



Portable Computer and  
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## **NEXT MEETING - JANUARY 16, 2002, LAS VEGAS**

The next meeting of the PCCA will be on January 16 in Las Vegas, hosted by NetMotion Wireless. The topic will be integration of wireless personal-area networks (e.g. Bluetooth), WLANs and wireless WANs (e.g. cellular networks). A number of companies will present on this topic, including Ecutel, Megisto Systems, Microsoft, NetMotion Wireless and Nokia. If your company would like to present a contribution, please contact us as soon as possible as we are finalizing the agenda.

In addition to the meeting, we will hold a GPRS interoperability workshop on the 15th, with Cingular Wireless hosting the network. (We are planning cdma2000 workshops for later in the year.) See the section, "Wireless Workshop Task Force (WWTF) Update" for further details.

### **Background**

Increasingly, carriers are looking to wireless local-area network technologies to provide broadband services in public area. Yet WLAN (and personal-area networks) will never have the coverage of broader area networks such as cellular systems. The best of all worlds may be a hybrid approach, with WPAN and WLAN technology serving hot-spot areas and cellular data serving the wide area.

The intent of this meeting is to examine how such hybrid solutions will operate and evolve, and what the technical implications are for device vendors, infrastructure vendors, software vendors and operators.

### **Topics**

Proposed topics include for this meeting include:

- ❑ Usage scenarios
- ❑ Seamless roaming and session maintenance
- ❑ Update on cellular operators offering WLAN public access
- ❑ Common authentication schemes
- ❑ Security implications
- ❑ Implications on protocol stacks
- ❑ Other topics to be determined

We are still finalizing the agenda. Any company wishing to contribute to the agenda should send an e-mail to the PCCA. For further information about this meeting, including registration details, please visit our web page at [www.pcca.org](http://www.pcca.org).



## YEAR 2002 AGENDA

We have done some work to define our technical agenda for next year. In addition to the projects underway (see “Summary of Current Work” at the end of this newsletter), members have provided feedback on topics of greatest interest. The mission of the PCCA is to address topics involving mobile and wireless interoperability, particularly items that involve the overlap and integration of: networks, devices, interfaces, platforms and applications. Such items are not normally handled by existing standards organizations.

In an e-mail survey conducted to the PCCA mailing list, a ranking of topics from most important to least important came out as follows:

1. Wireless VPNs and other wireless security issues.
2. Integration of wireless PANs, LANs and wireless WANs (e.g. seamless roaming)
3. Roaming. Service/application access across carriers or across heterogeneous networks.
4. Bluetooth and 802.11 coexistence. Interference issues, application considerations
5. Push applications. Examine the limitations on pushing information in new networks.
6. IPv6. Examine all the implications on wireless networking and applications.
7. Java. Interfaces, applications considerations, Bluetooth support, WAP integration.
8. QoS issues. Integrating QoS mechanisms in wireless networks with Internet/OS.

Other topics suggested during the survey included:

1. Comparison of capabilities (e.g. capacity, throughputs, latencies, IP address handling) of next generation networks.
2. Standardization of WWAN radio modules and a certification process for notebook and handheld applications.
3. Bluetooth: dial-up networking profile vs. PAN profile.
4. Ultra wideband technology (pulse coded modulation).

We are keeping this ranking in mind as we develop the agendas for the coming year. As always, we welcome input at any stage from participants. The PCCA is successful to the extent that members take an active role in the organization.

## MEMBERSHIP UPDATE

By Gloria Kowalski.

The PCCA would like to take this opportunity to thank its members for their support and participation in the PCCA. At the close of 2001, the PCCA has the following affiliate, associate and executive members:

3Com Corporation  
Advanced Wireless Telecom  
AT&T Wireless Services



Broadbeam  
Cingular Wireless  
Cisco Systems  
CWW  
Decision Analyst  
Diversinet  
Ecelerator fund, LLC  
Ecutel  
Flash Networks  
GoAmerica Communications  
HiddenMind Technology  
Intel  
Lucas Valley Technologies  
MCCI  
Medtronic Physio-Control  
Megisto Systems  
Melard Technologies  
Mentor Engineering  
Metricom  
Microsoft  
Motient  
Mobile Computing Promotion Consortium  
Motorola  
NetMotion Wireless  
Nokia  
Novatel Wireless  
Open Group  
Outlook4Mobility  
Pacific Group  
Rogers Wireless  
Rysavy Research  
Sierra Wireless  
Sony Ericsson Mobile Communications  
Strix Systems  
SusTeen  
Toshiba  
Ulrich Wallor  
VoiceStream Wireless  
Xybec Solutions

Despite turbulent economic times, the PCCA has been able to keep operating and to offer its members a unique set of services and benefits.

