



Who invented hyperlinks?

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..... You may be under the impression that Vannevar Bush invented hyperlinks in his 1945 "As We May Think" article in the *Atlantic Monthly* (<http://www.theatlantic.com/unbound/flashbks/computer/bushf.htm>). Or maybe Ted Nelson (he called it "hypertext" in his "Xanadu" papers starting around 1965, see <http://www.xanadu.net>) or Doug Englebart (he demonstrated the "on-line system" using links in 1968). Noooo.

Background

British Telecom has sued Prodigy for infringing BT's patent on hyperlinks (US Pat. No. 4,873,662). BT contends that it invented hyperlinks around 1976, and in 1989 got a patent that covers hyperlinking and will expire in 2006. BT has been threatening Internet service providers (ISPs) everywhere, and decided to make an example of Prodigy.

BT says that although it had the patent for the last 11 years, it was unaware of it. Then a recent BT inventory of its "patent assets" turned up this jewel. BT now proposes to cash in on its foresight in inventing the backbone of how to use the Internet, a quarter of a century ago. BT is quoted as saying:

Many ISPs and companies make a huge sum of money for intellectual property on the Net. We feel that we are entitled to make money on our intellectual property too. That's the reality of the

Internet now, it's a commercial property. What we expect is that ISPs will do the decent thing and take licenses for our intellectual property that they're using. We're looking for reasonable royalties on revenues that they're enjoying from our technology.

Outside BT's offices, however, enthusiasm for BT's enterprise is more muted. In fact, a whole swarm of angry bees thinks that the decent thing to do is to sting BT. Some critics say that BP sat on its patent too long to sue now. Greg Aharonian, a member of IEEE-USA's intellectual property committee, proposes giving BT and its patent the "Dogs Playing Poker in the Basement Award." He argues that hyperlinkers don't infringe the patent and that it's invalid to boot. Let's explore those charges.

Laches

The legal name for waiting too long to sue on a patent is "laches." There used to be pretty much of an automatic death rule when a patentee waited six years to sue where the patentee knew or should have known of a particular alleged infringement. The Federal Circuit, which hears all patent appeals, has now watered that rule down to a rebuttable presumption of laches after six years. Furthermore, the laches

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<www.BritTele.com>
AND CALL!

rule usually only cuts off damages and not injunctions against future infringement.

Therefore, an accused infringer such as Prodigy would need to show that BT knew or should have known, at least as early as 1994, that Prodigy was engaging in hyperlinking. That would place the burden on BT to provide a convincing justification for its failure to sue. (Not knowing that it owned the patent is probably no excuse at all. Certainly BT "should have known" that, if it expects to mulct others in damages for infringement.)

According to Prodigy's Web page (http://www.prodigy.com/pcom/company_information/company_index.html), in January 1995, Prodigy became the first online service to offer World Wide Web access. That's close, but here a miss is as good as a mile—not even a rebuttable presumption of laches. Moreover, if Prodigy was the first WWW ISP, other ISPs are in an even weaker position on laches.

Did Mosaic at the University of Illinois

have links in 1993 when it was released? Perhaps. But that would just mean that BT couldn't sue the University of Illinois, which wouldn't do Prodigy or the other ISPs any good.

Infringement

To judge the merits of the infringement charges, we need to look at the claims of the BT patent and compare them with whatever is being accused of infringement.

Claim 1, which is representative, reads as shown in the "Claim 1" box.

Every element of this claim is phrased in terms of a "means" for performing a recited function, for example, "display means for visually displaying such a locally stored first portion of a block of information." Under current US patent law—as authoritatively explained by the Federal Circuit—when a patent claim is phrased in such language, it must be interpreted in a specific way. Such claims don't cover all conceivable means for carrying out the recited function, although that may be what they seem to do. Rather, such a claim is limited to the particular expedients described in the specification of the patent (the descriptive part) and "equivalents thereof." An equivalent of an expedient described in the specification of a patent is another expedient that's "insubstantially different" from the one actually described.

The doctrine of equivalents has in the past led to very unpredictable results. In the famous *Graver Tank* case, the Supreme Court said of the doctrine:

What constitutes equivalency must be determined against the context of the patent and the particular circumstances of the case. Equivalence, in the patent law, is not the prisoner of a formula and is not an absolute to be considered in a vacuum. In determining equivalents, things equal to the same thing may not be equal to each other and, by the same token, things for most purposes different may sometimes be equivalents.

