

ЛАБОРАТОРНАЯ РАБОТА №5

Студент: Талебу Тенке Франк Устон

Группа: НФИбд-02-23

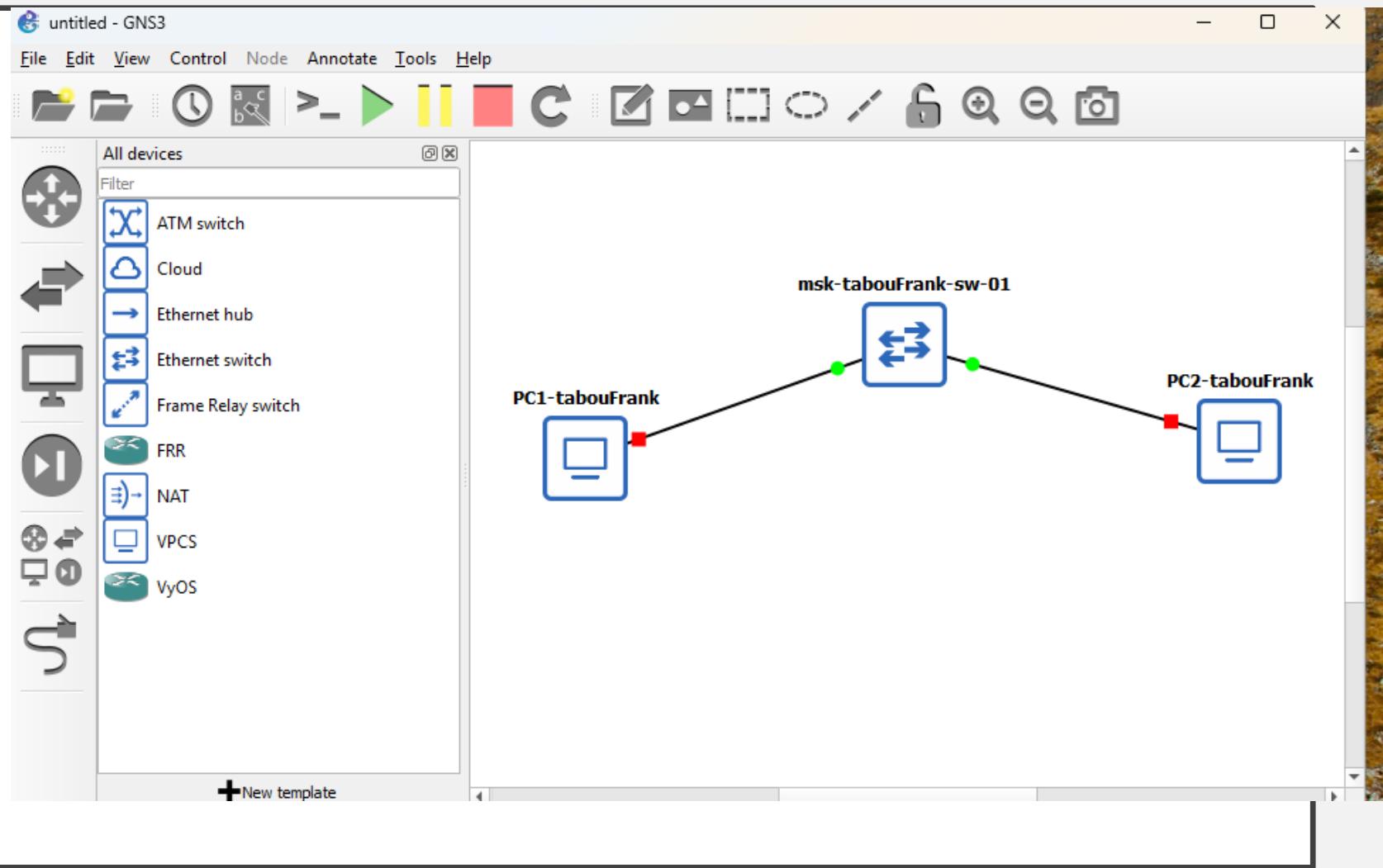
ЦЕЛЬ РАБОТА

Построить простейшие модели сетей на базе коммутатора и маршрутизаторов FRR и VyOS в GNS3, проанализировать трафик посредством Wireshark.

ЗАДАНИЕ

- Смоделировать простейшую сеть на базе коммутатора в GNS3;
- Проанализировать трафик в GNS3 посредством Wireshark;
- Смоделировать простейшую сеть на базе маршрутизатора FRR в GNS3;
- Смоделировать простейшую сеть на базе маршрутизатора VyOS в GNS3.

ВЫПОЛНЕ
НИЕ
ЛАБОРАТ
ОРНОЙ
РАБОТЫ



ВЫПОЛНЕ
НИЕ
ЛАБОРАТ
ОРНОЙ
РАБОТЫ

PC1-tabouFrank - PuTTY

```
Welcome to Virtual PC Simulator, version 0.8.3
Dedicated to Daling.
Build time: Sep 9 2023 11:15:00
Copyright (c) 2007-2015, Paul Meng (mirnshi@gmail.com)
All rights reserved.

VPCS is free software, distributed under the terms of the "BSD" licence.
Source code and license can be found at vpcs.sf.net.
For more information, please visit wiki.freecode.com.cn.

Press '?' to get help.

Executing the startup file

Hostname is too long. (Maximum 12 characters)

VPCS> █
```

ВЫПОЛНЕНИЕ ЛАБОРАТОРНОЙ РАБОТЫ

```
VPCS> save
Saving startup configuration to startup.vpc
. done

0VPCS> █
```

