

PACKET



À la Node

Cable modems will help you keep up with the Joneses. In more ways than one.

Last week, I raved about how a digital ISDN line could give you five times the speed of a 28.8 modem. That was then, this is now. Recently I had a chance to play with my friend Dick Rubinstein's ultra-high-speed cable modem, a LANcity. After 10 minutes of Web surfing, a telnet session with my Unix workstation 100 miles away in Martha's Vineyard, and a snoop around the network with my FTP Software packet analyzer, I'm convinced that cable companies can deliver the goods.

Here's how Internet-by-cable works: Today's cable systems are built around massive head-end systems. Cable operators merge a few dozen streams of programming and local commercials into a single 500-MHz radio-frequency signal. This signal is transmitted over special long-haul coaxial cables to neighborhood systems, called nodes, which in turn hand off the signal to the local coax that passes in front of your house. Another device, called a splitter, shunts some of the signal into your home.

Over the past decade, cable operators have worked to modernize their systems. The first step has been to replace those long-haul coax cables with fiber-optics, which are more reliable and less subject to noise. This improves picture quality, and allows operators to transmit at 750 MHz - increasing the available number of channels. The second push has been to take a few of those channels and turn them around so they transmit radio from the nodes back to the head-end.

A cable modem takes two TV channels and converts them into a 10Mbps network. One channel is used to send packets from the head-end to subscribers. The other is used for the return. A standard router, such as a Cisco-4000, lives at the head-end, acting as a gateway to the greater Internet. "This is a high-speed data network - just like a LAN [local area network] - except extended 200 miles," says Rouzbeh Yassini, LANcity's founder and president.

It's actually a lot better than most LANs. The LANcity boxes support remote SNMP management, allowing the

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cable operators to remotely test the boxes, assign each its own QOS ("quality of service"; a sort of speed limit on how much data it is allowed to transmit or receive within a given period), and detect unauthorized users on the network. Security is based on MD5 message-authentication codes, making it near-impossible for a wily hacker to reprogram your LANcity modem.

Although pricing still isn't set, I've heard that most cable companies plan to rent the cable box and provide the cable connection and IP service for something like US\$50 a month. That's for a connection that runs up to 10Mbps - roughly seven times faster than a T1.

My big concern with cable modems has always been privacy. I'd heard rumors that the early systems let any user spy on the packets traveling to other subscribers(!). But LANcity's cable modems aren't just modems - they're also intelligent network bridges. The modem will only give you the packets that are destined for your machine, or packets that are being broadcast onto the entire LAN.

Wake up,
telcos.

Cook with
coaxial,
in Threads.

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



Of course, that doesn't mean that these systems are safe. High-speed access to the home works both ways. My friend and I used his Net connection to look at his neighbors' computers. We discovered four other Macs that were connected to the Wellesley cable network - it seems they had file-sharing enabled.

Unfortunately, none of them allowed guest access. Presumably, that's because only the most technically sophisticated users are online at this point - people who know enough to disallow unrestricted anonymous access to their computers. But as time goes on and Joe Hard Drive plugs his system into a cable modem, it's likely that his nosy neighbors are going to be able find some interesting stuff.

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Dick Rubinstein and I wrote a simple Perl script to scan the entire subnet, looking for other machines. We soon found a PC running WINGATE, a PC-based gateway program that lets you put an entire network behind a single IP address. WINGATE is basically a proxy Web and mail server. So this guy is buying just one IP address, and using it to power his entire LAN. Interesting, no?



For the distant future - say 5 to 15 years - I'm putting my hopes on digital wireless systems as the cheapest, fastest, and most flexible means of piping information in and out of the home and office. But in the near future, the only systems likely to compete with cable modems are fiber to the home and ASDL, a system originally developed by phone companies for video-on-demand. Seeing the problems that phone companies are having with ISDN, I have a hard time believing that they're likely to do better with ASDL. So, for consumers with a hip and modern cable company, it looks like Internet-over-cable, with a LANcity modem will be the way to go. Sign me up today!

Simson

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Illustration by Dave Plunkert

 

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