Wearables/
Personal Area Networks

- A response from an 802.11 perspective ...

W/PAN Summary

- W/PAN desires to develop a standard for personal area networks
- W/PAN is unsure whether to operate as part of 802.11, or submit a new PAR request to 802
- W/PAN requests input and assistance from 802.11 to help answer that question

W/PAN Specs

- low cost
- low power consumption
- small size
- reduced range
- data rates
  - 100 bytes/s … real-time-video

W/PAN Desired Functionality

- Networks of devices
  - ad hoc
  - infrastructure
- Device-to-device cable replacement

Networks of devices

- 802.11 ad hoc networks meet PAN's ad hoc LAN needs
- 802.11 infrastructure networks meet PAN's infrastructure LAN needs

Device-to-device cable replacement

- 802.11 networks are overkill for such an application
- A standard interface for such devices **would** be very useful

Can 802.11 devices meet W/PAN's LAN Specs?

- As integration of 802.11 devices increases, a natural course of action will be:
  - Costs will drop rapidly in the future
  - power consumption will drop rapidly in the future
  - device size will drop rapidly in the future
- e.g. 10BT Ethernet adapter now retails for about $15 (retail); cell phones (StarTac, Nippondenso, …)

Can 802.11 devices meet W/PAN's LAN Specs?

- 802.11 WG is currently focused on higher speed LANs that will likely:
  - cost more, and consume even more power
  - ... at least in the short term.
- However, with a real volume-sales market that needs product, 802.11 mfgrs could also focus on building smaller, lower power, shorter range 802.11 products that meet W/PAN's needs on an accelerated schedule.

New Standards Needed?

- Note: Standards capture **functionality** and make it standard.

Standards Needed?

- Networks of devices
  - There appears to be no new functionality here.
  - So, perhaps a new standard is not needed.
  - Certainly PAN can use much of the knowledge embodied in 802.11

Standards Needed?

- Device-to-device cable replacement
  - Such an application is not really a LAN
  - Hence, there is new functionality here.
    - i.e. a new PHY
  - However, since it is not a LAN, does it fall under 802 ?
    - Well, of course any PHY could be built up into a LAN ...

Summary

- at the very least PAN requires the definition of a new PHY
- recommend constraining the data rate
  - 100 bytes/s - real-time-video is too broad of a range