ВЫПОЛНЕНИЕ ЛАБОРАТОРНОЙ РАБОТЫ

```
VPCS> /?

?
arp
clear ARG
dhcp [OPTION]
disconnect
echo TEXT
help
history
ip ARG ... [OPTION]
load [FILENAME]
ping HOST [OPTION ...]
quit
relay ARG ...
rlogin [ip] port
save [FILENAME]
set ARG ...
show [ARG ...]
sleep [seconds] [TEXT]
trace HOST [OPTION ...]
version

Print help
Shortcut for: show arp. Show arp table
Clear IPv4/IPv6, arp/neighbor cache, command history
Shortcut for: ip dhcp. Get IPv4 address via DHCP
Exit the telnet session (daemon mode)
Display TEXT in output. See also set echo ?
Print help
Shortcut for: show history. List the command history
Configure the current VPC's IP settings. See ip ?
Load the configuration/script from the file FILENAME
Ping HOST with ICMP (default) or TCP/UDP. See ping ?
Quit program
Configure packet relay between UDP ports. See relay ?
Telnet to port on host at ip (relative to host PC)
Save the configuration to the file FILENAME
Set VPC name and other options. Try set ?
Print the information of VPCs (default). See show ?
Print TEXT and pause running script for seconds
Print the path packets take to network HOST
Shortcut for: show version

To get command syntax help, please enter '?' as an argument of the command.

VPCS> ip 192.168.1.12/24 192.168.1.1
Checking for duplicate address...
VPCS : 192.168.1.12 255.255.255.0 gateway 192.168.1.1

VPCS> save
Saving startup configuration to startup.vpc
. done

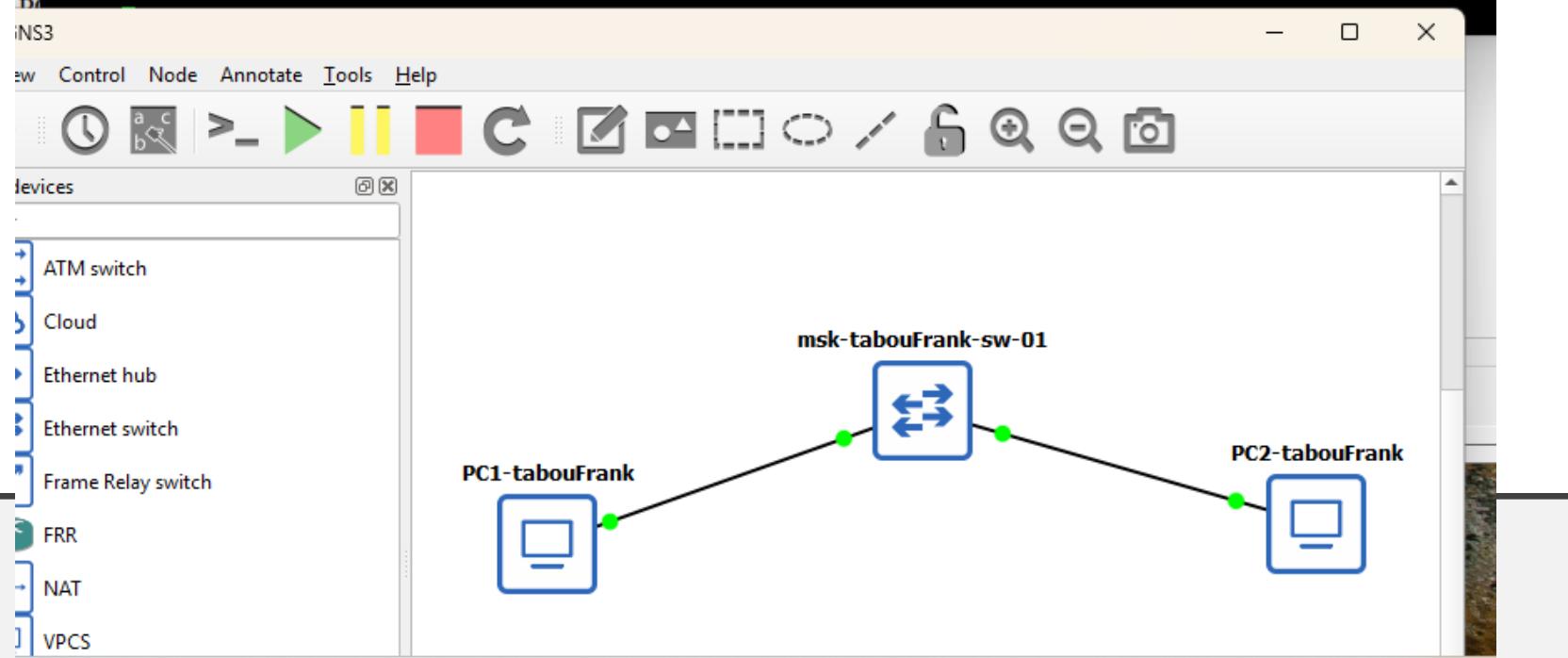
VPCS> █
```

ВЫПОЛНЕНИЕ ЛАБОРАТОРНОЙ РАБОТЫ

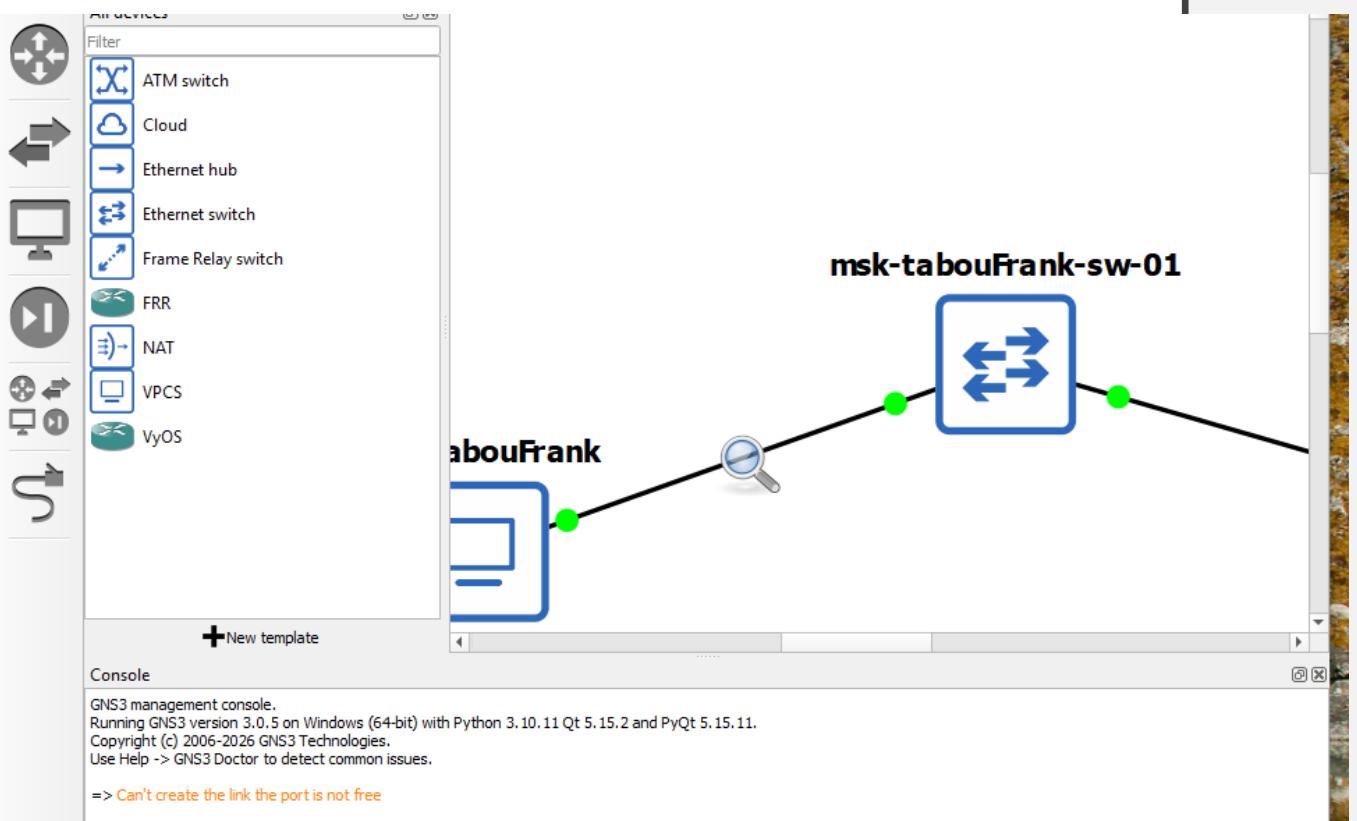
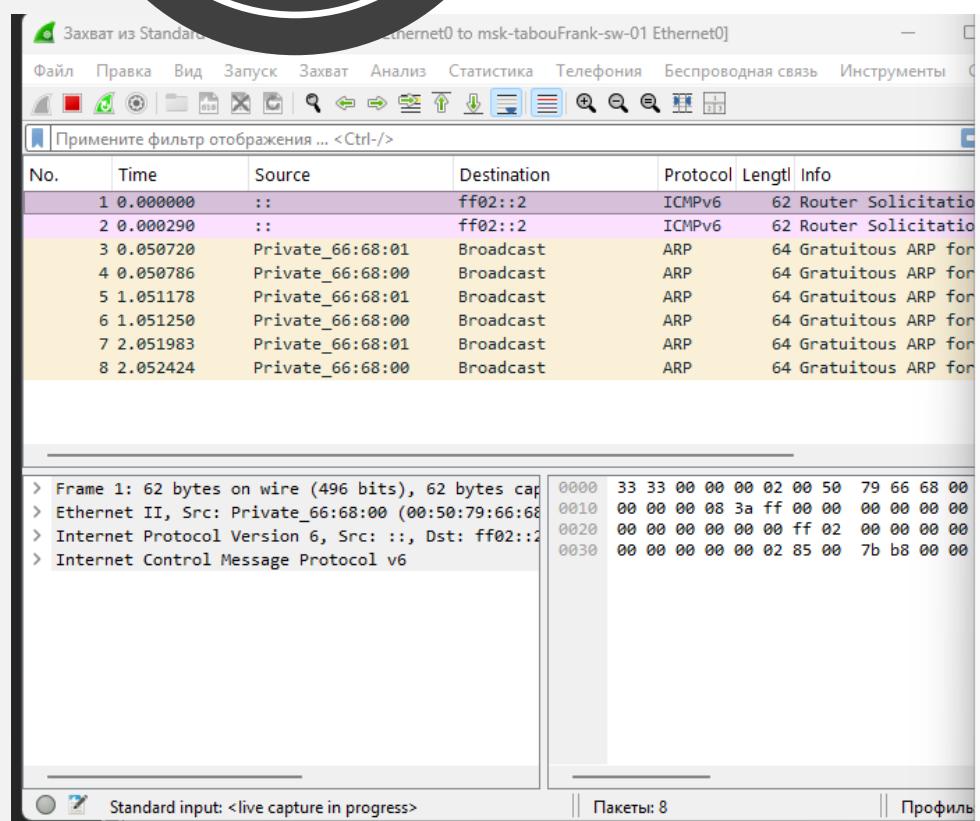
```
VPCS> ping

ping HOST [OPTION ...]
  Ping the network HOST. HOST can be an ip address or name
  Options:
    -1          ICMP mode, default
    -2          UDP mode
    -3          TCP mode
    -c count   Packet count, default 5
    -D          Set the Don't Fragment bit
    -f FLAG    Tcp header FLAG |C|E|U|A|P|R|S|F|
                bits |7 6 5 4 3 2 1 0|
    -i ms      Wait ms milliseconds between sending each packet
    -l size    Data size
    -P protocol Use IP protocol in ping packets
                 1 - ICMP (default), 17 - UDP, 6 - TCP
    -p port    Destination port
    -s port    Source port
    -T ttl     Set ttl, default 64
    -t         Send packets until interrupted by Ctrl+C
    -w ms      Wait ms milliseconds to receive the response

Notes: 1. Using names requires DNS to be set.
       2. Use Ctrl+C to stop the command.
```



