

March 13, 2003



# *bandwidth*

An Online Newsletter of Discovery Institute



## The 3-Wire World

By: Senior Fellow John Wohlstetter

Washington has often bedeviled captains of industry, as the telecom industry learned in its infancy. Trans-Atlantic cable entrepreneur Cyrus Field's brother Henry said of the time he and his brother spent lobbying Congress to match the British investment share (4 percent) in the first cable: "Those few weeks in Washington were worse than being among the icebergs off the coast of Newfoundland. The Atlantic Cable has many a kink since, but never did it seem to be entangled in such a hopeless twist as when it got among the politicians."<sup>1</sup>

Regulation of various classes of telecom carriers indeed seems to be "entangled in such a hopeless twist." And some regulators realize that reform is needed to reverse this crisis. FCC Chairman Michael Powell said last October: "Few are prospering. Few are growing. Few are spending. Few are investing. The status quo is certain death."<sup>2</sup> Confirming Powell's view of industry woes, one analyst estimates that 2003 will see a 15 percent reduction in total phone industry capital expenditures ("cap-ex") (all telecom firms, not just local firms).<sup>3</sup>

## A Snapshot of Today's Telecom Market: The "3-Wire World"

Wireline telephone carriers, even given the full regulatory relief they need from federal and state regulators, unlikely without federal pre-emption, are facing a cap-ex crisis. It will severely impede their ability to make the massive investment in local loop fiber needed to compete effectively against cable's nearly-complete, all-digital, fiber-to-the-curb infrastructure. With their core voice business declining, losing access lines to broadband and traffic minutes to wireless and Internet e-mail, and with investors regarding telecom warily now that the Wild West days of the late 1990s are over, wireline carriers will be hard pressed to match cable. Wireless is on its way to become the voice of tomorrow, and cable bids

fair to win the video wars. Yet the one player in the three-wire world most vulnerable, the wireline industry, remains in the eyes of regulators the giant behemoth from whom the remainder of the telecom world needs continued protection. Let's take a closer look at each of the three wires in today's telecom marketplace: broadband, narrowband and mobile (both broadband and narrowband).

## The Broadband Wire: Cable and Satellite Surge; Telcos Struggle

The latest broadband deployment figures released by the FCC show roll-out slowing during the first half of 2002, more so for DSL than for cable modems; cable's larger numerical base thus widened its lead over DSL. Total broadband lines in service at mid-2002 rose to 16.2 million, up 27 percent from 12.8 million at year-end-2001 and 69 percent from mid-2001 (the FCC considers 200 kilobit-per-second in one direction sufficient to qualify, which amounts to slightly faster than dial-up download speeds for web pages). But the latest 27 percent jump is less than the 33 percent jump recorded in the latter half of 2001.<sup>4</sup>

Of the 16.2 million lines, 14 million (86 percent) are for residential or small business, up 27 percent from 11 million at year-end-2001. Bi-directional broadband deployment rose 41 percent, from 7.4 to 10.4 million, with 8.7 million (84 percent) serving residential or small business; the more rapid increase in two-way speeds suggests growing consumer preference for fatter upstream pipes. Cable service rose 30 percent vis-à-vis year-end-2001, versus 36 percent in the latter half of 2001. DSL rose 29 percent from year-end-2001, a steep drop from the 47 percent increase it registered in the second half of 2001. Overall, DSL added 1.2 million lines while cable added 2.1 million; thus cable's lead widened to 4 mil-

lion—9.2 versus 5.2 million. This leaves 1.8 million for satellite broadband. The market shares of the three wires are now 57 percent for cable,<sup>3</sup> 32 percent for DSL and 11 percent for satellite.<sup>5</sup>

There is at least one report that broadband deployment pace picked up in late 2002, to 100,000 households per week, which would add 5 million households in 2003. If true, such demand is partly driven by popular websites whose users want speed: ESPN.com says that 85 percent of those accessing its site do so over a broadband link.<sup>6</sup>

Rural and low-income areas continue to sign on: 50 percent of rural areas now have broadband access, up from 37 percent at year-end-2001 (urban went from 98 to 99 percent); 69 percent of zip codes with bottom-decile income levels now have access, compared to 59 percent at year-end-2001 (top-decile zip code coverage went from 96 to 98 percent).<sup>7</sup> The “digital divide” continues to narrow.

