

Raport 2.

1.1. Badanie stanu własnego komputera

Windows IP Configuration

Ethernet adapter Ethernet:

Media State : Media disconnected
Connection-specific DNS Suffix . :

Wireless LAN adapter Połączenie lokalne* 4:

Media State : Media disconnected
Connection-specific DNS Suffix . :

Wireless LAN adapter Połączenie lokalne* 6:

Media State : Media disconnected
Connection-specific DNS Suffix . :

Wireless LAN adapter Wi-Fi:

Connection-specific DNS Suffix . :
Link-local IPv6 Address : fe80::485e:cebe:3dbb:9395%11
IPv4 Address. : 192.168.1.101
Subnet Mask : 255.255.255.0
Default Gateway : 192.168.1.1

Wireless LAN adapter Połączenie lokalne* 7:

Connection-specific DNS Suffix . :
Link-local IPv6 Address : fe80::7cb5:3722:bc99:e90f%13
IPv4 Address. : 192.168.137.1
Subnet Mask : 255.255.255.0
Default Gateway :

1.2. Badanie serwera zajęciowego

```
eth0      Link encap:Ethernet HWaddr 00:19:99:fd:ed:6b
          inet addr:149.156.115.209 Bcast:149.156.115.255 Mask:255.255.255.0
          inet6 addr: fe80::219:99ff:fed:ed6b/64 Scope:Link
            UP BROADCAST RUNNING MULTICAST MTU:1500 Metric:1
            RX packets:127009416 errors:0 dropped:1002747 overruns:0 frame:0
            TX packets:55036256 errors:0 dropped:0 overruns:0 carrier:0
            collisions:0 txqueuelen:1000
            RX bytes:20749734533 (20.7 GB) TX bytes:49551999856 (49.5 GB)
            Interrupt:20 Memory:f7f00000-f7f20000

lo      Link encap:Local Loopback
```

```

inet addr:127.0.0.1 Mask:255.0.0.0
inet6 addr: ::1/128 Scope:Host
UP LOOPBACK RUNNING MTU:65536 Metric:1
RX packets:317035 errors:0 dropped:0 overruns:0 frame:0
TX packets:317035 errors:0 dropped:0 overruns:0 carrier:0
collisions:0 txqueuelen:1
RX bytes:28250546 (28.2 MB) TX bytes:28250546 (28.2 MB)

virbr0 Link encap:Ethernet HWaddr 52:54:00:32:0e:4b
inet addr:192.168.122.1 Bcast:192.168.122.255 Mask:255.255.255.0
UP BROADCAST MULTICAST MTU:1500 Metric:1
RX packets:0 errors:0 dropped:0 overruns:0 frame:0
TX packets:0 errors:0 dropped:0 overruns:0 carrier:0
collisions:0 txqueuelen:1000
RX bytes:0 (0.0 B) TX bytes:0 (0.0 B)

```

2. Terminy

adres fizyczny – sprzętowy adres karty sieciowej

DHCP – protokół, dzięki któremu host otrzymuje od serwera dane konfiguracyjne (np. adres IP)

Adres IP – unikalny, adres komputera, składający się z adresu sieci oraz adresu komputera

Maska podsieci – stała wartość określonej ilości bitów adresu dla wszystkich hostów w danej

podsieci (8, 12 lub 16 bitów długości); podawany jest jej „rodzaj”, np. 255.255.255.0

Brama sieciowa – unikalny adres sieci, dzięki któremu sieć może komunikować się z inną siecią

