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PACKET

Simson Garfinkel TECH

Speed Daemon

Fast, cheap, forever - why the telcos love to hate ISDN

If you surf the Internet with a modem, you'd kill for an ISDN telephone line. Your telco's "integrated services digital network" is a digital telephone system that pumps data over the phone line about two to five times faster than a 28.8Kbps modem (loading the HotWired Network front door in just 15 seconds!). And if you surf like I do - every waking moment - you can implement a clever little hack to save yourself a bundle.

The key word in ISDN is *integrated*. Even though it's delivered over a single pair of wires, basic rate ISDN service delivers two "B" channels, each at 64Kbps, and one 16Kbps "D" channel. The B channels can be used for anything you want: to call your mother, send a fax, jack in to the Net.

To get started, you need a piece of equipment the yahoos are calling the "ISDN modem" - an ISDN terminal adapter, such as my Motorola BitSURFR Pro. The BitSURFR looks like a superfast modem; the unit even responds to standard AT commands. Turn it around and you'll see two standard phone jacks - plug in your phone and the box will digitize your voice as it sends it down the line. The BitSURFR can also do ISDN "bonding," which means that it can place a data call on both 64K lines simultaneously, for 128K of throughput.

The telcos hope that ISDN can stop the insanity of bringing three, four, or even five telephone lines into a house for a single person. For example, in my future home office, I could use a single ISDN line for all of my voice and data needs. While netsurfing, I could use both B channels for a combined bandwidth of 128Kbps. But if somebody calls me, or I want to send a fax, the BitSURFR could automatically *downshift* the data connection to a single B channel and use the other channel for "voice."

"When I wake up in the morning, my computer calls SiyNet, my local Internet service provider, which offers unlimited ISDN dialup. And I stay

connected all day. NYNEX hates that."

Kate Wittschen, a product manager for consumer ISDN for NYNEX, says that ISDN lines are dramatically more reliable than the analog phone lines they replace. "We don't have a lot of issues once the ISDN line is installed, as long as the line is installed properly." Except for one whopper of an issue: People don't want to hang up.

When I wake up in the morning, my computer calls ZipNet, my local Internet service provider, which offers unlimited ISDN dialup (for US$26.95 per month). And I stay connected all day. NYNEX hates that.

Wake up, telcos.

Join the party line, in Threads.

The latest post to Tech is "Bookmark file is better" by Chris Andersen (stranger)

The whole point of ISDN is to take advantage of the telephone company's extensive digital network and switching capability to create little virtual circuits between different subscribers. Back in the 1980s, ISDN designers pictured me sending my mom a digitized photo of her new grandchild by having my ISDN phone call hers. They never anticipated that I'd merely use it as a high-speed pipe into another network.

To head off such abuse, most phone companies are building additional usage fees into their ISDN tariffs. In Maryland, for example, residential ISDN costs $23.50 *plus* 2 cents per minute for each B channel. If you expect to use the system a lot, you can buy a 300-hour per month package for $90, or unlimited usage for $249 per month. In Massachusetts, NYNEX adds a surcharge of 1.6 or 5.5 cents per minute, depending on where you're calling.

PacketChat: Chat here.

Here's the catch: In Massachusetts and a few other states, the per-minute surcharge only applies to "data" ISDN calls, not voice ones. So I just program my BitSURFR to place an ISDN "voice" call, for which there is no surcharge, then send IP packets down the line. After all, bits are bits.

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Wittschen tells me that a lot of her customers are placing these so-called "bearer-voice data" calls. James Ducay, managing director of ISDN for NYNEX (which has 107,000 ISDN lines installed throughout the northeastern United States), tells me that NYNEX is working on ways to automatically figure out when customers are cheating, and to stop them.

I've got a better idea: Instead of playing these tariff games, phone companies should find out what's so exciting about the Internet protocol, discover why packet-switching is an inherently more efficient way of sharing equipment than circuit-switching, and find a graceful way to merge ISDN with the Internet.

One solution: Tap into ISDN's underutilized D channel. I'm connected to my Internet service provider 16 hours per day so I won't miss important email when it arrives. But, realistically, I wouldn't care if my email was delivered and sent out at 9600 baud. A clever ISDN packet driver could send out packets along the D channel at will, even allowing the phone company to use its nifty, by-the-packet charging algorithms. Then, when I

started getting a *lot* of traffic really quickly - when I started browsing the Web - a B channel could be devoted to my data traffic.

Designing a system this flexible would be hard work. But no harder than installing, managing, and upgrading a nationwide phone system with more than 100 million telephones.

If today's phone companies aren't up to the task, somebody else will surely do it for them.

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Illustration by Dave Plunkert