

Unit 28 Networks

1 Small networks

A  In pairs, discuss these questions.

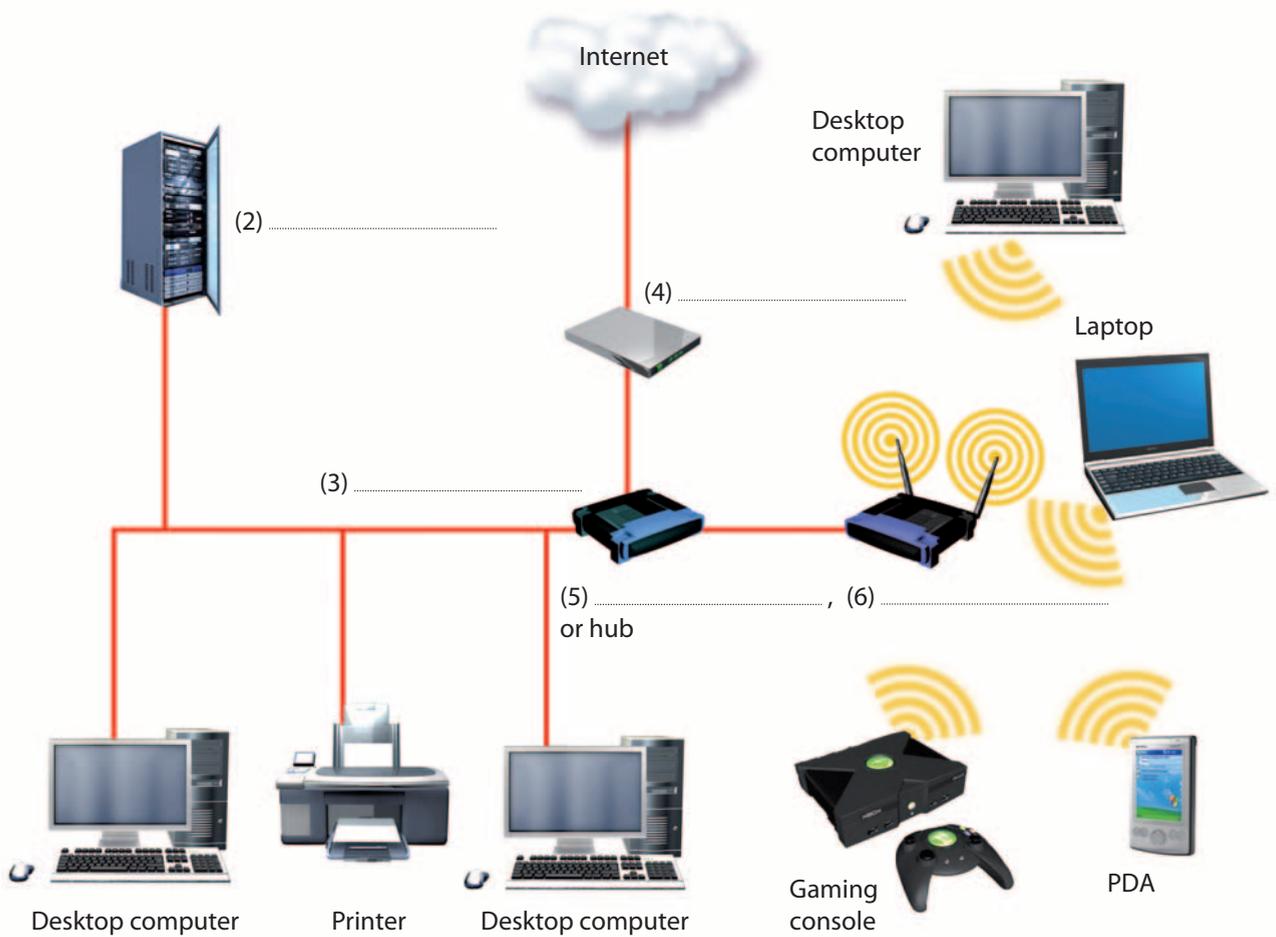
- 1 What is a computer network?
- 2 What are the benefits of using networks?

B  Listen to an extract from a lecture on networks and answer these questions.

- 1 What does LAN stand for?
- 2 Where are LANs usually located?
- 3 What is the difference between a *wired LAN* and a *wireless LAN*.

C  Listen again and label the elements of this LAN.

(1) A wired and wireless LAN



2 Networking FAQs

A Look at the FAQs (i–vi) without reading the whole text. In pairs, try to answer as many of the questions as you can.