Serwer DNS – serwer, który tłumaczy nazwy symboliczne na adres IP

3.1. Polecenie netstat dla własnego komputera

Active Connections

Proto	Local Address	Foreign Address	State
TCP	127.0.0.1:28000	Lenovo-PC:64320	ESTABLISHED
TCP	127.0.0.1:49672	Lenovo-PC:49673	ESTABLISHED
TCP	127.0.0.1:49673	Lenovo-PC:49672	ESTABLISHED
TCP	127.0.0.1:49691	Lenovo-PC:49701	ESTABLISHED
TCP	127.0.0.1:49691	Lenovo-PC:49704	ESTABLISHED
TCP	127.0.0.1:49691	Lenovo-PC:49705	ESTABLISHED
TCP	127.0.0.1:49691	Lenovo-PC:49707	ESTABLISHED
TCP	127.0.0.1:49691	Lenovo-PC:49709	ESTABLISHED
TCP	127.0.0.1:49694	Lenovo-PC:49695	ESTABLISHED
TCP	127.0.0.1:49695	Lenovo-PC:49694	ESTABLISHED
TCP	127.0.0.1:49696	Lenovo-PC:61900	ESTABLISHED
TCP	127.0.0.1:49697	Lenovo-PC:49698	ESTABLISHED
TCP	127.0.0.1:49698	Lenovo-PC:49697	ESTABLISHED
TCP	127.0.0.1:49701	Lenovo-PC:49691	ESTABLISHED
TCP	127.0.0.1:49704	Lenovo-PC:49691	ESTABLISHED
TCP	127.0.0.1:49705	Lenovo-PC:49691	ESTABLISHED

TCP	127.0.0.1:49707	Lenovo-PC:49691	ESTABLISHED
TCP	127.0.0.1:49709	Lenovo-PC:49691	ESTABLISHED
TCP	127.0.0.1:61900	Lenovo-PC:49696	ESTABLISHED
TCP	127.0.0.1:64318	Lenovo-PC:64319	ESTABLISHED
TCP	127.0.0.1:64319	Lenovo-PC:64318	ESTABLISHED
TCP	127.0.0.1:64320	Lenovo-PC:28000	ESTABLISHED
TCP	192.168.1.101:64271	52.170.194.77:https	ESTABLISHED
TCP	192.168.1.101:64302	88:http	CLOSE_WAIT
TCP	192.168.1.101:64322	lo-in-f188:5228	ESTABLISHED
TCP	192.168.1.101:64424	r-147-58-45-5:https	CLOSE_WAIT
TCP	192.168.1.101:64440	a2-23-111-38:https	CLOSE_WAIT
TCP	192.168.1.101:64444	ams10-004:http	ESTABLISHED
TCP	192.168.1.101:64486	prg39-013:https	ESTABLISHED
TCP	192.168.1.101:64490	r-171-58-45-5:http	FIN_WAIT_1
TCP	[::1]:27275	Lenovo-PC:64487	TIME_WAIT
TCP	[::1]:27275	Lenovo-PC:64488	TIME_WAIT
TCP	[::1]:27275	Lenovo-PC:64489	TIME_WAIT
TCP	[::1]:27275	Lenovo-PC:64493	TIME_WAIT
TCP	[::1]:27275	Lenovo-PC:64494	TIME_WAIT
TCP	[::1]:27275	Lenovo-PC:64495	TIME_WAIT
TCP	[::1]:49669	Lenovo-PC:49670	ESTABLISHED
TCP	[::1]:49670	Lenovo-PC:49669	ESTABLISHED
TCP	[::1]:49676	Lenovo-PC:49677	ESTABLISHED
TCP	[::1]:49677	Lenovo-PC:49676	ESTABLISHED
TCP	[::1]:49679	Lenovo-PC:49680	ESTABLISHED
TCP	[::1]:49680	Lenovo-PC:49679	ESTABLISHED
TCP	[::1]:49681	Lenovo-PC:49682	ESTABLISHED
TCP	[::1]:49682	Lenovo-PC:49681	ESTABLISHED
TCP	[::1]:49685	Lenovo-PC:49688	ESTABLISHED
TCP	[::1]:49688	Lenovo-PC:49685	ESTABLISHED
TCP	[::1]:49713	Lenovo-PC:49714	ESTABLISHED
TCP	[::1]:49714	Lenovo-PC:49713	ESTABLISHED

3.2. Polecenie netstat dla serwera

Active Internet connections (w/o servers)

Proto	Recv-Q	Send-Q	Local Address	Foreign Address	State
tcp	0	0	mts.wibro.a:netbios-ssn	fenix.wibro.agh.e:53948	ESTABLISHED
tcp	0	240	mts.wibro.agh.edu.p:ssh	host6-1.multi-ip.p:1650	ESTABLISHED
getnameinfo failed					
tcp6	0	0	mts.wibro.agh.edu.:http	[UNKNOWN]:24531	TIME_WAIT
getnameinfo failed					
tcp6	0	0	mts.wibro.agh.edu.:http	[UNKNOWN]:29561	TIME_WAIT

