HTTP

CyberQuince

WHAT IS HTTP?

The HyperText Transfer Protocol (HTTP), the Web's application-layer protocol, is at the heart of the Web.

It is defined in [RFC 1945] and [RFC 2616].

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HTTP is implemented in two programs: a **client** program and a **server** program. The client program and server program, executing on different end systems, talk to each other by exchanging HTTP messages.

HTTP defines the structure of these messages and how the client and server exchange the messages.

A WEB PAGE

- A **Web page** consists of objects

- An **object** is simply a file—such as an HTML file, a JPEG image, a Java applet, or a video clip

- Most Web pages consist of a **base HTML file** and several referenced objects

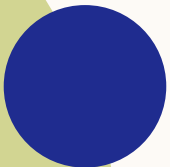- URL, Uniform Resource Locator, is the address of a n unique resource on the Web

THE URL

```
http://www.udemy.com/course_x/test.docx
```

THE URL

`http://`**`www.udemy.com`**`/course_x/test.docx`
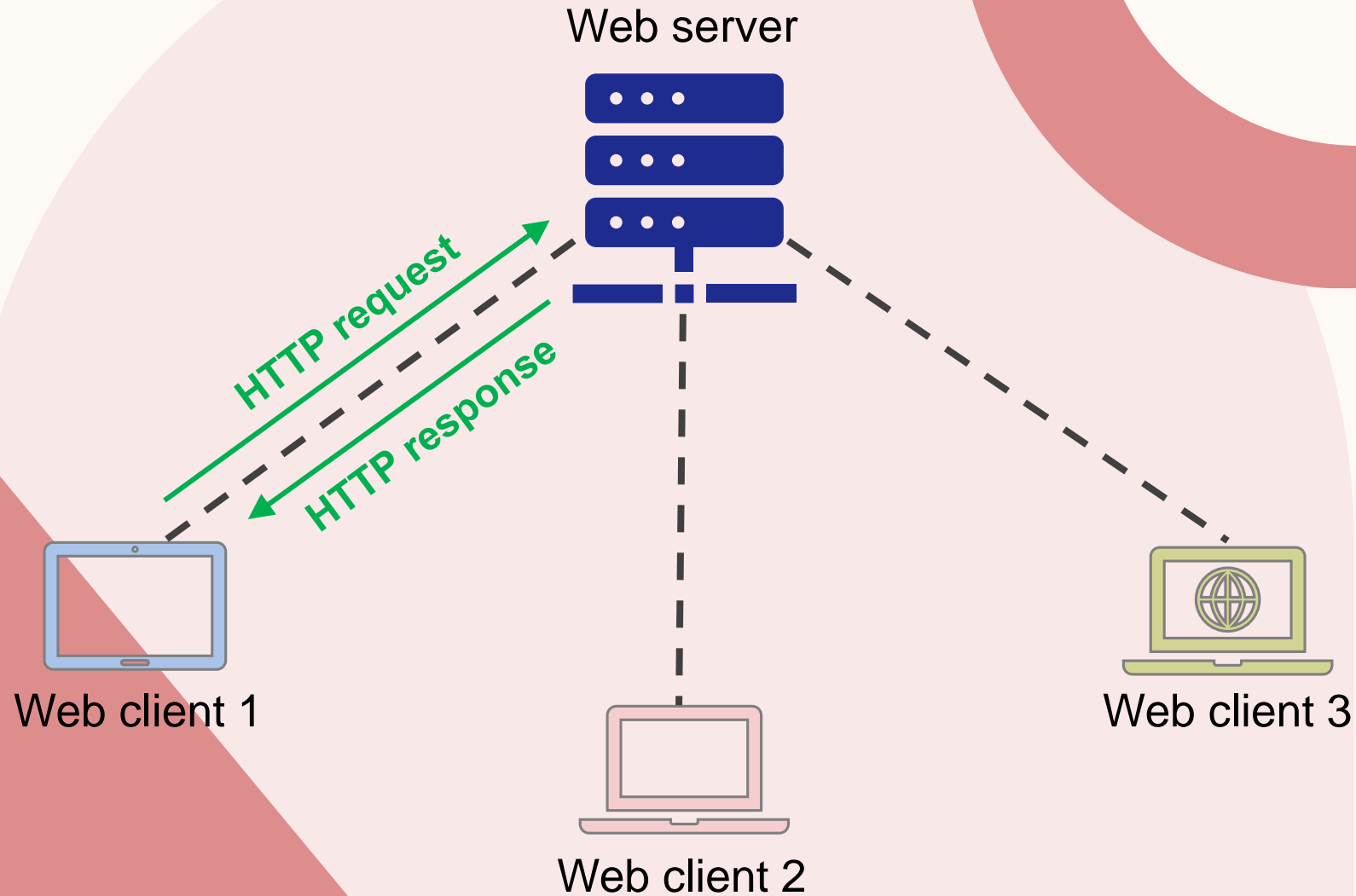
hostname

THE URL

`http://`**`www.udemy.com`**`/`**`course_x/test.docx`**

hostname   object's path

CLIENT-SERVER

CLIENT-SERVER

1. HTTP client initiates a TCP connection to the server www.udemy.com on port 80

2. HTTP client sends an HTTP request message to the server; the request message includes the path name /course_x/test.docx.

3. The HTTP server process receives the request message, finds the object /course_x/test.docs in its, encapsulates the object in an HTTP response message, and sends the response message back to the client.

4. HTTP client receives the response message. The TCP connection terminates.

HTTP REQUEST

```
GET /course_x/test.docx HTTP/1.1
Host: www.udemy.com
Connection: close
User-agent: Mozilla/5.0
Accept-language: fr
```

HTTP RESPONSE

```
HTTP/1.1 200 OK
Connection: close
Date: Tue, 09 Nov 2022 15:44:04 GMT
Server: Apache/2.2.3 (CentOS)
Last-Modified: Tue, 09 Nov 2022 15:11:03 GMT
Content-Length: 1088
Content-Type: text/html

(data data data data data ...)
```

HTTP RESPONSE

- **`200 OK`**: Request succeeded and the information is returned in the response.

- **`301 Moved Permanently`**: Requested object has been permanently moved; the new URL is specified in **`Location:`** header of the response message. The client software will automatically retrieve the new URL.

- **`400 Bad Request`**: This is a generic error code indicating that the request could not be understood by the server.

- **`404 Not Found`**: The requested document does not exist on this server.

- **`505 HTTP Version Not Supported`**: The requested HTTP protocol version is not supported by the server.

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