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LABORATÓRIO 6

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CAMADA DE APLICAÇÃO: COLOCANDO NO "AR" APLICAÇÕES SERVIDORAS

1.0- Servidor SSH

1.1- Recorte a tela do Wireshark, filtrando os pacotes do ssh. Mostre o encapsulamento de pacotes de aplicação e seu posicionamento na estrutura de pacotes.

ssh						
No.	Time	Source	Destination	Protocol	Length	Info
4	0.387279	10.0.9.10	10.0.8.20	SSH	166	Server: Encrypted packet (len=100)
16	1.411948	10.0.9.10	10.0.8.20	SSH	166	Server: Encrypted packet (len=100)
20	2.435702	10.0.9.10	10.0.8.20	SSH	166	Server: Encrypted packet (len=100)
24	3.459944	10.0.9.10	10.0.8.20	SSH	166	Server: Encrypted packet (len=100)
29	4.487453	10.0.9.10	10.0.8.20	SSH	166	Server: Encrypted packet (len=100)
33	5.507946	10.0.9.10	10.0.8.20	SSH	166	Server: Encrypted packet (len=100)
39	6.531975	10.0.9.10	10.0.8.20	SSH	166	Server: Encrypted packet (len=100)
43	7.555717	10.0.9.10	10.0.8.20	SSH	166	Server: Encrypted packet (len=100)
47	8.579768	10.0.9.10	10.0.8.20	SSH	166	Server: Encrypted packet (len=100)
51	9.603969	10.0.9.10	10.0.8.20	SSH	166	Server: Encrypted packet (len=100)
53	10.003794	10.0.8.20	10.0.9.10	SSH	102	Client: Encrypted packet (len=36)
54	10.004037	10.0.9.10	10.0.8.20	SSH	102	Server: Encrypted packet (len=36)
56	10.004258	10.0.9.10	10.0.8.20	SSH	262	Server: Encrypted packet (len=196)
58	10.004877	10.0.9.10	10.0.8.20	SSH	126	Server: Encrypted packet (len=60)

1.2- Recorte a tela do Wireshark, filtrando os pacotes do icmp. Comprovando que os pacotes do ping estão passando pelo router 2

icmp						
No.	Time	Source	Destination	Protocol	Length	Info
2	0.387086	10.0.9.10	10.0.8.20	ICMP	98	Echo (ping) request id=0x0003, seq=10/2560, ttl=63 (reply in 3)
3	0.387146	10.0.8.20	10.0.9.10	ICMP	98	Echo (ping) reply id=0x0003, seq=10/2560, ttl=61 (request in 2)
14	1.411473	10.0.9.10	10.0.8.20	ICMP	98	Echo (ping) request id=0x0003, seq=11/2816, ttl=63 (reply in 15)
15	1.411611	10.0.8.20	10.0.9.10	ICMP	98	Echo (ping) reply id=0x0003, seq=11/2816, ttl=61 (request in 14)
18	2.435213	10.0.9.10	10.0.8.20	ICMP	98	Echo (ping) request id=0x0003, seq=12/3072, ttl=63 (reply in 19)
19	2.435388	10.0.8.20	10.0.9.10	ICMP	98	Echo (ping) reply id=0x0003, seq=12/3072, ttl=61 (request in 18)
22	3.459453	10.0.9.10	10.0.8.20	ICMP	98	Echo (ping) request id=0x0003, seq=13/3328, ttl=63 (reply in 23)
23	3.459603	10.0.8.20	10.0.9.10	ICMP	98	Echo (ping) reply id=0x0003, seq=13/3328, ttl=61 (request in 22)
27	4.487121	10.0.9.10	10.0.8.20	ICMP	98	Echo (ping) request id=0x0003, seq=14/3584, ttl=63 (reply in 28)
28	4.487224	10.0.8.20	10.0.9.10	ICMP	98	Echo (ping) reply id=0x0003, seq=14/3584, ttl=61 (request in 27)
31	5.507461	10.0.9.10	10.0.8.20	ICMP	98	Echo (ping) request id=0x0003, seq=15/3840, ttl=63 (reply in 32)
32	5.507600	10.0.8.20	10.0.9.10	ICMP	98	Echo (ping) reply id=0x0003, seq=15/3840, ttl=61 (request in 31)
37	6.531451	10.0.9.10	10.0.8.20	ICMP	98	Echo (ping) request id=0x0003, seq=16/4096, ttl=63 (reply in 38)
38	6.531603	10.0.8.20	10.0.9.10	ICMP	98	Echo (ping) reply id=0x0003, seq=16/4096, ttl=61 (request in 37)
41	7.555196	10.0.9.10	10.0.8.20	ICMP	98	Echo (ping) request id=0x0003, seq=17/4352, ttl=63 (reply in 42)
42	7.555363	10.0.8.20	10.0.9.10	ICMP	98	Echo (ping) reply id=0x0003, seq=17/4352, ttl=61 (request in 41)
45	8.579241	10.0.9.10	10.0.8.20	ICMP	98	Echo (ping) request id=0x0003, seq=18/4608, ttl=63 (reply in 46)
46	8.579450	10.0.8.20	10.0.9.10	ICMP	98	Echo (ping) reply id=0x0003, seq=18/4608, ttl=61 (request in 45)
49	9.603489	10.0.9.10	10.0.8.20	ICMP	98	Echo (ping) request id=0x0003, seq=19/4864, ttl=63 (reply in 50)
50	9.603636	10.0.8.20	10.0.9.10	ICMP	98	Echo (ping) reply id=0x0003, seq=19/4864, ttl=61 (request in 49)