ВЫПОЛНЕНИЕ ЛАБОРАТОРНОЙ РАБОТЫ



ВЫПОЛНЕНИЕ ЛАБОРАТОРНОЙ РАБОТЫ

Захват из Standard input [PC1-tabouFrank Ethernet0 to msk-tabouFrank-sw-01 Ethernet0]

Файл Правка Вид Запуск Захват Анализ Статистика Телефония Беспроводная связь Инструменты Справка

Примените фильтр отображения ... <Ctrl-/>

No.	Time	Source	Destination	Protocol	Length	Info
1	0.000000	::	ff02::2	ICMPv6	62	Router Solicitation
2	0.000290	::	ff02::2	ICMPv6	62	Router Solicitation
3	0.050720	Private_66:68:01	Broadcast	ARP	64	Gratuitous ARP for 192.168.1.12 (Request)
4	0.050786	Private_66:68:00	Broadcast	ARP	64	Gratuitous ARP for 192.168.1.11 (Request)
5	1.051178	Private_66:68:01	Broadcast	ARP	64	Gratuitous ARP for 192.168.1.12 (Request)
6	1.051250	Private_66:68:00	Broadcast	ARP	64	Gratuitous ARP for 192.168.1.11 (Request)
7	2.051983	Private_66:68:01	Broadcast	ARP	64	Gratuitous ARP for 192.168.1.12 (Request)
8	2.052424	Private_66:68:00	Broadcast	ARP	64	Gratuitous ARP for 192.168.1.11 (Request)

Frame 1: 62 bytes on wire (496 bits), 62 bytes captured (496 bits) on interface
Section number: 1
> Interface id: 0 (-)
Encapsulation type: Ethernet (1)
Arrival Time: Jan 2, 2026 21:09:11.089457000 RTZ 2 (зима)
UTC Arrival Time: Jan 2, 2026 18:09:11.089457000 UTC
Epoch Arrival Time: 1767377351.089457000
[Time shift for this packet: 0.000000000 seconds]
[Time delta from previous captured frame: 0.000000000 seconds]
[Time delta from previous displayed frame: 0.000000000 seconds]
[Time since reference or first frame: 0.000000000 seconds]
Frame Number: 1
Frame Length: 62 bytes (496 bits)
Capture Length: 62 bytes (496 bits)
[Frame is marked: False]
[Frame is ignored: False]
[Protocols in frame: eth:ethertype:ipv6:icmpv6]
[Coloring Rule Name: ICMP]
[Coloring Rule String: Item 11, itemset]

0000 33 33 00 00 00 02 00 50 79 66 68 00 86 dd 60 00 33... P yfh...`
0010 00 00 00 08 3a ff 00 00 00 00 00 00 00 00 00 00 00
0020 00 00 00 00 00 00 ff 02 00 00 00 00 00 00 00 00 00
0030 00 00 00 00 00 00 02 85 00 7b b8 00 00 00 00 00 00