Cable’s nationwide upgrade to 750 MHz (125 channels) digital plant is now 85 percent complete.<sup>8</sup> The industry is flexing its market muscle: Since 1996, while wireless rates have fallen 32 percent and long distance rates 25 percent, cable rates have risen 45 percent. The year 2002 marked a cable milestone: For the first time cable’s audience share topped broadcast television’s share.<sup>9</sup>

Satellite has emerged as a major niche broadcast player, with 21.1 million subscribing households compared to cable’s 68.8 million at mid-2002.<sup>10</sup> But cable’s march toward video dominance continues. Although Direct Broadcast Satellite (DBS) grew far faster than wireline cable, its 18 million household subscriber base is less than the 20 million households served by digital cable, and digital cable (unlike analog) is growing faster than satellite.<sup>11</sup> Prudential Securities forecasts that digital cable will reach 42 percent of sub-

scribers by 2007 (29.7 million households), and its share of total cable revenues will grow from 7 to 9 percent.<sup>12</sup> The average monthly rate for satellite remains 7.7 percent higher than that for cable (\$50.71 v. \$47.08).<sup>13</sup>

Further weakening satellite as a competitor to cable is the decision of the Justice Department and the FCC to block the DirecTV/EchoStar merger; the deal would have created a single nationwide carrier with ability to deliver local programming in all 210 markets nationwide; because some 5 million rural customers would thus be left with a single broadcast carrier, the government blocked the deal, despite the stronger competition the combined satellite entity would have provided for the nation’s 68.8 million cable customers. DirecTV is currently “in play”—with several corporate suitors—but no merger that might result would create the satellite powerhouse that EchoStar and DirecTV would have created.

The \$66 billion cable has invested since passage of the Telecom Act has laid the ground for the long-awaited broadband “killer app”: video-on-demand (VOD). Already VOD has passed 7 million households: Yankee Group projects 37 million VOD households in 2006, generating \$2.8 billion in cable revenues.<sup>14</sup> Already offered in pay-per-view (pVOD) and monthly subscription (sVOD) formats, VOD’s chief marketing obstacle is the two Hollywood studios (Disney and Viacom’s Paramount) that are refusing to provide access to their content libraries due to copyright concerns arising out of use of personal video recorders (PVRs—video recorders with intelligent capabilities that permit such functions as pausing live TV feed and specialized editing on PCs).<sup>15</sup> PVRs already penetrate 2 percent of households, half the 4 percent rate for High-Definition Television (HDTV), which has been around several years longer.<sup>16</sup>

One factor that may slow VOD penetration is the growth of “snail mail” DVD rental from online providers. Shipped in lots of one thousand, the per-DVD snail-mail cost is 37 cents; one network expert pegs the cost of transmitting a movie over the network at \$20. The new popular major movie formats require some 8 to 9 gigabytes; even at the top-end 2 megabit-per-second cable download speeds typically seen today, this means 8 hours and 45 minutes for an 8 gigabyte (64 gigabit) file. Estimates of snail-mail DVD demand place total daily shipped capacity of sales and rentals above currently daily Internet capacity.<sup>17</sup>

Cable has made a seismic shift in prior policy on third-party access to its networks. Yahoo!, America Online, EarthLink and Microsoft plan to offer broadband over cable. Adding providers may spur significant broadband penetration; Yahoo’s customer base for fee-based services jumped from 375,000 in 2001 to 2.2 million by year-end-2002; and while fee services include dial-up, broadband is supplanting slower connections.<sup>18</sup> And cable broadband is targeting business as well: The new data standard for cable (DOCSIS 2.0—Data-Over-Cable-System-Interface-Standard version 2) permits symmetrical 30 Mb/s service.<sup>19</sup> Prudential sees cable high-speed data (HSD) revenues more than trebling from 2002’s \$4 billion to \$13 billion in 2007, with homes served by cable-provided HSD more than doubling, from 16 to 34 percent; HSD is the highest-return new service.<sup>20</sup>

Fiber-To-The-Home (FTTH) systems have grown slowly. By early 2002 only 400 homes were served by incumbent local exchange carriers with fiber; Competitive Local Exchange Carriers (CLECs) had already run fiber to 26,000 homes by then. Corning estimated then that only one percent of central offices serving 5 percent of households were profitable for deployment of FTTH under current FCC rules, but that abolition of UNE-P rules would make FTTH cost-proven in 8 percent of central offices serving 31 percent of households.<sup>21</sup>

## The Wireline Loop: Will New Business Bloom Before the Core Implodes?

While cable has gone 85 percent digital with its \$66 billion post-Telecom Act investment, telcos have invested \$150 billion in the same period, of which most went to maintain legacy network equipment. For 1998-2002 the industry’s \$75 billion capital expenditures pushed debt up 60 percent. Much Bell investment is tied up by SONET (Synchronous Optical Network) investment: For 1998-2001 Verizon’s cap-ex was \$48 billion out of \$53 billion cash flow, with 70 percent of cap-ex poured into legacy SONET equipment.<sup>22</sup>

