

Ex: No: 2

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Study of Network Cables

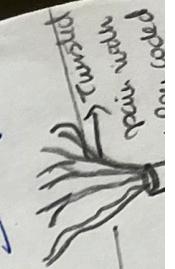
Aim: Study of different types of network cables

a) Understanding 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) coaxial cable
- 4) fibre optical cable

Tanay



Application

1) Local - Area

Ans 1 Disadvantage

Ans 2

Cable Type	Category	Max Data transmission	Application	
			disadvantage	Advantage
UTP	Category 3	10 bps	→ cheaper in cost → easy to install as they share smaller overall diameter	Fast Ethernet Fast Ethernet Fast Ethernet
	Category 5e	upto 100mtrs	Disadvantages → more personnel	Gigabit Ethernet upto 1000 m
	Category 6a	1 Gbps	Electromagnetic Interference & noise	at original speed
	STP	500 - 11 100-200 mtrs	Advantages → shielded → faster than Gb	Crucial Ethernet
	Category 7	10 Gbps	→ less successful to noise and interference Disadvantage → expensive	Turbo Ethernet widely used in data centre Gigabit Ethernet 10Gb Ethernet (100m)
	SSTP	1000 mtrs	→ greater installation effort	10Gb Ethernet SSTP

b) make your own ethernet cable - cover cable / straight
cable

Tools and spares needed:

→ ethernet cabling, CAT 5e is certified for gigabit support, but CAT 5 cabling works as well just cover shorter distances

→ Crimping tool: This is an all in one networking tool shaped to push down the pins in plug & strip and cut the shielding off the cables

→ Two RJ45 cables

→ optional two plug shields

Steps to be followed:

1) To start construction of device, begin by threading shields onto cable.

2) Next, strip app 1.5 cm of cable shielding from both ends. The crimping tool has removed area to complete this task.

3) After you will need to untangle the wires. There should be four twisted pair. Referring back to sheet, arrange them from top to bottom. One end should be in arrangement

A 2 strand B

- 4) Once the wires are twisted, bunch them together in line and if there are any that stick out further than others, snip back to create an even level. The different aspect is planning these onto RJ45 plug without messing up the order.
- To do so, hold the plug with the clip side facing away from you & have the gold pins facing towards you.
- 5) Next, push the cable straight in. The notch at the end of plug needs to be just over the cable shielding & if it isn't that means that you stripped off too much shielding. Simply snip the cables back a little more.
- 6) After the wires are securely sitting inside the plug, insert it into crimping tool & push down.
- 7) Lastly, repeat for the other end using diagram B using diagram A.

Student's observation

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

Cross cable: connects different types of devices
(pc to switch, switch)

Straight cable: connects similar device (pc to pc, switch to switch)

2) Which type of cable is used to connect two PCs?

Cross cable

3) Which type of cable is used to connect a switch / switch to your PC?

Straight cable

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

Making all cables sum to a central connection point. If one cable breaks or fails, only the computer that is connected to that cable is unable to use network.

5) Write down your understanding, challenges faced & output received while making a Twisted pair (cross) straight cable.

Making a twisted pair or straight cable involves carefully arranging wire pairs in the correct order with challenges including maintaining proper wire alignment & avoid signal interference. The output should establish a stable connection.

Result: Thus the study of different networks & cables are studied & evaluated.

8/7/24