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PEW INTERNET & AMERICAN LIFE PROJECT

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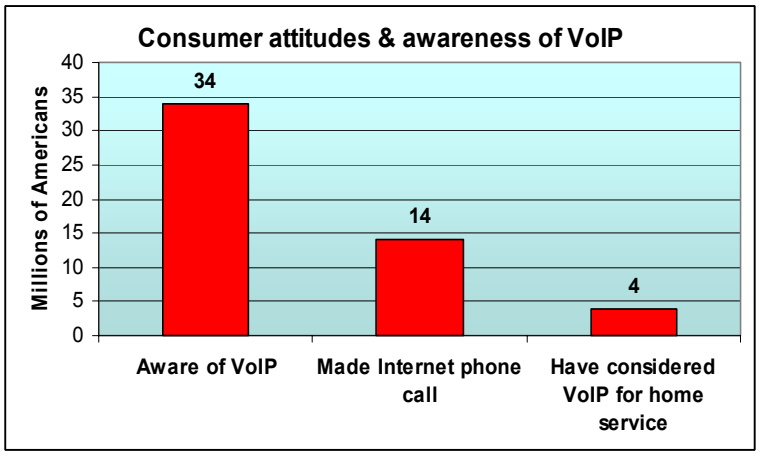
27% OF ONLINE AMERICANS HAVE HEARD OF VOIP TELEPHONE SERVICE; 4 MILLION ARE CONSIDERING GETTING IT AT HOME

While telephone calling using Voice over Internet Protocol (VoIP) has attracted considerable attention in the business community and among policymakers, 27% of Internet users in the United States – or 17% of all Americans – have heard of the service. Of those who have heard of VoIP, 13% have considered purchasing the service for home use. In other words, at this very early stage of VoIP's life, 3% of Internet users have considered adopting VoIP technology in the home.

This means that approximately 34 million American Internet users have heard of VoIP and 4 million have given thought to using Voice over Internet Protocol service for home telephone service. The survey also found that 11% of Internet users, or about 14 million Americans, have at one time made a phone call over the Internet. This figure includes people who may have used VoIP at work or perhaps have downloaded free software that permits phone calls between Internet-connected computers.

The findings come from the Pew Internet & American Life Project's February 2004 survey of 2,204 Americans, 63% of whom were Internet users. The survey asked whether any online Americans use VoIP service for home telephone service. Of the 2,204 respondents, just one said that VoIP is used in the home, showing the low rate of consumer adoption of the technology so far. The questions on VoIP in the February 2004 survey were developed in collaboration with the New Millennium Research Council. The council can be found at http://www.newmillenniumresearch.org/.



Those who have heard of VoIP service fit the classic "early adopter" profile of those who embrace new technologies; they are well-educated, willing to try new things, and able to troubleshoot hassles that may arise in adopting new technologies. Demographically, those who have heard of VoIP are much more likely to be male (two-thirds of those who have heard of VoIP are men), well educated (they are twice as likely to have college degrees as the general population), well off economically, and long-time Internet users. They are also likely to use high-speed Internet connections to go online from home. Half of those who have heard of VoIP go online from home with a high-speed connection (versus 39% of all Internet users). Two-thirds of those who have heard of VoIP have a high-speed connection either at home or work, compared with 55% of all Internet users. Given the need for a high-speed connection to make VoIP work effectively, it is no surprise that high-speed users are more attuned to VoIP.

People between the ages of 25 and 34 seem most aware of VoIP; 32% of those in this age range have heard of VoIP. Perhaps surprisingly, only 15% of those between the ages of 18 and 24 have heard of VoIP, and this age group is slightly less like than average to have made a phone call online. A possible explanation has to do with the mobility of young people – they may value a cell phone more than an innovation in home telephone service.

Among the Americans who use VoIP, these people seem willing to put up with a few hassles in service and quality as they generally sing the praises of VoIP. Comments on the DSL Reports Web site (www.dslreports.com) show that many users have favorable impressions of VoIP, even as they point out problems that might not be tolerated of "plain old" telephone service. Common complaints involve static or delays in voice transmission, and occasional problems with calls when other users in the house are downloading files on the Internet.

