Robert A. McDuckson - ITS Undergrad
ITS 4750: Internet Engineering – Lab Report 02
Tues September 12th @ 9am

1. Pre-Lab IP documentation table with student specific data filled in.

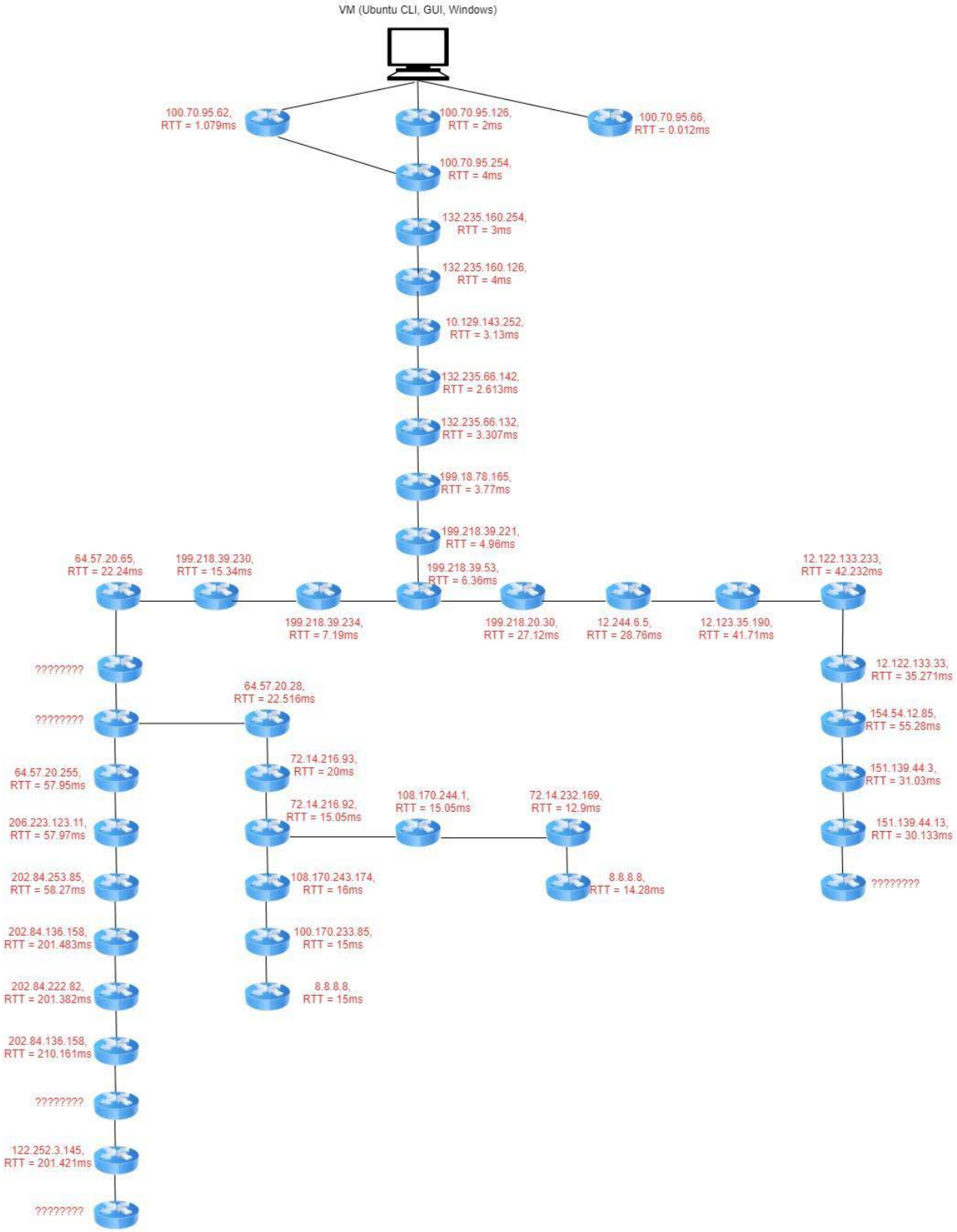
Name	**Address**
WAN Address	132.235.160.230
LAN 1 Network	100.70.200.0/26
LAN2 Network	100.70.200.64/26
LAN3 – IntraNet	100.70.200.240/28
LAN1 Subnet	
Net Number (/26)	100.70.200.0/26
VyOS-1 eth1	100.70.200.55
VPCS	100.70.200.10
Ubuntu-GUI	100.70.200.20
LAN2 Subnet	
Net Number (/26)	100.70.200.65/26
VyOS-2 eth1	100.70.200.100
Ubuntu-CLI	100.70.200.70
Windows	100.70.200.90
LAN3 Subnet	
Net Number (/28)	100.70.200.220/28
VyOS-1 eth2	100.70.200.240
VyOS-2 eth2	100.70.200.250

2. For all four child VMs (the ones INSIDE GNS3), make a table to collate the following information:

   a. What IP address was assigned it?
   b. What IP subnet mask was assigned it?
   c. What IP address was the router?
   d. What are the names of all the ethernet interfaces on the system?

