W5YI

Nation's Oldest Ham Radio Newsletter

REPORT

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GOVERNMENT SHUTDOWN STALLS HAM RADIO GROWTH!

As one might expect, the number of new amateurs joining the ham radio ranks nose-dived dramatically during December.

For the second time in a month, the U.S. Government closed down due to the federal budget debate. The FCC's Gettysburg, Pennsylvania licensing facility has been shut down since mid-December and all employees furloughed. As a result, the VEC's are unable to electronically file any Form 610 license applications into the FCC computer. Many examinees - especially those with new Christmas radios - are frustrated and angry.

At presstime, the impasse between the Republican Congress and the Democratic president continues. The Republicans not only plan to balance the budget by the year 2002, they want to restore a smaller government. The White House has endorsed the balanced budget concept, but has done little to achieve it. Federal spending in 1995 amounted to more than 20% of the nation's income (gross national product). According to *Newsweek*, it was only 3% in 1929.

Last year (1995), the U.S. government took in $1,357 billion in revenues (taxes) and spent $1,518 billion - a deficit of some $161 billion. The proposed FY-2002 GOP budget calls for spending $1,857 billion and revenues of $1,861 billion.

Basically the White House is opposed to Republican changes in welfare, food stamps, health care, subsidized housing ...and curbing immigration by eliminating welfare to those who have not paid in to the social security fund. The Republicans also want to turn some health and welfare funding over to the states through federal grants. The states, in turn, would have more freedom to set benefits and eligibility.

Clinton believes the spending cuts are too drastic on the old and poor. While there has been movement on both sides, just when the balanced-budget package will be resolved is anyone's guess.

New and upgrading licensing statistics

Here are the December 1995 amateur figures:

License Class	New Amateurs	Upgrading
Novice	54	0
Technician	1298	0
Tech plus	124	231
General	12	196
Advanced	2	148
Extra Class	5	133
Club	48	0
Totals	**1543**	**708**

This is about half the normal total number of new and upgrading amateur radio operators. Even when the FCC does return to work, amateur radio licensing probably will not resume immediately. Meanwhile, the various Volunteer-Examiner Coordinators are stockpiling applications for later electronic filing. And ham applicants wait.

MILLIMETER WAVE REVOLUTION!
FCC Action Affects Amateur Spectrum

Just before shutting its doors on December 15, the FCC issued the latest decisions and proposals in a plan to bring the nation new, high-capacity communications products and services, new vehicle safety systems, and -- eventually -- millions or billions of dollars in government spectrum auction revenue.

Those results are expected from millimeter waves -- that portion of the spectrum between 30 and 300 Gigahertz (GHz), also known as the Super High-Frequency (SHF) range. Up to the present time, most research into millimeter waves has been scientific and military in nature.

The FCC's First Report & Order in Docket 94-124 is the first of several Orders to open up this exotic spectrum to commercial exploitation. Also issued was a Second Notice of Proposed Rulemaking (NPRM) which would modify Part 97 due to concerns of amateur interference to new devices.

The FCC of today stresses jobs and national competitiveness as major goals. "It has been our experience that opening regions of the spectrum to commercial applications and new technology fosters the development and growth of new industries and promotes job creation," the agency said.

"We believe that opening portions of the millimeter wave spectrum will similarly stimulate the development of new services for consumers and facilitate technology transfer from the military sector. This action will also promote national competitiveness by enabling development of technology for potential use in other parts of the world."

Vehicle radars and amateur interference

The FCC made the band 46.7-46.9 GHz available to vehicle radar systems. These are not police speed radars, which operate at 24 GHz among other bands, but radars mounted on vehicles to aid in collision avoidance, cruise control, automatic braking and other forms of vehicle control.

Another band of interest for vehicle radar is 76-77 GHz. This band is allocated for Government/non-Government radiolocation systems and, on a secondary basis, to the Amateur Radio Service.

"There is significant industry support for use of the entire 76-77 GHz band for vehicle radar systems," the FCC said. "Indeed, the three major U.S. automobile manufacturers have targeted this band in their efforts to develop collision avoidance radars. Furthermore, testing of vehicle radar systems operating in the 76-77 GHz range has already commenced. We also foresee economic benefits, such as economies of scale and broader marketplace demand, that may be attained

if both the U.S. and European markets use the 76-77 GHz band for vehicle radar systems. Accordingly, we are making this band available for use by vehicle radar systems."

According to commenters, vehicle radar manufacturers can develop interference avoidance systems to cope with other vehicle radar systems on the road, but if the band is shared with unlimited emitters and users, it will be much more difficult, and therefore more costly, to design interference avoidance schemes for all possibilities.

General Motors generally supported limiting use of the 76-77 GHz band to vehicle radar systems, but stated that such systems would not be adversely affected if amateurs continued using the band. GM believed that anticipated amateur uses would result in power densities on public roads that are well below levels that would cause any concern to the reliable operation of vehicle radars.

The FCC was more cautious and decided to limit unlicensed use of 76-77 GHz for the time being to vehicle radar systems. "We also propose to temporarily restrict amateur use of the band until sharing criteria can be developed," the FCC said. "We anticipate that vehicle radar systems may eventually be used for vehicle control, and this heightens our safety concerns regarding possible interference to these systems. ...