I thought members might also be interested in the PCCA mailing list. This mailing list includes the designated contacts for each member organization. We also add each person that attends a PCCA meeting to the mailing list (though we happily remove them if they



wish). Any person expressing interest in the PCCA is also invited to join the list. The result is a list of 300 key individuals throughout the wireless industry. Though used mostly to distribute information about the organization, the list is open for members to post items they consider relevant to list members.

## **WIRELESS WORKSHOP TASK FORCE (WWTF) UPDATE**

By Ron Smith, WWTF chairman.

It's been a long time since I've had to think about workshops. The last one, in August, was in the middle of my 3-month sabbatical from work, and far from my mind. (Since you asked, I spent my sabbatical rather modestly, dividing my time between backpacking on the Pacific Crest Trail, spending time with my family, and otherwise just idling about.) Now I'm in resume mode and have started planning for the next workshop on January 15, the day preceding the quarterly PCCA meeting, at the Marriott Suites in Las Vegas.

As with the two workshops this year, the January workshop will offer an opportunity for companies to test their latest products with everyone else's latest. We hope to have a good mix of mobile device, adapter, middleware, and mobile application vendors participating.

As a new addition to the January workshop, I would like to also include a number of technology investigations of topics that are important to successful utilization of wireless. Here's how it works: In addition to 'normal' testing activities, participants can participate in one more wireless topic of investigation. This will involve first gathering information via a combination of testing, fact-finding, and discussion. Participants then compile the gathered results into a mini-report.

At the end of the day, these mini-reports will be combined and published. Then, if time allows, we will report and discuss our findings at Wednesday's PCCA meeting. As usual, we will only expose results that participants want to expose. The rest will remain confidential between the testing parties.

Here is my initial list of issues, in no particular order. I welcome your own additions, revisions, or deletions to this list.

- Using Bluetooth for Dial-Up Networking (DUN): The idea of using a 2G+ phone for always-available Internet access without having to take it out of your pocket is compelling. But how easily can this be done today? Activity: Configure and use the Bluetooth DUN (dial-up networking) profile with some GPRS phones and mobile PCs. (I will furnish some 3Com Bluetooth USB dongles; if you have other kinds, bring them.) Output: Document what is required for both phone and Bluetooth adapter. How easy is it to use? What additional UI features are changes are needed? How can we minimize Bluetooth support issues for operators?
- GPRS Network / Client VPN Compatibility: There are several issues here:



1. Network Transparency: Will my home network provide an APN (Access Point Name) with a gateway/IP address solution (e.g., a Public IP address option) that works with my VPN, whether it is IPSec, SST, or other? Is the GSM Association (GSMA) or other group addressing this?
2. Roaming: If so, will I be able to access this APN when roaming on another GPRS network? If not, then I will likely have problems with my VPN while roaming, in addition to having to directing my dialer to another APN. Is the GSMA or other group addressing this? Also, will I be able to access the local networks APNs? Will accessing my home APN from a roaming network significantly lower performance?
3. Middleware Compatibility: What actually goes on when operator-provided acceleration middleware is running? Will the user be able to manage it so that it doesn't interfere with VPN traffic?
4. Overhead: How much cost and other overhead do VPNs incur while a PDP context is active? Should I leave a VPN running all of the time?

Activities: Talk to the North American operators about their VPN support. Test out accessing home APN while roaming, if feasible. Measure the overhead of the participants VPNs with no data traffic. Test intranet email and http over VPNs. Output: Document observations, what's being done today, what needs to be done to achieve consistent intranet access over the global GPRS footprint, and what needs to be done, if anything, to make acceleration middleware and dialers more cognizant of, and compatible with, client VPNs.

- Connection Managers: Connection managers do a good job of hiding the complexities of establishing GPRS data connections. This may be a detriment, however, if we need to do anything out of the ordinary. Activity: Talk to operators and/or connection manager providers to answer the following:
  - What do connection managers generally do?
  - Are they required, or can a data connection be established using native OS resources?
  - How do connection managers provide acceleration?
  - Can connection managers interoperate with other utilities or system software?

