BY BUCK ROGERS, K4ABT

The Phoenix Shall Rise

Once upon a time there was a glimmer of hope. There were legions of nodes and digipeaters across our land, enough to link every city in the nation to one another. Then came the "internet," and those nodes, digipeaters, and many other facets of amateur radio began to fade into oblivion.

Let's look at the reasons why all these changes took place. First and foremost is the age of the computer. No, what I really mean is the age of the *family* computer, an affordable tabletop device that opened up an avenue which enabled the use of the modem to connect to a local BBS. No, not a packet BBS; I mean a telephone BBS.

Gotcha! I'll bet you'd almost forgotten that before the internet there were hoards of BBSes all across the United States. There were some of our ranks who even became "addicted" to BBS downloading—not that the downloads were worth anything or the program was useful. The "user" would somehow justify in his or her mind that it was a "utility" and that it must be good or the purveyor wouldn't have placed it on the BBS for everyone to use.

The lure of the modem and landline BBS became a more powerful addiction when many users discovered that images, both drawn and scanned, could also be viewed and saved to display again and again. Images in the graphic interchange format (GIF) and other similar formats became the key that gave even more reasons for "going on line."

The phrase "going on line" came about before the internet's popularity grew to the proportions it is today. It was the Hayes™ modem that helped change the nature of our world, but it was *speed* that spelled the end of an era for some hobbies and services. There were "speed wars" that brought about much of the change and increased interest in landline modem power.

I remember the first 300 baud modem. Everyone who had any kind of TRS-80 with TRSDOS, Radio Shack Color Computer (CoCo), or Commodore VIC or 64, and even some old CPM machines, had one. Anything that would support a serial port and a terminal program that would attach to a modem was being brought into the home, moreover into the ham shack.

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The Race was On

Speed wars began to emerge in the ranks of the modem manufacturers. It was soon apparent that 1200 baud was coming of age. Then someone really made a quantum leap by introducing a new layer and slightly different protocol that enabled different compression techniques to take place "on the fly." This cleared the way for a leap from 9600 baud to over 14,000 bits per second (bps). The race was on!

Soon we had 28,800 bps. Next came the modem that would handle 33,600 bps, and today most of us have the V.90 ("Vee dot 90") type modems which handle 56,000 bps. Our only problem is whether our telephone lines will handle 56,000 bps. Many of us have the 56 kb modem, but we don't really have 56 kb landline capability. That's a topic for another column, however.

To Die So Young

It's not enough to watch as one so young dies a slow, agonizing death. There is also the wake that follows when we just wonder why.

There is no sense or reason to sit idly by and watch as our hobby gives way to another landline-based medium. It's not too late to make a new era in amateur radio come to life. From these ashes, the Phoenix shall rise.

The first paragraph of this section ended with "why." Now . . .

Why Not?

Why not move away from the internet and even the "dead-end street of 219–220 MHz" and move to frequencies that have no "conditions and limitations"?

Wow! Did you all see those light bulbs go on?! Let's try for some broadband frequencies that would allow *all hams* to use this kind of technology.

Hundreds of people and organizations put together some useful suggestions in the form proposed rulemaking that helped move our license base to a more comprehensive level of understanding. As a result, the FCC moved to make fewer license classes. Maybe the restructuring doesn't please everyone, but it does make sense.

Perhaps you are asking, "What does license restructuring have to do with the subject matter of this article?" Just this: The FCC has moved the license base into the new millennium, so why not do the same with the rest of our hobby and adopt a new technological approach that will move all of our hobby into this century!

Think Spread Spectrum!

We are long overdue for an upgrade in ham radio technology. We have a need for nationwide frequencies that would allow *wide* 56 or 64 kb amateur radio networking. Let's call it **AmateurNET**, or **AmNET**. Whatever we call it, it should give us internet-type operations on VHF, UHF, and frequencies above 1000 MHz (1 GHz).

We're talking about frequency channels that are at least 100 kHz wide. These frequencies should be available nationwide, so as to provide the service we are looking to utilize. The service would be "wireless," use wide-band radios capable of streaming data, and use NetScape™ and Internet Explorer™ type browsers. The mode would be exclusively for ham radio licensees. This new technological move would bring new life into amateur radio, much the same as SSB did in the 1950s and FM did in the late '60s and '70s.

Think about it—an amateur radio network that rivals any and all other networks; a wireless environment in which only hams can operate.

Take a look around you. The median age of hams is over 50. When you are at the next hamfest, look around you. All that gray hair! I rest my case and make this next statement: AmNET would draw new, younger blood into ham radio.

Instead of beating our browsers against 200 million internet users, we would be operating in a high-speed wireless environment that would have only licensed ham radio operators—for the moment let's say under a half-million operators.

Here's what would happen: We would begin to see ham radio using digital voice, data, video, streaming video.

Visit Our Web Site

Anything and everything done on the wire-line internet could be done better and faster on our high-tech AmNET. Since this wireless AmNET would be on the ham bands, used only by licensed hams, it would be *free.* No monthly fees for licensees. I, for one, would help buy and build nodes to support it, and I would also provide gateway servers on these frequencies. *No* collisions—just lots of real-time fun, and it would be *free and wireless!*

Planning the Journey

Tell your friends, both amateurs and others, about this article. Together we can make it happen. Everyone stands to gain from this new thrust into the 21st century. It's the platform we've needed for amateur radio and packet for a long time. Here are the ingredients for our "limited-access information superhighway" (AmNET).

