

CS 725/825 & IT 725

Lecture 8

Application Layer

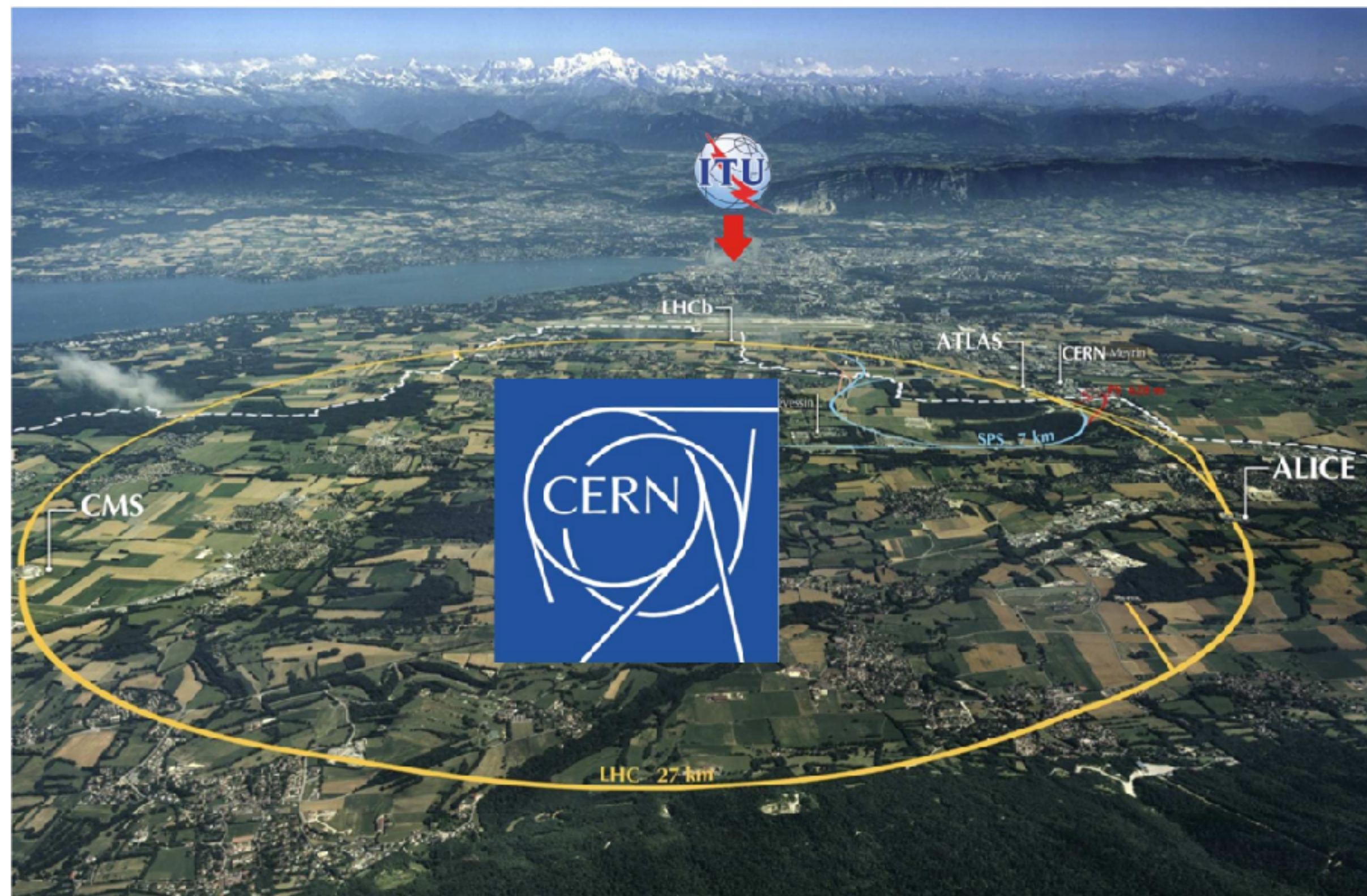
September 22, 2025

HTTP/HTML History

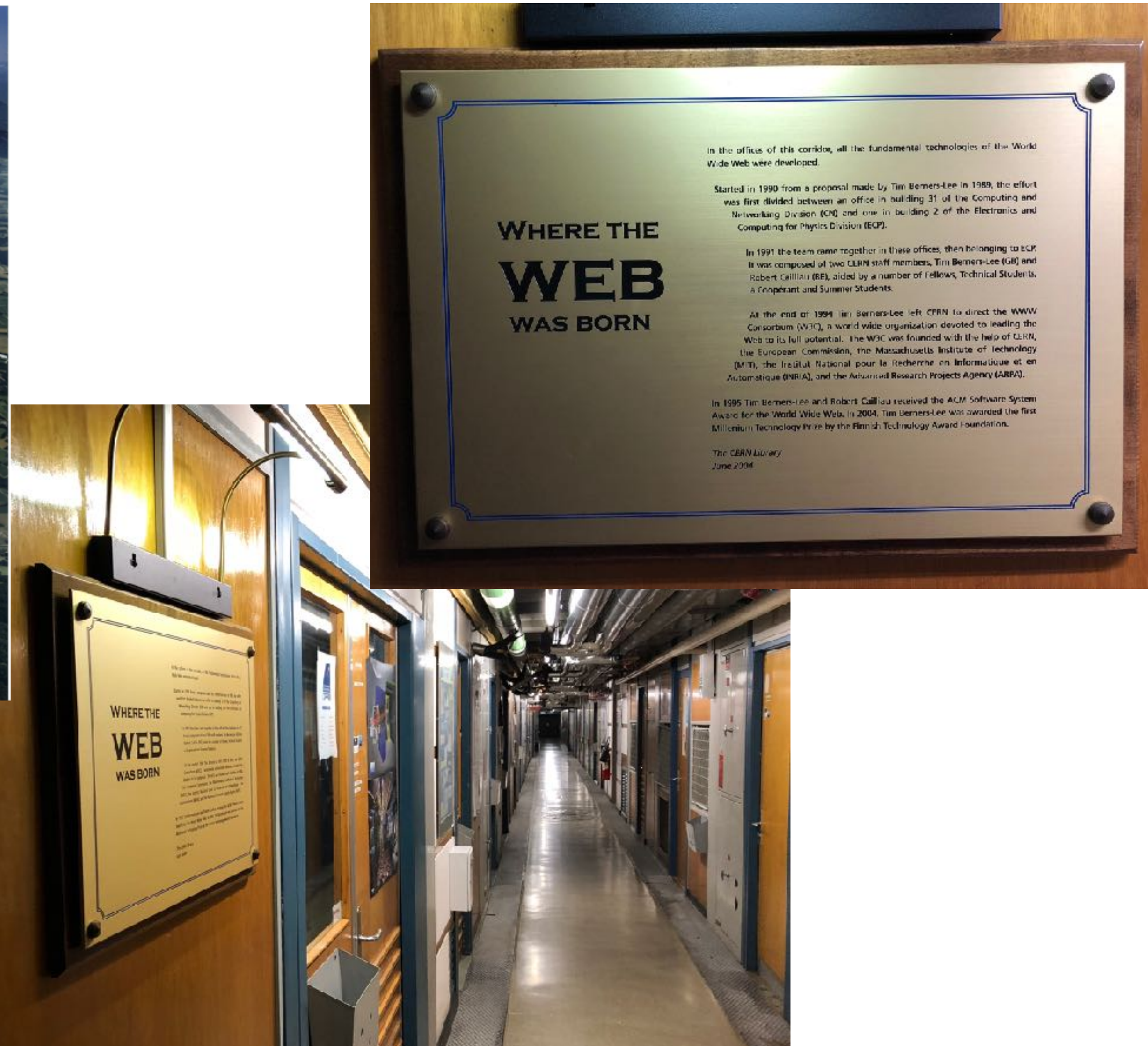


Cité des Sciences et de l'Industrie, Paris

HTTP/HTML History

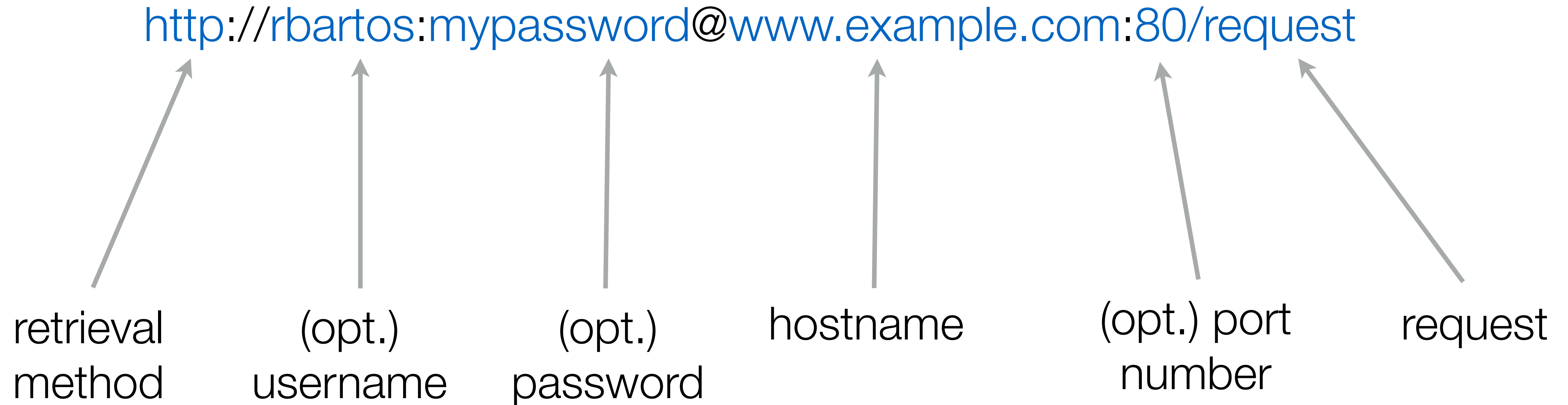


CERN, Geneva



HTTP

- ▶ HyperText Transfer Protocol (HTTP)
- ▶ URL (Universal Resource Locator)



HTTP

- ▶ HyperText Transfer Protocol (HTTP)
- ▶ Runs on top of (reliable, transparent, connection oriented) TCP
- ▶ A stateless...
- ▶ ... request/response protocol.
- ▶ protocol and payload not secured by default
- ▶ “work in progress”: HTTP/1.1 → HTTP/2 → HTTP/3
- ▶ We will focus on HTTP/1.1 initially (it is the simplest one of them and the main concepts were carried over to the newer versions)

