21BDS0340

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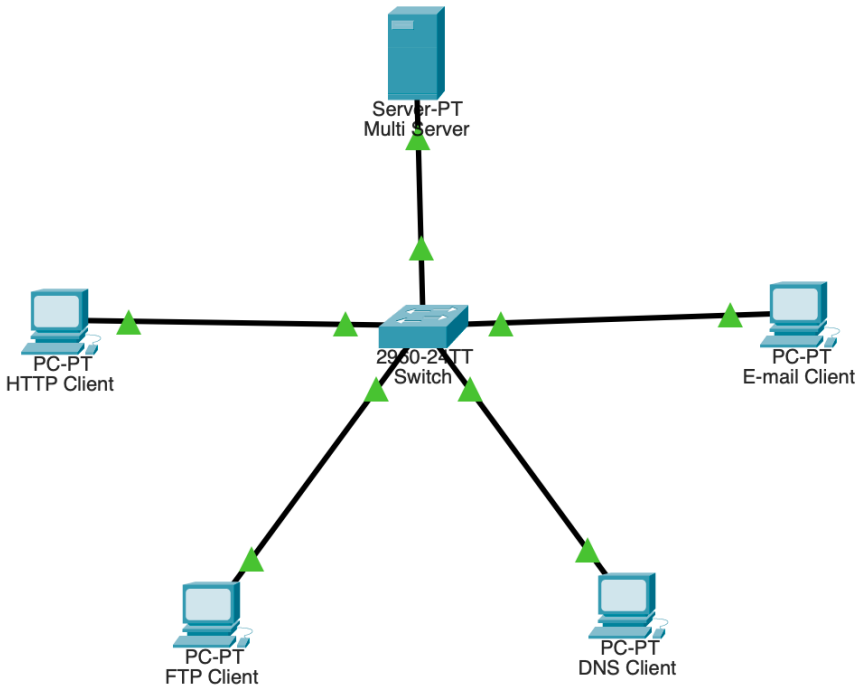
Computer Networks Lab

Assignment – III

Topology:

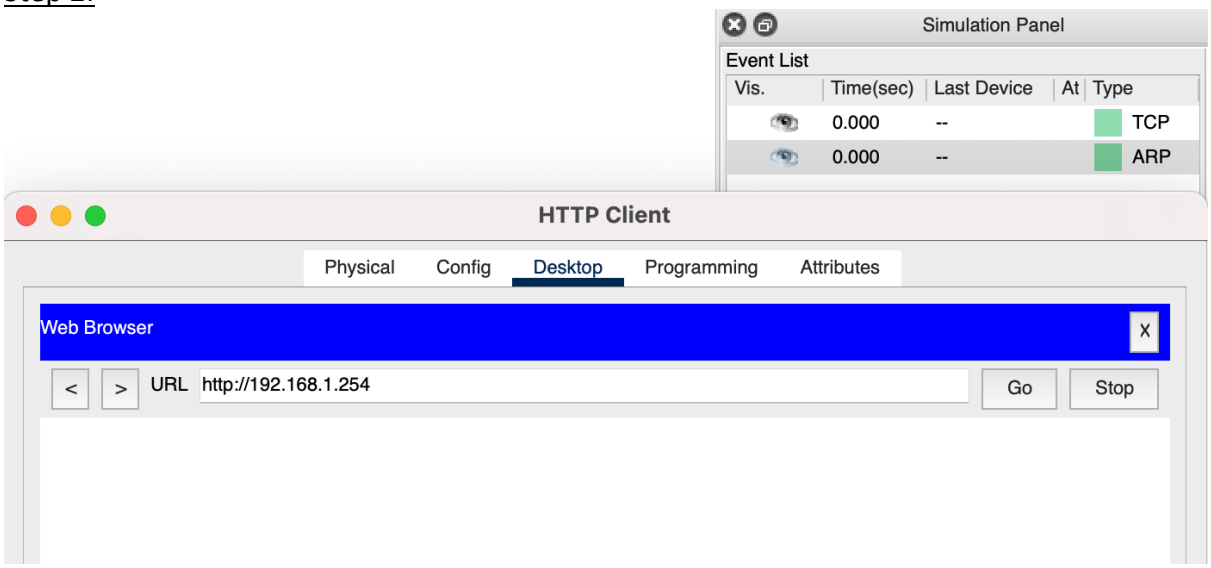


Part 1

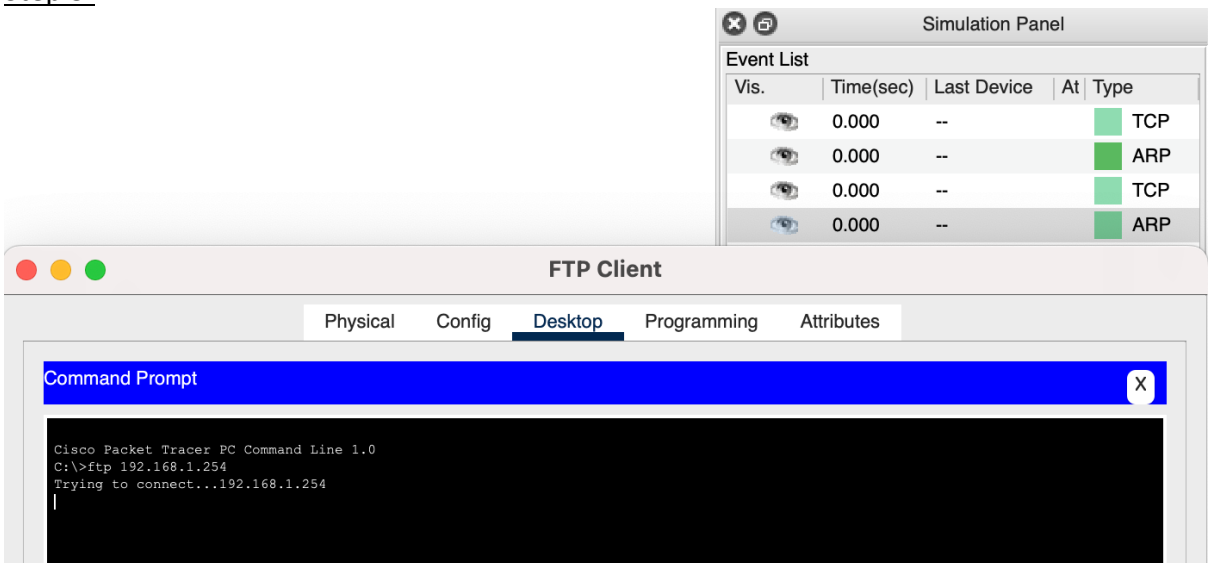
Step 1:

```
C:\>ping 192.168.1.255

Pinging 192.168.1.255 with 32 bytes of data:

Reply from 192.168.1.2: bytes=32 time<1ms TTL=128
Reply from 192.168.1.3: bytes=32 time<1ms TTL=128
Reply from 192.168.1.5: bytes=32 time<1ms TTL=128
Reply from 192.168.1.4: bytes=32 time<1ms TTL=128
Reply from 192.168.1.3: bytes=32 time<1ms TTL=128
Reply from 192.168.1.5: bytes=32 time<1ms TTL=128
Reply from 192.168.1.4: bytes=32 time<1ms TTL=128
Reply from 192.168.1.2: bytes=32 time=1ms TTL=128
Reply from 192.168.1.3: bytes=32 time<1ms TTL=128
Reply from 192.168.1.5: bytes=32 time<1ms TTL=128
Reply from 192.168.1.4: bytes=32 time<1ms TTL=128
Reply from 192.168.1.2: bytes=32 time<1ms TTL=128
Reply from 192.168.1.2: bytes=32 time<1ms TTL=128
Reply from 192.168.1.3: bytes=32 time<1ms TTL=128
Reply from 192.168.1.5: bytes=32 time<1ms TTL=128
Reply from 192.168.1.4: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.1.255:
    Packets: Sent = 4, Received = 16, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 1ms, Average = 0ms

C:\>
```

