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Department of Education
National Capital Region
Division of Pasig City
STA LUCIA HIGH SCHOOL
City of Pasig

DepED
DEPARTMENT OF EDUCATION

Technical-Vocational and Livelihood Track
Information and Communications Technology (ICT) Strand

Grade 12

Computer Systems Servicing NC II

QUARTER 1
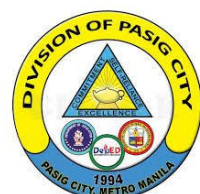
LO 1: SET UP USER ACCESS

SELF- LEARNING MODULE 3 :
Network Operating System (NOS)

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COC 3 : SET UP COMPUTER SERVERS

Introductory Message

For the facilitator:

Welcome to the Technical Vocational Livelihood Education ICT Grade 12 CSS NC II Modul on Set Up User Access: **Network Operating System (NOS).**

This module was collaboratively designed, developed and reviewed by educators from Schools Division Office of Pasig City headed by its Officer-In-Charge Schools Division Superintendent, Ma. Evalou Concepcion A. Agustin in partnership with the Local 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) while overcoming their personal, social, and economic constraints in schooling.

This learning material hopes to engage the learners into 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 Technical Vocational Livelihood Education ICT Grade 12 CSS NC II Module on Set Up User Access: **Network Operating System (NOS).**

The hand is one of the most symbolized part of the human body. It is often used to depict skill, action and purpose. Through our hands we may learn, create and accomplish. Hence, the hand in this learning resource signifies that you as a learner is capable and empowered to successfully achieve the relevant competencies and skills at your own pace and time. Your academic success lies in your own hands!

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:

Expectation - These are what you will be able to know after completing the lessons in the module

Pre-test - This will measure your prior knowledge and the concepts to be mastered throughout the lesson.

Recap - This section will measure what learnings and skills that you understand from the previous lesson.

Lesson- This section will discuss the topic for this module.

Activities - This is a set of activities you will perform.

Wrap Up- This section summarizes the concepts and applications of the lessons.

Valuing-this part will check the integration of values in the learning competency.

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

EXPECTATION

This module deals with the skills and knowledge required in understanding Server-Server Networking.

Upon completion of this module you should be able to:
1. Define Network Operating System (NOS)
2. Explain the types of Network Operating System(NOS)
3. Cite some importance of Network Operating Systems (NOS)

PRE-TEST

Directions: Read each statement below carefully. Encircle the letter of the correct answer.

1. It is designed with the sole purpose of supporting workstations, database, application, file and printer access sharing between multiple computers in a network.
   a. Operational logic
   b. Network Operating System
   c. Network System
   d. Occupational Health and Safety

2. Type of NOS that allow users to share resources and files located on their computers and to access shared resources found on other computers
   a. Peer to Peer
   b. One to Many
   c. Client/Server
   d. Many to Many

3. Type of NOS that allows the network to centralize functions and applications in one or more dedicated file servers.
   a. Many to Many
   b. One to Many
   c. Peer to Peer
   d. Client/Server

4. The following are considered popular Network Operating Systems EXCEPT:
   a. Linux/UNIX
   b. Windows 7
   c. Macintosh OS X
   d. Microsoft Windows Server

5. Which of the following is NOT an advantage of Client/Server Network?
   a. Interoperability
   b. Scalability
   c. Maitenamce
   d. Flexibility
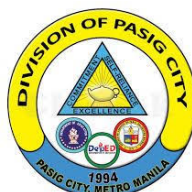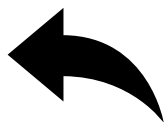
R E C A P

Multiple choice

Directions: Encircle the letter of the correct answer.

1. It is a computer intended for use as a server that built in an upright cabinet that stands alone.
   - A. Blade Server
   - B. Tower Server
   - C. DNS
   - D. Rack Server
2. Any process where it is automatically assigns an IP address and other informationto each host on the network hence it can communicate efficiently with other endpoints.
   - A. Active Directory
   - B. Terminal Server
   - C. Mail Server
   - D. DHCP Server
3. It is the Internet's system for converting alphabetic names into numeric IP addresses.
   - A. DNS Server
   - B. Blade Server
   - C. Open-Source Server
   - D. Telnet Server
4. Acts as an intermediary between the user's computer and the Internet.
   - A. Print Server
   - B. Terminal Server
   - C. Proxy Server
   - D. FTP Server
5. The following are SERVER HARDWARE, EXCEPT
   - A. Tower Server
   - B. Print Server
   - C. Blade Server
   - D. Rack Server

L E S S O N

Network Operating System (NOS)

Introduction

A network operating system is a specialized operating system for a network device such as a router, switch or firewall.