2.0- Servidor DNS

2.4- ping casa.redes.edu.br

```
root@ssh:/# echo nameserver 10.0.6.10 >> /etc/resolv.conf
root@ssh:/# ping casa.redes.edu.br
PING casa.redes.edu.br (10.0.8.21) 56(84) bytes of data.
64 bytes from 10.0.8.21 (10.0.8.21): icmp_seq=1 ttl=60 time=0.088 ms
64 bytes from 10.0.8.21 (10.0.8.21): icmp_seq=2 ttl=60 time=0.108 ms
64 bytes from 10.0.8.21 (10.0.8.21): icmp_seq=3 ttl=60 time=0.128 ms
^C
--- casa.redes.edu.br ping statistics ---
3 packets transmitted, 3 received, 0% packet loss, time 2055ms
rtt min/avg/max/mdev = 0.088/0.108/0.128/0.016 ms
root@ssh:/# █
```

2.5-dig apelido.redes.edu.br

```
root@DNS_Server:/etc/bind# dig apelido.redes.edu.br

; <<>> DiG 9.18.33-1~deb12u2-Debian <<>> apelido.redes.edu.br
;; global options: +cmd
;; Got answer:
;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 29638
;; flags: qr aa rd ra; QUERY: 1, ANSWER: 2, AUTHORITY: 0, ADDITIONAL: 1

;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 1232
; COOKIE: f3e399853406f8c00100000068d6f3589d44c7d772e2e4c9 (good)
;; QUESTION SECTION:
;apelido.redes.edu.br.                IN      A

;; ANSWER SECTION:
apelido.redes.edu.br.      86400   IN      CNAME   mail.redes.edu.br.
mail.redes.edu.br.        86400   IN      A       10.0.6.10

;; Query time: 0 msec
;; SERVER: 10.0.6.10#53(10.0.6.10) (UDP)
;; WHEN: Fri Sep 26 20:11:04 UTC 2025
;; MSG SIZE rcvd: 112
```

- Qual foi o resultado obtido?

