

Smartphones & PDAs Update

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PDA Smartphones:



- 5 Major *Operating Systems:*

- MS-Pocket PC 2003-SE(4.21) / 2005 (5.0)
- MS-Windows Smartphone
- PalmOS
- RIM (Blackberry OS)
- Symbian



- Major *Hardware Manufacturers:*

- Acer Inc., Adam Riesig GmbH, ANUBIS Electronic GmbH, ASUSTEK Computer, Inc., Audiovox Communications Corporation (now USTarcom), Dell, ETEN, Fujitsu, Fujitsu Siemens Computers GmbH, Garmin International, Gradiente Eletronica S.A., Hand Held Products, Inc., Hewlett-Packard Company, High Tech Computer Corporation, Hitachi Intermec Technologies Corporation, Itautec Philco SA, Lenovo Mobile Communication, LG Electronics, Matsushita Electric, Medion AG, MITAC International, Motorola, Inc., Motorola, Inc. CGISS, NEC, SAGEM SA, Samsung Electronics Co., Ltd., Siemens AG, Sierra Wireless Inc. Symbol Technologies Toshiba Viewsonic Corporation Wistron Corporation

Windows Mobile Devices OS Differences:

- **Pocket PC** = PDA, Infrared Port, Some Bluetooth and 802.11x
- **Pocket PC Phone Edition** = Identical to Pocket PC, but have a mobile phone built-in
- **Windows Mobile Smartphone** = Scaled down version of Pocket-PC, but is a Mobile phone at heart. Has built-in PDA functions, designed with phone in mind (No Office Apps)
- **Windows Mobile Portable Media Center** = slightly larger than pocket pc, designed for playback of visual and audio media (No Office Apps)

Wireless data service

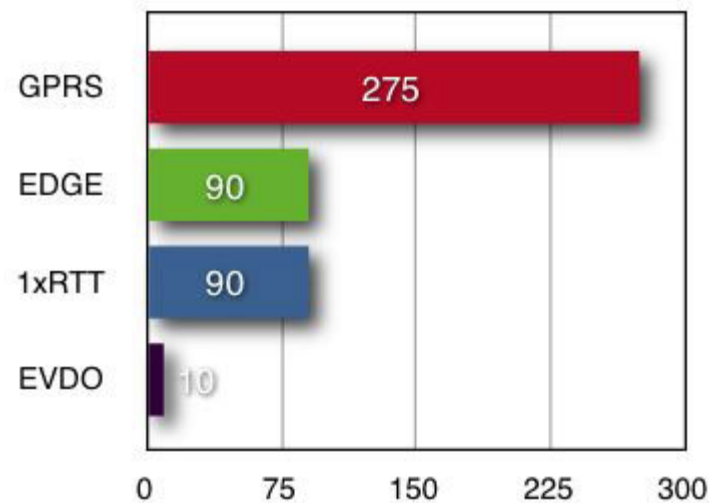
- Provided by wireless carrier for flat fee
- Voice an optional add-on
- Myriad of Terms & Conditions, such as peak hours, overage charges, voice/data roaming, coverage, US vs. International
- Carriers support specific devices; vendor-carrier partnerships
- Review - Once a year!

3G - EVDO (Evolution Data Optimized)

- Rides on CDMA signal - 1900 MHz & 850 MHz
- 1x data capability available everywhere CDMA voice service available
- 300 to 512 Kbps (2.4 Mbps max) (Venturi Compression)
- Allows the user to be “connected”
- Verizon Wireless is the leading provider for EVDO coverage. Sprint started EVDO deployment in summer of 2005 and they have had a massive rollout 4th quarter 2005. There are multiple PC Cards (require a PCMCIA slot) that are available, they are:
- Sierra PC 5220, Novatel V620, Audiovox PC5740, Sierra AirCard 580, Kyocera KPC 650
- ~\$50-75 per Month – Unlimited use
- NOT compatible with GSM (European Standard)

EV-DO Download Speeds

Download a 1MB file (seconds)



EV-DO PC Cards



Novatel 620 (Sprint Merlin S620, & PC5740 card)



EVDO – Booster Antenna



\$40-\$299 – Depending
where you buy

Includes pigtail

EVDO Con't: Phones models

- Sprint's PPC-6700
- BlackBerry 7130e
- Audiovox XV6600
- Samsung A890
- LG VX8000
- Motorola E815
- Audiovox CDM8940
- Verizon's - Treo 700w

EV-DO Cont: Verizon's V CAST

- Average download speeds of 400-700 Kbps
- VCAST is powered by Verizon Wireless' Third Generation Wide Area 1xEvDo network. With transmission speeds capable of bursts up to 2.0 megabits per second (Mbps) (From Website)
- 3GPP Video / Audio Standard

1xRTT

- 1xRTT has been out a lot longer and is pretty much available wherever cell phone coverage is for Verizon or Sprint.
- Maximum of 144K upload and download, but the typical speeds are 50K - 80K.
- When EVDO is not available, your EVDO card or phone will automatically drop down to 1XRTT.

