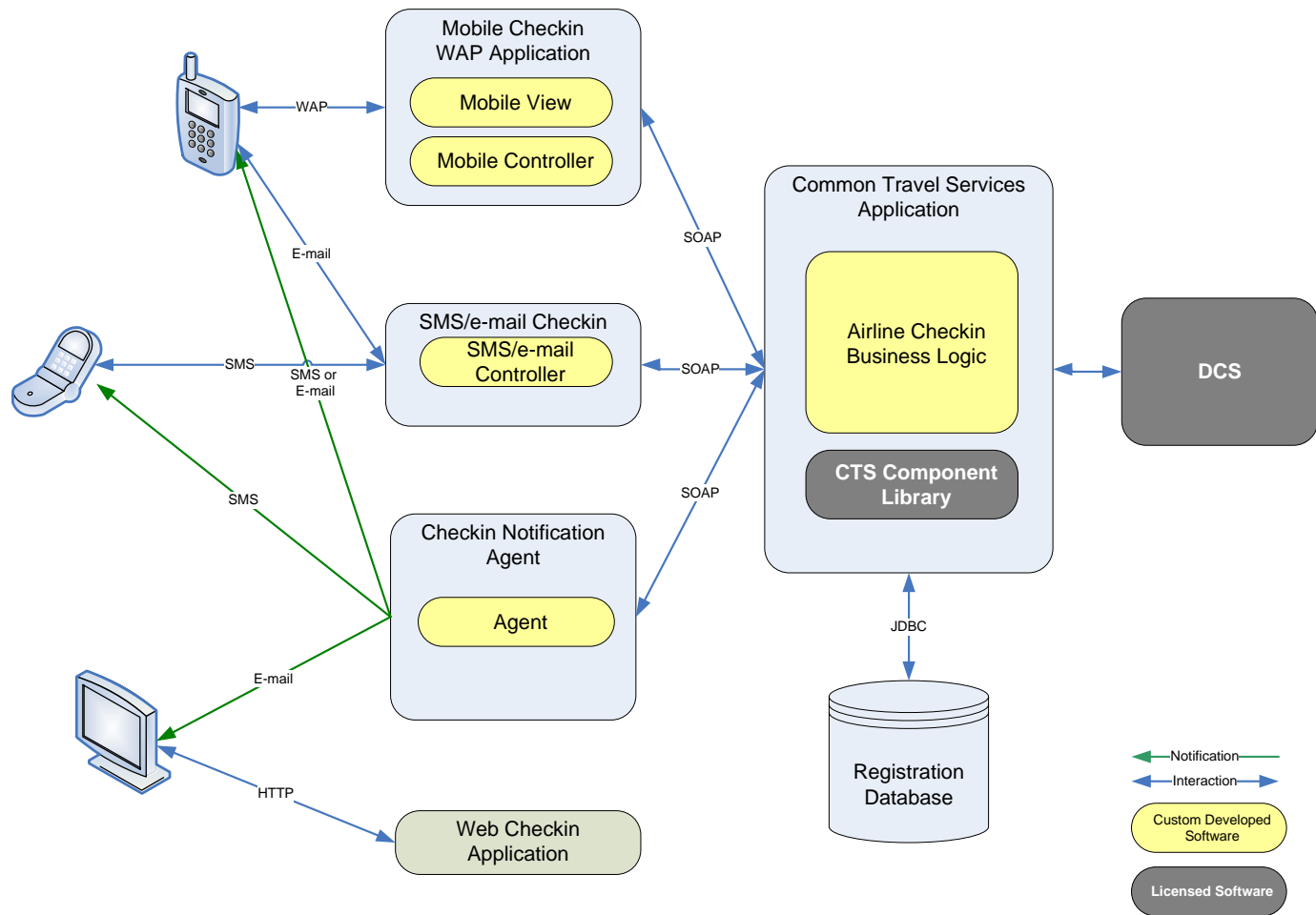


AX
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ap
deli
mobi

MCI Architecture Overview



Mobile Hospitality Services

Service
Managers

Location based alerts



Check-in



Room Directions



Unlock Room



Promotions



Pay Bill



Mobile Financial Services

Mobile Banking

- Account management
- Funds Transfer
- Bill Payment
- Peer-to-peer (P2P) lending



