

Networks & Internet
(Brian Stone)
(CA169)

Assignment 1

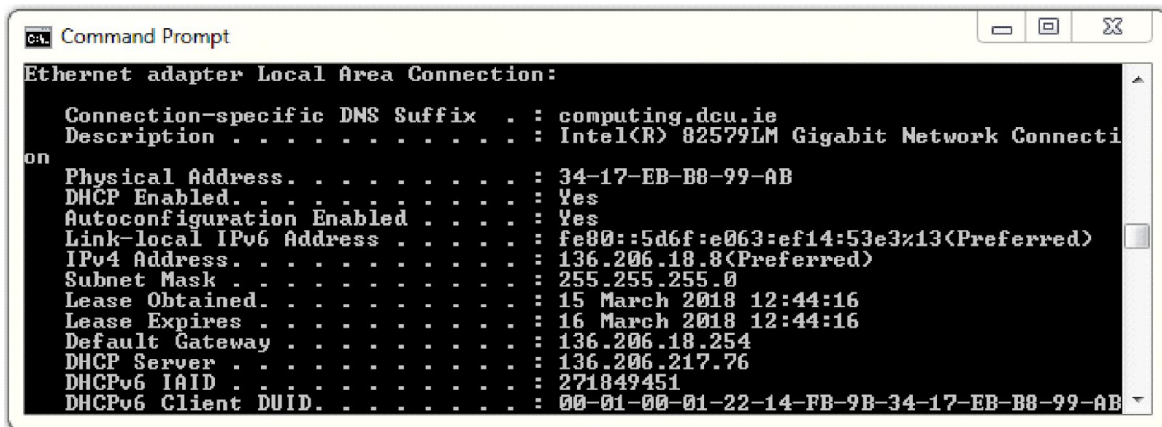
Bryan McHugh
(17428222)

Declaration:

In submitting this project I declare that the project material, which I now submit, is my own work. Any assistance received by way of borrowing from the work of others has been cited and acknowledged within the work. I make this declaration in the knowledge that a breach of the rules pertaining to project submission may carry serious consequences

IPCONFIG Exercise:

When ipconfig is typed into the command prompt a list of IP addresses are displayed.

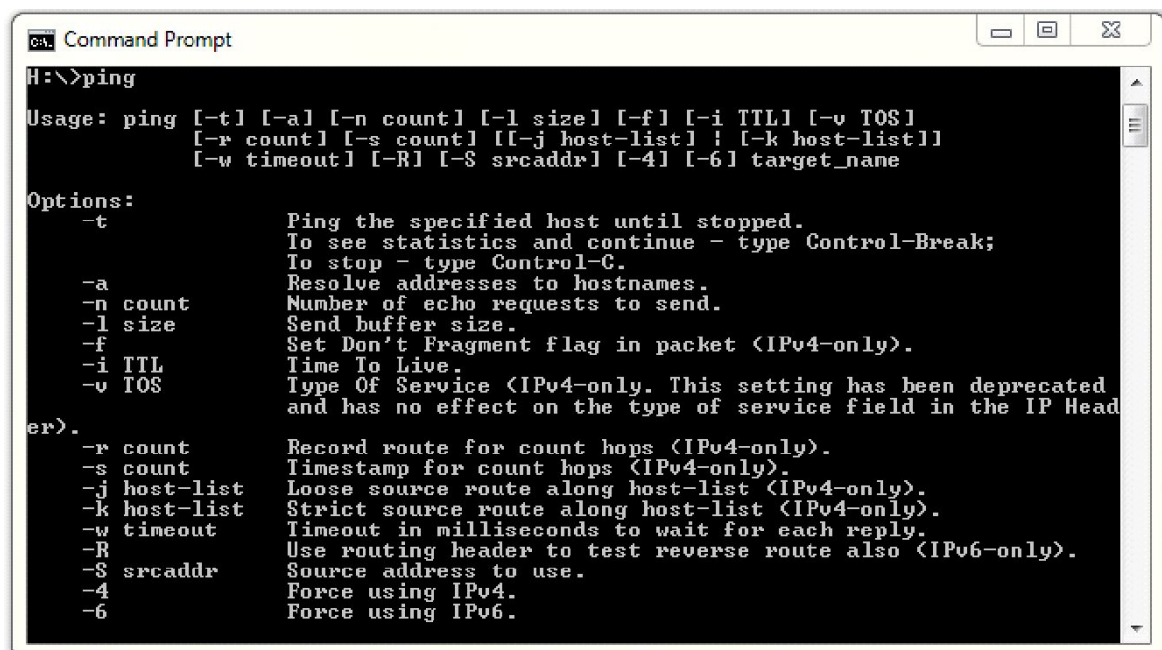


```
Command Prompt
Ethernet adapter Local Area Connection:

    Connection-specific DNS Suffix  . : computing.dcu.ie
    Description . . . . . : Intel(R) 82579LM Gigabit Network Connection
    Physical Address. . . . . : 34-17-EB-B8-99-AB
    DHCP Enabled. . . . . : Yes
    Autoconfiguration Enabled . . . . : Yes
    Link-local IPv6 Address . . . . . : fe80::5d6f:e063:ef14:53e3%13<Preferred>
    IPv4 Address. . . . . : 136.206.18.8<Preferred>
    Subnet Mask . . . . . : 255.255.255.0
    Lease Obtained. . . . . : 15 March 2018 12:44:16
    Lease Expires . . . . . : 16 March 2018 12:44:16
    Default Gateway . . . . . : 136.206.18.254
    DHCP Server . . . . . : 136.206.217.76
    DHCPv6 IAID . . . . . : 271849451
    DHCPv6 Client DUID. . . . . : 00-01-00-01-22-14-FB-9B-34-17-EB-B8-99-AB
```

