



DISTRIBUTED SYSTEMS



The World-Wide Web

A Quick Tour

by David F. DelGreco

The World-Wide Web is a distributed hypertext system created by CERN, the European Laboratory for Particle Physics in Switzerland. Originally designed to allow physicists easier access to the large amount of information available on the Internet, the WWW (or W3) allows viewers to access many kinds of resources in a seamless way, no matter where they lie on the Internet.

For example, in my first travels through the Web, some of which I describe below, I began in Kansas, linked to Switzerland, Washington, D.C., Austria, Finland, and several FTP sites whose location I could not identify from the screen — all as easily as using the hypertext help system that came with my word processor.

Web browsers understand protocols used by many different resources on the Internet. Some resources you link to will be HTML documents (the formatting standard used to create a WWW document); others will be WAIS indexes, Gophers, FTP sites, UseNet, or graphics and sound (if you use a GUI browser).

One unique thing about using a Web browser is that when information from different resources appears on a “page” of the browser, it is formatted such that it looks like it was written especially for the Web. UseNet articles appear neatly formatted, and references to previous postings appear as live links to those postings. WAIS indexes appear as lists which you can search. In addition, the WWW is a hypermedia system. Some versions of it already support graphics and sound, and there is talk of including animation as well.

In researching this article, most of the information I found in FAQ files and articles in the WWW itself were technical in nature. While explanation of the WWW requires at least a basic understanding of what the Internet is, I didn't want to provide yet another technical overview. Instead I hope to provide a description of the kinds of things a new user might find with a little browsing.

Finding a Browser to Use

There are several user interfaces, or browsers, you can use to access the web. The most polished is said to be the XMosaic browser, but there are other browsers, including those for X11 (Viola), X/Motif (MidasWWW), MS-Windows (Cello), and the Macintosh. They are in varying states of readiness, and all

will change over time. For a list of the different types of browsers and where you can Telnet to use them (or get the files to install on your own system), get the FAQ file from `comp.infosystems.www`. Nathan Torkington has been posting the FAQ file about once a week as he writes it.

If, like me, you don't have a UNIX workstation with a live Internet connection, you can Telnet to one of the text-based browsers available. A simple text-only based browser is available by Telnetting to `info.cern.ch`. Just login as `www` and the Web appears.

Lynx

I used a terminal emulation program on my PC and a 9600 bps modem to call into a local UNIX bulletin board. From there I Telnetted to `ukanaix.cc.ukans.edu`, where you will find a very nice VT100 browser. The advantage of VT100 over simple text is that the browser allows cursor control, highlighting, and use of the arrow keys to navigate the web. If you don't have a UNIX-based GUI, this is the way to go. Most telecommunications programs for Macs and PCs support VT100 emulation.

After you login as `www`, the home page of Lynx appeared. It looked something like this:

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Welcome to WWW at the University of Kansas

You are using a new WWW Product called Lynx. For
more information about obtaining and installing Lynx
please choose About Lynx

The current version of Lynx is 2.0.8. If you are
running an earlier version PLEASE UPGRADE!

WWW sources
For a description of WWW choose Web Overview
About the WWW Information Sharing project
WWW Information By Subject
WWW Information By Type

Lynx sources
University of Kansas CWIS

```

Here you can see that the browser's name is Lynx, and that it resides at the University of Kansas. On my screen, links appear highlighted.

I use my computer's arrow keys to move the highlight to **About the WWW** and press Enter. The link takes me to another page, which briefly describes the WWW. From earlier sessions, I recognize this page as part of the WWW documents at CERN in Switzerland. The CERN screen tells me that “everything there is online about W3 is linked directly or indirectly to this document,” and offers several links to techni-

cal details, a bibliography, a list of other W3 servers, and more. I choose the link to an “illustrated talk.”

The next page that appears is “World-Wide Web: An Illustrated Seminar”. It explains that it is an online seminar, giving first an overview for new users, a review of the current status of the project, and plans for the future. Among the potential links shown are *What is WWW?*, *Basic hypertext*, and *Indexes as hypertext*. At the bottom of the second page, under the heading *What can be done*, I discover the Vatican exhibition of *Renaissance Culture*. That sounds interesting, so I highlight it and “go” to the new page.

The Vatican Exhibit

A two-page introduction to the Library of Congress Vatican Exhibit appears, after which is the following line:

Please enter the Exhibit by going to the *Main Hall*.

I choose *Main Hall* and the *VATICAN EXHIBIT MAIN HALL* appears on the screen. It tells me that I can go to several rooms, including *Vatican Library*, *Archaeology*, *Humanism*, *Mathematics*, *Music*, *Medicine and Biology*, and *Nature*.

I choose *Archaeology* and read a two-page discussion of Rome’s “rediscovery” around 1450, when Renaissance scholars began to study the ruins of the city. Below the text I find several options that allow me to delve deeper into the archaeology of ancient Rome. Out of curiosity I choose *Objects not on exhibit*. At that point the Web crashes and leaves me at my UNIX prompt. Oh well, I guess it still has a few bugs.

Let’s review what I just did. In a matter of two or three minutes, I connected to a computer in Kansas, linked to Switzerland, then to Washington, D.C., and retrieved a quick overview of the Vatican Exhibit. No knowledge of FTP or other transfer protocols was required, nor did I even have to know where the resources were that I linked to. I typed *telnet* with an address; after that I used the arrow keys of my computer to choose highlighted text and I was able to jump from one “page” to another.

Those who have done even a little traveling on the Internet via *Telnet* or *FTP* will recognize the incredible increase in ease of use offered by the WWW.

Getting Around the Navigational Problem — the History Page

One of the potential problems with any hypertext system is the “hypertext navigational problem” or “getting lost in hyperspace.” This refers to the problem a viewer of a hypertext document comes across after following several links, such as I did in the example above. Several ways to add some structure to a hypertext system include creating a home page, creating an index or table of contents with pages arranged in a hierarchical manner, and giving a visual indicator of the user’s “level” or “location” in the document. These are generally just

specially formatted pages that serve to structure the information to varying degrees.

A useful mechanism that is built into the WWW is the history page. The history page shows topics you have already seen, and in the order you have seen them. If you don’t want to laboriously link “backward” through the topics you have seen, or if you have forgotten the path by which you go to the current page, bring up the history page and select the page you would like to see.

The Future of the WWW

The WWW is still very much in its infancy. One can imagine many potential uses for it, from educational “courses” containing audio and video illustrations of concepts to global virtual seminars. Anything you can imagine doing in any hypertext/hypermedia system, you can do in the WWW, with the added virtue that the resources linked to it need not be in the same location as the main document, nor even be on the same continent.

FURTHER READING

Books

- Krol, Ed. *The Whole Internet*, Sepastopol, CA: O’Reilly & Associates, Inc., 1993. Devotes a whole chapter to the Web. Also gives a very readable explanation of WAIS indexes, FTP, Gopher, and lots more.
- LaQuey, Tracy. *The Internet Companion*, Reading, MA: Addison-Wesley, 1993. Where Krol focuses on specific resources and tools, this one takes a broader approach. While short on details, this might be a better place to start for absolute beginners.

■ Newsgroups

- *comp.infosystems.www* (UseNet) — Even though most of the discussions are technical, keep up with this newsgroup for the latest news about the WWW.
- *alt.hypertext* (UseNet) — The text part of hypertext is discussed here, as well as everything else that qualifies as hypertext.

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