Telephone service marked its 125<sup>th</sup> anniversary in January 2003, and until 2000 there had been only a single year (during the Great Depression) when access lines had declined. They have now seen their line total decline in 2002 for the third consecutive year. At mid-2002 total local access lines stood at 167 million, 11 percent fewer than the 188 million peak. Access line loss means revenues lost—and competitors are picking off the profitable customers; Verizon estimates that a one percent residential access line decline translates into nearly \$1.4 billion lost revenues.<sup>23</sup> Final 2002 industry access line figures are not yet available, but line losses for the Bells will be lower. Second lines have margins around 70 percent (as does Frame Relay, the packet-switched business service), far higher than margins realized from new Bell offerings.<sup>24</sup> Reflecting the adverse financial and regulatory environment, current telco cap-ex is running well below the 20 percent of revenues for wireless cap-ex.<sup>25</sup>

The 21 million Bell drop matches almost exactly the 21.6 million access lines owned by CLECs (an 11.4 percent market share), but a few million of the telco access line fall-off is attributable to customers dropping dial-up access when convert-

ing their voice lines to high-speed Digital Subscriber Line (DSL) service.<sup>26</sup> For the foreseeable future DSL is the Bells' only hope, with higher bandwidth VDSL (Very high-bit-rate DSL) offering 13 Mb/s at 4,000 feet, 26 Mb/s at 2,000 and 52 Mb/s at 1,000; Qwest (through its US West subsidiary) is the only local carrier to offer VDSL, with 50,000 customers, in Colorado and Arizona; its VDSL service, however, does not top the 7 Mb/s mark that DSL can hit up to 12,000 feet. One of the few FTTH offerings, from Texas provider Grande Communications, runs at only 2.5 Mb/s, despite much-greater theoretical capability.<sup>27</sup>

The deteriorating market position of the Bells has been obscured in no small part by improvements in free cash flow produced largely by reducing capital expenditures; Prudential estimates that 2003 will see a further 6 percent reduction in Bell firm cap-ex, on top of a 36 percent reduction in 2002.<sup>28</sup> Thus, Verizon reported \$7.8 billion "free cash flow" improvement for 2002 over 2001, but \$5.4 billion (69 percent) was due to reduced cap-ex ("operating cash flow" excludes cap-ex).<sup>29</sup> The Bell companies aim for \$19 billion cap-ex in 2003, a target 10 percent lower than their combined figure for 1995, the last year governed by the regulatory rules that prevailed prior to the rules adopted by the FCC after passage of the 1996 Telecom Act.<sup>30</sup>

While telco investment is sucked up by legacy equipment, cable is winning the broadband Internet race, with two-thirds of subscribers choosing cable modem over DSL service. Verizon has signed up 5 percent of its 30 million wireline customers, compared to 18 percent for Cox, 14 percent for Comcast and 13 percent for AT&T as to their respective bases (these are 2002 pre-merger figures for AT&T and Comcast). According to Verizon, 75 percent of DSL sign-ups cancel their dial-up second line.<sup>31</sup>

The telephony side looks no prettier. Their wireline customer base is eroding: Bells take a 60 percent revenue hit when they lose a customer to a wholesaler who uses UNE-P (unbundled network element platform).<sup>32</sup> Nationwide UNE-P discounts average 46.5 percent, with New York at 75 percent.<sup>33</sup> Bell company competitive vulnerability is compounded by customer concentration: 13 percent of Bell central offices serve 54 percent of business and 44 percent of residential lines; by spring 2002 CLECs had co-located equipment in 35 percent of central offices serving 61 percent of lines in the top 25 metropolitan areas.<sup>34</sup> Incumbent access line concentration radically increases their core revenue vulnerability to competitive entry.

Nor can cable companies, once derided by telco marketers ("Do you want phone service that goes down whenever it rains?"), be ignored in telephony. The latest figures show 2.6 million cable customers taking cable's telephone service as well; this represented 12 percent of total (CLEC) telephone lines (the FCC counts cable lines as part of the CLEC total).<sup>35</sup> One factor in cable's inroads: Cox charges 30 percent less than its telco competitors. Customers are gravitating towards "triple play" service—packaging telephone, cable video and Internet data services in a single carrier. And cable is addressing one of its major telephony shortcomings: dependence upon electric power supplied by the electric utility; an emerging cable standard will enable power support from cable head-end, matching telco central office capability.<sup>36</sup>

After two years Cox and AT&T are winning 25 percent penetration shares in Bell markets. While the Bells are winning comparable shares in long distance markets, they are not making money. Verizon has tripled its LD customers since year-end-1999, going from 3.1 to 9 million; but LD revenues actually slightly *declined*, from \$3.2 to \$3.1 billion. And LD's 3:1 price elasticity precludes raising prices to gain revenue, while price-

inelastic local service is protected by regulators against increases.<sup>37</sup> SBC alone projects a loss of 7 million local exchange customers in 2003.<sup>38</sup>