The image shows a mobile phone screen displaying a banking application. The screen is titled "Mobile Banking" and "My-Bank Home". It features an "Inbox" section with several messages: "ALERT! Checking Account exceeds threshold. Transfer funds.", "INFO: Checking Account deposit posted.", and "INFO: Bill Pay - New Payee Added". Below the inbox is a table of accounts:

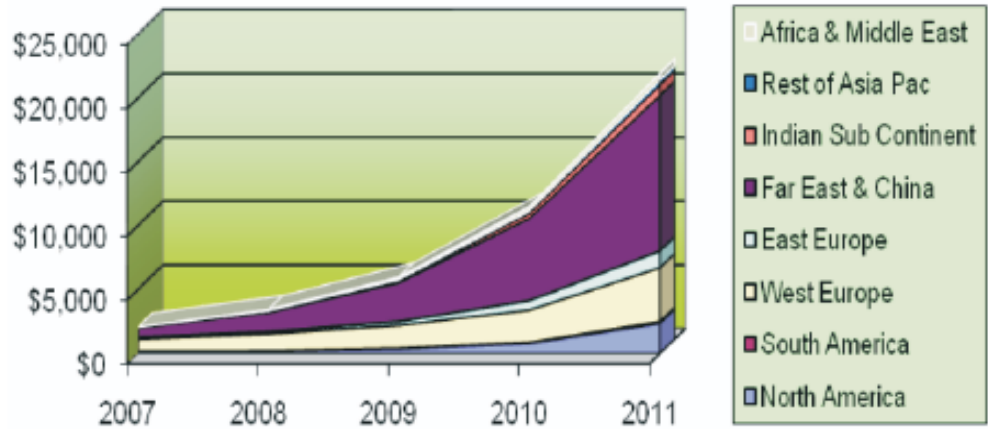
Account Type	Balance
Interest Checking	\$13,467.55
Savings	\$3,443.88
Money Market	\$000.02
Brokerage	\$876.62

At the bottom of the screen, there are buttons for "IM Chat" and "Help", and a status bar showing "Driving Time: 0:45" and the "IBM" logo. To the right of the phone screen, the text "The process:" is followed by a list of steps: "Customer receives notice of account change", "... checking account preset threshold exceeded", "... enters into banking application", "... inputs login name and PIN", "... is authenticated, a secure connection is established", and "... benefits from two-factor authentication for peace of mind". The bottom right corner of the image is labeled "Mobile Banking Capabilities Demo".

Mobile Financial Services

Mobile Payment

- Online Payment
- Physical Payment (storefront)
- Cell Phone Bill
- NFC enabling your digital wallet



Source: Juniper Research

Mobile Retail Services

○ 2D Barcode

- Coupons or Tickets
- Travel, concerts, movies, shop, loyalty
- Reduce distribution and operational costs
- Phones with barcode reader can populate the information to go.

○ Location Based Advertising

- Alert on sales.
- Customized to your preferences.



IBM Mobile Delivery Services

- **Delivery of mobile information** directly to consumers device.
- **Various delivery methods** to choose from
- **Backend analytics tools** to track delivered content through its digital life.

