ФЕДЕРАЛЬНОЕ АГЕНТСТВО ЖЕЛЕЗНОДОРОЖНОГО ТРАНСПОРТА федеральное государственное бюджетное образовательное учреждение высшего образования «Омский государственный университет путей сообщения» (ОмГУПС (ОмИИТ))

Кафедра «Информационная безопасность»

Сканеры уязвимостей Отчет по лабораторной работе по дисциплине «Методы выявления нарушений ИБ и аттестация АС на ЖДТ»

> Студент гр. 28 с _____ Ю.Е. Туник «_____ 2023г.

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Омск 2023

Цель работы: освоить навыки работы со сканерами уязвимостей. Задание:

1. Настройте на виртуальной машине ssh-сервер, ftp-сервер и http-сервер.

2. Прочитайте методичку по сканеру безопасности nmap. Выполните следующие сканирования:

1) Определение доступности хостов в вашей подсети (выбираете любой из методов по инструкции);

2) Сканирование портов роутера, собственного ПК, виртуальной машины Linux. Выполните сканирования минимум тремя различными методами сканирования. Сравните полученные результаты.

3) Выполните сканирование роутера, собственного ПК, виртуальной машины Linux с определением версии ОС целевого узла.

4) Выполните сканирование роутера, собственного ПК, виртуальной машины Linux с определением версий сетевых сервисов.

3. После этого необходимо перенести рсар файлы из виртуальной машины на свою рабочую ОС и проанализировать их в программе wireshark.

Ход работы

Установили Kali Linux на виртуальную машину, подключили к сети через сетевой мост с хостом и настроили ssh-сервер, ftp-сервер и http-сервер.

IP адрес хоста – 192.168.56.1

IP адрес Kali Linux – 192.168.1.101

IP адрес роутера – 192.168.1.1

1. Настройка ssh

kali-linux-2022.3-virtualbox-amd64 [Pa6otaet] - Oracle VI	d VirtualBox			×
Файл Машина Вид Ввод Устройства Справка				
📉 🔲 🖻 🍃 📦 🖭 🗸 📘 2 3 4 🕒 🗉			8:08	🔒 G•
	kali@kali: ~			
File Actions Edit View Help				
<pre>(kali@ kali)-[~] \$ <u>sudo</u> systemctl start ssh.socket [sudo] password for kali:</pre>				
<pre>\$ suso systemctl enable ssh.socket Command 'suso' not found, did you mean: command 'sudo' from deb sudo command 'sudo' from deb sudo-ldap Try: sudo apt install <deb name=""></deb></pre>				
<pre>(kali@kali)-[~] sudo systemctl enable ssh.socket</pre>				
Проверка подключения по ssh				
🔀 kali@kali: ~		_		X

2. Настройка ftp

sudo apt-get update sudo apt-get install vsftpd sudo service vsftpd start

Проверка ftp

192.168.1.101				- 🗆 X
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$\leftarrow \rightarrow ~~\uparrow$	Интернет > 192.168.1.101		v C x	О Поиск в: 192.168.1
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у ₁	Pictures	Public		
Ъл В А	Templates	Videos		
<mark>=</mark> Ел 1				
а п				
- On Эτς				
Элементов: 8				

3. Настройка http

sudo apt-get install apache2

```
(kali@kali)-[~]
$ sudo systemctl enable apache2
Synchronizing state of apache2.service with SysV service script with /lib/sys
temd/systemd-sysv-install.
Executing: /lib/systemd/systemd-sysv-install enable apache2

(kali@kali)-[~]
$ sudo systemctl start apache2

(kali@kali)-[~]
$ service apache2 start
Failed to start apache2.service: Access denied
See system logs and 'systemctl status apache2.service' for details.
```

Проверка http



Ход работы

Определение доступности хостов в вашей подсети:

```
root@kali: /home/kali
File Actions Edit View Help
__(kali⊛kali)-[~]
_$ sudo su
[sudo] password for kali:
                 [/home/kali]
map -sn 192.168.1.0/24
Starting Nmap 7.92 ( https://nmap.org ) at 2023-03-24 09:23 EDT
Nmap scan report for 192.168.1.1
Host is up (0.0056s latency).
MAC Address: E8:37:7A:91:E6:56 (Zyxel Communications)
Nmap scan report for 192.168.1.34
Host is up (0.00023s latency).
MAC Address: 28:39:26:88:76:6B (CyberTAN Technology)
Nmap scan report for 192.168.1.37
Host is up.
Nmap scan report for 192.168.1.101
Host is up.
Nmap done: 256 IP addresses (4 hosts up) scanned in 2.58 seconds
      ot@kali)-[/home/kali]
    Π
```

Рисунок 1 – Определение доступности хостов

Сканирование портов роутера, собственного ПК, виртуальной машины Linux:

```
-[/home/kali]
   nmap -sS 192.168.1.1
Starting Nmap 7.92 ( https://nmap.org ) at 2023-03-24 08:50 EDT
Nmap scan report for 192.168.1.1
Host is up (0.0034s latency).
Not shown: 998 closed tcp ports (reset)
PORT STATE SERVICE
23/tcp open telnet
80/tcp open http
MAC Address: E8:37:7A:91:E6:56 (Zyxel Communications)
Nmap done: 1 IP address (1 host up) scanned in 1.06 seconds
 Рисунок 2.1 – Сканирование портов роутера SYN
                 [/home/kali]
_____nmap -sT 192.168.1.1
Starting Nmap 7.92 ( https://nmap.org ) at 2023-03-24 09:08 EDT
Nmap scan report for 192.168.1.1
Host is up (0.012s latency).
Not shown: 998 closed tcp ports (conn-refused)
PORT STATE SERVICE
23/tcp open telnet
80/tcp open http
MAC Address: E8:37:7A:91:E6:56 (Zyxel Communications)
Nmap done: 1 IP address (1 host up) scanned in 0.82 seconds
```

Рисунок 2.2 – Сканирование портов роутера ТСР



Рисунок 2.3 – Сканирование портов роутера UDP

(root@kali)-[/home/kali] # nmap -sS 192.168.56.1 Starting Nmap 7.92 (https://nmap.org) at 2023-03-24 09:50 EDT Nmap scan report for 192.168.56.1 Host is up (0.00035s latency). Not shown: 999 filtered tcp ports (no-response) PORT STATE SERVICE 6881/tcp open bittorrent-tracker MAC Address: 0A:00:27:00:00:09 (Unknown)

Nmap done: 1 IP address (1 host up) scanned in 13.68 seconds

Рисунок 3.1 – Сканирование портов собственного ПК SYN

(root@kali)-[/home/kali]
nmap -sT 192.168.56.1
Starting Nmap 7.92 (https://nmap.org) at 2023-03-24 09:53 EDT
Nmap scan report for 192.168.56.1
Host is up (0.00034s latency).
Not shown: 999 filtered tcp ports (no-response)
PORT STATE SERVICE
6881/tcp open bittorrent-tracker
MAC Address: 0A:00:27:00:00:09 (Unknown)

Nmap done: 1 IP address (1 host up) scanned in 19.27 seconds

Рисунок 3.2 – Сканирование портов собственного ПК ТСР

(root@kali)-[/home/kali]
 mmap -sU 192.168.56.1
Starting Nmap 7.92 (https://nmap.org) at 2023-03-24 09:54 EDT
Nmap scan report for 192.168.56.1
Host is up (0.00020s latency).
All 1000 scanned ports on 192.168.56.1 are in ignored states.
Not shown: 1000 open|filtered udp ports (no-response)
MAC Address: 0A:00:27:00:00:09 (Unknown)
Nmap done: 1 IP address (1 host up) scanned in 21.40 seconds

Рисунок 3.3 – Сканирование портов собственного ПК UDP

(root@kali)-[/home/kali]
nmap -sS 192.168.1.101
Starting Nmap 7.92 (https://nmap.org) at 2023-03-24 09:57 EDT
Nmap scan report for 192.168.1.101
Host is up (0.0000040s latency).
Not shown: 997 closed tcp ports (reset)
PORT STATE SERVICE
21/tcp open ftp
22/tcp open ssh
80/tcp open http
Nmap done: 1 IP address (1 host up) scanned in 0.63 seconds