Main HTTP Methods

▶ GET

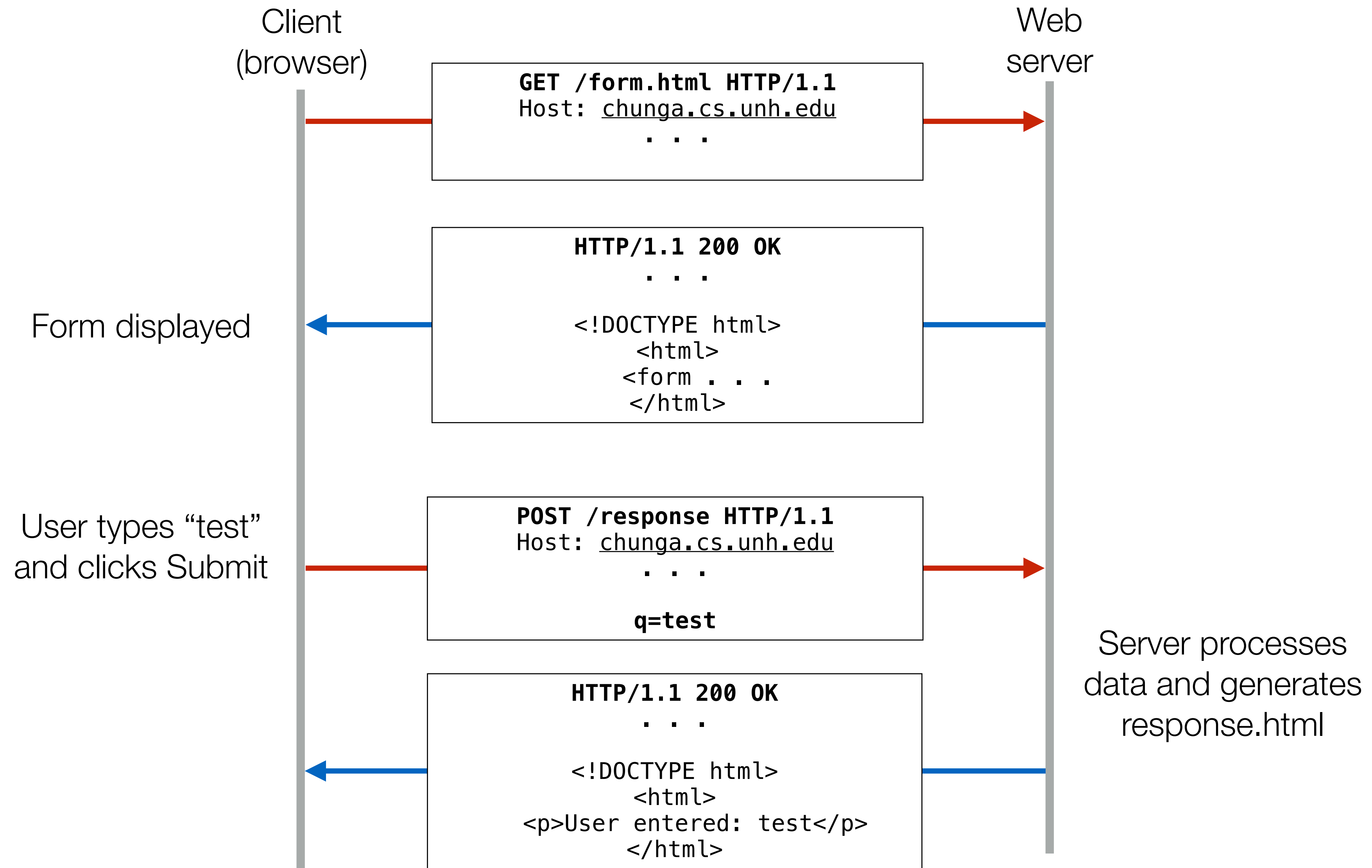
- client requests data from the server
- server sends data