Send and receive...images, barcode, plain text, rich text, links

Mobile Content...tickets, coupons, notifications, maps, receipts

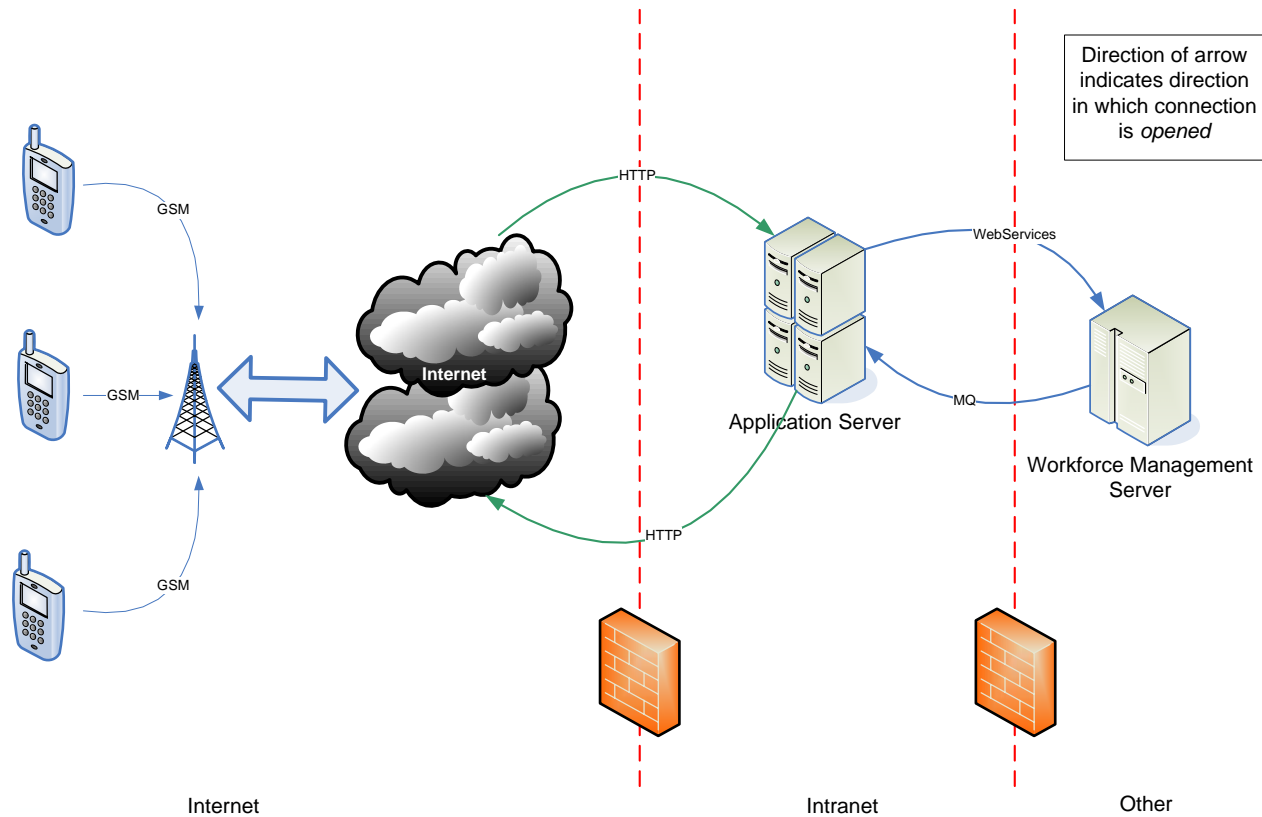
Multi-channels...SMS, e-mail, picture SMS, MMS

Analytics... tracking and reporting of user/device/operation/transaction statistics

Security... content expiry, anti-forwarding measures

Enterprise Mobility Services

- **Employee Utilization ...** task dispatch, IM, calendar, reservation, time recording.
- **Enhanced Client Value ...** access to CRM, sales reporting. Search tools, PMS.
- **Data Collection ...** asset data, field data, transaction recording, receipt.



Mobile Web 2.0

- Next generation of mobile social networking services.
- Mush up information on the mobile device
- Mobile AJAX, supported by newer browsers
- Need to interface with OS
- Mobile Widgets
- Facebook, youTube, eBay
- New players such as Zumobi



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Designing for the Right Device



Symbian



Windows Mobile



Linux Mobile



Nokia OS - S40



Sony Ericsson OS



Motorola OS



BlackBerry OS



iPhone



Mobile Web Standards

● XHTML-MP

- Extensible HyperText Markup Language: Mobile Profile
- A subset of XHTML Basic and HTML. Used as a primary markup language for the WAP 2.0 protocol.