ВЫПОЛНЕ НИЕ ЛАБОРАТ ОРНОЙ РАБОТЫ

```
14 347.347653 192.168.1.11 192.168.1.12 ICMP 98 Echo (ping) reply id=0x220b, seq=2/512, ttl=64 (request in 13)
15 348.348333 192.168.1.12 192.168.1.11 ICMP 98 Echo (ping) request id=0x230b, seq=3/768, ttl=64 (reply in 16)
16 348.348598 192.168.1.11 192.168.1.12 ICMP 98 Echo (ping) reply id=0x230b, seq=3/768, ttl=64 (request in 15)
17 349.350190 192.168.1.12 192.168.1.11 ICMP 98 Echo (ping) request id=0x240b, seq=4/1024, ttl=64 (reply in 18)
18 349.351914 192.168.1.11 192.168.1.12 ICMP 98 Echo (ping) reply id=0x240b, seq=4/1024, ttl=64 (request in 17)
19 350.354578 192.168.1.12 192.168.1.11 ICMP 98 Echo (ping) request id=0x250b, seq=5/1280, ttl=64 (reply in 20)
20 350.355793 192.168.1.11 192.168.1.12 ICMP 98 Echo (ping) reply id=0x250b, seq=5/1280, ttl=64 (request in 19)
21 368.206985 192.168.1.12 192.168.1.11 ICMP 98 Echo (ping) request id=0x370b, seq=1/256, ttl=64 (reply in 22)
22 368.297751 192.168.1.11 192.168.1.12 ICMP 98 Echo (ping) reply id=0x370b, seq=1/256, ttl=64 (request in 21)
23 369.299346 192.168.1.12 192.168.1.11 ICMP 98 Echo (ping) request id=0x380b, seq=2/512, ttl=64 (reply in 24)
24 369.299856 192.168.1.11 192.168.1.12 ICMP 98 Echo (ping) reply id=0x380b, seq=2/512, ttl=64 (request in 23)
25 370.300648 192.168.1.12 192.168.1.11 ICMP 98 Echo (ping) request id=0x390b, seq=3/768, ttl=64 (reply in 26)
26 370.301200 192.168.1.11 192.168.1.12 ICMP 98 Echo (ping) reply id=0x390b, seq=3/768, ttl=64 (request in 25)
27 371.302082 192.168.1.12 192.168.1.11 ICMP 98 Echo (ping) request id=0x3a0b, seq=4/1024, ttl=64 (reply in 28)
28 371.302733 192.168.1.11 192.168.1.12 ICMP 98 Echo (ping) reply id=0x3a0b, seq=4/1024, ttl=64 (request in 27)
29 372.304642 192.168.1.12 192.168.1.11 ICMP 98 Echo (ping) request id=0x3b0b, seq=5/1280, ttl=64 (reply in 30)
30 372.305737 192.168.1.11 192.168.1.12 ICMP 98 Echo (ping) reply id=0x3b0b, seq=5/1280, ttl=64 (request in 29)

> Frame 1: 62 bytes on wire (496 bits), 62 bytes captured (496 bits) on interface 
  ▼ Ethernet II, Src: Private_66:68:00 (00:50:79:66:68:00), Dst: IPv6mcast_02 (33:33:00:00:00:02)
    > Destination: IPv6mcast_02 (33:33:00:00:00:02)
    > Source: Private_66:68:00 (00:50:79:66:68:00)
    | 0000  33 33 00 00 00 02 00 50 79 66 68 00 86 dd 60 00  33....P yfh....
    | 0010  00 00 00 08 3a ff 00 00 00 00 00 00 00 00 00 00 00  ....;.....
    | 0020  00 00 00 00 00 ff 02 00 00 00 00 00 00 00 00 00 00  .....
    | 0030  00 00 00 00 00 02 85 00 7b b8 00 00 00 00 00 00 00  ....{....
```

```
VPCS> ping -l 192.168.1.11
Cannot resolve -l

VPCS> ping 192.168.1.11

84 bytes from 192.168.1.11 icmp_seq=1 ttl=64 time=0.303 ms
84 bytes from 192.168.1.11 icmp_seq=2 ttl=64 time=0.949 ms
84 bytes from 192.168.1.11 icmp_seq=3 ttl=64 time=0.630 ms
84 bytes from 192.168.1.11 icmp_seq=4 ttl=64 time=3.107 ms
84 bytes from 192.168.1.11 icmp_seq=5 ttl=64 time=2.574 ms

VPCS> ping 192.168.1.11

84 bytes from 192.168.1.11 icmp_seq=1 ttl=64 time=1.447 ms
84 bytes from 192.168.1.11 icmp_seq=2 ttl=64 time=0.750 ms
84 bytes from 192.168.1.11 icmp_seq=3 ttl=64 time=0.919 ms
84 bytes from 192.168.1.11 icmp_seq=4 ttl=64 time=1.247 ms
84 bytes from 192.168.1.11 icmp_seq=5 ttl=64 time=1.866 ms

VPCS> S
```