Yet, because the home VoIP pioneers are likely to be technology enthusiasts, these problems do not dim the glow of being on the cutting edge. A sampling of comments that users of VoiceGlo's VoIP service made in response to queries posted at VoiceGlo's Web site shows most users have a favorable impression of their VoIP service. Many users cite that VoIP's attractive price as one of its benefits. At the same time, users expressed the

desire for a wider range of services, such as caller identification, video capability, three-way calling, and directory service. Again, this suggests a high tolerance among those trying the new service for service shortcomings; some of the desired services are available from plain old telephone service.

A VoIP Primer

Voice over Internet Protocol offers the capability to transmit voice communications over the Internet, employing a variety of end user devices. In most cases, VoIP services convert the analog voice from a telephone (using an adapter between the telephone and the Internet connection) into digital signals that travel as packets over the Internet then are converted back to analog voice at the receiving end. When placing a VoIP call using a phone with an adapter, a consumer hears a regular dial tone and can dial traditional phone numbers. Other VoIP services allow calls directly from a computer, either to a network of common service subscribers or to any telephone number. True VoIP requires the customer to have a broadband connection, such as cable modem or DSL.

According to Gartner, Inc., a technology research firm, at the end of 2003 there were 150,000 U.S. VoIP subscribers. Gartner predicts this number would grow to 1 million by the end of 2004 and reach 6 million by the end of 2005.[1] Some experts predict that consumer use of VOIP could reach 40% of the U.S. market by 2009.[2] The Federal Communications Commission (FCC) has already issued two policy decisions on VoIP [3] and has initiated a wide ranging proceeding to determine the appropriate regulatory framework for IP-enabled services.

Industry offerings and consumer choices are proliferating as the telecommunications industry moves to introduce this new technology. AT&T unveiled CallVantage in March 2004.[4] The local phone companies, such as Verizon[5] and BellSouth[6], announced their intention to enter the residential VoIP market within the next year. Cable companies,

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[1] "Internet Telephony Poses New Problems" National Journal Tech Daily, April 13, 2004.
[2] "The Future of Internet Phone Calling: Regulatory Imperatives to Protect the Promise of VoIP for Industry and Consumers" New Millennium Research Council, December 16, 2003. http://www.newmillenniumresearch.org/news/voip_nmrc.pdf
[3] *In the Matter of Petition for Declaratory Ruling that pulver.com's Free World Dialup is Neither Telecommunications Nor a Telecommunications Service WC Docket No. 03-45* http://hraunfoss.fcc.gov/edocs_public/attachmatch/FCC-04-27A1.pdf and *In the Matter of Petition for Declaratory Ruling that AT&T's Phone to Phone IP Telephony Services are Exempt from Access Charges WC Docket No. 02-361* http://hraunfoss.fcc.gov/edocs_public/attachmatch/FCC-04-97A1.pdf
[4] AT&T Press Release "AT&T Ushers In New Era in Communication With Launch of AT&T CallVantage Service - New Jersey" March 29, 2004. http://www.att.com/news/item/0,1847,12989,00.html
[5] Verizon Press Release "Verizon Outlines Leadership Strategy for Broadband Era; Announces Major New 3G Mobile Data and Wireline IP Network Expansions" January 8, 2004. http://newscenter.verizon.com/proactive/newsroom/release.vtml?id=83234&PROACTIVE_ID=cecdcbc7c8cdcfc6c6c5cecfcfcfc5cececacfcac9cbc6cacfc5cf
[6] BellSouth Press Release "BellSouth Offers Packaged Solutions With Voice Over IP Capabilities For Small And Mid-Sized Businesses, Expands Comprehensive Voice Portfolio" October 29, 2003. http://bellsouthcorp.policy.net/proactive/newsroom/release.vtml?id=44327

such as Cablevision which launched its VOIP service in September 2003[7], are rapidly expanding trial VoIP offerings. Vonage, VoiceGlo, Voicepulse, Net2phone, iConnectHere, Free World Dial-Up, and Packet 8 are the leading VoIP-specific companies in the market.