Synchronization problems

- Cradle / Bluetooth synchronization
 - Cable, IR, Bluetooth links unit to a computer
 - Effectively a backup tool for device
 - Traditional, solid, proven method for desktop file sync
 - What you need is...
- Over-the-air synchronization
 - Must consider new device, wireless carrier data plan & University backend systems
 - Good.com's – "Goodlink" – Push Technology
 - \$300 per device / Per year....Insurance

Over-the-Air Synchronization

- Stay current with e-mail and calendar
- All methods require IP accessible backend server
 - MS-Exchange most common (ActiveSync client is included with 2003/2005)
 - Symbian and Palm have licensed ActiveSync
- Windows Mobile 2003/05 supports “push” synchronization via SMS messaging

Security Concerns

- Web, email most popular applications
 - Consider history of web client vulnerabilities, email worms and viruses
- Physical security – what do you get when you find or steal one of these?
 - Password Policy in place?
- Transmission security / interference / sniff
 - Bluetooth 2.0 / 802.11X
 - Good.com and MS-Activesync uses Port 443 (SSL)
- Smartphone or P.D.A. is lost/stolen
 - What is at risk?
 - What is the policy?
 - Do you have one?

PDA Exploit Countermeasures/Safeguards

- Install a firewall the handheld (Aircanner software):
 - Configure it to allow only authorized IP addresses to make connections to the device.
 - VPN Software typically performs this function!
- Disable all HotSync and ActiveSync features when not in use. *(Not Practical)*
- Ensure that password lock-out software is enabled to restrict the number of password guesses. *(If available)*
- Configure security password lockout feature for “time unused/touched”
- Install a reputable anti-virus product on your device to prevent propagation of malicious code (viruses, Trojans, and worms).

PDA / Smartphone Exploit Countermeasures/Safeguards – Con't

- Strong third-party authentication (e.g. two-factor authentication) software should be installed to protect them from brute force attacks and password sniffing.
- Any PDAs or smartphones that transmit classified information should have their connections to third-party systems and networks protected by VPNs.
- Handhelds that contain sensitive or classified information should have their data encrypted with keys that are at least 80 bits long.
- Make sure your mobile device is upgraded with the latest security patches.

Security: Real Threat Examples!?!

- Several mobile viruses have emerged:
- 2004: a Symbian worm called **Cabir** appeared that replicated through an active Bluetooth connection and a reboot.
- 2004: Pocket PCs became targets of attacks called **Duts**, which spread each time infected programs were exchanged.
- 2005: **Skulls** virus shook smart-phone owners by disabling applications and replacing icons with skulls, disabling all functions on the phone except for incoming and outgoing calls.



Current Virus Protection Options

- McAfee PDA Enterprise 2.0
 - Symbian 60+, Pocket PC 2003, Windows Mobile Smartphone
 - \$30
- Symantec AntiVirus for Handhelds Corporate Edition v3.5 (Palm, Pocket PC)
 - Pocket PC 2003/SE & Mobile 5
 - \$25 stand alone / \$7 if with Campus Bulk purchase
- Trend Micro Mobile Security
 - Pocket PC 2003 & SE (& Smartphones)
 - Windows Mobile 2005 (May 2006)
 - Symbian OS v7.0 with UIQ 2.0/2.1 User Interface

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Smartphone/PDA - VPN Client

- Do Users Need full VPN access?
 - Firewall Pokes OK for most Applications?
 - If privacy is concern, must use VPN
 - DU 802.11b/g requires VPN for Wireless LAN Access
- Cisco Supports Antha VPN (Movian Renamed)
 - VPN Concentrator – 30x0 Software – 4.7 current
 - Only works on specific chipsets/devices
 - 5.6 for Palm
 - Windows 2003/2005
 - Symbian 7.0+
- Some of our trials have shown conflict with built-in connection manager and the VPN client
- OS - Soft-resets seem to be common

University Data Environments

- More mobile devices are emerging
- Faculty, Staff and Students desire to access DU's portal and overall electronics resources using these newer devices
 - “Can't I just...?”
- “Too many types of devices” places a significant strain on support staff
- All University Executives want one!

Smartphones / PDAs @ DU - 2006

- No official policy on supported PDAs/Smartphone
 - Draft Stage / Network Security
- Privacy Policy – not in place
- Formed Informal internal UTS Group / Mailing list
 - Objective to product a supported configuration for Staff and Faculty only during Phase one
 - Students = Phase 2 (07' timeframe?)
- DU is continuing to maintain a laptop requirement for students – not PDAs / Smartphones!

Smartphones / PDAs @ DU - 2006

- Currently no site license for Anti-Virus packages
 - “on your own” - Looking into it for Fall of 2006 (Symantec)
- Support Web Pages are in **Draft Stage**
 - Minimum hardware & software requirements for DU support
 - How to guides, Carrier Links, Antha VPN software purchase link
- Looking into built-in Windows Mobile '05 IPSec/L2TP client support for both on-campus and off-campus.
 - MS-CHAP V2/V3 and RADIUS - Issues
 - Cab File Install possible? Developer Resource Kit & SDK for PocketPC/Smartphone Editions
 - Stay Tuned
- Optimized DU mobile content/web pages – Future?

DU Health Center

- Constantly working under HIPAA constraints
- Using MS-ISA 2004 Server for VPN from Tablets to Server today in the clinic.
- Using Pyramid, Inc. Oracle client /server solution
- No Pyramid support yet, but looking at PDA/Smartphone Management platforms for Doctors perhaps Staff.
- PDA / Smartphones in the future?

Referenced Sources / Links

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