● Wireless CSS

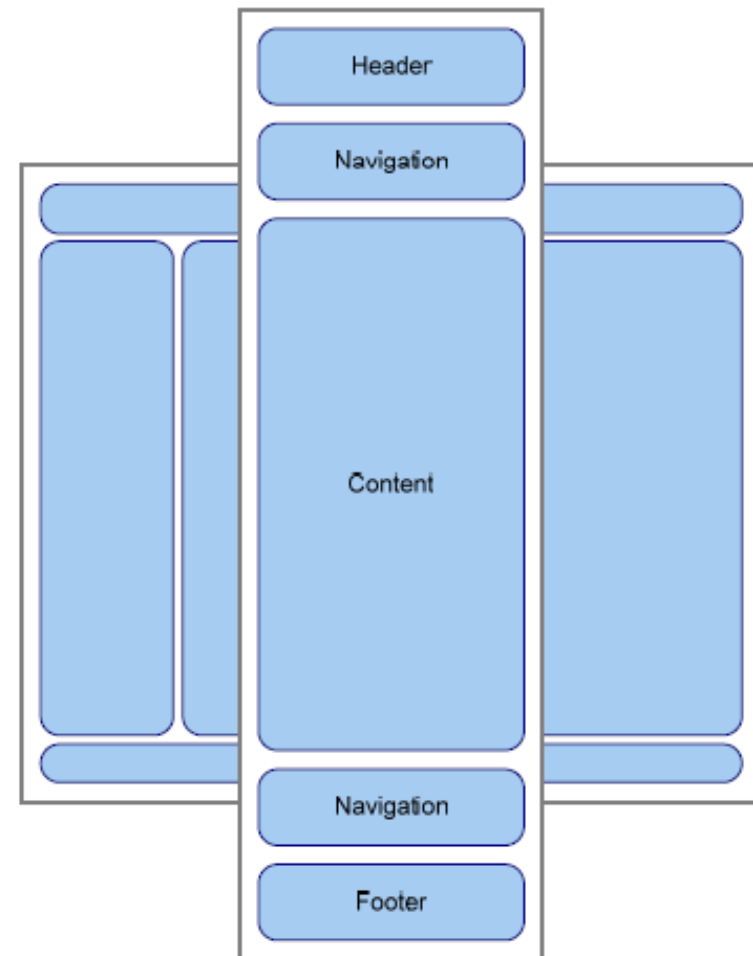
- Supports most CSS attributes, but not all of them.
- More advanced styling techniques won't likely work across multiple mobile browsers.

“Keep your code and styles simple and you will do fine on most mobile browsers.”

Mobile User Experience Best Practices

The 3C's of the Mobile Web

- **Cost**
 - If you don't develop your mobile website responsibly, the user could get stuck with a big bill in order to view your content.
- **Content**
 - Issues like navigation and page sizes need to be considered when thinking about mobile experience.
- **Context**
 - What does your website add to the users mobility? How do you add value to the their physical context?



Mobile User Experience Best Practices

○ User Input

- Help users obtain URI to the mobile site through redirections, emails, WAP push, or barcode.
- Keep the URIs of site entry points short.
- Keep user inputs and the number of keystrokes to a minimum.