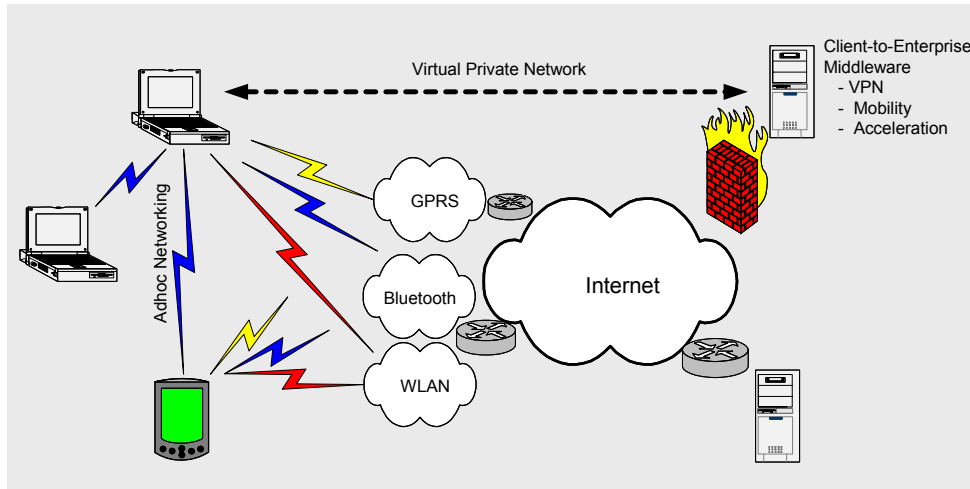
Also, test the connection managers provided by the GPRS operators for interoperability with other software. E.g., does the connection manager allow me to browse the Internet via my VPN tunnel? Try to establish a GPRS connection without the manager. If successful, document the procedure. Output: Document answers to above questions and test results.

- Bluetooth Access Points: If available, this will be an opportunity to test all aspects of integrating Bluetooth LAN access with our existing LAN/WLAN/WWAN infrastructure.



Activity: Test for interoperability of Bluetooth LAN Access with your own products.  
Output: Document general interoperability issues.

The planned testing environment will include GPRS, 802.11b, and hopefully Bluetooth access points. The latter two will be connected to the Marriott's STSN broadband Internet service, as shown here:



If you want to participate in the January workshop, or would like more info, please contact me via phone or email. I will have a more detailed agenda and test plan in early January.

Regards,  
Ron

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## EXCERPT FROM REPORT ON PUBLIC WLANS

The following is an excerpt from a report written by Peter Rysavy and Ira Brodsky, published in July, 2001, titled "Public Wireless LANs - Challenges, Opportunities & Strategies". We include it in this newsletter as it provides perspective on the January PCCA meeting. Since the report was published earlier this year, a number of cellular operators including VoiceStream, have made moves to participate in this market area.

Public wireless LANs (PWLANS) offer significant advantages when used to provide high-speed data communication services to mobile users inside buildings or on campuses. However, the fledgling PWLAN industry faces a number of daunting challenges. Widespread success of PWLANs will probably entail some sort of alliance between PWLAN entrepreneurs and third generation (3G) mobile telephone operators -- two entities that may need each other much more than they yet realize.



The main advantages of PWLANs over 3G services are (1) significantly lower costs for delivering large volumes of data, (2) the potential to send and receive data at higher speeds, and (3) the ability to provide additional capacity with pinpoint accuracy. Furthermore, PWLANs make it possible to extend services that are already, or soon will be, available in homes and offices. And PWLANs can be used to offer premium services to the people who want and can afford such services: frequent business travelers.

But the large-scale success of PWLANs will not come as easily as some observers imagine. The challenges are numerous and by no means trivial. Currently, PWLAN operators offer tiny islands of coverage. Most PWLAN operators are trying to sell users yet another subscription service and monthly invoice. While wireless LAN technology is itself fairly simple, users of public wireless LANs will expect secure access, privacy, and perhaps accelerated access to mobile-related content.

The obvious first step in overcoming the limited coverage of individual PWLANs is to offer roaming between locations and even operators. But roaming raises a multitude of technical and business challenges. In addition to combating access fraud and eavesdropping, operators must implement reliable billing solutions. The biggest obstacle, however, may be the perception that roaming agreements benefit one party more than the other.

There is some unquestionably good news, though. The IEEE 802.11b wireless LAN standard (also known as "Wi-Fi") is finally taking off. Wireless LANs are becoming common in enterprises, and are starting to appear in small offices and homes. The cost of Wi-Fi PC cards has declined and portable computer makers offer models with integrated Wi-Fi capability. Plus, mobile data has also started to take off, and mobile telephone operators finally appear serious about offering high-speed data services. Mobile telephone operators know that outdoor base stations are not the best means of providing indoor services -- particularly in the higher frequency bands that play host to most 3G services.

