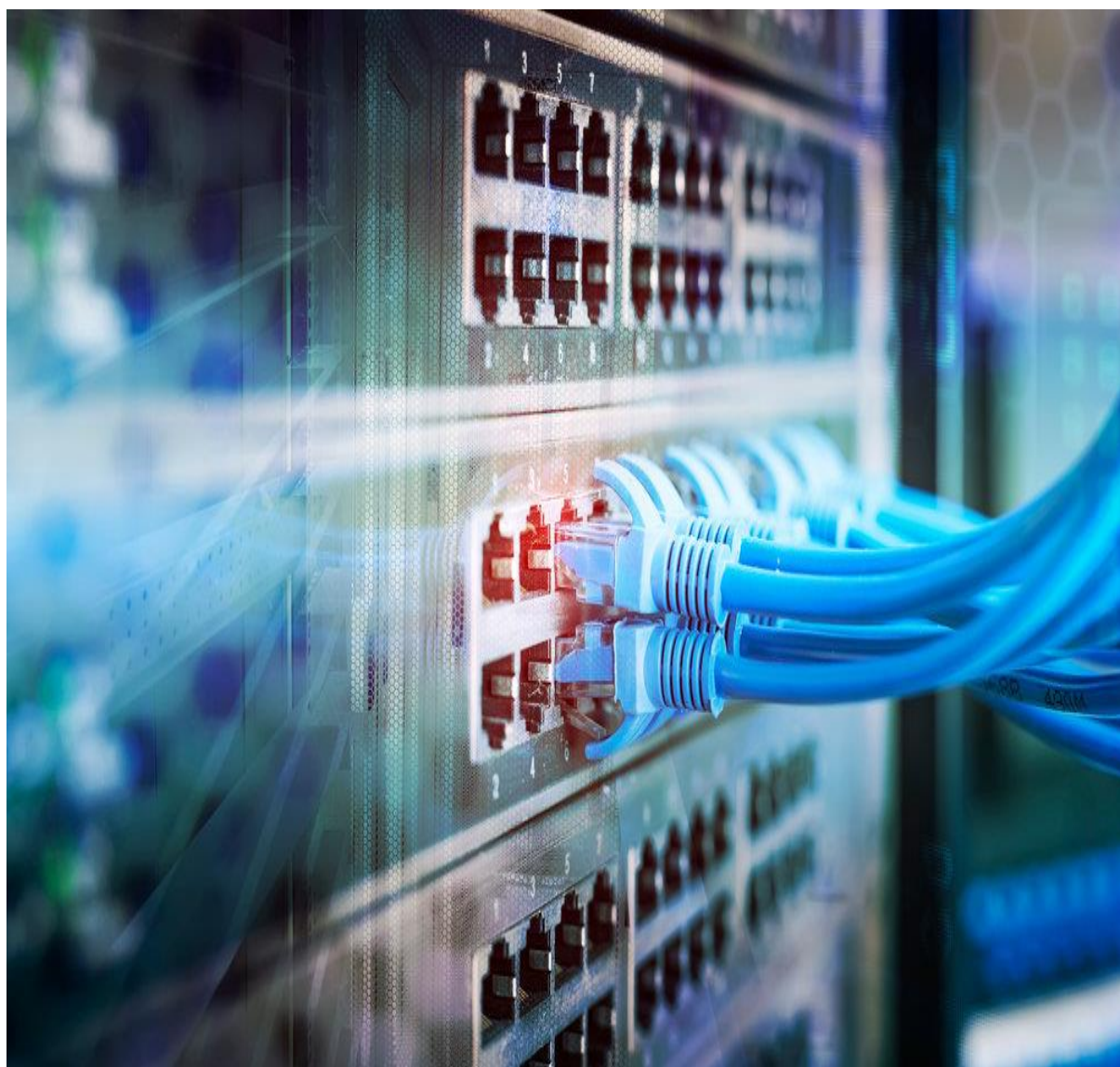# COMPUTER SYSTEMS SERVICING

Computer Systems Servicing
Quarter 3 – Module 2: Types of network cable and Network architecture

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COMPUTER SYSTEMS SERVICING

11

Quarter 3

Self-Learning Module 2

Types of Network Cable and Network Architecture

Introductory Message

For the Facilitator:

Welcome to the **Computer Systems Servicing** Self-Learning Module on **Types of network cable and Network architecture**!

