

Web_Lab1

1 Task 1

1.1 权威域名服务器

使用 nslookup 查询 cubicy.icu 的服务器:

- 先查询 .

```
PS C:\Users\leexi> nslookup -qt=NS .
```

```
服务器:  dns1.zju.edu.cn
```

```
Address:  10.10.0.21
```

非权威应答:

```
(root)  nameserver = m.root-servers.net
(root)  nameserver = b.root-servers.net
(root)  nameserver = j.root-servers.net
(root)  nameserver = a.root-servers.net
(root)  nameserver = k.root-servers.net
(root)  nameserver = i.root-servers.net
(root)  nameserver = c.root-servers.net
(root)  nameserver = h.root-servers.net
(root)  nameserver = d.root-servers.net
(root)  nameserver = f.root-servers.net
(root)  nameserver = g.root-servers.net
(root)  nameserver = l.root-servers.net
(root)  nameserver = e.root-servers.net
```

a.root-servers.net	internet address = 198.41.0.4
b.root-servers.net	internet address = 170.247.170.2
c.root-servers.net	internet address = 192.33.4.12
d.root-servers.net	internet address = 199.7.91.13
e.root-servers.net	internet address = 192.203.230.10
f.root-servers.net	internet address = 192.5.5.241
g.root-servers.net	internet address = 192.112.36.4
h.root-servers.net	internet address = 198.97.190.53
i.root-servers.net	internet address = 192.36.148.17
j.root-servers.net	internet address = 192.58.128.30
k.root-servers.net	internet address = 193.0.14.129
l.root-servers.net	internet address = 199.7.83.42
m.root-servers.net	internet address = 202.12.27.33
a.root-servers.net	AAAA IPv6 address = 2001:503:ba3e::2:30
b.root-servers.net	AAAA IPv6 address = 2801:1b8:10::b

- 再指定其中一台服务器, 查询 icu.

```
PS C:\Users\leexi> nslookup -qt=NS icu. 198.41.0.4
in-addr.arpa  nameserver = b.in-addr-servers.arpa
in-addr.arpa  nameserver = a.in-addr-servers.arpa
```

```
in-addr.arpa      nameserver = c.in-addr-servers.arpa
in-addr.arpa      nameserver = e.in-addr-servers.arpa
in-addr.arpa      nameserver = d.in-addr-servers.arpa
in-addr.arpa      nameserver = f.in-addr-servers.arpa
a.in-addr-servers.arpa  internet address = 199.180.182.53
b.in-addr-servers.arpa  internet address = 199.253.183.183
c.in-addr-servers.arpa  internet address = 196.216.169.10
d.in-addr-servers.arpa  internet address = 200.10.60.53
e.in-addr-servers.arpa  internet address = 203.119.86.101
f.in-addr-servers.arpa  internet address = 193.0.9.1
a.in-addr-servers.arpa  AAAA IPv6 address = 2620:37:e000::53
b.in-addr-servers.arpa  AAAA IPv6 address = 2001:500:87::87
c.in-addr-servers.arpa  AAAA IPv6 address = 2001:43f8:110::10
d.in-addr-servers.arpa  AAAA IPv6 address = 2001:13c7:7010::53
e.in-addr-servers.arpa  AAAA IPv6 address = 2001:dd8:6::101
f.in-addr-servers.arpa  AAAA IPv6 address = 2001:67c:e0::1
服务器:  UnKnown
Address:  198.41.0.4
```

```
icu      nameserver = c.nic.icu
icu      nameserver = a.nic.icu
icu      nameserver = d.nic.icu
icu      nameserver = b.nic.icu
a.nic.icu      internet address = 194.169.218.108
b.nic.icu      internet address = 185.24.64.108
c.nic.icu      internet address = 212.18.248.108
d.nic.icu      internet address = 212.18.249.108
a.nic.icu      AAAA IPv6 address = 2001:67c:13cc::1:108
b.nic.icu      AAAA IPv6 address = 2a04:2b00:13cc::1:108
c.nic.icu      AAAA IPv6 address = 2a04:2b00:13ee::108
d.nic.icu      AAAA IPv6 address = 2a04:2b00:13ff::108
```

最后指定 cubicy.icu

```
PS C:\Users\leexi> nslookup -qt=NS cubicy.icu 194.169.218.108
服务器:  UnKnown
Address:  194.169.218.108
cubicy.icu      nameserver = sam.ns.cloudflare.com
cubicy.icu      nameserver = itzel.ns.cloudflare.com
PS C:\Users\leexi>
```