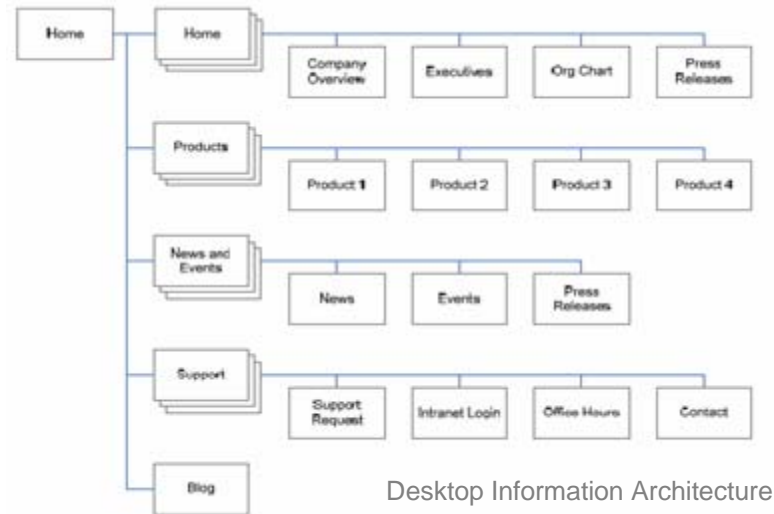


Mobile User Experience Best Practices

Navigation

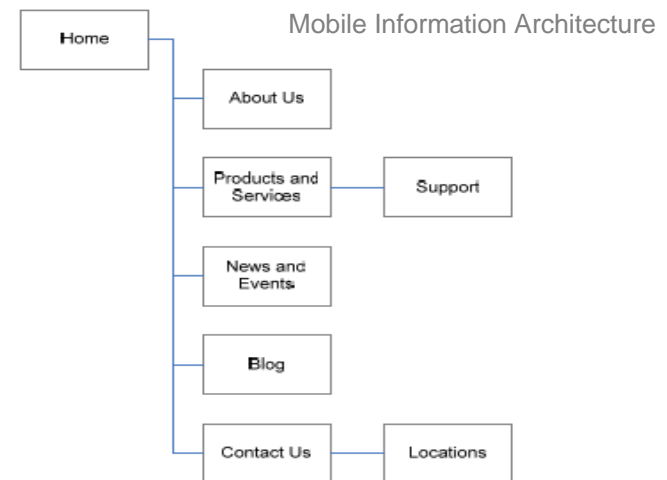
- ⦿ Provide only minimal navigation at the top of the page.
- ⦿ Provide consistent navigation mechanisms
- ⦿ Clearly identify the target of each link.
- ⦿ Keep the number of externally linked resources to a minimum.

“A limited number of concise links and categories that enable users to make navigation decisions with 100% confidence.”



Desktop Information Architecture

VS.



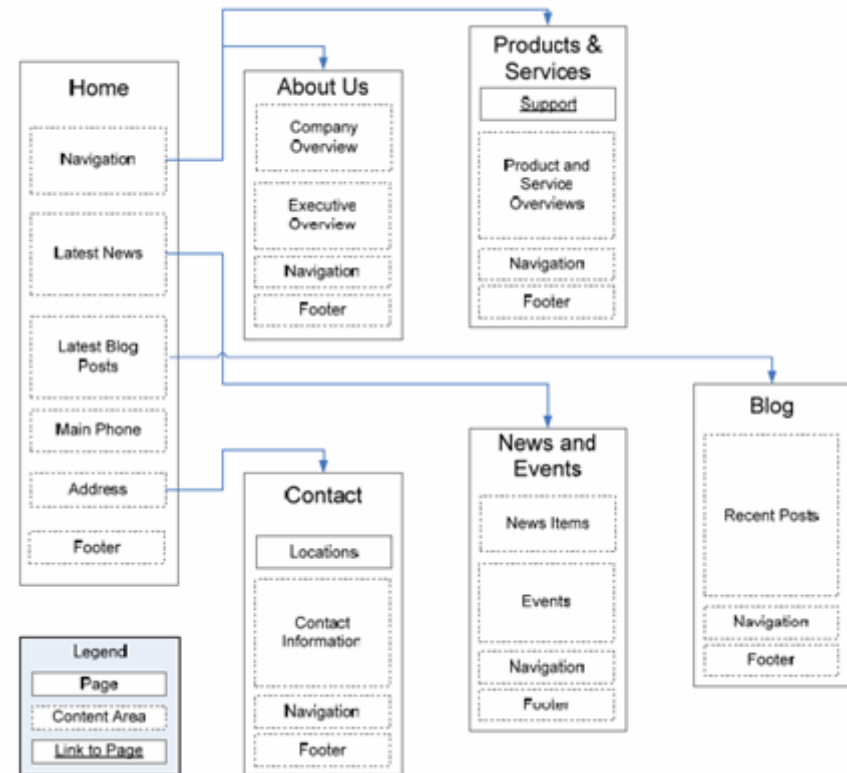
Mobile Information Architecture

Mobile User Experience Best Practices

Content

- Suitable, Clear, and Limited.
- Front loaded.
- Do not use scripts or plug-ins.

