Tech Info Library

Network Termination Issues: The Terminator (Part 1 of 2)

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Security: Everyone

Network Termination Issues: "The Terminator" (Part 1 of 2)

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Termination is the process of "ending" an electronic signal on a network after it has been broadcast to all the devices on that network. Without termination, signals bounce back and can interfere with new signals. On short networks, or networks with little traffic, these reflections usually present no problem. But as networks grow, correct termination becomes a critical factor. If your customers' networks are expanding, or your business is large network installations, then your understanding of network termination could mean the difference between reliable networks your customers can trust, or technical support headaches for them and you both.

When Termination Becomes an Issue

There are several predictable occasions when termination becomes an issue in AppleTalk network management.

A network manager's first encounter with termination issues often occurs when switching from Apple's LocalTalk cabling to the PhoneNET System. Farallon's PhoneNET System is based on telephone wiring as opposed to shielded cable. The advantage in switching to PhoneNET Connectors and existing telephone wiring is both economy and flexibility. Because PhoneNET Connectors are not self-terminated, the network manager can set up the network in a variety of ways, and run cable over longer distances. But he will need to manually terminate the network using the terminating resistors supplied with PhoneNET Connectors.

Second, the Macintosh network administrator very frequently receives requests to add more devices, and thereby add to the network's length. Whereas networks constructed with LocalTalk shielded cable are limited to 1,000 feet, a network running over the standard, 24 gauge phone cable found in most homes and offices can extend up to 3,000 feet. Short runs may work well without termination, but with additional network length and devices, termination becomes more important. Proper termination of network segments will cleanly absorb signals, and allow greater distances without the risk of signal reflection.

Third, just as in a freeway system for automobiles, light traffic usually moves well no matter what the technical shortcomings of a given stretch of road. But with added traffic, any minor engineering flaw will cause traffic jams. The same is true in AppleTalk networks. Most early Macintosh networks were created for light traffic: to share printers, or to transfer small files around a workgroup. Over the last two years the number and complexity of workgroup services that depend on workstation connectivity has increased dramatically. Large AppleShare file servers, PC-Novell network services, DEC/VMS connectivity, heavy traffic generated by electronic mail, as well as newer network applications like Farallon's Timbuktu screen-sharing software, have placed significant burdens on the network.

More traffic on longer networks makes more of these services susceptible to disruption by reflected signals. One common symptom of heavy traffic and poorly terminated wiring is that devices disappear intermittently in the Mac Chooser. This phenomenon is known as "ghosting" or "drop-out."

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