Active UNIX domain sockets (w/o servers)

Proto	RefCnt	Flags	Type	State	I-Node	Path
unix	2	[]	DGRAM		54276884	/run/user/2369/systemd/notify
unix	2	[]	DGRAM		53585453	/var/lib/samba/private/msg.sock/13801
unix	2	[]	DGRAM		43275093	/run/user/2342/systemd/notify
unix	2	[]	DGRAM		42865391	/run/user/2324/systemd/notify
unix	2	[]	DGRAM		5449035	/var/lib/samba/private/msg.sock/15256
unix	2	[]	DGRAM		5444570	/var/lib/samba/private/msg.sock/15257
unix	2	[]	DGRAM		5448559	/var/lib/samba/private/msg.sock/15275

unix 2 []	DGRAM	5450074	/var/lib/samba/private/msg.sock/15334
unix 2 []	DGRAM	5450938	/var/lib/samba/private/msg.sock/15484
unix 2 []	DGRAM	5451898	/var/lib/samba/private/msg.sock/15485
unix 9 []	DGRAM	437	/run/systemd/journal/socket
unix 17 []	DGRAM	442	/run/systemd/journal/dev-log
unix 2 []	DGRAM	446	/run/systemd/journal/syslog
unix 2 []	DGRAM	17432	/var/spool/postfix/dev/log
unix 3 []	DGRAM	425	/run/systemd/notify
unix 3 []	STREAM	CONNECTED	52377875 /var/run/dbus/system_bus_socket
unix 2 []	DGRAM	43275084	
unix 2 []	DGRAM	43777982	
unix 3 []	STREAM	CONNECTED	54278076
unix 2 []	DGRAM	54278058	
unix 2 []	STREAM	CONNECTED	39728381
unix 3 []	STREAM	CONNECTED	19172562 /var/run/dbus/system_bus_socket
unix 3 []	STREAM	CONNECTED	19175671 /run/systemd/journal/stdout
unix 3 []	STREAM	CONNECTED	54278075
unix 2 []	DGRAM	54263687	
unix 3 []	STREAM	CONNECTED	19176849
unix 3 []	STREAM	CONNECTED	52376979
unix 3 []	STREAM	CONNECTED	20908
unix 2 []	DGRAM	42869137	
unix 3 []	STREAM	CONNECTED	20668
unix 2 []	DGRAM	42865382	
unix 3 []	STREAM	CONNECTED	20890
unix 3 []	STREAM	CONNECTED	20868
unix 3 []	STREAM	CONNECTED	20843
unix 3 []	STREAM	CONNECTED	20887
unix 3 []	STREAM	CONNECTED	20896
unix 3 []	STREAM	CONNECTED	20848
unix 3 []	STREAM	CONNECTED	20884
unix 3 []	STREAM	CONNECTED	16529
unix 3 []	STREAM	CONNECTED	20902
unix 3 []	STREAM	CONNECTED	17690
unix 3 []	STREAM	CONNECTED	14857
unix 3 []	STREAM	CONNECTED	17299
unix 3 []	DGRAM	19170799	
unix 3 []	STREAM	CONNECTED	20877
unix 3 []	STREAM	CONNECTED	16215 /var/run/dbus/system_bus_socket
unix 3 []	STREAM	CONNECTED	16788 /run/systemd/journal/stdout
unix 3 []	STREAM	CONNECTED	20907
unix 3 []	STREAM	CONNECTED	20889
unix 3 []	STREAM	CONNECTED	20878
unix 3 []	STREAM	CONNECTED	20849
unix 3 []	STREAM	CONNECTED	20898
unix 2 []	DGRAM	54278570	
unix 3 []	STREAM	CONNECTED	20892
unix 3 []	STREAM	CONNECTED	20869
unix 3 []	STREAM	CONNECTED	42865370 /run/systemd/journal/stdout
unix 3 []	STREAM	CONNECTED	43778014 /run/systemd/journal/stdout
unix 3 []	STREAM	CONNECTED	20871
unix 3 []	STREAM	CONNECTED	18373