Рисунок 4.1 – Сканирование портов виртуальной машины Linux SYN

(root@kali)-[/home/kali] # nmap -sT 192.168.1.101 Starting Nmap 7.92 (https://nmap.org) at 2023-03-24 09:59 EDT Nmap scan report for 192.168.1.101 Host is up (0.000077s latency). Not shown: 997 closed tcp ports (conn-refused) PORT STATE SERVICE 21/tcp open ftp 22/tcp open ftp 22/tcp open ssh 80/tcp open http Nmap done: 1 IP address (1 host up) scanned in 0.08 seconds

Рисунок 4.2 – Сканирование портов виртуальной машины Linux TCP

(root@kali)-[/home/kali]
nmap -sU 192.168.1.101
Starting Nmap 7.92 (https://nmap.org) at 2023-03-24 10:00 EDT
Nmap scan report for 192.168.1.101
Host is up (0.0000040s latency).
All 1000 scanned ports on 192.168.1.101 are in ignored states.
Not shown: 1000 closed udp ports (port-unreach)
Nmap done: 1 IP address (1 host up) scanned in 0.14 seconds

Рисунок 4.3 – Сканирование портов виртуальной машины Linux UDP Сканирование роутера, собственного ПК, виртуальной машины Linux с определением версии ОС целевого узла:



Рисунок 5 – Сканирование портов роутера с определением версии ОС целевого узла



Рисунок 6 – Сканирование портов собственного ПК с определением версии ОС

целевого узла

(root@kali)-[/home/kali] # nmap -0 192.168.1.101
Starting Nmap 7.92 (https://nmap.org) at 2023-03-24 10:07 EDT
Nmap scan report for 192.168.1.101
Host is up (0.000046s latency).
Not shown: 997 closed tcp ports (reset)
PORT STATE SERVICE
21/tcp open ftp
22/tcp open ssh
80/tcp open http
Device type: general purpose
Running: Linux 2.6.X
OS CPE: Cpe://o:linux:tinux_kernet:2.0.32
Notwork Distance: A bons
Network Distance. 0 hops
OS detection performed. Please report any incorrect results at https://nmap.org/submit/ .
NMAD done: I IP address (I nost UD) scanned in 2.18 seconds

Рисунок 7 – Сканирование портов виртуальной машины Linux с определением версии ОС целевого узла

Сканирование роутера, собственного ПК, виртуальной машины Linux с определением версий сетевых сервисов:



Рисунок 8 – Сканирование портов роутера с определением версий сетевых сервисов



Рисунок 9 – Сканирование портов собственного ПК с определением версий сетевых

сервисов

(root@kali)-[/home/kali] g nmap -sV 192.168.1.101 Starting Nmap 7.92 (https://nmap.org) at 2023-03-24 10:18 EDT Nmap scan report for 192.168.1.101 Host is up (0.0000030s latency). Not shown: 997 closed tcp ports (reset) PORT STATE SERVICE VERSION 21/tcp open ftp vsftpd 3.0.3 22/tcp open ssh OpenSSH 9.0p1 Debian 1+b1 (protocol 2.0) 80/tcp open http Apache httpd 2.4.56 ((Debian)) Service Info: OSs: Unix, Linux; CPE: cpe:/o:linux:linux_kernel Service detection performed. Please report any incorrect results at https://nmap.org/submit/ . Nmap done: 1 IP address (1 host up) scanned in 7.19 seconds

Рисунок 10 – Сканирование портов виртуальной машины Linux с определением версий сетевых сервисов

