UNIT 13

The World Wide Web

STARTER **1** Study this URL (Uniform Resource Locator).

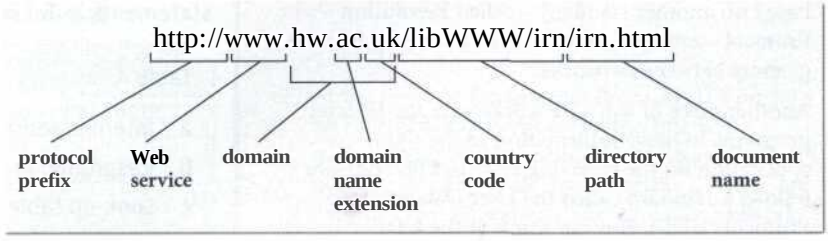


Fig 1
Uniform Resource Locator

Which part of the address tells you:

1 the company is in the UK
2 this is the webpage
3 the type of transmission standard your browser must use to access the data
4 this points to the computer where the webpage is stored
5 this is where the webpage is stored in the computer
6 this is a company
7 this is a Web file

2 Study these approved domain name extensions and their meanings. Then match these suggestions for new extensions to their meanings.

Extension	Meaning
.aero	aviation industry
.biz	businesses
.com (.co in UK)	commercial
.coop	cooperatives
.edu (.ac in UK)	educational and research
.gov	government
.info	general use
.int	international organisation
.mil	military agency
.museum	museums
.name	individuals
.net	gateway or host
.org	non-profit organisation
.pro	professionals

Suggested extension	Meaning
1 .firm	a informative
2 .store	b cultural or entertainment
3 .web	c personal
4 .arts	d firm or agency
5 .rec	e online retail shop
6 .info	f Web-related
7 .nom	g recreational

LISTENING **3** Study this diagram which illustrates how your browser finds the webpage you want. Label these items:

a Router
b Domain Name System (DNS) server
c Remote Web server
d Browser PC
e URL
f Internet Protocol address