ВЫПОЛНЕНИЕ ЛАБОРАТОРНОЙ РАБОТЫ

№.	Time	Source	Destination	Protocol	Length	Info
53	882.979570	Private_66:68:01	Broadcast	ARP	64	Who has 192.168.1.11? Tell 192.168.1.12
54	882.980428	Private_66:68:00	Private_66:68:01	ARP	64	192.168.1.11 is at 00:50:79:66:68:00
55	882.982230	192.168.1.12	192.168.1.11	TCP	74	36070 → 7 [SYN] Seq=0 Win=2920 Len=0 MSS=1460 TSval=1767378234 TSecr=0 WS...
56	882.983720	192.168.1.11	192.168.1.12	TCP	54	7 → 36070 [SYN, ACK] Seq=0 Ack=1 Win=2920 Len=0
57	882.986572	192.168.1.12	192.168.1.11	TCP	66	36070 → 7 [ACK] Seq=1 Ack=1 Win=2920 Len=0 TSval=1767378234 TSecr=0
58	882.989429	192.168.1.12	192.168.1.11	ECHO	122	Request
59	882.990764	192.168.1.11	192.168.1.12	TCP	54	7 → 36070 [ACK] Seq=1 Ack=57 Win=2920 Len=0
60	882.995125	192.168.1.12	192.168.1.11	TCP	66	36070 → 7 [FIN, PSH, ACK] Seq=57 Ack=1 Win=2920 Len=0 TSval=1767378234 TSecr=0
61	882.997400	192.168.1.11	192.168.1.12	TCP	54	7 → 36070 [ACK] Seq=1 Ack=58 Win=2920 Len=0
62	882.997811	192.168.1.11	192.168.1.12	TCP	54	7 → 36070 [FIN, ACK] Seq=1 Ack=58 Win=2920 Len=0
63	883.001519	192.168.1.12	192.168.1.11	TCP	66	36070 → 7 [ACK] Seq=58 Ack=2 Win=2920 Len=0 TSval=1767378234 TSecr=0
64	884.008037	192.168.1.12	192.168.1.11	TCP	74	[TCP Port numbers reused] 36070 → 7 [SYN] Seq=0 Win=2920 Len=0 MSS=1460 TS...
65	884.001321	192.168.1.11	192.168.1.12	TCP	54	7 → 36070 [SYN, ACK] Seq=0 Ack=1 Win=2920 Len=0
66	884.003169	192.168.1.12	192.168.1.11	TCP	66	36070 → 7 [ACK] Seq=1 Ack=1 Win=2920 Len=0 TSval=1767378235 TSecr=0
67	884.004226	192.168.1.12	192.168.1.11	ECHO	122	Request
68	884.004688	192.168.1.11	192.168.1.12	TCP	54	7 → 36070 [ACK] Seq=1 Ack=57 Win=2920 Len=0
69	884.006477	192.168.1.12	192.168.1.11	TCP	66	36070 → 7 [FIN, PSH, ACK] Seq=57 Ack=1 Win=2920 Len=0 TSval=1767378235 TSecr=0
70	884.006780	192.168.1.11	192.168.1.12	TCP	54	7 → 36070 [ACK] Seq=1 Ack=58 Win=2920 Len=0
71	884.006809	192.168.1.11	192.168.1.12	TCP	54	7 → 36070 [FIN, ACK] Seq=1 Ack=58 Win=2920 Len=0
72	884.009248	192.168.1.12	192.168.1.11	TCP	66	36070 → 7 [ACK] Seq=58 Ack=2 Win=2920 Len=0 TSval=1767378235 TSecr=0
73	885.009417	192.168.1.12	192.168.1.11	TCP	74	[TCP Port numbers reused] 36070 → 7 [SYN] Seq=0 Win=2920 Len=0 MSS=1460 TS...
74	885.010157	192.168.1.11	192.168.1.12	TCP	54	7 → 36070 [SYN, ACK] Seq=0 Ack=1 Win=2920 Len=0
75	885.011427	192.168.1.12	192.168.1.11	TCP	66	36070 → 7 [ACK] Seq=1 Ack=1 Win=2920 Len=0 TSval=1767378236 TSecr=0
76	885.012555	192.168.1.12	192.168.1.11	ECHO	122	Request
77	885.013169	192.168.1.11	192.168.1.12	TCP	54	7 → 36070 [ACK] Seq=1 Ack=57 Win=2920 Len=0
78	885.014734	192.168.1.12	192.168.1.11	TCP	66	36070 → 7 [FIN, PSH, ACK] Seq=57 Ack=1 Win=2920 Len=0 TSval=1767378236 TSecr=0
79	885.015155	192.168.1.11	192.168.1.12	TCP	54	7 → 36070 [ACK] Seq=1 Ack=58 Win=2920 Len=0
80	885.015186	192.168.1.11	192.168.1.12	TCP	54	7 → 36070 [FIN, ACK] Seq=1 Ack=58 Win=2920 Len=0
81	885.016887	192.168.1.12	192.168.1.11	TCP	66	36070 → 7 [ACK] Seq=58 Ack=2 Win=2920 Len=0 TSval=1767378236 TSecr=0
82	886.017017	192.168.1.12	192.168.1.11	TCP	74	[TCP Port numbers reused] 36070 → 7 [SYN] Seq=0 Win=2920 Len=0 MSS=1460 TS...
83	886.017445	192.168.1.11	192.168.1.12	TCP	54	7 → 36070 [SYN, ACK] Seq=0 Ack=1 Win=2920 Len=0
84	886.017978	192.168.1.12	192.168.1.11	TCP	66	36070 → 7 [ACK] Seq=1 Ack=1 Win=2920 Len=0 TSval=1767378237 TSecr=0
85	886.018301	192.168.1.12	192.168.1.11	ECHO	122	Request
86	886.018441	192.168.1.11	192.168.1.12	TCP	54	7 → 36070 [ACK] Seq=1 Ack=57 Win=2920 Len=0
87	886.019544	192.168.1.12	192.168.1.11	TCP	66	36070 → 7 [FIN, PSH, ACK] Seq=57 Ack=1 Win=2920 Len=0 TSval=1767378237 TSecr=0
88	886.019686	192.168.1.11	192.168.1.12	TCP	54	7 → 36070 [ACK] Seq=1 Ack=58 Win=2920 Len=0
89	886.019705	192.168.1.11	192.168.1.12	TCP	54	7 → 36070 [FIN, ACK] Seq=1 Ack=58 Win=2920 Len=0
90	886.021464	192.168.1.12	192.168.1.11	TCP	66	36070 → 7 [ACK] Seq=58 Ack=2 Win=2920 Len=0 TSval=1767378237 TSecr=0
91	887.021781	192.168.1.12	192.168.1.11	TCP	74	[TCP Port numbers reused] 36070 → 7 [SYN] Seq=0 Win=2920 Len=0 MSS=1460 TS...
92	887.022374	192.168.1.11	192.168.1.12	TCP	54	7 → 36070 [SYN, ACK] Seq=0 Ack=1 Win=2920 Len=0
93	887.023085	192.168.1.12	192.168.1.11	TCP	66	36070 → 7 [ACK] Seq=1 Ack=1 Win=2920 Len=0 TSval=1767378238 TSecr=0
94	887.023145	192.168.1.12	192.168.1.11	ECHO	122	Request
95	887.023602	192.168.1.11	192.168.1.12	TCP	54	7 → 36070 [ACK] Seq=1 Ack=57 Win=2920 Len=0
96	887.024529	192.168.1.12	192.168.1.11	TCP	66	36070 → 7 [FIN, PSH, ACK] Seq=57 Ack=1 Win=2920 Len=0 TSval=1767378238 TSecr=0
97	887.024812	192.168.1.11	192.168.1.12	TCP	54	7 → 36070 [ACK] Seq=1 Ack=58 Win=2920 Len=0
98	887.024956	192.168.1.11	192.168.1.12	TCP	54	7 → 36070 [FIN, ACK] Seq=1 Ack=58 Win=2920 Len=0
99	887.027233	192.168.1.12	192.168.1.11	TCP	66	36070 → 7 [ACK] Seq=58 Ack=2 Win=2920 Len=0 TSval=1767378238 TSecr=0

```

PC2-tabouFrank - PuTTY
84 bytes from 192.168.1.11 udp_seq=2 ttl=64 time=1.217 ms
84 bytes from 192.168.1.11 udp_seq=3 ttl=64 time=0.591 ms
84 bytes from 192.168.1.11 udp_seq=4 ttl=64 time=1.742 ms
84 bytes from 192.168.1.11 udp_seq=5 ttl=64 time=2.549 ms

VPCS> ping 192.168.1.11 -3

Connect 7@192.168.1.11 seq=1 ttl=64 time=3.938 ms
SendData 7@192.168.1.11 seq=1 ttl=64 time=4.436 ms
Close 7@192.168.1.11 seq=1 ttl=64 time=5.731 ms
Connect 7@192.168.1.11 seq=2 ttl=64 time=2.265 ms
SendData 7@192.168.1.11 seq=2 ttl=64 time=1.214 ms
Close 7@192.168.1.11 seq=2 ttl=64 time=2.414 ms
Connect 7@192.168.1.11 seq=3 ttl=64 time=2.228 ms
SendData 7@192.168.1.11 seq=3 ttl=64 time=1.182 ms
Close 7@192.168.1.11 seq=3 ttl=64 time=2.196 ms
Connect 7@192.168.1.11 seq=4 ttl=64 time=1.102 ms
SendData 7@192.168.1.11 seq=4 ttl=64 time=1.082 ms
Close 7@192.168.1.11 seq=4 ttl=64 time=2.155 ms
Connect 7@192.168.1.11 seq=5 ttl=64 time=1.196 ms
SendData 7@192.168.1.11 seq=5 ttl=64 time=1.105 ms
Close 7@192.168.1.11 seq=5 ttl=64 time=2.374 ms

VPCS> 
```