a scan_pc_pcap – C V × Daăn Pegakrupobalile Просмотр Запуск Захват Анализ Статистика Телефония Беспроводной Инструменты
Файл Редактирование Просмотр Запуск Заахан Анализ Статистика Телефония Беспроводной Инструменты >>>>>>>>>>>>>>>>>>>>>>>>>>>>
Image: Construct And State And Stat
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256 0.635734 PcsCompu_22:46:4f Broadcast ARP 42 Who has 192.168.1.2 257 0.635772 PcsCompu_22:46:4f Broadcast ARP 42 Who has 192.168.1.2 258 0.635849 PcsCompu_22:46:4f Broadcast ARP 42 Who has 192.168.1.1 259 0.714931 PcsCompu_22:46:4f Broadcast ARP 42 Who has 192.168.1.3 260 0.715435 CyberTAN_88:76:6b PcsCompu_22:46:4f ARP 60 192.168.1.34 is at 261 1.103639 PcsCompu_22:46:4f Broadcast ARP 42 Who has 192.168.1.2 262 1.104058 PcsCompu_22:46:4f Broadcast ARP 42 Who has 192.168.1.3 263 1.107797 PcsCompu_22:46:4f Broadcast ARP 42 Who has 192.168.1.4 264 1.113672 PcsCompu_22:46:4f Broadcast ARP 42 Who has 192.168.1.5 265 1.115016 PcsCompu_22:46:4f Broadcast ARP 42 Who has 192.168.1.7 267 1.115151 PcsCompu_22:46:4f Broadcast ARP 42 Who has 192.168.1.7 266 1.115100 PcsCompu_22:46:4f Broadcast ARP 42 Who has 192.168.1.7 267 1.115151 PcsCompu_22:46:4f Bro
257 0.635772PcsCompu_22:46:4fBroadcastARP42 Who has 192.168.1.2258 0.635849PcsCompu_22:46:4fBroadcastARP42 Who has 192.168.1.1259 0.714931PcsCompu_22:46:4fBroadcastARP42 Who has 192.168.1.3260 0.715435CyberTAN_88:76:6bPcsCompu_22:46:4fARP60 192.168.1.34 is at261 1.103639PcsCompu_22:46:4fBroadcastARP42 Who has 192.168.1.2262 1.104058PcsCompu_22:46:4fBroadcastARP42 Who has 192.168.1.3263 1.107797PcsCompu_22:46:4fBroadcastARP42 Who has 192.168.1.3264 1.113672PcsCompu_22:46:4fBroadcastARP42 Who has 192.168.1.4265 1.115016PcsCompu_22:46:4fBroadcastARP42 Who has 192.168.1.5265 1.115016PcsCompu_22:46:4fBroadcastARP42 Who has 192.168.1.6266 1.115100PcsCompu_22:46:4fBroadcastARP42 Who has 192.168.1.7267 1.115151PcsCompu_22:46:4fBroadcastARP42 Who has 192.168.1.6268 1.115192PcsCompu_22:46:4fBroadcastARP42 Who has 192.168.1.1269 1.115224PcsCompu_22:46:4fBroadcastARP42 Who has 192.168.1.1270 1.118869PcsCompu_22:46:4fBroadcastARP42 Who has 192.168.1.1271 1.118963PcsCompu_22:46:4fBroadcastARP42 Who has 192.168.1.1273 1.207668PcsCompu_22:46:4fBroadcastARP42 Who has 192.168.1.1
258 0.635849PcsCompu_22:46:4fBroadcastARP42 Who has 192.168.1.1259 0.714931PcsCompu_22:46:4fBroadcastARP42 Who has 192.168.1.3260 0.715435CyberTAN_88:76:6bPcsCompu_22:46:4fARP60 192.168.1.34 is at261 1.103639PcsCompu_22:46:4fBroadcastARP42 Who has 192.168.1.2262 1.104058PcsCompu_22:46:4fBroadcastARP42 Who has 192.168.1.3263 1.107797PcsCompu_22:46:4fBroadcastARP42 Who has 192.168.1.3264 1.113672PcsCompu_22:46:4fBroadcastARP42 Who has 192.168.1.4265 1.115016PcsCompu_22:46:4fBroadcastARP42 Who has 192.168.1.5266 1.115100PcsCompu_22:46:4fBroadcastARP42 Who has 192.168.1.7267 1.11511PcsCompu_22:46:4fBroadcastARP42 Who has 192.168.1.7267 1.11512PcsCompu_22:46:4fBroadcastARP42 Who has 192.168.1.8268 1.115192PcsCompu_22:46:4fBroadcastARP42 Who has 192.168.1.1269 1.115224PcsCompu_22:46:4fBroadcastARP42 Who has 192.168.1.1270 1.118869PcsCompu_22:46:4fBroadcastARP42 Who has 192.168.1.1271 1.118963PcsCompu_22:46:4fBroadcastARP42 Who has 192.168.1.1272 1.207566PcsCompu_22:46:4fBroadcastARP42 Who has 192.168.1.1273 1.207608PcsCompu_22:46:4fBroadcastARP42 Who has 192.168.1.1
259 0.714931PcsCompu_22:46:4fBroadcastARP42 Who has 192.168.1.3260 0.715435CyberTAN_88:76:6bPcsCompu_22:46:4fARP60 192.168.1.34 is at261 1.103639PcsCompu_22:46:4fBroadcastARP42 Who has 192.168.1.2262 1.104058PcsCompu_22:46:4fBroadcastARP42 Who has 192.168.1.3263 1.107797PcsCompu_22:46:4fBroadcastARP42 Who has 192.168.1.4264 1.113672PcsCompu_22:46:4fBroadcastARP42 Who has 192.168.1.5265 1.115016PcsCompu_22:46:4fBroadcastARP42 Who has 192.168.1.6266 1.115100PcsCompu_22:46:4fBroadcastARP42 Who has 192.168.1.7267 1.115151PcsCompu_22:46:4fBroadcastARP42 Who has 192.168.1.8268 1.115192PcsCompu_22:46:4fBroadcastARP42 Who has 192.168.1.9269 1.115224PcsCompu_22:46:4fBroadcastARP42 Who has 192.168.1.1270 1.118869PcsCompu_22:46:4fBroadcastARP42 Who has 192.168.1.1271 1.207566PcsCompu_22:46:4fBroadcastARP42 Who has 192.168.1.1273 1.207608PcsCompu_22:46:4fBroadcastARP42 Who has 192.168.1.1
260 0.715435CyberTAN_88:76:6bPcsCompu_22:46:4fARP60 192.168.1.34 is at261 1.103639PcsCompu_22:46:4fBroadcastARP42 Who has 192.168.1.2262 1.104058PcsCompu_22:46:4fBroadcastARP42 Who has 192.168.1.3263 1.107797PcsCompu_22:46:4fBroadcastARP42 Who has 192.168.1.4264 1.113672PcsCompu_22:46:4fBroadcastARP42 Who has 192.168.1.5265 1.115016PcsCompu_22:46:4fBroadcastARP42 Who has 192.168.1.6266 1.115100PcsCompu_22:46:4fBroadcastARP42 Who has 192.168.1.7267 1.115151PcsCompu_22:46:4fBroadcastARP42 Who has 192.168.1.8268 1.115192PcsCompu_22:46:4fBroadcastARP42 Who has 192.168.1.9269 1.115224PcsCompu_22:46:4fBroadcastARP42 Who has 192.168.1.1270 1.118869PcsCompu_22:46:4fBroadcastARP42 Who has 192.168.1.1271 1.207566PcsCompu_22:46:4fBroadcastARP42 Who has 192.168.1.1273 1.207608PcsCompu_22:46:4fBroadcastARP42 Who has 192.168.1.1
261 1.103639 PcsCompu_22:46:4f Broadcast ARP 42 Who has 192.168.1.2 262 1.104058 PcsCompu_22:46:4f Broadcast ARP 42 Who has 192.168.1.3 263 1.107797 PcsCompu_22:46:4f Broadcast ARP 42 Who has 192.168.1.4 264 1.113672 PcsCompu_22:46:4f Broadcast ARP 42 Who has 192.168.1.4 264 1.113672 PcsCompu_22:46:4f Broadcast ARP 42 Who has 192.168.1.5 265 1.115016 PcsCompu_22:46:4f Broadcast ARP 42 Who has 192.168.1.7 266 1.115100 PcsCompu_22:46:4f Broadcast ARP 42 Who has 192.168.1.7 267 1.115151 PcsCompu_22:46:4f Broadcast ARP 42 Who has 192.168.1.8 268 1.115192 PcsCompu_22:46:4f Broadcast ARP 42 Who has 192.168.1.8 269 1.115224 PcsCompu_22:46:4f Broadcast ARP 42 Who has 192.168.1.1 270 1.118869 PcsCompu_22:46:4f Broadcast ARP 42 Who has 192.168.1.1 271 1.207566 PcsCompu_22:46:4f Broadcast ARP 42 Who has 192.168.1.1 273 1.207608 PcsCompu_22:46:4f Broadcast<