unix	3	[]	STREAM	CONNECTED	19171656
unix	3	[]	STREAM	CONNECTED	20874
unix	3	[]	STREAM	CONNECTED	20893
unix	2	[]	DGRAM		20821
unix	2	[]	DGRAM		17578
unix	2	[]	DGRAM		43777005
unix	3	[]	STREAM	CONNECTED	20895
unix	3	[]	STREAM	CONNECTED	16530 /run/systemd/journal/stdout
unix	3	[]	STREAM	CONNECTED	20886
unix	2	[]	DGRAM		18970
unix	3	[]	STREAM	CONNECTED	43779963
unix	3	[]	STREAM	CONNECTED	16768 /var/run/dbus/system_bus_socket
unix	3	[]	DGRAM		19170800
unix	3	[]	STREAM	CONNECTED	20904
unix	2	[]	DGRAM		14698
unix	2	[]	DGRAM		17438
unix	3	[]	STREAM	CONNECTED	43780503 /run/systemd/journal/stdout
unix	3	[]	STREAM	CONNECTED	19636 /var/run/dbus/system_bus_socket
unix	3	[]	DGRAM		19170798
unix	2	[]	DGRAM		18682
unix	3	[]	STREAM	CONNECTED	15547 /run/systemd/journal/stdout
unix	3	[]	STREAM	CONNECTED	17442
unix	3	[]	STREAM	CONNECTED	20910
unix	3	[]	STREAM	CONNECTED	20853
unix	3	[]	STREAM	CONNECTED	17441
unix	3	[]	STREAM	CONNECTED	15612
unix	3	[]	STREAM	CONNECTED	20899
unix	3	[]	STREAM	CONNECTED	19170228 /run/systemd/journal/stdout
unix	3	[]	STREAM	CONNECTED	17300
unix	3	[]	STREAM	CONNECTED	20883
unix	3	[]	STREAM	CONNECTED	20852
unix	3	[]	STREAM	CONNECTED	17601
unix	3	[]	STREAM	CONNECTED	20911
unix	3	[]	STREAM	CONNECTED	43781231
unix	3	[]	STREAM	CONNECTED	42869131
unix	3	[]	STREAM	CONNECTED	5450945
unix	3	[]	STREAM	CONNECTED	20872
unix	3	[]	STREAM	CONNECTED	12702
unix	3	[]	STREAM	CONNECTED	20901
unix	3	[]	STREAM	CONNECTED	20881
unix	2	[]	DGRAM		19170793
unix	3	[]	STREAM	CONNECTED	20844
unix	3	[]	STREAM	CONNECTED	20875
unix	2	[]	DGRAM		17295
unix	3	[]	STREAM	CONNECTED	522 /run/systemd/journal/stdout
unix	3	[]	STREAM	CONNECTED	5450944
unix	3	[]	STREAM	CONNECTED	20905
unix	3	[]	STREAM	CONNECTED	19172635
unix	3	[]	STREAM	CONNECTED	20880
unix	2	[]	DGRAM		43781278
unix	3	[]	DGRAM		19170797
unix	3	[]	STREAM	CONNECTED	43781299 /var/run/dbus/system_bus_socket

