Computing GCSE – 1.4a

J276/01 – Wired and Wireless Networks

KEY VOCABULARY	
Stand Alone	A single machine, not connected to another
Network	A collection of machines which can communicate with one another
Transparent	The end-user has no need to know the specifics of a network's infrastructure
Node	A device on a network (PC or other device)
Link	The connections between nodes
LAN	Local Area Network (Single location)
WAN	Wide Area Network (Multiple connected locations)
VPN	Virtual Private Network
UTP	Unshielded Twisted Pair – a type of cable
Client	The user machines on a network
Server	The central 'controller' machine on a network, including main data storage
P2P	Peer-2-Peer. A network without a server.
WAP	Wireless Access Point
NIC	Network Interface Controller
Router	Controls the sending of data around a network
Hub	A central connection for a small network, which broadcasts all data to all clients
Switch	A smart hub for larger networks which only sends the data to the intended client
Internet	A worldwide collection of networks
WAP	Wireless Access Point

WHY NETWORK?

There are many reasons to create networks of computers, and increasingly few reasons not to.

Positives

- Communication between users
- Sharing of files
- Sharing of peripheral devices
- Monitoring user activity
- Access control or other security features
- Centralised administration of machines
- Multiple work stations available for users
- Possible to distribute workload for large tasks

Negatives

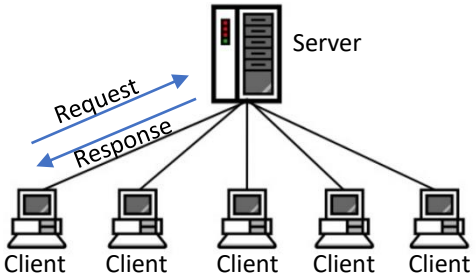
- Higher cost than single machines
- Requires additional hardware
- Requires administration
- Open to attacks
- Client-Server systems are vulnerable to server failure

NETWORK HARDWARE

All clients need an NIC to connect to a ROUTER. This could be a wireless adapter or a network card.
The Router in this simple connection can host multiple clients, but more advanced hardware is needed for bigger networks

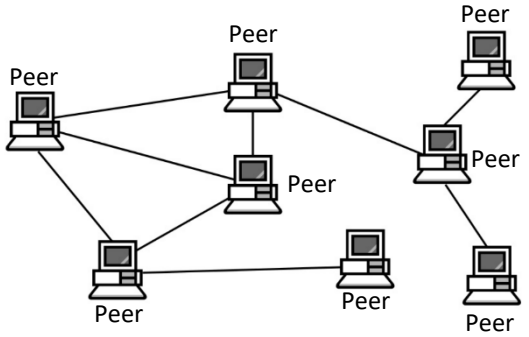
NETWORK ORGANISATION

CLIENT - SERVER



A single high-spec machine is designated the server, which includes the main file storage. Each client then *requests* data from the server which *responds* and fulfills the request.

PEER TO PEER



A *distributed* system where each node is equal. Every computer can serve and request data from all others. The system is easy to set up, but slow and difficult to administer.