262 1.104058 PcsCompu_22:46:4f Broadcast ARP 42 Who has 192.168.1.3 263 1.107797 PcsCompu_22:46:4f Broadcast ARP 42 Who has 192.168.1.4 264 1.113672 PcsCompu_22:46:4f Broadcast ARP 42 Who has 192.168.1.5 265 1.115016 PcsCompu_22:46:4f Broadcast ARP 42 Who has 192.168.1.5 266 1.115100 PcsCompu_22:46:4f Broadcast ARP 42 Who has 192.168.1.7 267 1.115151 PcsCompu_22:46:4f Broadcast ARP 42 Who has 192.168.1.7 267 1.115151 PcsCompu_22:46:4f Broadcast ARP 42 Who has 192.168.1.8 268 1.115192 PcsCompu_22:46:4f Broadcast ARP 42 Who has 192.168.1.8 269 1.115224 PcsCompu_22:46:4f Broadcast ARP 42 Who has 192.168.1.1 270 1.118869 PcsCompu_22:46:4f Broadcast ARP 42 Who has 192.168.1.1 271 1.207566 PcsCompu_22:46:4f Broadcast ARP 42 Who has 192.168.1.1 273 1.207608 PcsCompu_22:46:4f Broadcast ARP 42 Who has 192.168.1.1
263 1.107797PcsCompu_22:46:4fBroadcastARP42 Who has 192.168.1.4264 1.113672PcsCompu_22:46:4fBroadcastARP42 Who has 192.168.1.5265 1.115016PcsCompu_22:46:4fBroadcastARP42 Who has 192.168.1.6266 1.115100PcsCompu_22:46:4fBroadcastARP42 Who has 192.168.1.7267 1.115151PcsCompu_22:46:4fBroadcastARP42 Who has 192.168.1.8268 1.115192PcsCompu_22:46:4fBroadcastARP42 Who has 192.168.1.8269 1.115224PcsCompu_22:46:4fBroadcastARP42 Who has 192.168.1.1270 1.118869PcsCompu_22:46:4fBroadcastARP42 Who has 192.168.1.1271 1.118963PcsCompu_22:46:4fBroadcastARP42 Who has 192.168.1.1272 1.207566PcsCompu_22:46:4fBroadcastARP42 Who has 192.168.1.1273 1.207608PcsCompu_22:46:4fBroadcastARP42 Who has 192.168.1.1
264 1.1136/2 PcsCompu_22:46:4f Broadcast ARP 42 Who has 192.168.1.5 265 1.115016 PcsCompu_22:46:4f Broadcast ARP 42 Who has 192.168.1.6 266 1.115100 PcsCompu_22:46:4f Broadcast ARP 42 Who has 192.168.1.7 267 1.115101 PcsCompu_22:46:4f Broadcast ARP 42 Who has 192.168.1.7 267 1.115151 PcsCompu_22:46:4f Broadcast ARP 42 Who has 192.168.1.8 268 1.115192 PcsCompu_22:46:4f Broadcast ARP 42 Who has 192.168.1.8 269 1.115224 PcsCompu_22:46:4f Broadcast ARP 42 Who has 192.168.1.1 270 1.118869 PcsCompu_22:46:4f Broadcast ARP 42 Who has 192.168.1.1 271 1.118963 PcsCompu_22:46:4f Broadcast ARP 42 Who has 192.168.1.1 272 1.207566 PcsCompu_22:46:4f Broadcast ARP 42 Who has 192.168.1.1 273 1.207608 PcsCompu_22:46:4f Broadcast ARP 42 Who has 192.168.1.1
265 1.115016 PcsCompu_22:46:4f Broadcast ARP 42 Who has 192.168.1.6 266 1.115100 PcsCompu_22:46:4f Broadcast ARP 42 Who has 192.168.1.7 267 1.115151 PcsCompu_22:46:4f Broadcast ARP 42 Who has 192.168.1.7 268 1.115192 PcsCompu_22:46:4f Broadcast ARP 42 Who has 192.168.1.8 269 1.115224 PcsCompu_22:46:4f Broadcast ARP 42 Who has 192.168.1.1 270 1.118869 PcsCompu_22:46:4f Broadcast ARP 42 Who has 192.168.1.1 271 1.118963 PcsCompu_22:46:4f Broadcast ARP 42 Who has 192.168.1.1 272 1.207566 PcsCompu_22:46:4f Broadcast ARP 42 Who has 192.168.1.1 273 1.207608 PcsCompu_22:46:4f Broadcast ARP 42 Who has 192.168.1.1
266 1.115100 PcsCompu_22:46:4f Broadcast ARP 42 Who has 192.168.1.7 267 1.115151 PcsCompu_22:46:4f Broadcast ARP 42 Who has 192.168.1.8 268 1.115192 PcsCompu_22:46:4f Broadcast ARP 42 Who has 192.168.1.8 269 1.115224 PcsCompu_22:46:4f Broadcast ARP 42 Who has 192.168.1.1 270 1.118869 PcsCompu_22:46:4f Broadcast ARP 42 Who has 192.168.1.1 271 1.118963 PcsCompu_22:46:4f Broadcast ARP 42 Who has 192.168.1.1 272 1.207566 PcsCompu_22:46:4f Broadcast ARP 42 Who has 192.168.1.1 273 1.207608 PcsCompu_22:46:4f Broadcast ARP 42 Who has 192.168.1.1
267 1.115151 PCsCompu_22:46:44 Broadcast ARP 42 Who has 192.168.1.a 268 1.115192 PcsCompu_22:46:4f Broadcast ARP 42 Who has 192.168.1.9 269 1.115224 PcsCompu_22:46:4f Broadcast ARP 42 Who has 192.168.1.1 270 1.118869 PcsCompu_22:46:4f Broadcast ARP 42 Who has 192.168.1.1 271 1.118963 PcsCompu_22:46:4f Broadcast ARP 42 Who has 192.168.1.1 272 1.207566 PcsCompu_22:46:4f Broadcast ARP 42 Who has 192.168.1.1 273 1.207608 PcsCompu_22:46:4f Broadcast ARP 42 Who has 192.168.1.1
268 1.113192 PCsCompL_22.46.41 Broadcast ARP 42 Who has 192.168.1.9 269 1.115224 PcsCompL_22:46:4f Broadcast ARP 42 Who has 192.168.1.1 270 1.118869 PcsCompL_22:46:4f Broadcast ARP 42 Who has 192.168.1.1 271 1.118963 PcsCompL_22:46:4f Broadcast ARP 42 Who has 192.168.1.1 272 1.207566 PcsCompL_22:46:4f Broadcast ARP 42 Who has 192.168.1.1 273 1.207608 PcsCompL_22:46:4f Broadcast ARP 42 Who has 192.168.1.1
209 1.113224 PCsCompL_22.40.41 Broadcast ARP 42 Who has 192.168.1.1 270 1.118869 PcsCompL_22:46:4f Broadcast ARP 42 Who has 192.168.1.1 271 1.118963 PcsCompL_22:46:4f Broadcast ARP 42 Who has 192.168.1.1 272 1.207566 PcsCompL_22:46:4f Broadcast ARP 42 Who has 192.168.1.1 273 1.207608 PcsCompL_22:46:4f Broadcast ARP 42 Who has 192.168.1.1
270 1.118803 PCSCOmpu_22:40:41 Broadcast ARP 42 Who has 192.168.1.1 271 1.118963 PcsCompu_22:46:4f Broadcast ARP 42 Who has 192.168.1.1 272 1.207566 PcsCompu_22:46:4f Broadcast ARP 42 Who has 192.168.1.1 273 1.207608 PcsCompu_22:46:4f Broadcast ARP 42 Who has 192.168.1.1
272 1.207566 PcsCompu_22:46:4f Broadcast ARP 42 Who has 192.168.1.1 273 1.207608 PcsCompu_22:46:4f Broadcast ARP 42 Who has 192.168.1.1
272 1.207500 Pescompu_22:46:4f Broadcast ARP 42 Who has 192.168.1.1 273 1.207608 PcsCompu_22:46:4f Broadcast ARP 42 Who has 192.168.1.1
2/4 1, 20/623 PcsCompu 22:46:4t Broadcast ARP 42 Who has 192, 168, 1, 2
\rightarrow Frame 260: 60 bytes on wire (480 bits), 60 bytes cantured (480 bits)
> Ethernet II, Src: CvberTAN 88:76:6b (28:39:26:88:76:6b), Dst: PcsCompu 22:46:4f (08:00:27:22
Address Resolution Protocol (reply)
Hardware type: Ethernet (1)
Protocol type: IPv4 (0x0800)
Hardware size: 6
Protocol size: 4
Opcode: reply (2)
Sender MAC address: CyberTAN_88:76:6b (28:39:26:88:76:6b)
Sender IP address: 192.168.1.34
T MAC

