

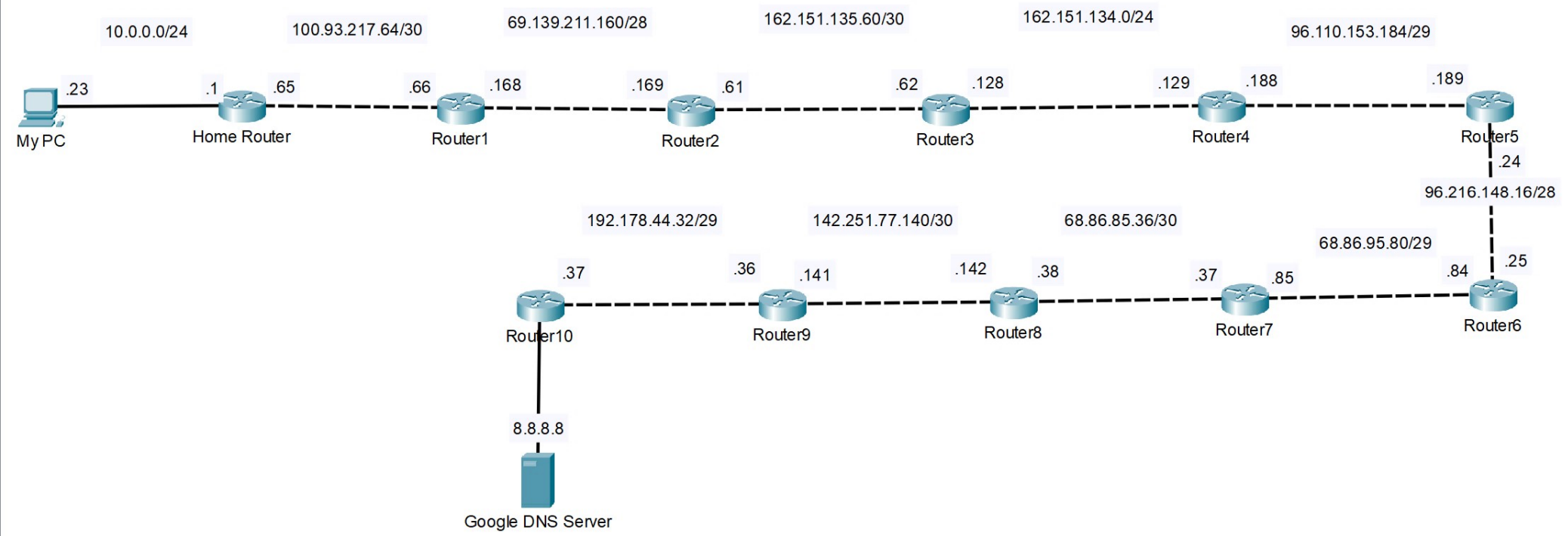
# Tracert

**Objective:** My goal for this virtual lab was to identify and build a network topology that consists of all routers and IP addresses that are used to access the Google DNS Server from my personal computer. This lab allows me to see where my packets travel from router to router and helps to identify any problems that can occur if packets fail to get to a certain destination. Building out the topology allows me to visually represent a network without looking at the actual layout and show how traffic flows.

**Equipment:** (11) Cisco 2811, PC, and Personal Laptop

## Key Steps:

- a. Use the tracert command on my personal laptop to identify what is the pathway my packets take to communicate with the Google DNS Server [8.8.8.8]
- b. Visually build out the topology from the output of the tracert command
- c. Use OSPF Area 0 to allow dynamic routing between all routers
- d. Use the tracert on the virtual PC and make sure all routes match to the personal laptop tracert output



## Tracert

My PC	F0/1	Home Router	G0/2
Home Router	G0/0	Router-1	G0/0
Router-1	G0/1	Router-2	G0/0
Router-2	G0/1	Router-3	G0/0
Router-3	G0/1	Router-4	G0/0
Router-4	G0/1	Router-5	G0/0
Router-5	G0/1	Router-6	G0/0
Router-6	G0/1	Router-7	G0/0
Router-8	G0/1	Router-9	G0/0
Router-10	G0/1	Google DNS Server	F0/1



## Tracert (IP Addresses)

My PC	F0/1	10.0.0.23/24
Home Router	G0/2	10.0.0.1/24
Home Router	G0/0	100.93.217.65/30
Router-1	G0/0	100.93.217.66/30
Router-1	G0/1	69.139.211.168/28
Router-2	G0/0	69.139.211.169/28
Router-2	G0/1	162.151.135.61/30
Router-3	G0/0	162.151.135.62/30
Router-3	G0/1	162.151.134.128/24
Router-4	G0/0	162.151.134.129/24
Router-4	G0/1	96.110.153.188/29
Router-5	G0/0	96.110.153.189/29
Router-5	G0/1	96.216.148.24/28
Router-6	G0/0	96.216.148.25/28
Router-6	G0/1	68.86.95.84/29
Router-7	G0/0	68.86.95.85/29
Router-7	G0/1	68.86.85.37/30
Router-8	G0/0	68.86.85.38/30
Router-8	G0/1	142.251.77.142/30
Router-9	G0/0	142.251.77.141/30
Router-9	G0/1	192.178.44.36/29
Router-10	G0/0	192.178.44.37/29
Google DNS Server	F0/1	8.8.8.8

Command Prompt

Microsoft Windows [Version 10.0.19045.5487]  
(c) Microsoft Corporation. All rights reserved.