▶ POST

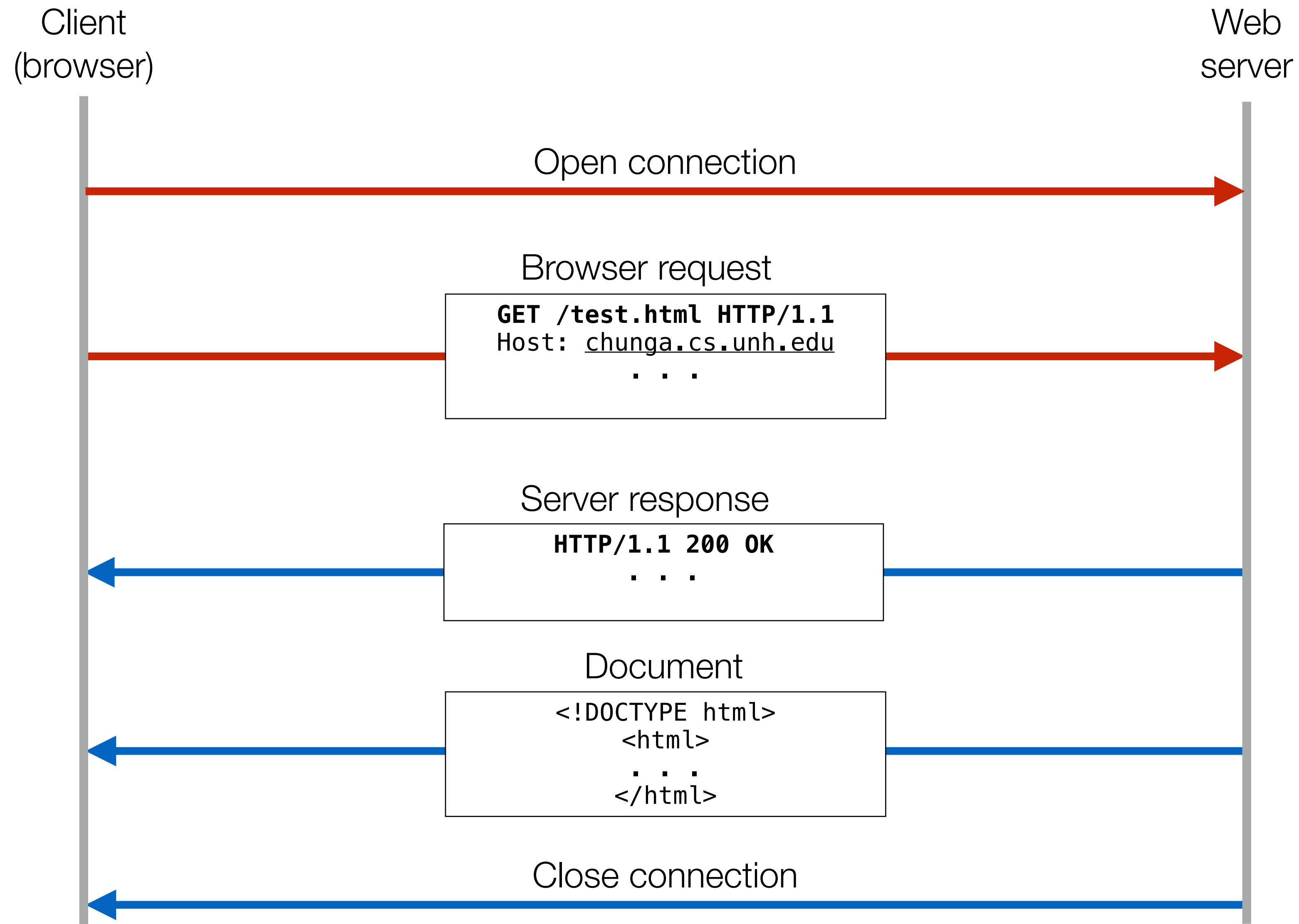
- client informs server about data to be delivered
- client sends data
- server sends data (response) back

▶ also: HEAD, PUT, DELETE, TRACE, CONNECT, ...

