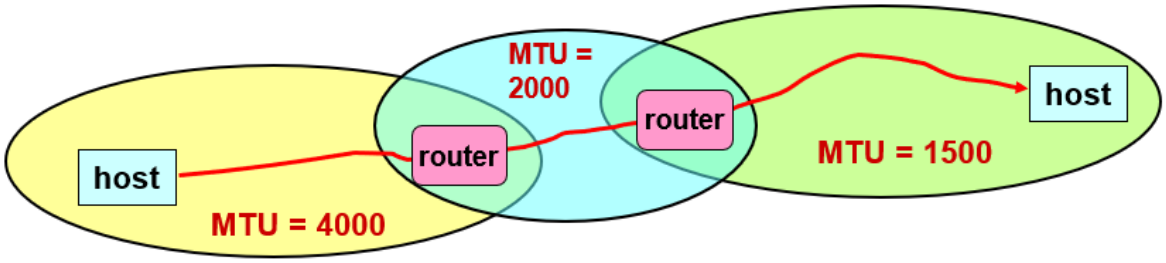
EE450: Practice Set #2

1. Suppose a router receives an IP packet containing 600 data bytes and must forward the packet over a link that can support a maximum transmission unit of 200 bytes. Assume that IP header is 20 bytes long. What is the minimum number of Fragments created and what are their offsets?

2. An IP packet of total size of 1600 bytes passes through network segment before it reaches its destination. The header size of this packet is 30 Bytes. The maximum size of an IP packet in intermediate network (MTU) is 1400 Bytes. How would the IP packet would be fragmented in a router. list all the information for each fragment (Total Length, M-Flag, Fragmentation offset, etc..)

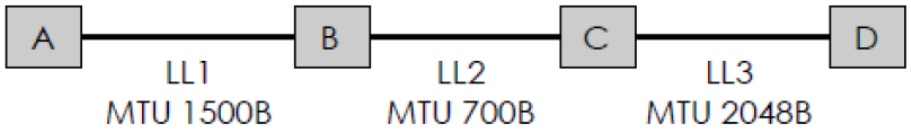
3. An IP Packet with a total length of 3820 Bytes is sent over a series of networks with different MTUs as shown below. How many fragments are delivered to destination and what are their offsets? What is the total number of Bytes delivered at the network layer at destination?



4. Host "A", attached to LAN_1, has one IP packet to send to host B, attached to LAN_2. The two LANs are connected via a Router. The packet consists of 1400-Byte payload and 20 Byte of IP header. Assume that the MTU in LAN_1 is 532 Bytes. Assume that the MTU in LAN_2 is 380 Bytes.
   a. How many Fragments are delivered to host B and what are their offsets?
   b. Repeat part "a", assuming that host A already know that the MTU of LAN_2 is 380 Bytes.

5.

A packet with a payload of 1400 Bytes and 20 Bytes of header is to be sent over the following. The MTU (Maximum Transfer Unit) of each link is listed. Identify all the fragments transmitted over each link (List the total length, the M-flag and the offset of each fragment)



6.

A message consisting of 220 bytes is sent to TCP layer and down to the Internet layer. Each layer appends a header of 20 bytes. The packets are then

Transmitted over a network which has an MTU of 92 Bytes.

a. Determine the number of bytes including header delivered to the network layer protocol at the destination
b. With the aid of diagram show the fragmentation details including the fragmentation offset (FO), more flag (MF) and total length (TL)