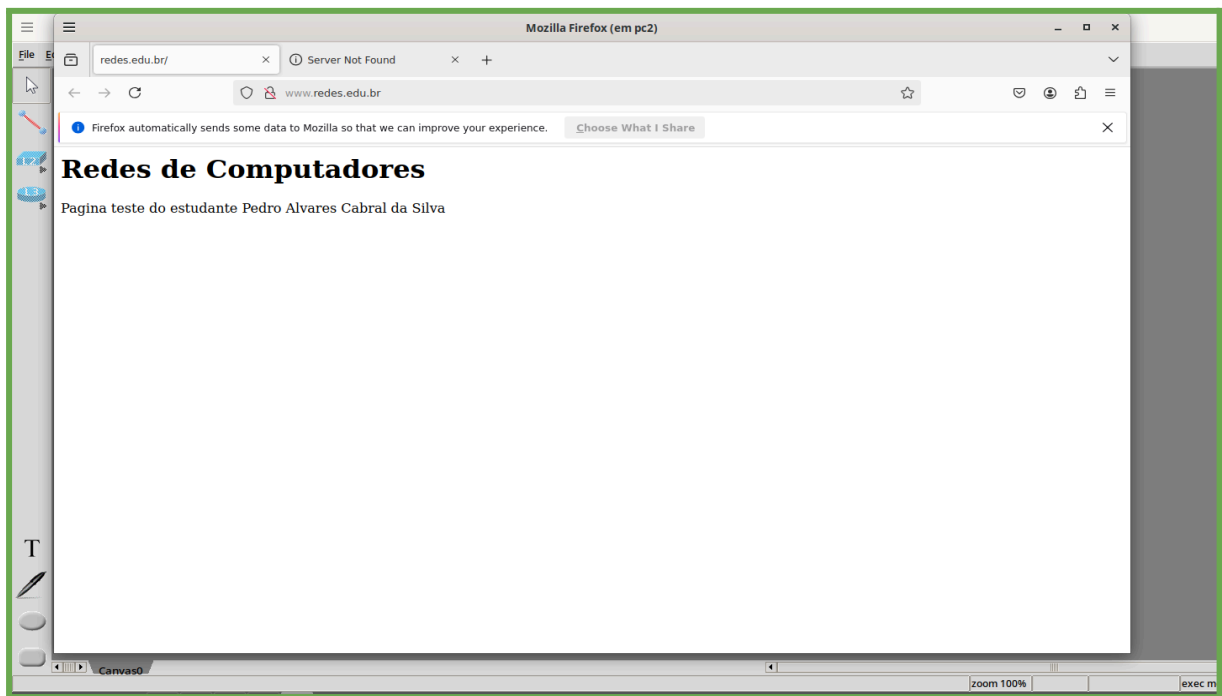
Aqui nos mostra, como nos definimos, apelido.redes.edu.br sendo um CNAME para mail.redes.edu.br

- Qual o significado?

