Modern Mobility
Speaker Info:

Frank Fortner
Senior Vice President
Application Software Division
• Understand today’s mobile computing technology

• Understand the potential future for mHealth

• Equip yourself to make wise, well-informed decisions
• Medical and public health practice via mobile devices

• Devices include: mobile phones, PDAs, monitors, etc.

• Data transmission across wireless networks
Example mHealth Use Cases

• Collecting healthcare information from patients

• Delivering healthcare information to providers

• Real-time monitoring of patient condition (e.g. VS)

• Direct provision of care (mobile telemedicine)

• Mobile e-Prescribing
A Physician Might …

- Access Electronic Health Records (EHR)
- Review lab results
- Order diagnostic tests
- Write electronic prescriptions
- Access medical reference data (e.g. ePocrates)
An RN Might …

- Positively ID a patient via barcoding
- Document interventions
- Document the administration of medications
- Capture patient specific charges
- Document the collection of lab specimens
Modern Mobility

Wireless Networking

Mobile Devices

Data Security

Emerging Technologies

Emerging Applications
Practical PDAs: Handhelds for the Real-World

Presented by:
William Lawson, CTO of MercuryMD
Frank Fortner, Sr. Vice President of Iatric Systems

MUSE Flashback to 2003!
Wireless Networking
Modern Mobility
Wireless Networking

Back in 2003 …

• **802.11b** drove most wireless LANs at 11Mb/sec

• **802.11g** was only weeks away from ratification

• Bluetooth was early in terms of industry adoption

• Cellular WAN technology was 2G (60-70kbps)

• Google and Apple were forming world takeover plans
Wireless Networking Standards back in 2003
Today…

- **802.11g** dominates the scene at 54Mb/sec
- **802.11n** is selling in a non-ratified form
- Bluetooth has people talking to themselves in airports
- Available cellular WAN technology is 3.5G **
- Even faster technology is on the horizon
Modern Mobility

Wireless Networking

WWAN (Cellular) Speeds

- GSM - 2G
- CDMA - 2G
- GPRS - 2G
- EDGE - 2.75G
- CDMA2000 (1xRTT) - 2.75G
- EV-DO Rev. 0 (CDMA2000) - 3G
- WCDMA (UMTS) - 3G
- WiMax - 3G
- HSDPA (UMTS) - 3.5G
- EV-DO Rev. A (CDMA2000) - 3.75G
- HSDPA+ (UMTS) - 3.75G
- LTE - 4G

Speed (Mbps)
Modern Mobility

Mobile Devices
MY, MY, how the time has flown!!
Modern Mobility
Mobile Devices

First sold in 1998
Street Price = $400!

16 MHz CPU
2 MB of RAM

From the Palm III...
Modern Mobility
Mobile Devices

400 MHz CPU
8-16 GB Storage
128 MB of RAM

To the current ‘King of the Hill’
Mobile Device Considerations

• Memory
• Processing
• Battery Life
• Mobile OS
• Browser
• Memory
• Processing
• Battery Life
• Mobile OS
• Browser
• Memory

• Processing

• Battery Life

• Mobile OS

• Browser
Modern Mobility
Mobile Devices

- Memory
- Processing
- Battery Life
- Mobile OS
- Browser

PC.Authority.com.au did extensive battery testing with these devices running them through a series of data and voice intensive operations.

Upshot: 35-120 Minutes under constant usage
- Memory
- Processing
- Battery Life
- Mobile OS
- Browser
Modern Mobility
Mobile Devices

- Memory
- Processing
- Battery Life
- Mobile OS
- Browser
iPhone
(You say you want a revolution?)
Top 5 Reasons for Apple’s Success with iPhone

• Revolutionary user interface

• AppStore

• Robust developer tools

• OS X (Apple should have called it the MacPhone)

• Enhanced storage capacity for music, video, apps, etc.
Data Security
Security of Data on the LAN (Problems)

- No barrier to entry / wall jack to find
- Anyone in range with NIC can access network
- Rogue access points hidden under desks
• Back in 2003, WEP was leading security solution

• WEP is “better than nothing” but can be hacked

• People tend to print out 26 character hex keys

• MAC filtering was also used; easily “spoofed”
• Today, many still use WEP Encryption

• Those seeking tighter security use 802.1x

• With 802.1x, the key changes with every connection

• Popular implementations are PEAP and LEAP
Web Application Security

- Data encryption via SSL or optional client side cert.
- User authentication
- No data storage on mobile device
- No caching of user credentials
Emerging Technologies
• 4G (LTE)

• Cloud Computing

• High Capacitance Batteries

• Flexible, touchscreen displays
Emerging Applications
• PHRs and Mobile Patient Portals

• Mobile Patient Monitoring (e.g. glucose meter)

• Enhanced MPOE & e-prescribing software

• Mobile Patient Care (telemedicine; video consults)

• Mobile Device Imaging (CT, MRI, X-Ray)
Thank you for attending!

THANK YOU!!

Thank you for attending!