

## News



## Technology

Voice Over IP

by Christopher Allibritton

Imagine an end to long-distance charges. Call anywhere, nationwide, and talk as long as you want for \$40 a month. Just a single company that gives you all the phone services you currently enjoy.

Sound like a pipe dream? Well it is, in a way, but it's a dream that floats on the largest pipes around - the Internet and the phone systems.

Vonage (www.Vonage.com), based in Edison, N.J., is the company that's hoping to make it all happen. A year-old startup from Datek founder Jeffrey Citron, Vonage uses Voice over Internet Protocol, or VoIP, to provide phone services.

How Vonage's VoIP system works is a fascinating hack of the Internet's basic function, which mainly consists of moving data to and fro in a series of "packets." Think of these packets as little buckets of 1s and 0s with the address they're supposed to get to stamped on the outside. Depending on its size, an e-mail message may be broken up into, say, 20 different packets, and each may take a different path to get to the message's destination. Some packets may arrive early and have to wait around for the other packets to show up. But eventually they do (it usually takes a fraction of a second) and that's when you get your e-mail message. That's how the Internet works.

Phone systems work in a very different way. For one, the electrical signal that makes up the sounds of you voice is analog, not digital, and rather than taking a round-about route to its destination - your mother's phone number, for example - the signal goes straight there through a series of switches, establishing a direct link.

#### Sent With Love

Vonage's trick is to convert the voice analog signal to a digital

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# Vonage DigitalVoice .::. Now You're Talking... For As Long As You Want!

Direct Testimony of David L. Teitzel Docket No. UT-030614 Exhibit DLT-8

one using a special Cisco router that sits between your cable modern and telephone. It breaks up your voice's analog signal into digital packets and sends them over the Internet rather than a telephone company's networks.

Big deal, right? I mean, these things have been around for a while. But, Vonage is the first company that seems to have gotten it right. Previous VoIP setups were confusing and impractical. The sound quality was pretty bad, you could only call people who had a setup like yours, and most competing systems weren't interoperable. They also required a high-speed always-on Internet connection, something that was rare in the home until recently. Now, more people have broadband, always-on connections. According to Leichtman Research Group there were 10.1 million residential cable broadband subscribers and 5.5 million DSL subscribers at the end of September 2002.

Vonage makes it simple to get started. For \$40 a month, its customers get the router that plugs into their broadband modem. Then they plug a plain ol' telephone into the router.

And that's all there is to it. You pick up the phone, you hear a dial tone and then your fingers do the walking.

Sound quality is surprisingly good, as good as a "normal" telephone service. There is no lag ("latency" is the technical term) in the conversation as was once common with VoIP services. You talk on the phone as you normally would.

The bundle of services you get for that \$40 is impressive, too: all the local and long-distance you can use, Call Waiting, Caller ID, personalized voice mail, call forwarding, Caller ID blocking, repeat dialing, international call blocking, call transferring to someone else's phone, \*69 call return, and a nice feature called bandwidth saving. The latter allows you to set the sound quality of calls so they don't use as much bandwidth.

If you want to share your high-speed connection with the Vonage box and a computer, that's easy, too. Plug the cable or DSL modem into a normal router, and then run two lines out, one to your computer and one to the Vonage box.

And, Vonage gives you more control over your calls than telephone companies do. Through the company's Web page, you can access real-time online account management. Nicknamed the Dashboard, the site lets you se a list of all your incoming and outgoing calls (or just the 10 most recent), your call-forwarding options and your voice mails.

(Voice mail is stored on the Vonage servers for you as .wav files that can be played on any computer. Of course, you can get your message through your phone, too, by calling a special number, just as with most telephone services. Or you can have them e-mailed to you, which is great if you're on the road.)

Another nifty feature is the ability to select any area code. Even if you live in New York, you can have a California area code. This is nice if most of your family lives in another state and you want to save them money. Just select their area code for your Vonage number and their calls to you will be local calls. The choice of area code doesn't affect your long-distance service. And, because the phone number is tied to the router that Vonage supplies, if you move, your number moves with you. Finally, a lifetime phone number.

Saving Bucks

Also important is what you don't get: taxes. The Federal Communications Commission considers VoIP to be a data service and not a telephone service, so you don't get all the extra surcharges. In addition to the \$40 plan, Vonage also offers a \$26 plan, that allows unlimited local and regional calling, and 500 long distance minutes with 3.9 cents per minute over that.

There are other companies out there doing this, notably Deltathree and Net2Phone. Vonage is unique, however, in that it has positioned itself squarely in the camp of the residential user. And while its customer base is small - more than 6000 after seven months of operations - the company has doubled its subscribers since last March.

Now you're talking.

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