



Chapter 22

Web Hosting and Internet Servers

Web Hosting Basics (1)

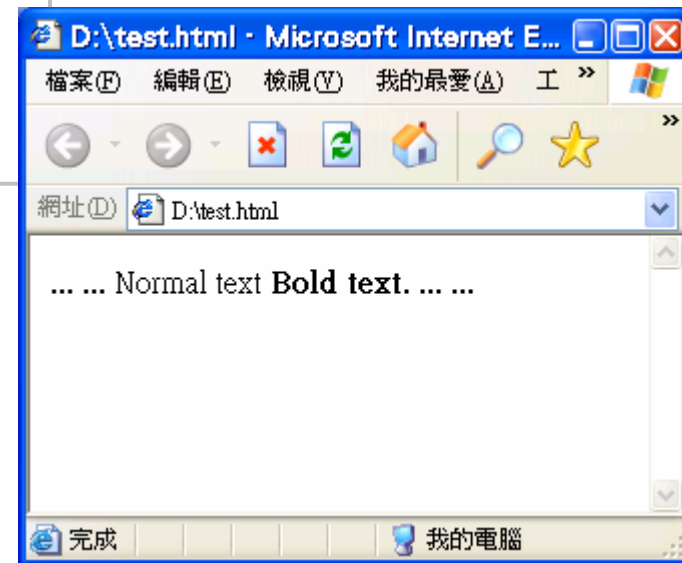
- ❑ Three major techniques in WWW (World Wide Web) System
 - HTML
 - HTTP
 - URL
- ❑ HTML (1) – HyperText Markup Language
 - Providing a means to describe the structure of text-based information in a document.
 - The original HTML is created by Tim Berners-Lee.
 - Published in 1993 by the IETF as a formal "application" of SGML (with an SGML Document Type Definition defining the grammar).
 - The HTML specifications have been maintained by the World Wide Web Consortium (W3C).
 - <http://www.w3.org/>

Web Hosting Basics (2)

□ HTML (2)

- Mark-up the text and define presentation effect by HTML Tags.

```
<html>
<body>
...
...
Normal text <strong>Bold text</strong>.
...
...
</body>
</html>
```



Web Hosting Basics (3)

❑ HTTP – Hyper-Text Transfer Protocol

- A TCP-based protocol
- Communication method between client and server, both browsers and web servers have to follow this standard.
- Originally designed to transmit HTML pages.
- Now it is used to format, transmit, and link documents of variety media types
 - Text, picture, sound, animation, video, ...
- HTTPS – secured version.

Web Hosting Basics (4)

□ URL – Uniform Resource Locator

- Describe how to access an object shared on the Internet
- Format
 - Protocol :// [[username [:password] @] hostname [:port]] [/directory] [/filename]
- ex:
 - <http://www.cs.nctu.edu.tw/>
 - <ftp://ftp.isu.edu.tw/>
 - <telnet://ptt.cc/>

WHERE

The file is on the machine www.apache.org in the directory /foundation.

<http://www.apache.org/foundation/FAQ.html>

HOW

Hyper-Text Transfer Protocol

WHAT

The file I want is FAQ.html.

Web Hosting Basics (5)

□ URL Protocols

Proto	What it does	Example
http	Accesses a remote file via HTTP	http://www.csie.nctu.edu.tw
https	Accesses a remote file via HTTP/SSL	https://www.csie.nctu.edu.tw
ftp	Accesses a remote file via FTP	ftp://ftp.csie.nctu.edu.tw/
mailto	Sends mail	mailto:chwong@csie.nctu.edu.tw
news	Accesses Usenet newsgroups	news:tw.bbs.comp.hardware
telnet	Logs in to a remote computer	telnet://bbs.csie.nctu.edu.tw
file	Access a local file	file:///home/chwong/.tcshrc

Web Hosting Basics (6)

❑ Using "telnet" to web server

```
chbsd [/home/chwong] -chwong- telnet www.cs.nctu.edu.tw 80
Trying 140.113.235.111...
Connected to www.cs.nctu.edu.tw.
Escape character is '^]'.
GET / HTTP/1.0
```

```
HTTP/1.0 200 OK
Date: Wed, 27 Dec 2006 00:46:53 GMT
Server: Apache
Last-Modified: Wed, 25 Jan 2006 12:31:34 GMT
ETag: "250404-aa-b5eb580"
Accept-Ranges: bytes
Content-Length: 170
Content-Type: text/html
X-Cache: MISS from cswproxy.cs.nctu.edu.tw
Via: 1.0 cswproxy.cs.nctu.edu.tw:80 (squid/2.6.STABLE3)
Connection: close
```

```
<html>
<head>
<title>NCTU -- CS</title>
<META HTTP-EQUIV="Pragma" CONTENT="no-cache">
<meta http-equiv="refresh" content="0; URL=chinese/doc/index.html">
</head>
</html>
Connection closed by foreign host.
```

