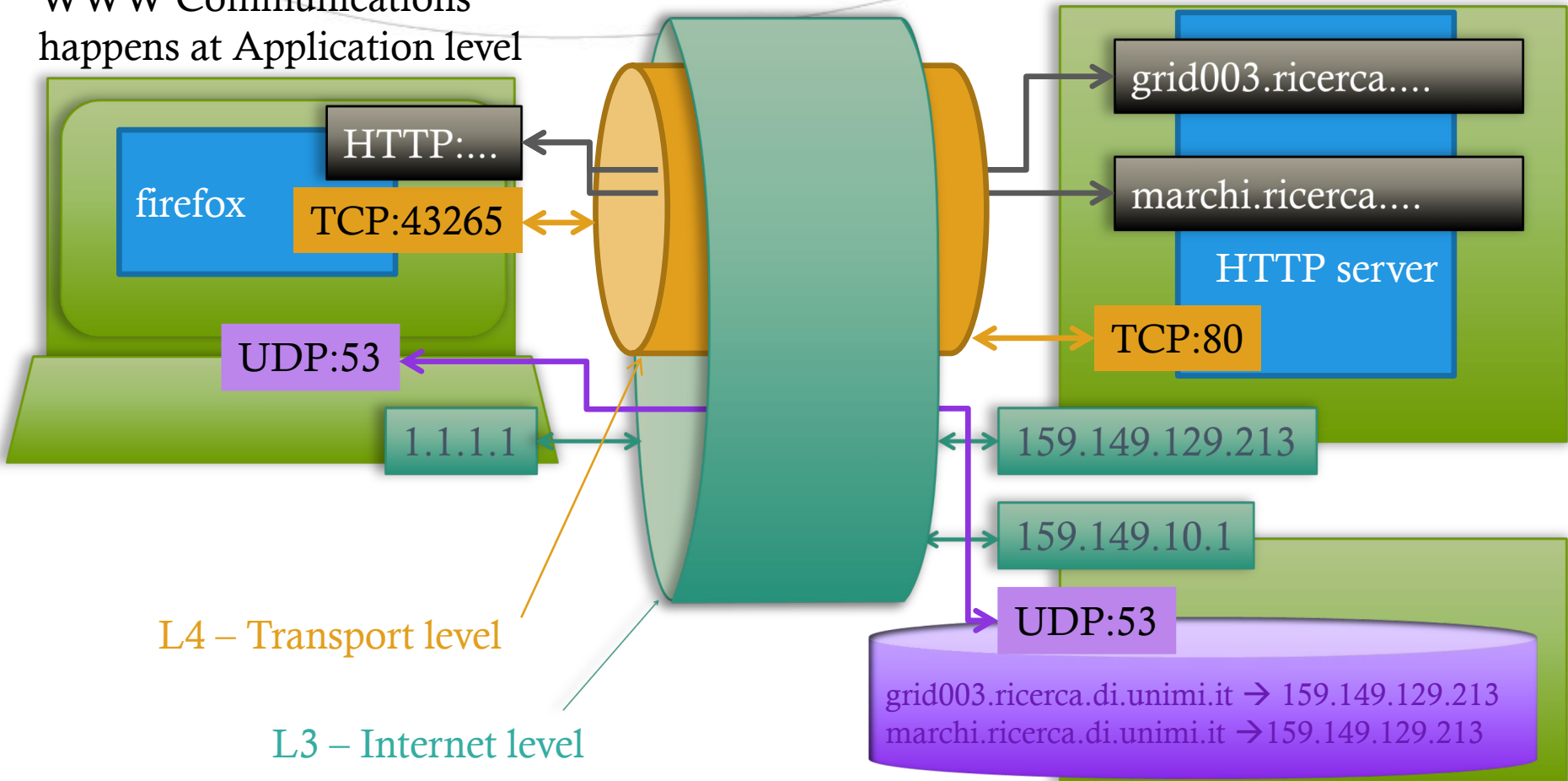


Hyper Text Transport Protocol

- ◆ Hyper Text Transport Protocol (HTTP) and its secure version (HTTPS) permit to transfer information between browser and a web server.
- ◆ The server TCP port is used to select a particular web server process running on the server (they can be many, usually two: the HTTP and the HTTPS server processes)
- ◆ The symbolic name used in the address bar is used to select a specific site inside the selected web server (they can be many)

WWW communications

WWW Communications happens at Application level



HTTP Methods

- ◆ There are many kinds of request defined in the HTTP standard, for ex. GET and POST; each method have a specific function:
 - ◆ GET
 - ◆ Used to select and retrieves resources inside a site.
 - ◆ The address of the resource is coded inside the link
 - ◆ POST
 - ◆ Used to change the state of the server
 - ◆ The address of the resource you want to manipulate is coded inside the link
 - ◆ The data connected to the resource are after the header

Method Behaviour

◆ GET requests

- ◆ can be cached
- ◆ remain in the browser history
- ◆ can be bookmarked
- ◆ should never be used when dealing with sensitive data
- ◆ have length restrictions
- ◆ are only used to request data (not to modify it)

◆ POST requests

- ◆ are never cached
- ◆ don't persist in the browser history
- ◆ cannot be bookmarked
- ◆ have no restrictions on data length

HTTP GET example

Url:

`http://marchi.ricerca.di.unimi.it/favicon.ico`

HTTP Header Request:

```
GET /favicon.ico HTTP/1.1
Host: marchi.ricerca.di.unimi.it
User-Agent: Mozilla/5.0 (Macintosh; Intel Mac OS X 10.15; rv:81.0) Gecko/20100101
Firefox/81.0
Accept: text/html,application/xhtml+xml,application/xml;q=0.9,image/webp,*/*;q=0.8
Accept-Language: en-US,en;q=0.5
Accept-Encoding: gzip, deflate
Connection: keep-alive
Cookie: CASTGC=TGT-1.....tw-prod-01
Upgrade-Insecure-Requests: 1
```

Requested resource



`GET /favicon.ico`



HTTP Post example

Url:

`http://host.fake.unimi.it/prova.html`

HTTP Header Request:

```
POST /prova.html HTTP/1.1
Host: host.fake.unimi.it
User-Agent: Mozilla/5.0 (Macintosh; Intel Mac OS X 10.15; rv:81.0) Gecko/20100101 Firefox/81.0
Accept: text/html,application/xhtml+xml,application/xml;q=0.9,image/webp,*/*;q=0.8
Accept-Language: en-US,en;q=0.5
Accept-Encoding: gzip, deflate, br
Content-Type: application/x-www-form-urlencoded
Content-Length: 11
Origin: https://.....unimi.it
Authorization: Basic bWF.....WI=
Connection: keep-alive
Referer: https://host.fake.unimi.it/prova.html
Cookie: CASTGC=TGT-1391.....gtw-prod-01
Upgrade-Insecure-Requests: 1
```

↑ Resource to be

data

MyPayload=prova