C:\Users\ddiaz>tracert 8.8.8.8

Tracing route to dns.google [8.8.8.8]  
over a maximum of 30 hops:

1	2 ms	1 ms	1 ms	10.0.0.1
2	17 ms	15 ms	16 ms	100.93.217.66
3	13 ms	15 ms	14 ms	po-307-321-rur201.alief.tx.houston.comcast.net [69.139.211.169]
4	14 ms	13 ms	14 ms	po-2-rur202.alief.tx.houston.comcast.net [162.151.135.62]
5	17 ms	13 ms	14 ms	po-200-xar02.alief.tx.houston.comcast.net [162.151.134.129]
6	12 ms	12 ms	12 ms	po-2-xar01.alief.tx.houston.comcast.net [96.110.153.189]
7	21 ms	14 ms	16 ms	be-317-arsc1.bearcreek.tx.houston.comcast.net [96.216.148.25]
8	25 ms	20 ms	19 ms	be-35421-cs02.dallas.tx.ibone.comcast.net [68.86.95.85]
9	21 ms	21 ms	18 ms	be-3201-pe01.1950stemmons.tx.ibone.comcast.net [68.86.85.38]
10	*	*	*	Request timed out.
11	25 ms	21 ms	24 ms	142.251.77.141
12	23 ms	19 ms	17 ms	192.178.44.37
13	23 ms	21 ms	21 ms	dns.google [8.8.8.8]

Trace complete.

C:\Users\ddiaz>ipconfig

Windows IP Configuration

Wireless LAN adapter Local Area Connection\* 1:

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

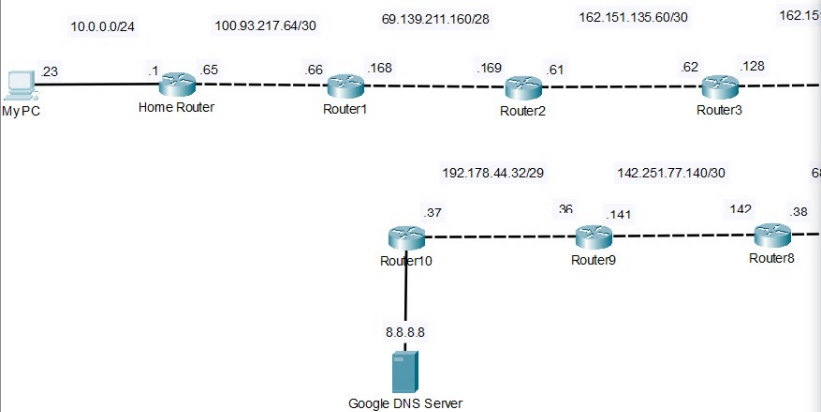
Wireless LAN adapter Local Area Connection\* 2:

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

Wireless LAN adapter Wi-Fi:

Connection-specific DNS Suffix . :  
IPv6 Address. . . . . : 2601:2c0:8e00:8ed0:9f3b  
IPv6 Address. . . . . : 2601:2c0:8e00:8ed0:963e:8062:f2f4:9047  
Temporary IPv6 Address. . . . . : 2601:2c0:8e00:8ed0:9d2c:7f3b:8259:b89f  
Link-local IPv6 Address . . . . . : fe80::49e8:b1b0:4ad4:fdc5%8  
IPv4 Address. . . . . : 10.0.0.23  
Subnet Mask . . . . . : 255.255.255.0  
Default Gateway . . . . . : fe80::4abd:ceff:fe19:fe18%8  
10.0.0.1

C:\Users\ddiaz>



```
My PC
Physical Config Desktop Programming Attributes
Command Prompt
C:\>tracert 8.8.8.8

Tracing route to 8.8.8.8 over a maximum of 30 hops:

  0  0 ms    0 ms    0 ms    10.0.0.1
  1  0 ms    0 ms    0 ms   100.93.217.66
  2  1 ms    0 ms    0 ms   69.139.211.169
  3  0 ms    0 ms    0 ms   162.151.135.62
  4  0 ms    0 ms    0 ms   162.151.134.129
  5  11 ms   12 ms   10 ms   96.110.153.189
  6  12 ms   12 ms    0 ms   96.216.148.25
  7  10 ms   11 ms   12 ms   68.86.95.85
  8  13 ms   12 ms   11 ms   68.86.85.38
  9  10 ms   11 ms   12 ms   142.251.77.141
 10  11 ms   12 ms   10 ms   192.178.44.37
 11  22 ms   12 ms   22 ms   192.178.44.37
 12  23 ms   11 ms    0 ms    8.8.8.8

Trace complete.

C:\>ipconfig

FastEthernet0 Connection:(default port)

    Connection-specific DNS Suffix...:
    Link-local IPv6 Address . . . . .: FE80::201:64FF:FEDA:AADB
    IPv6 Address . . . . .: ::
    IPv4 Address . . . . .: 10.0.0.23
    Subnet Mask . . . . .: 255.255.255.0
    Default Gateway . . . . .: ::
                                   10.0.0.1

Bluetooth Connection:

    Connection-specific DNS Suffix...:
    Link-local IPv6 Address . . . . .: ::
    IPv6 Address . . . . .: ::
    IPv4 Address . . . . .: 0.0.0.0
    Subnet Mask . . . . .: 0.0.0.0
    Default Gateway . . . . .: ::
                                   0.0.0.0
```