This Self-Learning Module was collaboratively designed, developed and reviewed by educators from the Schools Division Office of Pasig City headed by its Officer-in-Charge Schools Division Superintendent, Ma. Evalou Concepcion A. Agustin, in partnership with the City Government of Pasig through its mayor, Honorable Victor Ma. Regis N. Sotto. The writers utilized the standards set by the K to 12 Curriculum using the Most Essential Learning Competencies (MELC) in developing this instructional resource.

This learning material hopes to engage the learners in guided and independent learning activities at their own pace and time. Further, this also aims to help learners acquire the needed 21st century skills especially the 5 Cs, namely: Communication, Collaboration, Creativity, Critical Thinking, and Character while taking into consideration their needs and circumstances.

In addition to the material in the main text, you will also see this box in the body of the module:

Notes to the Teacher

This contains helpful tips or strategies that will help you in guiding the learners.

As a facilitator you are expected to orient the learners on how to use this module. You also need to keep track of the learners' progress while allowing them to manage their own learning. Moreover, you are expected to encourage and assist the learners as they do the tasks included in the module.
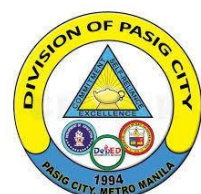
For the Learner:

Welcome to the **Computer Systems Servicing** <u>Self-Learning Module</u> on **Types of network cable and Network architecture**!

This module was designed to provide you with fun and meaningful opportunities for guided and independent learning at your own pace and time. You will be enabled to process the contents of the learning material while being an active learner.

This module has the following parts and corresponding icons:

Expectations - This points to the set of knowledge and skills that you will learn after completing the module.

Pre-test - This measures your prior knowledge about the lesson at hand.

Recap - This part of the module provides a review of concepts and skills that you already know about a previous lesson.

Lesson - This section discusses the topic in the module.

Activities - This is a set of activities that you need to perform.

Wrap-Up - This section summarizes the concepts and application of the lesson.

Valuing - This part integrates a desirable moral value in the lesson.

Post-test - This measure how much you have learned from the entire module.

EXPECTATIONS

After completing this lesson, you should be able to:

1. recognize the types of network cable.
2. compare the difference between peer to peer and client/server network.
3. appreciate the importance of network cable.

PRE-TEST

Direction: Match the definition of column A to the term of column B.

A	B
____1. This cable commonly used in television industries.	a. Peer to peer
____2. Centralized computer is a hub to which workstation is connected.	b. Coaxial
____3. Transmits light which reduce the risks of interference.	c. Fiber optic
____4. Consists of two or more computers share files w/o requiring a server computer.	d. UTP
____5. It has two unshielded wires twisted around each other.	e. Client/server
	f. STP
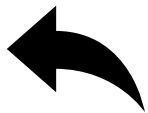
RECAP

Direction: Read each statement carefully. Write the letter of the correct answer.

____1. A bundle multiple network ports together to connect incoming and outgoing lines including those for local area networks
   a. Modem   b. Router   c. Patch panel   d. Switch
____2. A device that converts data into a format suitable for a transmission medium.
   a. Switch   b. Patch panel   c. WAP   d. Modem

_____3. A computer network which spans over a large geographical area such as country or the world.
    a. Metropolitan Area Network   c. Wide Area Network
    b. Local Area Network   d. Personal Area Network

_____4. A device that allows other Wi-Fi devices to connect to a wired network.
    a. Router   b. WAP   c. Switch   d. Patch panel

_____5. A computer network which connects two or more LAN networks in a city or town.
    a. Personal Area Network   c. Local Area Network
    b. Wide Area Network   d. Metropolitan Area Network

LESSON

What is a network cable?