Yes, we have to do a bit of planning with regard to what vehicle we wish to use to journey down this digital superhighway of our future in ham radio. For openers, where are all the transceivers that will pass 64 kb? Somehow we've learned to create the numbers in multiples of 64 kb, such as 128k, 256k, 512k, 1024k, 2048k, and so on, up to 64 kb. In there somewhere lie the 56 and 64 kb that fit well into the scheme of things related to the 100 kHz bandpass with which we have to work. In addition, 100 kHz will enable a guard band on either side of the required bandpass at 56 kb.

The Real Fun of AmNET

Let's think in terms of using a browser such as NetScape™ or Internet Explorer™. With servers and nodes that are supported exclusively by and for amateur radio operators, we will have a *wireless* "internet" that will rival and even surpass the present-day wire-line internet. Not only will this amateur radio internet allow data communications and file transfers much like the wire-line internet, it will also support digital voice, much like, but better than, ICQ and NetTalk'r, etc.

Some efforts along these lines are already being made, even with our current speed limits. In fact, a ham internet experiment in Wisconsin is the topic of this month's "Computers and Internet" column.

Sorry, Charlie

Remember those pop-up commercial ads that annoy us when we access a page on the internet? What about all that advertising SPAM? Now Buck has opened up a can of worms! Sorry, Charlie, but that problem will go away. You are absolutely correct: Amateur radio is still a commercial-free hobby. No, we will *not* be in competition with the internet and certainly not with the ISPs. How much competition did amateur FM give to the mobile telephone industry? None! Even I carry a cellular telephone. Nor will AmNET take away from HF, VHF, and UHF amateur operations. DX contesting fun and VHF/UHF repeater use will be with us for a long time to come.

This new thrust will generate the drive to propel us into a new operating environment within amateur radio. This new operating environment will have much the same effect as single-sideband and FM did a few decades ago.

Here is the final thrust of what I'm trying to convey: The OEM who designs and markets the 56 or 64 kb radio and streaming modem interface will have a radio/ modem combination that will command a respectable price, and it will sell! I will be one of the first purchasers. I will support nodes, I will promote, and I will use every means at my disposal to help the transceiver OEM(s) realize their efforts were worthwhile.

A Quarter of a Million Transceiver Sales

For now it appears that someone or some group is afraid of the backlash from the ISP and HF vendors. Somehow I think that these parties or groups should remove their heads from the sand and look beyond that fear to see the beauty of the trees—and the forest. Here lies the potential of more than a quarter of a million sales of 64 kb trans-

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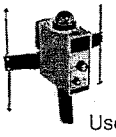

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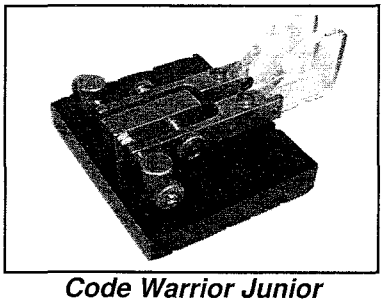

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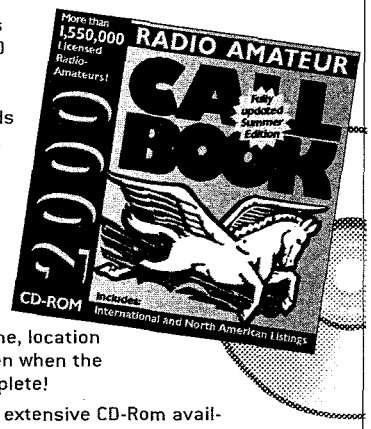

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ceivers and streaming data modems. That's 250,000 times X dollars that would be generated from the amateur radio market alone. While I'm at it, this number is for the US market only.

Now consider what happens when other countries begin opening other frequencies for this kind of amateur radio use. In addition, there are thousands of UHF and microwave experimenters in the ranks of ham radio operators who will gladly support wide-band microwave links.

I'm doing as much as I can, as I try to design or modify transceivers to make our digital hobby faster. Now it is time for many others to jump into the ring and help make this dream crystallize, make it *real!* It is only two paces away from being a reality.

For whatever it's worth, let's "get real" and build a massive network that will complement the amateur radio community. Let's also hope that the FCC (and the American Radio Relay League) will listen to the wisdom and judgment of those of us who remember the beginnings of our present-day packet system.

At this time with this technology and a few 100 kHz wide frequencies we have a chance to apply the "right stuff." If we do not, then we may have to relegate ham radio to the same archives as the 140 mile-per-gallon Tucker Carburetor.

Packet—More Fun Than We Ever Imagined!

Packet can be even more fun if we govern ourselves accordingly—now, today! We have to launch a *pro-active* campaign in two directions. First we have to provide the transceiver manufacturers with a reason to put some research and design into this project. In this column I've provided them with sales numbers, and these figures are nothing to scoff at. Second we have to let the vendors know that our ranks are large in number. I recall in 1994 one manufacturer told me he had sold almost a quarter of a million packet controllers. Let's see... That means if we look at the other remaining TNC manufacturers, there are more than a million TNCs out there.

Now for the transceiver original equipment manufacturers (OEMs) and vendors, here is your key to another successful 10 to 20 years in the industry. The time has come for an enterprising manufacturer or transceiver vendor to provide a high-speed transceiver for the new millennium digital amateur radio operator.

We Have the Clout And the Momentum

Having gathered the momentum and the numbers that give us the prominence to exert influence, it's time we make known our needs and requirements to the OEMs and packet radio vendors. The FCC has done its part, and now it's time to call on the OEMs! A short letter, a note, any way that you can convey a message that reflects your feelings is what is now needed to get results. Call, write, or fax the OEMs a copy of this column! My shouting and pouncing on my hat should not be the only message that is sent.

Who knows? Maybe soon we will see even more people who want to get away from the 200 million to half a billion internet 56 kb users and become hams, joining the 500 thousand hams who will have a faster, wireless medium that is *free* to the licensed user.

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