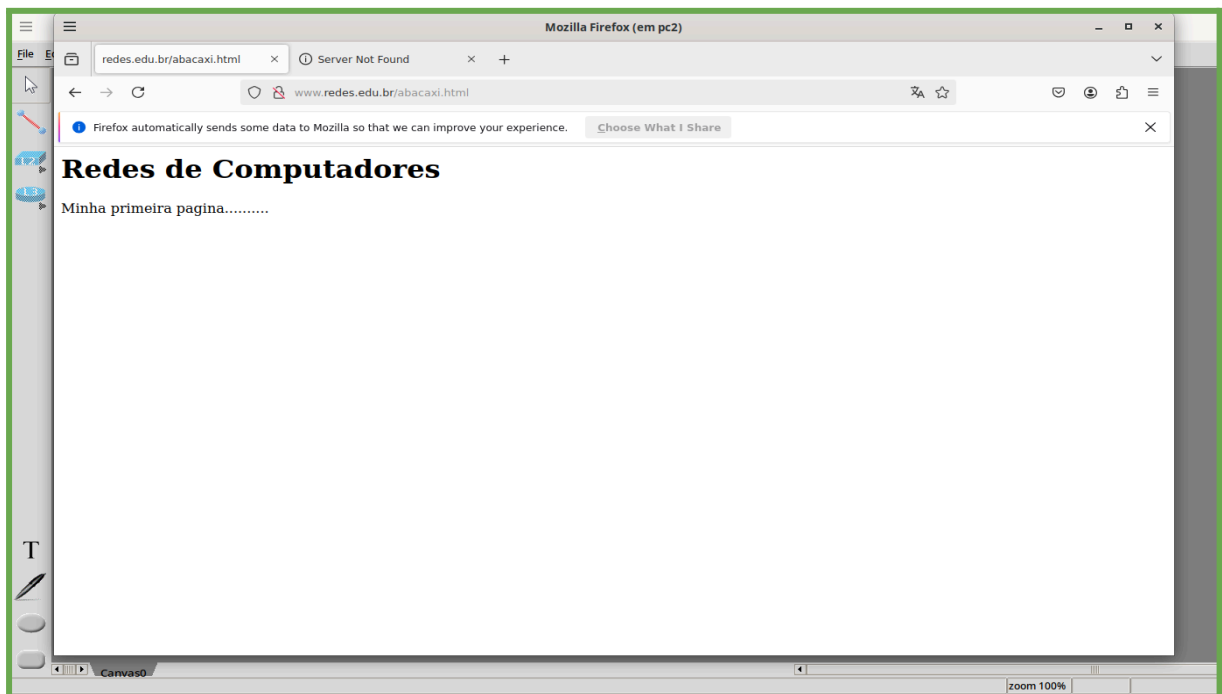
Que está configurado computador que tente se conectar ao **apelido.redes.edu.br** seja, na verdade, redirecionado para o mesmo servidor que responde por **mail.redes.edu.br** (o servidor com IP **10.0.6.10**).

3.0 Servidor WEB

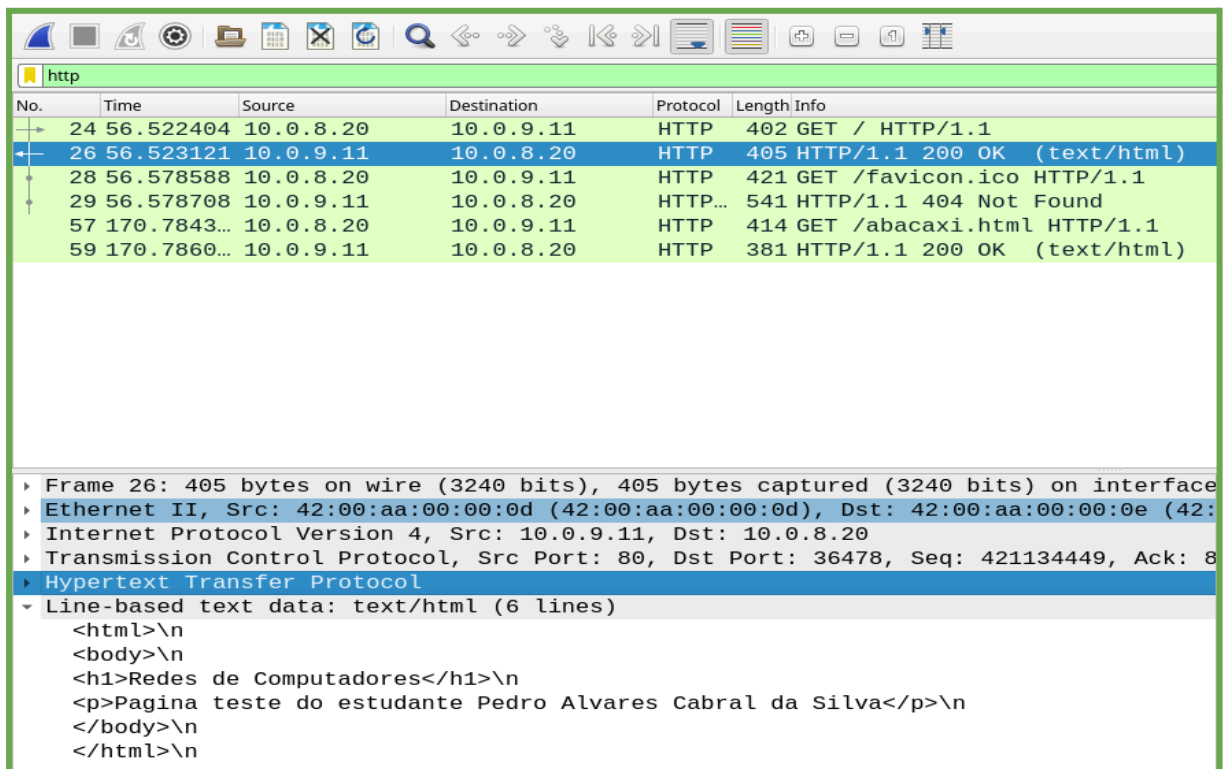
```
nano index.html
```



```
nano abacaxi.html
```