Network cables are used to connect one network device to other network devices or to connect two or more computers to share printers, scanners etc..
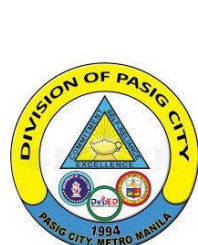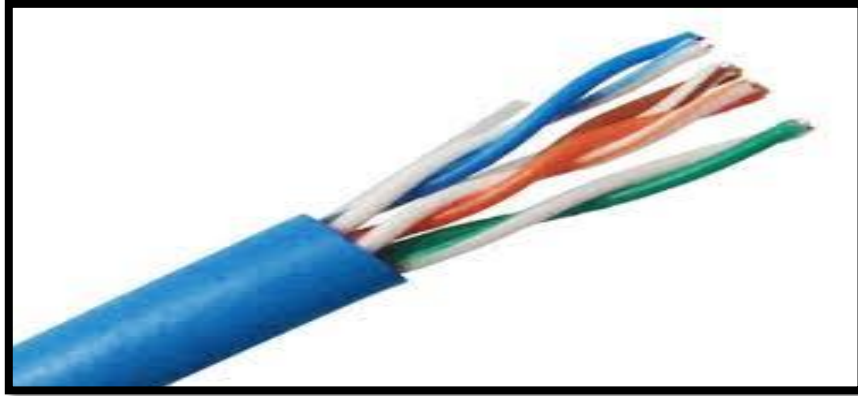

http://www.fiber-optic-cable-sale.com/ethernet-cable-vs-network-cable-whats-difference.html

Types of network of cable

1. Unshielded Twisted Pair (UTP) Cable

A popular type of cable that is commonly used for Local Area Network. It has two unshielded wires twisted around each other.

2. Shielded Twisted Pair (STP) Cable

The extra covering of the STP Cable provides extra protection to prevent electromagnetic interference.
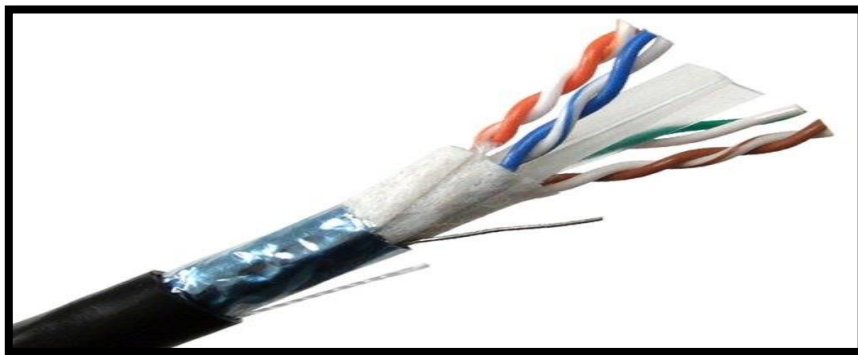
3. Coaxial Cable

This cable commonly used in television industries. The metal shield surrounding the cable helps block interference from fluorescence lights, motors, and other computers.

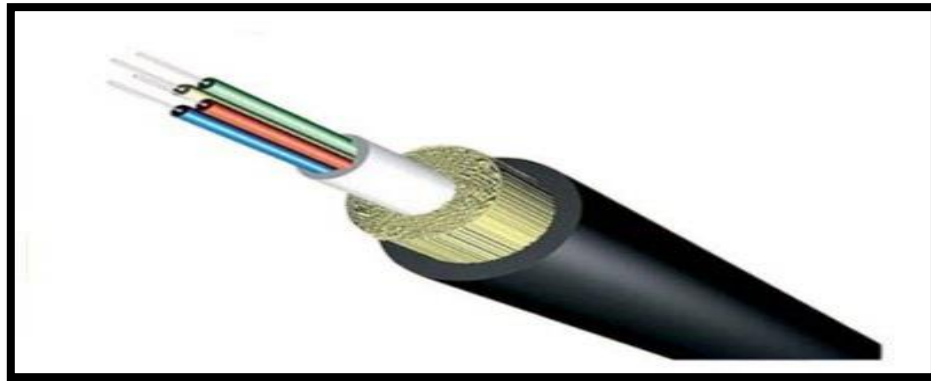### 4. Fiber Optic Cable

Transmits light rather than electronic signals which reduce the risks of electrical interference. It is ideal for environments where electrical interference is present.