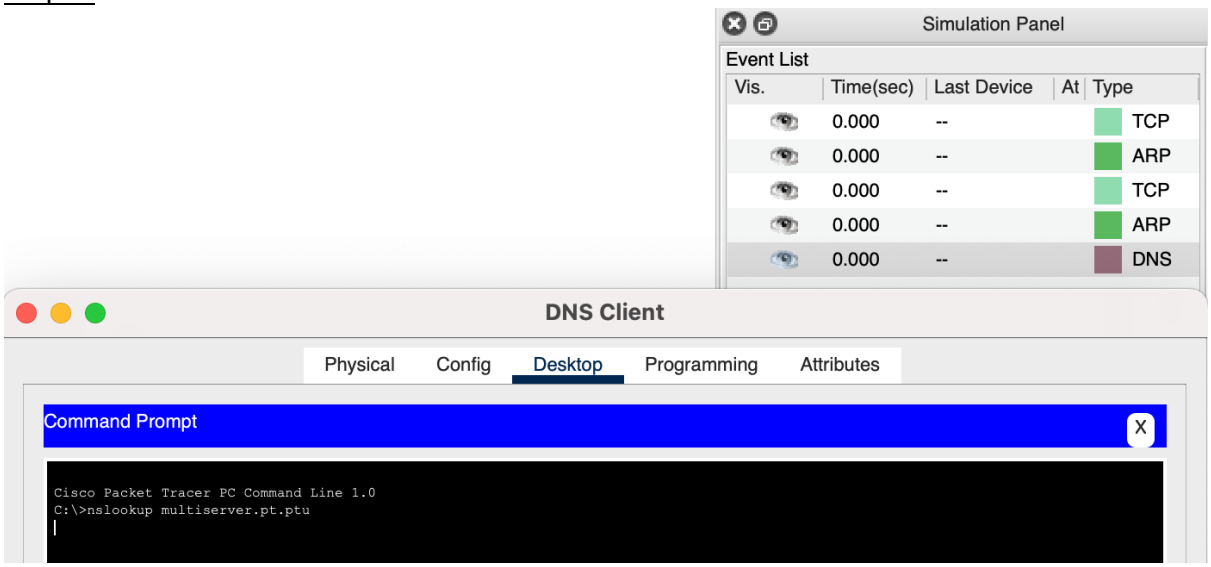
Step 2:



Step 3:

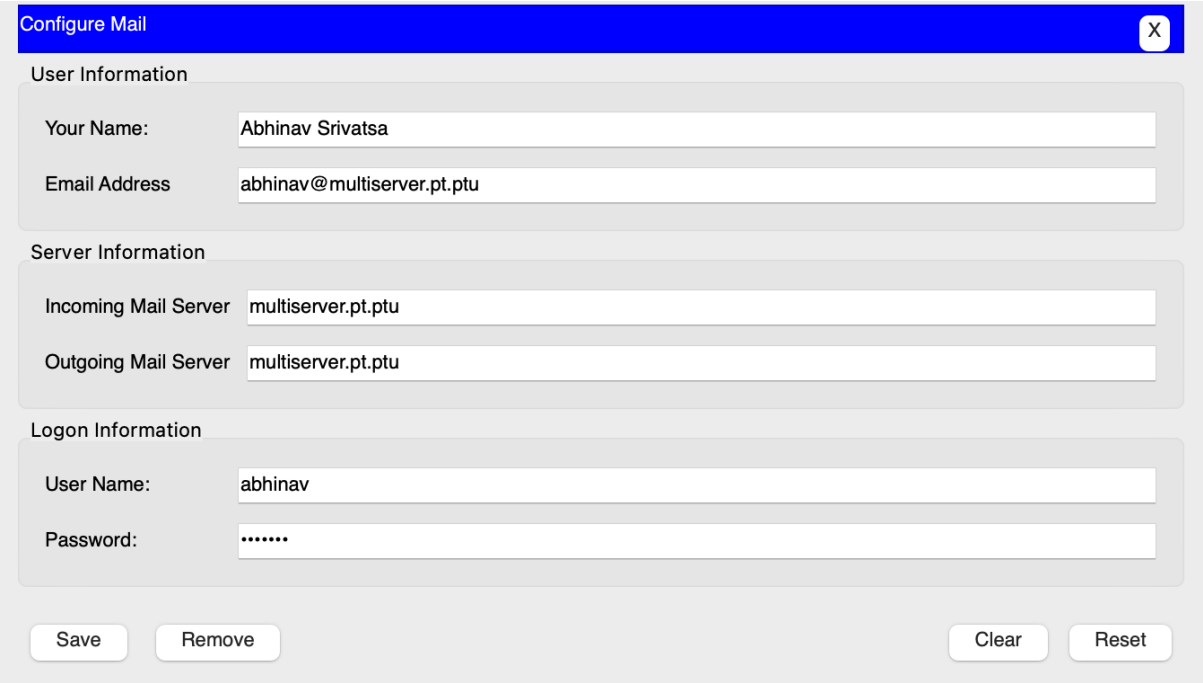


Step 4:

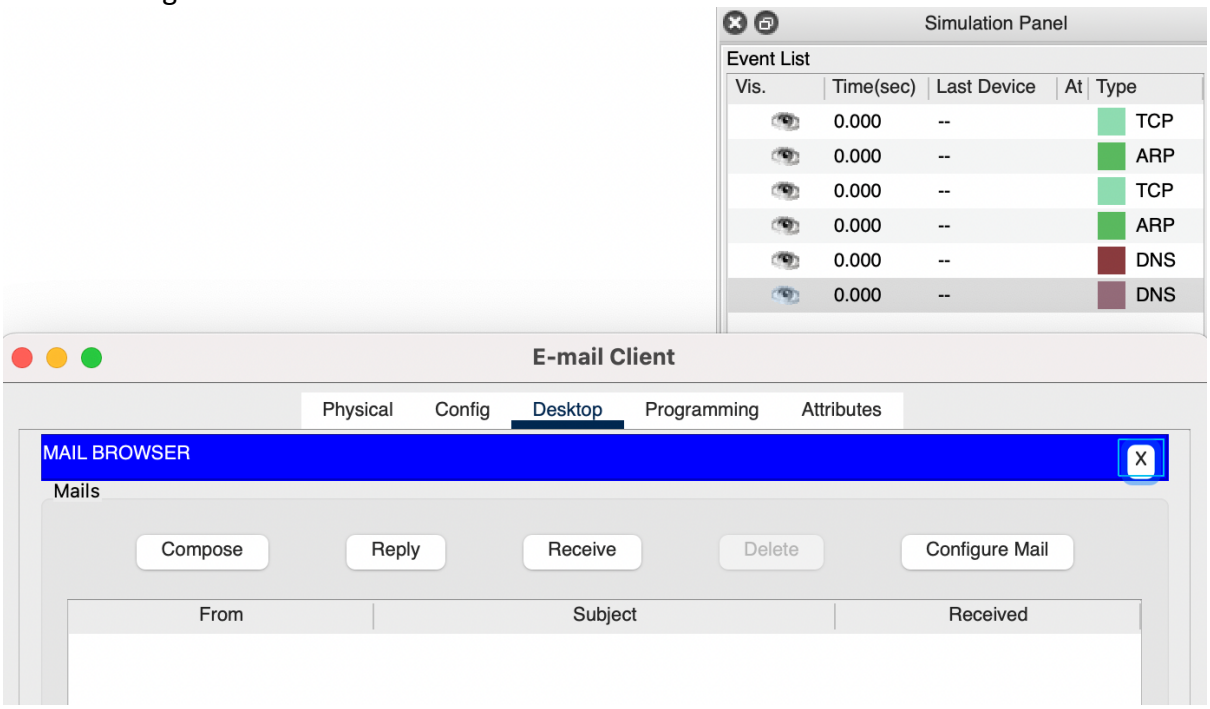


Step 5:

