The Types of Data Cabling

Today's technological world allows for endless possibilities when it comes to communications. Data Cabling is a crucial component, enabling communication from multiple locations into a single location (for example, data from all of the computers in a satellite office being transferred to one machine in the company's home office) or from a single location to multiple locations (for example, data from a company's home office being sent to all of the computers within a satellite office building). While wireless technologies do exist, the best quality still lies in data cabling when it comes to phones and computers. Data cable technicians are still commonly hired to help set up the proper wiring of homes and businesses.

Data cable is divided into three basic types, which have several subtypes. The coaxial cable is probably among the most well-known of any data cable, as they are commonly used for televisions at home (this cable is known as an RG-59). In homes, offices, and other locations, coaxial cables are also used for Ethernet connections. An RG-58 is the thinner of the two Ethernet cables, with the RG-II being thicker.

Fiber optic cables are used for high speed connections. Of all of the types of computer cabling or data cabling, this type of wiring is the most fragile but also carries the best overall quality in networking. Two connectors are possible with fiber optic cables. One is an ST connector, linking cable with networking machines and the SC, which is used only for cable television.

Computer and phone cabling will most commonly use copper wiring, also known as the twisted pair. These wires look exactly like their title, and are divided into three main types, with several subtypes therein. A shielded twisted pair (STP) contains an extra outer metal shield that an unshielded twisted pair (UTP) does not. A screened shielded twisted pair (SSTP) results in a very thick cable that is durable and difficult to bend. These copper cables, whether they are a shielded twisted pair or an unshielded twisted pair, are then categorized by number, starting with category 3 (which is known as Cat3). Higher numbers indicate a higher maximum bandwidth and a higher maximum data transmission speed, and are usually shielded, unlike lower categorical numbers.

Category 3 cables still exist mainly in older telephone and data systems. The birth of more advanced cabling ended the popularity of the Cat3 cable in the late nineties, when Category 5 cables took over in succession. These cables also work well for Ethernet and telephone, and also work with video connections. Cat5 cables are capable of processing data at more than double the speed ofCat3 cables, and were also known as the first "Fast Ethernet-capable Cables" on the market.

When the twisted pair has been mentioned, up until this point, it has usually been two copper cables that were twisted together. The birth of the Cat5e, or the Category 5 Enhanced cable, changed this into four cables that are now twisted together. The Cat5e is the most popular cable used today. Because of the four twisted cables as opposed to the two, gigabit speeds are possible with the Category 5 enhanced cable.

Category 6 cables are very similar to the Cat5e, except that this is the lowest quality grade cable that is offered in both the STP and the UTP categories. Both cables carry the same maximum transmission speed, but the the maximum bandwidth increases from 100

MHz with the Cat5e to 250MHz with the Cat6. Augmented Category 6 cables are always an STP cable. Cat6a's literally double the bandwidth offered in Category 6 cable from it's 250MHz to 500 MHz in the Cat6a. The highest data transmission speed of the Augmented Category 6 cable is 10,000 Mbps, as opposed to the regular Cat6's 1,000.

Category 7 cable is the only screened shielded twisted pair available. This makes the cable extremely insulated and durable, with the highest operating speeds. With these cables, if the proper grounding techniques and connectors are not used, the Cat7 will not be effective at the speeds of which is it capable.

It is for this reason that it is highly recommended that professionals be available for assistance when such connections are being made, especially in an important business related setting. A data cables technician is the individual who would assist you with these matters. These employees may be hired from IT, cable, or phone companies, and are specially trained to assist homeowners and businesses in hooking up their networks, whether it be phone, computer, or other data. The pay for such positions is usually reasonably high, but travel is required, as are hours of labor in order to get every job completed properly. Data cables technicians can be trusted to assist businesses with all of the information provided in this article, and much more, to ensure that the best cables possible are used for the client's home or office needs.

Coaxial cable, or coax is a type of cable that has an inner conductor surrounded by a tubular insulating layer, surrounded by a tubular conducting shield. Many coaxial cables also have an insulating outer sheath or jacket. The term coaxial comes from the inner conductor and the outer shield sharing a geometric axis. Coaxial cable was invented by English engineer and mathematician Oliver Heaviside, who patented the design in 1880. Coaxial cable differs from other shielded cable used for carrying lower-frequency signals, in that the dimensions of the cable are controlled to give a precise, constant conductor spacing, which is needed for it to function efficiently as a transmission line.

An optical fiber is a flexible filament of very clear glass capable of carrying information in the form of light. Optical fibers are hair-thin structures created by forming pre-forms, which are glass rods drawn into fine threads of glass protected by a plastic coating. Fiber manufacturers use various vapor deposition processes to make the pre-forms. The fibers drawn from these pre-forms are then typically packaged into cable configurations, which are then placed into an operating environment for decades of reliable performance.

The two main elements of an optical fiber are its core and cladding. The "core", or the axial part of the optical fiber made of silica glass, is the light transmission area of the fiber. It may sometimes be treated with a "doping" element to change its refractive index and therefore the velocity of light down the fiber.

The "cladding" is the layer completely surrounding the core. The difference in refractive index between the core and cladding is less than 0.5 percent. The refractive index of the core is higher than that of the cladding, so that light in the core strikes the interface with the cladding at a bouncing angle, gets trapped in the core by total internal reflection, and keeps traveling in the proper direction down the length of the fiber to its destination.

Surrounding the cladding is usually another layer, called a "coating," which typically consists of

protective polymer layers applied during the fiber drawing process, before the fiber contacts any surface. "Buffers" are further protective layers applied on top of the coating.