unix 3 []	STREAM	CONNECTED	14683	/run/systemd/journal/stdout
unix 2 []	DGRAM	496		
unix 3 []	STREAM	CONNECTED	20855	
unix 3 []	STREAM	CONNECTED	16789	/run/systemd/journal/stdout
unix 3 []	STREAM	CONNECTED	20866	
unix 3 []	STREAM	CONNECTED	20862	
unix 3 []	STREAM	CONNECTED	43780609	
unix 2 []	DGRAM	19174805		
unix 3 []	STREAM	CONNECTED	43777935	/run/systemd/journal/stdout
unix 3 []	DGRAM	19174810		
unix 3 []	STREAM	CONNECTED	17577	/run/systemd/journal/stdout
unix 3 []	STREAM	CONNECTED	14256	
unix 3 []	STREAM	CONNECTED	43780468	
unix 3 []	STREAM	CONNECTED	14328	
unix 3 []	STREAM	CONNECTED	20859	
unix 3 []	STREAM	CONNECTED	18374	/var/run/dbus/system_bus_socket
unix 3 []	STREAM	CONNECTED	20865	
unix 3 []	STREAM	CONNECTED	16531	/run/systemd/journal/stdout
unix 3 []	STREAM	CONNECTED	16217	
unix 3 []	STREAM	CONNECTED	15773	
unix 3 []	DGRAM	19174809		
unix 3 []	STREAM	CONNECTED	20856	
unix 2 []	DGRAM	52378698		
unix 3 []	STREAM	CONNECTED	20860	
unix 3 []	STREAM	CONNECTED	16674	/run/systemd/journal/stdout
unix 3 []	STREAM	CONNECTED	20863	
unix 3 []	STREAM	CONNECTED	15704	
unix 3 []	STREAM	CONNECTED	54276873	/run/systemd/journal/stdout
unix 3 []	STREAM	CONNECTED	20916	
unix 3 []	STREAM	CONNECTED	20913	
unix 3 []	STREAM	CONNECTED	15705	/run/systemd/journal/stdout
unix 3 []	STREAM	CONNECTED	20923	
unix 3 []	STREAM	CONNECTED	17774	/run/systemd/journal/stdout
unix 3 []	STREAM	CONNECTED	20929	
unix 3 []	STREAM	CONNECTED	20928	
unix 2 []	DGRAM	23026070		
unix 2 []	DGRAM	54274953		
unix 3 []	STREAM	CONNECTED	20926	
unix 3 []	STREAM	CONNECTED	20917	
unix 2 []	DGRAM	20967		
unix 3 []	STREAM	CONNECTED	43276943	/run/systemd/journal/stdout
unix 3 []	STREAM	CONNECTED	20922	
unix 3 []	STREAM	CONNECTED	20914	
unix 3 []	STREAM	CONNECTED	54274947	
unix 3 []	STREAM	CONNECTED	15637	/run/systemd/journal/stdout
unix 3 []	STREAM	CONNECTED	16607	
unix 3 []	STREAM	CONNECTED	20925	
unix 2 []	DGRAM	43273943		
unix 3 []	STREAM	CONNECTED	16867	
unix 3 []	STREAM	CONNECTED	20920	
unix 3 []	STREAM	CONNECTED	20932	
unix 2 []	DGRAM	17875		

```
unix 3 [ ] STREAM CONNECTED 20931
unix 3 [ ] STREAM CONNECTED 16741
unix 3 [ ] STREAM CONNECTED 20934
unix 3 [ ] STREAM CONNECTED 43273937
unix 3 [ ] STREAM CONNECTED 20919
unix 2 [ ] DGRAM 20942
unix 3 [ ] STREAM CONNECTED 20935
```

4. Polecenie ping

PING mts.wibro.agh.edu.pl (149.156.115.209) 56(84) bytes of data.
64 bytes from mts.wibro.agh.edu.pl (149.156.115.209): icmp_seq=1 ttl=64 time=0.052 ms
64 bytes from mts.wibro.agh.edu.pl (149.156.115.209): icmp_seq=2 ttl=64 time=0.040 ms
64 bytes from mts.wibro.agh.edu.pl (149.156.115.209): icmp_seq=3 ttl=64 time=0.031 ms
64 bytes from mts.wibro.agh.edu.pl (149.156.115.209): icmp_seq=4 ttl=64 time=0.031 ms

PING google.com (216.58.215.78) 56(84) bytes of data.
64 bytes from waw02s16-in-f14.1e100.net (216.58.215.78): icmp_seq=1 ttl=55 time=12.6 ms
64 bytes from waw02s16-in-f14.1e100.net (216.58.215.78): icmp_seq=2 ttl=55 time=12.7 ms
64 bytes from waw02s16-in-f14.1e100.net (216.58.215.78): icmp_seq=3 ttl=55 time=12.6 ms
64 bytes from waw02s16-in-f14.1e100.net (216.58.215.78): icmp_seq=4 ttl=55 time=12.7 ms