“Sites should put essential content on small, fast-loading pages, progressively disclosing more content as the user digs deeper into the site.”

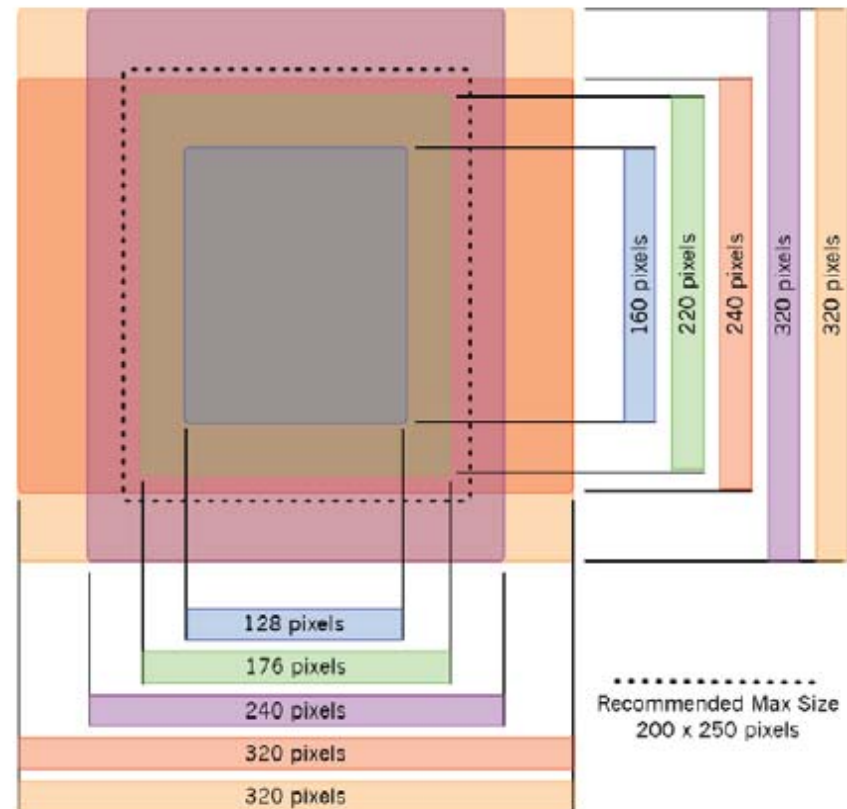


Mobile User Experience Best Practices

Page Elements

- Exploit device capabilities to provide an enhanced user experience.
- Related interactive elements and form fields should be grouped either by layout or visual treatment.
- Do not rely on style sheets.

“A reasonable default experience should be provided.”

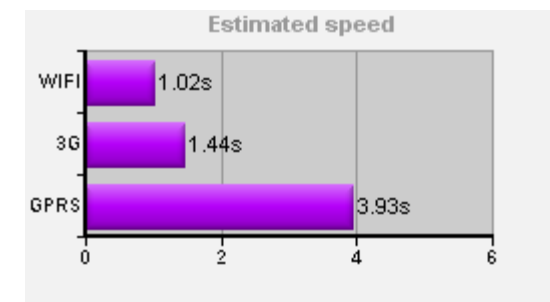
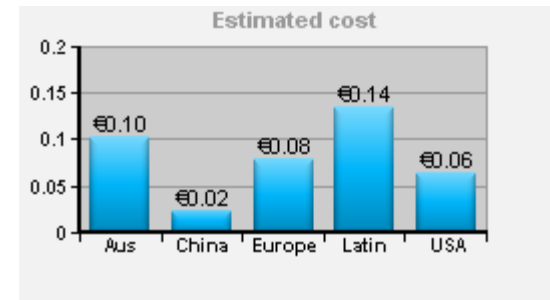
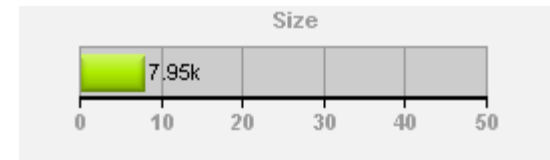


Mobile User Experience Best Practices

○ Performance

- Ensure that the overall size of page is appropriate to the memory limitations of the device.
- Provide caching information in HTTP responses.
- Balance between pagination and scrolling.

