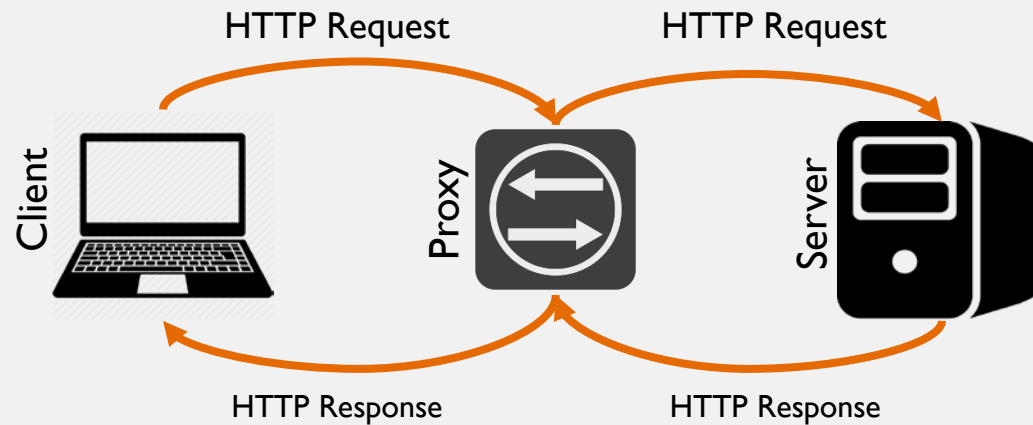# HTTP **PROXY**

CPSC 441 - Tutorial 4
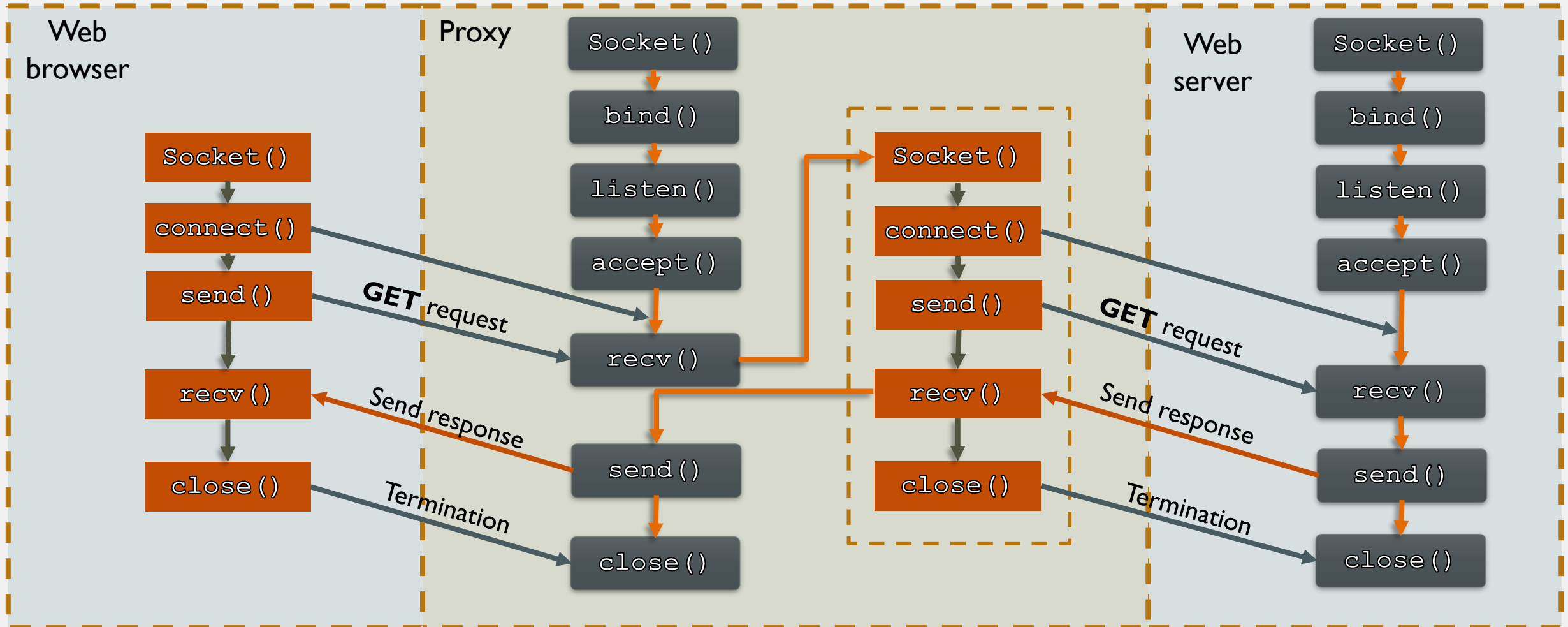
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WHAT IS A HTTP **PROXY**?

- For **client**:   Proxy is a **Server**
- For **server**:   Proxy is a **Client**

HTTP Request   HTTP Request

Client   Proxy   Server

HTTP Response   HTTP Response

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HTTP PROXY **ARCHITECTURE**

HTTP PROXY IN C

- The main procedure of a proxy
  - Some steps acts as a Server
  - Some steps acts as a Client

Prepare Listening Socket

Accept a Connection From a Client on a Data Socket

Receive the HTTP Request and Parse it to Extract the Needed information

Prepare a New Socket for Connecting to the Web Server

Send the HTTP Request to the Web Server

Receive the HTTP Response from the Web Server

Send the HTTP Response to the Client

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PARSE HTTP REQUEST

You can find All useful functions with examples here:

https://www.tutorialspoint.com/c_standard_library/string_h.htm

- The request is a string → use string functions for parsing

    - `char *strcpy(char *dest, char *source, int num):`

        copies chars from *source* to *dest* and stopped after *num* element

    - `int strlen(const char *source):`

        returns number of chars, excluding NULL

    - `char *strchr(const char *source, const char ch):`

        returns pointer to first occurrence of *ch* in source; NULL if none

    - `char *strstr(const char *source, const char *search):`

        return pointer to first occurrence of search in *source*

    - `Char *strtok(char *str, const char *delim)`

        returns a pointer to the last token found in the string.

CONVERTING **HOSTNAME** TO **IP** ADDRESS

```
1.   struct sockaddr_in server_addr;
2.   struct hostent address;
3.   address = gethostbyname("www.website.com");
4.   …
5.   bcopy((char *) address->h_addr, (char *)
     &server_addr.sin_addr.s_addr, address->h_length);
```

- After extracting the value of Host field from the client request → Convert it to IP address

  - Easiest solution → `gethostbyname()`

- **gethostbyname**`(char *address)`:

  ```
  Returns a structure of type hostent for
  the given address.
  ```

- **address**: the instance of **hostent** structure that holds the address.

- **h_addr**: the first element of address vector in hostent struct which holds the first IP address of the server

- **h_length**: the length of the first IP address in bytes

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