



WWW and HTTP

ARCHITECTURE

*The **WWW** today is a distributed client/server service, in which a client using a browser can access a service using a server. However, the service provided is distributed over many locations called sites.*

Topics discussed in this section:

Client (Browser)

Server

Uniform Resource Locator

Cookies

Figure *Architecture of WWW*

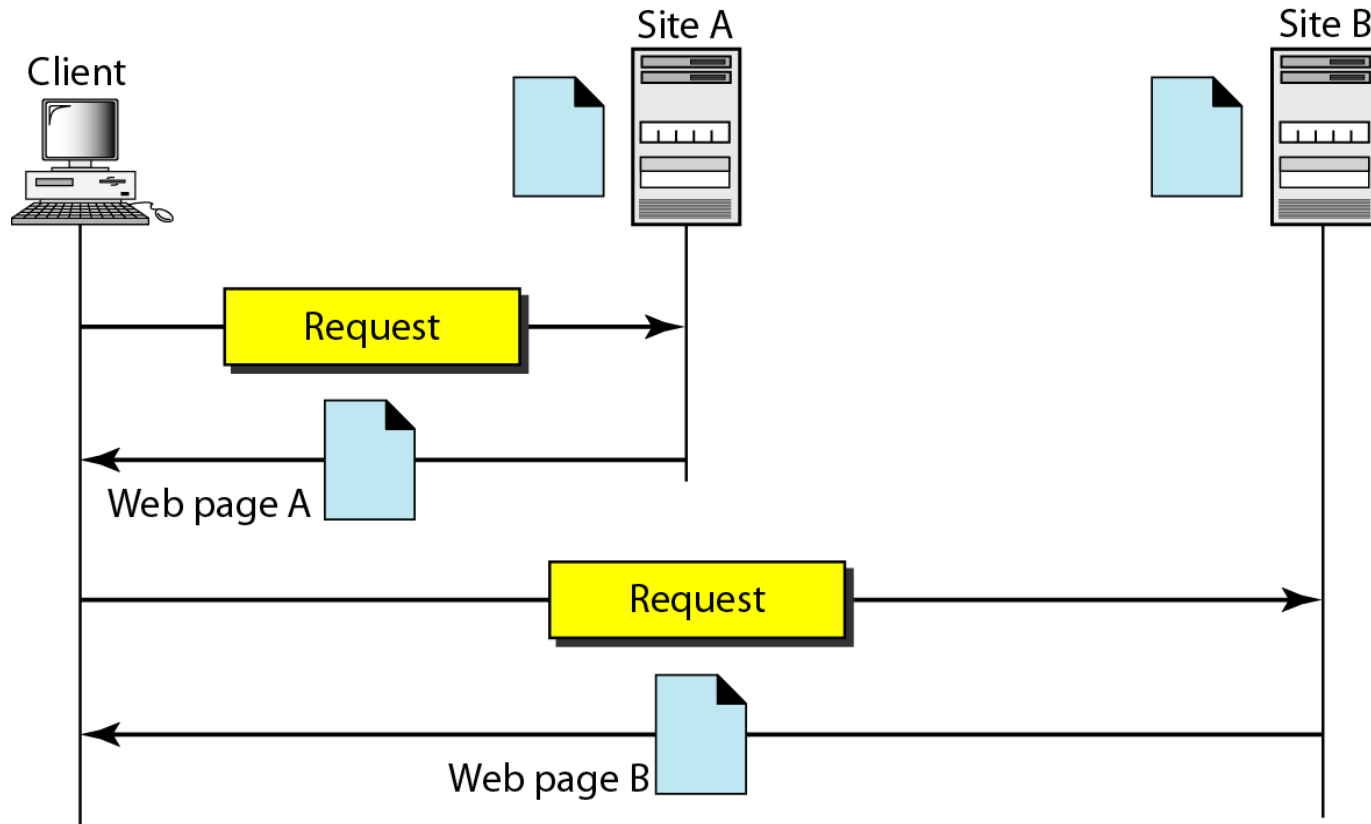
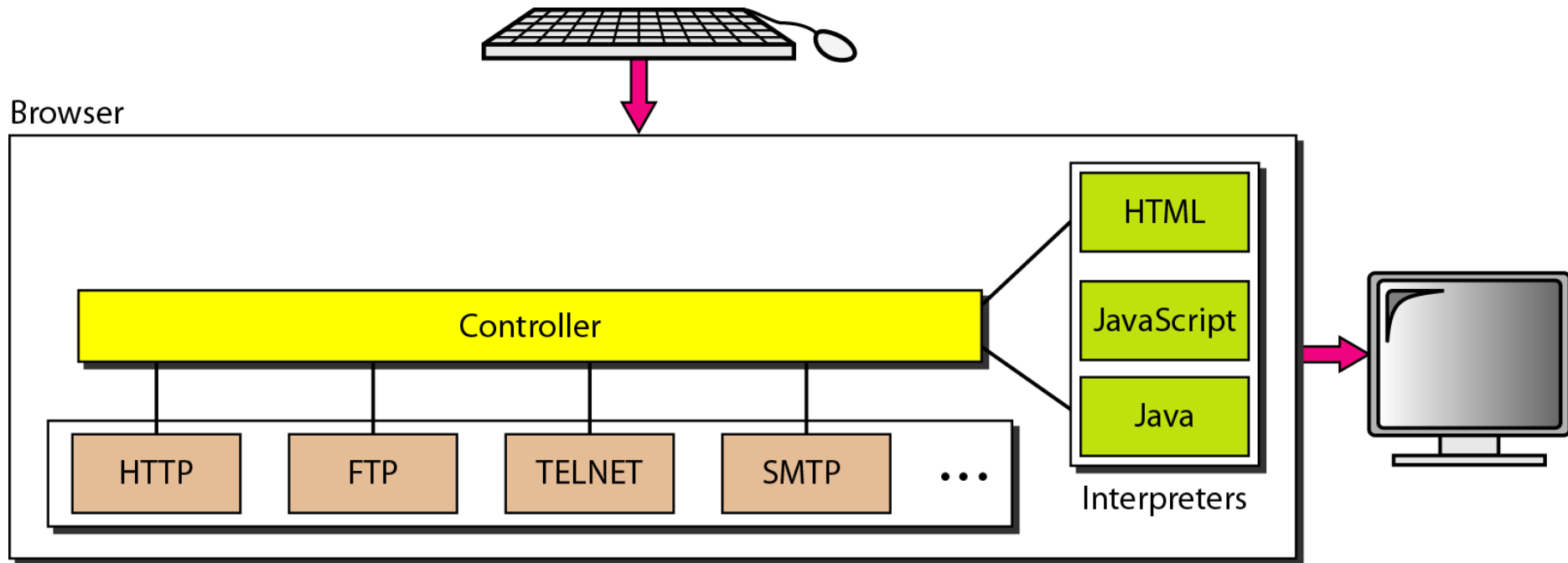