PING wp.pl (212.77.98.9) 56(84) bytes of data.
64 bytes from www.wp.pl (212.77.98.9): icmp_seq=1 ttl=57 time=13.2 ms
64 bytes from www.wp.pl (212.77.98.9): icmp_seq=2 ttl=57 time=13.2 ms
64 bytes from www.wp.pl (212.77.98.9): icmp_seq=3 ttl=57 time=13.2 ms
64 bytes from www.wp.pl (212.77.98.9): icmp_seq=4 ttl=57 time=13.2 ms

PING allegro.pl (5.134.210.134) 56(84) bytes of data.
64 bytes from 5.134.210.134: icmp_seq=1 ttl=249 time=12.4 ms
64 bytes from 5.134.210.134: icmp_seq=2 ttl=249 time=12.3 ms
64 bytes from 5.134.210.134: icmp_seq=3 ttl=249 time=12.3 ms
64 bytes from 5.134.210.134: icmp_seq=4 ttl=249 time=12.3 ms

PING przegladssportowy.pl (213.180.141.155) 56(84) bytes of data.
64 bytes from oa155.any.onet.pl (213.180.141.155): icmp_seq=1 ttl=58 time=0.774 ms
64 bytes from oa155.any.onet.pl (213.180.141.155): icmp_seq=2 ttl=58 time=0.756 ms
64 bytes from oa155.any.onet.pl (213.180.141.155): icmp_seq=3 ttl=58 time=0.754 ms
64 bytes from oa155.any.onet.pl (213.180.141.155): icmp_seq=4 ttl=58 time=0.739 ms

5. Translacja adresów

youtube.com → (172.217.16.14)
ebay.com → (66.135.216.190)
onet.pl → (213.180.141.140)
facebook.com → (31.13.81.36)
wikipedia.com → (91.198.174.192)

Translacji odwrotnej można dokonać poprzez '-a'.

6. Polecenie nslookup

```
nslookup mts.wibro.agh.edu.pl
Server: 149.156.96.9
Address: 149.156.96.9#53
```

```
Name: mts.wibro.agh.edu.pl
Address: 149.156.115.209
```

```
nslookup google.com
Server: 149.156.96.9
Address: 149.156.96.9#53
```

Non-authoritative answer:

```
Name: google.com
Address: 216.58.215.78
```

```
nslookup wp.pl
Server: 149.156.96.9
Address: 149.156.96.9#53
```

Non-authoritative answer:

```
Name: wp.pl
Address: 212.77.98.9
```

```
nslookup allegro.pl
Server: 149.156.96.9
Address: 149.156.96.9#53
```

Non-authoritative answer:

```
Name: allegro.pl
Address: 5.134.210.137
```

```
nslookup przegladsporowy.pl
Server: 149.156.96.9
Address: 149.156.96.9#53
```

Non-authoritative answer:

```
Name: przegladsporowy.pl
Address: 213.180.141.155
```

7. Polecenie tracert

tracert mts.wibro.agh.edu.pl

Tracing route to mts.wibro.agh.edu.pl [149.156.115.209]
over a maximum of 30 hops:

```
1  2 ms  3 ms  2 ms  192.168.252.1
2  2 ms  2 ms  3 ms  192.168.252.1
3  14 ms 16 ms 15 ms 10.255.0.1
4  18 ms 17 ms 19 ms host0-89.multi-ip.pl [62.122.120.89]
5  15 ms 16 ms 17 ms 83-168-83-45.static.espol.com.pl [83.168.83.45]
6  274 ms 255 ms 276 ms giganetua.ip4.epix.net.pl [178.216.40.95]
7  50 ms 50 ms 49 ms uarnet-ix.giganet.ua [185.1.62.22]
8  49 ms 47 ms 48 ms 194.44.212.57
9  259 ms 272 ms * 194.44.212.254
10 65 ms 87 ms 72 ms z-UARNET.poznan-gw2-amsix.rtr.pionier.gov.pl [212.191.237.33]
11 61 ms 57 ms 54 ms z-poznan-gw2-amsix.Krakow-COM.rtr.pionier.gov.pl
[212.191.237.62]
12 59 ms 53 ms 64 ms 149.156.0.54
13 52 ms 53 ms 54 ms 149.156.6.226
14 54 ms 61 ms 55 ms b1rtr.agh.edu.pl [149.156.6.219]
15 51 ms 49 ms 50 ms mts.wibro.agh.edu.pl [149.156.115.209]
```