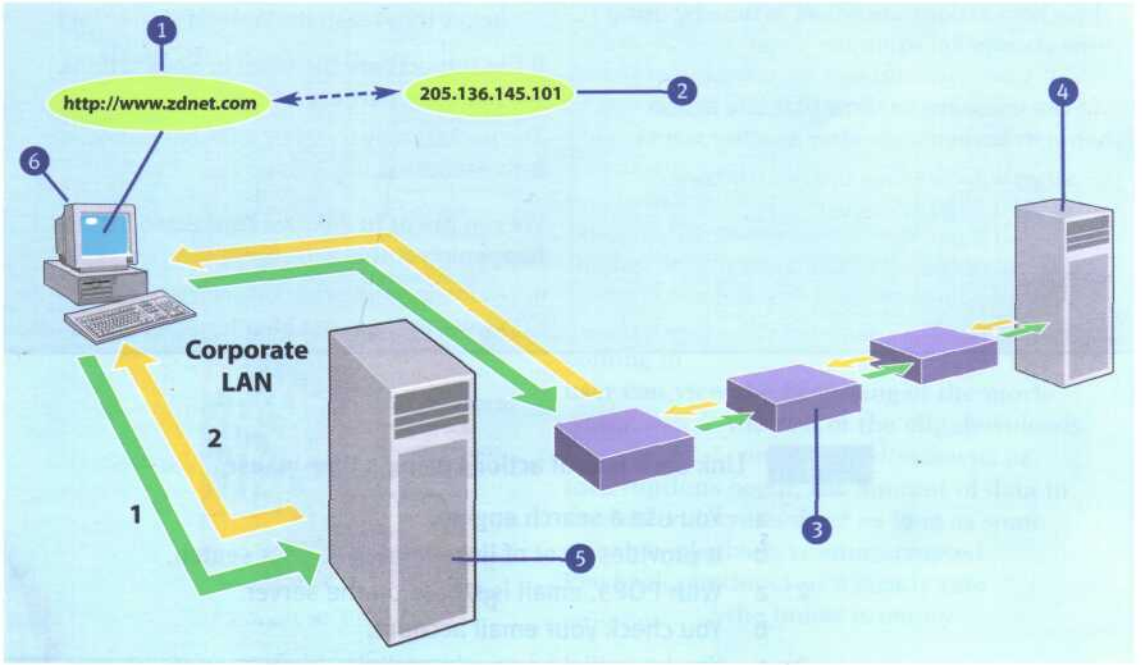


Fig 2
How your browser finds the page you want

4 Now listen to this recording which explains how the process works and take brief notes on each stage. For example:

Stage 1
Click on a webpage hyperlink or URL.
The browser sends the URL to a DNS server.

LANGUAGE **WORK** Time clauses

What is the relationship between each of these pairs of actions?

1 a You click on a URL.
  b Your browser sends it to a DNS server.
2 a The packets are passed from router to router.
  b They reach the Web server.
3 a The packets may travel by different routes.
  b They reach the Web server.
4 a The individual packets reach the Web server.
  b They are put back together again.

Each pair of actions is linked in time. We can show how actions are linked in time by using time clauses. For example:

We can use *when to* show that one action happens immediately after another action:

1 *When* you click on a URL, your browser sends it to a DNS server.

We can use *once* in place of *when* to emphasise the completion of the first action. It often occurs with the Present perfect. For example:

Once the DNS server has found the IP address, it sends the address back to the browser.

We can use *until to* link an action and the limit of that action:

2 The packets are passed from router to router *until* they reach the Web server.

We can use *before* to show that one action precedes another:

3 The packets may travel by different routes *before* they reach the Web server.

If the subjects are the same in both actions, we can use a participle:

The packets may travel by different routes *before* reaching the Web server.

We can use as to link two connected actions happening at the same time:

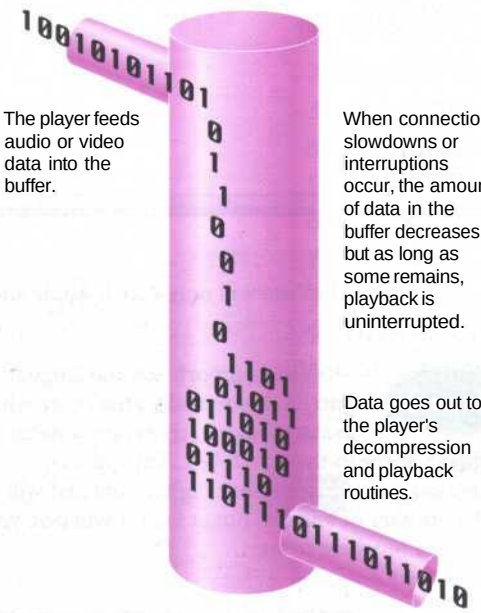
4 *As* the individual packets reach the Web server, they are put back together again.

5 Link each pair of actions using a time clause.

1 a You use a search engine.
  b It provides a set of links related to your search.
2 a With POP3, email is stored on the server.
  b You check your email account.
3 a You have clicked on a hyperlink.
  b You have to wait for the webpage to be copied to your computer.

4 a You listen to the first part of a streamed audio file.
b The next part is downloading.
5 a The graphics can be displayed gradually.
b The webpage is downloaded.
6 a You receive an email message.
b You can forward it to another address.
7 a You click on a hyperlink.
b The browser checks to see if the linked webpage is stored in the cache.
8 a You can bookmark a webpage to make it easier to find in the future.
b You find a webpage you like.
9 a You type in a Web address.
b You should press the Enter key.
10 a You click on the Home button.
b The browser displays your starting webpage.

