

How do we access the WWW on the Internet?

A web browser is a **software** application for accessing information on the **WWW**.

Each web page, image or video is accessed using a **URL**. If you type in a valid **URL**, your browser should take you to the webpage!

Example of a URL = **www.apple.com**

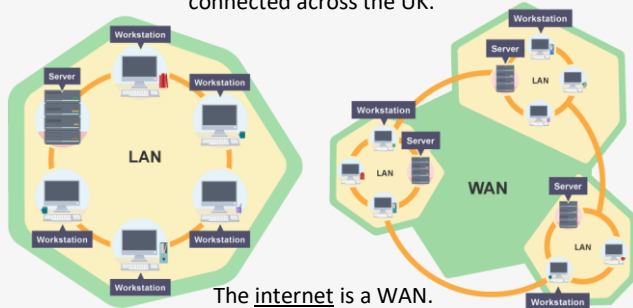


There are 2 main types of network:

1. Local Area Network (**LAN**)
2. Wide Area Network (**WAN**)

A LAN covers a small geographical area such as one site or building, e.g. a school or a bank branch.

A WAN covers a large geographical area. Most WANs are made from several LANs connected together e.g. multiple bank branches connected across the UK.



The internet is a WAN.

A network of bank cash dispensers is a WAN.

LANs are often connected to WANs e.g. a school network could be connected to the internet.

Network – Two or more computers that are connected together.

Internet – Global network of computers providing communication.

WWW – World Wide Web, a collection of webpages on the internet.

Topology – The way in which a network is arranged,

Social Engineering – manipulation of people into performing actions or divulging confidential information.

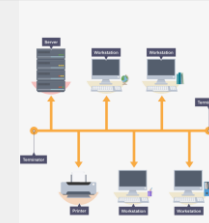
Wired Vs Wireless Connection

Wired

- + sharing devices saves cost e.g. printer
- + more secure as using cables
- + faster than wireless networks
- Not very portable & needs power
- More difficult to set-up

Wireless

- + Cheap to set-up, no cables so not tied down
- + Less disruption as no cables installed
- Interference can occur and often slower
- Lose quality through walls/obstructions



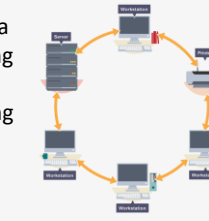
In a bus network all the **workstations, servers** and printers are joined to one cable (the bus). At each end of the cable a **terminator** is fitted to stop signals reflecting back down the bus.

- + easy to install
- + cheap to install
- If main cable fails whole network fails.
- slower as more PCs added



In a star network each device on the network has its own cable that connects to a switch or hub. A hub sends every packet of data to every device, whereas a switch only sends a packet of data to the destination device.

- + reliable, if one fails network still runs
- + high performing as no collisions can occur
- expensive to install, more cables needed and more hardware
- if hub/switch fails, network fails



In a ring network each device (**workstation, server, printer**) is connected to two other devices - this forms a ring for the signals to travel around.

- + quick as data travelling in one direction also avoiding collisions
- If main cable fails or any device is faulty, whole network fails (ring is broken)

Your 'Digital Footprint' – Why care?

- 1) Companies using your information
- 2) Reputation – future jobs etc.
- 3) Personal information spreading around

Types of malware

Adware is a type of malware that automatically delivers advertisements e.g. pop-ups.

Ransomware is a form of malware that essentially holds a computer system captive while demanding a ransom.

Spyware is a type of malware that functions by spying on user activity without their knowledge.

A **Trojan** is a type of malware that disguises itself as a normal file or program to trick users into downloading and installing malware.

A **Virus** is a form of malware that is capable of copying itself and spreading to other computers.

A **Worm** is malware that can replicate and eat up memory slowing down a computer.

Phishing - a method of trying to gather personal information using deceptive e-mails and websites. E.g. Fake email from the bank trying to get your PIN.

How to protect yourself – don't click on links unless you are sure; watch out for shortened links; be sensible, read the email carefully and analyse (spot the scam), use secure sites (**https**)

Pharming - a cyber attack intended to redirect a website's traffic to another, fake site. While *phishing* attempts to capture personal information by getting users to visit a fake website, *pharming* redirects users to false websites without them even knowing it.

How to protect yourself – check the URL, use a trustworthy ISP and use security software.

Shouldering - Shoulder surfing is using direct observation techniques, such as looking over someone's shoulder, to get information. E.g. when entering PIN

How to protect yourself – tilt the screen, use a privacy screen, create a physical barrier, don't work in crowded places, have back to the wall.