"We recognize that amateurs would like to maintain their access to the 76-77 GHz band. However...we believe that it is important that we protect vehicle radar systems from potential interference by restricting use of the 76-77 GHz band to such systems until sharing criteria can be established.

"Given the limited use of the 76-77 GHz band by amateurs and the availability of the 75.5-76.0 GHz and 77-81 GHz bands for amateur use, we believe that such a modification of our rules will not significantly harm amateur services. We also believe that any inconvenience to amateurs from restricting amateur use of the 76-77 GHz band will be minor and is outweighed by the potential interference problems and related safety concerns noted in the comments. We further believe that such a restriction would be appropriate until such time as it is established that the amateur operators will not cause interference to vehicle radar systems that would compromise public safety.

"Accordingly, we propose to amend Part 97 of our rules to temporarily disallow amateur use of the 76-77 GHz band. This restriction could be removed at a future time if we are convinced by the material submitted for the record that the safety of vehicle radar systems will not be compromised from other in-band transmissions or if we receive specific sharing recommendation guidelines that do not compromise safety.

"We intend to revisit within five years the issue of whether the 76-77 GHz band can be shared with amateur radio operators or other users. If it were to become apparent that particular types of radio services or devices will not interfere with vehicle radar systems or if adequate sharing criteria can be established, the restriction can be relaxed.

"Although we do not believe that any significant harm will be caused to the Amateur Radio Service operators by disallowing their use of the 76-77 GHz band, we are also proposing to amend Part 2 of our rules to upgrade the status of the Amateur Radio Service in the 77.5-78 GHz band from secondary to co-primary with the Government and non-Government radiolocation services. This will ensure that amateur access to spectrum near 77 GHz is maintained without the threat of preemption by higher priority services. We believe that these proposals balance the need to protect vehicle radar systems from interference with the our desire to foster amateur experimentation using millimeter wave technology."

Other millimeter-wave actions

The FCC allocated the 59-64 GHz band to unlicensed non-radar devices for broadband communications. However, this band will not become available for one year, while the electronics industry develops technical spectrum sharing rules, known as "spectrum etiquette", that will govern the devices' access to the spectrum.

"Commenters should note that we do not intend to delay implementation of the 59-64 GHz band for an extensive period of time," the Commission said, indicating that it will go ahead and make the band available if the industry cannot agree on rules within a year.

Several more bands are pending for possible allocation for vehicle radars, unlicensed devices, and the proposed Licensed Millimeter Wave Service (LMWS). Licenses in that service are likely to be awarded to auction winners after FCC proceedings later in 1996.

PHASE 3D FUND RAISING SUCCESS IN THE UK

A Radio Society of Great Britain (RSGB) short wave radio bulletin broadcast on December 31st reported that RSGB President, Clive Trotman, GW4YKL, presented a check for 25,000£ ($38,250 U.S.) to Ron Broadbent, G3AAJ, for the AMSAT Phase 3D satellite project. The presentation was made at the RSGB Annual General Meeting which took place at the Royal Society of Chemistry in London on the 2nd of December.

The P3D amateur communications satellite is scheduled for launch from South America by the European Space Agency this September. It will operate in a multitude of different OSCAR satellite modes. Project leader is Dr. Karl Meinzer, DJ4ZC.

In addition, it was announced at the meeting that the RSGB would make a further contribution of 25,000£ on the condition that AMSAT-UK raises a similar amount from other sources. AMSAT-UK did indeed raise the second 25,000£ so the Phase 3D fund raising campaign has been increased by nearly $115,000! Furthermore, we understand that this amount could be doubled again due to other financial matching arrangements. (Thanks, G3RWL, AMSAT-UK)

COMMERCIAL RADIO OPERATOR TESTING

The most popular written Commercial Radio Operator Examination Elements for the first three quarters are:

	Jan-Sep	Jan-Sep
Written	*1994*	*1995*
Examination Element	*Exams*	*Exams*
1 - Radio Law	11,692	7,106
3 - Electronic Techniques	10,407	5,580
8 - Ship Radar Endorse.	643	1,216
7 - GMDSS Operator	370	456
9 - GMDSS Maintainer	654	472
5 - Basic Radiotelegraph	84	129
6 - Advanced Radioteleg.	77	127

The number of commercial radio operator examinees for the first three quarters of 1994 was 14,289 versus 9,423 in 1995, a decrease of 34.1%. The largest COLE (Commercial Operator License Examination) Manager is National Radio Examiners, the commercial division of The W5YI Group, Inc. which accounts for 28.4% of all commercial radio operator testing.

Electronic filing of all Commercial Radio Operator license applications was supposed to have started on December 18th, but the FCC was furloughed before the program could begin.

COLLEGE SCHOLARSHIPS AVAILABLE

The Foundation for Amateur Radio plans to administer fifty-seven (57) scholarships for the 1996-1997 academic year.

