Brezžična in Mobilna Omrežja
Študijsko leto 2022/2023

2. domača naloga

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Kazalo

1 Standard 802.11b

Pri TCP protokolu je bila prepustnost povezave 9.07 Mbits/sec. Pri UDP protokolu je bila prepustnost povezave 1.05 Mbits/sec in nihanje latence 0.997 ms.

1.1 TCP protokol na Kali Linux

```
┌──(kali㉿kali)-[~]
└─$ iperf -c 192.168.50.1 -i 5 -t 60
────────────────────────────────────────────────────────
Client connecting to 192.168.50.1, TCP port 5001
TCP window size: 16.0 KByte (default)
────────────────────────────────────────────────────────
[  1] local 192.168.50.66 port 49468 connected with 192.168.50.1 port 5001 (i
cwnd/mss/irtt=14/1448/2489)
[ ID] Interval       Transfer     Bandwidth
[  1] 0.0000-5.0000 sec  7.13 MBytes  12.0 Mbits/sec
[  1] 5.0000-10.0000 sec  5.62 MBytes  9.44 Mbits/sec
[  1] 10.0000-15.0000 sec  5.62 MBytes  9.44 Mbits/sec
[  1] 15.0000-20.0000 sec  5.25 MBytes  8.81 Mbits/sec
[  1] 20.0000-25.0000 sec  4.75 MBytes  7.97 Mbits/sec
[  1] 25.0000-30.0000 sec  5.25 MBytes  8.81 Mbits/sec
[  1] 30.0000-35.0000 sec  4.75 MBytes  7.97 Mbits/sec
[  1] 35.0000-40.0000 sec  5.88 MBytes  9.86 Mbits/sec
[  1] 40.0000-45.0000 sec  5.50 MBytes  9.23 Mbits/sec
[  1] 45.0000-50.0000 sec  5.38 MBytes  9.02 Mbits/sec
[  1] 50.0000-55.0000 sec  5.50 MBytes  9.23 Mbits/sec
[  1] 55.0000-60.0000 sec  5.50 MBytes  9.23 Mbits/sec
[  1] 60.0000-61.2968 sec   128 KBytes   809 Kbits/sec
[  1] 0.0000-61.2968 sec  66.3 MBytes  9.07 Mbits/sec
```

1.2 TCP protokol na Raspberry Pi

```
^Cmojca@raspberrypi:~ $ iperf -s
────────────────────────────────────────────────────────
Server listening on TCP port 5001
TCP window size:  128 KByte (default)
────────────────────────────────────────────────────────
[  4] local 192.168.50.1 port 5001 connected with 192.168.50.66 port 49468
[ ID] Interval       Transfer     Bandwidth
[  4] 0.0000-61.2903 sec  66.3 MBytes  9.07 Mbits/sec
```

1.3 UDP protokol na Kali Linux

```
└$ iperf -u -c 192.168.50.1 -i 5 -t 60
───────────────────────────────────────────────────────────
Client connecting to 192.168.50.1, UDP port 5001
Sending 1470 byte datagrams, IPG target: 11215.21 us (kalman adjust)
UDP buffer size:  208 KByte (default)
───────────────────────────────────────────────────────────
[  1] local 192.168.50.66 port 41019 connected with 192.168.50.1 port 5001
[ ID] Interval       Transfer     Bandwidth
[  1] 0.0000-5.0000 sec   642 KBytes  1.05 Mbits/sec
[  1] 5.0000-10.0000 sec   640 KBytes  1.05 Mbits/sec
[  1] 10.0000-15.0000 sec   640 KBytes  1.05 Mbits/sec
[  1] 15.0000-20.0000 sec   640 KBytes  1.05 Mbits/sec
[  1] 20.0000-25.0000 sec   640 KBytes  1.05 Mbits/sec
[  1] 25.0000-30.0000 sec   639 KBytes  1.05 Mbits/sec
[  1] 30.0000-35.0000 sec   640 KBytes  1.05 Mbits/sec
[  1] 35.0000-40.0000 sec   640 KBytes  1.05 Mbits/sec
[  1] 40.0000-45.0000 sec   640 KBytes  1.05 Mbits/sec
[  1] 45.0000-50.0000 sec   640 KBytes  1.05 Mbits/sec
[  1] 50.0000-55.0000 sec   640 KBytes  1.05 Mbits/sec
[  1] 55.0000-60.0000 sec   639 KBytes  1.05 Mbits/sec
[  1] 0.0000-60.0129 sec  7.50 MBytes  1.05 Mbits/sec
[  1] Sent 5354 datagrams
[  1] Server Report:
[ ID] Interval        Transfer      Bandwidth        Jitter   Lost/Total Datagr
ams
[  1] 0.0000-60.0117 sec  7.50 MBytes  1.05 Mbits/sec   0.996 ms 4/5353 (0.07
5%)
```

1.4 UDP protokol na Raspberry Pi

```
^Cmojca@raspberrypi:~ $ iperf -u -s
------------------------------------------------------------
Server listening on UDP port 5001
UDP buffer size:  176 KByte (default)
------------------------------------------------------------
[  3] local 192.168.50.1 port 5001 connected with 192.168.50.66 port 41019
[ ID] Interval        Transfer     Bandwidth        Jitter   Lost/Total Datagrams
[  3] 0.0000-60.0117 sec  7.50 MBytes  1.05 Mbits/sec   0.997 ms   4/ 5353 (0.0
75%)
```

2 Standard 802.11g

Pri TCP protokolu je bila prepustnost povezave 9.05 Mbits/sec. Pri UDP protokolu je bila prepustnost povezave 1.05 Mbits/sec in nihanje latence 0.670 ms.

