



1.3.3 Client-Server & Peer-to-Peer

1. A hotel uses a computer system to keep track of room bookings. The hotel staff are able to query a database to discover which rooms are booked or which rooms are free. The hotel's computer network uses a client-server model.

a) Describe what is meant by the term 'client-server' in this context.

[3 marks]

- Client computers connect to the server
- The server provides access to a resource/service
- In this case hotel staff use client computers to connect to the database on the server.

b) Give **two** advantages of client-server compared to peer-to-peer.

[2 marks]

Advantage:

- Centrally administered in one location
- Only one location to back up

Disadvantage:

- There is a central point of failure. If the server fails the network will fail.
- Can be expensive to set up/maintain (cable costs, staff)

2. Several digital photo frames can be placed around a house and connected in a peer to peer network.

a) Describe what is meant by the term 'peer to peer network'.

[2 marks]

- Devices on the network have equal status/ no central server
- Devices on the network share data





3. Zac has an accountancy business. He is moving into an office that has enough space for up to five members of staff. Zac would like to install a Local Area Network (LAN) to allow his staff to work together

Discuss how Zac could set up a peer-to-peer network and a client-server network.

You should refer to the following in your answer:

- how the computers in each type are connected
- the benefits of each type
- the drawbacks of each type
- the suitability of each type.

[9 marks]

Knowledge

P2P:

- Each computer can act independently
- Each computer is responsible for its own security and login
- Each computer will maintain and possibly share its own connected hardware (printer/external storage/internet connection)
- Each computer will maintain and possibly share its own secondary storage
- If a computer is powered down its shared resources will not be available.
- There are no resources not shared by a peer machine
- Adding a machine is simple
- Very little administration is needed

Client Server

- All network functionality can be provided by servers.
- A server is a process running on a machine, usually dedicated to providing these services. • A server machine is designed to never be powered down.
- Login/security is handled centrally
- Shared storage may be managed by a server
- Shared resources (printer/internet connection etc) may be managed by a server
- If a server process or machine fails, network functionality, including the ability login is lost
- Adding a new machine can mean installing specialist client software and setting up OS policies.
- IT skills and a lot of time are needed to administer a client server network

Application

P2P

- As Zak is looking to expand his staff, P2P would offer flexibility in adding staff ad hoc.
- Zak's company is still small and may struggle to pay for the IT administrator skills needed for a client server

Client Server:





- As Zak's firm is an accountancy firm it will have sensitive customer data
- Client server would allow stronger centralised security
- As Zak is taking on multiple staff, they may wish to work collaboratively, which shared storage would allow.
- Zak could share a single printer/other hardware with all staff and not worry about an individual computer being switched on.

Evaluation

- Candidates can conclude either method, but to score in the top Mark Band must have a clear line of reasoning to justify their choice.

