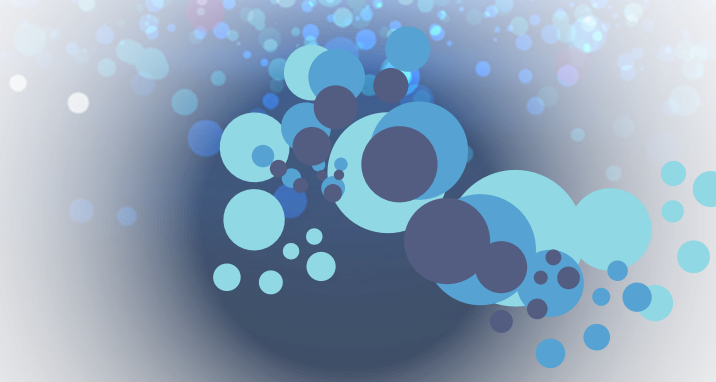


Client-server and peer-to-peer network

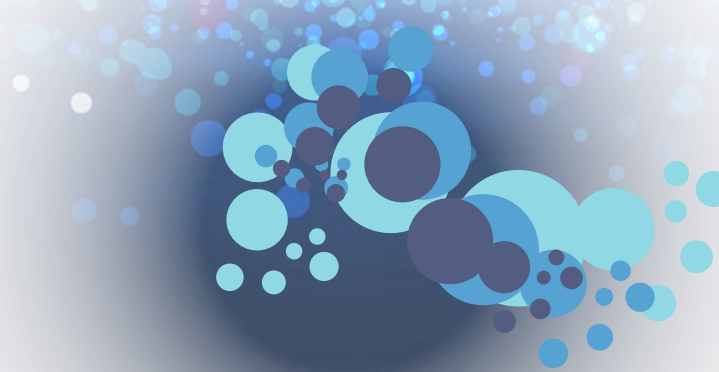
Teacher's Notes

Lesson Plan

Length	60 mins	Specification Link	216/c	Units	
Learning objective		Candidates should be able to: (a) explain the different roles of computers in a client-server and a peer-to-peer network			
Time (min)	Activity	Further Notes			
5	To assess prior learning, ask general questions about computer networks e.g. <ul style="list-style-type: none"> • What is meant by a computer network? • List two advantages to the school in networking their computers. 	<p>A computer network is a group of computers connected to each other electronically. This means that the computers can “communicate” with each other and that every computer in the network can send information to the others.</p> <p>Saved work can be accessed from any work station.</p> <p>Users can share resources such as printers, scanners and network connections.</p>			
15	Watch the set of videos, pausing to discuss the content.				
5	Discuss the videos to assess learning. Ask questions such as: <ul style="list-style-type: none"> • What is meant by a peer-to-peer network? • What is meant by a client-server network? • How are the computers connected together so that they can communicate with each other? 	<p>In a peer-to-peer network, the computers are simply connected together without any one computer having any superiority over the others – all computers are equal.</p> <p>In a client-server network there are two types of computers. The computers that control access to the network and services such as printers and files and the computers on which the users work.</p> <p>By cable e.g. Ethernet or catv cable or by wireless.</p> <p>For a small peer-to-peer network, USB or Firewire cables could be used.</p>			
20	Worksheet 1 Pupils to complete Worksheet 1 either on paper or on computer. They may need access to the Internet to research some of the questions. Ask individual students for their answers and discuss with the class so that all students have the correct	<p>Answers provided.</p> <p>Ask students with the correct responses to explain to the class how they arrived at their answers.</p>			
10	The students use the Interactive Activity 1 .				



Time (min)	Activity	Further Notes
10	Extension Challenge/Homework Students to complete and submit Worksheet 2 for homework.	
5	Plenary – Peer revision Ask the students to work in pairs. Each one has to quickly draw a diagram to show a peer-to-peer and client-server network which is then marked by their partner.	



WORKSHEET 1 ANSWERS

1 What is a client-server network?

In a client-server network there are two types of computers. The computers that control access to the network and services such as printers and files and the computers on which the users work.

From the client machines the users log into the network file servers in order to be able to access programs and peripherals and save data on the file servers.

The server is therefore responsible for the security of the network, expecting users to log in with a user name and password.