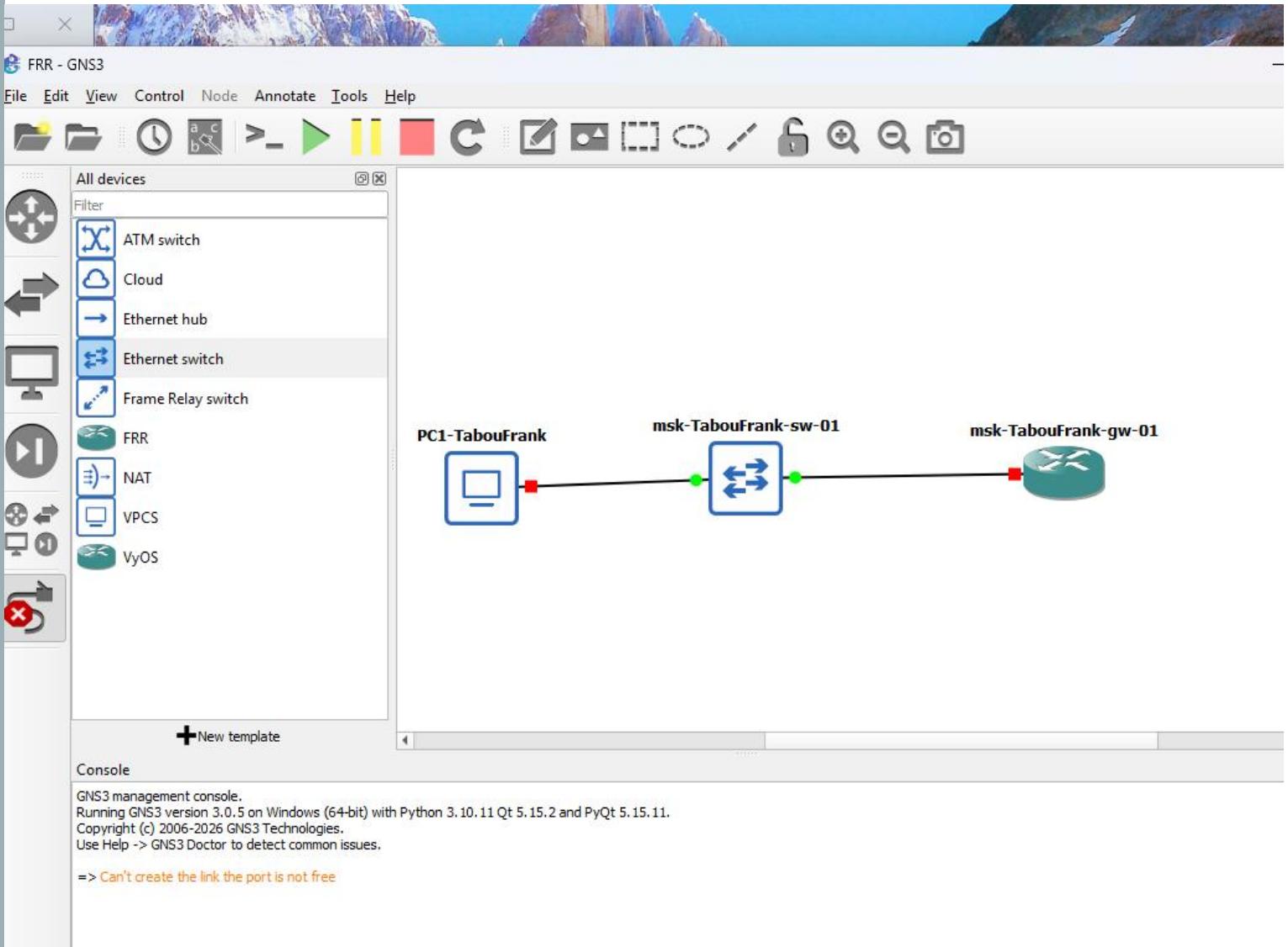
.....

.10.11 Qt 5.15.2 and PyQt 5.15.11.

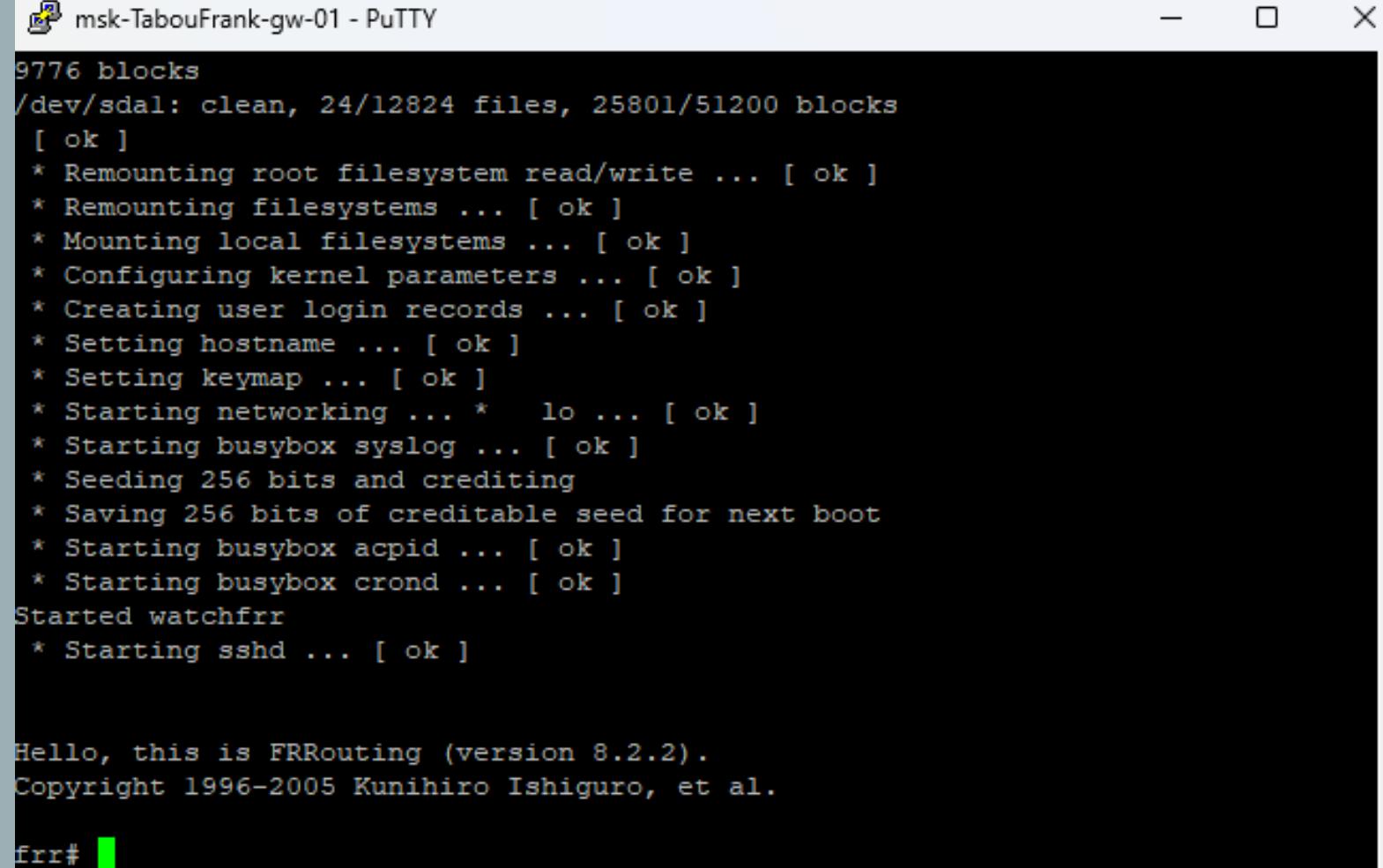
Wireshark 4.4.6 (v4.4.6-0-gaebb20483889). Обновления выполняются автоматически.