Licensed radio amateurs may compete for these awards if they plan to pursue a full-time course of studies beyond high school and are enrolled in or have been accepted for enrollment at an accredited university, college or technical school. The scholarships range from $500 to $2000 with preference given in some cases to the pursuit of certain study programs or to residents of specified geographical areas.

Additional information and an application form may be requested by letter or QSL card, postmarked prior to April 30, 1996 from: FAR Scholarships, 6903 Rhode Island Avenue, College park, MD 20740.

THE HIGH TECHNOLOGY YEAR IN REVIEW

We covered last year's top Amateur Radio stories in our last issue. Let's now go over the top High Technology events of 1995. And there were plenty!

TOP STORY OF THE YEAR ...THE INTERNET

1995 will go down in history as the year that the Internet finally gained public acceptance. Millions of newcomers logged into the global network of graphics, text, sound and video for the first time. It is more than a fad. For most, the Web was love at first sight.

Beginning in January with Prodigy, commercial online consumer services began offering the Internet's World Wide Web. New free "browsers" were everywhere. Computers without high speed modems became dinosaurs.

E-mail over the Internet was the dirt-cheap way to communicate with everyone. Electronic mail addresses began showing up in mainstream publications ...World Wide Web "URL" addresses in the broadcast media. And at least two Internet-based companies are promising totally free worldwide advertiser-supported e-mail. Another firm launched an Internet classified ad service that effectively competes with the newspaper.

Cheap (to the point of being almost free) telephone service arrived as software developers found a way to compress audio and ship it internationally over the Internet.

People now entertain themselves, transact business and learn online. The long awaited *Information Society* has finally reached the masses. For many, the world has changed forever. For others, it will change shortly. The Internet promises to impact every facet of human life; its potential power boggles imagination.

INTERNET PUBLISHERS WERE EVERYWHERE

Tens of thousands of new web servers hit the Net for the first time ...most were trying to make a buck or two. Firms everywhere, from kitchen-table operations to the world's largest corporations established a presence on the Internet. Forbes magazine said that some 200,000 mostly corporate types set up Web sites on the Internet ...up from just 1,000 at the start of 1995..

Corporate America also decided that the World Wide Web was preferable to promoting sales over commercial online consumer services. Several services switched their allegiance from advertisers to users.

HIGH TECH GEARS UP FOR THE MASS MARKET

Like broadcasting seventy years ago, it appears that revenues from advertising will finance the Internet. At year end, websites such as ESPNet and NBC ...and Net "search engine" directories (such as InfoSeek and Yahoo) were commanding ad rates of $20,000 to $50,000 a month. "Web-hit" tracking was criticized as an ineffective method to measure Web site readership since hits do not always translate to different users.

The marriage of consumer video and the Web began as new interactive advertising technology called "Intercasting" emerged. The FCC cleared the use of the vertical blanking interval as a fast way to deliver digital data. The VBI is a portion of the broadcast signal that is not seen ...or used. Intercasting enables telecasters and their advertisers to simultaneously combine their video with additional multimedia information lifted from the Internet and channeled to viewer's PC's.

To get in on the action, cable TV operators began turning to cable modem technology as a way to grant Internet access to viewers. Zenith, Scientific-Atlanta, Motorola, General Instrument and Hewlett-Packard all have developed high speed cable modems that have downstream throughputs up to thousand times faster (40 Mb/s vs 14.4 or 28.8 Kb/s) than telephone line modems.

THE STOCK MARKET ZOOMS PAST 4000 ...5000

Science and technology stocks racked up a double digit (10.3%) gain in 1994, a lackluster year for the stock market in general. But they zoomed through the roof in 1995 ...tacking on another 34.7% overall increase. Some Internet stocks were up 500%. Spyglass, for example, which went public in June at $17 ...now is $93.25.

The popular Dow Jones Industrial average began the year at 3834.44 and topped 5200 before backing down to 5117.12 at year end. Intel and Microsoft - whose microprocessors and operating system software inhabit virtually every PC in the world - were the stock market's two most active stocks. Trading value of their shares during 1995 topped some $100 billion each. Each gained about 25% in value. Fidelity Magellan, the world's biggest mutual fund with some $54 billion in assets, gained more than 38% in 1995 - primarily based on its technology holdings. It was a good year to have money in the market.

NETSCAPE NAVIGATOR: PRODUCT OF THE YEAR

Marc Andreessen, a college kid who participated in the development of the "Mosaic" web browser at the University of Illinois became an instant multi-millionaire in 1995 when he teamed up with entrepreneur Jim Clark who put up $4 million to finance the new operation. The Netscape Navigator came out in late 1994 and was even a bigger hit than Mosaic. From three employees in April 1994, Netscape now has nearly 500.

To set the Web viewing standard, they gave

away some ten million copies of their Netscape multi-media browser ...a version of Mosaic. They simply let anyone download it from the Internet.

Netscape Communications, Inc., went public on August 9th at $28.00. Within minutes it rocketed to $75 becoming a $2 billion company on its first day of trading. Before the year was over, Netscape hit $174 and was worth $6 billion before backing down to $150 a share.

