

Wireless Task Force Meeting Minutes  
Chair: Dewayne Hendricks  
July 22, 2004

Dewayne described wireless projects in California with which he had personal experience as well as several FCC wireless initiatives.

## **CALIFORNIA WIRELESS PROJECTS**

### HPWREN

High Performance Wireless Research and Education Network. Funded by NSF, used off-the-shelf equipment to create a 45MB Internet2 point to point wireless network for researchers. The footprint is quite large in the San Diego area. As evidence of the increasing understanding of the applicability of wireless in high performance applications (such as HPWREN) Dewayne pointed out that the Internet2 group formed a high performance wireless committee last week. This is noteworthy because previously, the Internet2 community was only interested in fiber.

### SOCAL Free Net

Joint project of three wireless user groups. They are installing "Super-Fi" over their respective territories to form a free cloud. This group is also part of the open source hardware and software community and is taking off-the-shelf hardware and adding software improvements. They share all the information about what they are doing with freenets around the world.

### SFLan

Acceptable Use Policy (AUP) is to guarantee symmetric 5MB speeds.

### BAWRN (Bay Area Wireless Research Network)

This is the R&D organization for SFLAN. A big thing they are working on today is called a "socris" radio board, which uses Linux. Interference creates a drive to replace equipment frequently - every 18 months.

### BANC (Bay Area Network Coordination)

Bay Area WISPs getting together to coordinate usage of 5 GHz band since this is used for backhaul. Dewayne's WISP is a member. They are explicitly not coordinating 2.4 GHz.

## **FCC WIRELESS TECHNOLOGY INITIATIVES**

The FCC's current wireless technology agenda includes: Smart radios, mesh radios, cognitive radios.

Dewayne showed a wide-band handy talk (Kenwood FM Tribander TH-F6) which he uses as a ham operator and said it's an example of a smart radio. He has a special kind of license to use this radio.

Mesh networking is more advanced in Europe because the power limitations are lower. When Dewayne was in Europe recently, he saw a device called a Meshcube

([http://www.meshcube.org/index\\_e.html](http://www.meshcube.org/index_e.html)) which runs Linux. It is about 3"x3" in size. They were deployed in Berlin at a conference which he attended. Dewayne used the network to make VoIP calls from his laptop.

Dewayne said "cognitive radio differs from a smart radio in that it operates non-deterministically" (meaning it uses goal-seeking heuristics). Cognitive radios are able to sense and adapt to its environment. The FCC has in mind putting its authority into these radios since the radios are best able to figure out how to best use spectrum at any given location and time. He said that IEEE just formed an 802.22 committee to develop cognitive radio standards.

Dewayne talked about GNU Radio as an example of cognitive and software defined radio. It is a general development platform for both smart and cognitive radios.

Conclusions:

- "Good enough" will dominate user deployments  
Example: Asterisk, which can be used to create a phone company using whatever QOS the service provider desires. 'Asterisk' is a Linux based software PBX that supports VoIP. More information on it can be found at <http://www.asterisk.org/>. Its an open source solution that is now being used to provide VoIP services over a number of wireless networks.
- Systems evolution will track Moore's Law
- 1 Gbps radios at WiFi pricing will be available by 2010. (A proposal was made last week in the 802.11n committee for radios offering 500Mbps.)
- A best practices network effort is needed to speed the evolution and deployment of "Super-Fi" (meaning metro scale) wireless systems

In answer to a question, Dewayne offered this excellent definition of the Internet: "The Internet is a group of independently owned and operated networks which have agreed to peer with each other using common protocols."

### **Meeting Participants:**

Deborah Acosta	Brad Kane
Ken Allen	Pat Lanthier
Ira Bray	Lloyd Leanse
Rushton Brandis	Richard Lowenberg
John Charles	David Lyons
Anthony Costa	Larry Martinez
Mary Liz DeJong	Tina Nerat
Michael Eager	Rick Parker
Seth Fearey	Greg Scott
Mark Geiger	Sandra Sutherland
Bill Halverson	Candy Tanamachi
Dewayne Hendricks	Ernie Ting
James Jones	Ileana Winterhalter