2.1 TCP protokol na Kali Linux


```
┌──(kali㉿kali)-[~]
└─$ iperf -c 192.168.50.1 -i 5 -t 60
------------------------------------------------------------
Client connecting to 192.168.50.1, TCP port 5001
TCP window size: 16.0 KByte (default)
------------------------------------------------------------
[  1] local 192.168.50.66 port 52118 connected with 192.168.50.1 port 5001 (i
cwnd/mss/irtt=14/1448/6325)
[ ID] Interval        Transfer     Bandwidth
[  1] 0.0000-5.0000 sec   5.38 MBytes   9.02 Mbits/sec
[  1] 5.0000-10.0000 sec   5.38 MBytes   9.02 Mbits/sec
[  1] 10.0000-15.0000 sec   5.25 MBytes   8.81 Mbits/sec
[  1] 15.0000-20.0000 sec   5.38 MBytes   9.02 Mbits/sec
[  1] 20.0000-25.0000 sec   5.50 MBytes   9.23 Mbits/sec
[  1] 25.0000-30.0000 sec   5.38 MBytes   9.02 Mbits/sec
[  1] 30.0000-35.0000 sec   5.50 MBytes   9.23 Mbits/sec
[  1] 35.0000-40.0000 sec   5.75 MBytes   9.65 Mbits/sec
[  1] 40.0000-45.0000 sec   5.50 MBytes   9.23 Mbits/sec
[  1] 45.0000-50.0000 sec   5.38 MBytes   9.02 Mbits/sec
[  1] 50.0000-55.0000 sec   5.25 MBytes   8.81 Mbits/sec
[  1] 55.0000-60.0000 sec   5.50 MBytes   9.23 Mbits/sec
[  1] 0.0000-60.5105 sec   65.3 MBytes   9.05 Mbits/sec

┌──(kali㉿kali)-[~]
└─$
```

2.2 TCP protokol na Raspberry Pi


```
mojca@raspberrypi:~ $ iperf -s
------------------------------------------------------------
Server listening on TCP port 5001
TCP window size:  128 KByte (default)
------------------------------------------------------------
[  4] local 192.168.50.1 port 5001 connected with 192.168.50.66 port 52118
[ ID] Interval        Transfer     Bandwidth
[  4] 0.0000-60.4989 sec   65.3 MBytes   9.05 Mbits/sec
```

2.3 UDP protokol na Kali Linux

```
└$ iperf -u -c 192.168.50.1 -i 5 -t 60
─────────────────────────────────────────────────────────
Client connecting to 192.168.50.1, UDP port 5001
Sending 1470 byte datagrams, IPG target: 11215.21 us (kalman adjust)
UDP buffer size:  208 KByte (default)
─────────────────────────────────────────────────────────
[  1] local 192.168.50.66 port 35345 connected with 192.168.50.1 port 5001
[ ID] Interval        Transfer      Bandwidth
[  1] 0.0000-5.0000 sec    642 KBytes   1.05 Mbits/sec
[  1] 5.0000-10.0000 sec    640 KBytes   1.05 Mbits/sec
[  1] 10.0000-15.0000 sec    640 KBytes   1.05 Mbits/sec
[  1] 15.0000-20.0000 sec    640 KBytes   1.05 Mbits/sec
[  1] 20.0000-25.0000 sec    640 KBytes   1.05 Mbits/sec
[  1] 25.0000-30.0000 sec    639 KBytes   1.05 Mbits/sec
[  1] 30.0000-35.0000 sec    640 KBytes   1.05 Mbits/sec
[  1] 35.0000-40.0000 sec    640 KBytes   1.05 Mbits/sec
[  1] 40.0000-45.0000 sec    640 KBytes   1.05 Mbits/sec
[  1] 45.0000-50.0000 sec    640 KBytes   1.05 Mbits/sec
[  1] 50.0000-55.0000 sec    640 KBytes   1.05 Mbits/sec
[  1] 55.0000-60.0000 sec    639 KBytes   1.05 Mbits/sec
[  1] 0.0000-60.0132 sec   7.50 MBytes   1.05 Mbits/sec
[  1] Sent 5354 datagrams
[  1] Server Report:
[ ID] Interval         Transfer       Bandwidth        Jitter   Lost/Total Datagr
ams
[  1] 0.0000-60.0111 sec   7.50 MBytes   1.05 Mbits/sec   0.670 ms 3/5353 (0.05
6%)
```

2.4 UDP protokol na Raspberry Pi

```
^Cmojca@raspberrypi:~ $ iperf -u -s
-----------------------------------------------------------
Server listening on UDP port 5001
UDP buffer size:  176 KByte (default)
-----------------------------------------------------------
[  3] local 192.168.50.1 port 5001 connected with 192.168.50.66 port 35345
[ ID] Interval        Transfer      Bandwidth        Jitter   Lost/Total Datagrams
[  3] 0.0000-60.0111 sec   7.50 MBytes   1.05 Mbits/sec   0.670 ms    3/ 5353 (0.0
56%)
```

3   Konfiguracija RaspAP