Not only can the Navigator access HTML web servers, it also supports Gopher and FTP. The latest version has a framing feature that can divide your browser's window among multiple sites. We chose the Netscape Navigator over Windows 95 as the online product of the year because it represent the future.

AMERICAN ONLINE IS LARGEST ONLINE SERVICE

In the consumer online world, America Online took top honors as the most popular. More than 4.5 million people now have AOL. Its high speed (28.8 KB/ps), Web support and pricing ($9.95/month for five hours and $2.95/hour additional) has made it the Internet provider of choice. The number of Americans sub-scribing to an on-line service jumped from 5 million in 1994 to more than 12 million this year. The number of homes with a PC increased from 31% to 36%.

AN UP AND DOWN YEAR FOR MICROSOFT

Worth some $15 billion, the richest man on the planet, Microsoft's Bill Gates had his successes and failures in 1995. He was forced to abandon his intend-ed acquisition of Intuit when the Justice Department sued to block the purchase. Intuit markets "Quicken", the popular personal finance software package used by some eight million users.

Up until August 24th, everyone waited with great anticipation for Windows 95 which was introduced with what has to be the most expensive and glitzy presenta-tion of a new product ever! Estimates are that over 18 million copies of the program have now been sold. Microsoft now has another release of Windows 95 (code-named Nashville) in the works. Although some don't believe it, Microsoft says it won't be named Windows 96. One of its features is one-button access to the Internet.

During mid-1995, Microsoft did an about face in its marketing direction as people flocked by the millions to Netscape browsing and what promises to be the next new wave, easy access to the World Wide Web! Instead of emphasis being placed on Microsoft propri-ety software, they threw open the doors and embraced open standards. Their "control" has more or less van-ished.

The reason? In 1995, Microsoft was been beaten at its own game ...distributing valuable computer soft-ware at so low a price that no one could compete. Netscape's (and Java's) price? Zero! They put their Web browser and programming tools up on the Inter-net for free downloading. And more than eighty per-cent of Web surfers now use Netscape. Microsoft's huge installed base of "Windows" users means nothing to the Web where an operating system is not even needed.

Bill Gates and Company knows better than any-one that it is not hardware or software that is all impor-tant, but "standards." His greatest success was mov-ing the entire PC industry from the character-based DOS operating system to the graphical world of Win-dows. Microsoft has now changed their focus from propriety operating systems and PC application pro-grams ...to the Internet and Web compatibility where other firms are making inroads.

MSN, the Microsoft (Online) Network which has 600,000 paying subscribers will also now reside on the free Internet instead of just being part of Windows 95. Revenue will be obtained by assessing "fees" for cer-tain exclusive content ...much like a cable network charges for premium channels. To add to Microsoft's woes, the feds are now looking into charges that Win-dows 95 has built in programming which prevents it from linking to rival online services.

Gates, who up until now has enjoyed a near soft-ware monopoly, now finds his control of the computing industry shifting from PCs to a totally uncontrolled net-work that connects them. The Internet, by design, has no operating system and non-propriety standards that are open to all.

Microsoft is now trying to play catchup with Net-scape Communications Corp., and Sun Microsystems who have grabbed the Internet browser and web pro-gramming standards lead. Some say they have a two year head start. And to Microsoft's dismay, developers by the score are jumping on the Netscape/Java stan-dards bandwagon. Like Netscape, Java is available without cost from the Internet. Tens of thousands of copies already have been downloaded.

HOT JAVA AND THE WORLD WIDE WEB

In a nutshell, "Java" is a computer programming language that can operate on the Web. It allows pro-grammers to attach little programs - called "applets" - to Web pages thereby changing its scrolling read-only environment into an executable computer program.

In effect, the Web becomes the operating system, computer and applications program all rolled into one. That sends big time chills down the "Wintel" spine, since it is fast becoming possible to surf the Net with-out an Intel-powered PC and without Microsoft opera-ting systems and application software. The Java development kit complete with compiler is available for

free downloading from the Sun Microsystems server at: http://java.son.com

THE INTERNET "TOASTER" IS ON THE HORIZON

Computer and chip makers are now developing low cost stripped-down Web "appliances"...simple terminals for cruising the Net. The $3,000 fully loaded PC will shortly be challenged by a $500 mass market Internet access device. *Business Week* said it was possible "...that phone companies will give these gadgets away as they do cellular phones now." Hand held PDA (personal digital assistants) that offer Web access are also in the process of coming to market.

The leader in "WebSystem" software for the coming stripped-down "network computer" is Oracle Systems. Their founder, Larry Ellison (like Microsoft's Bill Gates) is a college dropout and a multi-billionaire who made it selling software. He says he will have the machine on the market within six months.

In an effort to standardize a single browser language for the Internet, Netscape and Sun Microsystems co-developed "JavaScript" a scaled-back version of the Java programming language. JavaScript simplifies the writing of Java applets. Netscape's endorsement of Java gives it a big programming standards advantage in the Web publishing marketplace.

The current beta Version 2.0 of the Netscape Navigator (available for free downloading from Netscapes website at http://home.netscape.com or its FTP site: ftp://netscape.com) includes JavaScript and several built-ins that bring it closer to becoming a global operating system. Dozens of companies are now incorporating JavaScript applets it in their products.