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C:\Users\ddiaz>tracert 8.8.8.8

Tracing route to dns.google [8.8.8.8]
over a maximum of 30 hops:

  1    2 ms    1 ms    1 ms  10.0.0.1
  2   17 ms   15 ms   16 ms  100.93.217.66
  3   13 ms   15 ms   14 ms  po-307-321-rur201.alief.tx.houston.comcast.net [69.139.211.169]
  4   14 ms   13 ms   14 ms  po-2-rur202.alief.tx.houston.comcast.net [162.151.135.62]
  5   17 ms   13 ms   14 ms  po-200-xar02.alief.tx.houston.comcast.net [162.151.134.129]
  6   12 ms   12 ms   12 ms  po-2-xar01.alief.tx.houston.comcast.net [96.110.153.189]
  7   21 ms   14 ms   16 ms  be-317-arsc1.bearcreek.tx.houston.comcast.net [96.216.148.25]
  8   25 ms   20 ms   19 ms  be-35421-cs02.dallas.tx.ibone.comcast.net [68.86.95.85]
  9   21 ms   21 ms   18 ms  be-3201-pe01.1950stemmons.tx.ibone.comcast.net [68.86.85.38]
 10    *      *      *      Request timed out.
 11   25 ms   21 ms   24 ms  142.251.77.141
 12   23 ms   19 ms   17 ms  192.178.44.37
 13   23 ms   21 ms   21 ms  dns.google [8.8.8.8]

Trace complete.

C:\Users\ddiaz>ipconfig

Windows IP Configuration

Wireless LAN adapter Local Area Connection* 1:

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

Wireless LAN adapter Local Area Connection* 2:

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

Wireless LAN adapter Wi-Fi:

    Connection-specific DNS Suffix  . :
    IPv6 Address. . . . . : 2601:2c0:8e00:8ed0::9f3b
    IPv6 Address. . . . . : 2601:2c0:8e00:8ed0:963e:8062:f2f4:9047
    Temporary IPv6 Address. . . . . : 2601:2c0:8e00:8ed0:9d2c:7f3b:8259:b89f
    Link-local IPv6 Address . . . . . : fe80::49e8:b1b0:4ad4:fcd5%8
    IPv4 Address. . . . . : 10.0.0.23
    Subnet Mask . . . . . : 255.255.255.0
    Default Gateway . . . . . : fe80::4abd:ceff:fe19:fe18%8
                                10.0.0.1
    
```

```

My PC

Physical Config Desktop Programming Attributes

Command Prompt

C:\>tracert 8.8.8.8

Tracing route to 8.8.8.8 over a maximum of 30 hops:

  1    0 ms    0 ms    0 ms    10.0.0.1
  2    0 ms    0 ms    0 ms    100.93.217.66
  3    1 ms    0 ms    0 ms    69.139.211.169
  4    0 ms    0 ms    0 ms    162.151.135.62
  5   11 ms   12 ms   10 ms    162.151.134.129
  6   12 ms   12 ms    0 ms    96.110.153.189
  7   10 ms   11 ms   12 ms    96.216.148.25
  8   13 ms   12 ms   11 ms    68.86.95.85
  9   10 ms   11 ms   12 ms    68.86.85.38
 10   11 ms   12 ms   10 ms    142.251.77.141
 11   22 ms   12 ms   22 ms    192.178.44.37
 12   23 ms   11 ms    0 ms     8.8.8.8

Trace complete.

C:\>ipconfig

FastEthernet0 Connection:(default port)

    Connection-specific DNS Suffix...:
    Link-local IPv6 Address.....: FE80::201:64FF:FEDA:AADB
    IPv6 Address.....: ::
    IPv4 Address.....: 10.0.0.23
    Subnet Mask.....: 255.255.255.0
    Default Gateway.....: ::
                                10.0.0.1

Bluetooth Connection:

    Connection-specific DNS Suffix...:
    Link-local IPv6 Address.....: ::
    IPv6 Address.....: ::
    IPv4 Address.....: 0.0.0.0
    Subnet Mask.....: 0.0.0.0
    Default Gateway.....: ::
                                0.0.0.0

☐ Top
    
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