所以查询到权威DNS是 194.169.218.108

1.2 查询IP地址

使用 nslookup 命令

```
PS C:\Users\leexi> nslookup cubicy.icu
服务器:  dns1.zju.edu.cn
Address:  10.10.0.21
```

非权威应答:

```
名称:      cubicy.icu
Addresses:  2606:4700:3033::ac43:b3f4
            2606:4700:3033::6815:1fce
            172.67.179.244
            104.21.31.206
```

因此IP是 104.21.31.206 & 172.67.179.244

1.3 查询DNS A 记录

使用 `nslookup -qt=A 命令`

```
PS C:\Users\leexi> nslookup -qt=A cubicy.icu
服务器:  dns1.zju.edu.cn
Address:  10.10.0.21
非权威应答:
名称:      cubicy.icu
Addresses:  104.21.31.206
            172.67.179.244
```

响应有 104.21.31.206 & 172.67.179.244

不同IP 地址的好处:

- 可以分担服务器负荷
- 假设其中一个服务器出现故障, 可以使用另一个服务器, 这样就不会使得网站崩溃

1.4 隐藏的文本

```
PS C:\Users\leexi> nslookup -qt=TXT cubicy.icu
服务器:  dns1.zju.edu.cn
Address:  10.10.0.21

非权威应答:
cubicy.icu      text =
"5aSx5oGL44K9440z44Kw5rKi5bGx6IG044GE44GmCuazo+OBh00Bpu0Bs00Bi+OCiu0Bruenge0Br+OCgu0
BhgrmjajjgabjgZ/jgYTjgYvjgokK5b+Y44KM44Gf44GE44GL44KJCuOCgu0BhiDlkJvjga7jgZPjgajjgar
jgpPjgaYK5b+Y44KM44Gh44KD44GG44GL44KJ44GtICAKU1VLSVNVs0lTVUtJU1VLSVNVs0k="
cubicy.icu      text =

"v=spf1 -all"
cubicy.icu      text =

"google-site-verification=1fhjV2lfeA6mIocyby2UVcZ8bC8o8NpJreyw10LPDUY"

cubicy.icu      nameserver = sam.ns.cloudflare.com
cubicy.icu      nameserver = itzel.ns.cloudflare.com
sam.ns.cloudflare.com  internet address = 173.245.59.141
sam.ns.cloudflare.com  internet address = 108.162.193.141
sam.ns.cloudflare.com  internet address = 172.64.33.141
```

所以文本是：

```
5a5x5oGL44K9440z44Kw5rKi5bGx6IG044GE44GmCuazo+0Bh00Bpu0Bs00Bi+0Ciu0Bruenge0Br+0Cgu0Bhgrm
jaJJgabjgZ/jgYTjgYvjgokK5b+Y44KM44Gf44GE44GL44KJCu0Cgu0BhiDlkJvjga7jgZPjgaJJgarjgpPjgaYK
5b+Y44KM44Gh44KD44GG44GL44KJ44GtICAKU1VLSVNVs0lTVUtJU1VLSVNVs0k=
```

扔进Cyberchef进行 Base64 解密，得到的文本是：

```
失恋ソング沢山聴いて
泣いてばかりの私はもう
捨てたいから
忘れないから
もう 君のことなんて
忘れちゃうからね
SUKISUKISUKISUKISUKI
```

1.5 查询 IP (IPv4)

通过 nslookup 依次查询 cubicy.icu www.cubicy.icu blog.cubicy.icu 的IP地址

```
PS C:\Users\leexi> nslookup cubicy.icu
服务器:  UnKnown
Address:  fe80::c2b4:7dff:fe97:80d3
```

非权威应答：

```
名称:      cubicy.icu
Addresses:  2606:4700:3033::ac43:b3f4
            2606:4700:3033::6815:1fce
            104.21.31.206
            172.67.179.244
```

```
PS C:\Users\leexi> nslookup www.cubicy.icu
服务器:  UnKnown
Address:  fe80::c2b4:7dff:fe97:80d3
```

非权威应答：

```
名称:      www.cubicy.icu
Addresses:  2606:4700:3033::6815:1fce
            2606:4700:3033::ac43:b3f4
            104.21.31.206
            172.67.179.244
```

```
PS C:\Users\leexi> nslookup blog.cubicy.icu
服务器:  UnKnown
Address:  fe80::c2b4:7dff:fe97:80d3
```