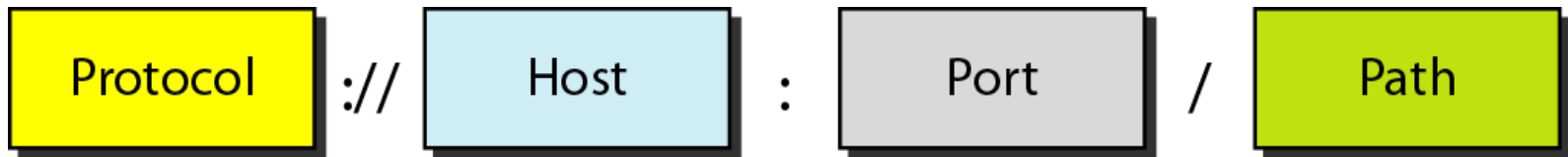
Figure *Browser*



Browser consists of three components:

- 1. Controller,**
- 2. Client Protocols**
- 3. Interpreters**

Figure *URL*



WEB DOCUMENTS

*The documents in the WWW can be grouped into three broad categories: **static**, **dynamic**, and **active**. The category is based on the time at which the contents of the document are determined.*

Topics discussed in this section:

Static Documents

Dynamic Documents

Active Documents

Figure *Static document*

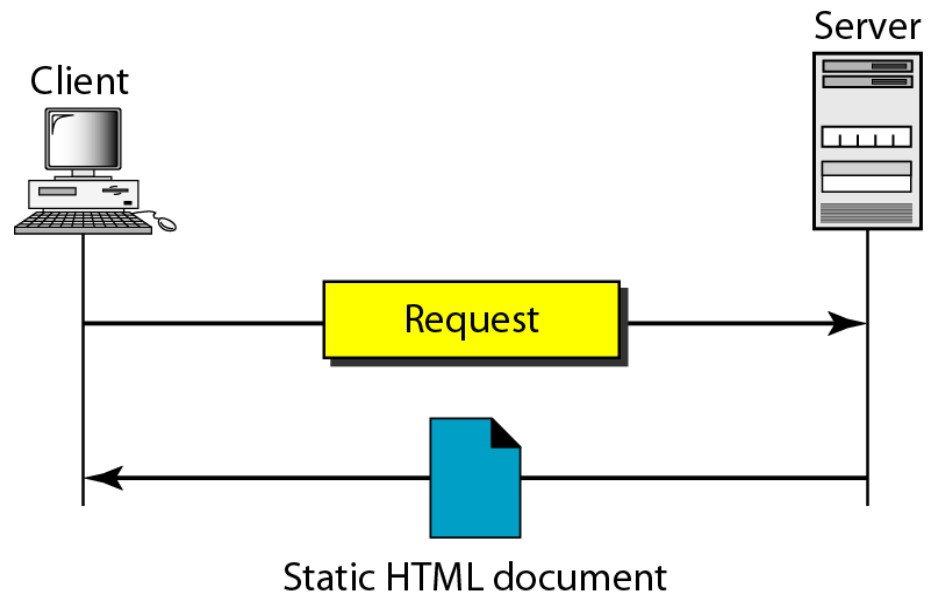


Figure *Dynamic document using CGI*

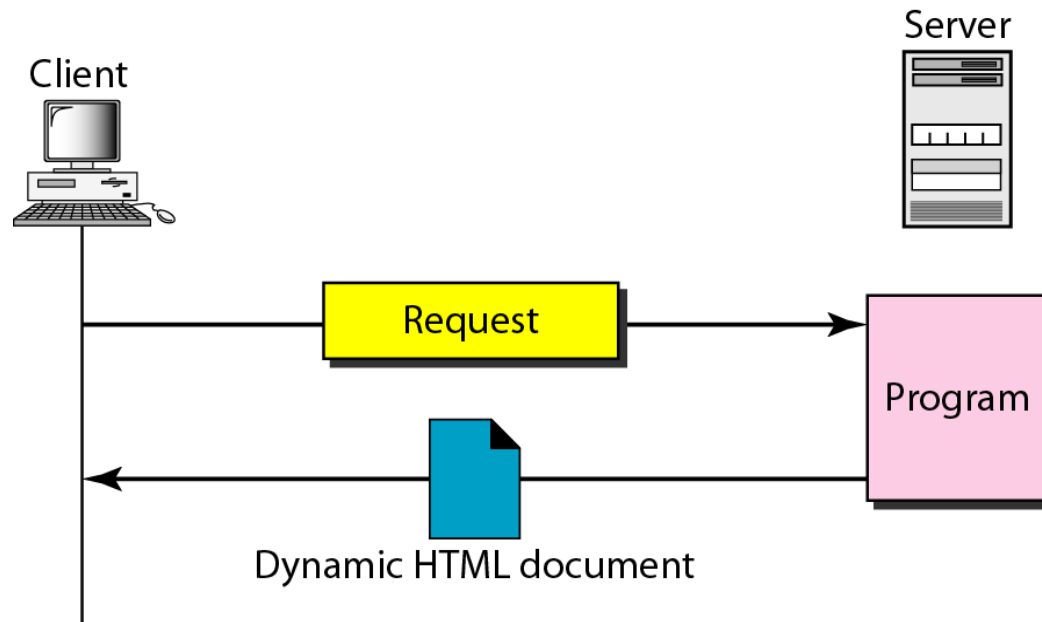
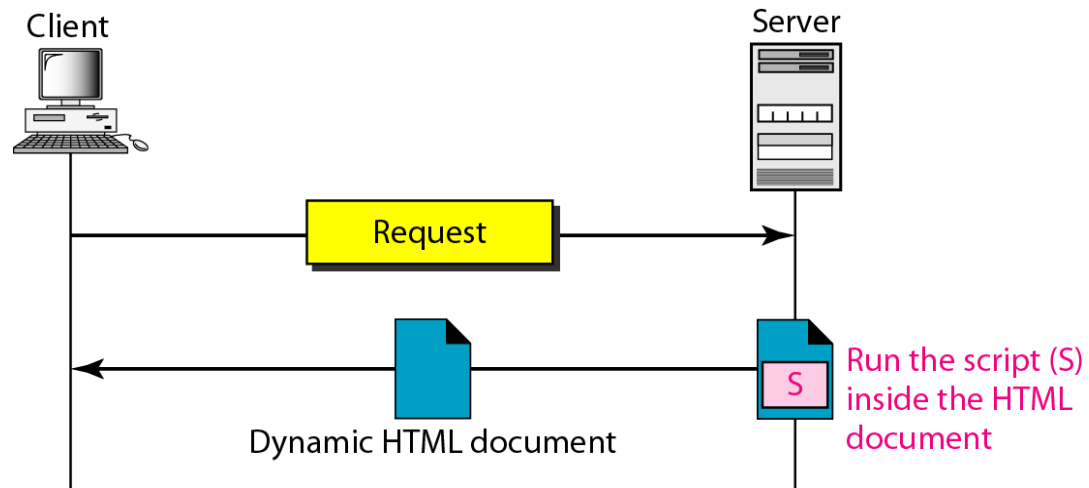



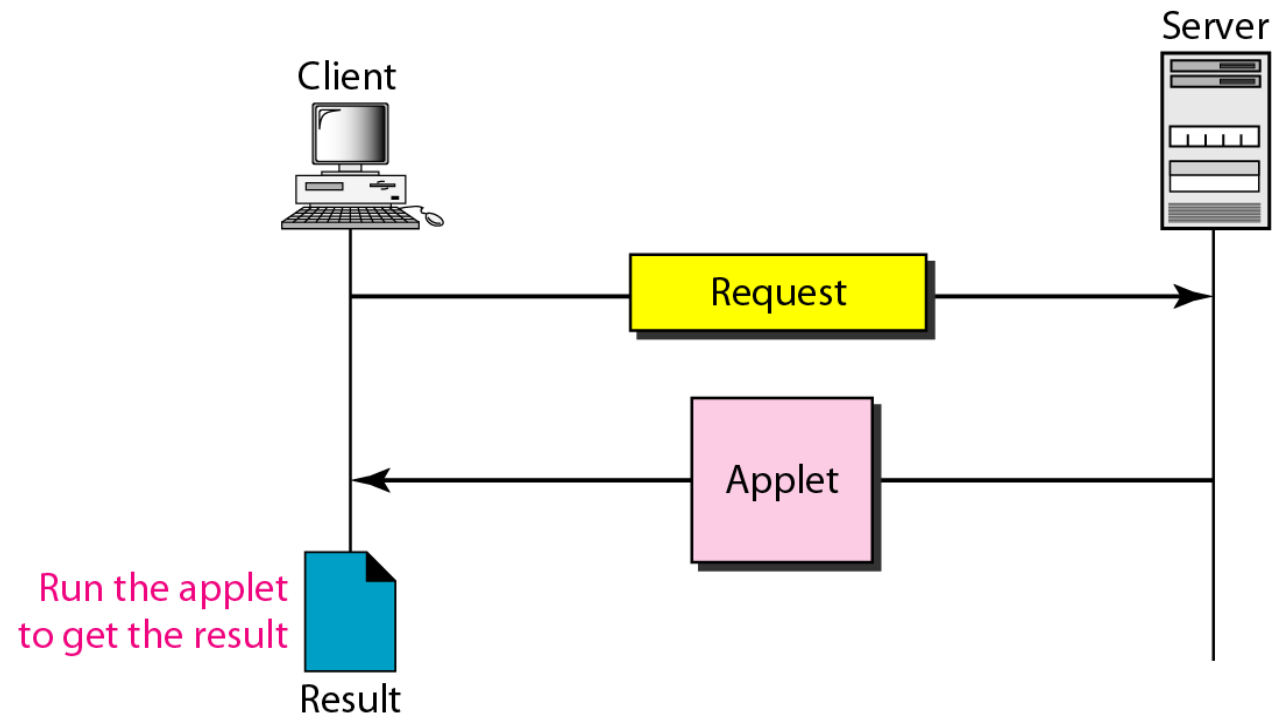
Figure *Dynamic document using server-site script*