B Read the whole text and answer these questions.

- 1 What does PAN stand for?
- 2 What is a network protocol?
- 3 How do you log on to an Internet Service Provider?
- 4 WiMAX is a type of wireless network. What is it used for?
- 5 What equipment do you need to set up a wireless LAN?
- 6 What are the advantages and disadvantages of wireless networks?

Networking FAQs

i How many types of network are there?

Networks are classified according to different criteria:

- **Geographical area:** **PANs** (Personal Area Networks) typically include a laptop, a mobile phone and a PDA; **LANs** cover a building; **MANs** (Metropolitan Area Networks) cover a campus or a city; **WANs** (Wide Area Networks) cover a country or a continent.
- **Architecture:** In a **client-server** network, a computer acts as a server and stores and distributes information to the other nodes, or *clients*. In a **peer-to-peer** network, all the computers have the same capabilities – that is, share files and peripherals without requiring a separate server computer.
- **Topology**, or layout: In a **bus** network, all the computers are connected to a main cable, or bus. In a **star** network, all data flows through a central hub, a common connection point for the devices in the network. In a **ring** network, all devices are connected to one another in a continuous loop, or ring.
- **Network protocol:** This is the language, or set of rules, that computers use to communicate with each other. Networks use different protocols. For instance, the Internet uses TCP/IP.

ii How do I install a wired modem router?

A modem **router** is a device that connects your computer or home LAN to the Internet.

- Plug one end of the phone cord directly into a phone jack, and the other end into the ADSL port on the router.
- Plug one end of the Ethernet cable into your computer's network port and the other end into an Ethernet port on the router.
- Turn on your computer. To set up, or configure, the router, you'll need to input some parameters, for example your ISP's name and phone number.

NOTE: A router has various Ethernet ports, so you can connect various PCs to the router via Ethernet cables. If you already have a hub or switch connecting a LAN, you only need one cable to connect the hub to the router.

iii How do I log on to the Internet Service Provider?

You need to type in your username and password. Once you are online, you can get email, look for information on the Web, look up IT words in dictionaries, try out new software, and sign up for RSS feeds, newsletters, etc. It is important that you remember to log off after using the Internet. An open line increases the risk of viruses, and hackers might break into your computer to steal confidential data.

iv What is wireless networking?

Wired networks are linked by Ethernet cables, phone lines and high-speed fibre optic cables. Wireless networks, however, use electromagnetic waves, such as radio waves, to transmit data. These are the main types of wireless networks:

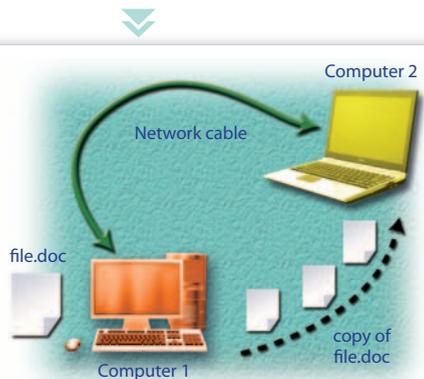
- **Satellites** – for long distances
- **WiMAX** – for connecting Wi-Fi hotspots
- **Wi-Fi** – for medium-range distances
- **Bluetooth** – for short distances
- **GSM** – for mobile phones

v What do I need to set up a home wireless LAN?

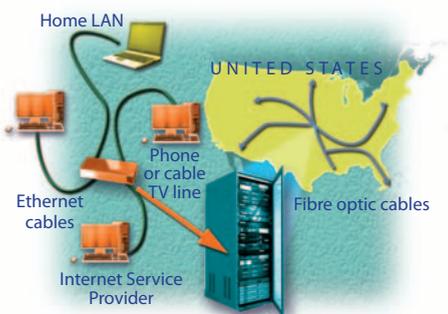
You'll need computers equipped with a wireless adapter or wireless card, a wireless access point (a wireless router) and a broadband internet connection.

vi Which is better, a wired or wireless LAN?

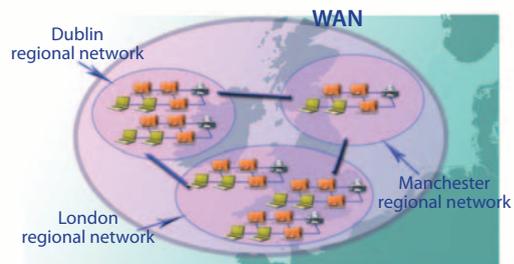
Wired LANs are more difficult to install, but they are cheaper, faster and more reliable. Wireless networks let you move, or roam, from one access point to another, but they are less secure and subject to interference.