	IP	**Mask**	**Gateway**	**Interface**
VPCS	10.70.200.50	/26	10.70.200.2	Eth0
Ubuntu-GUI	10.70.200.60	/26	10.70.200.3	ens160
Ubuntu-CLI	10.70.200.70	/26	10.70.200.4	Ens192
Windows	10.70.200.80	/26	10.70.200.5	NIC1

3. Traceroute Tree



4. Wireshark summary data from step 32.

No.	Time	Source	Destination	Protocol	Length	Info
421	8.045003	192.168.100.3	142.250.191.206	ICMP	74	Echo (ping) request
423	8.067734	142.250.191.206	192.168.100.3	ICMP	74	Echo (ping) reply
461	9.047941	192.168.100.3	142.250.191.206	ICMP	74	Echo (ping) request
464	9.076402	142.250.191.206	192.168.100.3	ICMP	74	Echo (ping) reply
495	10.051188	192.168.100.3	142.250.191.206	ICMP	74	Echo (ping) request
496	10.072698	142.250.191.206	192.168.100.3	ICMP	74	Echo (ping) reply
1043	19.934822	192.168.100.2	192.168.100.3	ICMP	74	Echo (ping) request
1044	19.935005	192.168.100.3	192.168.100.2	ICMP	74	Echo (ping) reply

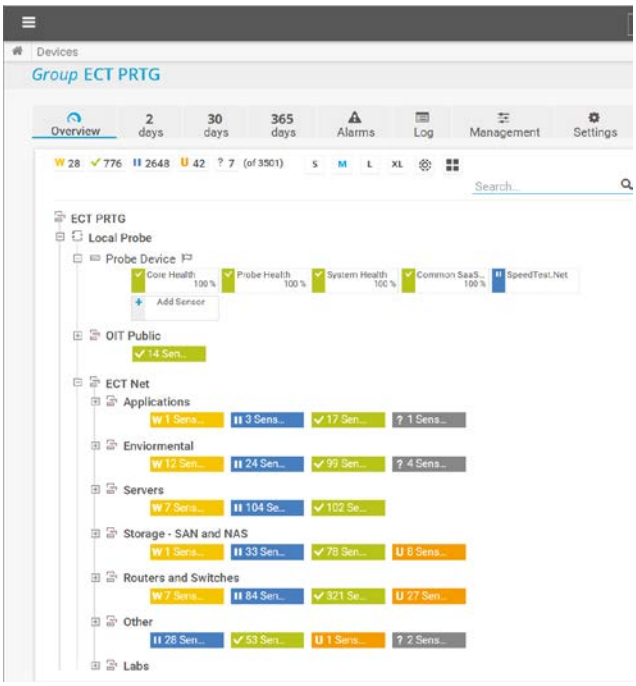
5. Traceroute command output from step 55.

```
tracert -d google.com

Tracing route to google.com [142.250.191.206]
over a maximum of 30 hops:

  1    <1 ms    <1 ms    <1 ms  192.168.100.1
  2    12 ms    14 ms     3 ms  142.254.149.29
  3    30 ms    23 ms    20 ms  24.95.87.105
  4    16 ms    21 ms    13 ms  65.29.17.202
  5    21 ms    13 ms    23 ms  65.29.1.34
  6    25 ms    23 ms    23 ms  66.109.6.68
  7    24 ms    25 ms    29 ms  66.109.5.136
  8    29 ms    28 ms    18 ms  72.14.209.254
  9    29 ms    30 ms    21 ms  216.239.56.7
 10    40 ms    37 ms    38 ms  142.251.60.15
 11    27 ms    26 ms    25 ms  142.250.191.206
```

6. Traceroute Wireshark with sections expanded from step 55 packet highlight/showing TTL.

```
No.     Time           Source                Destination           Protocol Length Info
     95 1.355577       192.168.100.1         192.168.100.3         ICMP     134    Time-to-live
        exceeded (Time to live exceeded in transit)

Frame 95: 134 bytes on wire (1072 bits), 134 bytes captured (1072 bits) on interface
        \Device\NPF_{D0ACC550-B592-4DFE-97D4-15F97A1D5C56}, id 0
Ethernet II, Src: SuperMic_f4:30:69 (00:25:90:f4:30:69), Dst: IntelCor_3f:ea:ce
        (a0:36:9f:3f:ea:ce)
Internet Protocol Version 4, Src: 192.168.100.1, Dst: 192.168.100.3
Internet Control Message Protocol
    Type: 11 (Time-to-live exceeded)
    Code: 0 (Time to live exceeded in transit)
    Checksum: 0xf4ff [correct]
    [Checksum Status: Good]
    Unused: 00000000
    Internet Protocol Version 4, Src: 192.168.100.3, Dst: 142.250.191.206
    Internet Control Message Protocol
        Type: 8 (Echo (ping) request)
        Code: 0
        Checksum: 0xf6ae [unverified] [in ICMP error packet]
        [Checksum Status: Unverified]
        Identifier (BE): 1 (0x0001)
        Identifier (LE): 256 (0x0100)
        Sequence Number (BE): 336 (0x0150)
        Sequence Number (LE): 20481 (0x5001)
        Data (64 bytes)
```

7. Screen capture of GUI element (**NOT** a pic with your smartphone).



8. Explain the process of DHCP.

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9. Network Diagram