Dynamic documents are sometimes referred to as server-site dynamic documents.

Figure *Active document using Java applet*





Active documents are sometimes referred to as client-site dynamic documents.

HTTP

The Hypertext Transfer Protocol (HTTP) is a protocol used mainly to access data on the World Wide Web. HTTP functions as a combination of FTP and SMTP.

Topics discussed in this section:

HTTP Transaction

Persistent Versus Nonpersistent Connection



HTTP uses the services of TCP on well-known port 80.

Figure *HTTP transaction*

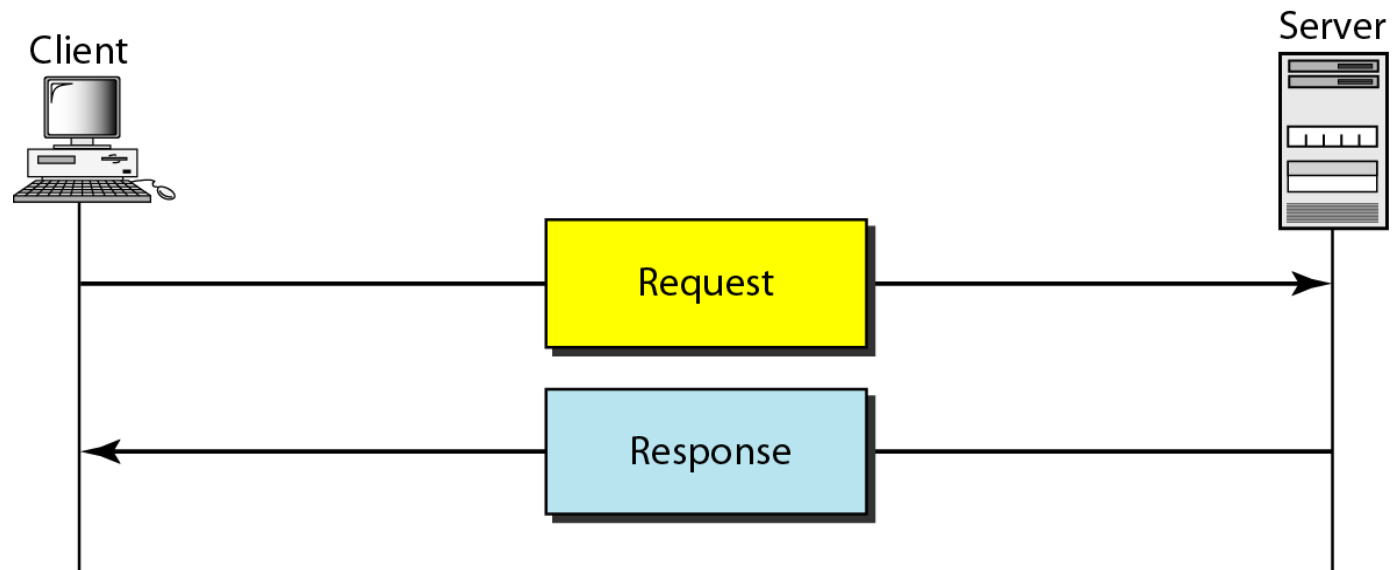
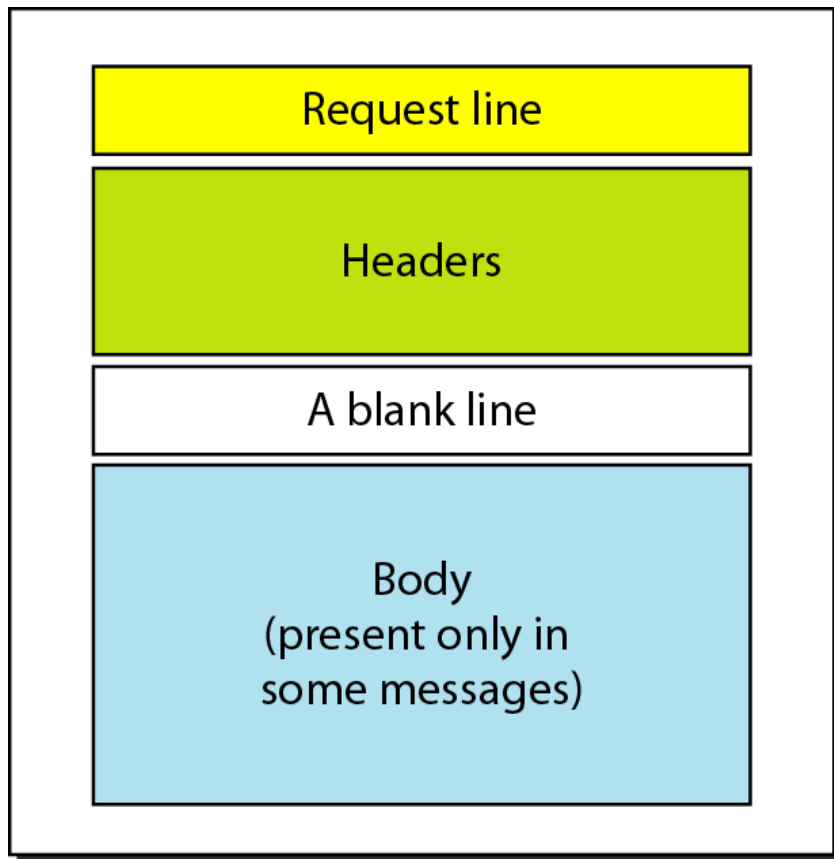
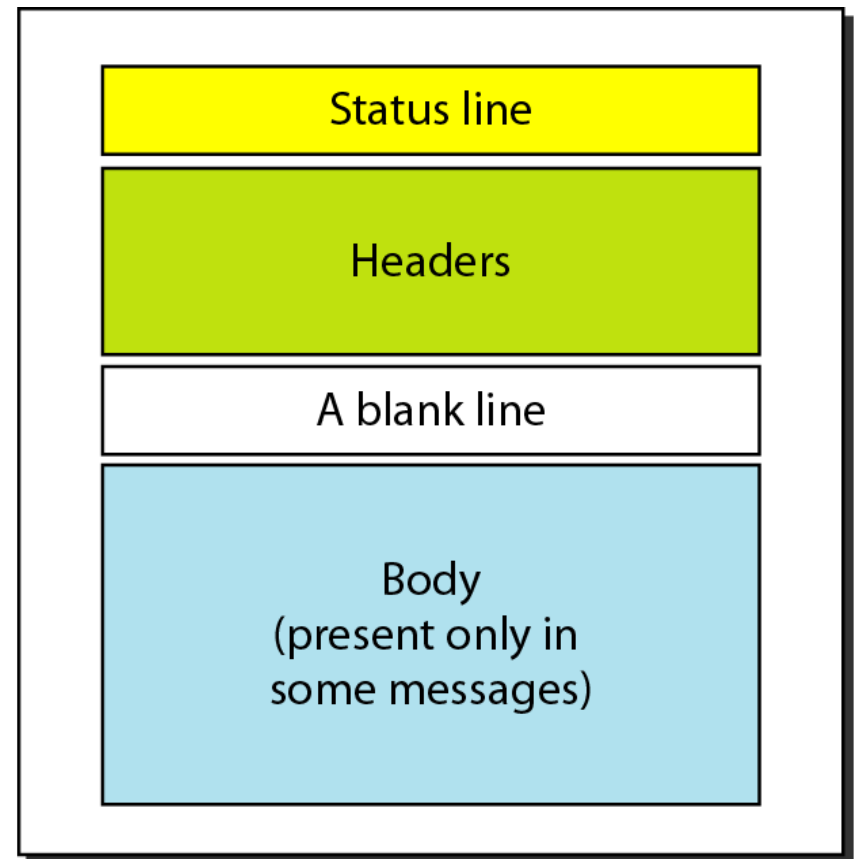


