## Компьютерные сети

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## Wireshark

1) 192.168.88.252

```
> Source: IntelCor_96:5d:ca (d4:3b:04:96:5d:ca)
     Type: IPv4 (0x0800)
Internet Protocol Version 4, Src: 192.168.88.252, Dst: 104.107.218.43
    0100 .... = Version: 4
     .... 0101 = Header Length: 20 bytes (5)
  v Differentiated Services Field: 0x00 (DSCP: CS0, ECN: Not-ECT)
       0000 00.. = Differentiated Services Codepoint: Default (0)
        .... ..00 = Explicit Congestion Notification: Not ECN-Capable Transport (0)
    Total Length: 56
    Identification: 0x8d0e (36110)
  > Flags: 0x00
     ...0 0000 0000 0000 = Fragment Offset: 0
    Time to Live: 255
    Protocol: ICMP (1)
    Header Checksum: 0x0000 [validation disabled]
     [Header checksum status: Unverified]
     Source Address: 192.168.88.252
    Destination Address: 104.107.218.43
```

- 2) ICMP
- 3) ІР заголовок весит 20 байт, общая длина 56. А значит полезная нагрузка 36.

```
Internet Protocol Version 4, Src: 192.168.88.252, Dst: 104.107.218.43
0100 .... = Version: 4
.... 0101 = Header Length: 20 bytes (5)

Differentiated Services Field: 0x00 (DSCP: CS0, ECN: Not-ECT)
0000 00.. = Differentiated Services Codepoint: Default (0)
.... ..00 = Explicit Congestion Notification: Not ECN-Capable Transport (0)
Total Length: 56
```

- 4) a) Меняются ttl, identification,
  - б) Не изменяются все остальные
  - в) Каждый раз увеличивается на 1
- 5) Identification = 36110, ttl = 255
- 6) identification меняется, ttl постоянно 64
- 7) 2894, 64

```
97 5.450281
                       192.168.88.1
                                            192.168.88.252
                                                                  ICMP
                                                                             98 Time-to-live exceeded (Time to live
     98 5.465046
                       192.168.88.252
                                            104.107.218.43
                                                                  ICMP
                                                                             70 Echo (ping) request id=0x0001, seq=
                                                                             70 Time-to-live exceeded (Time to live
    100 5.480085
                       192.168.88.252
                                            104.107.218.43
                                                                  ICMP
                                                                             70 Echo (ping) request id=0x0001, seq=
                                            192.168.88.252
    101 5.482082
                                                                             70 Time-to-live exceeded (Time to live
                       31.28.20.5
                                                                  ICMP
                                                                                                     id=0x0001, seq=
    102 5.495259
                       192.168.88.252
                                            104.107.218.43
                                                                  ICMP
                                                                             70 Echo (ping) request
    103 5.495431
                       104.107.218.43
                                            192.168.88.252
                                                                  ICMP
                                                                             70 Echo (ping) reply
                                                                                                     id=0x0001. sea= >
Internet Protocol Version 4, Src: 192.168.88.1, Dst: 192.168.88.252
     0100 .... = Version: 4
     .... 0101 = Header Length: 20 bytes (5)

→ Differentiated Services Field: 0xc0 (DSCP: CS6, ECN: Not-ECT)

       1100 00.. = Differentiated Services Codepoint: Class Selector 6 (48)
        .... ..00 = Explicit Congestion Notification: Not ECN-Capable Transport (0)
     Total Length: 84
     Identification: 0x0b4e (2894)
  > Flags: 0x00
     ...0 0000 0000 0000 = Fragment Offset: 0
     Time to Live: 64
     Protocol: ICMP (1)
    Header Checksum: 0x3c4d [validation disabled]
     [Header checksum status: Unverified]
     Source Address: 192.168.88.1
     Destination Address: 192.168.88.252
```

8) было создано 2 IP фрагмента, в них меняется Fragment offset