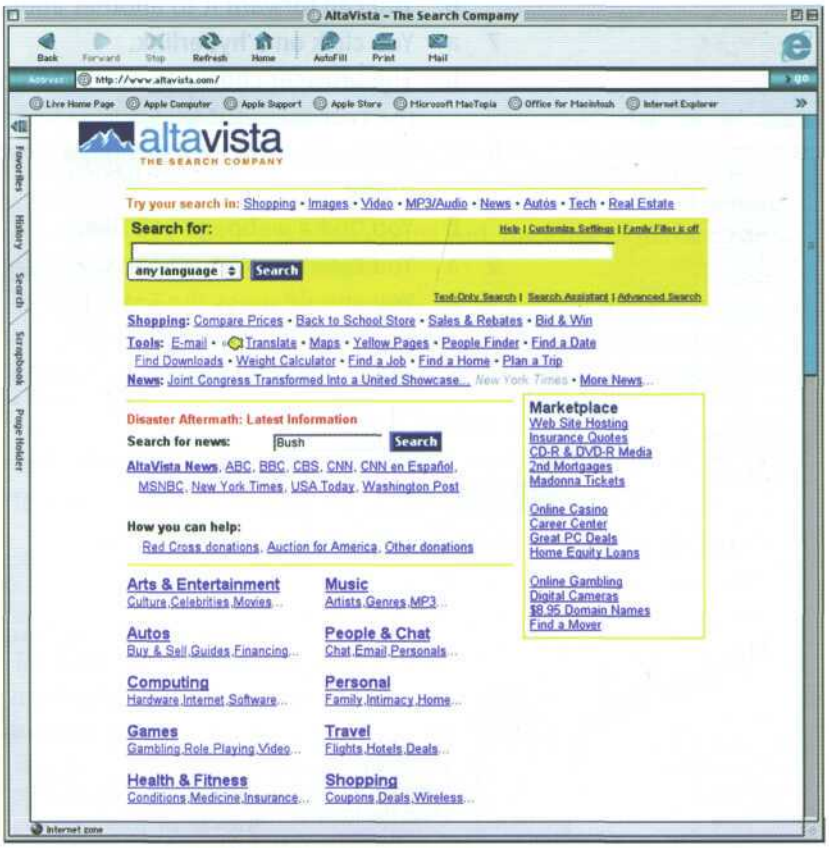
6 Fill in the gaps in this description of buffering, a way of ensuring that Web video runs smoothly.



Streaming is a way of dealing with bandwidth problems.....[1] you download video from the Internet. One key to successful streaming is the process of buffering.....[2] you download a movie, the video player stores part of the movie in memory.....[3] playing it. Imagine the buffer as a container filled from the top as shown in Fig 3.....[4] the container is full, the player sends data on for playback from the bottom. Data keeps coming in.....[5] a clip plays. The user can view the beginning of the movie .....[6] the rest of the clip downloads. .....[7] connection slowdowns or interruptions occur, the amount of data in the buffer decreases but as long as some remains, playback is uninterrupted. Playback continues at a steady rate .....[8] the buffer is empty.

Fig 3
Video buffering

PROBLEM-SOLVING 7 **Search engines** Study these tips for conducting searches using AltaVista. Then decide what you would type into the search box to find this data. Compare your answers with others in your group and together decide what would be the best search. Restrict sites to English language.



Tip 1 Don't use simple keywords. Typing in the word football is unlikely to help you to find information on your favourite football team. Unless special operators are included, AltaVista assumes the default operator is OR. If, for example, the search query is *American football*, AltaVista will look for documents containing either *American* or *football* although it will list higher those documents which contain both.

Tip 2 AltaVista is specifically case sensitive. If you specify apple as your search term, AltaVista will return matches for apple, Apple and APPLE. However, if you use Apple or apPle, AltaVista will only match Apple and apPle respectively.

Tip 3 AltaVista supports natural language queries. If you really aren't sure where to start looking, try typing a natural language query in the search box. The question Where can I find pages about digital cameras? will find a number of answers but at least it will give you some idea of where to start.

Tip 4 Try using phrase searching. This is where you place quotation marks around your search term, e.g. 'alternative medicine'. This will search for all documents where these two words appear as a phrase.

Tip 5 Attaching a + to a word is a way of narrowing your search. It means that word must be included in your search. For example, if you were looking for information on cancer research, use +cancer +research instead of just cancer.

Tip 6 Attaching a - to a word or using NOT is another way of narrowing your search. This excludes the search item following the word NOT or the - sign. For example, science NOT fiction or science -fiction will exclude sites in which these two words occur together.