Figure *Request and response messages*



Request message



Response message

Figure *Request and status lines*

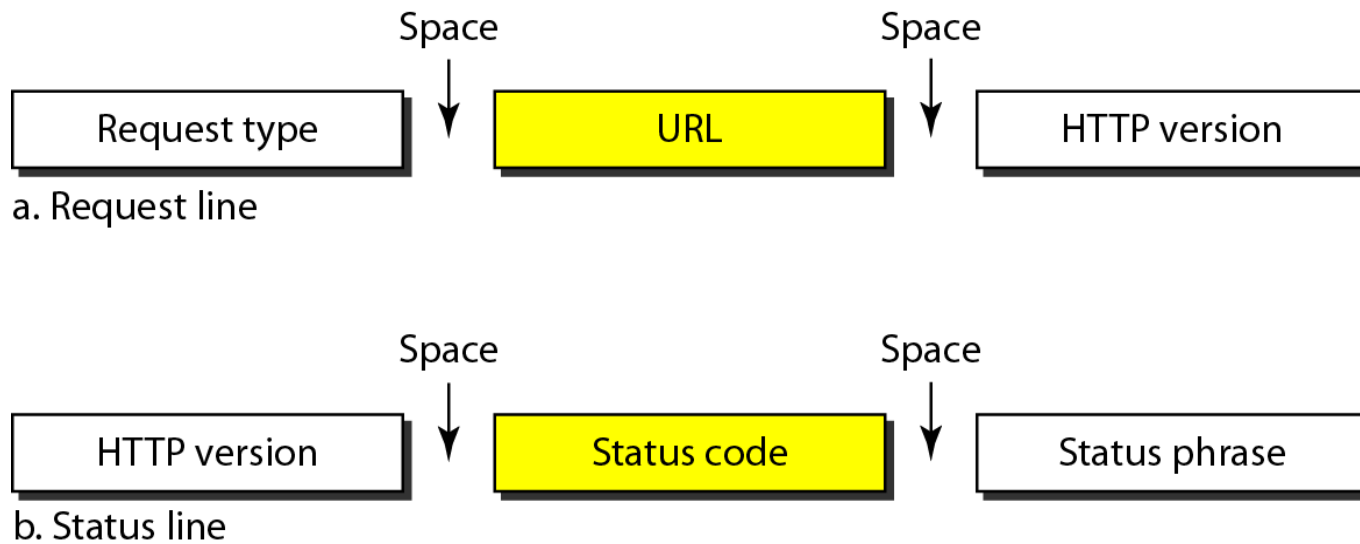


Table *Methods of Request type*

<i>Method</i>	<i>Action</i>
GET	Requests a document from the server
HEAD	Requests information about a document but not the document itself
POST	Sends some information from the client to the server
PUT	Sends a document from the server to the client
TRACE	Echoes the incoming request
CONNECT	Reserved
OPTION	Inquires about available options

Table *Status codes*

<i>Code</i>	<i>Phrase</i>	<i>Description</i>
Informational		
100	Continue	The initial part of the request has been received, and the client may continue with its request.
101	Switching	The server is complying with a client request to switch protocols defined in the upgrade header.
Success		
200	OK	The request is successful.
201	Created	A new URL is created.
202	Accepted	The request is accepted, but it is not immediately acted upon.
204	No content	There is no content in the body.

