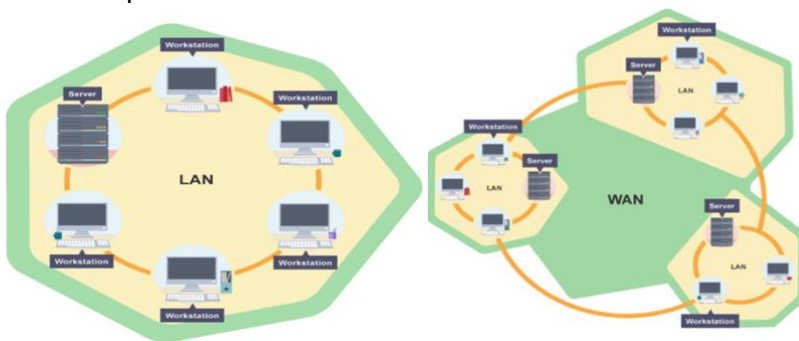


What is a computer network? A network is **two or more computers** (or other electronic devices) that are **connected** together so that they **can communicate**.

Network Topologies:

- **Local area network (LAN)**- network over a small geographical area. Example: Home network.
- **Wide area network (WAN)**- network over a large geographical area. Example: The Internet.
- **Personal area network (PAN)** - small network that connects electronic devices within a short range.
- Example: Bluetooth.



Protocols – A set of rules for communication on a network.

‘HTTP’ stands for ‘Hypertext Transfer Protocol’ - Messages sent between your browser and the website are readable to other devices. It is not secure.

‘HTTPS’ stands for ‘Hypertext Transfer Protocol Secure’ - Messages sent between your browser and the website are encrypted so other devices cannot understand it. It is secure.



Benefits of networks - Devices on a network can share: **Hardware, software and Data**

Network Hardware – “The devices used to facilitate communication on a network”.

- **Network cables** - cables carry the electronic signals sent between devices.
- **Hub** - A hub connects devices in a network together. Ports allow cables to be plugged in from each connected computer.
- **Server** - A server is a powerful computer which provides services. Example: file server.
- **Router** - It connects the two separate networks together so that they can communicate with one another.

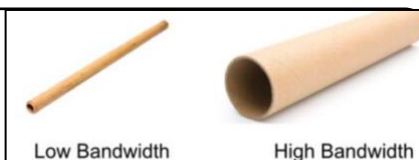
Wired Networks – send data along cables.
Example: telephone networks

Advantages	Disadvantages
Faster connection	Cables can be a trip hazard
Higher bandwidth	It is more expensive and time-consuming to add devices.
Better security	Devices are in fixed positions (no portability)

Wired Networks – send through the air via radio waves.
Example: WiFi, 5G, Bluetooth

Advantages	Disadvantages
No trailing wires/no trip hazard.	Lower bandwidth.
It is quick and cheap to connect new devices	Wireless connections can be weakened by walls /ceilings.
Allows portability	Less secure

Bandwidth - the **amount** of data that can be moved from one point to another in a given time.



Higher bandwidth = more data per second.

Upload – sending data.

Example: adding a photo to social media.

Download – receiving data.

Example: watching online videos

Year 8, Cycle 1 – Revision (Networks)

The Internet - a worldwide network of devices.

Information sent over a network is sent in packets. A **packet** is a small part of a larger message.

Packet	
Header	Sender IP Recipient IP Sequence Number
Payload	The part of the message being sent.

The world wide web (WWW) - part of the internet that can be accessed through websites. Websites are made up of webpages.

A **web browser** is a piece of software used to view information on the World Wide Web.

A **web server** is a server located on the internet that holds website web pages.



Knowledge Retrieval Quiz:

1. Identify the two types of networks.
2. What is the difference between upload and download?
3. Define the term “protocol” and give an example.

Complete the mind map:

1. Define the term “network”.

Compare the advantages and disadvantages of a wired network.

Describe the different topologies:

- LAN –
- WAN –
- PAN

Compare the advantages and disadvantages of a wireless network.



Explain the function of each network hardware:

- Cables –
- Hub -
- Router -
- Server -

Explain the difference between the internet and the WWW.

Quiz Answers:

1. Wired and wireless. 2. Download is your device receiving data, upload is sending data. 3. A set of rules for communication, example HTTP or HTTPS.