True, cable's current 2.6 million household penetration level for telephony is a minuscule fraction of the nation's 107 million households. But Yankee Group projects 14.25 million cable telephony households by 2007, a share that will no doubt be weighted heavily towards demographically elite segments.<sup>39</sup>

Not that all is golden for long distance carriers. WorldCom languishes in bankruptcy proceedings, while Sprint's management literally implodes. And the news is no better at AT&T: Its core long distance business revenues fell 20 percent in 2002, partly due to Bell company inroads; AT&T's 50 million long distance customers are 25 times its local share (WorldCom's 20 million long distance base is less than eight times its 2.7 million local share).<sup>40</sup> With the Bells in 35 states already and likely to be in all within a year, further erosion is certain. And like their local rivals, long distance carriers are highly vulnerable to customer concentration, with 7 percent of LD customers providing 40 percent of firm profits and one-third yielding 70 percent.<sup>41</sup> And since 2001, Bell company regulatory approvals to enter long distance outside their home regions have gone from 10 states to 35, with 50 possible by year-end 2003.

But AT&T projects that by year-end-2004 it will have 8 to 10 million local customers. UBS Warburg estimates that non-Bells will take 20 percent of Bell retail lines by year-end-2004. Worse for the Bells, Warburg's analysis concludes that the Bells must add four or five new long distance customers for each local line lost.<sup>42</sup>

Both local and long distance carriers face another problem: narrowband traffic cannibalization by lower-margin applications. E-mail is now an increasingly popular substitute for many non-

time-sensitive voice calls. The number of e-mail "boxes" grew from 100 million in 1995 to nearly 900 million by year-end-2000, roughly half of them located in the United States (surely well over the billion mark today).<sup>43</sup> This figure is some 2-1/2 times the number of domestic local access lines.

## The Coming Wireless Whirlwind: Narrowband Nirvana, Broadband Balkans

Already 3 to 5 percent of wireless users have junked their landline connection.<sup>44</sup> A year-old Gallup poll showed that 18 percent of cellphone users consider their wireless phone their primary instrument.<sup>45</sup> The shift of voice usage from wire to wireless is certain to continue, with wireless accounting for perhaps half of all calls by 2006.<sup>46</sup> Most ominously for wireline voice: By one estimate *the 14-20 year age cohort will comprise half of cellphone users in the United States by year-end-2003* (there are currently 140 million domestic cellphone users).<sup>47</sup> This younger set, famously habituated to carrying their "cells" about like an extra appendage, considers a landline phone as useful as a prehensile tail.

The 21<sup>st</sup> century telecom world of voice traffic is increasingly driven by wireless offerings. One cellular carrier offers 10,000 minutes for \$55 per month, this for a population whose estimated average monthly use of wireless plus wireline is 30 hours, or less than one-fifth a 10,000-minute monthly flat rate limit. The average cellphone user consumes 541 of the 1,359 minutes per month provided under the average cellular service plan. Wireless per-minute rates averaged 12 cents in 3Q02, a decline of nearly 18 percent from 3Q01's 14.6 cents.<sup>48</sup> Pricing plans have led to longer calls: local call length, which actually shrank 2 percent between 1990 and 1995, increased 9 percent from 1995-2000, and then 6 percent in 2001.<sup>49</sup> Annual declines in long dis-

tance wireline minutes-of-use (LD MOU) have crossed the 10 percent threshold; Yankee Group projects that LD MOU will decline 45 percent between 2000 and 2006.<sup>50</sup> By comparison, the four hours per week spent online by the typical Internet user—a number broadband diffusion is expected to boost—equates to about 16 hours per month. So folks still spend more time chatting than messaging, at least, for the time being.<sup>51</sup>

Mid-2002 wireless metrics show an industry whose sunken investment has reached \$118 billion. Its nearly 140 million users pay an average of \$47.42 per month (in 1998 the average monthly rate was at an historical industry low of \$39.88). Billable minutes have exploded since 1998, jumping nearly sixfold. Seven out of eight customers use digital wireless service.<sup>52</sup> But the market is crowded, with some six nationwide networks, and the effects are showing: revenues per user are now declining one to 2 percent annually, and in 3Q02 per-minute charges were 12 cents, down 18 percent year-over-year from 3Q01.<sup>53</sup>