非权威应答：

```
名称:      blog.cubicy.icu
Addresses:  2606:4700:3033::6815:1fce
            2606:4700:3033::ac43:b3f4
```

172.67.179.244
104.21.31.206

说明他们的IP地址都是 172.67.179.244 & 104.21.31.206

访问服务器

1. 直接访问：失败了。
2. 哪种服务：CDN

核实：使用 `nslookup -type=CNAME`：

```
PS C:\Users\leexi> nslookup -type=CNAME cubicy.icu
服务器:  UnKnown
Address:  fe80::c2b4:7dff:fe97:80d3

cubicy.icu
    primary name server = itzel.ns.cloudflare.com
    responsible mail addr = dns.cloudflare.com
    serial      = 2345512884
    refresh    = 10000 (2 hours 46 mins 40 secs)
    retry      = 2400 (40 mins)
    expire     = 604800 (7 days)
    default TTL = 1800 (30 mins)
```

接着使用一下CDNPlanet: <https://www.cdnplanet.com/tools/cdnfinder/>

☒ Website ☐ Hostname or URL

[Run CDN Finder](#) [Bookmarklet](#)

Count	Hostname	CDN show IPs
7	cubicy.icu	Cloudflare
5	cdnjs.cloudflare.com	Cloudflare
2	cdn.jsdelivr.net	Fastly

Test ran on Wed, 17 Jul 2024 16:35:52 GMT from the [SJC](#) [datacenter](#) on Cloudflare network.

Task 2

2.1 报文：

使用 BurpSuite 对[学在浙大](#)的登录过程进行抓包，最关键的HTTP请求应该是：

POST /cas/login?
service=https%3A%2F%2Fidentity.zju.edu.cn%2Fauth%2Frealms%2Fzju%2Fbroker%2Fcas-
client%2Fendpoint?state%3DvrrbjUz1MwQIGPJX3popmm-ZA402VVkwzfh-
EwEQf8U.CYqmWq1Mmjo.TronClass HTTP/1.1
Host: zjuam.zju.edu.cn
Cookie: JSESSIONID=60D04A28237C8F0EED420B1099A5EBD7.cas16;
_pf0=mz6SazkJNbcw2iwdpGXvL2IIkDk4nIkV0ZEFQMneIB8%3D; _ga=GA1.3.360544648.1721227648;
_csrf=S8mwplVi9KWoF2WQ0TLceGjdL%2FyXNwL8j2MIDa0x7f4%3D;
_pv0=eR%2FyPB0WsMTHUztw7P3%2BLyKZkUbHna6sLTwgYbb75gdImhdu%2FmOWuTtnqSAYsKmagzvpJfj06
ySlgIA0k4xdCQzClvvWVBqArX9jLIA08LNygVpLCmmGe7HHb58hLYyAR9i4cv8jh1Awo%2BHZybdHi4XMjc1
LouCmLThCn5NMlnOsQsUg2q%2FfbLm0K0vxIuNI%2FqslzG%2FqtVAAMJ2Rs3XRpKXoKhWqZvMXMri9ZRWCG
WWl0QYtbAp08%2F%2B%2BCfauzLBFLwr8%2BfIq7GSN0n1YCMTPbdov0KRcRr2UiUDjGSw0f3Pdtcb%2FTzK
XkYMGwFg%2Br6f8m0cko1EYGIsf%2BLxeT%2BJRrEx485oVGMFDifuJfgj4U7tL5rmb0x1ZjVONFw0Gjc8Lw
tiIaDrTMTKGq%2FYPKNN9wZ2%2BKvVmYOWXW8%2F7rJuVSvA%3D
Content-Length: 7359
Cache-Control: max-age=0
Sec-Ch-Ua: "Not/A)Brand";v="8", "Chromium";v="126"
Sec-Ch-Ua-Mobile: ?0
Sec-Ch-Ua-Platform: "Windows"
Accept-Language: zh-CN
Upgrade-Insecure-Requests: 1
Origin: https://zjuam.zju.edu.cn
Content-Type: application/x-www-form-urlencoded
User-Agent: Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML,
like Gecko) Chrome/126.0.6478.127 Safari/537.36
Accept:
text/html,application/xhtml+xml,application/xml;q=0.9,image/avif,image/webp,image/ap
ng,*/*;q=0.8,application/signed-exchange;v=b3;q=0.7
Sec-Fetch-Site: same-origin
Sec-Fetch-Mode: navigate
Sec-Fetch-User: ?1
Sec-Fetch-Dest: document
Referer: https://zjuam.zju.edu.cn/cas/login?
service=https%3A%2F%2Fidentity.zju.edu.cn%2Fauth%2Frealms%2Fzju%2Fbroker%2Fcas-
client%2Fendpoint?state%3DvrrbjUz1MwQIGPJX3popmm-ZA402VVkwzfh-
EwEQf8U.CYqmWq1Mmjo.TronClass
Accept-Encoding: gzip, deflate, br
Priority: u=0, i
Connection: keep-alive