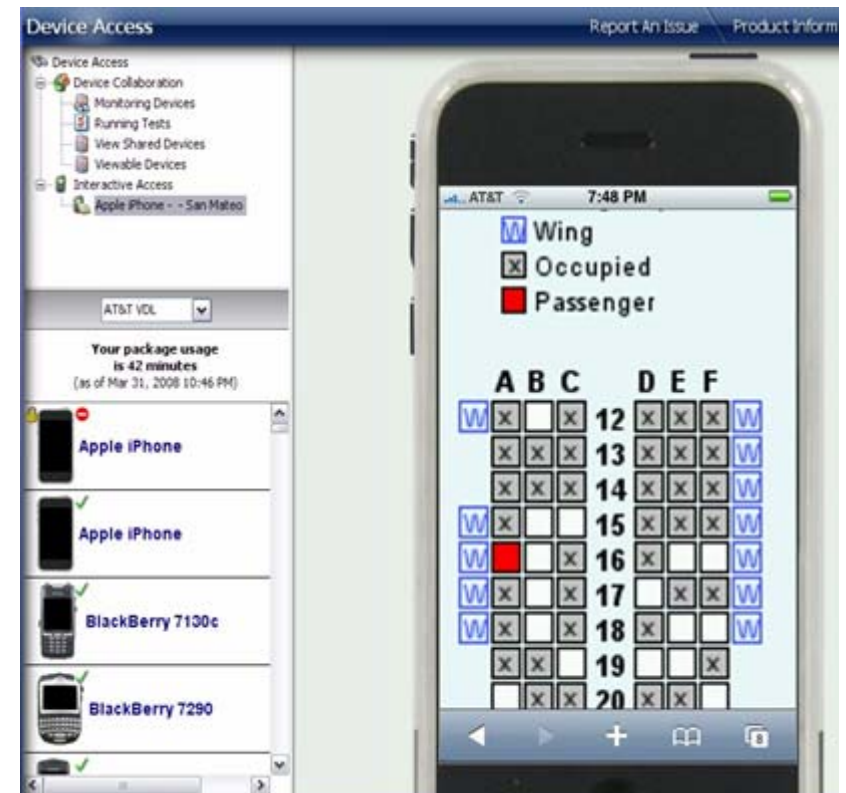
“Even if the content type can be interpreted by their device, there is often an issue with the experience not being satisfactory.”



Source: IBM developed mediaworld.mobi site

Mobile Application Testing

- **Desktop Testing**
 - Testing from a normal desktop browser is a great way to start.
- **Browser Tools**
 - Browsers like Opera and Firefox have tools specific to mobile testing.
- **Emulators**
 - Allows for desktop verification without loading on to a device.
- **Device Testing**
 - Test as many as you can, but focus on less than 10 mainstream devices.
- **Usability Testing**
 - Test early and often with as many users as you can.



Acknowledgements

- **Mobile Applications Point of View** - Alon M Kronenberg, IBM Canada Mobile Practice Lead
- [Go Mobile, Grow](#) - IBM Institute for Business Value Study
- **The Insight of extending IBM Mobility Products to Mobile 2.0** - Pamela PL Chen, IBM Taiwan
- **Mediaworld.mobi Lesson Learned** - Roberto Bugliani, IBM Italy
- **Tech Talk: Mobility Platforms** - Vitor Lentini Faria, IBM Brazil

- **Mobile Web Best Practices 1.0** - W3C Org
- **Mobile Site Review Scorecard 2.0 Reviewer's Guide** - Forrester Research
- **Hotel Technology Next Generation** - 2007 European Member's Meeting & Conference
- **dotMobi Mobile Web Developers Guide** - dotMobi
- **Mobile Financial Services 2007-2011** - Juniper Research

Thank You!

- ⦿ My Blog: <http://asheks.wordpress.com>
- ⦿ LinkedIn Profile: <http://www.linkedin.com/in/msashek>
- ⦿ IBM Portfolio: <http://www.customerfacingsolutions.com>

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