



TECHNICAL COLUMNS

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WORDSMITH

By **RON HRANAC**

Having written for Communications Technology since 1985, I've had the opportunity to work with some top-notch editors. They've taught me much about writing and editing, and I've managed to pick up some, uh, editor-type knowledge regarding the use and misuse of certain technical terms. With that in mind, this month's column is going to focus on a few of my pet peeves (my now-adult kids call it "getting old and grumpy").

The cable industry evolved over the past decade or so into what can rightfully be called a telecommunications business. We no longer are providers of just entertainment, although that clearly remains our bread and butter. Most cable operators now offer high-speed Internet access, and some have telephone service and business data services available. Even in the entertainment arena we've migrated from plain old analog television to a combination of analog and digital content.

With all of this has come a lot of new equipment vendors, technologies and persons from outside of the traditional cable industry. And with them has come an occasional misunderstanding of just how our industry works, and the pieces and parts that comprise our networks.

What is an MSO?

One of the most misunderstood terms is MSO, or multiple system operator. First, a definition: A corporate entity that owns or manages more than one cable system is known as a multiple system operator. The industry's largest MSOs include companies most of us know well: Adelphia, Cablevision, Comcast, Charter, Cox and Time Warner, to name a few. Each of these owns or manages several cable systems around the country.

And what's a cable system? Here's my definition: A cable system is a local operation in a given community that includes a business office; a variety of technical facilities including the cable network itself; a warehouse where materials and spare parts are kept; and a storage lot where vehicles are parked and some materials are stored. Larger cable systems are much more complex, and may serve several communities in a geographical area.

Please realize that many, but not all cable systems are affiliated with an MSO. While their numbers are dwindling, there are still a few independent cable systems that have nothing to do with any MSO.

I see MSO misused a lot. Sometimes MSO is used when referring to a cable system. A cable system is not an MSO, although that cable system might be owned by an MSO. In many instances the term cable operator would be far more appropriate than MSO. Here are a few examples.

Multiple misuses

"MSOs are deploying advanced services." This suggests that only multiple system operators are deploying advanced services. What about independent cable systems? A better statement is: "Cable operators are deploying advanced services."



“MSO networks are capable of carrying many services.” This would be more appropriate: “Cable networks are capable of carrying many services.”

“The local MSO employs 100 installers.” Here it would be better to say something like “The local system employs 100 installers” or maybe “The local cable company (or ‘local cable operator’) employs 100 installers.”

OK, you get the point.

One clearly misused term is bandwidth, but I’m afraid we’ve lost that battle. Data folks use ‘bandwidth’ to describe data throughput, or data capacity, typically in bits per second (bps). The word itself came from the RF world, where it means the amount of RF spectrum available or in use, and is expressed in hertz (Hz). Here’s a statement that’s a perfect example of where this can get real confusing: “DOCSIS 2.0 increases upstream bandwidth.”

Does it? It depends. The available upstream spectrum in a Data Over Cable Service Interface Specification (DOCSIS) environment has 37 MHz of bandwidth—that is, the available spectrum is from 5-42 MHz. A given upstream digitally modulated signal may have a channel bandwidth anywhere from 200 kHz to 6.4 MHz, with 1.6 or 3.2 MHz being the most common.

If you were to migrate from DOCSIS 1.0 to 2.0, will any of those RF bandwidths change? Your cable network’s 37 MHz of upstream bandwidth will remain the same, but you might switch to a wider bandwidth upstream channel—say, from 1.6 to 3.2 or even 6.4 MHz. If you were to change from a 3.2 MHz bandwidth 16-QAM signal to a 6.4 MHz bandwidth 64-QAM signal, the channel’s RF bandwidth will double, and the raw data rate will triple, from 10.24 Mbps to 30.72 Mbps.

QAM quandary

Speaking of QAM, or quadrature amplitude modulation, some folks are now calling digitally modulated signals QAMs. QAM describes a modulation format, like AM or FM, not the RF signal itself. One can have a 64-QAM digitally modulated signal, which uses QAM to convert digital data to analog RF. However, that digitally modulated signal is not a QAM.

Here’s another one on my list: headend. Headend is one word; it’s not head-end or head end.

What about dBmV? It’s an expression of power in terms of voltage. We use dBmV for stating absolute RF levels (technically the ratio of some value to a specified reference), as in “the input to the amplifier is +12 dBmV.” It’s incorrect to say “the input to the amplifier is 12 dB.” By itself, dB expresses a ratio, and is commonly used to state, say, gain or loss, as in “the splitter has 3.5 dB of loss.” Here, it would be incorrect to say “the splitter has 3.5 dBmV of loss.”

And I’d be remiss if I left out acronym, which, according to Webster’s New World Dictionary, is “a word formed from the first (or first few) letters of several words, as radar.” So, the phone companies’ TLAs, or three letter acronyms, should be called three letter abbreviations. TLA is an abbreviation, not an acronym. Same with FCC, MSO, RF and even SCTE. What is an acronym? Words like laser and scuba are acronyms, and one could argue that DOCSIS and QAM are as well.

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