username=3230103034&password=4befe58f7a5945b1f28364900c74da80906304f37a188ad6c0934f3
81ebb6b933050ead16c2fd5fbc48f3e030b9514856a6086f3eda288592fe40fe172e97d0c&authcode=&
execution=8247e21d-9866-472d-8c4b-
e700d301c8e4_ZXlKaGJHY2lPaUpJVXpVeE1pSjkuYzBOMU9UUKlkVmMxZUd4RFIxRlRva1pZUKZCbK1rOW1
kamQ2VEdsa2EzUmxSVEZwWkZwUGJFaGhSMXA2YVVSrfJIQlRXVXRyVkRCQ1MxVXlXazF2U3psS1lVSkvIRTg
1Y2l0eGQxRkxjMUZqV0hZMk1FWlhSMG81ZEhreFkxG9ja2huWkc5RGJXOWxkbXRwYUVuVWFluRmFWwGw2YTI
1WGVtb3JiRE5QUVU5SmJucGtWVWRGYjNSYU5XTkRxbWN3VjI4NU1GVjNNVmhzVEhCUlJsQldUVF0xVm1oVld

rSjRMMXA1Y25wcU5UbDJabTF1ZDBRcLJXUjBVbFJIYVhSNmFrZE9L3REY1hkVlPVMDBabGxNY0Rrdk1XOTJ
hMnBNU0VsNlVYUk1kVGh4Y1N0NlR6bGlTVUpFWnpWTGExUXdjVkJXY21KSWVqZFJjbVJzTWxsUVpFRXLUVEJ
FYmtKS1dsVkrMMVJKTTVGSmNIUk5iVzFZU0hOMlkWtLNVVkJsv1ZoTGVVlRTWE0zV1VrcLFazNiVWRrVlV
4Q1FrRk1hM3AwVEVsa09YbHZWQ3RKY0Vod2RuQldSVzVsTkVFNGRVMXhiRFZwYUc0dmIyOWtaRVpEYUhw2R
ua3hTRU5XYlhoTFdFVXdabWxDU1RSNE4yRXlZamRoTW5SUWFGbGtUbTh2YTNZeFVuTk90M1pUVGxOM09IZEZ
RMVZIVGprMFZVNTFlWE5hZwtadlnqbDFNV1pxZDJsc1vtTkRMMlJzWjNKTldIbEZVSEJ1T1VGaE4ySkdPSFk
0ZW1wTFMzQXZhMEk1YTFkNVJFWkxlbUpsTjJKVGRQkUkthbWhqVjBwCFRqaFBhSFUXSZNkR1FuVkJTVXhSTHp
NNVVpczFUVmMxT0U4ck5sUTJjMVJRVldwU1J6YzJibGR0ZDA5QmFrdGpUV1ZYTkZoNVJtVXpIME5aTjNRdk5
IcG5hamxWS3poR1LYZ3hjSFpDWkd0bGJGUnVOSEZYVXL0Vvk9GQndTVEkyUm5sNlRXXRnVZVWhUV1RRM1UxQkd
Na3dyZG1FMlRYTnBLMUpYTkV0S1RYUnJVVmxEY1dwa2MxRXhNbkZrTjJGYWJXOXJkMjVsY1hZMVJYbGthVvk5
JUkhVMmIwMU5iakZxV1haaLozbEJha1pMVEVwUGIyMXFhMHg2TDJkTVoxcFFVMDlxY0dsVLYzQLNXV2xxYW5
CV1VWQk90RkJVTmtSdFJpOVdkR2R3YkvseWJVVlFXRXN5T0dWT2RYQkxiRlJaYnpovUwzWTNibkIXtUZGVFV
HaFplbTB2V1RoavRFbG5jbTVKZURacVLWcE9XU3RzU0V0TVlqaGLWbkJaUlRcE1VSTV0bWRVTW1vNGREZHV
ZM1JoVm5sa1oyeHhORkZ5Umpka1NHcDJjREZzTkhVeVEzQmplV3hLTnpSNWIydE5OMVpWTjFka05YUTBwekl
5YjBOUK5HZDZTMFZ6ZUZFMU9HNTRkM1V6Ym5GMmNEZHniMEpaVEDoclRHMxdireL2V1hNNVNISnRNMGxFWV
wMmRYRXJNVzLPUVRWU1VrVmFkSEJoVnpsQmNHUldkRlZ6TURSSWFTOTJhbU0wU1RGTWFRXpXRwd2TjBOUVZ
UUnJZMFZRVWtscE5VWnBNM3BZU1RKeVIwcFJkVUp4VTBaVU5VNU1NWGhyVDFaTlQzcFpUMnR4ZUhKM1NsQm1
RbEpYVGtKR1UwVXdVazl6V20xNGFWTXhNMGwxWjJSbGVVdFhjBekzVvHkbbk5VUjRaMnd6YkdwblJGcFlLRVJ
yWlhFNfExcHVTbGhFVFZwQ2NHNXhlWEZQYW14QLNwcExRVUuzU2tKSLFUwnBVV3B6ULROamNV0VRWMMxBzV2x
aSFRrWjVka3RwTld4amJrWlJNVWwyWTBneGJVcHpNMEZ5V1N0YWR6ULNTR2xOUldFMmJqZG9lR1YwWw1aeWV
