

Radio World

FEATURES

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GUEST COMMENTARY

DSL vs. ISDN: Not Interchangeable

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DSL — Digital Subscriber Lines — are the hot new product being offered by telephone companies to customers hungry for fast, relatively inexpensive online connections.

You can hardly pick up a newspaper or magazine without seeing ads promising connections “100 times faster than a 56k modem.” The temptation to sign up immediately is great.

Many audio professionals, especially radio stations, wonder why they can't order DSL lines and use them for a “one-stop connectivity” approach — for the Internet and everything else, including the real-time audio transmission now afforded with dial-up ISDN through codecs like the Telos Zephyr.

Why order ISDN when DSL is the hot new thing?

Others have come to us wanting to use our codecs with DSL lines they have just installed.

Let's help clear up the confusion by looking at current offerings from the phone companies and discussing their appropriateness for the applications now served by codecs and ISDN lines.

The telcos are pushing DSL so hard for a lot of reasons, but chief among them is cost — *their* cost. But that doesn't make it the right choice for every application.

Unfortunately, the telcos add to the

problem by telling people ISDN is an obsolete technology, when that isn't really true.

ISDN for Internet?

ISDN is not the ideal choice for packet connections to the Internet. This is one area where the telcos have it right when they push the new technologies for that purpose.

Packet data allows for data to be lost and then re-sent.

For this reason it does not support “real-time” applications such as the Zephyr codec, which require a continuous uninterrupted stream of data.

Systems designed for Internet use, such as Telos' Audioactive, have large buffers that allow time for packet retransmission. In fact, our Audioactive netcoder will work well with DSL by taking the audio input and providing a data stream output that is compatible with DSL.

But ISDN remains the ideal choice where circuit switched connections are needed. If you need play-by-play from the live game, or you're in a network broadcast situation feeding other stations, the Zephyr and ISDN are your most flexible, reliable and cost-effective way to go.

Unfortunately, the phone companies seem to be making some of the same mistakes with ADSL and the newer DSL types (technically, ISDN and T1 lines are types of DSL) that they did in marketing ISDN.

Proprietary technology

Currently, each phone company is using a proprietary technology. That



means you probably have little or no choice in the manufacturer of the “Data Communications Equipment” — the DCE, or modem.

In other words, if you move to another region, you will need to buy new equipment.

Furthermore, most of the ADSL/DSL offerings are meant for connecting directly to an Internet Service Provider. They do not allow one to dial to other users — one of the main benefits afforded by ISDN. They also do not allow a call to an ISDN line.

Because one of the advantages of having an audio codec is to dial up the tens of thousands of other codecs around the world, ISDN again is the best choice for the needs of most audio broadcast and professional audio applications. *(continued next page)*

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Another important consideration is the availability and widespread installed base of ISDN. In many European countries, ISDN lines are more common than POTS lines.

DSL raises a few other questions, especially in this early stage of its marketing, that might be cause for concern.

One is cost — *your* cost. While it's true that many companies are offering DSL lines at a low price to generate a frenzy of interest, the pricing can be deceptive.

Sometimes a particular telco may be actually a -re-seller, having had to buy DSL from another company. With several "middlemen" like this, the price of DSL certainly could vary drastically from one place to another.

Another is the reliability of the network. Your DSL connection might actually have to go through several networks to get to its final destination, and each hop can slow it down.

Also, DSL is not available everywhere. It is in major cities, and the second-tier penetration is proceeding, but there is no definitive answer on when it will be offered in the remotest locations.

One of the main questions engineers must research before rushing ahead with DSL is: Can their telco provide a newer-DSL line from the studio to the transmitter?

If so, the technology has some potential for certain types of full-time connections. But as is generally the case, the phone company end of a DSL line goes to either the telco ISP or into the packet switched network.

While the phone companies keep promoting the new technologies as "replacements for ISDN," they really



appear to be "alternatives to ISDN for connecting to your Internet provider."

Which is very cool in today's day and age, but not an equivalent technology, and certainly not a good choice as a replacement.

Why can't we use DSL for 'one-stop connectivity' including the Internet and real-time audio transmission?

This leads us to the \$64,000 question asked by callers to our company: Can you use Zephyr with DSL?

But will it work

Technically, you might be able to use these DSL offerings with a Zephyr if the DCE allows two synchronous data streams at 56 or 64 kbps.

An engineer would rightly be skeptical about finding such a beast, because terminal adapters around today have 10 Base-T only, which

does not support synchronous constant bit rate connections to guarantee constant data throughput.

When you consider the pros and cons, Zephyr and ISDN is the way to go for most broadcasters' remote audio needs, and probably will be for some time to come.

If you want to focus on audio streaming on the Internet, Audioactive will work nicely with DSL and allow you to get the benefits of the cost-savings being marketed by so many telecommunications companies today.

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RW welcomes other points of view and white papers from suppliers answering frequent questions from radio users.

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