

What We Mean by Future-Proofing

Perhaps the most powerful claim that advocates of fiber can make, on top of the massive bandwidth fiber makes possible today, is that fiber is future-proof. That is, the fiber that is laid today can be upgraded so that the same strands of glass can carry massively more bandwidth in the future.

This summer, several developers listened to me say this in a speech, and then politely stated that they would never buy into a promise of future growth.

“Who’s to say that the technology will actually be there?” one asked. I replied, of course, that the technologies are already here, and already being deployed.

“What about the cost?” asked another. “It may be cheaper to start over.” I replied that the technologies involved are amazingly compact, low in cost, and rather compatible with most existing fiber, with a few exceptions.

The following two articles explain in some detail what cost-effective future-proofing is all about, in language meant for ILEC managers and low-voltage wiring experts in large developers’ organizations.

Network operators can upgrade their central office electronics so that each

signal placed on a fiber strand can carry more information. The Ethernet standards setters, for instance, have recently upgraded GePON to 10 Gig EPON – a tenfold bandwidth increase.

Network operators can also add more signals to the same fiber by sending the signals at different wavelengths. Coarse wave division multiplexing puts as many as 20 wavelengths onto the same fiber. Dense WDM places hundreds.

These technologies tend to be used first for long-distance signal transport. Already, their costs have dropped so much, and bandwidth needs to end users have increased so much, that these technologies are moving closer to homes and small businesses.

Thus, by the time your network needs the boost, you can be assured that the cost will be low, the disruption will be minimal, and the fix will meet international standards. Those who have never seen WDM devices, for instance, can hardly imagine their small size – think matchbook – and their low- or zero-power requirements.

Future-proof? The future really is now.
– Steven S. Ross