2 What is meant by a peer-to-peer network?

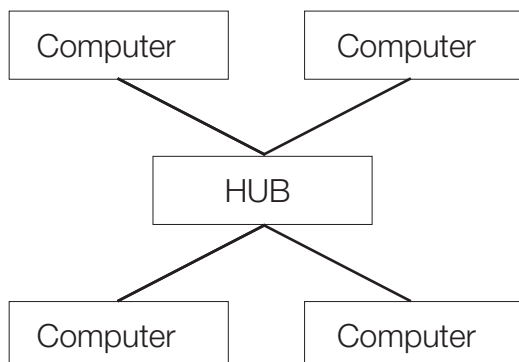
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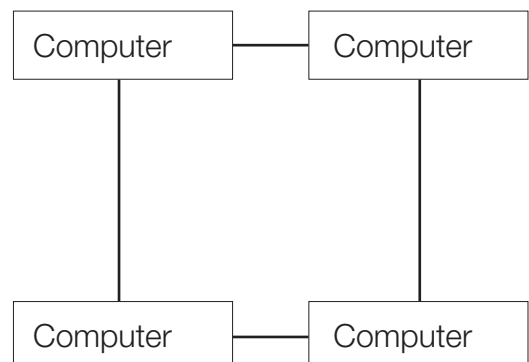
The server is therefore responsible for the security of the network, expecting users to log in with a user name and password.

3 In the following space draw a diagram to show the arrangement of computers in a peer-to-peer network

With a hub

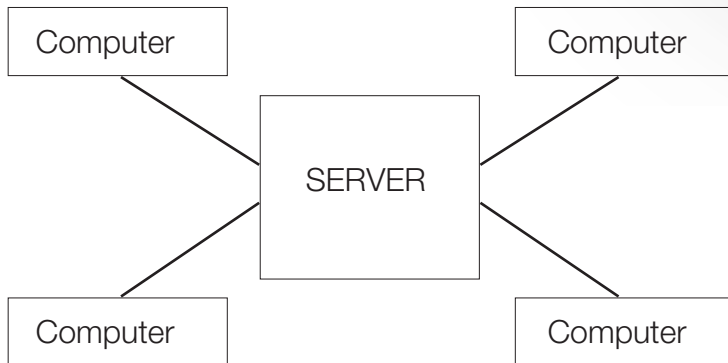


Without hub



WORKSHEET 1 ANSWERS

- 4 In the following space draw a diagram to show the arrangement of computers in client-server network.



- 5 List the advantages and disadvantages of peer-to-peer and client-server networks.
- Peer-to-peer**

- Cheaper and easier to install and does not require an expensive server.
- Easier to maintain – do not need to employ a network manager.
- Do not have to buy an expensive network operating system and learn how to use it.
- Often poor performance as another computer may be accessing your hard disk drive to run programs or load and save data.
- Your computer may be slower when someone is printing at a printer attached to your computer.
- If you have work saved on another computer's hard disk drive it may be lost if that computer crashes or a user deletes it.
- Each user has to know how to grant and maintain share rights to their computer.
- Security is often a problem. If password protection is employed, anyone who knows the password can access a shared resource. If no passwords are used, anyone who can access the workgroup can access shared resources.
- No central backup. Each hard disk drive must be backed up independently.

WORKSHEET 1 ANSWERS

5

Client-server

- More expensive – need a dedicated file server which is usually a more high-powered PC.
- Need to buy a network operating system and learn how to use it – cost of courses.
- May have to employ a network manager.
- If the server crashes then programs and data cannot be accessed and may be lost for all users.
- Data and programs are saved on the central file server and are more secure.
- The server manages access to the network and gives access rights to different users e.g. whether they can see, read, write to, modify, delete certain files.
- Higher performance as the server is handling all of data storage and transfer and printing and so client computers are free to carry out user related tasks.
- Security is high as it is not set by each computer user for individual machines.
- Backup is central and only the file server needs to be backed up as that is where the data is stored.



WORKSHEET 2 ANSWERS

1 The manager of a small office has decided to network the six computers that the staff use.

He is deciding whether to use a peer-to-peer or a client-server network and has asked for your advice.

Explain the advantages and disadvantages of using a peer-to-peer rather than a client-server network. (6)

Points to include – at least three from each.

Advantages

Cheaper and easier to install and does not require an expensive server.

Easier to maintain – do not need to employ a network manager.

Do not have to buy an expensive network operating system and learn how to use it.

With only 6 users should get good performance.

Disadvantages

If users have work saved on another computer's hard disk drive it may be lost if that computer crashes or a user deletes it.

Each user has to know how to grant and maintain share rights to their computer.

Security may be a problem. If password protection is employed, anyone who knows the password can access a shared resource. If no passwords are used, anyone who can access the workgroup can access shared resources.

No central backup. Each hard disk drive must be backed up independently and this can be time consuming or users may forget.