Historically operating systems with networking capabilities were described as network operating system because they allowed personal computers (PCs) to participate in computer networks and shared file and printer access within a local area network (LAN). This description of operating systems is now largely historical, as common operating systems include a network stack to support a client–server model.

You have heard a lot about the network operating system (NOS) but not fully understand it. Therefore this lesson will broaden your understanding about the Network Operating Systems (NOS)

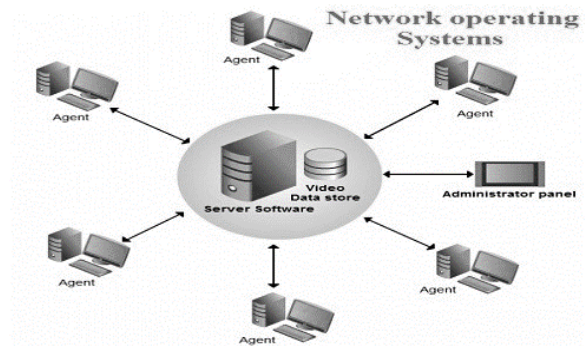Illustration shows an example of Network Operating System:

fig 1. https://medium.com

What is Network Operating System (NOS)

A computer operating system referred to as Networking Operating System was designed with the sole purpose of supporting workstations, database, application, file and printer access sharing between multiple computers in a network.

There are two (2) major types of Network Operating System namely:

- ❖ Peer-to-Peer
- ❖ Client/Server

Peer-to-Peer

Peer-to-peer network operating systems allow users to share resources and files located on their computers and to access shared resources found on other computers. However, they do not have a file server or a centralized management source (See fig. 1). In a peer-to-peer network, all computers are considered equal; they all have the same abilities to use the resources available on the network. Peer-to-peer networks are designed primarily for small to medium local area networks. Nearly all modern desktop operating systems, such as Macintosh OSX, Linux, and Windows, can function as peer-to-peer network operating systems. https://fcit.usf.edu

Resources are shared among equals in a peer-to-peer network.
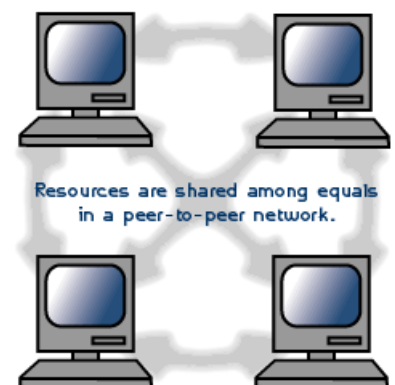
Advantages of a peer-to-peer network:

- Less initial expense - No need for a dedicated server.
- Setup - An operating system (such as Windows 7) already in place may only need to be reconfigured for Advantages of a peer-to-peer network

Disadvantages of a peer-to-peer network:

- Decentralized - No central repository for files and applications.

Fig 2. Peer to Peer NOS
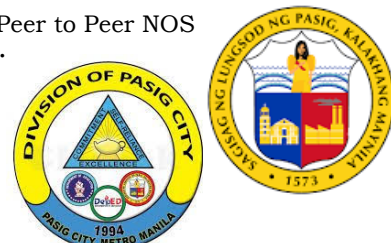
- Security - Does not provide the security available on a client/server network.

Client/Server

Client/server network operating systems allow the network to centralize functions and applications in one or more dedicated file servers. The file servers become the heart of the system, providing access to resources and providing security. Individual workstations (clients) have access to the resources available on the file servers. The network operating system provides the mechanism to integrate all the components of the network and allow multiple users to simultaneously share the same resources irrespective of physical location. UNIX/Linux and the Microsoft family of Windows Servers are examples of client/server network operating systems.

https://fcit.usf.edu
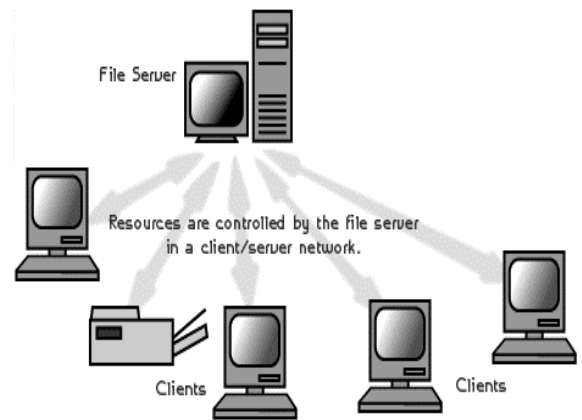
Advantages of a client/server network:

- Centralized - Resources and data security are controlled through the server.
- Scalability - Any or all elements can be replaced individually as needs increase.
- Flexibility - New technology can be easily integrated into system.
- Interoperability - All components (client/network/server) work together.
- Accessibility - Server can be accessed remotely and across multiple platforms.

Fig 2.1. Client/Server setup

Disadvantages of a client/server network:

- Expense - Requires initial investment in dedicated server.
- Maintenance - Large networks will require a staff to ensure efficient operation.
- Dependence - When server goes down, operations will cease across the network.

Network Operating System Software

The following links include some of the more popular peer-to-peer and client/server network operating systems.

- ➢ Macintosh OS X
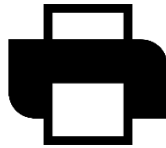- ➢ Microsoft Windows Server
- ➢ UNIX/Linux

ACTIVITIES

Activity 1. You Can Design

Direction: Using the icons below, draw /design a sample of each type of Network Operating System (NOS). Do this in your Activity Sheet Module 3

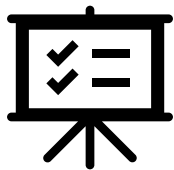| Client	Printer	Server	Switch/Hub	Router

https://www.freeiconspng.com (edited by mr. c caruz)

NOTE: Pls add _INTERNET CONNECTION_ (cloud icon) on your design. You can create more than 2 clients if you want.

WRAP–UP

Direction: Complete the missing statement.

Network Operating System is _____

_____

_____

There are two types of Network Operating System, namely _____
and _____.

VALUING

You are planning to open a small internet café. What type of network operating system is appropriate for business? Layout your plan and explain your answer. Write your answer in a separate worksheet provided for this activity.
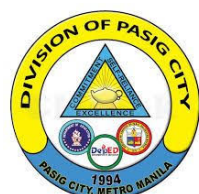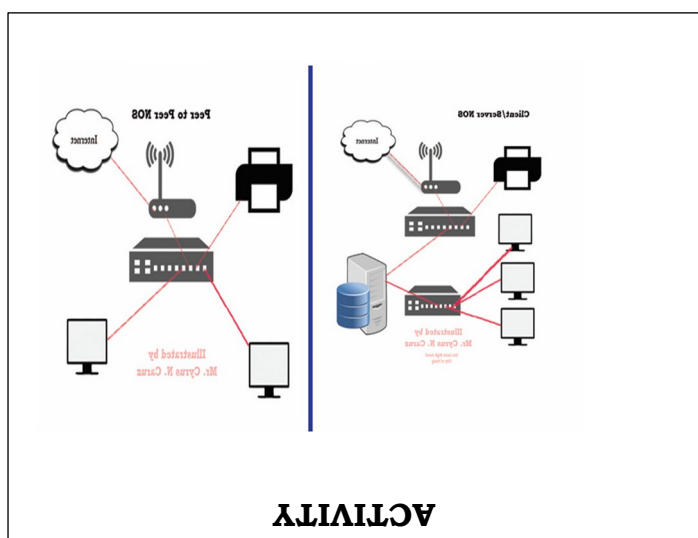
P O S T   T E S T

TRUE or FALSE.

Directions: Read each statement below carefully. Write **T** if the statement is correct and **F** if not in the space provided before each number.

_____ 1 Client/server network operating systems allow the network to centralize functions and applications in one or more dedicated file servers.

_____ 2. Client/Server is centralized because resources and data security are controlled through the server.

_____ 3. One of the disadvantages of a peer to peer network is security.

_____ 4. Peer-to-peer network operating systems allow users to share resources and files located on their computers and to access shared resources found on other computers.

_____ 5. Windows Server 2008 R2 can be used as NOS in your server.

Fig 1   https://medium.com/@blogstevej327stuff/what-is-network-operating-system-16a73eda23f9

Fig 2   https://fcit.usf.edu/network/chap6/chap6.htm

Fig 2.1 https://fcit.usf.edu/network/chap6/chap6.htm

Fig 4   https://www.freeiconspng.com/img/1000