tdFdXVLkxVEhKbWVETlBMM1ZUWVVstE9GaE5hm0pYT0dGQmNuRTRVaXR3TmPWQ1dVSnzHvlp5TWxJNU5GQLV
OMU55VFZBNVJFNXLXa1ZKYzNwRVJuQklUeTlTWlN0bFRXd3pVV3c0UTIXdFZ5OXdkbWR4VTJORmVVZDFTMkp
XU25aaFR6azRRV2RXY0dwb1dtTTFUWEZLV0hkUWVrNUVTRE4wVnpod2NFNXRRa2RZWTFjeVdreERARmhaYUM
5eWJUaDBaSEJIWjBGNE5qZGpURnBuUVdoUFJUUnBiV2xZWlhGc1dHc3ZUbK5DvvV3eVRVTkhNbXhETWpGamR
uWnhLMFJIUm5wQLQwNUNNMmh3ZDJoeFRsazFXbG81ZFVwU05ITkZLV0ZuYWpsTFlsSnZNV1J6VGtOWVlVRld
UbkiYzFZaWVpGZEZZeXRFYTJ0MLJsVxkTbHBHU1ZobWntMDNjV3BVU0hKMWNEVkpjSHB6TVdwUFFVWldlRkY
wZDJWVVIzcE1hek5DZGxGSU9XUnFiWGRMVDFjM1lpOUlaMFJxWVhGa1RqZEdRVFZuTVhJeVRteERRM2Q1TDB
WTFpsVnphVFZHVjBGTWVIQkNiMmRtZG14QLdERkVWbVpwTWtnNFRUbEZUVUpXYlh0aLNvcGxSVUl4WmpSUVZ
XWTBNSGRoZVdvek1HMMW9kbEY0YTFsaVFqRkhWbUpYZEdwNWFucHVOV1ZMYXpOc1RHSm5URFU1VGxKM2VXNWl
kMkpqYkdjcmJWwmxZVzlhV1VKd2EycFFZMWRhZVhWblQzWnlR2x0UzNsRVFrSlNVMW8xZUdJek5HaE10U3N
yVUhaRFdqRnZWR1pVTLRRd2NsSm1ORWM1WTJkTGvVaEdlV3d6Y21kaFluVjJibU5SVEROWVkkTXpZemhQT0h
WUGVEa3dTal1JXYkhKTmNfEEhhV1JaZVVVeFVGvK5VMnRHTUZaeFUwVmhwRXgyYzJOM2JuaEpTa0YyYlZoUGV
FZEpSWFZyVmpKcVFqTk9RbFpTWVhCbVNIbHdVeXN4WlUxSU1rb3p0SGgyV2tGV1pwVlBaMkZhUlh0cVNrb3J
aWFIzVLZwU09IaHJVbTVpVlV3M2VFZGpiRFJKZVU1VFJXTnJkV0p2Ykvkd01GQXpTmmcxT1haNWVEVTJjVEp
HTwt0V1pVvmpXbFkwY0hKbU5IUmhWR2wyWkRWRfQza3ZZVEZIVVhWMGFsVXJaa2M1VEhJeVRXMMW5LM3BzVVR
SbkszaHVPWRfVWxKvk1EQlhVSHBvTjNoNVMYwJvhbFlyVGtwc2VrTkZheTg1V1VKQ2VXTlZRa05hU0c1aFZ
IZE1jVVoxUkU4NWVXaDNaMLYyWm1oS1Z6SLVOREZuWldGNGVVMVDVSMdAxZFZkwlRITkxTbk5JWTFKNFZ50TN
Le1p1YTFWUmVHZFhhMUJzYXk5TU4zULJRVWRIUTA1QmFuUnVhRmh0Ymt0M1dFOUtOMDlsU2pGbVRHeDBjams
xZFhZcmNYaFNlSGxCVVVjclprY3hXbXg2Y0ZGSWJsUkRiMGQwTkdaTmJGTTJUvzLKY3pKNU5GZDFiaTlKVDA
4M1duSTBiWGHJWwXsU1JqbHPRMFI1ZUc1ek1FULfjMHcwWm14TU1sUnRaak5aVkJzscFUxRnRVVzFvX1dkV1d
YRkdKbk52WXP0NFZrazROV0oyTjBGMGNURjJSbGRhY21Gdk1qRkRNeTh3YjA1MWQwWTFWMnhDWTForWR6Rkl
SSGRRVjNwd04waFBjRGN3VTJSaLFVWmxarZV5YlRsWk1VTXJlVTFEzUZGRVprOWpRMlpUy0V0SmFFNDJkMlZ
QUTBGWU1VVk5NbkJIUTJscFFtMDJRMk1yTjNFMLZwaHpUVGRSYzNnemEyaGtSM3BrUVc1MlJVVklhbk15VkJ
Sa1NGUkdNbEU0ZWtobE1pOUdhR2xxWkVacLIzaHVua3hZT0R0bVdqRk1UMDVqVTJKM2RDODNlVEEXTVVkJQ1R
IUmhVXBXWVnpsYWRVZHZWR0YxVedSaFpITmpRVTFU0VWYU1GWNBOell2WjJ4M1JqRjBVV2x4VLZOUmVEbHL
ORGszULRjM1L6RmpPWGxTZGtsMmJrcFZHRGhZZFVwYVdHMHZPWFJEY2t4MlNHY3LVVFPcZWxsck1YWXlSiSFJ
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对组成部分的分析如下：

