



## NETWORKS

A **network** is where devices are connected together usually by cable or Wi-Fi. This could be a few computers in a room, many computers in a building or lots of computers across the world.

### Wired and Wireless data transmission

A computer network can be either wired or wireless.

- Wired networks send data along cables.
- Wireless networks send data through the air using radio waves.

**Bandwidth**—Bandwidth is the amount of data that can be moved from one point to another in a given time. Higher bandwidth = more data per second

**Bandwidth** is measured in bits per second

A bit is the smallest unit of data  
Data transfer rates are now so good that bandwidth is usually measured in Megabits per second (Mbps)  
1Mb—1 million bits

### Internet services

There are a range of services provided by the internet. These include:

- World Wide Web
- Email
- Online gaming
- Instant messaging
- Voice over IP (VoIP) – audio calls
- Internet of Things (IoT)
- Media streaming (e.g. watching Netflix online)

The rules for each service are different. As a result, a different protocol is used.

HTTP—HyperText Transfer Protocol—used so that data can be understood when sent between web browsers and servers.  
HTTPS—is the secure version of HTTP where data sent is encrypted.

**Network Hardware**—physical equipment required to set up a network

**Hub**—Connects a number of computers together. Ports allow cables to be plugged in from each connected computer.

**Router**—Used to connect two separate networks together across the internet

**Server**—A powerful computer which provides services to a network

**Cable**—Used to connect different devices together. They are often made up of a number of wires.

### Key Words

Key Words	
Bandwidth	Amount of data that can be moved from one point to another in a given time.
Buffering	Data arriving slower than it is being processed
Internet	A worldwide network of computers
internet of Things (IoT)	Takes everyday 'things' and connects them to the Internet e.g. smart light bulb, fridge, heating etc.
IP address	A unique address for every device on the internet
Packet	Networks send/receive messages in units called packets
Protocol	All methods of communication need rules in place in order to pass on the message successfully. These sets of rules are called 'protocols'
Search Engine	A website that allows user to look up information on WWW e.g. Bing, Google etc.
Web browser	Piece of software( code) used to view information on the Internet
WWW	Part of the Internet that contains websites and webpages. NOT the same as the Internet.