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## Calling via Internet has suddenly arrived

By Paul Davidson USA TODAY

Mark Jaffe of St. Louis recently threw caution to the wind and ditched his trusty SBC Communications local phone service in favor of an offering from an Internet phone start-up called Vonage.

Now his calls travel over the Internet via his cable broadband line. His typical \$120 monthly bill has been cut to a flat \$39.99 rate for unlimited local and long-distance calls and features such as caller ID. Because his physical location is irrelevant for Internet phone service, he was able to choose a number with a San Francisco area code (415), allowing a close friend in that city to dodge long-distance charges. Plus, via a PC he can hear his voice mail by clicking on e-mail, and he can update his call-forwarding, track his calls and bills and even change his phone number, all on the Web.

"There was initial concern," says Jaffe, 36, noting the dubious quality and reliability of Net calling in the late 1990s. But, "Quality is phenomenal, and it's very cost-effective."

Making phone calls on the Internet has suddenly arrived — and it's poised to rock the telecommunications industry.

Until about 18 months ago, Internet calls meant tinny, ham-radio like connections over PC microphones and speakers. It was largely the province of hobbyists who gladly put up with the jittery voice quality for the chance to beat the system, make free calls and cultivate a pioneer spirit.

But technological advances and broadband's growth have made calls on the Net, or Internet-like private networks, roughly equivalent to traditional phone service.

"It's beginning to transition from something only a real Internet-savvy person would do into something ordinary folks can do," says Jupiter Research analyst Joe Laszlo.

The number of U.S. households making Internet calls with standard phones is expected to grow from about 100,000 today to 4 million in 2007, says In-Stat/MDR.

There is a catch: You generally need to already have a broadband connection, which costs about \$40 a month. The number of such cable modem and phone company DSL lines is projected to double to about 40 million in 2007, Jupiter says.

The technology is not new. Since the mid-1990s long-distance companies have sent a growing portion of their intercity traffic via "Voice over Internet Protocol (VoIP)" technology, though customers don't realize it. VoIP is similar to the public Internet service offered by firms like Vonage — both convert voice into digitized packets — but instead it uses private networks.

Last year, 10% of international calls used VoIP, says research firm TeleGeography. Prepaid calling cards that charge a few pennies a minute use VoIP networks. And in countries like Brazil and Japan, VoIP calling is taking off.

In the USA, Internet phone calling has been slower to develop. A handful of start-ups, such as Vonage and Packet8, offer service that lets customers plug their traditional phones into company-supplied adapters, which, in turn, hook into any broadband line.

### Cable could drive adoption

But the big market shake-up is expected to come from heavy marketing by the cable industry, which has an existing customer base and can bundle phone with TV and Internet services.

"I think cable companies are going to take up to 20% market share" from the regional Bells, says analyst Norm Bogen of In-Stat/MDR.

VoIP is already making inroads among businesses. Nearly 10% of companies that use private networks to link their far-flung locations have moved their intra-office voice calls off the public network and onto VoIP connections, Forrester Research says. They are seeing as much as a 50% decrease in local and long-distance charges.



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That's because Internet voice networks are 20% to 50% cheaper to deploy than standard ones, experts say. Traditional circuit-switched phone networks use expensive call-routing computers and wires to link you and the person you're calling for the entire conversation.

Internet-based calls break up voice into digitized "packets," each of which takes the most efficient route as it shares wires with other Internet traffic. As the packets near the destination, they are reassembled as a voice.

Within 20 years, nearly all calls will be Net-based, experts say, as even the Bells phase out old-style networks in favor of VoIP technology. "I doubt there'll be any more significant investment in" circuit-switched gear, says Bob Atkinson of the Columbia Institute for Tele-Information.

Verizon spokesman Eric Rabe acknowledges a transition is coming, but says it will "take a long, long time." For now, he says, "I'd be surprised if (Internet calling) were as reliable and dependable as our service."

#### **A rocky start for Web calling**

It certainly wasn't in 1995, when firms such as Net2Phone started letting people call free from PC to PC using Internet Protocol (IP) addresses.

In the late 1990s, Cisco, Lucent and others built adapters to convert analog voice signals into packets at the caller's home, so regular phones could be used. They also developed "gateways" to translate packets and IP addresses into voice conversations and phone numbers at phone switching stations so calls could use traditional phone lines. Still, echoes and delays marred calls.

But the past few years have brought better equipment, improved technology and more high-speed lines. Ironically, the telecom crash may have spurred some of the advances. "During the downturn, a lot of the engineering went into chips and applications" for the Internet, says Jeff Pulver, a founder of both Vonage and Free World Dialup, another Internet phone start-up.

