**N+\_Chapter-3:**

**Networking Topologies, Connectors, and Wiring Standards**

1. **What is the difference between a straight-through (patch) cable and a crossover cable?**

Ans. Straight-through (patch) cables are used to connect hosts to a switch or a hub. Crossover cables switch pins 1 and 3, and 2 and 6 on one end. They are used to connect hubs to hubs, switches to switches, hosts to hosts, and hosts to routers.

1. **What are hubs, switches, and routers?**

Ans. These are all network connectivity devices. Hubs and switches are used to connect several computers or groups of computers to each other. Routers are more complex devices that are often used to connect network segments or networks to each other.

1. **What types of cables are used in networking?**

Ans. Common network cables include coaxial, STP, UTP (Category 5/5e and Category 6), and fiber-optic.

1. **What are the various types of ends (connectors) that are used on each type of cable?**

Ans. Coax cable uses BNC; twisted pair uses RJ-11 for voice and RJ-45 for data; and fiber uses ST, SC, and LC connectors (depending on its use).

1. **What types of media converters those are available?**

Ans. These include single mode fiber to Ethernet, multimode fiber to Ethernet, fiber to coaxial, and single mode to multimode fiber.

1. **White is a 568A to 568A cable?**

Ans. A 568A to 568A cable is also known as an Ethernet straight-through cable and is used to connect hosts to switches, for example.

1. **White is a 568A to 568B cable?**

Ans. A 568A to 568B cable is also known as an Ethernet crossover cable and is used to connect switches to switches, for example.

1. **What are two advantages of fiber-optic cabling?**

Ans. It is completely immune to EMI and RFI and can transmit up to 40 kilometers (about 25 miles).

1. **Define single-mode and multimode-fiber.**

Or Difference between single-mode and multimode-fiber.

Ans. **Single-Mode Fiber**  
Single-mode fiber-optic cable (SMF)is a very high-speed, long-distance media that consists of  
a single strand—sometimes two strands—of glass fiber that carries the signals. Light-emitting  
diodes (LEDs) and laser are the light sources used with SMF. It can transmit data 50 times further than multimode fiber at a faster rate.  
  
**Multimode Fiber**  
Multimode fiber-optic cable (MMF)also uses light to communicate a signal, but with it,  
the light is dispersed on numerous paths as it travels through the core and is reflected back.  
A special material called *cladding* is used to line the core and focus the light back onto it.  
MMF provides high bandwidth at high speeds over medium distances (up to about 3,000  
feet).

1. **Describe the operation of Broadband over Power Line.**

Ans. BPL allows for the transmission of data over existing power lines, both for networking home computers and receiving Internet access to a building.

1. **What is demarcation point?**

Ans. The demarcation point, or demarc, is the point at which the operational control or  
ownership changes from your company to a service provider. This is often at the MDF  
in relation to telephone connections and the CSU/DSU in regard to WAN connections.

1. **What is the difference between half-duplex and full-duplex communication?**

Ans. In half-duplex communication, a device can either send communication or receive  
communication, but it cannot do both at the same time.

In full-duplex communication, a device can send communication and receive  
communication, both at the same time. Full-duplex communication requires a point-to-point configuration because the collision-avoidance circuit is disabled

1. **Define the function of a T1 crossover cable.**

Ans. In rare instances, you may have the need to run a cable between two CSU/DSUs. In that case, you will need a T1 crossover cable. A T1 cable uses T568B pairs 1 and 2, so to connect two T1 CSU/DSU devices back-to-back requires a crossover cable that swaps these pairs. Specifically, pins 1, 2, 4, and 5 are connected to 4, 5, 1, and 2, respectively.

1. **Write down the three types of popular cables used in modern networking ?**

Ans. The three types of popular cables used in modern networking are-

1. Coaxial
2. Twisted-pair
3. Fiber Optic
4. **What is Coaxial Cable?**

Ans: 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.

1. **What is dis- advantage of coaxial Cable?**
2. The plenum rated coaxial cables are power “wick” and helping it quickly spread from room to room and floor - yikes.
3. The plastic cover produce much heat and smoke while burn.
4. **What is twisted pair cable?**

Ans: Twisted pair cabling is a type of wiring in which two conductors of a single circuit are twisted together for the purposes of canceling out electromagnetic interference (EMI) from external sources.

1. **What is advantage of twisted pair ?**

**Advantage of Twisted pair**

* It’s cheaper than other types of cabling.
* It’s easy to work with.
* It allows transmission rates that were impossible 10 years ago.

1. **Write Down some type of Coaxial cable name ?**
   1. RG-58 A/U (use for Thinnet)
   2. RG-8 (Thicknet)
   3. RG-59 (Television)
   4. RG-6 (Modem)
2. **Write Down Some Twisted pear cable ?**
   1. **Category 1** (16 MGH. Use to POTS cable still exists in parts of the public Switched Telephone Network (PSTN) and supports singles limited to the1 MHZ frequency range) .
   2. **Category 2** (It handles up to 4Mbps, with a frequency limitation of 10MHz .)
   3. **Category 3 (**16 MGh. Up to 10 Mbps Ethernet.)
   4. **Category 4** (20 MGH. )
   5. **Category 5** (100 MGH)
   6. **Category 5e** (100 MGH. Able to Handling the disturbance on each pair that’s caused by transmitting on all fair at same time)
   7. **Category 6 (**250 MHz)
   8. **Category 6a (**used for 10BaseT .In future will be500 MHz)
3. **What is Fiber-Optic Cable ?**

Ans: An optical fiber cable is a cable containing one or more optical fibers that are used to carry light. The optical fiber elements are typically individually coated with plastic layers and contained in a protective tube suitable for the environment where the cable will be deployed.