Ethernet adapters hardware address: 34-17-EB-B8-99-AB

PING Exercise 1:



```
Command Prompt
H:\>ping

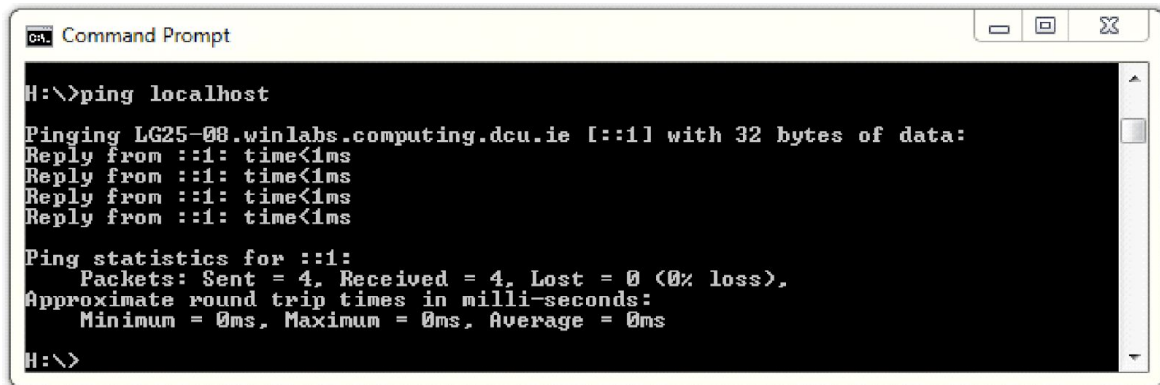
Usage: ping [-t] [-a] [-n count] [-l size] [-f] [-i TTL] [-v TOS]
           [-r count] [-s count] [[-j host-list] ! [-k host-list]]
           [-w timeout] [-R] [-S srcaddr] [-4] [-6] target_name

Options:
  -t             Ping the specified host until stopped.
                  To see statistics and continue - type Control-Break;
                  To stop - type Control-C.
  -a             Resolve addresses to hostnames.
  -n count       Number of echo requests to send.
  -l size        Send buffer size.
  -f            Set Don't Fragment flag in packet (IPv4-only).
  -i TTL         Time To Live.
  -v TOS         Type Of Service (IPv4-only. This setting has been deprecated
                  and has no effect on the type of service field in the IP Head
er).
  -r count       Record route for count hops (IPv4-only).
  -s count       Timestamp for count hops (IPv4-only).
  -j host-list   Loose source route along host-list (IPv4-only).
  -k host-list   Strict source route along host-list (IPv4-only).
  -w timeout     Timeout in milliseconds to wait for each reply.
  -R            Use routing header to test reverse route also (IPv6-only).
  -S srcaddr     Source address to use.
  -4            Force using IPv4.
  -6            Force using IPv6.
```

When ping is typed into the command prompt

a list of options for ping gets returned.

PING Exercise 2:



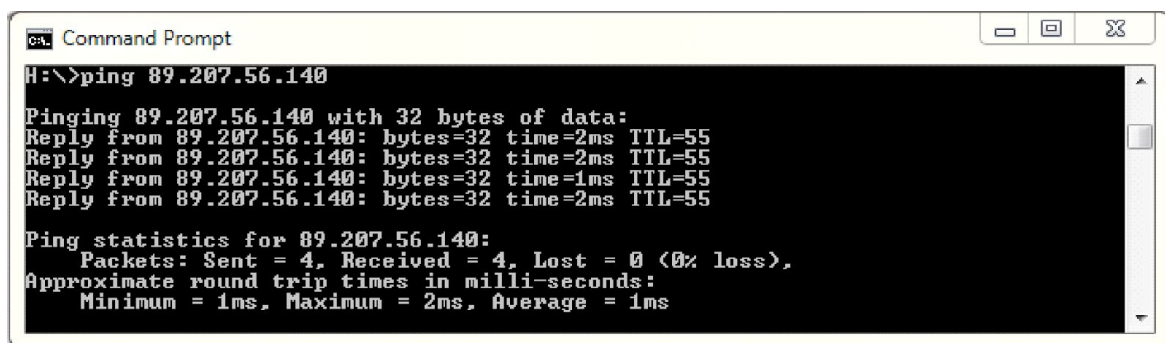
```
CA: Command Prompt
H:\>ping localhost

Pinging LG25-08.winlabs.computing.dcu.ie [::1] with 32 bytes of data:
Reply from ::1: time<1ms
Reply from ::1: time<1ms
Reply from ::1: time<1ms
Reply from ::1: time<1ms

Ping statistics for ::1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

H:\>
```