Microsoft now has its own plans for computing over the Internet. It has its Internet Explorer browser and "OLE" (Object Linking and Embedding) technology when can also create Java-like applets ...but it lags far behind Netscape and Java in popularity. To help gain acceptance, it has agreed to make OLE compatible with Java.

It was Vice President Al Gore who came up with the term "information highway." But he never really defined it. It is fast becoming apparent that he was talking about the Internet. Bill Gates wrote about it in his recently published book, "The Road Ahead."

Gates believes that the common man is best served by unbridled, competitive markets and well-informed, computer-linked consumers who are free to choose from the world's supply of goods and services.

He criticized the federal government for trying to standardize an industry that literally changes by the minute ...and for "protecting consumers" with government controls and charges of unfair trade practices. In reality, government intervention shields consumers from free markets and harms the very people it seeks to protect.

"By year's end, many businesses and industries will begin to appreciate keenly both how vulnerable they are to new forms of competition -- and how great the opportunities are for those who welcome the future rather than resist it," he said.

MICROSOFT ON-LINE AND NBC ON-AIR VENTURE

One thing seems certain for 1996. Competition is indeed heading Bill Gate's way. He is responding by broadening his business into new areas. For example, Microsoft entered into a joint venture with NBC in late - 1995 to launch the MSNBC all-news network. The online Microsoft Network and NBC's 20-million subscriber A-T (America's Talking) cable service will shortly be competing with CNN.

For its $220 million stake in MSNBC, Microsoft is giving America's personal computer users reason to access the Microsoft Network either through Windows 95 or the Internet. NBC will also promote the online news service which, at first, will consist primarily of news clips due to current telephone line technology.

But, down the road, online users can anticipate full motion video as high speed cable modems with more bandwidth are phased in. The face of personal computing is getting set for major changes as desktop PCs begin to give way to web crawlers and cable modems.

THE GOVERNMENT SHUTS DOWN ...TWICE

Congress spent the greater part of the year trying to push through their "Contract with America." The key element, the balanced budget amendment requires keeping spending in line with revenues within seven years.

It also shrinks government, cuts taxes, limits ability to spend and to care for the indigent. After passing the House, it failed by one vote in the Senate and led to the first government shutdown in history ...not once but twice.

Most government agencies including the Federal Communications Commission workers were idled for a week beginning November 15th. They went back to work a week later when stop gap funding was approved. On December 18th it expired ...and with it came the second shutdown.

RADIO SPECTRUM AUCTIONS COME ON STRONG!

The government turned to the radio spectrum in 1995 as an easy way to finance the government without resorting to more taxes. Telecommunications companies coughed up some $7.7 billion for the U.S. treasury in license fees to deploy personal communications services in the 1850-1900 MHz band. The challenge for PCS will be to successfully compete head-to-head with existing telephone and cellular networks.

Both Congress and the White House want to auction off all analog TV broadcast channels as a way of reducing the federal deficit in seven years. The thinking is that some $13 billion could be raised. Under the current plan, telecasters would move to digital spectrum over a period of years and relinquish their analog channels which will have already been sold to the highest bidder in 2002.

TELECOMMUNICATIONS BILL STILL IN LIMBO

Since the Internet operates without government scrutiny, cleaning up the online world became a Congressional priority. A number of proposals were considered that make it illegal to transmit objectionable material to minors over the Internet. Congress decided to include language that bans "indecent" content from the Internet and other online services as part of their sweeping telecommunications reform package.

Although close to agreement, at year end Congress and the White House were still working on the landmark telecommunications legislation which will drastically deregulate the nation's telephone, cable, radio and TV marketplace.

Major hurdles have been crossed by the House and Senate Committees considering the bill increasing the chances that a version of the bill will be ready soon for a vote. The most contentious provision deals with the competitive conditions that must be met by the various Bell operating companies before they could enter the long distance market.

The telecom bill has been under consideration since February 1, 1995. The Senate version (S.652) was passed on March 23 and the House bill (H.R.1555) approved on August 4th. A 45 member joint conference committee chaired by Senator Larry Pressler (R-SD) has been trying to get both sides to agree on a bill that President Clinton will sign.

Proponents want early passage so that the bill will not become a political issue during this election year. The consensus is that if it doesn't pass by February, then it will die.

WHAT IN STORE FOR 1996

It is predicted that firms who derive their business from the online world will undergo a significant shakeout this year. Commercial online services providers such as America Online, Inc., CompuServe, Inc., and Prodigy Services Co., Inc., will feel increased pressure as content migrates to the Web and the need for multiple online services drops.

Many local "Mom and Pop" Internet Service Providers (ISP) will be forced out of business as the big long distance carriers (Sprint, AT&T and MCI) begin increasing their Internet Access offerings and reducing prices. A research study showed that most people would prefer to get their online, local and long-distance services from one provider.