1. **How many fiber-optic cable there are?**

**Ans.** There are two types of fiber optic cable . those are

* 1. **Single mode Fiber**

In fiber-optic communication, a single-mode optical fiber (SMF) is an optical fiber designed to carry light only directly down the fiber - the transverse mode. These modes define the way the wave travels through space, how the wave is distributed in space.

* 1. **Multimode Fiber**

Multi-mode optical fiber is a type of optical fiber mostly used for communication over short distances, such as within a building or on a campus. Typical multimode links have data rates of 10 Mbit/s to 10 Gbit/s over link lengths of up to 600 meters (2000 feet).

1. **Write advantage of fibre optic cable ?**

Ans.

* 1. Immunity to Electromagnetic Interference
  2. High Bandwidth Over Long Distances
  3. Ease Of Installation
  4. Non Conductive Cables

1. W**rite coaxial, twistedpair and fibreoptic connector name ?**

Ans.

**Coaxial:**

**BNC**

**Twisted Pair:**

**RJ-45, RJ-11**

**Fiber Optic:**

**ST, SC, LC, MTRJ etc.**

1. **Write the terms of cable property ?**
   1. Transmission Speeds
   2. Distance
   3. Duplex
   4. Noise immunity
2. **What is Media Converter and write down the types of Medea convertor ?**

Ans:

**Media Converter**

A media converter is a simple networking device that makes it possible to connect two dissimilar media types such as twisted pair with fiber optic cabling. They were introduced to the industry in the 1990s.

**Types:**

There are several types of media connector . such as:

Single mode fiber to multimode fiber , coaxial to fiber, fiber to UTP Etc.

1. **What is Serial Cable?**

Ans: A serial cable is a cable used to transfer information between two devices using a serial communication protocol. The form of connectors depends on the particular serial port used.

1. **What is Universal Serial Bus?**

Ans: USB, short for Universal Serial Bus, is an industry standard developed in the mid-1990s that defines the cables, connectors and communications protocols used in a bus for connection, communication, and power supply between computers and electronic devices.

1. **What is RS-232 ?**

Ans: In telecommunications, RS-232 is a standard for serial communication transmission of data. It formally defines the signals connecting between a DTE (data terminal equipment) such as a computer terminal, and a DCE (data circuit-termination, such as a modem.

1. **What is Transmission Speeds?**

Ans: In the distribution and access areas, where users connect to switches, it’s typically 100Mbps per connection, but transmission speeds are creeping up because the traffi demand is getting higher.

1. **What is Duplex?**

Ans: All communications are either half duplex or full duplex. During half-duplex communication, a device can either send communication or receive communication, but not both at the same time. In full-duplex communication, both devices can send and receive communication at the same time.

1. **What is Noise Immunity?**

Ans: **Noise** is a variety of sound. It means any unwanted **sound**. And noise immunity is noise variation for electro-magnetic interface. While two electrode cable go parallel then Noise immunity may occur .

1. **What is Frequency**?

Ans: Each cable type has a specified maximum frequency that gives you the transmission bandwidth it can handle. Cat 5e cable is tested to 100MHz maximum frequency and can run

1Gbps signals for relatively short distances. Cat 6 is a 250MHz cable that can handle 1Gbps data flow all day long with ease.

1. **Write the Available wiring standard?**
   1. 568A
   2. 568B
   3. Cross over
   4. Straight throw
2. **Write the use of straight-throw and crossover cable?**

**Straight-Through Cable:**

Straight –through cable use to connect host to Switch or hub.

**Crossover Cable:**

A crossover cable connects two devices of the same type, for example switch to switch and switch to hub ,

1. **Write down the structure of crossover cabling?**

Ans : The cross over cabling use to same types of devices. Its use combination of wiring standard 568A and 568B. if one away is 568-A then other away will be 568B .

1. **How to do 568A cabling?**

Ans.

White/Green, Green

White/Orange, Blue

White/Blue, Orange

White /Brown, Brown

1. **How To Do 568B Cabling?**

Ans.

Whit/Orange, Orange

White/Green, Blue

White/Blue, Green

Whit Brown, Brown

1. **Write the uses of T1 crossover cable ?**

T1 crossover cable use to built the router and its use on router. Such as CSu/DSU cable use to router configures.

1. **Write down Three types of coaxial cable name?**

Ans: The two types of coaxial cable is –

1. RG-59
2. RG-6
3. RG-8
4. **What do you mean by MDF/IDF?**

Ans: MDF stands for Main Distribution Frame is a wiring point that’s generally used as a reference point for telephone lines as considered the WAN termination point.

IDF: another wire frame called an intermediate distribution frame (IDF)  
is located in an equipment or telecommunications room. It is connected to the MDF and  
is used to provide greater flexibility for the distribution of all the communications lines to  
the building.

1. **Why do we use 25 pair?**

Ans: We use 25 pair known ***feeder cable*** as just for telephone cabling, and especially for backbone and cross-connect cables.

1. **What is 110 Block?**

Ans: A newer type of wiring distribution point called a *110 block* has replaced most telephone  
wire installations and is also used for computer networking.

1. **What is demarcation point?**

Ans: Demarcation is the last point of responsibility of the service provider to reduce the pressure of server.

1. **What is Smart Jack?**

Ans: A *smart jack*, also called a network interface device (NID) or network interface unit.

The smart-jack device may also provide for code and protocol conversion, making the signal from the service provider usable by the devices on the internal network like the CSU/DSU.

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