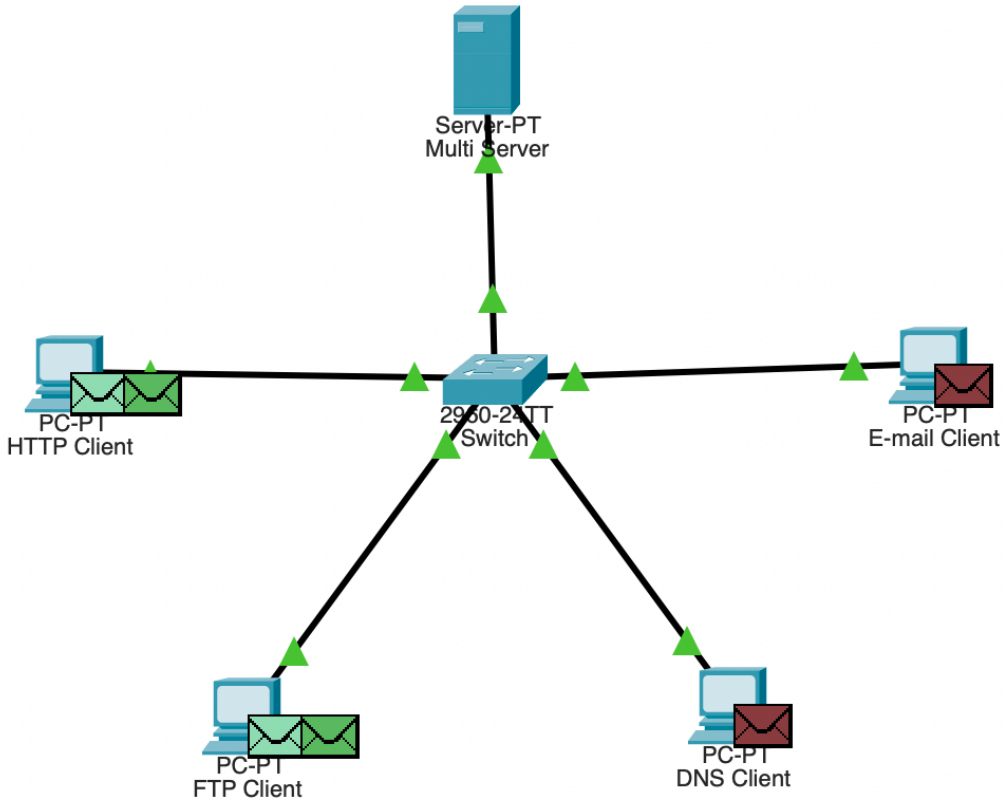
Configuring mail:



After sending email:



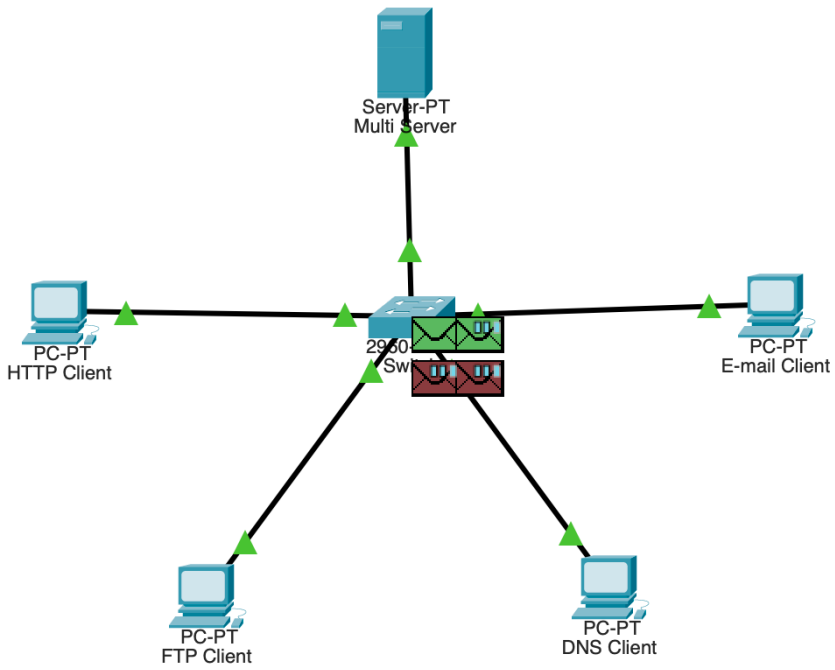
Topology after creating PDUs:



