

WEB SERVERS

- Provide responses to browser requests, either existing documents or dynamically built documents
- All communications between browsers and servers use Hypertext Transfer Protocol (HTTP)
- Apache, Microsoft internet information server (IIS)

Web Server Operation

- Web servers run as background processes in the operating system
 - Monitor a communications port on the host, accepting HTTP messages when they appear
- All current Web servers came from either
 1. The original from CERN
 2. The second one, from NCSA

Web Server Operation Details

- Web servers have two main directories:
 1. Document root (servable documents)
 2. Server root (server system software)
- Document root is accessed indirectly by clients
 - Its actual location is set by the server configuration file
 - Requests are mapped to the actual location
 - Path /admin/web/topdocs/xyz.html
- Server root – stores server and its support software
- Virtual document trees : many servers allow part of the servable document collection to be stored outside the directory of document root. The secondary areas from which document can be served are called virtual document trees.
- Proxy servers : Some servers can serve documents that are in the document root of other machines on the web and those servers are called proxy servers.

Difference between apache and IIS

Apache Web Server	IIS web Server
<ol style="list-style-type: none">1. It is an open source product.2. Apache web server is useful on both UNIX based systems and on windows platform.3. The apache web server can be	<ol style="list-style-type: none">1. It is a vendorspecific product and can be used on windows only.2. IIS web server is used on windows platform.3. The IIS server can be controlled by modifying the window based management programs called IIS span-in. We can access 115 span-in by

controlled by editing the configuration file http.conf	going to control panel → Administrative tools → IIS admin
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1.5 URLs (uniform resource locators)

1.5.1 General form:

scheme: object-address

- The scheme is often a communications protocol, such as telnet or ftp
- For the http protocol, the object-address is: fully qualified domain name/doc path
- For the file protocol, only the doc path is needed
- Host name may include a port number
- URLs cannot include spaces or any of a collection of other special characters (semicolons, colons, ...)
- The doc path may be abbreviated as a partial path
 - The rest is furnished by the server configuration
- If the doc path ends with a slash, it means it is a directory

1.6 Multipurpose Internet Mail Extensions (MIME)

- Originally developed for email
- Used to specify the form of a file returned by the server
- Type specifications
 - Form:

type/subtype

- Examples: text/plain, text/html, image/gif, image/jpeg, video/mpeg, video/rm, video/quicktime

Browser gets the type explicitly from the server

1.7 The HyperText Transfer Protocol

- The protocol used by ALL Web communications
- Current version of HTTP is 1.1
- Consists of 2 phases
 - request phase
 - response phase

http communication[request or response] between a browser and a web server consists of 2 parts → header-consists information about communication and

→ body – consists data of communication

1.7.1 Request Phase

□ Form:

1. HTTP method domain part of URL HTTP ver.
2. Header fields
3. blank line semantics
4. Message body

1.7 The HyperText Transfer Protocol: Methods

- GET - Fetch a document
- POST - Execute the document, using the data in body
- HEAD - Fetch just the header of the document
- PUT - Store a new document on the server
- DELETE - Remove a document from the server

□ An example of the first line of a request:

GET /degrees.html HTTP/1.1

■ Format of second line header field (optional)

□ Field name followed by a colon and the value of the field.

HTTP Headers

■ Four categories of header fields:

General, request, response, & entity

■ Common request fields:

Accept: text/plain

Accept: text/*

If-Modified_since: date

■ Common response fields:

Content-length: 488

Content-type: text/html

- Can communicate with HTTP without a browser

➤ telnet blanca.uccs.edu http

➤ Creates connection to http port on server

http command eg:

GET /respond.html HTTP/1.1

Host: blanca.uccs.edu

1.7.2 Response phase

■ Form:

1. Status line
2. Response header fields
3. blank line
4. Response body

■ Status line format:

HTTP version status code explanation

■ Example: HTTP/1.1 200 OK

(Current version is 1.1)

- Status code is a three-digit number; first digit specifies the general status

1 => Informational

2 => Success

3 => Redirection

4 => Client error

5 => Server error

- The header field, Content-type, is required

HTTP Response Example

HTTP/1.1 200 OK

Date: Tues, 18 May 2004 16:45:13 GMT

Server: Apache (Red-Hat/Linux)

Last-modified: Tues, 18 May 2004 16:38:38 GMT

Etag: "841fb-4b-3d1a0179"

Accept-ranges: bytes

Content-length: 364

Connection: close

Content-type: text/html, charset=ISO-8859-1

- Both request headers and response headers must be followed by a blank line

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