请求行

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请求头

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请求体

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ITjViMmRHVKhfD2FFSllibk5oSzNoeFluSmFNMkpyYW5sUlpiZHNRblJ4T0hOUVZXddB0bXQxVTFWTFdYbFB
NbWwwYnpCYU5sSXZNMnhSZUdvM1YxQTBOMGRUuzJONFkzUlFza3Q2U25kSk1WwNBSMHBpU1d3eWJtZHFZVzF
tZGtjek1FUXlMeLJDukUxcFiXRmLLExRJU1hWRlRuZzJMMlZiWkc1eLZEZE1NMU5rTTI5cmFWWkhbVY2U0d
WSK5ISjNTVGR1WW5wdlRVRLlNRlZLWVZwcFlsZFdlMGM0TVhWM1LVVkhSVkZoYmxSU01HTnVSM2RHWTA1Rld
DdDJTa3hQTTFCdFNGTnJOa1JYwLV0VWJtMXVjMLZpYzJKSlDlCERRVmx1TlVscVQyVnBVRTL5TXpSbk5qVlF
iR1EwVFRWT1NVTndUbK01UkZOUVRXSmaHaVUpFukZowFQyeEd0R1Y0UjFaUWNUZHkMUJvTLVKaVVsQkxZakJ
sV0ZKMldsZFFWRE5YUjJkNmRrMHJkREpzZW5SYVJXRlVOSFZXU25Fd01WQm1kwFJDYkRGSFFtdHNNMEp2ZEd
0WmMyeHpiRkJOZFdJeU4xcHNLm1ZLUVRjd2NYUnJNR3N4Y2xsaGEySnZTRlo2ZFhWSFQwTXpjMjVlqTVhFdLR
YRktjRVpPY1RRMFNYRkRkUzg1YW1ZMLRWSjJZemhCVEdkWmVtNHPrBk54V0U0M1LXTlFiM1UxWlRGUFpHbHL
kRGxMUKZSR01WTm1XQzk0VkrRkeFZ6TTNSWFZ4U0d4bmFUyzBUek0zYVZaa1kxZFBVRkJSVTA5VWRqZHFZVFJ
sV2xGNGNsZFZNbEpQTUZFvLXSjBkbLU0YjBaa1RHTjRXalZ0VjJ4VVLpc3lOakJLTmxKcmJUWLZjbWM1Vnp
kUllqTm5PREuzTpmOM2RIQkpZV3BrUWl0a2FYZFB1RWg1UW1j0VBRLdER0VxZE4wWnlNZlp5S3QzcEdwd1F
SX2xaSEM1dWpURTlsRF9wc25yZjVHeXc4M1JKZzdZTk1tMF10c2xWTmNfREpDOEhidGEzYThTR0ljbfhLZHB
3&_eventId=submit