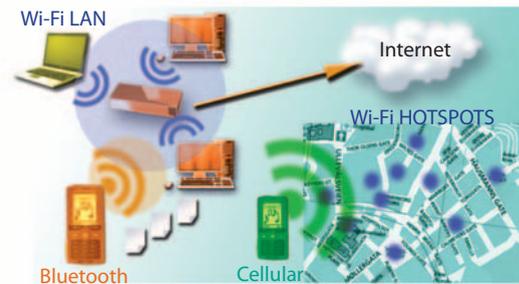
In a **basic network**, two computers are connected by cable to allow **file sharing**.



In many homes, **Ethernet cables** are used to connect computers. **Phone** or **cable TV lines** then connect the home LAN to the ISP. Much of the Internet uses high-speed **fibre optic cable** to send data over long distances.



WANs cover a large geographic area, like a country or even multiple countries. They are built by large telecommunication companies. The largest WAN in existence is the Internet.



Wi-Fi is the standard technology for building wireless LANs and public **hotspots**. **Bluetooth networks** allow handhelds, mobile phones and other devices to communicate over short distances. **Cellular networks** are used in mobile phone communications.

C In pairs, do this network quiz. See which pair can finish first.

- This network typically consists of two or more local area networks, covering a large geographical area.
a LAN **b** WAN **c** Intranet
- This type of network does not have a dedicated server; all the computers are independent.
a peer-to-peer **b** client-server **c** Metropolitan Area Network
- On this topology, all devices are connected to the same circuit, forming a continuous loop.
a star **b** ring **c** bus
- The language used by computers to communicate with each other on the Internet is called
a Ethernet. **b** ADSL. **c** TCP/IP.
- Which cables are used to transfer information for the Internet over long distances at high speeds?
a telephone lines **b** Ethernet cables **c** fibre optic cables
- Which device allows several computers on a local network to share an internet connection?
a an ADSL port **b** a router **c** an Ethernet port
- Which device serves as a common connection point for devices in a wireless network?
a wireless access point **b** wired router **c** wireless adapter
- Bluetooth is a wireless technology that uses radio waves to transmit data over
a long distances. **b** medium-range distances. **c** short distances (ten metres or less).

3 Language work: phrasal verbs

A Look at the HELP box. Do you have the equivalent of phrasal verbs in your language? How do you say the phrasal verbs in the HELP box?

HELP box

Phrasal verbs

- The meaning of some verbs with particle (often called phrasal verbs) can be easily understood from its two parts.

Look at the photos.

A network **consists of** two or more ...

Separate networks are **linked over** a public network, the Internet.

- However, many phrasal verbs have an idiomatic meaning, not predictable from the meaning of its parts.

carry (= transport); **carry out** (= execute)

Computers **carry out** the programs ...

- Certain particles have similar meanings, regardless of the verb (**on/off, in/out**, etc.).

turn on / switch on

(= start the operation of something)

turn off / switch off

(= stop the operation of something)

- Other common phrasal verbs in computing include:

plug into (= connect)

Plug one end of the phone cord **into** the phone jack.

set up (= establish)

What do I need to **set up** a wireless LAN?

sign up (= register, enrol in a service)

Once connected, you can **sign up** for RSS feeds, newsletters, etc.

try out (= test or use experimentally)

You can **try out** new software on their site.

find out (= learn, discover)

Search the Web to **find out** more information about WiMAX.

take up (= occupy)

Fibre optic cables **take up** less space than copper cables.

make up (= constitute, form)

Several LANs connected together **make up** a WAN.

fill in (= write the necessary information)

You need to **fill in** this online form.

- When the verb has a preposition associated with it, the preposition must precede the object:

You can **look for** information on the Web.

(not: ~~look information for~~)

Hackers might **break into** your PC.

(not: ~~break your PC into~~)

When the particle is an adverb, it can precede or follow the direct object:

You need to **type in** your username /

... **type** your username **in**.

You can **look up** words in a dictionary /

... **look** words **up** in a dictionary.

Turn on the computer. /

Turn the computer **on**.

If the direct object is a pronoun, the particle must follow it

You need to **type it in**.

(not: ~~type in-it~~)

B Complete these sentences with the correct form of a phrasal verb from the HELP box.

- To join the club, this form and send it to our office.
- The CPU all the basic operations on the data.
- Digital music a lot of space – about 10 MB for every minute of stereo sound.
- Thousands of networks the Internet.
- You can use newsgroups to about the latest trends, customer needs, etc.

