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Webbed fingers

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JUST when you had begun to get used to it, the Internet is disappearing. It is not that the mother of all computer networks is going away. On the contrary, Internet traffic is growing at 20-30% a quarter. But the 15m or so users around the world increasingly see just the information the net carries, and not the technology of the network itself—rather as drivers see roads as ways of travelling, not as lengths of tarmac (except when there are potholes). Chief among the systems that obscure the underlying network and smooth the traveller's way is the World Wide Web.

The web employs a technology known in the trade as hypermedia. Hypermedia makes it easy to combine text, graphics, sound and even video into a single electronic document. These documents can then be linked to each other; click on a mouse at a linking point in one document and a related document will appear. If this article were a web document, it might contain links (denoted by bold text) to other documents discussing the technology and history of the web, or to unpublished background material on the Internet, allowing impatient or congenitally non-linear readers to jump around. The web is worldwide because the links between documents can stretch across the global network; click on a footnote to a paper in a London database and you might see a related graph drawn on the fly by a computer in Minneapolis from statistics stored in Stuttgart. The distance between documents, though, is hidden to the user.

The web's technology was created in 1989 by Tim Berners-Lee at CERN, Europe's high-energy physics laboratory, to help researchers cope with the huge quantities of data thrown out by their particle accelerators. It worked, so Mr Berners-Lee, with CERN'S permission, made the software freely available over the Internet. Enthusiasm spread from terminal to terminal around the world. Volunteers sprang up to develop the technology. As Mr Berners-Lee puts it, "The reason that most things happened with the web is that somebody just decided that they were going to make it happen, and did."

The web's links now encompass computer-science technical reports, folk-song lyrics, economic statistics from America's Department of Commerce, tarot cards, satellite weather photographs, film reviews, legal databases, the Bible, library catalogues, literary magazines and more. America's Library of Congress used the web to create an electronic version of an exhibition of

manuscripts from the Vatican, letting an electronic visitor wander from link to link, looking at pictures and reading about them rather as a real visitor might stroll from corridor to corridor.

The user is not limited to material created for the web; the technology simplifies access to databases created for other networks too. A neophyte can get into them simply by reading and clicking—without learning about "ftp", "telnet" or any of the other daunting procedures that separate real network-surfers from dilettantes. Anything that catches his eye can be linked back into the growing web.

The enthusiasm of volunteers has made the web into one of the Internet's most popular technologies, accounting for about 3% of Internet traffic and growing twice as fast as the Internet itself. Mr Berners-Lee is trying to make sure that this growth does not choke the system; he is establishing a consortium to set standards and ensure that new innovations are compatible with the base system. That done, even faster growth might be possible. Mr Berners-Lee would like to make it easier for users to create their own links to documents. He also wants to make it possible to label the links, so that users do not head off in the wrong direction. Such labels might note whether a link supports the argument or criticises it.

They could also be used for advertising. The web is a marketplace as well as a library and a playground. Digital Equipment uses it to provide an on-line catalogue of product information. *Wired*, a Californian magazine favoured by technobohos, got dragged into the web when readers in Singapore, tired of waiting for the latest issue, created their own web-linked version of the magazine. The editors bought their efforts and are now investing in expanding on the web. And O'Reilly & Associates, an innovative Californian publisher of technical books, is trying to use the web to create a new form of electronic publication.

In the autumn of 1993, O'Reilly launched Global Network Navigator (GNN), an on-line magazine and Internet reference guide. The most recent issue contained articles about using the Internet for education and about the EDGAR database of corporate information maintained by America's Securities and Exchange Commission, all electronically linked to the resources on the network that they describe.

Like most things on the web, GNN is free; the company will rely on advertising revenue from people paying to have links to their promotional material included in the magazine. To make the product more appealing to them, O'Reilly will soon launch cheap software to connect home personal computers to the web through the Internet, thus building up the advertising base. The web may prove to be the application that brings the Internet out of academe and into the commercial world—by making it invisible to the people who use it.