There is certainly a big opportunity for PWLANs in locations such as airports, convention centers, hotels, and (in certain countries) train stations. But the results to date suggest that, as strictly independent ventures, given the current investment climate, PWLAN operators face considerable risks.

Mobile telephone operators also face risks. If 3G services are successful, and many operators are betting \$billions that they will be, then it will be necessary to provide users the advanced services they want, when and where they want them. In general, demand for such services may be widely scattered (geographically). But is also a safe bet that operators will encounter hot spots with extraordinarily large concentrations of high-speed users. While it is possible to serve a large concentration of indoor voice users with outdoor base stations, operators may find that is not the case with indoor, high-speed, data users.

In fact, there is a high probability that business travelers at airports will be among the leading users of 3G services, and their use could be most intense between flights. Some





will want to catch up on their e-mail, while others may partake of multimedia entertainment. Frequent business travelers are high-end users of mobile telephone services, and every operator is anxious to capture and retain such users.

But the cellular/PCS industry has many items on its plate, and it's not clear that it is paying much attention to PWLANs. There is certainly some PWLAN activity by operators in Scandinavia, where mobile phone market penetration approaches 100% of the adult population. But there are few signs of PWLAN activity by mobile phone operators elsewhere. In addition to migrating to 2.5G and 3G services, mobile phone operators are busy adding things like voice portals, emergency 911 locating, and IP core networks. It is safe to say that few are eager to launch yet another major initiative.

The bottom line is that PWLAN operators need cellular/PCS partners in order to provide sufficient coverage, tap existing marketing channels, and offer bundled services. Cellular/PCS operators need PWLANs to deliver premium services to high-end users, to offload the most intensive applications from their wide area networks, and to ensure robust services for users who happen to be indoors.

## FUTURE MEETINGS

We are currently finalizing the 2002 schedule. The PCCA meets once per quarter. We are planning on meeting January, April, July and October. Any company wishing to host a meeting, please send an e-mail to the PCCA. Why would you want to host a meeting? There are two reasons. First, it is often less expensive to host a meeting in your local area than to travel to one. Second, the hosting company is invited to present information about its products and services in a host presentation at the beginning of the meeting.

For the latest information on PCCA meetings and other events, see <http://www.pcca.org/news/news.htm>.

## SUMMARY OF CURRENT WORK

This section summarizes the work currently underway by the standards and architecture committee.

- ❑ **Quarterly Meetings.** These meetings are used to plan our work, provide updates on work projects, and then focus in depth on technical issues facing the industry. At each meeting we analyze one major topic using a symposium format that consists of technical presentations followed by discussion.
- ❑ **Interoperability Workshops.** Working with the MDI-ng, the PCCA regularly holds interoperability workshops that address usage, development, and deployment of mobile devices, networks, and applications. Current workshops are on GPRS. We are planning a CDMA2000 workshop during the first half of 2002.



- ❑ **Wireless Extensions to NDIS.** These objects, which now include support for GPRS, are available in Microsoft Windows. We are working with Microsoft to examine how the OS, protocol stacks, and applications can best take advantage of these objects. Future appendices will define support for UMTS and CDMA2000.
- ❑ **AT Commands via IP (ATVIP).** We have an active technical subcommittee, chaired by Atis Freimanis of Motorola, to examine how AT commands can be transported over IP protocols between a computer and modem. This is important because standards define AT commands for control, but most user sessions are IP based. An ATVIP mechanism will allow in-band signaling.
- ❑ **Apply STD-201 Wireless Objects to USB Control Plane.** We are working with the USB Device Working Group to determine how our work with wireless extensions to NDIS can be applied to the USB framework.

## ABOUT THIS NEWSLETTER

This is the newsletter of the Portable Computer and Communications Association. Effective 2000, this newsletter has been distributed via e-mail. The purpose of this newsletter is to keep PCCA members current with the activities and directions of the PCCA. This newsletter is published on a quarterly basis and is distributed to everybody on the PCCA mailing list, including both PCCA members and non-members. Prior copies of this newsletter are available at <http://www.pcca.org/news/news.htm>.

We welcome contributions. If you have any topics or articles you would like to contribute, please contact us. The editor of this newsletter and chair of the PCCA Standards and Architecture Committee is Peter Rysavy, <http://www.rysavy.com>, 1-541-386-7475. For questions about PCCA membership, please contact PCCA Director Gloria Kowalski, <http://www.pcca.org>, 1-541-490-5140.