The Internet

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What is the Internet?

The internet is simply a worldwide computer network that uses standardised communication protocols to transmit (send and receive)and exchange data.

Different networks connect to each other.

Point of Presence (PoP)

An access point to the internet. Normally, it is a location which contains all of the hardware which allows internet users access to the internet. An Internet Service Provider (ISP) may operate several PoPs in their area to allow good access to the internet.

Network Access Point

An interchange between network within the internet. It allows ISPs to interconnect with each other.

Internet Protocol

The protocol used to route packets of information across the internet. A packet is an individual unit of data which is carried across a network, including the internet. It is made up of a header which identifies the packet and a body which is the actual data message. It is one of the functions of the Transmission Control Protocol (TCP) to organize an internet message into packets.

Transmission Control Protocol

The protocol that takes data from a user's application program and passes it to the IP for

transfer across the internet. The reverse operation is performed at the destination computer,

where the TCP reassembles the data (from individual packets) and forwards them to the user's

application program. The close relation with the IP means that the terms are usually used in

combination, i.e. TCP/IP.

File Transfer Protocol

A standard protocol which allows files to be transferred between two computers on a TCP-based network. It is commonly used to download programs to your computer from other servers and to upload web pages that you have created to the server that is hosting them on the internet.

Internet Service Provider

- Direct connection to the internet would be very costly and so ISPs provide a cost-effective gateway for people and organizations to get onto the internet. In the UK there are many ISPs, with some of the most popular ones being BT (British Telecom), Virgin Media and Sky.

ISP Services

In addition to providing a gateway to the internet, ISPs normally provide additional services such as email. Many also provide web space for the development of websites, technical support and troubleshooting.

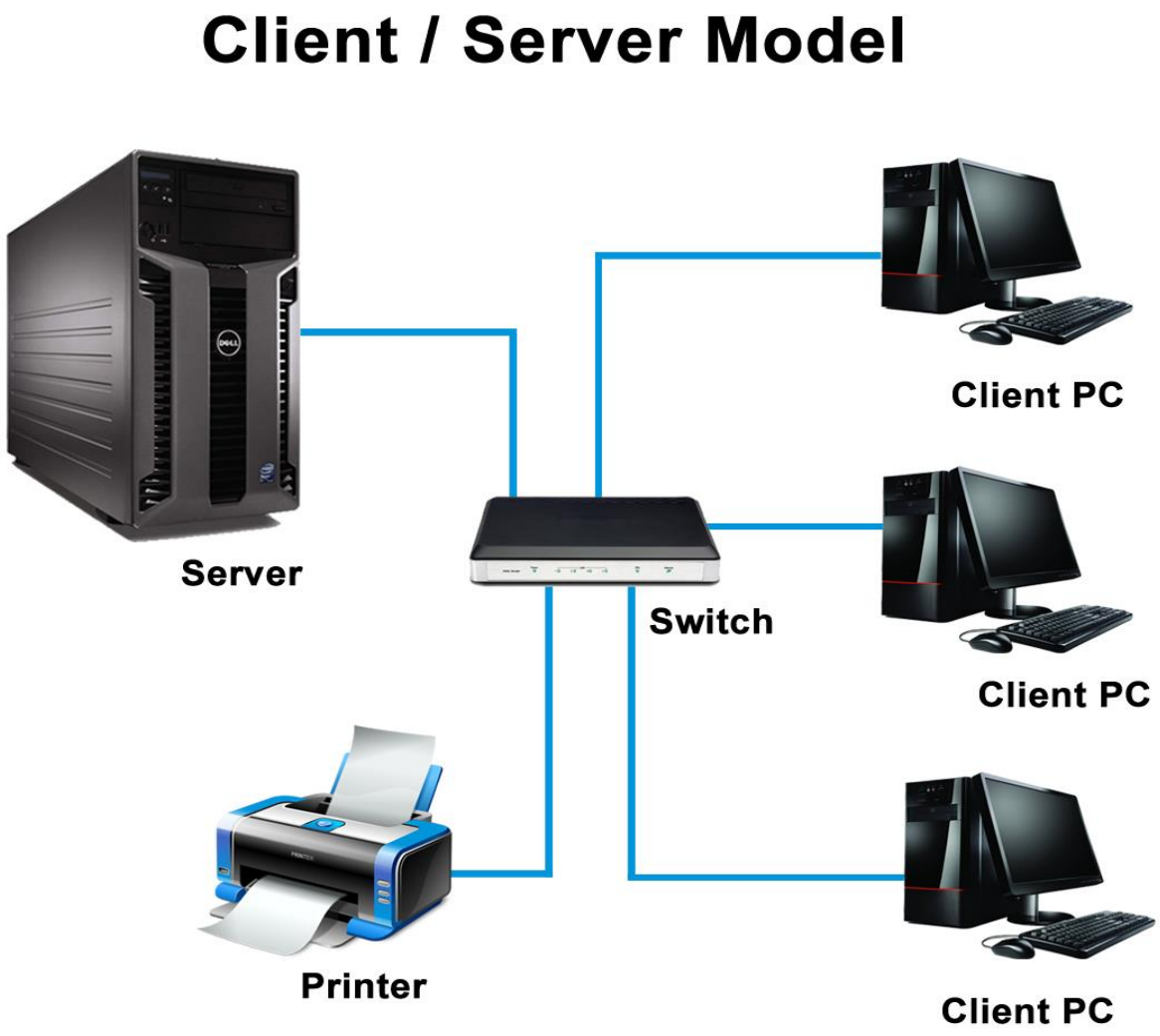
Server

A computer or program which runs purely to serve the needs of other computers. It runs special server software to service the requirements of the users (clients). There are several types of servers, including file servers and printer servers on a local area network (LAN), and web and email servers that manage communication with the internet

Client

A computer which uses the services provided by the server.

Server Client Model



Router

A piece of hardware that connects two or more networks. In relation to the internet, data from the ISP is sent into the network and the router then directs the data packets to the correct destinations. The router also handles data travelling in the other direction. Routers can be described as ‘directors of traffic’ for the networks

Connecting backbone

The main connecting data routes between large networks on the internet and smaller networks in local regions.

Internet Connection Methods

	Description	Advantages	Disadvantages
Wireless	Used by wireless-enabled devices (computers, mobiles, smartphones, etc.) to log in to the internet. Wireless is exactly what it says; there are no wires to connect.	Not fixed to a stationary computer. Can be used wherever there is a wireless hub which is accessible.	Need to have access to a wireless hub. Can be less secure than wired connections. Tends to have slower data transmission speeds than wired broadband methods.
Broadband	A wired connection to a broadband supplier. Normally the connection is via a network card in the computer. Cable users have an ethernet connection from their computer to the network.	Broadband connections can give better reception and are usually faster than dial-up.	Requires a base which is wired in, so it is less flexible than wireless.
Dial up	A wired connection via a conventional telephone line, which needs a modem to convert signals to and from analogue for transmission.	Can use existing telephone circuits, which is useful in some areas.	Older technology gives poor reception at times. The conversion from digital to analogue signals can cause errors. Tends to be slower than other connection methods.

Bandwidth & transmission rate

Bandwidth is a measure of the available capacity of a network (to carry data) measured

in bits per second.

The transmission rate is a measure of the number of pieces of information that have been transferred during a specific time period, usually also measured in bits per second.

A high bandwidth means more information can be carried in a given time, so a higher transmission rate is achieved. Insufficient bandwidth can result in websites and servers appearing to run very slowly.