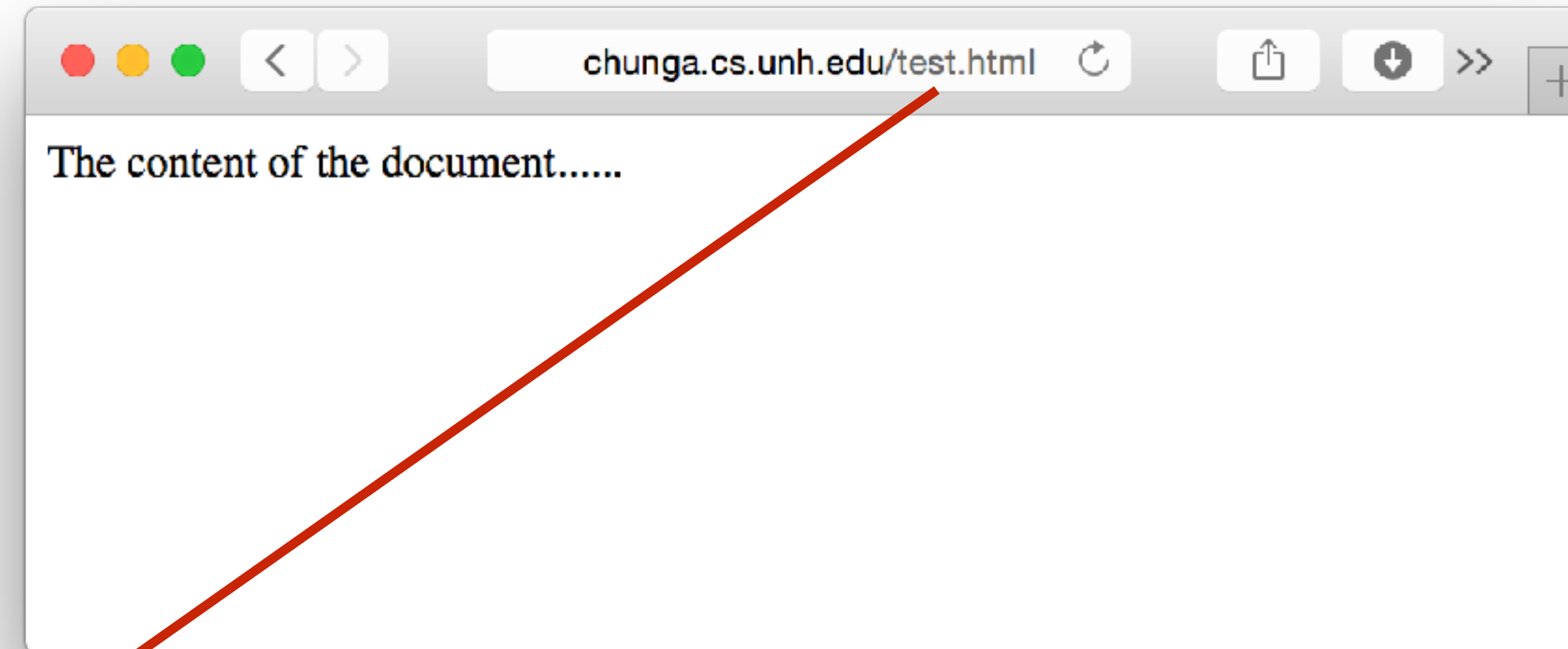
Sending data: POST



HTTP GET Request



GET Request Details



GET /test.html HTTP/1.1

Host: chungu.cs.unh.edu

DNT: 1

Connection: keep-alive

Accept: text/html,application/xhtml+xml,application/xml;q=0.9,*/*;q=0.8

User-Agent: Mozilla/5.0 (Macintosh; Intel Mac OS X 10_10_2)↵

AppleWebKit/600.3.18 (KHTML, like Gecko)↵

Version/8.0.3 Safari/600.3.18

Accept-Language: en-us

Accept-Encoding: gzip, deflate

Cache-Control: max-age=0

Browser request

Terminated by a blank line

GET Response Details

HTTP/1.1 200 OK

Date: Wed, 25 Feb 2015 21:24:38 GMT

Server: Apache/2.4.10 (Unix) PHP/5.5.14

Last-Modified: Wed, 25 Feb 2015 21:17:51 GMT

ETag: "86-50ff02af7bdc0"

Accept-Ranges: bytes

Content-Length: 134

Keep-Alive: timeout=5, max=100

Connection: Keep-Alive

Content-Type: text/html

Server response

← blank line

<!DOCTYPE html>

<html>

<head>

 <title>Title of the document</title>

</head>

<body>

 The content of the document.....

</body>

</html>

Document

Sending data: GET

```
<!DOCTYPE html>
<html>
<head>
  <title>Form</title>
</head>
<body>
  <form action="/response" method="GET">
    <input type="text" name="q">
    <input type="submit">
  </form>
</body>
</html>
```

