25/7/24

Practical -2

Aim:

To study of different types of Network Cables

a) Understand different types of network cable.

Different types of cables used in networking are:

1. Unshielded Twisted pair (UTP) Cable
2. Shielded Twisted Pair (STP) Cable
3. Coaxil Cable
4. Fibre Optic cable

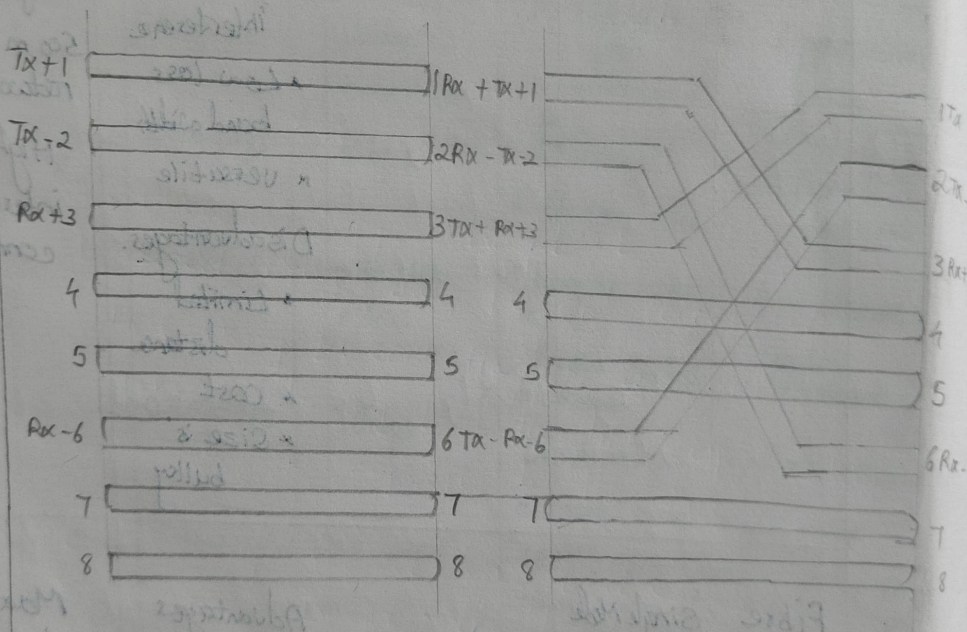
Cable type	category	Maximum Data Transmission	Advantages/ Disadvantages	Application/ Use
UTP	category3	10bps	Advantages: * Cheaper in cost * Easy to install as they have a smaller overall diameter. Disadvantages: * More prone to (EMI) electromagnetic interference and noise	10 Base-T Ethernet
	Category5	Up to 100 Mbps		Fast Ethernet, Gigabit Ethernet
	Categorys5e	1Gbps		Fast ethernet Gigabit ethernet.
STP	Category 6, 6a	10 Gbps	Advantages * shielded * Faster than UTP * Less susceptible to noise and interference Disadvantage: * Expensive * Increased installation effort	Gigabit Ethernet, 10G Ethernet (ssm) widely used in data cent

STP	Category 6, 6a	10Gbps	Advantages * Shielded. * Faster than UTP. * Less susceptible to noise and interference Disadvantages. * Expensive * Greater installation effort	Gigabit ethernet, 10G Ethernet (55m) Widely used in data centres
SSTP	Category 7	10Gbps		Gigabit ethernet, 10G Ethernet (100m)
Coaxial Cable	RG-6 RG-59 RG-11	10-100 Mbps	Advantages * High bandwidth * Immune to interference * Low loss bandwidth * versatile Disadvantages. * Limited distance * cost * Size is bulky	Speed of signal is 500 m television network High speed internet connections
Fibre Optics Cable	Single Mode Multimode	100 Gbps	Advantages * High speed * High bandwidth * High security * Long distance Disadvantages * Expensive * Requires skilled installers.	Maximum distance of fibre optics cable is around 100 metres

b) Make your own Ethernet Cross-over cable / Straight cable.

Tools and Parts Needed:

* Ethernet Cabling. CAT5e is certified for gigabit support, but CAT5 cabling works as well, just over shorter distances.
* A crimping tool. This is an all in one networking tool shaped to push down the pins in the plug and strip and cut the shielding off the cables.
* Two RJ45 Plugs
* Optional two plug shields.



Difference between crossover cable and straight cable

Result:

Thus the study of different network cables has been successfully executed.

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1. What is the difference between Cross cable and Straight cable?

Straight - through cables are used to connect devices that operate at different layers of the network model where as cross-over cables are utilised to link devices operating and same layers

2. Which type of cable is used to connect two PC? (Straight / Cross cable)

Ethernet crossover cable

3. Which type cable is used to connect a router / switch to your PC? (Straight / Cross cable)

Straight - through cable

4. Find out the category of twisted pair cable used in your lab to connect the PC to network socket.

RS-45 (UTP)

5. Write down your understanding / challenges faced and Output received while making a twisted pair Cross / Straight cable.

The Cripping machine should be perfect to cut the cable.