



Chapter 22

Web Hosting and Internet Servers

Web Hosting Basics (1)

> HTTP

- Hyper-Text Transfer Protocol
 - **TCP-based protocol**
 - **Used to format, transmit, and link documents of variety media types**
 - > Text, picture, sound, animation, video, ...

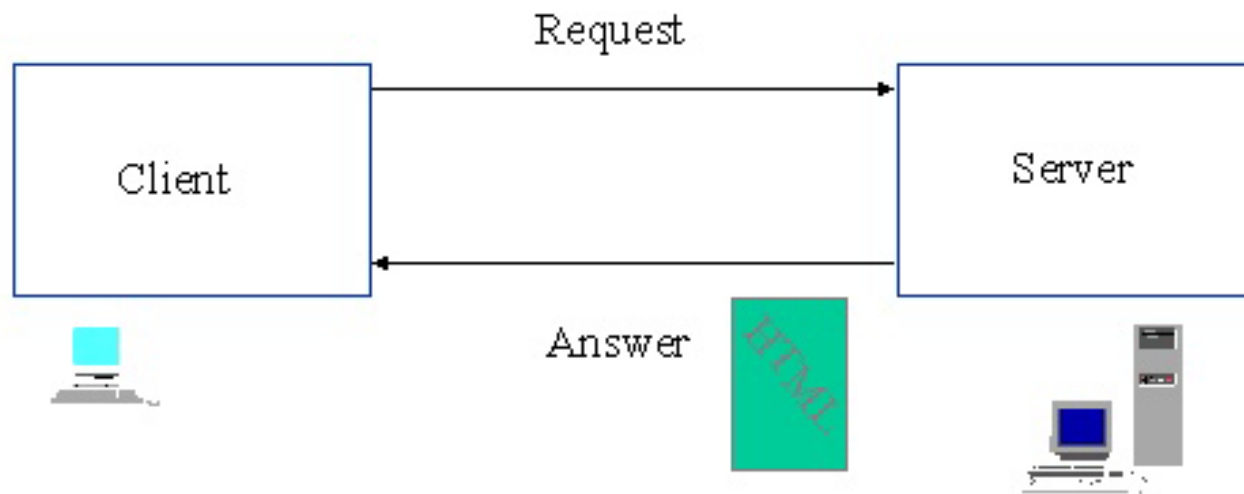
```
<html>
  <head>
    <title>What is HTTP?</title>
  </head>
  <body>
    <font color="blue">This is a text</font>
    
    <embed src="namo2.mid" volume=100 autostart=true ></embed>
    <a href="sounds/road.mid">Take Me Home, Country Road(26K)</a>
    <object id="video" width="480" height="370" classid="clsid:22D6F312-B0F6-11D0-94AB-0080C74C7E95">
      <param name="showstatusbar" value="1">
      <param name="autosize" value="0">
      <param name="showcontrols" value="1">
      <param name="autostart" value="1">
      <param name="showdisplay" value="0">
      <param name="src" value="http://so-nettv.com.tw/even/incs/urltarget2.asp?stream=2">
      <embed src="http://so-nettv.com.tw/even/incs/urltarget2.asp?stream=2" showstatusbar="1" autosize="0" sl
    </object>
  </body>
</html>
```

Web Hosting Basics (2)

> Client-server architecture

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

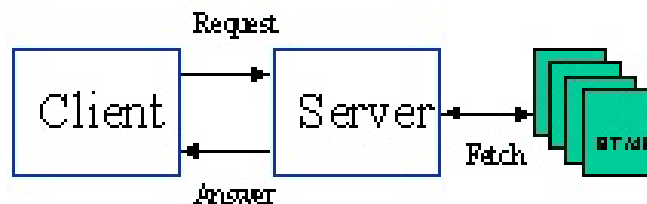
HTTP Client-Server Architecture



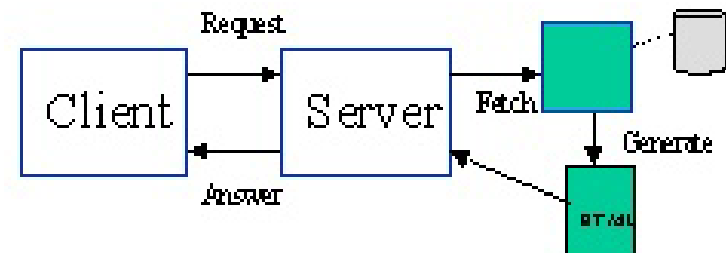
Web Hosting Basics (3)

> 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.

URL (1)

> Uniform Resource Locator

- Describe how to access an object shared on the Internet
 - **Protocol**
 - **Hostname**
 - **TCP/IP port**
 - **Directory**
 - **Filename**

Exhibit A Parts of a URL

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`.