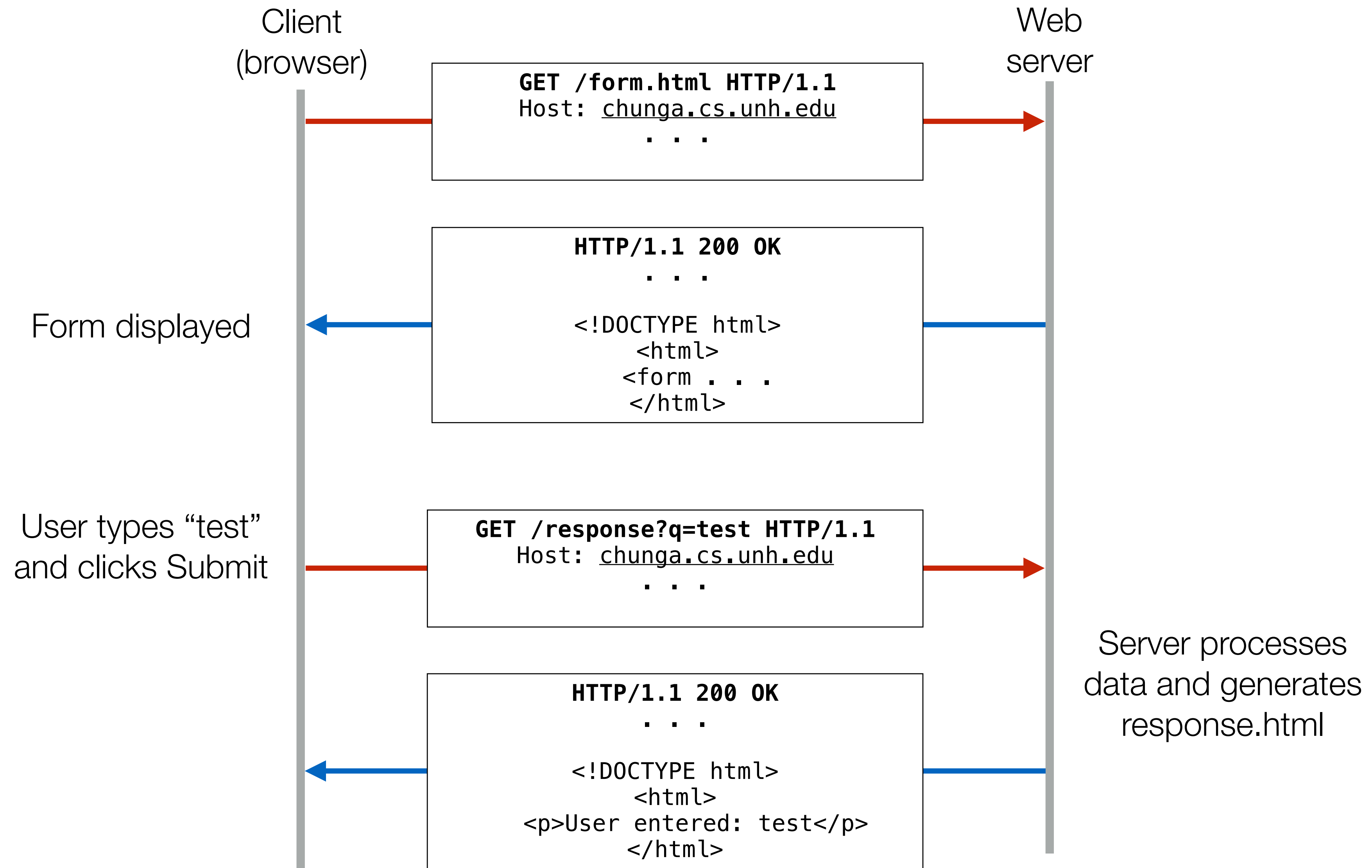
A screenshot of a web browser window. The address bar shows 'chunga.cs.unh.edu/form.html'. The page content includes a text input field with the value 'test' and a 'Submit' button. A red arrow points from the 'Submit' button to a box below.

Click!

