21/7/25

Experiment - 2

Aim: Study of different types of Network cables

a) Understand different types of network cable.

Different type of cables used in networking are:

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

Cable type	Category	Maximum Data Transmission	Advantages / Disadvantages	Application / Use
UTP	category 3	10 bps	**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
	category 5	Up to 100 mbps		Fast Ethernet, Gigabit Ethernet
	category 5e	1 Gbps		Fast Ethernet, Gigabit ethernet.
STP	category 6, 6a	10 Gbps	**Advantages** • Shielded • Faster than UTP • less susceptible to noise and interference **Disadvantages** • Expensive • Greater installation effort	Gigabit ethernet, 10 G Ethernet (55 m) widely used in data centres.
SSTP	category 7	10 Gbps		Gigabit ethernet, 10G ethernet (100 m)

coaxial cable	RG-6 RG-59 RG-11	10-100 Mbps	• High band width • Immune to interference • low loss bandwidth • versatile Disadvantages • limited distance • cost • size is bulky	Speed of signal is 500m Television network High speed internet connections.
fibre optics cable	single mode multi mode	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 meters.

Student Observation :

1) what is the difference between cross cable and straight cable ?

A) Cross cable connects similar devices (eg PC to PC) while straight cable connects different devices (eg PC to switch)

2) which type of cable is used to connect two PC ?

A) To connect two PCs, a cross cable is used.

3) which type cable is used to connect a router / switch to your PC ?

A) To connect a router or switch to a PC, a straight cable is used.

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

A) The common twisted pair cable used is Cat5e or Cat6.

5) Write down your understanding, challenges faced and output received while making a twisted pair cross / straight cable.

A) Making cables required careful pin alignment, challenge was crimping properly, but the output was a working connection.

Result: Thus the different types of network cables are studied.

31/8/22