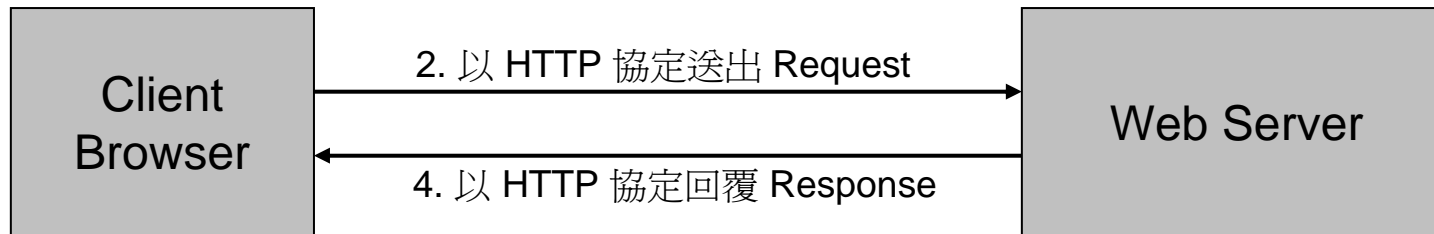
Web Hosting Basics (7)

□ Client-server architecture

- Web Server: Answer HTTP request
- Web Client: Request certain page using URL

1. 以 URL 描述索取的資源位置向 Server 發送要求

3. 從 URL 描述的位置將 HTML 文件取出並回覆給 Client

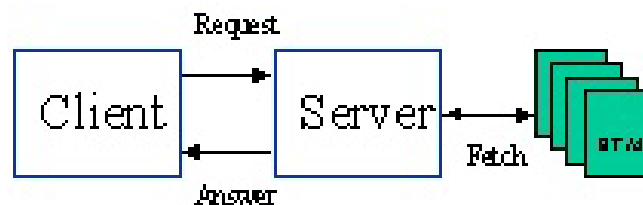


5. 接收到 HTML 後由 Browser 解析後根據 HTML 描述定義將資料呈現出來

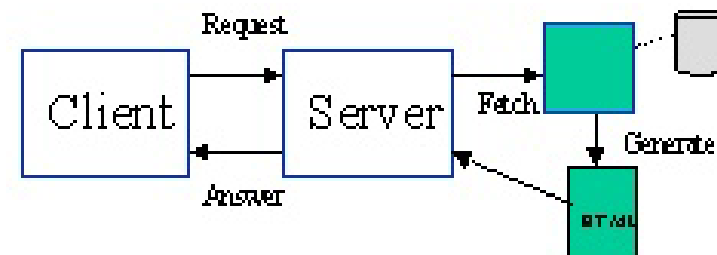
Web Hosting Basics (8)

❑ Static vs. Dynamic Pages

Static vs. Dynamic



An HTML document stored in a file is a static Web page. Unless the file is edited, its content does not change.