или захвату Пакеты отсутствуют Профиль: Default

ВЫПОЛНЕНИЕ ЛАБОРАТОРНОЙ РАБОТЫ



ВЫПОЛНЕНИЕ
ЛАБОРАТОРНОЙ
РАБОТЫ



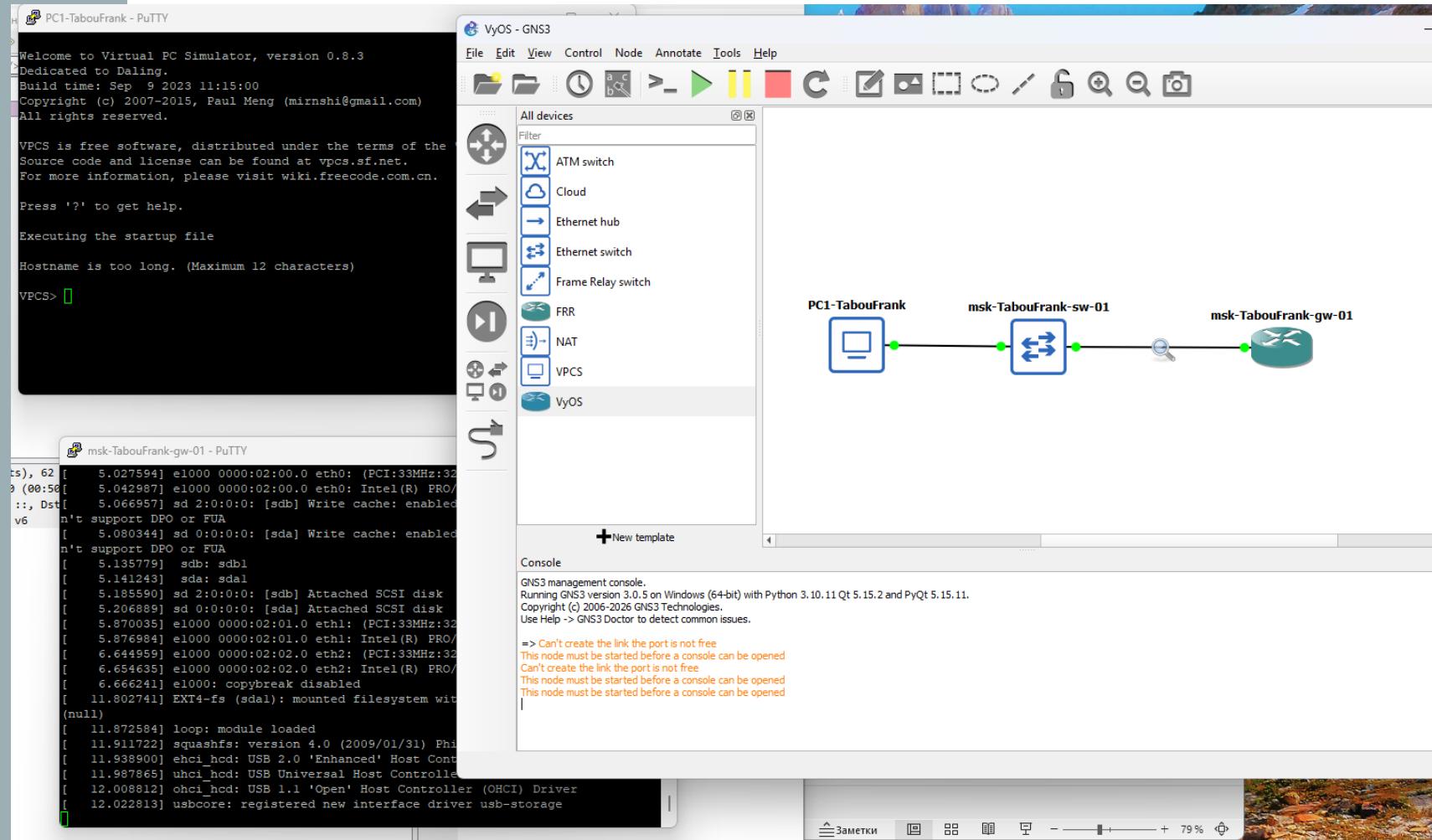
msk-TabouFrank-gw-01 - PuTTY

```
9776 blocks
/dev/sdal: clean, 24/12824 files, 25801/51200 blocks
[ ok ]
* Remounting root filesystem read/write ... [ ok ]
* Remounting filesystems ... [ ok ]
* Mounting local filesystems ... [ ok ]
* Configuring kernel parameters ... [ ok ]
* Creating user login records ... [ ok ]
* Setting hostname ... [ ok ]
* Setting keymap ... [ ok ]
* Starting networking ... * lo ... [ ok ]
* Starting busybox syslog ... [ ok ]
* Seeding 256 bits and crediting
* Saving 256 bits of creditable seed for next boot
* Starting busybox acpid ... [ ok ]
* Starting busybox crond ... [ ok ]
Started watchfrr
* Starting sshd ... [ ok ]

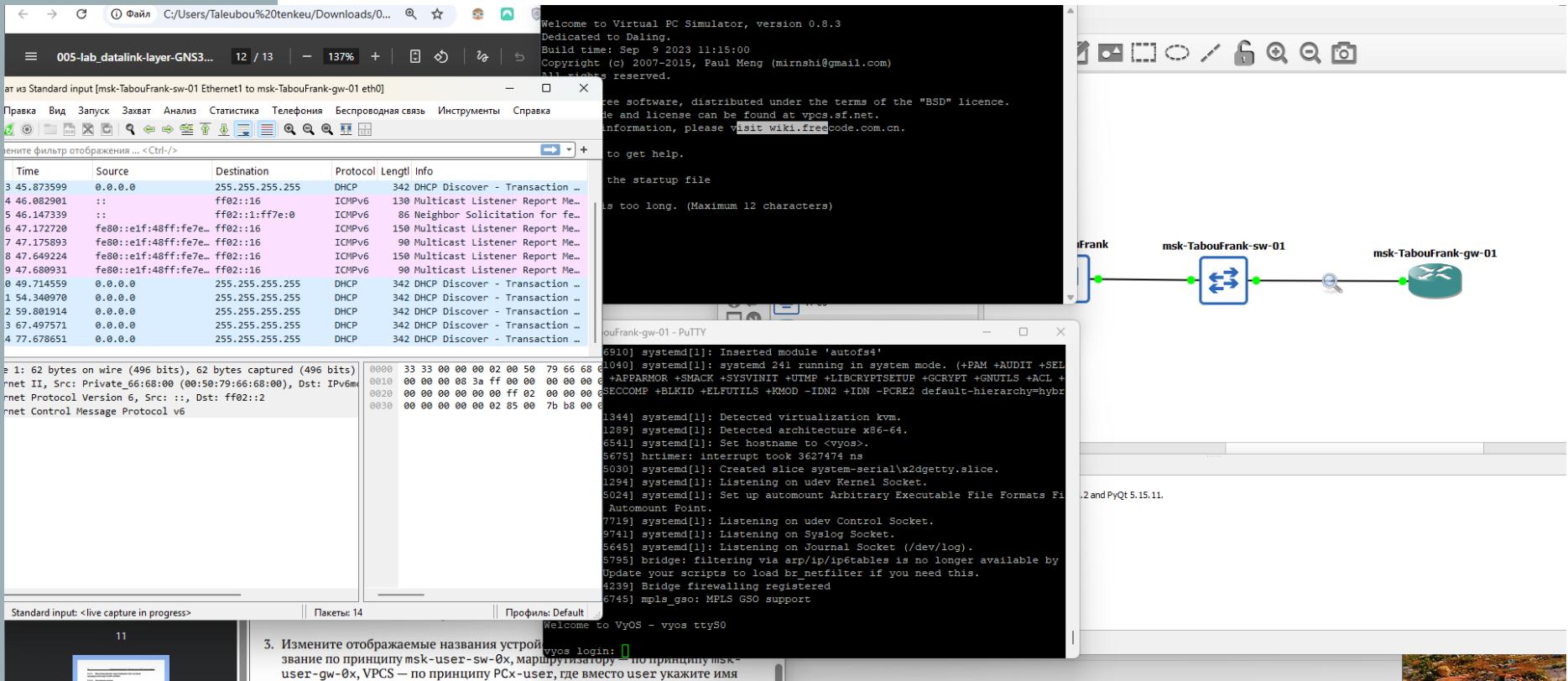
Hello, this is FRRouting (version 8.2.2).
Copyright 1996-2005 Kunihiro Ishiguro, et al.

frr#
```

