

Gopher and veronica

Gopher: network protocol in the Internet

Gopher is a protocol for communication through the Internet between client and server computers for online access to information sources, like the older protocols telnet and ftp, and the newer http.

telnet

ftp

gopher

http/WWW

Gopher: views on information space

- **Unlike telnet and ftp, gopher (and also the more recent http/WWW) offers a view on 1 virtually unified information space:**
 - » Selecting a server, and switching from one server to another is easier than with telnet and ftp.
 - » A gopher client can be used to search for information held on a distributed network of gopher servers.
 - » A gopher client has a seamless view of the information, even though this information is distributed over many different hosts.

Gopher: a client-server system

- **A client-server system divides the labor between the program the user invokes (the “client”) and a program running on a host computer, the server.**
- **It is best to use gopher with client software installed on the user's workstation because**
 - » it provides a superior user interface
 - » it opens up the world of multimedia information.

Gopher: the user's point of view

- **Gopher serves as a *menu* system for networked information. Computer IP addresses are not required.**
- **The user connects to one of the gopher servers around the world and receives an initial (or “root”) menu listing the resources it has to offer.**
- **The menu can include submenus.**
- **Clients can navigate through these directories / menus.**
- **Each gopher server presents a hierarchy established by the local administrator.**

Gopher: online public access clients

- **A user who does not have a client installed on his local machine can still use gopher: many gopher sites / servers offer a public access client program.**
- **Users connect to these public client services**
 - » via a dial-up session using the voice telephone network, emulating a VT 100 terminal
 - » via telnet in the Internet
 - » via another data communication network

****--Example**

Gopher: the initial screen of the public access client in Minnesota

```
Root gopher server: gopher.micro.umn.edu

-->  1.  Information About Gopher/
      2.  Computer Information/
      3.  FTP Searches/
      4.  Fun & Games/
      5.  Libraries/
      6.  Mailing Lists/
      7.  News/
      8.  Other Gopher and Information Servers/
      9.  Phone Books/
     10.  Search lots of places at the U of M <?>
     11.  UofM Campus Information/

Press ? for Help, q to Quit, u to go up
```

****--Example**

Gopher: client programs (browsers) for various operating systems

**Available for most
operating systems:**

- » Unix
- » Macintosh
- » DOS
- » Windows

- » ...

**Examples of
browsers = client programs:**

- gopher, lynx,...*
- Turbogopher, MacWeb,..*
- DOS lynx,...*
- HGopher, WinGopher, Cello,*
- Netscape,*
- MS Internet Explorer,*

- ...

Gopher

document types (Part 1)

- **Directory of gopher documents = gopher menu**

When a directory item is selected, the server sends the client the list of items in that directory.

Included with each item is the information that the client will need in order to fetch the document when the user requests it.

- **Searchable database (index-search server)**
- **ASCII text file**
- **Image (GIF, JPEG,...)**

Gopher

document types (Part 2)

- **Text-based telnet session**

This allows a gopher to present a list of host services that accept telnet as a remote access protocol.

(For instance, a list of Internet-accessible online catalogs.)

- **Sound**

- **Program file / Binary file**

- ...

Gopher: requirements of client / browser programs

Gopher clients on your microcomputer need a way

- » to display text files on the user's screen
- » to display graphics files on the user's screen
- » to play audio files using sound-card and speaker system
- » to play animations / video's
- » to open telnet sessions
- » ...

Gopher: executing required actions

Actions required and triggered by the incoming stream can be executed

- » by code within the client program itself, or
- » alternatively, the client may launch an external tool

The user must install all the needed external tools and configure the client to use them.

Gopher for file retrieval

- **Most clients also have the ability to save documents on the disk of the computer which runs the gopher client software for the user, for instance on**
 - » the personal microcomputer of the user, or
 - » on the account of the user on a Unix network server computer

Gopher

client - server interaction

- **The client sends a “selector string” to the gopher server via TCP, to tell the server what the user wants to see.**
- **The server sends back the document to client, then disconnects.**

Gopher efficiency

- **The gopher server does not retain any information about the client across transactions.**
- **This aspect of the gopher design is the key to gopher's *efficiency*: the server is only connected to the user long enough to serve a particular request, and it does not pay the high overhead cost of having hundreds or thousands of users “logged in” at once.**

Gopher applications

- **Campus-wide information systems**
- **Access to online public access catalogues**
- **Access to subject-oriented information**
- **Access to fee-based information providers**
- **Access to computer file archives**
- **Traveling / navigating through the Internet via linked gophers**
- **...**

Gopher: the power / size of gopher space

- **More than 6 000 gopher servers were active around the world in 1995.**
- **These servers offered menus with more than 15 million references.**
- **However, the WWW offers similar and more powerful features and has pushed away gopher during the second part of the 1990's.**

Veronica

offers search in gopher space

- **Veronica was designed as a response to the problem of resource discovery in gopher space.**
- **VERONICA = *Very Easy Rodent-Oriented Net-wide Index to Computerized Archives.***
- **Veronica offers a keyword search of most gopher-server menus in the entire gopher space, including menus that offer a gateway to an anonymous ftp server.**