http://www.satellitebyfibre.co.uk/contents/en-uk/d234.html

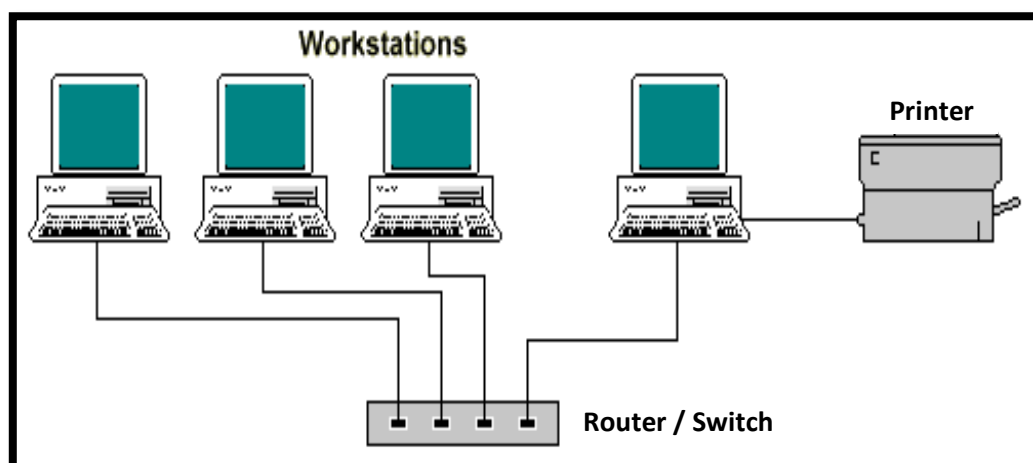# Network architecture

Refers to the way network devices and services are designed to serve the connectivity needs of client devices.
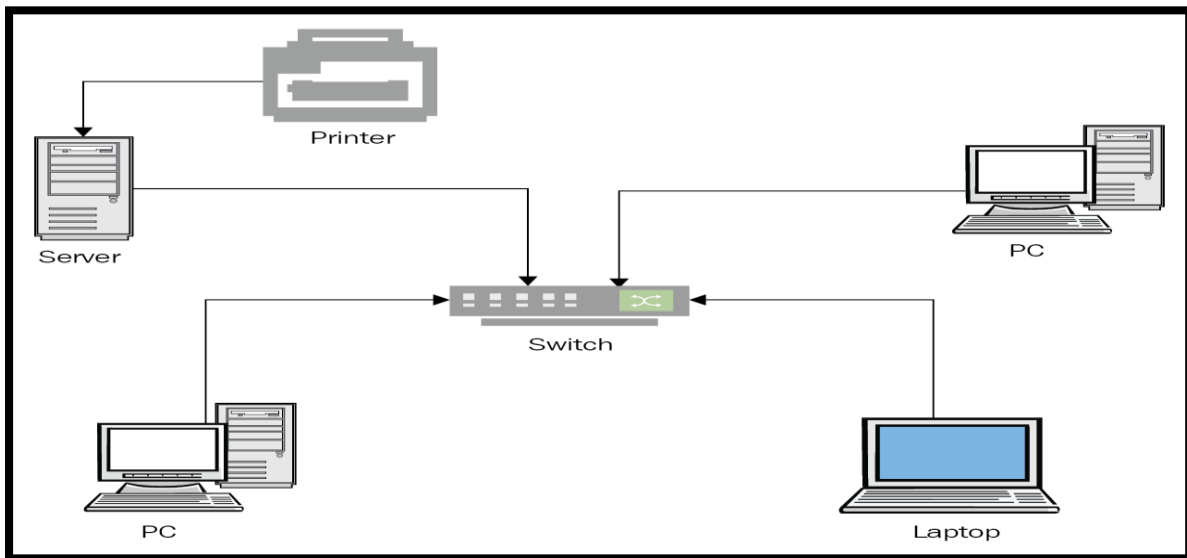
1. Peer-to-peer network

