

INTELLIGENT DATA & POWER SOLUTIONS

STRUCTURED CABLING SYSTEMS

A number of years ago a cabling system within a customer's premises was specific to the particular telecommunication and / or computer system in use. Some of the most widespread systems were IBM3270 using coax cabling, IBM 5250 using twinaxial cable and serial RS232 using a screened multicore data cable. If a customer had two or more systems and a standard telephone cabling system, the building could have had several different and incompatible cabling systems installed.

The widespread introduction of Local Area Networks added to the "cabling chaos". There was a growing need for a generic wiring standard that could support a number of different applications over one common infrastructure.

IBM introduced their IBM cabling system, which utilised a bulky two-pair shielded cable and large (by today's standards) connectors. At the time it was well engineered and it was possible to support several different systems over the "type 1" cable. It was not however suitable for telephone systems, particularly the new digital telephone systems. This led to the development of a "data" grade telephone cable (later classified as category 3). The new cable had four twisted pairs and could be unshielded or shielded. The AT&T Premises Distribution System became the benchmark by which other systems were judged.

The new system provided a generic high performance cabling infrastructure that could support practically ALL of the telephony and data (LAN) systems / protocols.

The basic topology of the generic or newly coined title "structured cabling system" is a star. The cables radiate out from a central location to a number of wall or floor outlets (sockets / jacks).

At the central location the cables are terminated onto a series of rack mount patchpanels mounted in a cabinet or onto wall frames (housed in a comms room or "communications closet"). Each cable is connected to a single outlet and is not shared or daisy chained to any other.

The cabling (wiring) from the "communications closet" is often called the horizontal distribution and is restricted to a maximum distance of 100m including cords connecting equipment to the outlet and any cables used to interconnect patchpanel port to equipment or service.

The connector used in the outlet is the 8 pin RJ45. Although it is also found in rack mount patchpanels, different systems use wall mounted frames and the 110 connector (AT&T – now AVAYA) or the BIX connector (Nordx).

The cable specifications were developed through a very short lived category 4 to category 5 and latterly enhanced category 5 (cat5e) and category 6.

Today, category 5e cabling is very common, typically using two RJ45 outlets at each work area – one for a data service e.g. LAN and a second for a telephony service.

