Wireless Handheld Computing Devices

Overview and Campus Forecast
End-User Computing Devices

Desktop

Personal Computers

PDA

Personal Digital Assistants (PDAs) and Cell Phones

Smartphone

Laptop/Tablet PC
#1 Question: What do you want the handheld device to do?

- Be a cell phone?
- Support Wi-Fi? (Run on 802.11 networks?)
- Store my calendar?
- Store my contact list?
- Store my e-mail? Let me write e-mail?
- View / Edit Office documents (Word, Excel)
- Run unique applications? (Medical applications)
- Retrieve e-mail via wireless networks?
Can You Use a Mobile PDA?

If your VCR is still flashing 12:00, this may not be the device for you.
Do You Want A Mobile PDA?

Decide whether you really like looking at a little screen while pushing tiny buttons.
State of the PDA Market

- The PDA market is evolving rapidly.
- Market demand is shifting away from low-end PDAs to handheld devices with some form of wireless connectivity, whether it's for data or voice.
- Mobile PDAs and the associated monthly fees are somewhat expensive.
- Most PDAs in service are already obsolete.
Types of PDA Network Connections

• Direct-wired network connection (like a campus b-jack).

• Connection via a “cradle”

• Wireless Connections (see next 2 slides)
Types of Wireless Connections

- **Wi-Fi** – 802.11b (also other superior 802.11x standards)
- **Cellular** Connections
  - CDMA (Verizon Wireless)
  - GSM/GPRS (AT&T Wireless)
  - Upcoming, faster cellular standards are on the horizon
- **Bluetooth** (Personal Area Network or PAN)

- When we say “mobile” wireless networking, we’re generally looking at **Wi-Fi** and **Cellular** Connections.
- When we’re looking to eliminate keyboard or mouse wires and cables, we’re looking at **Bluetooth**.
- When using a cell phone, it’s becoming more common to use a headset. **Bluetooth** supports wireless headsets.
Types of Wireless Networks

- **Wi-Fi Networks**
  - 802.11b, a, g
  - Campus network
  - Public Hot Spots (fee for service)
  - Home networks

- **Cellular Networks** (require monthly fees)
  - Voice Networks
  - Data Networks
    - GSM / GPRS (AT&T)
    - CDMA (Verizon)
Different Types of Handheld Devices

- Standard Cell Phone
- Stand-alone PDA
- Palm family of PDA devices
- Blackberry family of PDA devices
- Windows family of PDA devices
- Smartphones, which are cell phones with some limited data capabilities

(Note: PDAs have touchscreens, Smartphones do not.)
The matching of device and wireless technology

- Mobile devices come with an assortment of built-in or add-in wireless technologies.
- For wireless service to work, the wireless technology in the device, must match the wireless service being provided.
- For example, a Smartphone purchased from AT&T may not work on the Verizon network.
- Wireless coverage will vary from location to location.
- CU campuses have pretty limited 802.11 coverage at this time.
The Treo 600 combines a full-featured mobile phone and Palm OS organizer with GSM/GPRS wireless and even a digital camera.

Wi-Fi Enabled. Built on Palm OS® 5.2.1, a built-in keyboard, Web browser, and auto-get email software, VersaMail 2.5.

Palm™ Tungsten™ W handheld, combined with GSM/GPRS wireless service from AT&T Wireless.
Blackberry

Model 7510
- Data and Voice
- Color Display
- Java Browser

RIM 857
- Data Only
- B&W Display

Model 7510
- Data Only
- Paging and Short Messages
Windows Mobile Pocket PC 2003

Dell Axim X3i
Typically 802.11 Wi-Fi enabled. They support touch screens and come with or without keyboards.
Pocket Office and Pocket Outlook are available. Can be synchronized via cradle or wireless.
This is not a cell phone.

Compaq iPaq
Windows Mobile Pocket PC Phone Edition

Pocket PC Phone Edition

Samsung SPH-i700

These cell phones have color screens, can run Pocket Internet Explorer for web access, Pocket Outlook for e-mail, and synch to Microsoft Exchange.

They do not have touch screens or allow stylus entry.

No Keypad

Pocket PC Phone Edition

Hitachi G1000

Alpha Keypad
Smartphones

Smartphone from Verizon Wireless
Samsung i600

These cell phones come with screens. They offer a mobile web browser, many of which can run Outlook Web Access.