Рисунок 11 – Анализ доступности в Wireshark Из рисунка 11 видно, что система производила широковещательный запрос на принадлежность к IP из заданного диапазона.

Анализ в Wireshark приведен для каждого из сканирования, но к одному устройству, для других устройств принцип работы Nmap будет аналогичен нижеприведенным.

				_					
🚄 sca	in_pc_syn.pcap					-		2	×
Файл	Редактирование П	Іросмотр Запуск Захват	Анализ Статистика Те	лефония	Беспроводной Инструменты Помощ	ь			
	🖉 🕥 🚞 🗋 🗙	🙆 🔍 🖛 🔿 🕾 🔹	📃 🗏 Q Q Q 🎹						
Прим	енить дисплейный филь	тр <ctrl-></ctrl->							+
No.	Time	Source	Destination	Protocol	Length Info				
	1 0.000000	192.168.1.101	192.168.1.1	DNS	85 Standard query 0x848c PT	R 1.56.168.192.in-addr.arpa			
	2 0.589604	192.168.1.1	192.168.1.101	DNS	85 Standard query response	0x848c No such name PTR 1.56.168.192.i	n-addr.	arpa	
	3 5.071131	PcsCompu_22:46:4f	ZyxelCom_91:e6:56	ARP	42 Who has 192.168.1.1? Tel	1 192.168.1.101			
	4 5.079889	ZyxelCom_91:e6:56	PcsCompu_22:46:4f	ARP	60 192.168.1.1 is at e8:37:	7a:91:e6:56			
> Fra	ame 3: 42 bytes o	on wire (336 bits), 42	bytes captured (336	bits)				0000	e8
> Eth	mernet II, Src: P	csCompu_22:46:4f (08:	00:27:22:46:4f), Dst	: ZyxelCo	m_91:e6:56 (e8:37:7a:91:e6:56)			0010	08
✓ Add	ress Resolution	Protocol (request)						0020	00
	Hardware type: E	thernet (1)							
	Protocol type: I	Pv4 (0x0800)							
	Hardware size: 6								
	Protocol size: 4	(1)							
	Opcode: request	(1) cc. DecCompu 22.46:46	(00.00.07.00.46.40)						
	Senuer MAC addre	55. PCSCOMPU_22:46:41	(00.00:2/:22:40:41)						
	Jenuer IP audres	5. 172.108.1.101	(00.00.00.00.00.00.00)				-		
	Target nAC addre	35. 00.00.00_00:00:00	(00.00.00:00:00:00)					-	
07	Address Decolution Drot	tocal (ara) 39 hita(e)				Davoy 4 - Dovanau 4 (100.004)	Roohun	- Dofai	de la

