



Western Region Technical Attachment

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HOMEPAGES

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[Editors Note: Homepage technology provides some exciting possibilities for Western Region (WR) offices to explore. While many offices access homepages to acquire information, homepage technology can also be used by WR offices to disseminate information. A few of the advantages of a homepage is the ease of development and the ability to mix text with graphics/images. One area that an office can explore is using a homepage to develop and evaluate experimental service products. Exploring new ideas with the office's user community is easier, since all the user requires is Internet access and a PC.]

While homepages offer great opportunities, the explosion in their use could rapidly consume all of the new communications bandwidth that WR has recently installed. A WR policy statement will be released soon providing specific guidance on homepages. In the meantime, Scientific Services Division (SSD) has developed a regional homepage server solution to both promote the development of a local homepage, while at the same time protect the WR Wide Area Network's (WAN's) ability to transmit data. NWSFO Reno has already implemented their homepage on a WR Homepage server -- <http://nimbo.wrh.noaa.gov/Reno/>. This Technical Attachment (TA) provides some background on how homepages work and how an office can establish a homepage. - Andy Edman, WR/SSD]

Introduction

The use of homepages has grown rapidly over the last few years. Homepages can be used to both acquire and disseminate information. This TA was written to help field offices understand how homepages work and to facilitate the generation and maintenance of local office homepages on the WR homepage server.

Homepage Background

A homepage has the capability to distribute information on variety of subjects to a number of users through a network. The power of a homepage lies in the simplicity of how a homepage works. A homepage server (the server) is an application that runs on a computer, which contains information organized as a series of graphic pages. The server is connected to the Internet through some type of communications line and has a unique Internet address. The homepage is identified by a Uniform Resource Locator (URL) address. The URL address begins with <http://> and is followed by the address of the server. The URL addresses are similar to a telephone number in that the user can

access, through Internet (phone company network), another site if the user knows the address (phone number).

A graphical browser application (i.e., Netscape, Mosaic, etc.) is used to access a homepage. The browser application forms a request for information (called a query), and using the Internet system, sends the query to the server identified by the URL address. **The server responds by sending one page of information per request back to the user.** While it may appear that the user is directly connected to the homepage server, the user is actually looking at a page of information that has been downloaded to the requestor's system. Once the server has sent the page, the session is over and the homepage server is free to service the next request from another person. This is what makes homepage both unique and efficient.

A page of information can consist of pictures, movies, text, sound, files for downloading, and more recently 3-D virtual reality. Homepages are written in a code called HTML (Hyper Text Marker Language) which allows easy links to other pages, graphics, documents, etc. By carefully designing the homepage, a homepage appears to be interactive. When a person selects an item on that page which requires more information, the browser forms a new request from the hidden HTML information associated with the page, and transmits the new request to the homepage server. The homepage server responds to the new query and sends another page of information back to the requestor's system. This process can be repeated over and over.

Since the homepage application uses network communications, it has a number of unique features that the user should be aware of. One advantage of this query and response approach is that the network is used efficiently and not tied up by a few users using the network continuously. When a person sends a request to the homepage, a return address is part of the query. This is required to enable the homepage server to know where to send the page of information. The server keeps a log file to keep track of the types of information accessed by each user address. This means that the information the user requested and the time of the query are logged into a file. Also, a program called a "sniffer" can be run to view the traffic on the network. This means anything the user does can be intercepted and logged. Therefore anything you view, type, or download on the World Wide Web is not secure.

An efficient homepage server can respond very quickly to a query. This allows a homepage server to respond to a number of users. But even with this efficiency, the number of queries/responses can eventually bog down even the fastest networks.

Software

There are many application programs on the open market to access homepages, but the two main applications are Mosaic and Netscape. The main difference between the two programs, is that Netscape supports more of the new html commands than Mosaic does. Some homepages are enhanced for Netscape viewing, but can still be viewed using Mosaic. When these pages are viewed using Mosaic, they will sometimes appear scrambled, or just not display an item. Some common

features that Netscape browsers support over and beyond Mosaic are: centering, backgrounds, and flashing text. Currently, Mosaic is a free software and Netscape costs approximately \$39. If your office decides to use Netscape, make sure you acquire Netscape properly to have a legal copy of the software.