They do not have touch screens or allow stylus entry.

CDMA Network

Smartphone from AT&T Wireless
Motorola MPx200

GSM/GPRS Network
How do the vendors stack up?

Blackberry

- Easiest to use and nice form factor
- Very secure
- Limited market share, but influential users
- Limited 3rd party applications available
- Requires purchase of Blackberry Enterprise Server for Exchange e-mail synchronization. No source of funds.
How do the vendors stack up?

Palm

- Fairly easy to use
- Market leader in terms of units sold
- Struggling a bit financially
- “POP” E-mail client in PalmOffice
- Limiting its own software development – dropping Mac, no enterprise server
- Depends heavily on availability of 3rd party software
PalmSource Drops Mac Desktop Support

Feb 12, 10:10 PM EST
SAN JOSE, Calif. (AP) -- In a marked departure, PalmSource Inc. says future versions of its Palm operating system for handheld devices will not have built-in synchronization software for Apple's Macintosh computers.

http://customwire.ap.org/dynamic/stories/P/PALMSOURCE_NO_MAC?SITE=CODEN&SECTION=HOME&TEMPLATE=DEFAULT
How do the vendors stack up?
Windows Mobile 2003

• More complex, but most powerful
• 2nd Place in market share, and climbing
• Offers Pocket Office for viewing and editing Office documents
• Growing library of 3rd party software
• Makes Exchange integration a freebee
• Hacker and virus risks a lingering concern
Push, Pull, or Back to the Cradle

Depending on what you purchase and how you set up your mobile handheld device:

- You may have to cradle synch
- You may be mobile and always on-line
- You may be mobile with a periodic synch
- You may be mobile and synch on demand
How Would I Get My Wireless Updates?

1. Updates can be viewed on-demand via a web browser – most all devices
2. Some devices use a “POP” mail interface
3. Updates can be pushed from a PC desktop, if the desktop left powered on and is running “push” software. (This does not scale well.)
4. Updates can potentially be pushed from the UCHSC Exchange Servers, but not to all types of devices.
Realities about "Pushing" E-mail

- Our present Exchange 2000 servers are not set up to push e-mail at all.
- Blackberry sells a server product that could push Exchange e-mail to Blackberry PDAs, but the software is expensive and would not push e-mail to Windows Mobile devices.
- Palm does not presently have a viable enterprise offering for pushing e-mail.
- Palm may partner with Blackberry in the future
Microsoft Exchange 2003

- UCHSC IS plans to upgrade from Exchange 2000 to Exchange 2003 next year.
- Exchange 2003 is designed to push e-mail to Windows Mobile 2003 handheld devices.
- Exchange 2003 will not push e-mail to Blackberry or Palm devices.
Fees for Wireless Service

• Cellular Carrier Fees
  – One fee for voice
  – Another fee for data
  – Expect @ $80-$100+ / mo for voice + data
  – Programs vary based on usage and coverage

• Wi-Fi Fees
  – No monthly fees on-campus or at home
  – Per-minute or Monthly fees apply at airports, coffee shops and other commercial hot-spots
Security Concerns

• Mobile handheld devices do get lost and stolen.
• There are HIPAA concerns regarding protected health information (PHI).
• Proper protections include:
  – Password protection on startup
  – Encryption of data stored on the device
  – Anti-virus, particularly with Windows Mobile
  – VPN for access to campus networks
  – Limit the types of data you store on your device
Sports Jacket for All the Gadgets

This blazer “sports” 14 hidden pockets plus hidden conduits in the garment allowing for the connecting and snaking of wires and cables from various devices.

http://www.scottevest.com/v3_store/30_sport_jacket.shtml#
Final Thoughts

• The IS Department would like to better understand faculty requirements.
• Which features and applications do faculty really need?
• The IS Department needs time to further develop its mobile handheld device support.
• Windows Mobile devices will probably be supported in FY2005 since the synchronization service is included in the Exchange 2003 upgrade.
• It would take a source of funds to purchase Blackberry Enterprise Servers
• Palm will remain the weakest player in always on e-mail until they can align with an automated synchronization service.
• Purchasers should carefully consider monthly costs and the total cost of ownership.
• Where possible, delay purchasing to let the market shake out.