Рисунок 12 – Анализ сканирования портов собственного ПК SYN в Wireshark

🚄 sca	n_pc_tcp.pcap						_		×
Файл	Редактирование П	Іросмотр Запуск Захват	Анализ Статистика Те	лефония	Беспров	одной Инструменты Помощь			
	1 🛞 🚞 🖺 🕅	[6] 🍳 🗰 🔿 🖭 🐺 🎐							
Приме	енить дисплейный филь	тр <ctrl-></ctrl->							- +
No.	Time	Source	Destination	Protocol	Length	Info			
	1 0.000000	192.168.1.101	192.168.1.1	DNS	85	Standard query 0x4f73 PTR 1.56	5.168.192	.in-ad	ldr.arp
	2 0.006592	192.168.1.1	192.168.1.101	DNS	85	Standard query response 0x4f7	No such	name	PTR 1.
	3 5.047567	PcsCompu_22:46:4f	ZyxelCom_91:e6:56	ARP	42	Who has 192.168.1.1? Tell 192.	168.1.10	1	
	4 5.054868	ZyxelCom_91:e6:56	Broadcast	ARP	60	Who has 192.168.1.101? Tell 19	2.168.1.	1	
	5 5.054895	PcsCompu_22:46:4f	ZyxelCom_91:e6:56	ARP	42	192.168.1.101 is at 08:00:27:2	2:46:4f		
	6 5.054933	ZyxelCom_91:e6:56	PcsCompu_22:46:4f	ARP	60	192.168.1.1 is at e8:37:7a:91	e6:56		
	7 15.520673	ZyxelCom_91:e6:56	Broadcast	ARP	60	Who has 192.168.1.34? Tell 192	2.168.1.1		
	ma 7: 60 butas a	m wine (190 hits) 60	butes contured (190	hitc)					1000
> Eth	ernet II, Src: Z	yxelCom 91:e6:56 (e8:	37:7a:91:e6:56). Dst	: Broadca	st (ff:	ff:ff:ff:ff:ff)			010
∽ Add	ress Resolution	Protocol (request)	,,			,		6	020
	Hardware type: E	thernet (1)						6	1030
I	Protocol type: I	Pv4 (0x0800)							
	Hardware size: 6								
	Protocol size: 4	(A)							
	Opcode: request	(1)	(
	Sender MAC addre	ss: zyxe1Com_91:e6:56	(ex:3/:/a:91:e6:56)						
	Sender IP addres	s: 192.168.1.1	(00.00.00.00.00.00)					-	
	larget mAt addre	55: 00:00:00_00:00:00	(00:00:00:00:00:00)						-
		0					6 9		

Рисунок 13 – Анализ сканирования портов собственного ПК ТСР в Wireshark

sci	an_router_udp.pcap									_	C	כ	×
Файл	Редактирование	Просмотр Запуск Захват	Анализ Статистика Те	елефония	Беспроводной Инструмен	нты Помоц	ць						
	1 / 0 🗀 🗎 🗙	े 🙆 । ९ 🔶 👄 🛣 🖣 👤	e e e T										
При	менить дисплейный фил	ътр <ctrl-></ctrl->										-	-+
No.	Time	Source	Destination	Protocol	Length Info								
	1 0.000000	PcsCompu 22:46:4f	Broadcast	ARP	42 Who has 192.16	8.1.1? Te	11 192.16	8.1.1	01				
	2 0.007540	ZyxelCom_91:e6:56	PcsCompu_22:46:4f	ARP	60 192.168.1.1 is	at e8:37	:7a:91:e6	5:56					
	3 0.116497	192.168.1.101	192.168.1.1	DNS	84 Standard query	0xc290 P	TR 1.1.16	8.192	.in-a	ddr.a	rpa	-	
	4 0.733892	192.168.1.1	192.168.1.101	DNS	84 Standard query	response	0xc290 N	lo suc	h nam	e PTR	1.1.	168.	
	5 0.764790	192.168.1.101	192.168.1.1	UDP	42 53780 → 19718	Len=0						ŀ	
	6 0.765006	192.168.1.101	192.168.1.1	UDP	42 53780 → 17424	Len=0						ľ	
	7 0.765066	192.168.1.101	192.168.1.1	UDP	82 53780 → 36489	Len=40						Ī	
	8 0.765502	192.168.1.101	192.168.1.1	UDP	42 53780 → 21360	Len=0						[
	9 0.765855	192.168.1.101	192.168.1.1	UDP	42 53780 → 19222	Len=0							
	10 0.765957	192.168.1.101	192.168.1.1	UDP	82 53780 → 34577	Len=40							
	11 0.766002	192.168.1.101	192.168.1.1	UDP	42 53780 → 21207	Len=0						_	
	12 0.766049	192.168.1.101	192.168.1.1	UDP	82 53780 → 41370	Len=40						į.	
	13 0.766207	192.168.1.101	192.168.1.1	UDP	42 53780 → 21800	Len=0						ļ,	_
	14 0.766267	192.168.1.101	192.168.1.1	UDP	82 53780 → 49165	Len=40						ļ,	_
	15 0.767679	192.168.1.1	192.168.1.101	ICMP	70 Destination un	reachable	(Port ur	reach	able)				
	16 0.767683	192.168.1.1	192.168.1.101	ICMP	70 Destination un	reachable	(Port ur	ireach	able)			-	_
	17 0.768633	192.168.1.1	192.168.1.101	ICMP	110 Destination un	reachable	(Port ur	ireach	able)				
	18 0.768636	192.168.1.1	192.168.1.101	ICMP	70 Destination un	reachable	(Port ur	ireach	able)				
	19 0.768638	192.168.1.1	192.168.1.101	ICMP	70 Destination un	reachable	(Port ur	ireach	able)				_
	20 0.768919	192.168.1.1	192.168.1.101	ICMP	110 Destination un	reachable	(Port ur	ireach	able)				
	21 0.774100	192.168.1.101	192.168.1.1	UDP	42 53780 → 28973	Len=0							
	22 0.774209	192.168.1.101	192.168.1.1	UDP	42 53780 → 21366	Len=0							
	23 0.774253	192.168.1.101	192.168.1.1	UDP	42 53780 → 9 Len=	0							
	24 0.774290	192.168.1.101	192.168.1.1	UDP	42 53780 → 21674	Len=0							
	25 0.774325	192.168.1.101	192.168.1.1	UDP	44 53780 → 4666 L	en=2							
	26 0.774361	192.168.1.101	192.168.1.1	UDP	42 53780 → 17331	Len=0							
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	Length: 8												
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Рисунок 14 – Анализ сканирования портов роутера UDP в Wireshark

UDP сканирование работает путем посылки пустого (без данных) UDP заголовка на каждый целевой порт. Если в ответ приходит ICMP ошибка о недостижимости порта, значит, порт закрыт. Другие ICMP ошибки недостижимости указывают на то, что порт фильтруется. Иногда, служба будет отвечать UDP пакетом, указывая на то, что порт открыт. Если после нескольких попыток не было получено никакого ответа, то порт классифицируется как открыт/фильтруется. Это означает, что порт может быть открыт, или, возможно, пакетный фильтр блокирует его.