Wireless broadband is off to a slower start, but “Wi-Fi” (Wireless Fidelity) brought 11 megabit-per-second short-range connectivity to a growing set of business and residential users; in 2002 an estimated 7 million Wi-Fi access points were installed.<sup>54</sup> By late 2002 there were 2 million North Americans that used Wi-Fi for Internet access.<sup>55</sup> The long-heralded 3G wireless broadband, whose real-life speeds today are a lowly few hundred kilobits-per-second rather than the megabit speeds promised, continues to lag: AT&T recently cut back its plan to deploy 3G in 13 cities by mid-2004, in partnership with Japan’s DoCoMo; instead it now plans to serve only four.<sup>56</sup>

Two recent wireless broadband developments might be promising: EvDO (Evolution Data Only) would offer connection speeds 10 times that for 56 kb/s modems, and greater range than Wi-Fi; phone companies are testing it.<sup>57</sup> And at

the Super Bowl, ABC’s broadcast feed included a line-of-sight wireless uncompressed HDTV signal, sent from a hilltop antenna at 1.45 gigabits per second in the 71-76 GHz frequency band; it was the commercial debut of service in this band, for which the FCC has yet to adopt rules.<sup>58</sup>

The potential of wireless data is much in dispute—understandable in light of the hype during the Internet boom. MIT Media Lab founder Nicholas Negroponte, one of the original “ digerati ” mavens, notes that Wi-Fi is “viral”—it spreads by individual small segments that collectively grow into a fully connected “mesh” network, and occupies unlicensed spectrum (*i.e.*, does not require regulatory approval to operate radio frequencies). Wi-Fi can reach 20 kilometers with directional antennas that boost signal strength, a capability usable only in rural areas, as higher power cannot be used in urban areas where frequency re-use is paramount. Five years ago installing a wireless LAN cost \$2,000 per base station and \$500 per device; now the corresponding figures are \$120 and \$50.<sup>59</sup>

## Conclusion: Waiting for Missile Mail?

On June 8, 1959 a Navy submarine launched a cruise missile carrying 3,000 letters. An official breathlessly predicted: “Before man reaches the moon, mail will be delivered within hours from New York to California, to Britain, to India or Australia by guided missiles.”<sup>60</sup> We are still waiting. Will we have to wait as long for regulators to wake up to the emerging three-wire world of telecommunications?

Today’s status quo—the product of the Clinton-era FCC’s rules, aptly described by telecom maven Peter Huber as “Hillary-care for the telecom industry”—is financially lethal for the future of wireline telecom. A cable industry substantially stronger than a fading telecom industry



will not produce the healthy three-wire world the country needs. On February 20 a 3-2 majority at the FCC, including one Republican, voted a draft plan to continue incumbent network access discounts while granting limited broadband relief, handing Chairman Powell a policy defeat. If not revised, the order (to be covered in a future issue after the final text is released) would place incumbent infrastructure deployment in effective receivership to state PUCs living in 1970. Missile mail may eventually come to the consumer's rescue—with luck, by 2070.

Alas, it can be said of too many of America's telecom regulators, especially at the state level, what was said of the 18<sup>th</sup> century French Bourbon monarchs: "They have learned nothing, and forgotten nothing."

<sup>1</sup> Gordon, John Steele, *A Thread Across the Ocean*, p. 70 (Walker & Company 2002).

<sup>2</sup> Huber, Peter W., *Telecom Undone—A Cautionary Tale*, Commentary, p. 34 (Jan. 2003).

<sup>3</sup> *Wrong Numbers for Telecom—Gear Makers*, businessweek.com, 2/4/03 (subscriber access only).

<sup>4</sup> *Federal Communications Commission Releases Data on High-Speed Services for Internet Access*, FCC News, Dec. 17, 2002.

<sup>5</sup> *Id.*

<sup>6</sup> *After Web Blew Up, Shift to Broadband Quietly Went On*, Wall Street Journal, p. A1 (Jan. 8, 2002).

<sup>7</sup> *Id.*

<sup>8</sup> *Initiating Coverage of the Cable Industry With a Market Outperform Rating*, Prudential Securities (Jan. 31, 2003).

<sup>9</sup> *Cable Claims First TV Title*, Entertainment – Hollywood Reporter, 2:13 AM ET, 12/18/02.

< [http://story.news.yahoo.com/news?tmpl=story2&cid=91&ncid=91&e=7&u=/bpihw/20021218/en\\_bpihw/cable\\_claims\\_first\\_tv\\_title](http://story.news.yahoo.com/news?tmpl=story2&cid=91&ncid=91&e=7&u=/bpihw/20021218/en_bpihw/cable_claims_first_tv_title) >

<sup>10</sup> *FCC Releases Ninth Annual Report on Competition in Video Markets*, FCC News, 12/31/02. Of the 21.1 million satellite users, 18 million take Direct Broadcast Satellite (DBS), enabling them to use a small satellite dish. *Id.*

<sup>11</sup> *Couch Potato Heaven*, Newsweek, p. 46, Dec. 23, 2002.