And be prepared for an Internet "Access Tax." The FCC is said to be very concerned that users can bypass long distance companies to make calls through the use of Internet telephone schemes. The FCC believes that at some point they will have to address the economic impact of Internet technology on the nation's telephone companies. Being considered is a flat tax fee levied on the number of users served by Internet Service Providers. Another suggestion has ISPs paying a fee based on the amount of Internet traffic passing through their systems. ISPs would pass along the extra cost to their customers.

HIGH TECH PRODUCTS DEBUT

Another hot 1995 software product was "RealAudio" from Progressive Networks. The program can also be downloaded free from: http://realaudio.com. With it, you can listen to sounds almost in real time. The technology lets users download the digital audio from various Web sites and play it back without waiting long time periods to download those huge WAV files.

Smart telephones w/keyboards also made their appearance in 1995 and will be rolled out nationally this year. With small viewing screens and full slide-out-of-sight keyboards, they not only allow bill paying, credit card purchases and on-line banking but you can get sports scores, news headlines and stock quotes as well. And you can send e-mail without a computer to a built-in address book of 200 names and numbers.

Netcom, (Tel. 800-353-6600) a pioneer in nationwide Internet access went public in 1995 at 52½ and hit a high of 91½. This popular Internet provider allows 40 hours prime time (9 a.m. to 12 midnight) access for $19.95. And weekends and after midnight are free. Their NetCruiser browser software is also free.

CompuServe (Columbus, OH) is in the process os introducing its new Spryte Internet Service throughout North America, Europe and Asia. Their Internet access price will be the lowest of any provider: only $4.95 a month for three hours. Included is the Spry Mosaic Web Browser, Spry Mail, and Home Page Wizard, a Web page authoring tool.

STEVE JOBS HITS PAYDIRT ...AGAIN

Apple co-founder, Steve Jobs made a come back in 1995 as Pixar Animation Studios, the computer-animation company of which he owns 80% went public. Along with The Walt Disney Company, Pixar produced 1995's smash hit film, *Toy Story*.

In 1986, Jobs bought Pixar for $10 million from Lucas Films, the studio that made *Star Wars*. Ten years and $50 million later, Pixar came up with the first computer-generated feature film.

WASHINGTON WHISPERS

• **One of the horrors of publishing a newsletter every two weeks is that sometimes what was news when you wrote it turns out to be old news (or worse yet, wrong) when it gets to the reader.**

This newsletter is always mailed on the Monday *before* the first and fifteenth of the month. Since January 15th is a Monday, this issue will be mailed on January 8th so that you will receive it (hopefully) before the 15th.

Two breaking stories, however - the Government shut-down and the telecom bill seem sure to have been resolved by then. As we go to press, it appears that all issues now have been resolved on the Telecom bill. We hear that all that is necessary is for Congress to cast a rubber stamp vote.

The House-Senate Conference Committee now reports that everyone is now in agreement on the sweeping rewrite of the Communications Act, its first major reshaping in 61 years. Basically the bill permits cable and local/long distance telephone into each other's business. The bill was wrapped up when all sides gave in a little and agreed on broadcasting company size limits, cable TV controls and the entrance of the Bell operating systems into the long distance telephone marketplace. One possible hang up, however, is that several members of Congress have expressed reservations about included Internet regulation.

Most cable price controls will remain until 1999, the Baby Bells can't enter the long distance business until there is additional local competition, a second digital TV channel goes free to telecasters, a single TV company is prohibited from reaching more than 35% of the population and telephone companies will be able to bundle long distance and cellular service together.

And the good news for the FCC is that the bill provides for its continued existence since it must oversee the telecom bill once it is signed into law and carry out more spectrum auctions.

A vote on the bill is expected by Congress as soon as it returns for the second session of the 104th Congress. The White House says that President Clinton will indeed sign the legislation.

• **The budget impasse is also making movement, deals are being offered and optimism again prevails.** So far with no result. At presstime, 280,000 government workers are still idle and the U.S. Treasury is manipulating different accounts trying to pay its bills. But anticipated FY-2002 expenses and revenues are inching closer, mostly on the basis of more manipulation ...new economic "assumptions." Clinton still remains opposed to abolishing health and welfare as a federally guaranteed entitlement.

TECHNOLOGY IN THE NEWS

• **Bringing the Internet within reach of lots of people** ...and **"The $500 Internet Appliance"** was the subject of two skeptical editorials in the January 23rd issue of *PC Magazine*.

One version believes that there is a market for an Internet terminal, especially for schools and libraries, "But it won't replace the PC." The writer says that the Internet box can't be made to sell for $500. An option would be for Internet providers to furnish the needed hardware when users sign up for a long term service plan. This marketing approach is the same used by cellular companies that provide cell phones for almost nothing.

The other editorial agrees: "$500 won't buy enough computer to make it useful." The author predicted the information appliance will cost $1,000 and we won't see it before 1997. "Experience tells us that new ideas take twice as long and cost twice as much as we think they will."

• **WordPerfect, the widely used word processing program, was certainly not a success story in 1995!** In June 1994, Novell bought the program for $855 million in a stock swap. Last October it announced that WordPerfect was up for sale. The price? $400 million. And no takers. We heard that the price is now down to $100 or $200 million and that a sale is at hand.