Typing ping localhost returns statistics for the localhost such as how many packets were sent, received and lost and the time taken to do this, with the max, min and average time being displayed. The localhost is a hostname that means this computer. This computer's local host is LG25-08.winlabs.computing.dcu.ie



```
CA: Command Prompt
H:\>ping 89.207.56.140

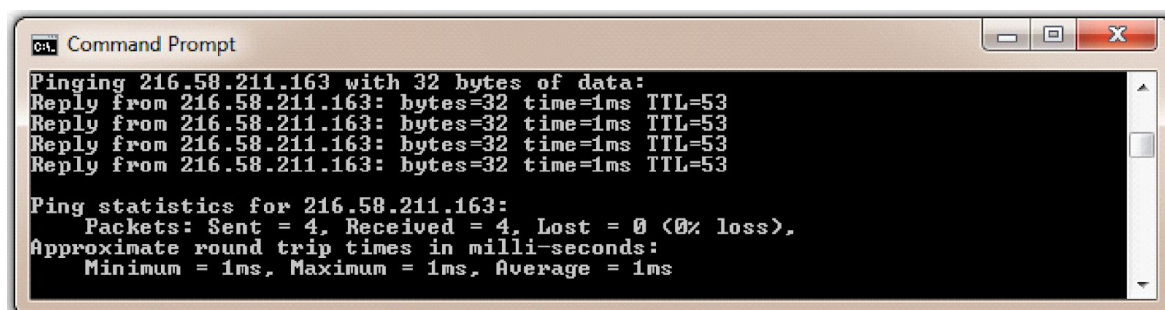
Pinging 89.207.56.140 with 32 bytes of data:
Reply from 89.207.56.140: bytes=32 time=2ms TTL=55
Reply from 89.207.56.140: bytes=32 time=2ms TTL=55
Reply from 89.207.56.140: bytes=32 time=1ms TTL=55
Reply from 89.207.56.140: bytes=32 time=2ms TTL=55

Ping statistics for 89.207.56.140:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 1ms, Maximum = 2ms, Average = 1ms
```

Ping 89.207.56.140

Packets: Sent = 4, received = 4, lost = 0

Time taken: Min = 1 ms, Max = 2 ms, average = 1 ms



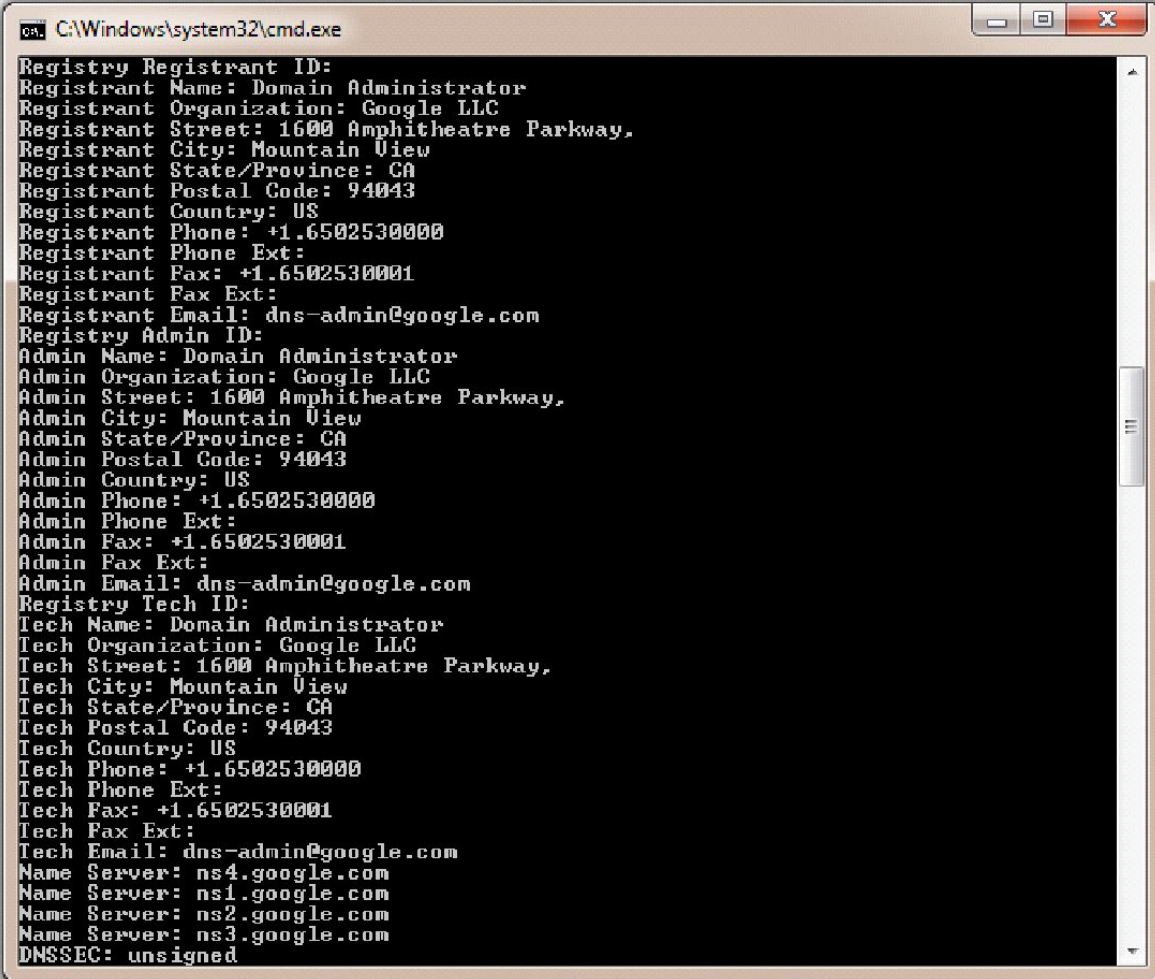
```
CA: Command Prompt
Pinging 216.58.211.163 with 32 bytes of data:
Reply from 216.58.211.163: bytes=32 time=1ms TTL=53
Reply from 216.58.211.163: bytes=32 time=1ms TTL=53
Reply from 216.58.211.163: bytes=32 time=1ms TTL=53
Reply from 216.58.211.163: bytes=32 time=1ms TTL=53

Ping statistics for 216.58.211.163:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 1ms, Maximum = 1ms, Average = 1ms
```