Wireshark conteúdo de www.redes.edu.br.



The screenshot shows a Wireshark capture of HTTP traffic. The packet list on the left shows several packets, with packet 26 selected. The packet details pane on the right shows the structure of the selected packet, including Ethernet II, Internet Protocol Version 4, Transmission Control Protocol, and Hypertext Transfer Protocol. The packet bytes pane at the bottom shows the raw data of the selected packet.

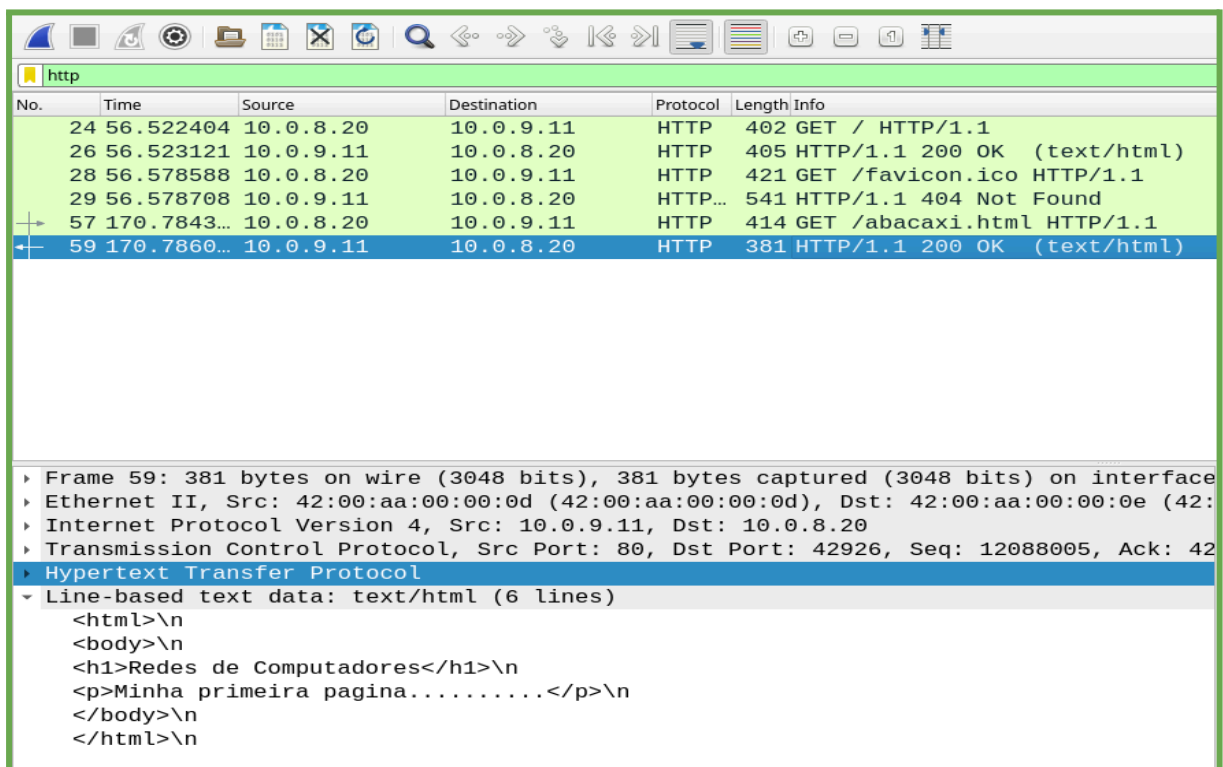
No.	Time	Source	Destination	Protocol	Length	Info
24	56.522404	10.0.8.20	10.0.9.11	HTTP	402	GET / HTTP/1.1
26	56.523121	10.0.9.11	10.0.8.20	HTTP	405	HTTP/1.1 200 OK (text/html)
28	56.578588	10.0.8.20	10.0.9.11	HTTP	421	GET /favicon.ico HTTP/1.1
29	56.578708	10.0.9.11	10.0.8.20	HTTP...	541	HTTP/1.1 404 Not Found
57	170.7843...	10.0.8.20	10.0.9.11	HTTP	414	GET /abacaxi.html HTTP/1.1
59	170.7860...	10.0.9.11	10.0.8.20	HTTP	381	HTTP/1.1 200 OK (text/html)