Table *Status codes (continued)*

<i>Code</i>	<i>Phrase</i>	<i>Description</i>
Redirection		
301	Moved permanently	The requested URL is no longer used by the server.
302	Moved temporarily	The requested URL has moved temporarily.
304	Not modified	The document has not been modified.
Client Error		
400	Bad request	There is a syntax error in the request.
401	Unauthorized	The request lacks proper authorization.
403	Forbidden	Service is denied.
404	Not found	The document is not found.
405	Method not allowed	The method is not supported in this URL.
406	Not acceptable	The format requested is not acceptable.
Server Error		
500	Internal server error	There is an error, such as a crash, at the server site.
501	Not implemented	The action requested cannot be performed.
503	Service unavailable	The service is temporarily unavailable, but may be requested in the future.

Figure *Header format*

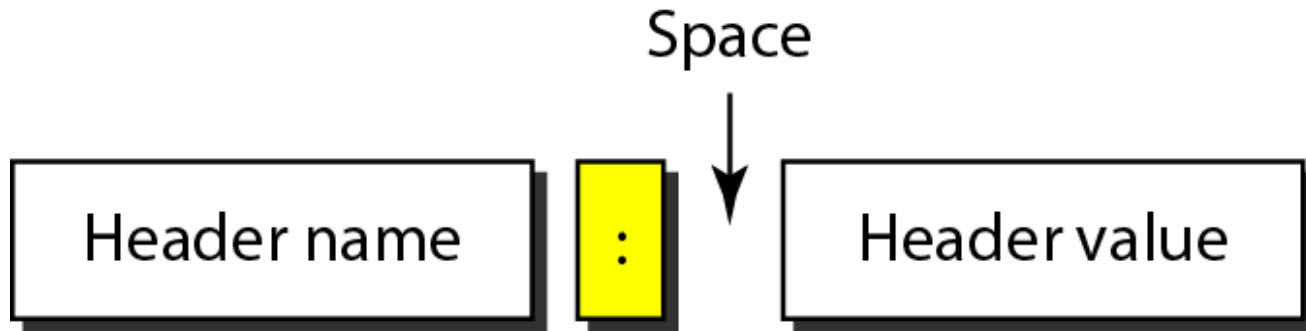


Table *General headers*

<i>Header</i>	<i>Description</i>
Cache-control	Specifies information about caching
Connection	Shows whether the connection should be closed or not
Date	Shows the current date
MIME-version	Shows the MIME version used
Upgrade	Specifies the preferred communication protocol

Table *Request headers*

<i>Header</i>	<i>Description</i>
Accept	Shows the medium format the client can accept
Accept-charset	Shows the character set the client can handle
Accept-encoding	Shows the encoding scheme the client can handle
Accept-language	Shows the language the client can accept
Authorization	Shows what permissions the client has
From	Shows the e-mail address of the user
Host	Shows the host and port number of the server
If-modified-since	Sends the document if newer than specified date
If-match	Sends the document only if it matches given tag
If-non-match	Sends the document only if it does not match given tag
If-range	Sends only the portion of the document that is missing
If-unmodified-since	Sends the document if not changed since specified date
Referrer	Specifies the URL of the linked document
User-agent	Identifies the client program

Table *Response headers*

<i>Header</i>	<i>Description</i>
Accept-range	Shows if server accepts the range requested by client
Age	Shows the age of the document
Public	Shows the supported list of methods
Retry-after	Specifies the date after which the server is available
Server	Shows the server name and version number

Table *Entity headers*

<i>Header</i>	<i>Description</i>
Allow	Lists valid methods that can be used with a URL
Content-encoding	Specifies the encoding scheme
Content-language	Specifies the language
Content-length	Shows the length of the document
Content-range	Specifies the range of the document
Content-type	Specifies the medium type
Etag	Gives an entity tag
Expires	Gives the date and time when contents may change
Last-modified	Gives the date and time of the last change
Location	Specifies the location of the created or moved document



HTTP version 1.1 specifies a persistent connection by default.