Ping 216.58.211.163

Packets: Sent = 4, received = 4, lost = 0

Time taken: Min = 1 ms, Max = 1 ms, average = 1 ms

A screenshot of a Windows command prompt window titled "cmd. C:\Windows\system32\cmd.exe". The window displays the output of a WHOIS query for a Google domain. The text is as follows:

```
Registry Registrant ID:  
Registrant Name: Domain Administrator  
Registrant Organization: Google LLC  
Registrant Street: 1600 Amphitheatre Parkway,  
Registrant City: Mountain View  
Registrant State/Province: CA  
Registrant Postal Code: 94043  
Registrant Country: US  
Registrant Phone: +1.6502530000  
Registrant Phone Ext:  
Registrant Fax: +1.6502530001  
Registrant Fax Ext:  
Registrant Email: dns-admin@google.com  
Registry Admin ID:  
Admin Name: Domain Administrator  
Admin Organization: Google LLC  
Admin Street: 1600 Amphitheatre Parkway,  
Admin City: Mountain View  
Admin State/Province: CA  
Admin Postal Code: 94043  
Admin Country: US  
Admin Phone: +1.6502530000  
Admin Phone Ext:  
Admin Fax: +1.6502530001  
Admin Fax Ext:  
Admin Email: dns-admin@google.com  
Registry Tech ID:  
Tech Name: Domain Administrator  
Tech Organization: Google LLC  
Tech Street: 1600 Amphitheatre Parkway,  
Tech City: Mountain View  
Tech State/Province: CA  
Tech Postal Code: 94043  
Tech Country: US  
Tech Phone: +1.6502530000  
Tech Phone Ext:  
Tech Fax: +1.6502530001  
Tech Fax Ext:  
Tech Email: dns-admin@google.com  
Name Server: ns4.google.com  
Name Server: ns1.google.com  
Name Server: ns2.google.com  
Name Server: ns3.google.com  
DNSSEC: unsigned
```

216.58.211.163 = dub08s01-in-f163.1e100.net, this is the hostname of Google's HQ in California.

The owner of this URL is Google and their phone number is +1.6502530000.

Postal address is 1600 Amphitheatre Parkway, Mountain View, California.

Additional info:

Email – dns-admin@google.com

Fax - +1.6502530001

I managed to gather this information using Whois which I found on Microsoft sysinternals

```
C:\Windows\system32\cmd.exe

C:\Users\mchugh22\Downloads\WhoIs>WHOIS rte.ie

Whois v1.20 - Domain information lookup
Copyright (C) 2005-2017 Mark Russinovich
Sysinternals - www.sysinternals.com

Connecting to IE.whois-servers.net...

domain:      rte.ie
descr:       RTE Commercial Enterprises Limited
descr:
admin-c:      AWB910-IEDR
admin-c:      JM474-IEDR
tech-c:       JM474-IEDR
registration: 11-February-2000
renewal:      31-March-2024
holder-type:  Billable
locked:       NO
ren-status:   Active
in-zone:      1
nserver:      ns1.rte.ie 162.159.0.73 2400:cb00:2049:1::a29f:49
nserver:      ns2.rte.ie 162.159.1.73 2400:cb00:2049:1::a29f:149
nserver:      ns3.rte.ie 162.159.2.27 2400:cb00:2049:1::a29f:21b
nserver:      ns4.rte.ie 162.159.3.18 2400:cb00:2049:1::a29f:312
source:       IEDR

person:       Michael Kennedy
nic-hdl:      AWB910-IEDR
source:       IEDR

person:       John Moylan
nic-hdl:      JM474-IEDR
source:       IEDR

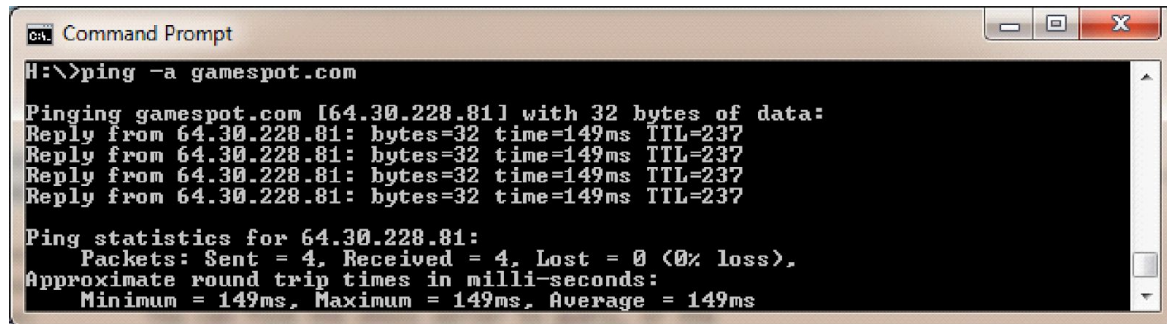
person:       John Moylan
nic-hdl:      JM474-IEDR
source:       IEDR

Connecting to rte.ie...
A connection attempt failed because the connected party did not properly respond
after a period of time, or established connection failed because connected host
has failed to respond.
```

89.207.56.140 = www.rte.ie

RTE unfortunately did not work as well with Whois and didn't yield an address, owner or phone number or any additional info due to data protection.

PING Exercise 3:



```
CA: Command Prompt
H:\>ping -a gamespot.com

Pinging gamespot.com [64.30.228.81] with 32 bytes of data:
Reply from 64.30.228.81: bytes=32 time=149ms TTL=237
Reply from 64.30.228.81: bytes=32 time=149ms TTL=237
Reply from 64.30.228.81: bytes=32 time=149ms TTL=237
Reply from 64.30.228.81: bytes=32 time=149ms TTL=237

Ping statistics for 64.30.228.81:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 149ms, Maximum = 149ms, Average = 149ms
```

Pinging Gamespot the American gaming news website managed to work well and with a consistent time for all replies.