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38 95:588331 1628:05:141:3263/2.67, ff02::150 MDNS 101 Standard query 0x0000 AN/ LAPIOP-095EV67N.local, "QM" question 39 95:58830 192.168.1.34 224.0.0.22 IGMPv3 00 Multicast Listere Report Message v2 41 95:58931 fe80::541e:363(:2.67, ff02::16 ILMNR 95 Standard query 0x4000 AN/ LAPIOP-095EV67N.local, "QM" question 42 95:589814 192.168.1.34 224.0.0.252 LLMNR 95 Standard query 0x4000 AN/ LAPIOP-095EV67N.local, "QM" question 43 95:589815 fe80::541e:363(:2.67, ff02::16 MDNS 81 Standard query response 0x0000 AAA fe80::541e:363(:2.67; cdd 44 95:591433 192.168.1.34 224.0.0.251 MDNS 81 Standard query response 0x0000 AAA fe80::541e:363(:2.67; cdd 45 95:59143 192.168.1.34 224.0.0.251 MDNS 81 Standard query response 0x0000 AAA fe80::541e:363(:2.67; cdd 49 95.725637 f600::541e:363(:2.67, ff02::fb MDNS 139 Standard query response 0x0000 AAA fe80::541e:363(:2.67; cdd 49 95.725631 192.168.1.34 224.0.0.251 MDNS 139 Standard query response 0x0000 AAAA fe80::541e:363(:2.67; cdd 49 95.725631 192.168.1.34 224.0.0.251 MDNS 139 Standard query Net MAPTOP-095EV67N.loca 49 95.725631 192.168.1.34		37 05 587330	192.108.1.34	224.0.0.22	MDNS	81 Standard query 0x0	ANY INDTOD-00	5EV67N	local	"OM"	quest	tion	
39 95:568709 192.168.1.34 224.0.0.22 TGMPv3 Ge Membership Report / Join group 224.0.0.252 for any sources 40 95:588709 192.168.1.34 224.0.0.252 LLWNR 95 Standard query 0x45e AWY LAPTOP-0955W67N 42 95:589814 192.168.1.34 224.0.0.252 LLWNR 75 Standard query 0x45e AWY LAPTOP-0955W67N 43 95:589815 fe80:541e:3e3d:2cff602::fb MDNS 139 Standard query 0x45e AWY LAPTOP-0955W67N.local, "QW" question 45 95:59133 192.168.1.34 224.0.0.251 MDNS 139 Standard query 0x0000 AWA LAPTOP-0955W67N.local, "QW" question 45 95:59237 fe80:541e:3e3d:2cfff02::fb MDNS 101 Standard query response 0x0000 AAA fe80:551e:3e3d:2cf7:cd - 47 95:593191 192.168.1.34 224.0.0.251 MDNS 119 Standard query response 0x0000 AAA fe80:551e:3e3d:2cf7:cd - 48 95:596071 192.168.1.34 192.168.1.255 NBNS 92 Name query NB LAPTOP-0955W67NLcc 51 98.25281 192.168.1.34 192.168.1.255 NBNS 92 Name query NB LAPTOP-0955W67NLcc 51 98.25281 192.168.1.34 192.168.1.255 NBNS 92 Name query NB LAPTOP-0955W67NLcc 51 98.25281 192.168.1.34 299.255.255.250 S50P 210 M-SEARCH * HTTP/1.1		38 95 588331	fe80::541e:3e3d:2cf	ff02fh	MDNS	101 Standard query 0x0	000 ANY LAPTOP-09	5EV67N	local	"OM"	quest	tion	
40 95.588838 fe80::541e:3e3d:2cf. ff02::113 LLMNR 99 Multicast Listener Report Message v2 41 95.589211 fe80::541e:3e3d:2cf. ff02::113 LLMNR 99 Standard query Wxde5e ANY LAPTOP-095EV67N 42 95.598914 192.168.1.34 224.0.0.251 MDNS 139 Standard query wxde5e ANY LAPTOP-095EV67N. local, "QW" question 45 95.591807 fe80::541e:3e3d:2cf. ff02::fb MDNS 101 Standard query wex0000 ANY LAPTOP-095EV67N. local, "QW" question 46 95.591807 fe80::541e:3e3d:2cf. ff02::fb MDNS 119 Standard query response 0x0000 ANA fe80::551e1e:3e3d:2cf7:c4d 47 95.591807 fe80::541e:3e3d:2cf. ff02::fb MDNS 119 Standard query response 0x0000 ANA fe80::541e:3e3d:2cf7:c4d 48 95.590871 192.168.1.34 224.0.0.251 MDNS 119 Standard query response 0x0000 ANA fe80::541e:3e3d:2cf7:c4d 49 96.725639 192.168.1.34 192.168.1.255 NBNS 92 Name query NB LAPTOP-095EV67N:Loc 51 90.66256 192.168.1.34 192.168.1.255 NBNS 92 Name query NB LAPTOP-095EV67N:Loc 52 100.666256 192.168.1.34 239.255.255.250 SDD 210 M-SEARCH * HTTP/1.1 53 101.668214 192.168.1.34 239.255.255.250		39 95,588709	192.168.1.34	224.0.0.22	IGMPv3	60 Membership Report	/ Join group 224.	0.0.252	for a	inv so	urces		
41 95.589211 fe80::541e:3e3d:2cfff02::1:3 LLNNR 95 Standard query 0x4e5e ANY LAPTOP-095EV67N 42 95.589814 192.168.1.34 224.0.0.252 LLNNR 75 Standard query 0x4e5e ANY LAPTOP-095EV67N 43 95.599815 fe80:541e:3e3d:2cfff02::fb MDNS 139 Standard query 0x0000 ANY LAPTOP-095EV67N.local, "QM" question 45 95.591837 fe80:541e:3e3d:2cfff02::fb MDNS 81 Standard query 0x0000 ANY LAPTOP-095EV67N.local, "QM" question 46 95.592873 fe80:541e:3e3d:2cfff02::fb MDNS 101 Standard query response 0x0000 ANA fe80::551e:3e3d:2cf7:c4d . 47 95.593131 192.168.1.34 224.0.0.251 MDNS 119 Standard query response 0x0000 ANA fe80::541e:3e3d:2cf7:c4d . 49 95.725659 192.168.1.34 192.168.1.255 MBNS 92 Name query NB LAPTOP-095EV67N.lc> 50 97.475673 192.168.1.34 192.168.1.255 NBNS 92 Name query NB LAPTOP-095EV67N.lc> 51 90.606256 192.168.1.34 239.255.255.250 SDD 210 M-SEARCH * HTTP/1.1 53 101.608414 192.168.1.34 239.255.255.250 SDD 210 M-SEARCH * HTTP/1.1 54 102.168.1.34 239.255.255.250 SDD 210 M-SEARCH * HTTP/1.1 190 00 00 de 00 00 00 00 20 20 45 50 107.82		40 95,588838	fe80::541e:3e3d:2cf	ff02::16	ICMPv6	90 Multicast Listener	Report Message v	2					
42 95.589814 192.168.1.34 224.0.0.252 LLMNR 75 Standard query 0x4e5e ANY LAPTOP-095EV67N 43 95.589815 fe80::541e:3e3d:2cfff02::fb MDNS 139 Standard query response 0x0000 ANA fe80::541e:3e3d:2cf7:c4d_ 44 95.591867 fe80::541e:3e3d:2cfff02::fb MDNS 101 Standard query 0x0000 ANV LAPTOP-095EV67N.local, "QM" question 45 95.591867 fe80::541e:3e3d:2cfff02::fb MDNS 101 Standard query response 0x0000 ANA fe80::541e:3e3d:2cf7:c4d_ 47 95.593011 192.168.1.34 224.0.0.251 MDNS 109 Standard query response 0x0000 AAAA fe80::541e:3e3d:2cf7:c4d_ 48 95.596071 192.168.1.34 224.0.0.251 MDNS 109 Standard query response 0x0000 AAAA fe80::541e:3e3d:2cf7:c4d_ 49 96.725659 192.168.1.34 192.168.1.255 MBNS 92 Name query NB LAPTOP-095EV67NLtc> 51 98.225281 192.168.1.34 192.168.1.255 NBNS 92 Name query NB LAPTOP-095EV67NLtc> 51 90.606256 192.168.1.34 192.255.255.250 SDD 210 M-SEARCH * HTTP/1.1 54 102.611752 192.168.1.34 239.255.255.250 SDD 210 M-SEARCH * HTTP/1.1 55 107.829482 ZyxelCom 91:e6:56 Broadcast ARP 60 Who has 192.168.1.34? Tell 192.168.1.1		41 95.589211	fe80::541e:3e3d:2cf	ff02::1:3	LLMNR	95 Standard guery 0x4	e5e ANY LAPTOP-09	5EV67N					
43 95.589815 fe80::541e:3e3d:2cfff02::fb MDNS 139 Standard query response 0x0000 AAAA fe80::541e:3e3d:2cf7:c4d 44 95.59183 192.168.1.34 224.0.0.251 MDNS 81 Standard query 0x0000 ANY LAPTOP-095EV67N.local, "QM" question 45 95.591867 fe80::541e:3e3d:2cfff02::fb MDNS 191 Standard query response 0x0000 AAAA fe80::541e:3e3d:2cf7:c4d 47 95.593191 192.168.1.34 224.0.0.251 MDNS 119 Standard query response 0x0000 AAAA fe80::541e:3e3d:2cf7:c4d 48 95.596071 192.168.1.34 192.168.1.255 MDNS 119 Standard query response 0x0000 AAAA fe80::541e:3e3d:2cf7:c4d 49 96.725659 192.168.1.34 192.168.1.255 MBNS 92 Name query NB LAPTOP-095EV67N<1c> 51 98.25281 192.168.1.34 192.168.1.255 NBNS 92 Name query NB LAPTOP-095EV67N<1c> 52 100.606256 192.168.1.34 239.255.255.250 SSDP 210 M-SEARCH * HTTP/1.1 11 54 102.168.1.34 239.255.255.250 SSDP 210 M-SEARCH * HTTP/1.1 100.00 64 e3 79 80 00 04 00 11 55 107.829482 ZyxelCom 91:e6:56 Broadcast ARP 60 Who has 192.168.1.34? Tell 192.168.1.34 100 00 e0 e0 20 25 50 User Datagram Protocol, Src Port: 137		42 95.589814	192.168.1.34	224.0.0.252	LLMNR	75 Standard query 0x4	e5e ANY LAPTOP-09	5EV67N					
44 95.591433 192.168.1.34 224.0.0.251 MDNS 81 Standard query 0x0000 ANY LAPTOP-095EV67N.local, "QM" question 45 95.591867 fe80:5341:3e3d:2cfff02:fb MDNS 101 Standard query response 0x0000 AAAA fe80:541:3e3d:2cf7:c4d 47 95.593191 192.168.1.34 224.0.0.251 MDNS 119 Standard query response 0x0000 AAAA fe80:541:3e3d:2cf7:c4d 49 95.590871 192.168.1.34 224.0.0.251 MDNS 119 Standard query response 0x0000 AAAA fe80:541:3e3d:2cf7:c4d 49 95.75559 192.168.1.34 224.0.0.251 MDNS 119 Standard query response 0x0000 AAAA fe80:541:3e3d:2cf7:c4d 49 95.75559 192.168.1.34 120.168.1.255 MBNS 92 Name query NB LAPTOP-095EV67N<1c> 50 97.475673 192.168.1.34 192.168.1.255 NBNS 92 Name query NB LAPTOP-095EV67N<1c> 51 90.606256 192.168.1.34 239.255.255 SSDP 210 M-SEARCH * HTTP/1.1 53 101.608414 192.168.1.34 239.255.255 SSDP 210 M-SEARCH * HTTP/1.1 55 103.618816 192.168.1.34 239.255.255 SSDP 210 M-SEARCH * HTTP/1.1 55 103.618816 192.168.1.34 239.255.255 SSDP 210 M-SEARCH * HTTP/1.1 55 103.618816<		43 95.589815	fe80::541e:3e3d:2cf	ff02::fb	MDNS	139 Standard query res	ponse 0x0000 AAAA	fe80::	541e:3	le3d:2	cf7:c4	1d	
