

Introduction to Proxy

Brief Explanation for Project 3



About Midterm

The questions on the midterm is not going to be public.

If you have any questions about your midterm, feel free to go to Kurtis' office hour to have a look at your midterm and ask question.

Concept of Proxy

What is a proxy anyway?

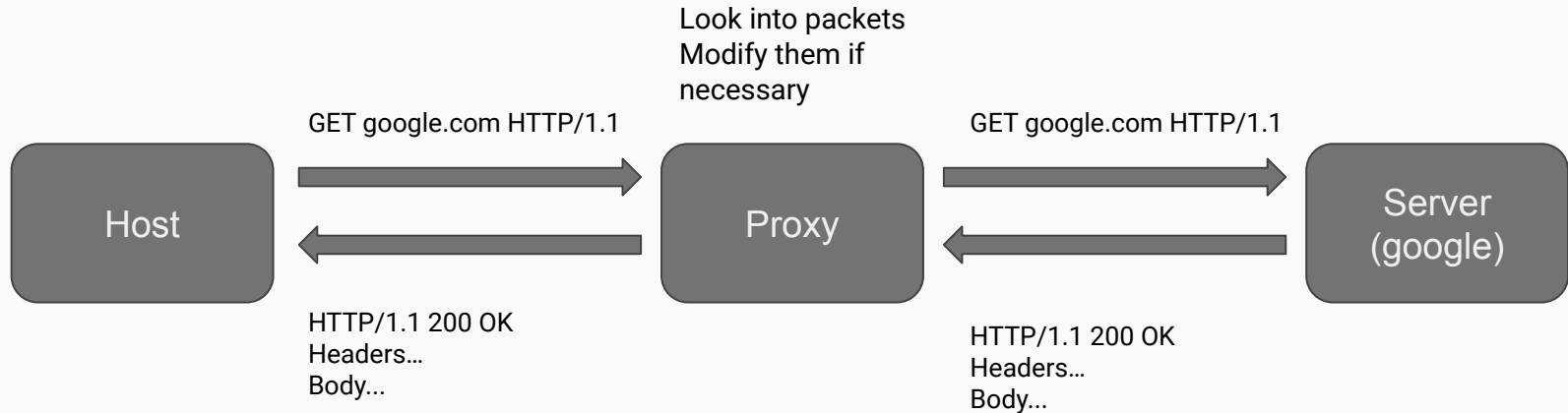


def(proxy)

A server that acts as an intermediary for requests from clients seeking resources from other servers.

-- Wikipedia

Network Diagram



HTTP(s) REQUEST

What is a request made of?



HTTP GET REQUEST

- Used to request data from a specified resource.
- One of the most common HTTP methods.

Format:

```
METHOD PATH HTTP_VERSION  
[  
HEADER 1  
HEADER 2  
...  
HEADER n  
]
```

Send a GET request to www.washington.edu:

```
GET / HTTP/1.1  
Host: www.washington.edu  
Connection: close  
<enter>  
<enter>
```

HTTP GET Response

Format:

```
HTTP_VERSION STATUS_CODE DESC  
[  
HEADER 1  
HEADER 2  
...  
HEADER n  
]  
<Response Body>
```

Receive a response from www.washington.edu:

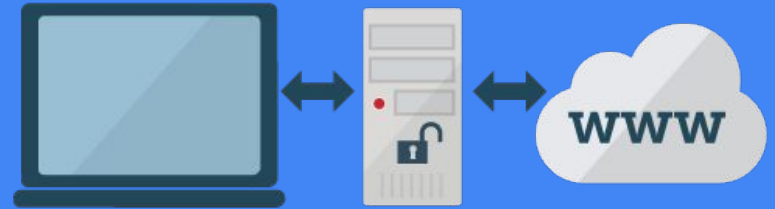
```
HTTP/1.1 200 OK  
Date: Thu, 14 Nov 2019 18:36:27 GMT  
Server: Apache/2.2.24 (Unix) mod_ssl/2.2.24 OpenSSL/1.0.1e-fips  
PHP/7.2.11 mod_pubcookie/3.3.4a mod_uwa/3.2.1  
Last-Modified: Thu, 14 Nov 2019 16:27:16 GMT  
ETag: "180152-eb50-59750f455e100"  
Accept-Ranges: bytes  
Content-Length: 60240  
Vary: Accept-Encoding,User-Agent  
Content-Type: text/html  
<Response Body>
```


REQUEST DEMO

Proxy Setup on Firefox

Go to Preferences

- > General
- > Network Settings
- > Settings
- > Manual proxy configuration
- > set 'port' to be 12345 (whatever)
- > check 'use this proxy server for all protocols'
- > click Ok



SEE WHAT'S IN THE REQUEST

If you have netcat installed:

```
$ nc -l 12345
```

If you don't, here is a one-liner in python:

```
$ python3 -c "import socket, sys ; sock =  
socket.socket(socket.AF_INET, socket.SOCK_STREAM) ;  
sock.bind(('localhost', 12345)) ; sock.listen(1) ; connection,  
client_address = sock.accept() ;  
print(connection.recv(512).decode('utf-8'))"
```

Create a "Fake" Response to the Server

```
$ nc -l 12345 < doo.txt
```

Let's try return a webpage to the server with netcat (just a demo):

```
$ cat doo.txt
HTTP/1.1 200 OK
Cache-Control: max-age=604800
Content-Type: text/html; charset=UTF-8
Date: Thu, 14 Nov 2019 20:30:15 GMT
Server: ECS (sec/96ED)
Vary: Accept-Encoding
X-Cache: HIT
Content-Length: 1256

<!doctype html>
<html>
<head>
  <title>Example Domain</title>
  <meta charset="utf-8" />
  <meta http-equiv="Content-type" content="text/html; charset=utf-8" />
  <meta name="viewport" content="width=device-width, initial-scale=1" />
</head>

<body>
<div>
  <h1>Example Domain</h1>
  <p>This domain is for use in illustrative examples in documents. You
may use this
  domain in literature without prior coordination or asking for
permission.</p>
  <p><a href="https://www.iana.org/domains/example">More
information...</a></p>
</div>
</body>
</html>
```

PROXY

DEMO

Your turn to
create a proxy!

