Keys to the Success of Mobile Commerce

Security, Performance, Usability and Practical Business Applications

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Keys to the Success of Mobile Commerce

- Introduction to Mobile Commerce
- Evaluation
  - Security
  - Performance
  - Usability
  - Practical Business Applications
- Analysis Keys to Success
Introduction to Mobile Commerce

- Statistics
  - ePaymentnews.com
    - US mobile commerce revenues at $5.7 billion in 2004
    - $5.14 billion in business spending in 2004
    - 322 million Wireless Internet users worldwide 2004
  - NY Times Almanac: number of mobile phone subscribers exceeded land line telephones by 24 million subscriptions in 2002
- Presentation
  - Critique and evaluation of topics
  - Keys to success
- Defining Mobile Commerce

Security: WAP

- Wireless Application Protocol developed by WAP Forum
- Extend Internet content to Wireless Networks and Devices
- Details (WAP 1.x)
  - Implements WAP Stack for Optimization
  - Requires WAP Gateway
  - Security Implemented with WTLS
    - Class1: Encryption Only
    - Class2: Encryption, Server Authentication
    - Class3: Encryption, Server Authentication, Client Authentication (WIM)
Security: WAP

- WAP Gap occurs during WTLS to SSL/TLS conversion
- Disrupts end-to-end Security
- Workaround Possible by Moving WAP Gateway

Security: WAP

- WAP 2.0 implements WAP Stack and Internet-compatible Stack
- Deployed, but not used widespread
- Limited Bandwidth still an issue, WAP 1.x more practical
Security: KSSL

- Kilobyte Secure Socket Layer
- SSL not suitable for Mobile Devices
  - uses a limited number of cipher suites that are fast and universally implemented
  - does not include client side authentication (assumes application-level password) and only requires public key operations which are much faster than private key operations
  - the bottleneck lies with limitations in network bandwidth so CPU calculations are of no consequence
  - session caching, TCP connections, abbreviated handshakes and hardware crypto-acceleration (Java card, smart cards) all improve performance significantly

Issues with Solution
- Any Cryptographic Operations are a Performance Issue
- Non-repudiation is not fully implemented
- Network is no longer a bottleneck
- Acceleration techniques not widely available
Performance: Wireless Networks

- Networks are Advancing
  - Second Generation, 2G Networks
    - GSM
    - CDMA
  - Third Generation, 3G
    - 2G+, EDGE 284Kbps
    - CDMA2000
      - EVDO Product
      - 300-500Kbps
      - Burst to 2Mbps

Performance: Wireless Networks

- Mobile phones and PDAs unable to harness speeds
- Laptops and Wi-Fi introduced (Mobile Hotspot)
- Not cost-effective
Usability: PDA and Mobile Phone Study

- 86% of mobile phone users and 85% of PDA users that claimed they were uncomfortable or not at all comfortable using their respective
- Mobile Phone versus PDA
  - Classroom Environment
  - Stock Trading and Movie Tickets
- Findings
  - Mobile phones suitable for simple tasks
  - PDAs suited to navigation intensive tasks
  - Application design more important that device design
- Considerations
  - Small sample, users previous experiences
  - Fails to consider outside aspects
- E-Wallets

Usability: Security Interfaces

- Contends a Company Logo should act as authentication to user – reserved space on screen
  - Viewing certificates cumbersome
  - Portal-based browsing does not lend itself to URL brand recognition
- Additions to this point
  - Logo, URL, Security, Max Security Available, Performance Indicator
Practical Business Applications: Location-Based Services

- Buzzword for Mobile Commerce: Location-Based Services
  - Restaurant Reservations, Movie Tickets
  - Hotel Accommodations, Favorite Stores
- Is the buzz over-hyped?
- Roadblocks
  - Opt-in
  - Legal and Privacy Issues
- Location-based service facilitating commerce
  - Immediate response to standard ads and marketing
  - Sales lead generation
  - SMS inquiries on healthcare products by location
  - 7500 requests, 650 call requests, 150 closures
Practical Business Applications: Commercial Aspects

- Internal Business Applications
  - Shipping, Inventory, Purchasing
  - Lends nicely to dashboard applications to give look at enterprise

- External Business Applications
  - Point of Sales
  - Account Management

Analyzing the Keys to Success

- Security is costly – choose wisely
  - Only use necessary security
  - Mechanism for security requirements from application

- Advances in Technology
  - Users need to adapt to current climate
  - Extend to all possible areas

- Usability Through Information
  - E-Wallets
  - Delivery of Security Information

- Killer Application
  - Continued, steady use in business environment (strategy)
  - Mobile commerce lacks premium brand