保持登陆状态

- 在我登陆之后，网站生成了一个标识会话的 ID：
JSESSIONID=60D04A28237C8F0EED420B1099A5EBD7.cas16 ,并通过Set-Cookie响应头发送给客户端
- 在后续每次请求时通过 Cookie 头发送回服务器

区分不同的包

- 我觉得主要问题在于HTTP协议的特点：HTTP消息包括请求头和响应头，包含了**Content-Type**、**Content-Length**，指定了消息体的长度，能让接收方知道消息的边界
- HTTP packets are distinguishable just by looking at what comes after the TCP header. 通过查看TCP标头后面的内容，来查看HTTP数据包

直接访问:

不成功。直接访问IP地址会导致CDN无法确定用户请求的具体内容, 从而拒绝访问

如何区分:

用域名和用IP地址访问, 请求头不同。访问网页不同, HOST 一栏的后面可能是域名/IP地址

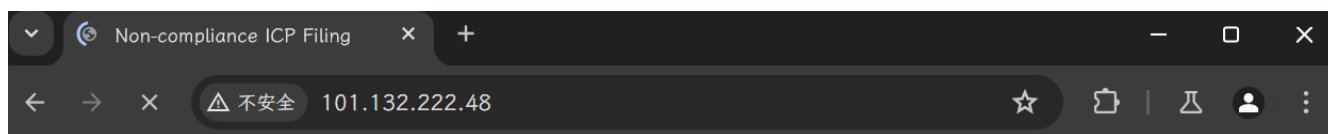
拦截包并修改 HTTP 报文访问页面:

原先申请的时候报文是这样的, 既然报文是在 host 做不同, 干脆修改 host:

```
GET / HTTP/1.1
Host: 101.132.222.48
Accept-Language: zh-CN
Upgrade-Insecure-Requests: 1
User-Agent: Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML,
like Gecko) Chrome/126.0.6478.127 Safari/537.36
Accept:
text/html,application/xhtml+xml,application/xml;q=0.9,image/avif,image/webp,image/ap
ng,*/*;q=0.8,application/signed-exchange;v=b3;q=0.7
Accept-Encoding: gzip, deflate, br
Connection: keep-alive
```

之后将 Host 修改成 cubicy.icu 就访问到了未备案界面

```
GET / HTTP/1.1
Host: cubicy.icu
Accept-Language: zh-CN
Upgrade-Insecure-Requests: 1
User-Agent: Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML,
like Gecko) Chrome/126.0.6478.127 Safari/537.36
Accept:
text/html,application/xhtml+xml,application/xml;q=0.9,image/avif,image/webp,image/ap
ng,*/*;q=0.8,application/signed-exchange;v=b3;q=0.7
Accept-Encoding: gzip, deflate, br
Connection: keep-alive
```