Trace complete.

tracert google.com

Tracing route to google.com [172.217.20.174]
over a maximum of 30 hops:

```
1  2 ms  3 ms  2 ms  192.168.252.1
2  6 ms  2 ms  2 ms  192.168.252.1
3  20 ms 18 ms 14 ms 10.255.0.1
4  19 ms 17 ms 17 ms host0-89.multi-ip.pl [62.122.120.89]
5  18 ms 17 ms 20 ms 83-168-83-45.static.espol.com.pl [83.168.83.45]
6  28 ms 27 ms 27 ms 206.59.126.176.ip4.epix.net.pl [176.126.59.206]
7  42 ms 38 ms * ae4-153.cr1-waw1.ip4.gtt.net [46.33.93.153]
8  39 ms 36 ms 32 ms ip4.gtt.net [77.67.83.98]
9  31 ms 30 ms 38 ms 108.170.250.209
10 34 ms 34 ms 29 ms 216.239.41.167
11 35 ms 35 ms 32 ms waw02s07-in-f14.1e100.net [172.217.20.174]
```

Trace complete.

tracert wp.pl

Tracing route to wp.pl [212.77.98.9]

over a maximum of 30 hops:

```
1  2 ms  2 ms  2 ms 192.168.252.1
2  2 ms  2 ms  2 ms 192.168.252.1
3 147 ms 135 ms 117 ms 10.255.0.1
4 55 ms  41 ms  46 ms host0-89.multi-ip.pl [62.122.120.89]
5 89 ms  72 ms  64 ms 83-168-83-45.static.espol.com.pl [83.168.83.45]
6 135 ms 130 ms 243 ms netia-gw.pozix.pl [185.1.4.44]
7 184 ms 207 ms 244 ms 83.238.250.128
8 240 ms *      *      warsc001rt12.inetia.pl [83.238.248.175]
9 *      72 ms  400 ms 87.204.224.71
10 85 ms  81 ms  76 ms 83.238.6.13
11 373 ms 144 ms 161 ms www.wp.pl [212.77.98.9]
```

Trace complete.

tracert allegro.pl

Tracing route to allegro.pl [5.134.213.80]

over a maximum of 30 hops:

```
1  2 ms  2 ms  2 ms 192.168.252.1
2  2 ms  2 ms  2 ms 192.168.252.1
3 24 ms  25 ms 19 ms 10.255.0.1
4 33 ms  23 ms 32 ms host0-89.multi-ip.pl [62.122.120.89]
5 25 ms  31 ms 32 ms 83-168-83-45.static.espol.com.pl [83.168.83.45]
6 42 ms  39 ms *      allegropl.ip4.epix.net.pl [178.216.40.177]
7 49 ms  41 ms 40 ms 5.134.208.245
8 *      49 ms  43 ms 5.134.208.17
9 38 ms  37 ms 39 ms 5.134.213.80
```

Trace complete.

tracert przegladssportowy.pl

Tracing route to przegladssportowy.pl [213.180.141.155]

over a maximum of 30 hops:

```
1  2 ms  2 ms  2 ms 192.168.252.1
2  3 ms  2 ms  2 ms 192.168.252.1
3 28 ms  20 ms 19 ms 10.255.0.1
4 17 ms  17 ms 18 ms host0-89.multi-ip.pl [62.122.120.89]
5 24 ms  23 ms 22 ms 83-168-83-45.static.espol.com.pl [83.168.83.45]
6 36 ms  30 ms 31 ms onet-gw.pozix.pl [185.1.4.84]
7 *      *      *      Request timed out.
```

```
8 * 37 ms 37 ms oa155.any.onet.pl [213.180.141.155]
```

Trace complete.

8., 9. Wireshark – badanie sieci

Prędkość przybywania pakietów przy wyłączonej przeglądarce to jeden lub kilka na sekundę. Polecenie ping powoduje przyrost liczby pakietów do kilku na sekundę. Po włączeniu jakiejkolwiek strony w przeglądarce liczba pakietów skacze do ponad 700 w sekundę i rośnie. Po kilkunastu sekundach są już ich tysiące. Widać zatem, że łączenie się z internetem powoduje większy ruch w sieci lokalnej.