<sup>12</sup> Prudential, note 8 *supra*.

<sup>13</sup> *Cable Still King*, Washington Times, p. C9 (Nov. 19, 2002). Sources: National Cable Television Association;

Consumer Electronics Association.

<sup>14</sup> *Id.*

<sup>15</sup> *Id.*, pp. 46-47. Comcast is reportedly considering a third VOD format, free VOD (fVOD), to offer 24-hour time-shift access to existing cable channel programming. *Id.*

<sup>16</sup> Prudential, note 8 *supra*.

<sup>17</sup> *New Economy*, New York Times, p. C4 (Sept. 23, 2002).

Older movies are in DVD-5 format, and take up 4.3 gigabytes; new films are mostly in DVD-9, at 7.95 GBytes or DVD-10, at 8.75 GBytes; some super-films use DVD-18, at 15.9 GBytes. Estimates of daily Internet traffic run 2,000 – 4,000 terabytes (*i.e.*, 2 – 4 GBytes); DVD purchases run 1.5 million daily, or 800 terabytes, while one (of several) DVD rental online providers, Netflix, ships 19 0,000 DVDs daily to its 670,000 subscribers, or 1,500 terabytes daily.

*Id.*

<sup>18</sup> *Yahoo Plans Expansion of Broadband*, New York Times, p. C1 (Jan. 16, 2003).

<sup>19</sup> *2003 Broadband Tsunami*, Needham Equity Research Note, p. 2 (Dec. 31, 2002).

<sup>20</sup> Prudential, note 8 *supra*.

<sup>21</sup> Eisenach, Jeffrey A. & Lenard, Thomas M., *Telecom Deregulation and the Economy: The Impact of UNE-P on Jobs, Investment and Growth*, p. 12, Progress & Freedom Foundation, Progress on Point Release 10.3 (Jan. 2003).

<sup>22</sup> *Now We'll Buy Cable*, The Technology Market Advisor, August 2002 (Gilder Publishing).

<sup>23</sup> *The Empire Strikes Back*, Morgan Stanley (Jan. 27, 2003).

<sup>24</sup> *Here Comes the Real Fun for Telecom*, businessweek.com, 2/4/03 (subscriber access only).

<sup>25</sup> Ivan Seidenberg (Verizon Chairman-CEO), Address to Precursor Group, p. 6, Feb. 4, 2003..

<sup>26</sup> FCC News, note 10 *supra*.

<sup>27</sup> *Copper Lines Regaining Luster*, washingtonpost.com, p. E01, Feb. 7, 2003.

< <http://www.washingtonpost.com/wp-dyn/articles/A38106-2003Feb6.html> >

<sup>28</sup> *Wireline Services: Recent Reports Portray Best Case Scenarios for Bells; Good News is All Out?*, Prudential Securities (Jan. 8, 2003).

<sup>29</sup> Source: Verizon Communications.

<sup>30</sup> *Copper Lines*, note 27 *supra*.

<sup>31</sup> *Now We'll Buy Cable*, note 22 *supra*.

<sup>32</sup> *Id.*

<sup>33</sup> Source: Prudential Securities, November 2002.

<sup>34</sup> May, Randolph J., *The FCC and Telecom Recovery: A Scorecard for Evaluating the New Rules*, Progress & Freedom Foundation, Progress on Point Release 10.2, p. 15 (Jan. 2003).

<sup>35</sup> *Federal Communications Commission Releases Data on Local Telephone Competition*, FCC News, Dec. 9, 2002.

<sup>36</sup> *Cable Bills Add a Line: The Phone*, New York Times, p. G1, Dec. 26, 2002.



## [ET CETERA]

*“Reach Out and Touch Someone” Goes Global.* Figures published by the International Telecommunication Union (ITU) for 1995 – 2001 show global landline growth of better than 7 percent per annum, with phones rising from 689 million to slightly over one billion; cellular grew even faster, rising from 140 million to 940 million.

*E-Checking Going Mainstream?* Jupiter Media Matrix Group counts 16 million households using the Internet for online banking in 2001, and forecasts 43 million will do so in 2006. Jupiter further claims that 22 percent of households (about 23.5 million) have already given up writing checks, which suggests that some households have stopped writing checks but are not banking online.<sup>61</sup> Mattresses anyone?