Frame 26: 405 bytes on wire (3240 bits), 405 bytes captured (3240 bits) on interface
Ethernet II, Src: 42:00:aa:00:00:0d (42:00:aa:00:00:0d), Dst: 42:00:aa:00:00:0e (42:00:aa:00:00:0e)
Internet Protocol Version 4, Src: 10.0.9.11, Dst: 10.0.8.20
Transmission Control Protocol, Src Port: 80, Dst Port: 36478, Seq: 421134449, Ack: 8
Hypertext Transfer Protocol

Line-based text data: text/html (6 lines)

```
<html>\n<body>\n<h1>Redes de Computadores</h1>\n<p>Pagina teste do estudante Pedro Alvares Cabral da Silva</p>\n</body>\n</html>
```

Wireshark conteúdo de www.redes.edu.br/abacaxi.html



The screenshot shows a Wireshark capture of HTTP traffic. The packet list on the left shows several packets, with packet 59 selected. The packet details pane on the right shows the structure of the selected packet, including Ethernet II, Internet Protocol Version 4, Transmission Control Protocol, and Hypertext Transfer Protocol. The packet bytes pane at the bottom shows the raw data of the selected packet.

No.	Time	Source	Destination	Protocol	Length	Info
24	56.522404	10.0.8.20	10.0.9.11	HTTP	402	GET / HTTP/1.1
26	56.523121	10.0.9.11	10.0.8.20	HTTP	405	HTTP/1.1 200 OK (text/html)
28	56.578588	10.0.8.20	10.0.9.11	HTTP	421	GET /favicon.ico HTTP/1.1
29	56.578708	10.0.9.11	10.0.8.20	HTTP...	541	HTTP/1.1 404 Not Found
57	170.7843...	10.0.8.20	10.0.9.11	HTTP	414	GET /abacaxi.html HTTP/1.1
59	170.7860...	10.0.9.11	10.0.8.20	HTTP	381	HTTP/1.1 200 OK (text/html)

Frame 59: 381 bytes on wire (3048 bits), 381 bytes captured (3048 bits) on interface
Ethernet II, Src: 42:00:aa:00:00:0d (42:00:aa:00:00:0d), Dst: 42:00:aa:00:00:0e (42:00:aa:00:00:0e)
Internet Protocol Version 4, Src: 10.0.9.11, Dst: 10.0.8.20
Transmission Control Protocol, Src Port: 80, Dst Port: 42926, Seq: 12088005, Ack: 42
Hypertext Transfer Protocol

Line-based text data: text/html (6 lines)

```
<html>\n<body>\n<h1>Redes de Computadores</h1>\n<p>Minha primeira pagina.....</p>\n</body>\n</html>
```