Time taken: Min = 149 ms, Max = 149 ms, Average = 149 ms.

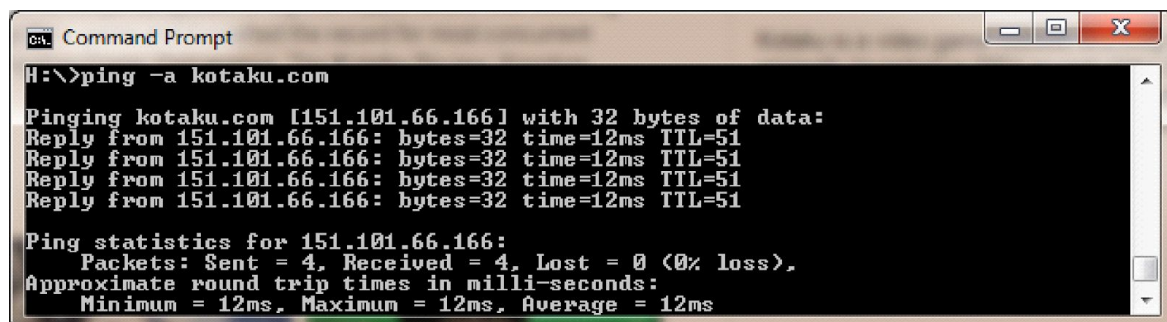


```
CA: C:\Windows\system32\cmd.exe
Registry Registrant ID:
Registrant Name: Domain Admin
Registrant Organization: CBS Interactive Inc.
Registrant Street: 235 Second Street,
Registrant City: San Francisco
Registrant State/Province: CA
Registrant Postal Code: 94105
Registrant Country: US
Registrant Phone: +1.4153442000
Registrant Phone Ext:
Registrant Fax: +1.4153442000
Registrant Fax Ext:
Registrant Email: hostmaster@cnet.com
```

Using Whois again I found the owner of Gamespot is CBS.

Postal address: 235 Second Street, San Francisco, California.

Phone number: +1.4153442000



```
CA: Command Prompt
H:\>ping -a kotaku.com

Pinging kotaku.com [151.101.66.166] with 32 bytes of data:
Reply from 151.101.66.166: bytes=32 time=12ms TTL=51
Reply from 151.101.66.166: bytes=32 time=12ms TTL=51
Reply from 151.101.66.166: bytes=32 time=12ms TTL=51
Reply from 151.101.66.166: bytes=32 time=12ms TTL=51

Ping statistics for 151.101.66.166:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 12ms, Maximum = 12ms, Average = 12ms
```

From pinging Kotaku, another big gaming news website, the difference in its reply time to gamespot's is quite large with kotaku being 137 ms faster on average.

Time taken: Min = 12 ms, Max = 12 ms, Average = 12 ms.

```
C:\Windows\system32\cmd.exe
Registry Registrant ID:
Registrant Name: UniVision Interactive Media, Inc.
Registrant Organization: Univision Interactive Media, Inc.
Registrant Street: 605 Third Avenue, 12th Floor
Registrant City: New York
Registrant State/Province: NY
Registrant Postal Code: 10158
Registrant Country: US
Registrant Phone: +1.6464875900
Registrant Phone Ext:
Registrant Fax: +1.6464875900
Registrant Fax Ext:
Registrant Email: dnsadmin@us.univision.com
```

Kotaku's owner is Univision Interactive Media, Inc.

Postal address: 12th Floor, Third Avenue, New York.

Phone number: +1.6464875900

NETSTAT Exercise:

```
Command Prompt
H:\>netstat -e -s
Interface Statistics

              Received              Sent
Bytes          701282013          48147033
Unicast packets      588668      273339
Non-unicast packets  319764      9581
Discards              0              0
Errors                0              0
Unknown protocols    0

IPv4 Statistics

Packets Received          = 242710
Received Header Errors    = 0
Received Address Errors   = 14
Datagrams Forwarded       = 0
Unknown Protocols Received = 0
Received Packets Discarded = 4009
Received Packets Delivered = 242492
Output Requests           = 70349
Routing Discards          = 0
Discarded Output Packets  = 0
Output Packet No Route    = 0
Reassembly Required       = 0
Reassembly Successful     = 0
Reassembly Failures       = 0
Datagrams Successfully Fragmented = 0
Datagrams Failing Fragmentation = 0
Fragments Created         = 0

IPv6 Statistics

Packets Received          = 20871
Received Header Errors    = 0
Received Address Errors   = 1
Datagrams Forwarded       = 0
Unknown Protocols Received = 0
Received Packets Discarded = 916
Received Packets Delivered = 20145
Output Requests           = 7377
Routing Discards          = 0
Discarded Output Packets  = 0
Output Packet No Route    = 14
Reassembly Required       = 8
Reassembly Successful     = 4
Reassembly Failures       = 0
Datagrams Successfully Fragmented = 0
Datagrams Failing Fragmentation = 0
Fragments Created         = 0
```

My workstation received 242710 IPv4 packets and 20871 IPv6 packets. This is from the various websites that I visited and pinged while on the workstation.