*Surf the Friendly Skies.* Lufthansa began on January 15, 2003 a three-month trial on its Frankfurt/Washington route for fast Internet access using Boeing’s “Connexion” service, at rates of \$25 to \$35. The service is the first broadband access offered in the air, and has attracted the interest of major European carriers.<sup>62</sup>

*Down Under’s Miss Manners Takes on Mobile-Mania.* Cell phone etiquette in Australia is apparently no better than elsewhere in the developed world. With 12.5 million Aussies owning mobiles (some 66% of Oz’s 19 million) the situation is a veritable epidemic. One Spanish priest, enraged at mobile rings during Mass, installed an electronic jammer, despite it being illegal in Australia to own one.<sup>63</sup>

*China’s Cyber-Constabulary Rules.* China is doing an increasing better job of policing Internet access. A force of 30,000 – 40,000 cyber-cops arrest users who visit forbidden websites—estimated at up to one-tenth of all sites—or send e-mails deemed subversive; recently, China blocked web-caching on Google.<sup>64</sup>

*Uncle Sam a Net Nanny, Too?* The Bush Administration reportedly plans to set up a centralized operations center to monitor Net usage closely, as part of its cyber-security initiative to be released in final form in 2003.<sup>65</sup>

*Teen Telecom Entrepreneur.* A 17-year old Dutch schoolboy has made more than one million euros since 1998, running a three-person firm whose website calculates the cheapest way for Dutch and Belgian subscribers to make calls.<sup>66</sup>

*Glitzy Name for a Mega-Glitch: “Sapphire.”* A destructive Internet “worm” (differs from “virus” in that viruses are programs that self-replicate, whereas worms do not), dubbed “Sapphire,” revealed greater inter-network vulnerabilities than previously thought existed, shutting down ATM machines, Continental Airlines reservations and 911 systems, among others. Some experts believe too many critical systems are being connected to the public Internet.<sup>67</sup> Sapphire spread globally in 10 minutes, the fastest worm ever; 55 million machines were attacked within 3 minutes, as computers hit doubled every 8.5 seconds.<sup>68</sup>

*Asian Broadband Boom.* South Korea, aided by a concentration of 40 percent of its population in urban high-rises, has attained 58 percent household broadband penetration. China registered 3 million DSL customers in January, triple the June 2002 total—the world’s fastest growth. Japanese household DSL penetration is 6 million after 4 years; Yankee Group projects up to 12 million by 2004.<sup>69</sup> (In 2000 Japan had 46.8 million households, 124.9 million population.<sup>70</sup>)

*Emerging Punishment Tool.* But perhaps the clearest sign that the Internet is permeating modern American life is that 37 percent of parents have now punished their offspring by denying them Internet access; this still trails TV, at 46 percent. Students have noticed the labor-saving potential of the new medium, enhancing its value: A Yale junior said that for “real information” he preferred the library, but when “too lazy to go to the library, you can find it from Google.”<sup>71</sup>

