



Hank Morgan/SPL

TBL @ WWW

Today, most readers of CATALYST have easy access to the World Wide Web. Ten years ago, that was not the case. Tim Berners-Lee, a British scientist, came up with the idea of the Web in the late 1980s and set up the first server for it in December 1990.

In the late 1980s Tim Berners-Lee was working at CERN, a large, international particle physics lab in Geneva where thousands of scientists and technicians work collaboratively. As in many branches of science, experiments in particle physics generate large amounts of data in very short spaces of time, and these have to be stored and analysed on computers. Tim devised the Web to allow his colleagues to access data at the click of a mouse, but he could also see the advantages of such a system for people in many different walks of life.

The internet already existed when Tim invented the Web (see Box 1). Tim realised the need for standard

approaches for identifying resources on the Web, and for sending information from one computer to another (see Box 2).

Early days

Tim Berners-Lee grew up in southwest London. His parents were involved in developing early computers. He wasn't sporty; he preferred toy trains, and later the electronic systems that control them. He went to Oxford University to study physics. He and a friend were banned from the university computer after they were caught hacking.

After graduating with a BSc degree, he worked in industry before moving to CERN in 1984. There, he devised computer systems for controlling experiments

The UK is one of the world's top ten countries for internet usage. In January 2006, there were an estimated 37 800 000 internet users in the UK, 63% of the population.

Box 1 The internet and the Web

The internet existed before the World Wide Web — they are two different things. The internet is the system which allows two computers to communicate when they may be on opposite sides of the world. The Web is a system for locating and transferring information (text, data, images etc.) over the internet. E-mail is an example of another system for transferring information over the internet.

Box 2 WWW essentials

What does it take to make a web linking computer users around the world?

Hypertext Uses links to allow the user to jump around within a document, or from one document to another. (You can create links in a document using a word-processing program such as Microsoft Word.)

HTML Hypertext mark-up language — the code used to send the words, pictures, sounds etc. which make up a page of hypertext.

Resource identifiers The addresses which tell the system where to find the pages you are looking for.

Clients and servers Your computer is a client; it sends out requests to the network of server computers via your internet service provider, and they send back the pages you require (Figure 1).

and handling data. This led him to see the need for the Web. He came up with the idea of giving every 'document' a universal document identifier (UDI). A document might be text, data, an image or whatever. Today, these identifiers are known as universal resource identifiers (URI); they are the filenames that start www. and end .html, .pdf, .doc and so on.

Today and tomorrow

Tim is now professor of computing at both Southampton University and MIT in Boston. He is also director of the World Wide Web Consortium, an organisation guiding the development of the Web.

Perhaps the most impressive aspect of Tim's inventiveness was that he could see the great use the Web would come to have for millions and even billions of people. He chose not to patent his idea, so that it is freely available for all to use.

The Web is often criticised because it allows people to download violent or obscene images, or even bomb-making recipes. What does Tim say to this?

People also say how their lives have been saved because they found out about the disease they had on the Web, and figured out how to cure it.

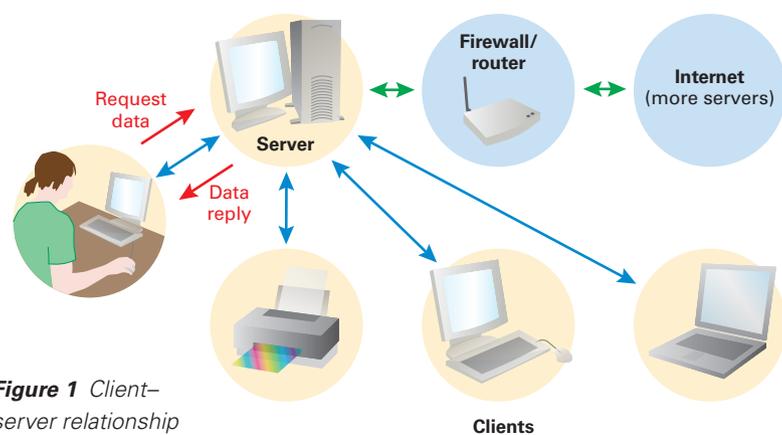


Figure 1 Client-server relationship

I think the main thing to remember is that any really powerful thing can be used for good or evil. Dynamite can be used to build tunnels or to make missiles. Engines can be put in ambulances or tanks. Nuclear power can be used for bombs or for electrical power.

The Web is a tool for communicating. With the Web, you can find out what other people mean. You can find out where they are coming from. Let's use the Web to help people understand each other.

David Sang writes textbooks and is an editor of CATALYST.

Tim Berners-Lee's homepage (www.w3.org/People/Berners-Lee) includes a link to his blog.

Weaving the Web by Tim Berners-Lee is his account of the invention of the Web.

Alchemical wordsearch

Puzzle

D I V A N E L I X I R A N
 Z L I O R C E L E M E N T
 O A O I P N C I B M E L A
 U M F G R E L O H O C L A
 T O U C H S T O N E C H E
 R E H P O S O L I H P I H
 O H T R A E Q R E T A W A
 N O I T A T U M S N A R T
 S N G I B N Y E N O T S N
 R U R B A I N M A R I E O
 A S O Y R U C R E M O O R
 M U L L I Q U I D I T Y I

How many of the following words can you find in the grid? Words can run in any direction. Which of the words listed below is not in the grid?

- | | |
|--------------|---------------|
| air | alchemy |
| alcohol | alembic |
| bainmarie | earth |
| element | elixir |
| fire | gold |
| iron | liquidity |
| mars | mercury |
| moon | philosopher |
| quintessence | spirit |
| stone | sun |
| touchstone | transmutation |
| water | |

Answer on page 19.