ICMPv4 Statistics		
	Received	Sent
Messages	82	93
Errors	0	0
Destination Unreachable	4	3
Time Exceeded	8	0
Parameter Problems	0	0
Source Quenches	0	0
Redirects	0	0
Echo Replies	70	0
Echos	0	90
Timestamps	0	0
Timestamp Replies	0	0
Address Masks	0	0
Address Mask Replies	0	0
Router Solicitations	0	0
Router Advertisements	0	0
ICMPv6 Statistics		
	Received	Sent
Messages	128	84
Errors	0	0
Destination Unreachable	0	0
Packet Too Big	0	0
Time Exceeded	0	0
Parameter Problems	0	0
Echos	4	60
Echo Replies	4	4
MLD Queries	0	0
MLD Reports	0	0
MLD Dones	0	0
Router Solicitations	0	12
Router Advertisements	0	0
Neighbor Solicitations	0	4
Neighbor Advertisements	120	4
Redirects	0	0
Router Renumberings	0	0

My computer received 3 types of ICMPv4 messages. They are 4 destination unreachable messages, 8 time exceeded messages and 70 echo replies messages. Furthermore I received 3 types of ICMPv6 messages, 4 Echos, 4 Echo replies and 120 Neighbor Advertisements.


```

C:\>netstat -a

Active Connections

Proto Local Address           Foreign Address         State
TCP   0.0.0.0:135              LG25-08:0              LISTENING
TCP   0.0.0.0:443              LG25-08:0              LISTENING
TCP   0.0.0.0:445              LG25-08:0              LISTENING
TCP   0.0.0.0:903              LG25-08:0              LISTENING
TCP   0.0.0.0:913              LG25-08:0              LISTENING
TCP   0.0.0.0:3389             LG25-08:0              LISTENING
TCP   0.0.0.0:5357             LG25-08:0              LISTENING
TCP   0.0.0.0:8501             LG25-08:0              LISTENING
TCP   0.0.0.0:49152            LG25-08:0              LISTENING
TCP   0.0.0.0:49153            LG25-08:0              LISTENING
TCP   0.0.0.0:49154            LG25-08:0              LISTENING
TCP   0.0.0.0:49265            LG25-08:0              LISTENING
TCP   0.0.0.0:49266            LG25-08:0              LISTENING
TCP   0.0.0.0:49287            LG25-08:0              LISTENING
TCP   127.0.0.1:8307           LG25-08:0              LISTENING
TCP   136.206.18.8:139         LG25-08:0              LISTENING
TCP   136.206.18.8:49186       136.206.217.67:epmap    TIME_WAIT
TCP   136.206.18.8:49187       136.206.217.67:49158    TIME_WAIT
TCP   136.206.18.8:49263       Caher:8000              ESTABLISHED
TCP   136.206.18.8:49267       Caher:8000              ESTABLISHED
TCP   136.206.18.8:49268       Caher:8000              ESTABLISHED
TCP   136.206.18.8:49288       Caher:8000              TIME_WAIT
TCP   192.168.56.1:139         LG25-08:0              LISTENING
TCP   192.168.187.1:139        LG25-08:0              LISTENING
TCP   192.168.245.1:139        LG25-08:0              LISTENING
TCP   [::]:135                 LG25-08:0              LISTENING
TCP   [::]:443                 LG25-08:0              LISTENING
TCP   [::]:445                 LG25-08:0              LISTENING
TCP   [::]:3389                LG25-08:0              LISTENING
TCP   [::]:5357                LG25-08:0              LISTENING
TCP   [::]:8501                LG25-08:0              LISTENING
TCP   [::]:49152               LG25-08:0              LISTENING
TCP   [::]:49153               LG25-08:0              LISTENING
TCP   [::]:49154               LG25-08:0              LISTENING
TCP   [::]:49265               LG25-08:0              LISTENING
TCP   [::]:49266               LG25-08:0              LISTENING
TCP   [::]:49287               LG25-08:0              LISTENING
TCP   [::]:8307                LG25-08:0              LISTENING
TCP   [2002:88ce:1208::88ce:1208]:49162 [2002:88ce:d943::88ce:d943]:domain
TIME_WAIT
TCP   [2002:88ce:1208::88ce:1208]:49235 [2002:88ce:d93d::88ce:d93d]:microsof
t-ds ESTABLISHED
TCP   [2002:88ce:1208::88ce:1208]:49237 [2002:88ce:d943::88ce:d943]:epmap T
IME_WAIT
TCP   [2002:88ce:1208::88ce:1208]:49239 [2002:88ce:d93d::88ce:d93d]:epmap E
STABLISHED
TCP   [2002:88ce:1208::88ce:1208]:49240 [2002:88ce:d93d::88ce:d93d]:epmap E
STABLISHED
TCP   [2002:88ce:1208::88ce:1208]:49241 [2002:88ce:d93d::88ce:d93d]:epmap E
STABLISHED
TCP   [2002:88ce:1208::88ce:1208]:49242 [2002:88ce:d93d::88ce:d93d]:epmap E
STABLISHED
TCP   [2002:88ce:1208::88ce:1208]:49243 [2002:88ce:d93d::88ce:d93d]:epmap E
STABLISHED
TCP   [2002:88ce:1208::88ce:1208]:49244 [2002:88ce:d93d::88ce:d93d]:epmap E
STABLISHED
TCP   [2002:88ce:1208::88ce:1208]:49245 [2002:88ce:d93d::88ce:d93d]:epmap E
STABLISHED
TCP   [2002:88ce:1208::88ce:1208]:49246 [2002:88ce:d93d::88ce:d93d]:49158 E
STABLISHED
TCP   [2002:88ce:1208::88ce:1208]:49248 [2002:88ce:d93d::88ce:d93d]:49158 E
STABLISHED
TCP   [2002:88ce:1208::88ce:1208]:49249 [2002:88ce:d93d::88ce:d93d]:49158 E
STABLISHED
TCP   [2002:88ce:1208::88ce:1208]:49250 [2002:88ce:d93d::88ce:d93d]:49158 E
STABLISHED
TCP   [2002:88ce:1208::88ce:1208]:49251 [2002:88ce:d93d::88ce:d93d]:49158 E
STABLISHED
TCP   [2002:88ce:1208::88ce:1208]:49252 [2002:88ce:d93d::88ce:d93d]:49158 E
STABLISHED
TCP   [2002:88ce:1208::88ce:1208]:49253 [2002:88ce:d93d::88ce:d93d]:49158 E
STABLISHED
TCP   [2002:88ce:1208::88ce:1208]:49279 [2002:88ce:d943::88ce:d943]:49156 T
IME_WAIT