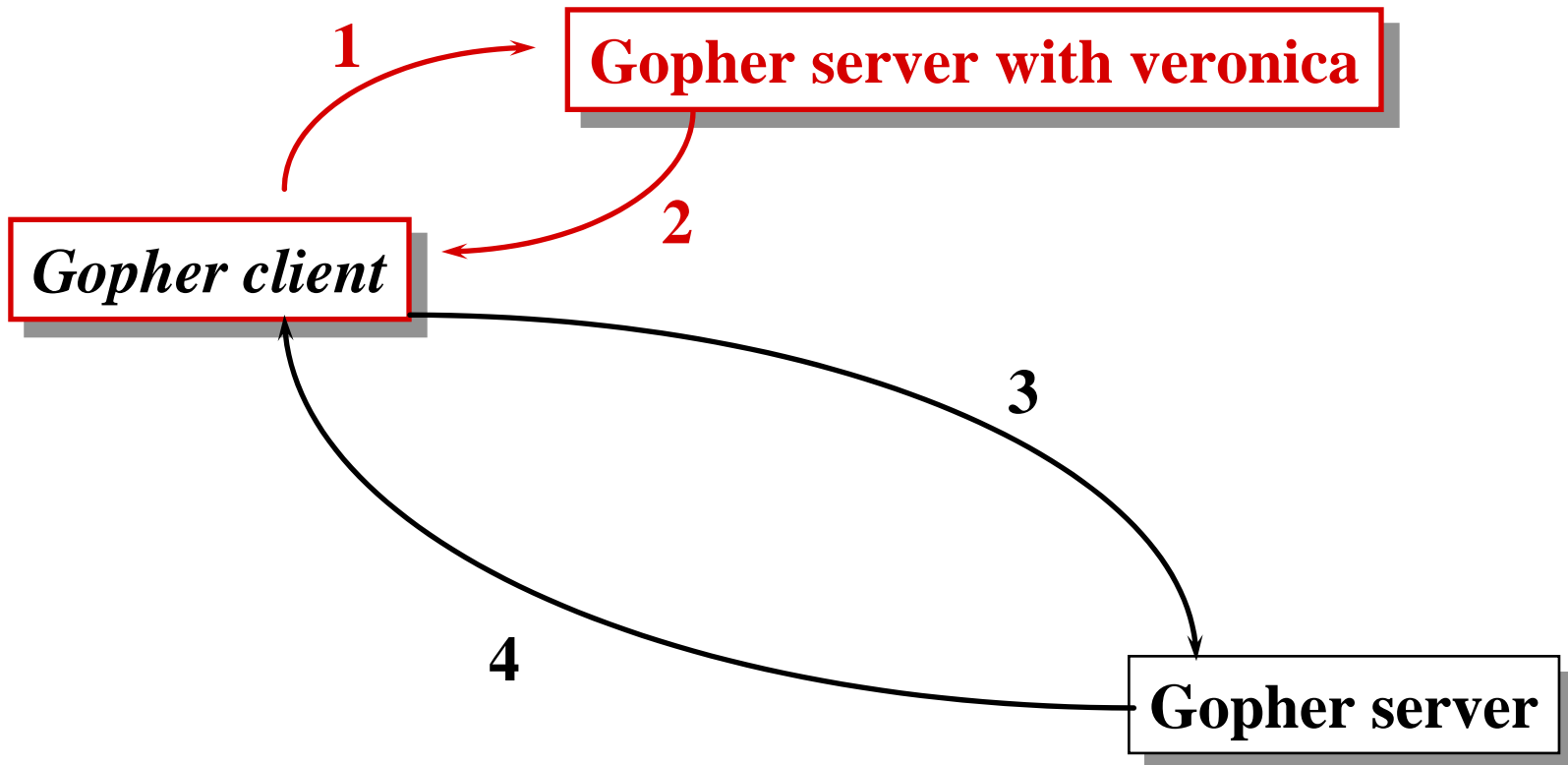
Veronica: access

- **Veronica is simply accessed through a gopher client, which is already known by gopher users. Select veronica from a suitable gopher menu.**
- **There are no veronica clients per se.**
- **By default, veronica looks for an exact match with your search term.
So, use the trailing wild-card character (*) at the end of your search term, when appropriate.**

Veronica: results

- **The result of a veronica search is an automatically-generated gopher menu, customized according to the user's keyword specification.**
- **Items on this menu may be drawn from many gopher servers. These are functional gopher items, immediately accessible via the gopher client. You need never know which server is actually involved in filling your request for information.**

Veronica and gopher are used together



Veronica: services provided by the system

- **The veronica service comprises two functions:**
 - 1) harvesting menu data from gopher servers, and preparing it for use;
 - 2) offering searches of that database to gopher clients.
- **These two functions are not necessarily provided by the same host computer. Most users and administrators of veronica search servers will not need to be concerned with the first phase of the process. Operators of veronica query-engines can obtain a prepared dataset.**

Veronica: limitations and problems

- **Only the name of an item in a gopher menu can be searched, not the contents of the text documents in gopher space.**
- **The matching entries listed are often times out of context.**
- **The degree of redundancy in the matching entries listed, can be high, reflecting redundant items.**
- **As the WWW and search systems for the WWW have become more powerful, gopher and veronica have become obsolete.**