Most VoIP services offer customers a range of features including voicemail, CallerID, call forwarding, 3-way calling, and call blocking. Customers have the option of choosing a phone number from nearly any area code in the country. VoIP services and products are available either directly from the provider or in some cases, at retail stores. Vonage markets its products at Circuit City electronics stores and offers customers who purchase at the store a discount on service.

Currently, VoIP services are not subject to many state or federal taxes and fees, and thus can offer calling plans at rates competitive with those of wireline and wireless telephony providers. However, it is difficult to compare prices due to differences in quality of service and features. No technical analysis is yet available that accurately contrasts the cost differences between VoIP and traditional wireline services.

VoIP services do have several potential drawbacks, as noted above. Service quality is still questionable; calls are audible, but there can be latency in the transmission and if the broadband connection is being used for another purpose while simultaneously making a VoIP call, the sound can be uneven.[8] Additionally, some VoIP providers do not offer 911 emergency service capability. While providers are said to be working with emergency service officials to address this problem, the ability to contact police, fire and other emergency services via the telephone is critical.[9]

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[7] "VoIP Launch" Cablefax, September 29, 2003.
http://www.nexis.com/research/home?_key=1087478665&_session=a71c0d9c-c061-11d8-9f47-8a0c5904aa77.1.3264931465.234658.%20.0.0&_state=&wchp=dGLbVzb-zSkBb&_md5=0fc97fd9cb02fe574f716aa8f9d81354

[8] "Cut-Rate Calling, by Way of the Net" New York Times, April 8, 2004.
http://www.nexis.com/research/home?_key=1087478665&_session=a71c0d9c-c061-11d8-9f47-8a0c5904aa77.1.3264931465.234658.%20.0.0&_state=&wchp=dGLbVzb-zSkBb&_md5=0fc97fd9cb02fe574f716aa8f9d81354

[9] "VOIP's Broadband Bottleneck" CNET News.com, April 5, 2004.
http://news.com.com/VoIP%27s+broadband+bottleneck/2100-7352_3-5184599.html

Methodology

This report is based on the findings of a daily tracking survey on Americans' use of the Internet. The results in this report are based on data from telephone interviews conducted by Princeton Survey Research Associates between February 3 to March 1, 2004, among a sample of 2,204 adults, 18 and older. For results based on the total sample, one can say with 95% confidence that the error attributable to sampling and other random effects is plus or minus 2 percentage points. [For results based – *confusing*] Internet users (n=1,371), the margin of sampling error is plus or minus 3 percentage points. In addition to sampling error, question wording and practical difficulties in conducting telephone surveys may introduce some error or bias into the findings of opinion polls.

The sample for this survey is a random digit sample of telephone numbers selected from telephone exchanges in the continental United States. The random digit aspect of the sample is used to avoid "listing" bias and provides representation of both listed and unlisted numbers (including not-yet-listed numbers). The design of the sample achieves this representation by random generation of the last two digits of telephone numbers selected on the basis of their area code, telephone exchange, and bank number.

A new sample was released daily and was kept in the field for at least five days. This ensures that complete call procedures were followed for the entire sample. Additionally, the sample was released in replicates to make sure that the telephone numbers called are distributed appropriately across regions of the country. At least 10 attempts were made to complete an interview at every household in the sample. The calls were staggered over times of day and days of the week to maximize the chances of making contact with a potential respondent. Interview refusals were recontacted at least once in order to try again to complete an interview. All interviews completed on any given day were considered to be the final sample for that day. The final response rate was 32.2%.

Non-response in telephone interviews produces some known biases in survey-derived estimates because participation tends to vary for different subgroups of the population, and these subgroups are likely to vary also on questions of substantive interest. In order to compensate for these known biases, the sample data are weighted in analysis. The demographic weighting parameters are derived from a special analysis of the most recently available Census Bureau's 2003 Annual Social and Economic Supplement (March 2003). This analysis produces population parameters for the demographic characteristics of adults age 18 or older, living in households that contain a telephone. These parameters are then compared with the sample characteristics to construct sample weights. The weights are derived using an iterative technique that simultaneously balances the distribution of all weighting parameters.