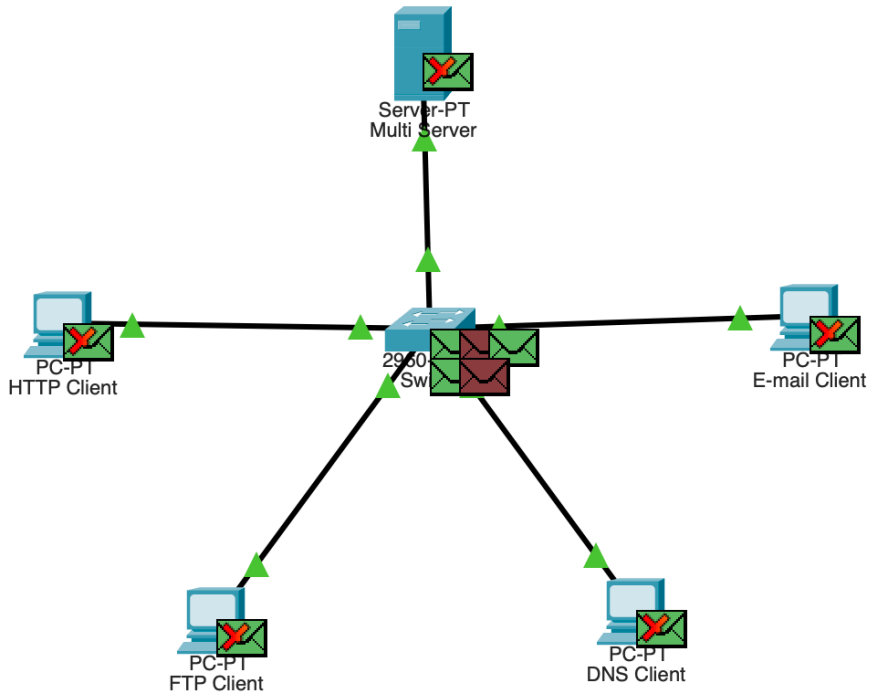
Part 2

Step 1:

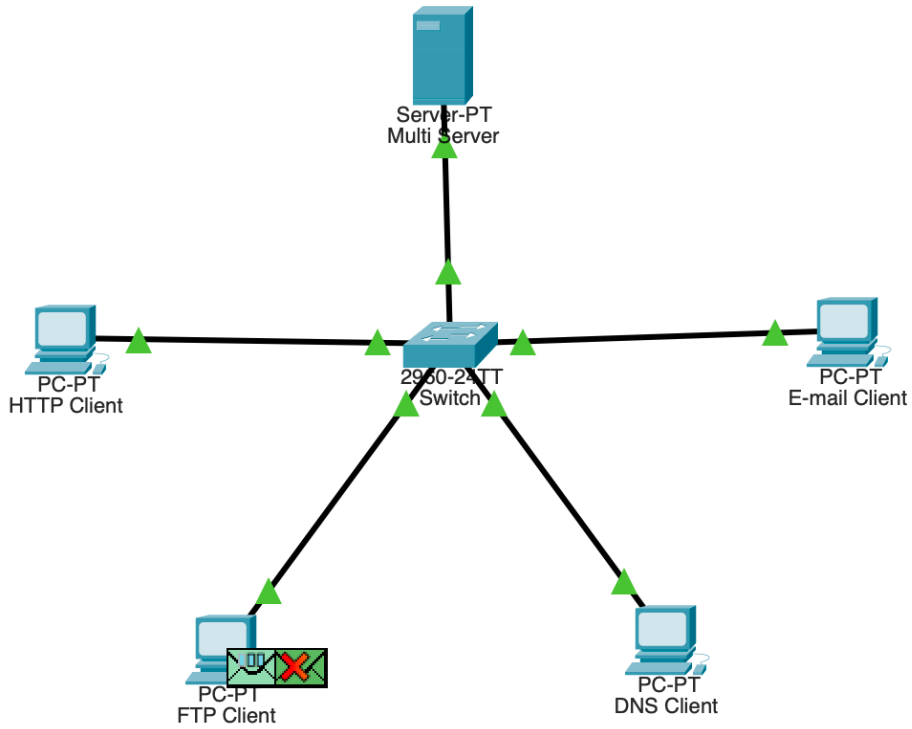
a. Clicking Capture/Forward once:



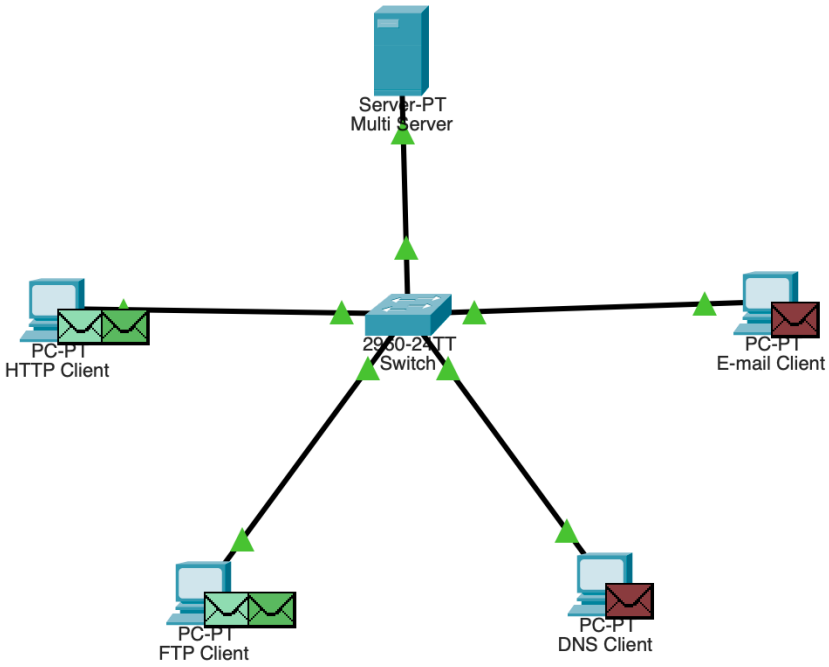
b. Clicking Capture/Forward again. The PDUs that disappeared have been **resolved or have thrown an error**.



c. Clicking Capture/Forward 6 times. Each PDU can cross a specific wire at any given time, this happens because of **circuit switching**.



d. The different colours for the variety of PDUs are to represent **each type of request and response they serve**.
e. Clicking Back eight times.



HTTP:

- The communication happens between the HTTP Client and the Multi Server, or IP addresses 192.168.1.2 and 192.168.1.254.
- The port communication happens on both server and client side through the port 80.
- Once the TCP request has been received by the server. The server will send back a HTTP fulfillment response and provide the data requested.

FTP:

- The communication happens between the FTP client and Multi Server, or IP addresses 192.168.1.3 and 192.168.1.254.
- The port communication happens on both the server and client side through the port 21.
- Once the TCP request has been received by the server. The server will send back an FTP fulfillment response and provide the data requested.

DNS:

- The communication happens between the DNS client and Multi Server, or IP addresses 192.168.1.4 and 192.168.1.254.
- The port communication happens on both the server and client side through the port 53.
- Once the TCP request has been received by the server. The server will send back a DNS fulfillment response and provide the data requested.

SMTP:

- The communication happens between the DNS client and Multi Server, or IP addresses 192.168.1.5 and 192.168.1.254.
- The port communication happens on both the server and client side through the port 25.
- Once the TCP request has been received by the server. The server will send back a SMTP fulfillment response and provide the data requested.

Result:

I have now understood a few basic transfer protocols that use TCP and UDP connections to initiate and create connections between computers. This is the basis of the internet, and I have demonstrated this in a simulated LAN on Cisco Packet Tracer.