- <sup>37</sup> Prudential Securities, note 8 *supra*.
- <sup>38</sup> *At SBC, the Race is On*, Business Week, p. 69 (Jan. 13, 2003).
- <sup>39</sup> *Shine May Return to Bells*, Wall Street Journal, p. A2 (Jan. 7, 2003).
- <sup>40</sup> *AT&T to Offer Local Service*, Washington Post, p. E5 (Jan. 14, 2003).
- <sup>41</sup> *The Empire Strikes Back*, note 8 *supra*.
- <sup>42</sup> *Bell Companies Lose Customers to AT&T, MCI*, Wall Street Journal, p. B1 (Dec. 12, 2002).
- <sup>43</sup> *Billions Served Daily*, and Counting, p. F9 (Dec. 6, 2001).
- <sup>44</sup> *Powell's Boost for the Bell is Half Right*, Business Week, p. 40 (Jan. 20, 2003).
- <sup>45</sup> *CEI C:\SPIN*, Competitive Enterprise Institute, Jan. 31, 2003. The Gallup survey had a 4 percent margin of error, so the range of cell users favoring wireless over wire was 14 – 22 percent. (The “Primary Instrument Concept” was advanced in the 1970s by the wireline telephone industry during the debate over competitive entry into public-switched telephony.)
- <sup>46</sup> *A Tech Rebirth?* US News and World Report, p. 25 (Jan. 13, 2003). The article does not specify voice calls, but presumably that is what the estimate pertains to.
- <sup>47</sup> *Gazing Into 2003: Economy Intrudes on Dreams of New Services*, New York Times, p. C3 (Dec. 30, 2002). The estimate comes from the San Francisco-based Zelos Group.
- <sup>48</sup> *Wait for the Next Wireless Wave?*, businessweek.com, 1/17/03.  
< [http://www.businessweek.com/technology/content/jan2003/tc20030117\\_1203.htm](http://www.businessweek.com/technology/content/jan2003/tc20030117_1203.htm) >
- <sup>49</sup> Aarons, Barry M., *Don't Call—Just Send Me an E-Mail*, Institute for Policy Innovation, Policy Report 175, p. 13 (Jan. 2003). < <http://www.ipi.org> >
- <sup>50</sup> *Id.*, p. 15. A drop from 208 billion (inter- plus intra-LATA) in 2000 to 114 billion in 2006.
- <sup>51</sup> *We May Be Reaching the Limit for Yacking On All Our Phones*, Wall Street Journal, p. B1 (Dec. 23, 2002). The wireless/wireline figures come from the consulting firm J. D. Power & Associates; the Internet numbers come from a Stanford University survey.
- <sup>52</sup> *CTIA Semi-Annual Wireless Industry Survey*, Cellular Telecommunications & Internet Association (2002).
- <sup>53</sup> *Wait for the Next Wireless Wave?*, businessweek.com, 1/19/03.
- <sup>54</sup> *Dead Air*, Forbes, p. 138 (Nov. 25, 2002).
- <sup>55</sup> *The Big Boys' Mad Dash Into Wi-Fi*, Business Week, p. 38 (Dec. 23, 2002).
- <sup>56</sup> *AT&T Wireless Curtails 3-G Plan to Just Four Cities*, Wall Street Journal, p. A3 (Dec. 27, 2002). One estimate is that 3G will attain one megabit-per-second in two years. *Being Wireless*, Wired, p. 118 (October 2002).
- <sup>57</sup> *A New Wireless Web Link*, Washingtonpost.com, p. E01, Jan. 23, 2003.  
< <http://www.washingtonpost.com/ac2/wp-dyn?pagename=article&node=&contentId=A30446-2003Jan22&notFound=true> >
- <sup>58</sup> *Super Spectrum's Debut at the Super Bowl*, Business Week, p. 73 (Feb. 17, 2003).
- <sup>59</sup> *Id.*, Wired, p.118 (October 2002).
- <sup>60</sup> *Missile Mail*, History of the US Postal Service, 1775-1993.  
< [http://www.usps.com/history/his2\\_75.htm#MISSILE](http://www.usps.com/history/his2_75.htm#MISSILE) >
- <sup>61</sup> *Consumers and Businesses Embrace Online Banking*, Trend Letter, p. 11 (Dec. 23, 2002).
- <sup>62</sup> *Today, You Can E-Mail, Surf Web at 30,000 Feet*, Wall Street Journal, p. D6 (Jan. 15, 2003).
- <sup>63</sup> *Mobile-Mad World Shatters the Comfort Zone*, smh.com.au, 12/16/02.  
< <http://www.smh.com.au/articles/2002/12/15/1039656294504.html> >
- <sup>64</sup> *Caught in the Web*, weeklystandard.com, 12/19/02.  
< <http://www.weeklystandard.com/Content/Public/Articles/000/000/002/040yffaq.asp> >
- <sup>65</sup> *Bush to Propose Requiring ISPs to Monitor Net*, Mercury News, 12/19/02.  
< <http://www.siliconvalley.com/mld/siliconvalley/4779109.htm> >
- <sup>66</sup> *17-Year Old Makes Millions From Phone Website*, ananova.com, 12:33 7/19/03.  
< [http://www.ananova.com/news/story/sm\\_741343.html?menu=news.latestheadlines](http://www.ananova.com/news/story/sm_741343.html?menu=news.latestheadlines) >
- <sup>67</sup> *Internet Worm Unearths New Holes*, Washington Post, p. A1 (Jan. 29, 2003).  
< <http://www.washingtonpost.com/ac2/wp-dyn/A57550-2003Jan28?language=printer> >
- <sup>68</sup> *Internet Worm Took 10 Minutes to Create Global Chaos*, independent.co.uk, 11:17, 2/4/03.  
< <http://news.independent.co.uk/digital/news/story.jsp?story=375374> >
- <sup>69</sup> *Eating Asia's Broadband Dust*, businessweek.com, 2/4/03 (subscriber access only).
- <sup>70</sup> Source: population census of Japan.
- <sup>71</sup> *Survey: Internet More Important Than Ever*, washingtonpost.com, 11:11 PM, 1/30/03.  
< <http://www.washingtonpost.com/ac2/wp-dyn/A4041-2003Jan30?language=printer> >

## *bandwidth*

Is published by Discovery Institute

Discovery Institute is a non-profit, non-partisan, public policy think tank headquartered in Seattle and dealing with national and international affairs. For more information, browse Discovery's Web site at: <http://www.discovery.org>

DISCOVERY  
INSTITUTE

To subscribe or unsubscribe to *bandwidth* or to forward a copy of this issue to a friend visit:

<http://www.discovery.org/bandwidth>

**Discovery Institute's NEW mailing address:**

1511 Third Avenue  
Suite 808  
Seattle, WA 98101

**Questions and comments may be emailed to:**

<mailto:wohlstetter@discovery.org>