Vonage was the first company to leverage the technology with a nationwide offering last year. Besides its \$40 all-you-can-call service, it offers a \$25.99 plan with 500 minutes of long-distance. There's a \$29.99 activation fee.

Customers can use the service wherever they can plug a phone and the adapter into a broadband line — not just at home. The phone number stays with the device.

Vonage has 34,000 subscribers, is adding 1,400 a week and expects to reach 1 million by 2006. It recently made distribution deals with No. 3 Internet service EarthLink and two midtier cable firms.

"We gave consumers an experience that's almost identical to what they're used to," Vonage CEO Jeffrey Citron says.

For EarthLink, says Vice President Erika Jolly, adding voice to broadband service reduces customer defections.

Citron concedes quality problems in a small percentage of calls. Experts say that's partly because voice packets may sometimes have to give way to data packets as they share paths on the Internet, delaying the arrival of the voice signal.

Cable companies say their more uniform private networks are able to give priority to the voice packets, virtually eliminating such glitches. While most big cable companies have dabbled in voice offerings using standard switches, they were not planning full-scale rollouts until the arrival of reliable VoIP.

Now, four of the biggest providers — Comcast, Cox Communications, Time Warner Cable and Cablevision — plan to launch Net-style voice service across their regions in the next few years. Small providers are expected to partner with suppliers like Net2Phone and Vonage.

For cable operators, the low cost structure of VoIP calling makes local phone service "a much more attractive business to be in," says Tanya Van Court, vice president of Cablevision, which offers service in western Long Island and expects to offer it by the end of the year to all 4.4 million of its customers.

Cablevision's package is \$34.95 for unlimited local and long-distance and five phone features. For a similar package, the local Bell, Verizon Communications, charges Long Island customers \$59.95. MCI offers a \$49 bundle.

Unlike Vonage, which carries the call across the Internet all the way to wherever the recipient may be, cable companies now typically pay long-distance carriers to transport calls out of their system area, adding to their cost. Comcast, however, is building its own national IP network to skirt those fees.

#### **New phone features a draw**

Van Court says the big selling point for Web-based calling will be a whole new range of features. "We think that a year or two from now, customers won't be interested in standard telephone service. They'll be interested in how to enhance their Internet experience with voice."

She cites integrated text- and voice-based chats and the ability to use your PC to

customize phone features in real time. For example, you can forward calls to another number, then have them go to voice mail if there's no answer. And Time Warner Cable is looking to provide Caller ID and voice mail notification on your TV screen, doing away with the need to get up from the recliner when the phone rings, says Gerry Campbell, senior vice president for voice for Time Warner, which now has about 1,600 customers in the Portland, Maine, and Rochester, N.Y., areas paying \$39.95 for an unlimited calling service.

"We've cut our phone bill in half," says Sandy Franklin, 54, of Gorham, Maine. The service, she says, had some glitches in the initial weeks, but has worked seamlessly since.

Says Cox Communications' Dianna Mogelgaard: "We're looking to be the primary telephone provider." And while Cablevision requires voice customers to also subscribe to high-speed service, Comcast says subscribers will simply need access to a cable broadband line.

The technology has drawbacks. Internet-based phones won't work during a power outage. Most cable companies are considering equipping their modems with battery packs that last up to 16 hours. Cordless regular phones have the same power issue, however. And the prevalence of cell phones has made it less of a concern.

More significant, Vonage customers must register for 911 service. Even then, dispatchers cannot see the caller's phone number and address automatically, as they do with a call from a traditional phone. For that reason, many subscribers use Vonage as a second phone line.

But cost alone has businesses already embracing Net calling. Last year, the Appleton School District in Wisconsin replaced its phone system with a Mitel Systems IP network linking its 26 schools. Now, phone calls between the schools travel over the same private lines that carry data, slashing phone bills 40%.

For Crate & Barrel, a similar IP network from SBC for its Northbrook, Ill., headquarters means not having to run new wires when employees move offices, says phone manager Mark Carrier. And the system lets employees use the phone screen to dial a colleague by clicking on a directory name and even to check weather and stocks.

SBC also is rolling out a service that would permit corporate employees to plug their IP phones and laptops into any broadband line.

One price edge for Net-based calls may be short-lived, however. Because Internet traffic is unregulated, IP voice customers don't pay most phone taxes, such as universal service fees. But as the market grows, the Federal Communications Commission is expected to impose such charges.

Also, several states may raise the fees VoIP carriers such as AT&T pay the Bells to transfer Internet-based calls to their local networks, bringing those charges a bit closer to regular voice calls. Yet IP calls should still be cheaper, and observers eventually expect giants like AT&T and MCI to offer the service — on their own or by buying start-ups such as Vonage.

When that happens, "People are going to sign up for it in large volumes," says AT&T Vice President Robert Quinn.

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