Tip 7 Use brackets to group complex searches, for example: (cakes AND recipes) AND (chocolate OR ginger) will find pages including cakes and recipes and either chocolate or ginger or both.

Tip 8 You can refine your search by doing a field search. Put the field, then a colon and then what you are looking for. For example,
URL:UK +universities will find only British universities.
title: 'English language' will find only sites which contain this phrase in their titles.

Tip 9 AltaVista supports the use of wildcard searches. If you insert a * to the right of a partial word, say hydro*, it will find matches for all words beginning with hydro such as hydrocarbon and hydrofoil. Wildcards can also be used to search for pages containing plurals of the search terms as well as to catch possible spelling variations, for example alumin*m will catch both aluminium (UK) and aluminum (US).

Tip 10 If you are looking for multimedia files then save yourself time by selecting images, audio or video with the radio buttons on AltaVista's search box and then entering your search.

1 a street map of Edinburgh, Scotland
2 train times between London and Paris
3 the exchange rate of your currency against the US dollar
4 a recipe for chocolate chip or hazelnut brownies
5 video clips of the Beatles
6 sumo wrestler competitions in Japan this year
7 the weather in New York city tomorrow
8 heart disease amongst women
9 New Zealand universities which offer courses in computing
10 Sir Isaac Newton's laws of motion

8 Test your answers using AltaVista.

WRITING **9** Write your own description of how your browser finds the page you want. Use Fig 2 to help you. When you have finished, compare your answer with the listening script to Task 4 on page 198.

SPECIALIST READING

A Find the answers to these questions in the following text.

1. Name three different email protocols mentioned in the text.
2. Which email protocol is used to transfer messages between server computers?
3. Why is SMTP unsuitable for delivering messages to desktop PCs?
4. Name two host-based mail systems mentioned in the text.
5. Where are email messages stored in an SMTP system?
6. What happens when you use your Web mail account to access a POP3 mailbox?
7. Give an advantage and a disadvantage of having an option to leave POP3 messages on the server.
8. What are the advantages of using the IMAP4 protocol?