ВЫПОЛНЕНИЕ ЛАБОРАТОРНОЙ РАБОТЫ



ВЫПОЛНЕНИЕ ЛАБОРАТОРНОЙ РАБОТЫ



ВЫПОЛНЕНИЕ
ЛАБОРАТОРНОЙ
РАБОТЫ

PC1-TabouFrank - PuTTY

```
Hostname is too long. (Maximum 12 characters)

VPCS> ip 192.168.1.10/24 192.168.1.1
Checking for duplicate address...
VPCS : 192.168.1.10 255.255.255.0 gateway 192.168.1.1

VPCS> save
Saving startup configuration to startup.vpc
. done

VPCS> show ip

NAME          : VPCS[1]
IP/MASK       : 192.168.1.10/24
GATEWAY      : 192.168.1.1
DNS           :
MAC           : 00:50:79:66:68:00
LPORT          : 10004
RHOST:PORT    : 127.0.0.1:10005
MTU           : 1500

VPCS> 
```

ВЫПОЛНЕНИЕ ЛАБОРАТОРНОЙ РАБОТЫ

```
Welcome to VyOS - vyos ttyS0

vyos login: vyos
Password:
Welcome to VyOS!

Check out project news at https://blog.vyos.io
and feel free to report bugs at https://vyos.dev

You can change this banner using "set system login banner post-login" command.

VyOS is a free software distribution that includes multiple components,
you can check individual component licenses under /usr/share/doc/*copyright
vyos@vyos:~$ install image
You are trying to install from an already installed system. An ISO
image file to install or URL must be specified.
Exiting...
vyos@vyos:~$ configure
[edit]
vyos@vyos# set system host-name msk-TabouFrank-gw-01
[edit]
vyos@vyos# save
Warning: you have uncommitted changes that will not be saved.

Saving configuration to '/config/config.boot'...
Done
[edit]
vyos@vyos# commit
[edit]
vyos@vyos# save
Saving configuration to '/config/config.boot'...
Done
[edit]
vyos@vyos# 
```

ВЫПОЛНЕНИЕ ЛАБОРАТОРНОЙ РАБОТЫ

No.	Time	Source	Destination	Protocol	Length	Info
78	1076.798883	0.0.0.0	255.255.255.255	DHCP	342	DHCP Discover - Transaction ID 0xaaa2dc025
79	1079.539130	0.0.0.0	255.255.255.255	DHCP	342	DHCP Discover - Transaction ID 0xaaa2dc025
80	1084.394536	0.0.0.0	255.255.255.255	DHCP	342	DHCP Discover - Transaction ID 0xaaa2dc025
81	1094.110877	0.0.0.0	255.255.255.255	DHCP	342	DHCP Discover - Transaction ID 0xaaa2dc025
82	1110.914059	0.0.0.0	255.255.255.255	DHCP	342	DHCP Discover - Transaction ID 0xaaa2dc025
83	1123.391951	0.0.0.0	255.255.255.255	DHCP	342	DHCP Discover - Transaction ID 0xaaa2dc025
84	1441.327429	Private_66:68:00	Broadcast	ARP	64	Who has 192.168.1.1? Tell 192.168.1.10
85	1441.328830	0:c1:f4:48:7e:00:00	Private_66:68:00	ARP	60	192.168.1.1 is at 0:c1:f4:48:e7:00:00
86	1441.329743	192.168.1.10	192.168.1.1	ICMP	98	Echo (ping) request id=0xe2e0, seq=1/256, ttl=64
87	1441.331188	192.168.1.1	192.168.1.10	ICMP	98	Echo (ping) reply id=0xe2e0, seq=1/256, ttl=64
88	1442.332965	192.168.1.10	192.168.1.1	ICMP	98	Echo (ping) request id=0xf2f0, seq=2/512, ttl=64
89	1442.335615	192.168.1.1	192.168.1.10	ICMP	98	Echo (ping) reply id=0xf2f0, seq=2/512, ttl=64
90	1443.337674	192.168.1.10	192.168.1.1	ICMP	98	Echo (ping) request id=0x1020, seq=3/768, ttl=64
91	1443.340016	192.168.1.1	192.168.1.10	ICMP	98	Echo (ping) reply id=0x1020, seq=3/768, ttl=64
92	1444.341430	192.168.1.10	192.168.1.1	ICMP	98	Echo (ping) request id=0x1120, seq=4/1024, ttl=64
93	1444.343427	192.168.1.1	192.168.1.10	ICMP	98	Echo (ping) reply id=0x1120, seq=4/1024, ttl=64
94	1445.345490	192.168.1.10	192.168.1.1	ICMP	98	Echo (ping) request id=0x1220, seq=5/1280, ttl=64
95	1445.346456	192.168.1.1	192.168.1.10	ICMP	98	Echo (ping) reply id=0x1220, seq=5/1280, ttl=64
96	1446.370091	0:c1:f4:48:7e:00:00	Private_66:68:00	ARP	60	Who has 192.168.1.10? Tell 192.168.1.1
97	1446.372272	Private_66:68:00	0:c1:f4:48:7e:00:00	ARP	60	192.168.1.10 is at 00:50:79:66:68:00

```
Saving startup configuration to startup.vpc
. done

VPCS> show ip

NAME          : VPCS[1]
IP/MASK       : 192.168.1.10/24
GATEWAY      : 192.168.1.1
DNS           :
MAC           : 00:50:79:66:68:00
LPORT          : 10004
RHOST:PORT   : 127.0.0.1:10005
MTU           : 1500

VPCS> ping 192.168.1.1

84 bytes from 192.168.1.1 icmp_seq=1 ttl=64 time=1.827 ms
84 bytes from 192.168.1.1 icmp_seq=2 ttl=64 time=3.797 ms
84 bytes from 192.168.1.1 icmp_seq=3 ttl=64 time=2.925 ms
84 bytes from 192.168.1.1 icmp_seq=4 ttl=64 time=2.562 ms
84 bytes from 192.168.1.1 icmp_seq=5 ttl=64 time=1.362 ms
```

```
0000 ff ff ff ff ff ff 0c 1<VPCs> [ ] H  
0010 01 48 00 00 00 00 80 11 39 96 00 00 00 00 ff ff ..-D C 4  
0020 ff ff ff 44 00 43 01 34 8f 06 01 01 00 00 a8 55 A  
0030 41 09 00 16 00 00 00 00 00 00 00 00 00 00 00 00 ..  
0040 00 00 00 00 00 00 00 00 1f 48 7e 00 00 00 00 00 ..  
0050 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ..  
0060 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ..  
0070 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ..  
0080 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ..  
0090 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ..  
00a0 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ..  
00b0 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ..  
00c0 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ..  
00d0 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ..  
00e0 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ..  
00f0 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ..  
0100 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ..  
0110 00 00 00 00 00 00 63 82 53 63 35 01 01 32 04 0a ..-c  
0120 02 02 f0 04 76 79 f7 37 07 01 01 c3 06 79 ..-vyo  
0130 0f 1a ff 00 00 00 00 00 00 00 00 00 00 00 00 00 ..  
0140 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ..  
0150 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ..
```



ВЫВОДЫ

В процессе выполнения данной лабораторной работы я построил простейшие модели сети на базе коммутатора и маршрутизатора VyOS в GNS3, проанализировал трафик посредством Wireshark.