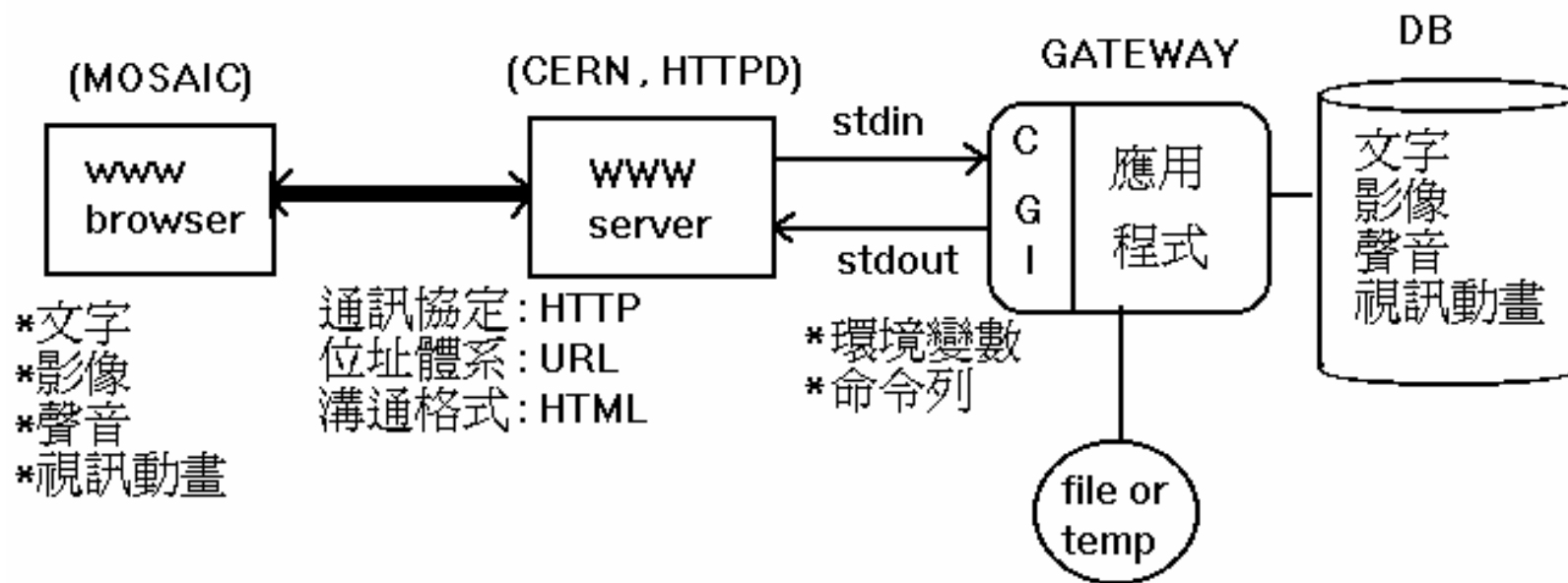


A dynamic Web page is generated or partially generated each time it is accessed.

Web Hosting Basics (9)

□ Common Gateway Interface

- A specification that allows an HTTP server to exchange information with other programs



(圖 1)WWW主從架構應用示意圖



Virtual Interface

Virtual Interface

❑ Idea

- Let single machine responds to more IP addresses than it has physical network interfaces
- Each of the virtual network interface can be associated with different domain name

❑ Ex:

- One NIC with two IP

```
sabsd [/home/chwong] -chwong- ifconfig
sk0: flags=8843<UP,BROADCAST,RUNNING,SIMPLEX,MULTICAST> mtu 1500
options=b<RXCSUM,TXCSUM,VLAN_MTU>
inet 140.113.17.215 netmask 0xfffff00 broadcast 140.113.17.255
inet 140.113.17.221 netmask 0xffffffff broadcast 140.113.17.221
ether 00:11:d8:06:1e:81
media: Ethernet autoselect (100baseTX <full-duplex,flag0,flag1>)
status: active
lo0: flags=8049<UP,LOOPBACK,RUNNING,MULTICAST> mtu 16384
inet 127.0.0.1 netmask 0xff000000
```

Virtual Interface Configuration – FreeBSD

❑ Using “ifconfig” command and “alias” option

- % ifconfig sk0 inet 140.113.17.221 netmask 255.255.255.255 alias
- % ifconfig sk0 inet 140.113.17.221 delete
(when you want to delete it)

❑ Specify in /etc/rc.conf

```
ifconfig_sk0="inet 140.113.17.215 netmask 255.255.255.0"  
ifconfig_sk0_alias0="inet 140.113.17.221 netmask 255.255.255.255"  
defaultrouter="140.113.17.254"  
hostname="sabsd"  
...
```

Virtual Interface Configuration – Linux

❑ Using ifconfig command

- % ifconfig eth0:0 140.113.235.6 netmask 255.255.255.0 up

❑ Add file under /etc/sysconfig/network-scripts/

- Original IP: /etc/sysconfig/network-scripts/ifcfg-eth0
- Add /etc/sysconfig/network-scripts/ifcfg-eth0:0

```
DEVICE=eth0:0  
BOOTPROTO=static  
BROADCAST=140.113.235.255  
IPADDR=140.113.235.6  
NETMASK=255.255.255.0  
NETWORK=140.113.235.0  
ONBOOT=yes
```

Virtual Interface Configuration – Solaris

❑ Edit `/etc/hostname.interface:1` and `/etc/inet/hosts`

❑ Ex:

- `/etc/hostname.hme0`
- Edit `/etc/hostname.hme0:1` and `/etc/inet/hosts`

```
ccsun3 [/u/dcp/94/9455832] -chwong- cat /etc/hostname.hme0
ccsun3
ccsun3 [/u/dcp/94/9455832] -chwong- cat /etc/hostname.hme0:1
ccsun10
ccsun3 [/u/dcp/94/9455832] -chwong- cat /etc/inet/hosts
127.0.0.1      localhost
140.113.209.103 ccsun3
140.113.209.110 ccsun10
ccsun3 [/u/dcp/94/9455832] -chwong- ifconfig -a
lo0: flags=1000849<UP,LOOPBACK,RUNNING,MULTICAST,IPv4> mtu 8232 index 1
    inet 127.0.0.1 netmask ffffffff
hme0: flags=1000843<UP,BROADCAST,RUNNING,MULTICAST,IPv4> mtu 1500 index 2
    inet 140.113.209.103 netmask fffffff0 broadcast 140.113.209.255
hme0:1: flags=1000843<UP,BROADCAST,RUNNING,MULTICAST,IPv4> mtu 1500 index 2
    inet 140.113.209.110 netmask fffffff0 broadcast 140.113.209.255
```