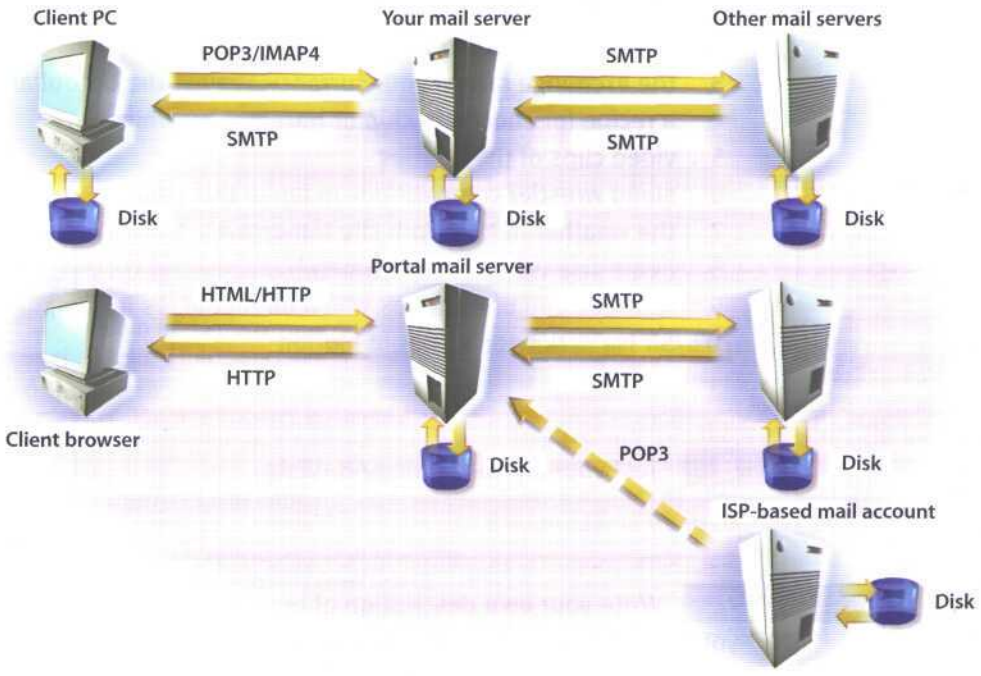
Email Protocols

Although the format of a mail message, as transmitted from one machine to another, is rigidly defined, different mail protocols transfer and store messages in slightly different ways. The mail system you're probably used to employs a combination of SMTP and POP3 to send and receive mail respectively. Others may use IMAP4 to retrieve mail, especially where bandwidth is limited or expensive.

Simple Mail Transfer Protocol

SMTP is used to transfer messages between one mail server and another. It's also used by email programs on PCs to send mail to the server. SMTP is very straightforward, providing only facilities to deliver messages to one or more recipients in batch mode. Once a message has been delivered, it can't be recalled or cancelled. It's also deleted from the sending server once it's been delivered. SMTP uses 'push' operation, meaning that the connection is initiated by the sending server rather than the receiver. This makes it unsuitable for delivering messages to desktop PCs, which aren't guaranteed to be switched on at all times.

Web mail systems use some of the same protocols as client/server mail. Some can access an ISP-based POP3 mailbox, allowing you to read your mail anywhere you can find a browser.



In host-based mail systems, such as Unix and Web mail, SMTP is the only protocol the server uses. Received messages are stored locally and retrieved from the local file system by the mail program. In the case of Web mail, the message is then translated into HTML and transmitted to your browser. SMTP is the only protocol for transferring messages between servers. How they're then stored varies from system to system.

Post Office Protocol

POP is a message-retrieval protocol used by many PC mail clients to get messages from a server, typically your ISP's mail server. It only allows you to download all messages in your mailbox at once. It works in 'pull' mode, the receiving PC initiating the connection. PC-based POP3 mail clients can do this automatically at a preset interval. When you use your Web mail account to access a POP3 mailbox, the mail server opens a connection to the POP3 server just as a PC-based application would. The messages are then copied into your Web mailbox and read via a browser.

Since POP3 downloads all the messages in your mailbox, there's an option to leave messages on the server, so that they can be picked up from different machines without losing any. This does mean that you'll get every message downloaded every time you connect to the server. If you don't clean out your mailbox regularly, this could mean long downloads. When using a Web mail account to retrieve POP3 mail, be careful about leaving messages on the server - if too many build up. each download will take a long time and fill up your inbox. Many Web mail systems won't recognise messages you've already downloaded, so you'll get duplicates of ones you haven't deleted.

Internet Mail Access Protocol

IMAP is similar in operation to POP, but allows you more choice over what messages you download. Initially, only message headers are retrieved, giving information about the sender and subject. You can then download just those messages you want to read. You can also delete individual messages from the server, and some IMAP4 servers let you organise your mail into folders. This makes download times shorter and there's no danger of losing messages.

[Adapted from 'Using Web-based Email' by Jonathan Bennett, PC Magazine, November 1999]

B Re-read the text to find the answers to these questions.

1 Mark the following statements as True or False:

a Different mail systems transfer emails in different ways.
b IMAP4 requires more bandwidth than the other email protocols.
c SMTP is used for sending emails from a PC to a server.
d SMTP delivers messages one at a time.
e SMTP does not allow a delivered message to be cancelled.
f SMTP is only one of many protocols used to send mail between servers.
g POP protocol allows the user to download one message at a time.

***2* Match the terms in Table A with the statements in Table B.**

Table A

a SMTP
b 'Push' operation
c POP
d 'Pull' operation
e IMAP

Table B

i An email transfer process in which the connection is initiated by the sending computer rather than the receiving computer.
ii A mail transfer protocol that initially only retrieves the message headers.
iii An email transfer process in which the receiving computer initiates the connection.
iv A simple mail transfer protocol that is used to send messages between servers.
v A message-retrieval protocol that downloads all email messages at the same time.