• **Look for the Prodigy Online Service to throw open its doors to everyone 1996.** Like the Microsoft Network, it will shift all content to the World Wide Web. Key income producer will be a cyberspace mall. Several big retailers (including Sears and JC Penney) have signed up to participate.

The (yet unnamed) News Corp-/MCI/Delphi new subscription-based online service is nearing introduction on the Web. We understand the entry point will be a Web review service of several thousand sites. Also featured will be an electronic television schedule since News Corp. owns TV Guide.

CompuServe was forced to block worldwide access to certain portions of the Internet when German authorities determined that some news group content was pornographic. CompuServe, with 4 million subscribers in 140 countries, shut down access for all subscribers since it did not have a way to just restrict 220,000 German customers.

CompuServe's position is that it is a transport medium and not responsible for Internet content. They are, however, working on a technological fix that will allow it to block certain material in specific areas. The big concern now is that it could lead to demands by other countries to censor sexual, political and religious material.

AT&T is trashing its "Interchange" online service that it paid $50 million for a year ago. They will replace it with the AT&T Business Network which will be established as a site on the World Wide Web. They will also go into the Internet provider business with the AT&T WorldNet.

• **The Kansas City Star reported that two ham operators, Zachary Canright, KB0GMC and Beryl Masters, WB0EJJ used their amateur radio sets to summon police.** It lead to the arrest of three teenagers who were stealing two Macintosh PCs from CompUSA. Canright saw them running with a shopping cart and two large boxes toward a pickup truck with no license plates. He tailed them to a Wal-Mart store where they stopped to put the license plates back on. KB0GMC called WB0EJJ on the local repeater who telephoned Overland Park police. The trio were charged with felony theft In Johnson Country District Court. *(Thanks, KB0MZF)*

AMATEUR RADIO CALL SIGNS
...issued as of the first of January 1996::

Radio District	Gp."A" Extra	Gp."B" Advan.	Gp."C" Tech/Gen	Gp."D" Novice
0 (*)	AB0AF	KI0AB	(****)	KB0UTH
1 (*)	AA1PC	KE1DS	N1WTF	KB1BVV
2 (*)	AA2ZR	KG2FF	(****)	KB2WPX
3 (*)	AA3NB	KE3VP	N3WOS	KB3BMG
4 (*)	AE4OS	KT4HY	(****)	KF4FPQ
5 (*)	AC5GA	KK5VS	(****)	KC5SCZ
6 (*)	AC6RK	KQ6CS	(****)	KF6ALC
7 (*)	AB7OA	KJ7TD	(****)	KC7OIX
8 (*)	AA8VK	KG8UQ	(****)	KC8BUT
9 (*)	AA9QV	KG9FA	(****)	KB9MGY
N.Mariana Is.	KH0U	AH0AW	KH0EP	WH0ABD
Guam	WH2R	AH2DB	KH2PL	WH2ANO
Johnston Is.	AH3D	AH3AD	KH3AG	WH3AAG
Midway Is.		AH4AA	KH4AG	WH4AAH
Hawaii	(**)	AH6OJ	(****)	WH6CZE
Kure Is.			KH7AA	
Amer.Samoa	AH8O	AH8AH	KH8CK	WH8ABE
Wake W.Peale	AH9C	AH9AD	KH9AE	WH9AAI
Alaska	(**)	AL7QH	(****)	WL7CRH
Virgin Is.	WP2U	KP2CJ	NP2IS	WP2AIA
Puerto Rico	(**)	(***)	(****)	WP4NHG

* = All 2-by-1 call signs have been allocated. 2-by-2 (Group A) AA-AK call signs now being assigned.

** = All 2-by-1 call signs have been assigned in Hawaii, Alaska & Puerto Rico.

*** = All KP4-by-2 call signs assigned in Puerto Rico.

**** = Group "C" (N-by-3) call signs have now run out in all but the 1st and 3rd call district.

[Source: FCC, Gettysburg, Pennsylvania]

AMERICAN RADIO RELAY LEAGUE PETITIONS FOR SPREAD SPECTRUM DEREGULATION

The wideband emission mode known as spread spectrum (SS) is becoming increasingly used in radio communication. Military radios, new types of cellular phones, the new 'Personal Communications Services' and many unlicensed Part 15 wireless LAN radios use spread spectrum.

The two principal types of spread spectrum are 'direct sequence', in which the data to be transmitted is combined with a fast, repeating code; and 'frequency hopping', in which a repeating code causes the signal to rapidly change frequencies. There are hybrids of these approaches, and all result in the signal being spread over a much wider bandwidth than would be occupied by the signal if sent using conventional techniques. Receivers without the proper code will not demodulate the spread spectrum signal and will have some immunity to interference from the signal.

These methods permit 'code division multiple access' (CDMA), or the sharing of the spectrum among users by means of codes unique to each QSO. The conventional means of spectrum sharing, of course, is by dividing the spectrum among users on different frequencies - or 'frequency division'.

Based largely on pioneering efforts by the Amateur Radio Research and Development Corporation (AMRAD), the FCC decided to permit spread spectrum in Amateur Radio in 1985 under certain restrictions.

