



WB8IMY

ECLECTIC TECHNOLOGY

The Hinternet and openHSMM

Here are two new words for your Amateur Radio glossary: *Hinternet* and *openHSMM*.

The Hinternet refers to High Speed Multimedia (HSMM) Amateur Radio networking. The goal of the Hinternet (and the ARRL HSMM Working Group) is to bring amateur digital communication into the 21st century with RF networks that handle lots of data—everything from text to video—at high speeds.

Hams already share a band with 802.11 wireless networking devices at 2.4 GHz. These are the “Part 15” units that you probably recognize as wireless routers, access points, etc. The difference, however, is that our privileges give us the ability to use more RF output power.

There is very little off-the-shelf ham hardware available for 2.4 GHz, so the Hinternet folks have taken the next logical step: they’ve turned consumer 802.11 products into amateur transceivers, often at much higher power levels. Unlike your average consumer, hams can connect wireless access points to amplifiers and gain antennas to extend their range from feet to miles. We also know a thing or two about the importance of low-loss transmission lines at microwave frequencies.

To further the Hinternet, openHSMM involves the use of open-source software (such as *Linux*) to create an enhanced wireless access point appliance. The openHSMM software would utilize the same consumer hardware, but do it in a much more creative way. For instance, to create a scalable network (wired or wireless) it would be beneficial to provide configuration options such as OSPF (Open Shortest Path First). OSPF is a tried and

true routing protocol that broadcasts its routes to its neighbors. Using openHSMM, hams can add protocols like OSPF to existing consumer wireless products.

Amateurs have a long history of modifying nonham equipment, and this is just the next chapter in the story. The openHSMM approach could yield big benefits for HSMM emergency networks. Imagine hams quickly setting up such an enhanced network in a disaster area. Information would be flying back and forth at high speeds with automatic dynamic routing as new nodes are brought online or others become unavailable. Hams could travel to various locations, set up HSMM nodes and be sending back vital information in a matter of minutes.

You can learn more about the Hinternet on the Web at www.arrl.org/hsmm, and openHSMM at www.opensm.org.

HSMM in the Real World

If you think Amateur Radio HSMM is pie in the sky, think again. HSMM is being put to use in the real world today.

One of the consumer devices that have attracted the most attention among the openHSMM crowd is the Linksys WRT-54GL wireless router. There are many of these types of products on the market, but the WRT-54GL is unique because it runs the *Linux* operating system. This means that you can write your own *Linux* firmware and upload it to the WRT-54GL, instantly “modifying” it to suit your needs. It is analogous to installing new firmware in an HF transceiver to add new features.

In Hillsdale, Michigan, the Hillsdale CoolCitites, an economic development group, and the Hillsdale Amateur Radio Club have joined forces to establish an HSMM hub using the WRT-54GL. According to Jeff King, WB8WKA, the hub has both



RMAA is a free *Windows* application that you can use to test your sound card. Download it at audio.rightmark.org/download.shtml.

consumer and Amateur Radio applications. It provides wireless Internet access for the downtown area (open to all), while hams use it for Field Day and emergency communication exercises. This is a superb example of how amateurs can use their technical expertise to help their communities, and gain substantial benefits in the bargain. The Hillsdale Amateur Radio Club has received some great press about this effort as well.

Could you strike a deal with your town? Would they provide funding, and a nice location, for a wireless access hub that you or your club could install? One that could also be used for specialized ham applications? Think about it.

More about Sound Cards

My comments in the April issue concerning sound cards really touched some nerves! The response was overwhelming. One thing that came through loud and clear was the call for the ARRL Lab to do sound card testing to weed out the good, bad and ugly. We’re working on that now and you should see the results in a future QST. Stay tuned.

Frank Weiss, KY4W, pointed me toward a free program for sound card audio performance measurements. It’s downloadable on the Web at audio.rightmark.org/download.shtml. The application is known as *RMAA 5.5*. You’ll need a stereo cable to connect your sound card line-in to line-out. Give it a try!



The Linksys WRT-54GL wireless router runs *Linux* firmware. You can upload new firmware of your own design and turn it into a High-Speed Multimedia ham “transceiver.”