```

Before opening www.dcu.ie.

```

Command Prompt
H:\>netstat -a

Active Connections

Proto Local Address           Foreign Address         State
TCP   0.0.0.0:135              LG25-08:0              LISTENING
TCP   0.0.0.0:443              LG25-08:0              LISTENING
TCP   0.0.0.0:445              LG25-08:0              LISTENING
TCP   0.0.0.0:903              LG25-08:0              LISTENING
TCP   0.0.0.0:913              LG25-08:0              LISTENING
TCP   0.0.0.0:3389             LG25-08:0              LISTENING
TCP   0.0.0.0:5357             LG25-08:0              LISTENING
TCP   0.0.0.0:8501             LG25-08:0              LISTENING
TCP   0.0.0.0:49152            LG25-08:0              LISTENING
TCP   0.0.0.0:49153            LG25-08:0              LISTENING
TCP   0.0.0.0:49154            LG25-08:0              LISTENING
TCP   0.0.0.0:49265            LG25-08:0              LISTENING
TCP   0.0.0.0:49266            LG25-08:0              LISTENING
TCP   0.0.0.0:49287            LG25-08:0              LISTENING
TCP   127.0.0.1:8307           LG25-08:0              LISTENING
TCP   136.206.18.8:139         LG25-08:0              LISTENING
TCP   136.206.18.8:49263      Caher:8000             TIME_WAIT
TCP   136.206.18.8:49270      136.206.217.67:epmap   TIME_WAIT
TCP   136.206.18.8:49271      136.206.217.67:49156   TIME_WAIT
TCP   136.206.18.8:49272      Caher:8000             ESTABLISHED
TCP   136.206.18.8:49273      Caher:8000             ESTABLISHED
TCP   136.206.18.8:49275      Caher:8000             ESTABLISHED
TCP   136.206.18.8:49276      Caher:8000             ESTABLISHED
TCP   136.206.18.8:49277      Ossa2:http             ESTABLISHED
TCP   136.206.18.8:49278      199.96.57.6:http       ESTABLISHED
TCP   136.206.18.8:49280      199.96.57.6:http       ESTABLISHED
TCP   136.206.18.8:49281      Ossa2:http             ESTABLISHED
TCP   136.206.18.8:49282      Ossa2:http             ESTABLISHED
TCP   136.206.18.8:49283      Ossa2:http             ESTABLISHED
TCP   136.206.18.8:49284      Ossa2:http             ESTABLISHED
TCP   136.206.18.8:49285      Ossa2:http             ESTABLISHED
TCP   136.206.18.8:49286      edge-star-mini-shv-01-dub4:https ESTABLISHED
TCP   136.206.18.8:49288      104.244.43.177:https   ESTABLISHED
TCP   136.206.18.8:49289      199.96.57.6:https      ESTABLISHED
TCP   136.206.18.8:49290      104.244.42.72:https    ESTABLISHED
TCP   136.206.18.8:49291      104.244.46.71:https    ESTABLISHED
TCP   136.206.18.8:49292      dub08s01-in-f163:https ESTABLISHED
TCP   136.206.18.8:49293      dub08s01-in-f10:https  ESTABLISHED
TCP   136.206.18.8:49294      93.184.220.70:https    ESTABLISHED
TCP   136.206.18.8:49295      dub08s01-in-f163:https ESTABLISHED
TCP   136.206.18.8:49296      ams15s22-in-f164:https ESTABLISHED
TCP   136.206.18.8:49297      ec2-52-31-60-123:http  CLOSE_WAIT
TCP   136.206.18.8:49298      ec2-52-31-60-123:https ESTABLISHED
TCP   136.206.18.8:49299      bam-7:https            ESTABLISHED
TCP   136.206.18.8:49300      bam-7:https            ESTABLISHED
TCP   136.206.18.8:49301      109.169.87.88:https    ESTABLISHED
TCP   136.206.18.8:49302      109.169.87.88:https    ESTABLISHED
TCP   136.206.18.8:49303      dub08s01-in-f174:https ESTABLISHED
TCP   136.206.18.8:49304      151.101.18.110:https   ESTABLISHED
TCP   136.206.18.8:49305      dub08s01-in-f168:https ESTABLISHED
TCP   136.206.18.8:49306      dh-in-f155:https       ESTABLISHED
TCP   136.206.18.8:49307      dub08s01-in-f163:https ESTABLISHED
TCP   136.206.18.8:49308      dub08s01-in-f163:https ESTABLISHED
TCP   192.168.56.1:139        LG25-08:0              LISTENING
TCP   192.168.187.1:139       LG25-08:0              LISTENING
TCP   192.168.245.1:139       LG25-08:0              LISTENING
TCP   [::]:135                LG25-08:0              LISTENING
TCP   [::]:443                LG25-08:0              LISTENING
TCP   [::]:445                LG25-08:0              LISTENING
TCP   [::]:3389               LG25-08:0              LISTENING
TCP   [::]:5357               LG25-08:0              LISTENING
TCP   [::]:8501               LG25-08:0              LISTENING
TCP   [::]:49152              LG25-08:0              LISTENING
TCP   [::]:49153              LG25-08:0              LISTENING
TCP   [::]:49154              LG25-08:0              LISTENING
TCP   [::]:49265              LG25-08:0              LISTENING
TCP   [::]:49266              LG25-08:0              LISTENING
TCP   [::]:49287              LG25-08:0              LISTENING
TCP   [::]:8307               LG25-08:0              LISTENING
TCP   [2002:88ce:1208::88ce:1208]:49235 [2002:88ce:d93d::88ce:d93d]:microsof
t-ds ESTABLISHED
TCP   [2002:88ce:1208::88ce:1208]:49237 [2002:88ce:d943::88ce:d943]:epmap T
IME_WAIT
TCP   [2002:88ce:1208::88ce:1208]:49239 [2002:88ce:d93d::88ce:d93d]:epmap E