Claim 1

A digital information storage, retrieval and display system comprising:

- a central computer means in which plural blocks of information are stored at respectively corresponding locations, each of which locations is designated by a predetermined address therein by means of which a block can be selected, each of said blocks comprising a first portion containing information for display and a second portion containing information not for display but including the complete address for each of plural other blocks of information;
- plural remote terminal means, each including:
 - (a) modem means for effecting input/output digital data communication with said central computer means via the telephone lines of a telephone network,
 - (b) local memory for locally storing digital data representing at least the first portion of the selected block of information received via said modem means from the central computer,
 - (c) display means for visually displaying such a locally stored first portion of a block of information and
 - (d) key pad means connected to communicate data to at least said modem means for manual entry of keyed digital data; and
- further memory means being provided as a part of said central computer means for receiving and storing said second portion of the block of information selected by a particular terminal means in response to the selection of the block and when its respective first portion is transmitted to that terminal means for display, said central computer means utilizing keyed digital data from that particular terminal means of less extent than any one of said complete addresses for another block of information but nevertheless uniquely indicative of one of the complete addresses contained in said portion of the block of information which contains the first portion then being displayed by that particular terminal means for selectively accessing the part of said further memory means associated with that particular terminal means and for supplying the complete address of the next block of information which is to be retrieved for that particular terminal means and utilized for display purposes at that terminal means.

On the basis of that last non-Euclidian axiom, the Supreme Court concluded that manganese salts were equivalent to magnesium salts.

In the recent Federal Circuit *Festo* case, one of the judges said this of the doctrine of equivalents:

Though we talk about considering factors such as the role of copying, interchangeability of elements, and so on, the reality is that, as our cases since *Hilton Davis* demonstrate, the decision on equivalents remains essentially a subjective call, with repetition of verbal formulae but without transferability from case to case of practical guidance. This

to me is the antithesis of the rule of law.

These difficulties with determining equivalency have led to considerable tightening up lately in the scope accorded a "means" claim such as the BT claim. The "plural remote terminal means" described in the specification don't have a microprocessor or other central processing unit (CPU); the claims recite components (a) through (d), but no CPU. For those reasons, a court would probably not consider a modern personal computer (PC) equivalent to the patent's remote terminal means.

But if any element of a patent claim is missing in the accused product, no infringement occurs. This is the "all ele-

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ments" rule: Every element of a claimed structure, or its equivalent, must be present in the accused device for there to be infringement.

Another issue that some observers have raised is whether any specific person or business entity can be held to be an infringer or contributory infringer here. The reason is that the claimed system corresponds to the whole Internet. A home user doesn't have the "central computer means" of the claimed "digital information system," which an ISP (such as Prodigy or AOL) has. An ISP doesn't operate the "plural remote terminal means," which users have (assuming, for the sake of argument, that PCs can meet this claim requirement). Arguably, further, the ISP has no knowledge of what each user customer is doing; yet, contributory infringement has a guilty-knowledge requirement. These are thus additional pitfalls in applying BT's patent to ISP use of linking on the Internet.

Prior art

Many critics of BT and its patent maintain that Bush, Nelson, and Englebart taught the important aspects of what BT claims were long before BT applied for its patent. These critics claim that whatever is different in the patent is an obvious variation on these earlier materials. Aharonian points to a 1968 Nelson paper on a hypertext editing system for the IBM 360. Nelson said,

Any text structures may be interconnected [linked] in arbitrary ways, and the user may jump along connections in this linkage structure.

To the extent that BT's claim 1 is not completely identical to the teachings of Bush, Nelson, and Englebart, the advantage in patent infringement litigation is with BT. An accused infringer seeking to invalidate a patent has a number of burdens to overcome. An issued patent is legally presumed valid. The Federal Circuit interprets that to mean that the accused infringer must establish its case for inva-

lidity by "clear and convincing evidence." Simply meeting the ordinary civil litigation burden of a "preponderance of evidence" won't work. Clear and convincing evidence is a standard somewhat closer to "beyond a reasonable doubt."

Part of the burden in this case would be to establish that an artisan of ordinary skill in the pertinent "art" (perhaps, computer programming) would be able to close the gap between the prior art (here, Bush, Nelson, and Englebart) and the claimed invention by ordinary or routine efforts.

To establish that, the accused infringer would need to put together a chain of data links as follows. First, she would need to find some specific references (such as other patents, textbooks, or technical journal articles). The references would need to contain a specific teaching, suggestion, or motivation to select from Bush, Nelson, and Englebart all of the elements of BT's claim 1. These or other references would need to contain a specific teaching, suggestion, or motivation to combine the selected elements together and to devise any necessary adaptations of modifications to arrive at the BT system of claim 1. Alternatively, instead of literature references, the accused infringer could try to do the same thing by way of an expert's testimony that the foregoing data links were part of the general knowledge of the hypothesized artisan of ordinary skill in the pertinent art.

Ideally, the accused infringer would find a standard engineering textbook that sets out a specific technological principle that would suggest or motivate this combining and adapting of the Bush, Nelson, and Englebart teachings to arrive at the system of BT's claim 1. That's easier to imagine than do. Anyway, if the accused infringer cannot in some way put together the kind of chain of data links described, the case for obviousness fails.

Litigation is always uncertain. BT may yet sustain its claim to have invented hyperlinking as we know it. Far stranger things have happened, even in the Supreme Court.