Local Versus Remote Homepage Servers

The key to developing and maintaining a homepage is access to Internet. Once an homepage becomes popular, it can easily overwhelm the Internet communications link. Since the homepage employs the Internet network and topology, the actual location of the homepage server is not important. It is just as easy to develop and maintain a homepage server at a remote site as a local site.

WR has recently installed the Wide Area Network (WAN) to transmit satellite and model data to the field. To preserve this capability, Western Region Headquarters (WRH) will soon be issuing guidelines which restrict installation of a homepage server on the WAN. Essentially, a site can install a local homepage server only if there is a second Internet connection to the office and the server is isolated from the WAN. Since most offices will not have this capability, WR SSD has established a regional homepage server. Each office can establish and maintain their own distinctive homepage on the regional server. An addressing scheme has been developed to allow users to directly access the office's homepage. This approach makes it appear as if the system is located in the office.

Regional Homepage Server Technical Background

The WR homepage server is a HP712 located at WRH. The homepage server is connected to the T1 communication line between the WRH and the Internet backbone at the University of Utah. This server will be isolated from the WR WAN to prevent homepage access by external users from slowing down the WAN and compromising WAN security.

Homepage Server Instructions

The brackets () denote where the appropriate local entry should be substituted.

To Create a Homepage

HTML documents can be created using any word processor or text editor, as long as the text is saved in an ASCII format. There is a tutorial for HTML on the WWW at <http://www.ncsa.uiuc.edu/General/Internet/WWW/HTMLPrimer.html>.

Once a person understands HTML basics, the next recommended step is to examine how other pages are constructed. To examine what the hidden or underlying HTML instructions look like, choose

view source from the menus at the top of the browser. The best method of learning HTML to improve your homepage is, when you see something you like you, just use View Source to see how the page's author constructed the page. You can view your own documents by choosing Open Local or Open File, depending on your browser, before they are on the Internet.

To maintain security, each site should call either Jason Burks or Jon Mittelstadt to get the IP address and password for the regional server. The password is only necessary for the homepage authors to prevent unauthorized changes to the office's homepage. Once you have prepared your html documents and graphics the way you want them to appear in your homepage, just FTP the files to the server. The instructions are:

- 1) Change directory default on your computer to where you are storing your html files by typing: **cd (your directory)**.
- 2) FTP to the server and type: **ftp (the servers IP address)**
Do not include the (). You will have to enter the user name and password discussed above. After successfully logging on the regional server, the prompt will be: **ftp>**
- 3) Next type: **cd htdocs**
- 4) There will be a separate directory for each office for your html documents. To change to your office directory, type: **cd (your directory)**
- 5) The next step is to copy the HTML files from your computer to the regional server. Type: **send (filename)**
Do this for all of the files. To check to see if the file transfer was successful, type: **ls**
This will list all of your files.
- 6) When your session is completed, type: **bye**
This ends the connection to the server.

The address for your office's homepage is:

http://(IP address of server)/(your directory)/(filename to be shown first).html

If the name of the office is on the first page of index.html, then the homepage address will be:

http://(IP address of server)/(your directory)

This is the preferred method, since it simplifies the address.

To Add To Your Homepage

To add to the office homepage, you can create your documents on your computer and then copy them to your folder on the server and establish the new link from your homepage. All of the links in your homepage should be the file, or the subdirectory and file, if you create subdirectories in your directory. To edit files existing on the server, you can edit the file on your machine and copy it onto the server replacing the old copy.

Or you can edit the file by telnet.

To do this type: **telnet (server IP)**

Then enter user and password.

Then cd to your directory. Then type: **vi (filename)**

This is an editor that you can use to edit the files.

Some simple commands. Vi has two modes, input and command mode. When you first start, you are in command mode and can move around using the arrow keys.

When you are ready to insert, text type: **I**

This puts you in insert mode.

To get back to command mode, press the **esc** key.

To save, you have to be in command mode. Then press colon and you'll see a colon at the bottom of the screen.

Then type: **w** (to write file)

Type: **wq** (to write file and quit editor)

Type: **q!** (to quit editor without saving changes)

After you quit Vi, then you need to end the telnet session. Just type: **exit**. This ends the connection.

To view your page use a browser and open a URL and type in your address.

Summary

Homepage applications provide the office with the capability to access and dissemination information. Homepages are relatively easy to develop and maintain. The primary limiting factor of homepage servers is the communication system. A regional server provides the capability to mitigate the impact on local office communications by using a remote server.