Hams have not widely used the mode. Spread spectrum may grow in acceptance, however, if rule changes proposed by the American Radio Relay League are adopted. In its December 12 petition, ARRL noted that the FCC has already determined the following benefits to spread spectrum:

1. Reduced power density and reduction of interference to narrowband communication systems.

2. Significant improvements in communication under conditions with poor signal-to-interference ratio.

3. Improved performance in selective fading and multipath environments.

4. Ability to accommodate more communication channels in the same spectrum than is possible using frequency division exclusively.

The FCC has issued and renewed grants of Special Temporary Authority (STA) to a group of amateurs for spread spectrum experimentation. Bob Buaas, K6KGS, a prominent experimenter in this group, reported to the FCC:

"Our work to date has focused on determining:
a) what performance can be achieved utilizing several techniques in spectra already occupied by narrowband emitters;
b) what level of interference results to existing users;
c) what impact existing usage has on degrading spread spectrum performance;
d) how much usage can be pressed into a given spectrum using CDMA; and
e) what proposals we might make to change the Rules and thereby further encourage experimentation without the need for this STA. ...

"Several of our experiments have been particularly successful. We started with designs which would meet the limits set forth for Part 15 systems, and worked up from there. One hybrid design (direct sequence combined with slow frequency hopping) was particularly effective in minimizing interference. ...

"It is now clear to us that use of SS in the Amateur Service has been severely limited by the design

restrictions in the Rules," Buaas reported.

Part 97 rule changes

ARRL proposed a change to 97.305(b), the rule governing test transmissions. The revised wording would read:

(b)   A station may transmit a test emission on any frequency authorized to the control operator for brief periods for experimental purposes, except that no pulse or SS modulation emission may be transmitted on any frequency where pulse or SS is not specifically authorized.

Rule 97.311(a) currently permits spread spectrum communications only among FCC-regulated amateur stations. "Amateur communications have always been permitted internationally between countries that permit it," ARRL said, "and SS emissions should not be prohibited between United States amateurs and amateurs in countries where those emissions are permitted as well."

ARRL's proposed revision reads:

(a)   SS emission transmissions by an amateur station are authorized only for communications between points within areas where the amateur service is regulated by the FCC and between an area where the amateur service is regulated by the FCC and an amateur station in another country which permits SS communications for its amateur licensees.

Rule 97.311(b) provides that "stations transmitting SS emission must not cause harmful interference to stations employing other authorized emissions, and must accept all interference caused by stations employing other authorized emissions. For the purposes of this paragraph, unintended triggering of carrier operated repeaters is not considered to be harmful interference."

ARRL proposes to delete the last sentence of that rule. The sentence is, in the ARRL's view, "unnecessary because it is merely repetitive of existing definitions of 'harmful interference' in the ITU Radio Regulations and in Commission definitions and interpretations generally. Harmful interference for non-safety-of-life radio services does not include squelch breaks and repeater activation.

"Past Commission interpretations of interference to amateur repeaters have consistently applied the definition of 'harmful interference' to exclude mere squelch breaks," ARRL observed, "and the Commission held [in a previous Order] that there are 'many other methods' available to prevent unintended triggering of repeaters

besides restricting SS emissions."

ARRL proposes to delete Rules 97.311(c) and (d), in order to permit hybrid frequency-hopping and direct sequence SS emissions, and codes not currently permitted by the Rules, but which are desirable. "The current rules permit only two techniques, neither of which is optimal for sharing," ARRL said. "There are newer codes, including those used by Part 15 device manufacturers, which have been optimized to avoid interaction with shared users. These could be used if the rules were more flexible."

Rule 97.311(g) would be amended to provide for automatic transmitter power control, which would limit output power to that required for communication, when more than one watt of transmit power is used.

ARRL said that the proposed changes would not create any difficulty with station identification or with protection of the Amateur Service from commercial or unlicensed encroachment.

Being on furlough, the FCC has not yet assigned a rulemaking (RM) number to the petition for public comment.

TAPR creates new SIG

The Tucson Amateur Packet Radio Corp. (TAPR) also is interested in improving conditions for spread spectrum radio. Just recently, TAPR President Greg Jones, WD5IVD, announced a Spread Spectrum Special Interest Group (SIG). The SIG will be chaired by Barry McLarnon, VE3JF, and will communicate via an Internet mailing list.

"The emphasis of this SIG is on the technology of spread spectrum rather than regulatory or political issues," Jones said.

Discussion topics will include chipsets and modem products available in the marketplace, and their applicability to the Amateur Service; relative merits of direct sequence, frequency hopping and hybrids of these approaches; use of Code-Division Multiple Access and other multiple-access techniques to build packet radio local-area and metropolitan-area networks; spectrum allocation and interference issues; proposals for development projects; and information sources.

To subscribe to the mailing list send a message to listserv@tapr.org with the following line in the body of the message:

subscribe ss FirstName LastName

Example: subscribe ss John Ham

The TAPR World Wide Web site, (located at http://www.tapr.org), also may be used to subscribe and unsubscribe from TAPR mailing lists.