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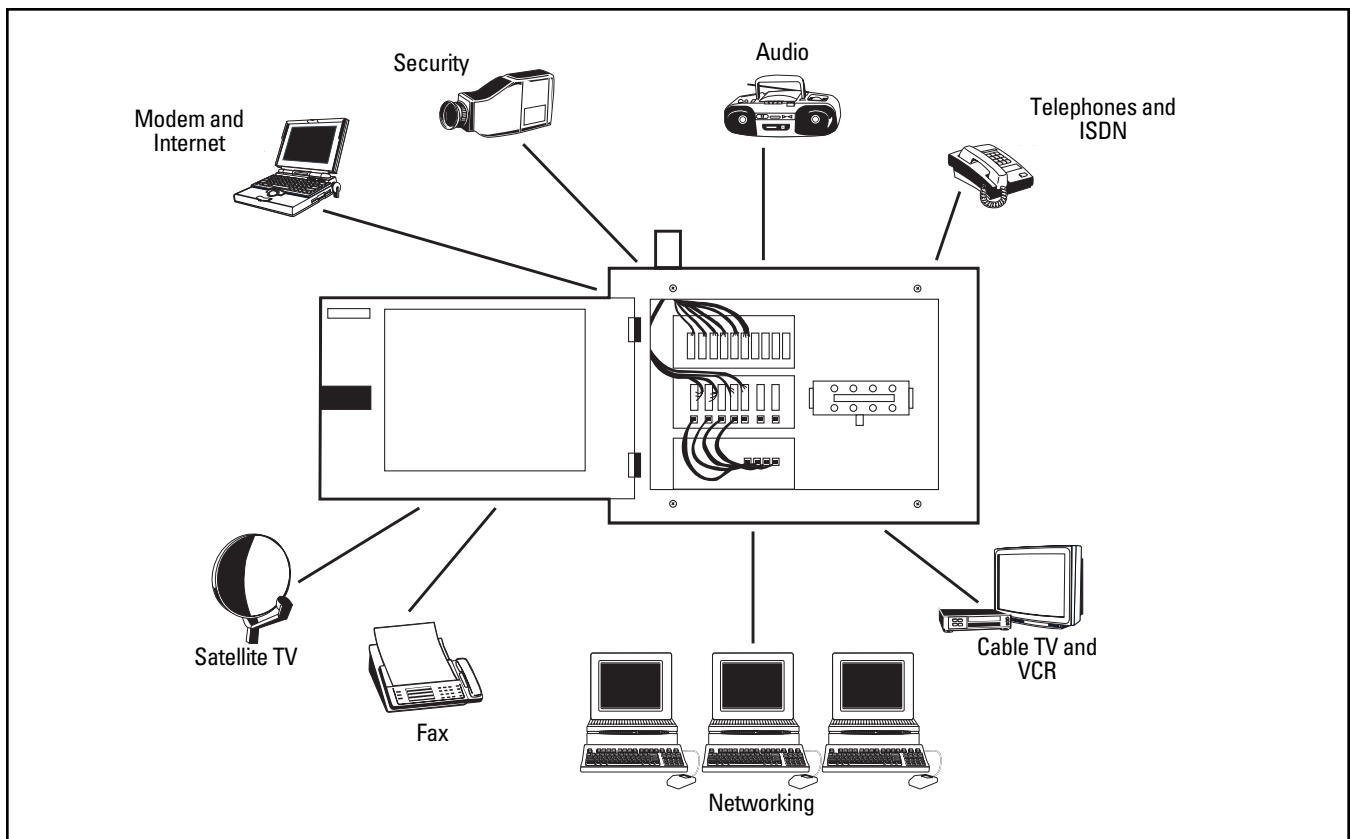
BLACK BOX[®]

NETWORK SERVICES

Technology Overview

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RESIDENTIAL STRUCTURED CABLING: THE NEW NECESSITY



Overview

It used to be when you thought of structured cabling, chances are you imagined trays of wires weaving through the walls and drop ceilings of a new technology park or maybe an older building being wired for a computer network.

But times change. Now, an increasing amount of homes, apartment buildings, and other residential spaces are being wired for computer networks. Naturally, this improves the value of a property, but it's also often a necessity—more and more professionals work from home and more people are buying higher-end equipment to build home networks. Here, we'll look at some of the standards and components of residential structured cabling.



History

Not so long ago, a home network might've consisted of two or three telephones and cable or satellite TV service. In just under a decade, home networks have come to mean the meshing of voice and data, audio and video, as well as home security and environmental control.

More recently, these separate systems have become part of the same in-home network. For example, with cable modem service, the Internet is part of the TV service. With DSL, voice and data traverse the same network.

Additionally, services within services are becoming more common. Video applications in a home might include not only cable service, but also satellite signals, images generated from digital cameras, and video from DVDs.

These services continue to grow together. In October 2000, the magazine *Resident Technology* reported that more than 50% of homes have more than one computer, and they often have dedicated lines for primary and secondary phone service, fax, and the Internet.

Components

The network components in a residential network are similar to those in a commercial setup, only on a smaller scale. These components include the distribution device (known as the "can" or the "box"), cables, and wall outlets.

The distribution device is the point where incoming voice/data/video services are brought together. In newer construction, the device is designed for placement between standard 16" (40.6 cm) wall studs. In older buildings, these devices can be installed through the back of walls or placed in a box outside the wall itself.

In smaller dwellings, these layouts are relatively simple with one distribution device. In larger homes, the services may be split: UTP may come out of one box and voice and video out of another. In multi-unit dwellings, the main services usually enter a large distribution point in the basement, travel to smaller distribution points on each floor, and terminate in each unit.

To get started with your home network—or to upgrade your existing one—call our Tech Support experts, they're the best in the business!

Standards

The telecommunications industry, through organizations like ANSI/TIA/EIA, the FCC, and BISCI, has responded to these developments by creating standards to govern installations and performance parameters in residential networks.

ANSI/TIA/EIA's standard is known as the 570A Residential Telecommunications Standard. Published in October 1999, the 570A standard specifies Category 3, 4, 5, or 5e UTP (with a provision for fiber optic cabling) and coaxial (Series 6 or RG) wired in a star topology. The UTP pinout is 568B.

The 570A standard is divided into Grade 1 and Grade 2. Grade 1 must meet the following minimum specifications for telephone, television, and data services:

- (1) Category 3 four-pair UTP with standard connectors. Even though Category 3 passes muster, Category 5 is recommended.
- (1) 75-ohm coaxial cable (Series 6 or RG) and connectors.

Grade 2 includes the requirements of Grade 1 as well as overhead for additional multimedia services as follows:

- A minimum of (2) Category 5, four-pair UTP cables with connectors. In this instance, Category 5e is recommended.
- (12) 75-ohm coaxial cables (Series 6 or RG) and connectors.
- An optional two-fiber optical cable with associated connectors.

Whether a Grade 1 or Grade 2 installation, other considerations for the 570A standard include at least one outlet in kitchen, the living room, the den or study, and each bedroom.