```

After opening www.dcu.ie.

The connections opened as a result of visiting the DCU website can be seen from 136.206.18.8:49277 to 136.206.18.8:49308. Most of them are in the established state except 136.206.18.8:49297 which is in the close_wait state.


```

Command Prompt
=====
Interface List
13...34 17 eb b8 99 ab .....Intel(R) 82579LM Gigabit Network Connection
15...0a 00 27 00 00 0f .....VirtualBox Host-Only Ethernet Adapter
17...00 50 56 c0 00 01 .....VMware Virtual Ethernet Adapter for VMnet1
18...00 50 56 c0 00 08 .....VMware Virtual Ethernet Adapter for VMnet8
1.....Software Loopback Interface 1
14...00 00 00 00 00 00 e0 Microsoft ISATAP Adapter
11...00 00 00 00 00 00 e0 Microsoft 6to4 Adapter
12...00 00 00 00 00 00 e0 Microsoft Teredo Tunneling Adapter
16...00 00 00 00 00 00 e0 Microsoft ISATAP Adapter #2
19...00 00 00 00 00 00 e0 Microsoft ISATAP Adapter #3
20...00 00 00 00 00 00 e0 Microsoft ISATAP Adapter #4
=====

IPv4 Route Table
=====
Active Routes:
Network Destination        Netmask          Gateway           Interface        Metric
0.0.0.0                    0.0.0.0          136.206.18.254    136.206.18.8     10
127.0.0.0                  255.0.0.0        On-link           127.0.0.1        306
127.0.0.1                  255.255.255.255  On-link           127.0.0.1        306
127.255.255.255            255.255.255.255  On-link           127.0.0.1        306
136.206.18.0                255.255.255.0    On-link           136.206.18.8     266
136.206.18.8                255.255.255.255  On-link           136.206.18.8     266
136.206.18.255              255.255.255.255  On-link           136.206.18.8     266
192.168.56.0                255.255.255.0    On-link           192.168.56.1     266
192.168.56.1                255.255.255.255  On-link           192.168.56.1     266
192.168.56.255              255.255.255.255  On-link           192.168.56.1     266
192.168.187.0               255.255.255.0    On-link           192.168.187.1    276
192.168.187.1               255.255.255.255  On-link           192.168.187.1    276
192.168.187.255             255.255.255.255  On-link           192.168.187.1    276
192.168.245.0               255.255.255.0    On-link           192.168.245.1    276
192.168.245.1               255.255.255.255  On-link           192.168.245.1    276
192.168.245.255             255.255.255.255  On-link           192.168.245.1    276
224.0.0.0                   240.0.0.0        On-link           127.0.0.1        306
224.0.0.0                   240.0.0.0        On-link           136.206.18.8     266
224.0.0.0                   240.0.0.0        On-link           192.168.56.1     266
224.0.0.0                   240.0.0.0        On-link           192.168.187.1    276
224.0.0.0                   240.0.0.0        On-link           192.168.245.1    276
255.255.255.255             255.255.255.255  On-link           127.0.0.1        306
255.255.255.255             255.255.255.255  On-link           136.206.18.8     266
255.255.255.255             255.255.255.255  On-link           192.168.56.1     266
255.255.255.255             255.255.255.255  On-link           192.168.187.1    276
255.255.255.255             255.255.255.255  On-link           192.168.245.1    276
=====
Persistent Routes:
None

IPv6 Route Table
=====
Active Routes:
If Metric Network Destination      Gateway
1 306 ::1/128 On-link
11 1010 2002::/16 On-link
11 266 2002::88ce:1208::88ce:1208/128 On-link
13 266 fe80::/64 On-link
15 266 fe80::/64 On-link
17 276 fe80::/64 On-link
18 276 fe80::/64 On-link
13 266 fe80::5d6f:e063:ef14:53e3/128 On-link
17 276 fe80::c1c4:4f49:b3dd:c02f/128 On-link
15 266 fe80::c53d:ec9a:5ddb:b821/128 On-link
18 276 fe80::c5b9:f691:7d5a:40e9/128 On-link
1 306 ff00::/8 On-link
13 266 ff00::/8 On-link
15 266 ff00::/8 On-link
17 276 ff00::/8 On-link
18 276 ff00::/8 On-link
=====
Persistent Routes:
None
H:\>

```

Typing netstat -r into the command prompt results in a route table for IPv4 and IPv6. This provides active routes along with their destination, showing where IP packets travel to.