45 95.591867 fc88::541e:3e3d:2cfff02::fb MDNS 101 Standard query 0x0000 ANV LAPTOP-095EVG7N.local, "QM" question 46 95.592873 fc80::541e:3e3d:2cfff02::fb MDNS 119 Standard query response 0x0000 AAAA fc80::541e:3e3d:2cf7:c4d 47 95.593101 192.168.1.34 224.0.0.251 MDNS 119 Standard query response 0x0000 AAAA fc80::541e:3e3d:2cf7:c4d 49 96.725659 192.168.1.34 192.168.1.255 NBNS 92 Name query NE LAPTOP-095EV67N.lcc 59 97.725659 192.168.1.34 192.168.1.255 NBNS 92 Name query NB LAPTOP-095EV67N.lcc 51 98.225281 192.168.1.34 192.168.1.255 NBNS 92 Name query NB LAPTOP-095EV67N.lcc 52 100.606256 192.168.1.34 192.168.1.255 NBNS 92 Name query NB LAPTOP-095EV67N.lcc 52 100.606256 192.168.1.34 239.255.255.250 SDP 210 M-SEARCH # HTTP/1.1 54 102.611752 192.168.1.34 239.255.255.250 SDP 210 M-SEARCH # HTTP/1.1 54 102.611752 192.168.1.34 239.255.255.250 SDP 210 M-SEARCH # HTTP/1.1 54 102.611752 192.168.1.34 239.255.255.250 SDP 210 M-SEARCH # HTTP/1.1 55 107.829482 ZyxelCom 91:e6:56		44 95.591433	192.168.1.34	224.0.0.251	MDNS	81 Standard query 0x0	000 ANY LAPTOP-09	5EV67N.	local,	"QM"	quest	tion	
46 95.592873 fe80::541e:3e3d:2cfff02::fb MDNS 139 Standard query response 0x000 AAAA fe80::541e:3e3d:2cf7:cdd - 47 95.593191 192.168.1.34 224.0.0.251 MDNS 119 Standard query response 0x000 AAAA fe80::541e:3e3d:2cf7:cdd - 49 95.596071 192.168.1.34 192.168.1.255 MDNS 92 Name query NB LAPTOP-095EV67N<1c> 59 97.475673 192.168.1.34 192.168.1.255 NBNS 92 Name query NB LAPTOP-095EV67N<1c> 51 98.25281 192.168.1.34 192.168.1.255 NBNS 92 Name query NB LAPTOP-095EV67N<1c> 51 109.606256 192.168.1.34 29.255.255 SSDP 210 M-SEARCH * HTTP/1.1 53 101.608414 192.168.1.34 239.255.255.250 SSDP 210 M-SEARCH * HTTP/1.1 55 103.61816 192.168.1.34 239.255.255.250 SSDP 210 M-SEARCH * HTTP/1.1 55 103.61816 192.168.1.34 239.255.255.250 SSDP 210 M-SEARCH * HTTP/1.1 56 107.829482 ZyxelCom 91:e6:56 Broadcast ARP 60 Who has 192.168.1.34? Tell 192.168.1.1 9016 06 04 e 37 98 00 00 40 11 001 ff 08 89 00 89 00 34 001 00 00 00 00 00 20 45 004 00 00 00 00 44 9020 adgreen index: 137 Detination Port: 137		45 95.591867	fe80::541e:3e3d:2cf	ff02::fb	MDNS	101 Standard query 0x0	000 ANY LAPTOP-09	5EV67N.	local,	"QM"	quest	cion	
47 95.593191 192.168.1.34 224.0.0.251 MDNS 119 Standard query response 0x0000 AAAA fe80::541e:3e3d:2cf7:c4d - 49 96.725659 48 95.596071 192.168.1.34 124.0.0.251 MDNS 119 Standard query response 0x0000 AAAA fe80::541e:3e3d:2cf7:c4d - 49 06.725659 49 96.725659 192.168.1.34 192.168.1.255 NENS 92 Name query NB LAPTOP-095EV67Nk1c> 50 97.475673 192.168.1.34 192.168.1.255 NENS 92 Name query NB LAPTOP-095EV67Nk1c> 51 98.225281 192.168.1.34 192.158.1.255 NENS 92 Name query NB LAPTOP-095EV67Nk1c> 52 100.606256 192.168.1.34 239.255.255.250 SSDP 210 M-SEARCH * HTTP/1.1 54 102.611752 192.168.1.34 239.255.255.250 SSDP 210 M-SEARCH * HTTP/1.1 54 102.611752 192.168.1.34 239.255.255.250 SSDP 210 M-SEARCH * HTTP/1.1 55 103.618816 192.168.1.34 239.255.255.250 SSDP 210 M-SEARCH * HTTP/1.1 56 107.829482 ZyxelCom 91:e6:56 Broadcast ARP 60 Who has 192.168.1.34? Tell 192.168.1.1 9010 004 e 37 98 00 00 40 01 004 00 00 00 00 00 00 00 02 45 0040 00 00 00 00 00 00 02 45 90210 chcksum Status: Unverified]		46 95.592873	fe80::541e:3e3d:2cf	ff02::fb	MDNS	139 Standard query res	ponse 0x0000 AAAA	fe80::	541e:3	le3d:2	cf7:c4	1d	
48 95.596071 192.168.1.34 224.0.0.251 MDNS 119 Standard query response 0x0000 AAAA fe80::541e:3e3d:2cf7:c4d 49 96.725659 192.168.1.34 192.168.1.255 NBNS 92 Name query NB LAPTOP-095EV67N<1c> 50 97.475673 192.168.1.34 192.168.1.255 NBNS 92 Name query NB LAPTOP-095EV67N<1c> 51 98.225281 192.168.1.34 192.168.1.255 NBNS 92 Name query NB LAPTOP-095EV67N<1c> 52 100.606256 192.168.1.34 239.255.255.250 SSDP 210 M-SEARCH * HTTP/1.1 53 101.608414 192.168.1.34 239.255.255.250 SSDP 210 M-SEARCH * HTTP/1.1 54 102.611752 192.168.1.34 239.255.255.250 SSDP 210 M-SEARCH * HTTP/1.1 54 102.611752 192.168.1.34 239.255.255.250 SSDP 210 M-SEARCH * HTTP/1.1 55 103.618816 192.168.1.34 239.255.255.250 SSDP 210 M-SEARCH * HTTP/1.1 56 107.829482 ZyxelCom 91:e6:56 Broadcast ARP 60 Who has 192.168.1.34? Tell 192.168.1.1 Other Datagram Protocol, Src Port: 137, Dst Port: 137 Destination Port: 137 Length: 58 000 00 00 00 00 00 00 00 00 00 00 00 00		47 95.593191	192.168.1.34	224.0.0.251	MDNS	119 Standard query res	ponse 0x0000 AAAA	fe80::	541e:3	le3d:2	cf7:c4	4d	
49 96.725659 192.168.1.34 192.168.1.255 NBNS 92 Name query NB LAPTOP-095EV67Nx1c> 50 97.475673 192.168.1.34 192.168.1.255 NBNS 92 Name query NB LAPTOP-095EV67Nx1c> 51 98.25281 192.168.1.34 192.168.1.255 NBNS 92 Name query NB LAPTOP-095EV67Nx1c> 52 100.666256 192.168.1.34 239.255.255.250 SSDP 210 M-SEARCH * HTTP/1.1 53 101.608414 192.168.1.34 239.255.255.250 SSDP 210 M-SEARCH * HTTP/1.1 54 102.611752 192.168.1.34 239.255.255.250 SSDP 210 M-SEARCH * HTTP/1.1 54 102.611752 192.168.1.34 239.255.255.250 SSDP 210 M-SEARCH * HTTP/1.1 55 103.618816 192.168.1.34 239.255.255.250 SSDP 210 M-SEARCH * HTTP/1.1 56 107.829482 ZyxelCom 91:e6:56 Broadcast ARP 60 Who has 192.168.1.34? Tell 192.168.1.1 VIser Datagram Protocol, Src Port: 137 Dst Port: 137 0000 ff ff ff ff ff ff ff ff 88 39 0010 004 68 37 88 00 89 00 3a 0030 004 00 43 79 80 00 89 00 3a 0030 004 00 00 00 00 02 04 55 0040 50 46 41 43 4e 44 41 44 0050 10 44 48 45 4f 42 4d 00 004 00 60 00 00 00 00 02 04		48 95.596071	192.168.1.34	224.0.0.251	MDNS	119 Standard query res	ponse 0x0000 AAAA	fe80::	541e:3	le3d:2	cf7:c4	1d	
50 97.475673 192.168.1.34 192.168.1.255 NBNS 92 Name query NB LAPTOP-095EV67Nk1c> 51 98.225281 192.168.1.34 192.168.1.255 NBNS 92 Name query NB LAPTOP-095EV67Nk1c> 52 100.606256 192.168.1.34 239.255.255.250 SSDP 210 M-SEARCH # HTTP/1.1 53 101.608414 192.168.1.34 239.255.255.250 SSDP 210 M-SEARCH # HTTP/1.1 54 102.611752 192.168.1.34 239.255.255.250 SSDP 210 M-SEARCH # HTTP/1.1 55 103.618816 192.168.1.34 239.255.255.250 SSDP 210 M-SEARCH # HTTP/1.1 55 103.618816 192.168.1.34 239.255.255.250 SSDP 210 M-SEARCH # HTTP/1.1 56 107.829482 ZyxelCom 91:e6:56 Broadcast ARP 60 Who has 192.168.1.34? Tell 192.168.1.1 9010 00 4 a 37 98 00 00 40 11 0020 01 ff 00 99 00 89 00 80 00 30 0030 00 00 00 00 00 00 00 00 20 45 9030 00 00 00 00 00 00 00 00 00 00 00 00 00		49 96.725659	192.168.1.34	192.168.1.255	NBNS	92 Name query NB LAPT	OP-095EV67N<1c>						
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56 107.829482 ZyxelCom 91:e6:56 Broadcast ARP 60 Who has 192.168.1.34? Tell 192.168.1.1 Internet Protocol Version 4, Src: 192.168.1.34, Dst: 192.168.1.255 9000 ff		55 103.618816	192.168.1.34	239.255.255.250	SSDP	210 M-SEARCH * HTTP/1.	1						
Internet Protocol Version 4, Src: 192.168.1.34, Dst: 192.168.1.255 User Datagram Protocol, Src Port: 137, Dst Port: 137 Source Port: 137 Destination Port: 137 Length: 58 Checksum: 0x48af [unverified] [Checksum Status: Unverified] [Stream index: 1] > [Timestamps] UDP payload (50 bytes) NetBIOS Name Service		56 107.829482	ZyxelCom 91:e6:56	Broadcast	ARP	60 Who has 192.168.1.	34? Tell 192.168.	1.1					
Internet Protocol Version 4, Src: 192.168.1.34, Dst: 192.168.1.255 User Datagram Protocol, Src Port: 137, Dst Port: 137 Source Port: 137 Destination Port: 137 Length: 58 (Checksum Status: Unverified] [Checksum Status: Unverified] [Stream index: 1] > [Timestamps] UDP payload (50 bytes) NetBIOS Name Service								0000				-	20
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Source Port: 137 Destination Port: 137 Length: 58 Checksum: 0x48af [unverified] [Checksum Status: Unverified] [Stream index: 1] > [Timestamps] UDP payload (50 bytes) NetBIOS Name Service	✓ Use	er Datagram Prot	COCOI, SFC PORT: 137, DS	t Port: 137				0010	00 4E	00 8	00 0	9 00	3a
Descrintation Fort: 137 Length: 58 Checksum: 0x48af [unverified] [Checksum Status: Unverified] [Checksum status: Unverified] [Stream index: 1] > [Timestamps] UDP payload (50 bytes) NetBIOS Name Service Comparison of the service		Doctination Don	+ 127					0030	00 00	00 00	0 00 0	0 20	45
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Рисунок 15 – Анализ сканирования портов собственного ПК с определением версий сетевых сервисов в Wireshark

В данном случае TCP или UDP не были обнаружены, но после того как какиелибо TCP и/или UDP будут обнаружены, Nmap начнет опрашивать эти порты, чтобы определить, какие службы их действительно используют. База данных nmap-serviceprobes содержит запросы для обращения к различным службам и соответствующие выражения для распознавания и анализа ответов. Nmap пытается определить протокол службы, имя приложения, номер версии, имя хоста, тип устройства, семейство OC и иногда различные иные детали.

Вывод: изучила и освоила навыки работы со сканерами уязвимостей.