

The Time Is Now

An active user's take on networking and transport

By Matt Simms

While I own Corporate Sound, an event and corporate audio production company that's also moving into systems integration, I come from the contract engineering world, working with the automotive and medical industries.

I've been able to apply some of the technology from those other industries to our work in audio. A frustration is that it's been hard to show people a new way. I realized the tremendous capabilities of CAT-5 (Ethernet) interconnection more than five years ago, but here we are today, just getting to it in audio while the video guys have already made the transition.

As the holder of several patents in designing other types of (non-audio) products, I've always wanted to merge

newer technology – networking, digital signal processing (DSP) and field programmable gate arrays (FPGA) with audio, which is where my passion lies.

There will always be those who are afraid of digital transport and networking and those who dislike the sound of digital. So analog will be there, but the reality is that it's going to fade away. The real issue for most of us is the bottom line: digital can't come at the cost of our ability to make a living.

There is a real need for cost-effective digital transport in fixed installations (primarily) and live sound (secondarily). For example, currently our market doesn't provide a way of routing CAT-5 to wall plates, floor boxes and panels. I've been asking myself why, and can't

come up with a logical answer.

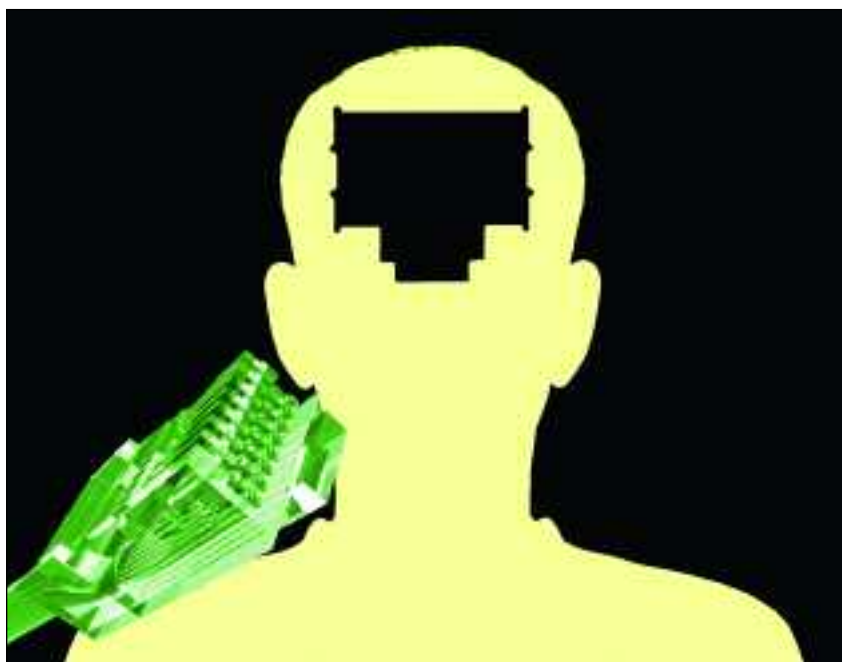
I guess I'm more representative of the "newer breed" of audio designer/engineer who have grown up with digital. And at some point very soon, it will become more costly to implement analog-based transport designs (with lots of copper) as opposed to digital. On the manufacturing side, the "big guys" (manufacturers) are currently spending the vast majority of their R&D budgets on digital designs, and that is only going to go up from here.

While coming down, price tags for digitally integrated systems can still be a tad high. With a bit more time, affordability will truly arrive.

Another part of this: the networking and control platforms. We all want to be sure that this technology works together optimally for our specific audio needs, and is reliable, before moving too far forward.

Cirrus Logic (Peak Audio) CobraNet has established a track record – it's proven to work well for routing audio and control data. A number of digital processors are CobraNet capable, and that has helped with the establishment process. Digigram's EtherSound has emerged as a viable option as well.

But I've talked to some audio pros who have concerns about CobraNet from its latency standpoint. A large suburban high school in Michigan recently implemented a CobraNet backbone, and there are issues with latency, particularly with the stage monitors. Therefore, I think that right now, CobraNet is best for things like stadium sound systems, where you're already dealing with a two-second delay due to the sheer distances.



Overall, the future landscape with regard to platforms is unclear. Rather than a dominant winner/standard, we could see a situation where different aspects of the pro audio industry continue learning from each other, with the different technologies becoming more and more compatible.

Aviom seems to be doing well with respect to its platform for stage monitoring. I've seen several churches that have CAT-5 links to Aviom personal monitors, and that seems to work quite well, both in general and in terms of latency.

My hope, bottom line, is that we'll benefit from a platform standard that will meet all applications within the audio industry. The idea is for manufacturers to be able to come out with all kinds of cool stuff that can still "talk" to all of the other cool stuff.

Our market is driven by the larger consumer marketplace, period. That's where the big money is.

And as an audio designer, I have to admit that the lighting industry has already established solid concepts of digital platforms and transport. Granted, their bandwidth requirements for moving lights are not nearly what it takes to transfer audio, but look at the concept. A ton of lights all daisy-chained together, with the ability to plug in a tiny console anywhere in the loop to control it all.

This is where pro audio should (and must!) be going. When it comes to live applications, specifically, I think many of the "holdouts" will get over digital as long as the front end is clean.

Fiber optics has been a constant in our transport discussions for some time because of its bandwidth and distance capabilities. CAT-5 pales in comparison, but that's changing, with 1 Gigabyte Ethernet now available. In my view, this will be the de facto standard.

Fiber may always be desirable to some, and for certain applications. If a project needs runs of a mile, fiber will probably still be used to do it. But it takes well-trained people to use fiber. Anyone can crimp a CAT-5 cable, and the tools can be had at the local hardware store.

As to burying fiber in walls for install purposes, it's going to be the

consumer industry – telephone and TV cable companies and their ilk – that drives the direction. They have way more power, push, money and whatever else. Pro audio? We'll follow once the direction is clear. For us, in the near future at least, twisted-pair Ethernet is going to continue to be the transport leader.

COME A LONG WAY

It seems that our industry is usually playing catch-up regarding the use of technology. Of course, with the exception of things like loudspeakers, power amplifiers and other "pro-specific gear," which are proprietary to our needs.

The advent of FPGA (again, field programmable gate array) technology is changing DSP in a big way. In a nutshell, designers can place a DSP core into a FPGA, add special functions to it for a given specific application, and then burn it into a single microchip that screams in terms of speed and functionality. (Open any PC of recent vintage and you'll probably find two

big IC's, the processor and a FPGA.)

A digital designer like myself isn't drawing schematics for circuit boards anymore: I'm creating schematics for FPGA's for putting that one chip on a circuit board. For digital audio communication, FPGA technology will give us the ability to achieve the required bandwidth and processing speed needed for low latency communication methods.

All things considered, as an industry, we've come a long way with digital technology, and the progress will only increase from this point forward. My concern is that we seek to communicate better with each other and agree upon some rock-solid standards.

All of our equipment must work together as seamlessly, efficiently and cost-effectively as possible! ■

Matt Simms is owner of Corporate Sound based in Grand Rapids, Michigan, a large provider of event and corporate audio production that's also added system integration to its roster. Reach him at matt@corporatesound.com.

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