This consists of two or more computers share files and access to devices such as printers without requiring a server computer.

http://www.technologyuk.net/computing/computer-networks/network-technologies/models-of-networking.shtml

2. Client/server network

A computer network in which one centralized, powerful computer (called the server) is a hub to which many less powerful personal computers or workstations (called clients) are connected. The clients run programs and access data that are stored on the server.

https://www.oreilly.com/library/view/ccentccna-icnd1-100-105/9781788621434/347a1d90-2bd2-4007-b31c-f9eceebcec09.xhtml

ADVANTAGES & DISADVANTAGES OF PEER TO PEER NETWORK

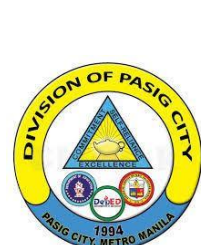**Advantages:**
- Use less expensive computer hardware
- Easy to administer
- No NOS required
- More built in redundancy
- Easy setup & low cost

Disadvantages:
- Not very secure
- No central point of storage or file archiving
- Additional load on computer because of resource sharing
- Hard to maintain version control

https://www.learnpick.in/prime/documents/ppts/details/3932/computer-networking
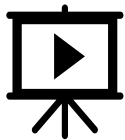
ADVANTAGES AND DISADVANTAGES OF CLIENT-SERVER NETWORK

Advantages:
- Very secure
- Better performance
- Centralized backup
- very reliable

Disadvantages:
- requires professional administration
- More hardware-intensive
- More software intensive
- Expensive dedicated software

https://www.learnpick.in/prime/documents/ppts/details/3932/computer-networking

ACTIVITIES

Activity 1:

Direction: List down 3 types of cables and explain or describe.

Types of cables	Explain
1.	
2.	
3.	

Activity 2:

Direction: Give at least 3 differences between Peer-to-peer network and Client/server network.

Peer-to-peer network	Client/server network
1.	
2.	
3.	

WRAP-UP

UTP cable is one of the most common forms of network cable used on wired networks. Ethernet cables connect devices within a local area network, like PCs, routers, and switches. These limits are one reason there are different types of cables optimized to perform certain tasks in particular situations.

Network architecture is the design of a computer network. It is a framework for the specification of a network's physical components and their functional organization and configuration.

VALUING

Direction**:** Read and answer the following questions carefully in two to three sentences each number.

1. What are the importance of network cable?

_____
_____
_____

2. Cite a situation in which you can apply the knowledge of peer-to-peer network and client/server network.

_____
_____
_____

POST-TEST

Direction: Identify and choose the answer from the box. Write the answer on the blank space.

Peer to peer	Coaxial	Fiber optic	UTP	Client/server	STP

_____1. The extra covering of the cable provides extra protection to prevent electromagnetic interference.

_____2. A computer network in which one centralized, powerful computer is a hub to which many less powerful personal computers or workstations are connected.

_____3. Transmits light rather than electronic signals which reduce the risks of electrical interference.

_____4. This consists of two or more computers share files and access to devices such as printers without requiring a server computer.

_____5. The metal shield surrounding the cable helps block interference from fluorescence lights, motors, and other computers.

KEY TO CORRECTION

Post-Test:

1. STP
2. Client/server
3. Fiber optic
4. Peer to peer
5. Coaxial

Pre-Test:

1. B
2. E
3. C
4. A
5. D

Recap:

1. C
2. D
3. C
4. B
5. D

References

https://www.cisco.com/c/en/us/solutions/enterprise-networks/what-is-network-architecture.html

https://www.e-tesda.gov.ph/mod/book/view.php?id=1118&chapterid=1844

https://en.wikipedia.org/wiki/Networking_cables