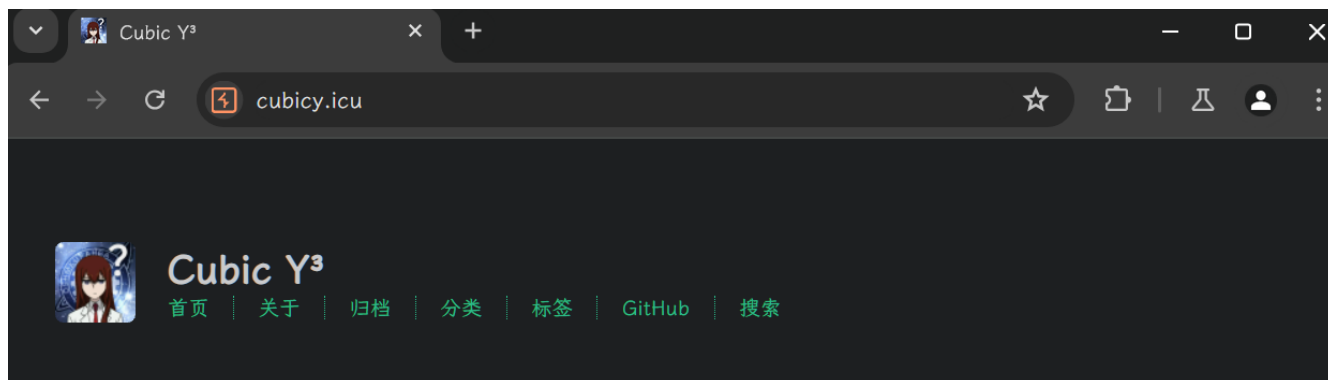
为什么未备案

根据之前的探索，这个网站使用了CDN

因为我直接修改报文，而没有通过本地的DNS解析，所以用的是源服务器地址是 101.132.222.48，而这个地址没有被备案

而使用 ns-lookup 返回的两个结果，即cdn提供的两个服务器，104.21.31.206, 172.67.179.244 都备案了，如果用这两个来访问，不会有类似的结果

所以进行一下尝试，过程类似，不赘述了



果然这两个成功访问

Task 3

用了 selenium.webdriver 让网站自动登录（得在代码里提供一下账号密码）

然后用正则表达式去表达

具体代码见附件 GetScore.py

具体实现效果如下：

Note:

1. 其中在成绩下面两行在交上的代码被注释掉了
2. 具体的chromedriver地址/id/password都被修改掉了，要想运行需要填写相关的值

```
2023-2024 Autumn-Winter
course_name: 军训, grade: 95, GPA: 5.0
course_name: 诗歌与哲学, grade: 93, GPA: 4.8
course_name: 大学英语II, grade: 88, GPA: 4.2
course_name: 工程图学, grade: 89, GPA: 4.5
course_name: 心理卫生, grade: 93, GPA: 4.8
course_name: 计算机科学基础 (A), grade: 89, GPA: 4.5
course_name: 极限飞盘 (初级班), grade: 99, GPA: 5.0
course_name: 中国近现代史纲要, grade: 92, GPA: 4.8
course_name: 思想道德与法治, grade: 95, GPA: 5.0
course_name: 微积分 (甲) I, grade: 92, GPA: 4.8
course_name: 线性代数 (甲), grade: 89, GPA: 4.5
你这学期一共卡绩 1 门
你这学期一共被捞 7 门
-----
2023-2024 Spring-Summer
course_name: 经济法理论与实务, grade: 92, GPA: 4.8
course_name: 军事理论, grade: 94, GPA: 4.8
course_name: 雕版印刷与刻本文化, grade: 94, GPA: 4.8
course_name: 英语口语译, grade: 91, GPA: 4.5
course_name: 常微分方程, grade: 80, GPA: 3.6
course_name: 概率论与数理统计, grade: 91, GPA: 4.5
course_name: 工程训练, grade: 84, GPA: 3.9
course_name: 职业生涯规划, grade: 97, GPA: 5.0
course_name: 形势与政策 I, grade: 87, GPA: 4.2
course_name: 排舞, grade: 93, GPA: 4.8
course_name: 大学物理 (甲) I, grade: 79, GPA: 3.3
course_name: 微积分 (甲) II, grade: 84, GPA: 3.9
course_name: 信息与电子工程导论, grade: 86, GPA: 4.2
course_name: 无线网络应用, grade: 85, GPA: 3.9
course_name: 电子工程训练 (甲), grade: 89, GPA: 4.5
你这学期一共卡绩 6 门
你这学期一共被捞 4 门
PS D:\MyRepository\slowist-notebook\docs\Coding\CTF> █
```

Bonus:

- TCP建立的是可靠的连接，必须要传输成功所有数据包，所以如果一个数据包丢失，接收端必须等待重新传输的包，这会导致整个连接的阻塞
- TCP需要进行三次握手建立连接，所以会导致连接时间延迟
- 上述性能使得TCP的表现并不好
- HTTP/3使用的是基于UDP的QUIC，在应用层实现多路复用，每个流有独立的顺序控制和流量控制，丢失数据包只会影响其中一支；由于传输稳定性能保证，也将三次握手合并成一次握手，就提高了传输时间