URL (2)

> 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:tytsai@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/tytsai/.tcshrc

URL (3)

> Using "telnet" to web server

```
tytsai@ccduty:~> telnet www.csie.nctu.edu.tw 80
Trying 140.113.209.63...
Connected to www.csie.nctu.edu.tw.
Escape character is '^]'.
GET /note.html HTTP/1.0

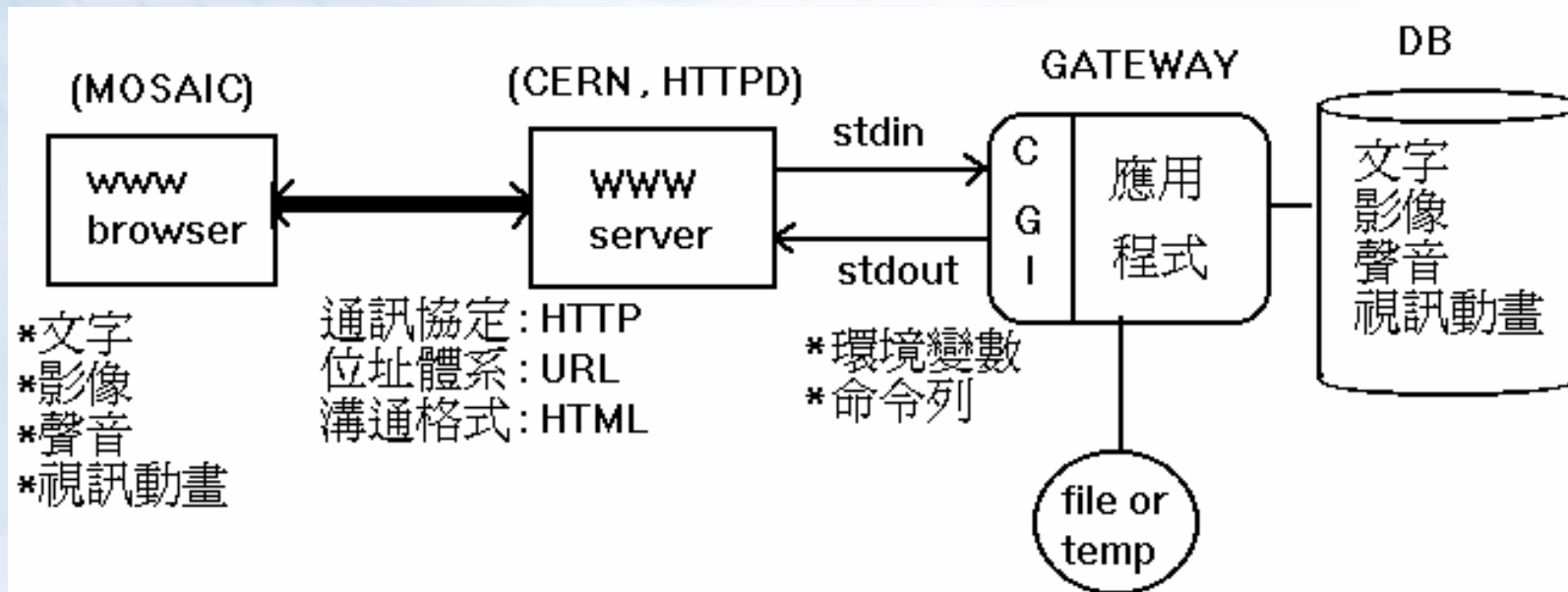
HTTP/1.1 200 OK
Date: Sat, 04 Dec 2004 04:39:22 GMT
Server: Apache/1.3.31 (Unix) mod_ssl/2.8.18 OpenSSL/0.9.7d PHP/4.3.7 PHP/3.0.18
Last-Modified: Tue, 27 Jul 2004 04:58:25 GMT
ETag: "10e2a57-3a5-4105e0f1"
Accept-Ranges: bytes
Content-Length: 933
Connection: close
Content-Type: text/html

<html>
<title>最新消息!</title>
...
</html>
Connection closed by foreign host.
```

CGI

> 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

> 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:

- smtp.csie.nctu.edu.tw one NIC with two IP

```
{tytsai@smtp}/etc> ifconfig
fxp0: flags=8843<UP,BROADCAST,RUNNING,SIMPLEX,MULTICAST> mtu 1500
    inet 140.113.235.235 netmask 0xffffffff broadcast 140.113.235.255
    inet 140.113.235.211 netmask 0xffffffff broadcast 140.113.235.211
    ether 00:03:47:24:6c:e2
    media: Ethernet autoselect (100baseTX <full-duplex>)
    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 fxp0 inet 140.113.235.211 netmask 255.255.255.255 alias
- % ifconfig fxp0 inet 140.113.235.211 delete
(when you want to delete it)

> Specify in /etc/rc.conf

```
ifconfig_fxp0="inet 140.113.235.235 netmask 255.255.255.0"  
ifconfig_fxp0_alias0="inet 140.113.235.211 netmask 255.255.255.255"  
defaultrouter="140.113.235.254"  
hostname="smtp"  
...
```

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`

```
tytsai@ccsun3:/etc/inet> cat /etc/hostname.hme0
ccsun3
tytsai@ccsun3:/etc/inet> cat /etc/hostname.hme0:1
ccsun10
tytsai@ccsun3:/etc/inet> cat /etc/inet/hosts
127.0.0.1    localhost
140.113.209.103 ccun3
140.113.209.110 ccun10
tytsai@ccsun3:/etc/inet> ifconfig -a
lo0: flags=1000849<UP,LOOPBACK,RUNNING,MULTICAST,IPv4> mtu 8232 index 1
    inet 127.0.0.1 netmask ff000000
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
```