C Match the questions (1–6) with the answers (a–f).

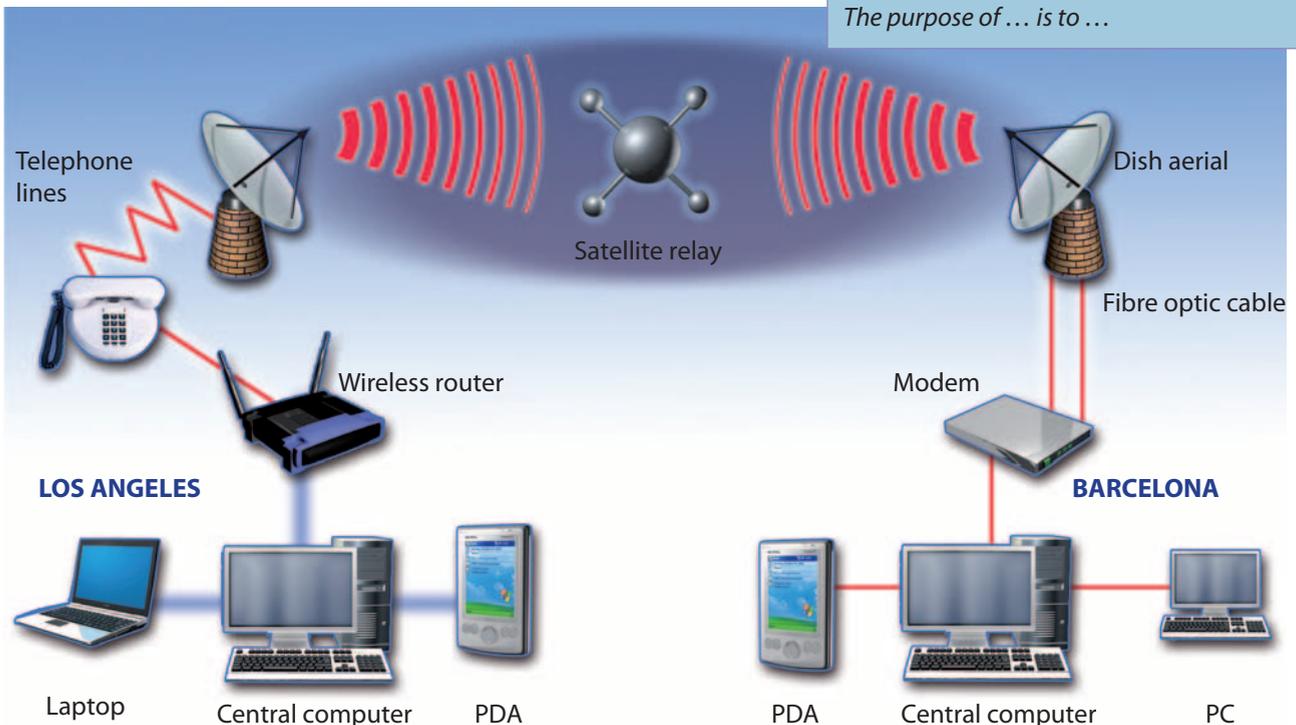
- 1 Why was the hacker arrested?
 - 2 Is it OK to **log on** to my bank account using public computers in a cybercafé?
 - 3 How do I **set up** an internet connection at home?
 - 4 Can I download software from your site?
 - 5 How can I add video to instant messaging?
 - 6 What do I need to do to **sign up** for a *Yahoo!* email account?
- a Yes, but always remember to **log off** after you've ended your session.
 - b Yes, you can even **try** the programs **out** for a period before you buy them!
 - c Because he **broke into** a computer system and stole confidential data.
 - d Simply install this program and **plug** the webcam **into** your computer.
 - e You need to install the software for your router. Follow the instructions provided by your ISP, probably in the form of a .pdf file on a CD.
 - f You have to create a username and password and then give some personal details.

4 WANs and satellites

A  Prepare a description of the network below to present to the rest of the class. Use PowerPoint if possible. Use the *Useful language* box, the *HELP* box on page 143 and the text on pages 141–142 to help you.

Useful language

The diagram represents/shows ...
 This network is made up of / consists of ...
 Two networks are connected via ...
 The computers are linked up to ...
 The satellite receives signals from ...
 The signals are sent on to ...
 The purpose of ... is to ...



B  Present your description to the rest of the class.