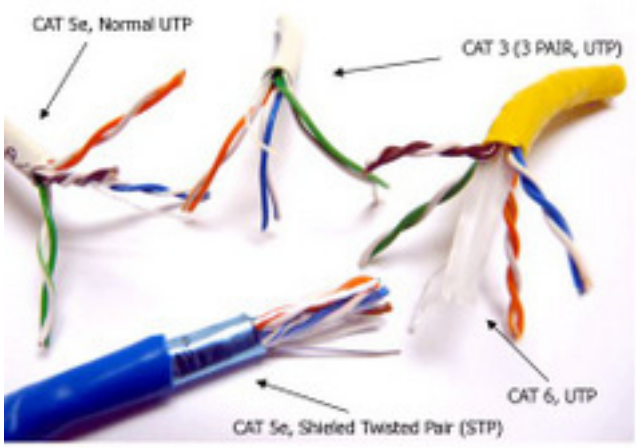
by Lee Distad, rAVe USA Columnist

Who among you is still wiring your networks with Cat5e? That's an excellent question. While I would like to think that amongst savvy rAVe readers the answer would be "nobody," the fact that I still see Cat5e stocked at supply companies and offered in stock lists for online distributors tells me that, statistically speaking, the real answer is "some of you."

Well, if you are, please stop.



It is now time to be wiring all of your networks, whether data or video distribution, with Cat6. And I'm going to tell you why -- bandwidth.

Cat5e allows transmission of up to 100 megahertz (MHz) with an impedance of 100 ohm. Cat6, however, allows a transmission of up to 250 MHz, and is certified for use at gigabit (1,000 megabits) speeds.

That difference didn't matter a whole lot a year or two ago, but now it matters a lot.

The bottom line is that Cat5e and Cat6 are structurally different cables, with each suited to different tasks. While Cat5e is sufficient for distributing component video, AV pros need to move up to Cat6 in order to accommodate the necessary bandwidth and packet size to handle digital HD.

With legacy analog video distribution systems (and how many of those are you still maintaining for your clients?) using active or passive baluns, existing Cat5e in a network is sufficient, but for digital video distribution you need Cat6's bandwidth capabilities.

Especially for HDMI applications, the larger wire gauge and superior crosstalk characteristics of Cat 6 will enable reliable function at longer distances than Cat 5e, and can accommodate larger amounts of bandwidth.

As one industry veteran once coached me, when it comes to future proofing an installation, there are three potential strategies: running plastic conduit, three lines of Cat6 or both.

If you lay in three pieces of Cat6 anywhere you want display or source, there's little that you won't be able to accomplish in the near-term future. And when you consider the nominal cost difference per foot between Cat5e and Cat6, even if (hypothetically) you're still installing analog component video (look, I said "hypothetically") it would be silly to skimp on the wire.

Considering Cat 6 doesn't negatively affect analog systems, but offers significant reliability and distance improvements for digital systems, the minimally increased cost is worth it in the long run. Swapping the hardware in a system is easy, swapping cables that were buried years ago is hard.

This should go without saying, but you need to be aware that only Cat6 connectors should be used with Cat6 cables. 8P8C connectors look similar to the RJ45 connector used by Cat5e cables, but the crosstalk-limiting characteristics of Cat6 terminations are superior. How superior? At 100 MHz, the near end crosstalk of a Cat5e connector is 43 decibels (dB), but for a Cat6 connector, it is only 54 dB. An 11dB difference is a material improvement, and terminating Cat6 with RJ45 connectors seriously compromises Cat6's performance.

So if you were still using Cat5e before you read this, I hope that you've changed your mind.

Go Cat6 Overview