GET /response?q=test HTTP/1.1

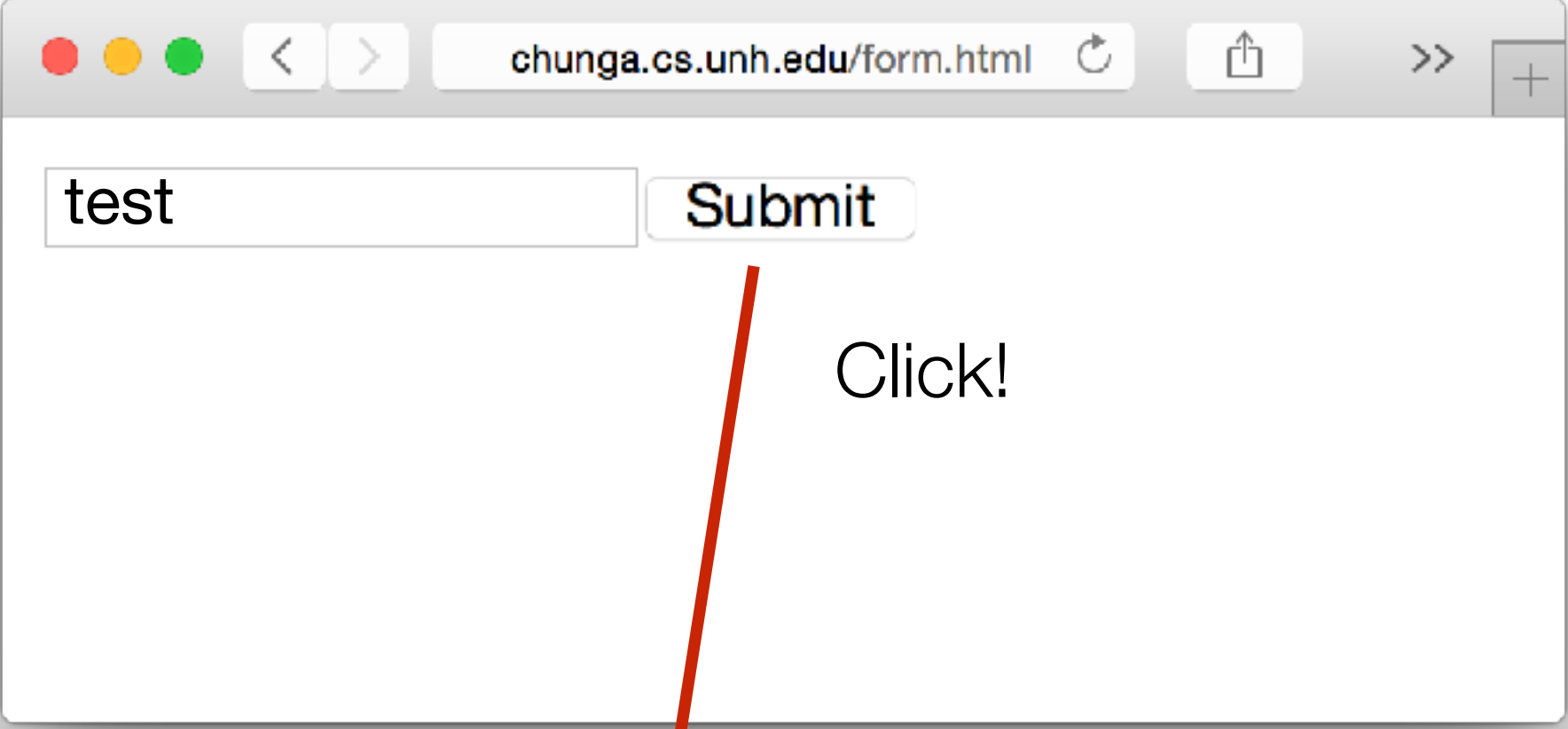
. . .

Sending data: GET



Sending data: POST

```
<!DOCTYPE html>
<html>
<head>
  <title>Form</title>
</head>
<body>
  <form action="/response" method="POST">
    <input type="text" name="q">
    <input type="submit">
  </form>
</body>
</html>
```



test Submit

Click!

```
POST /response HTTP/1.1
Host: chungu.cs.unh.edu
Content-Type: application/x-www-form-urlencoded
. . .
Referer: http://chungu.cs.unh.edu/form.html
. . .

q=test
```