**1. Capturing and analyzing Ethernet frames**

1. The 48-bit Ethernet address of my computer is d8:f2:ca:76:f5:b6.
2. The 48-bit destination address in the Ethernet frame is 00:2a:6a:a5:c9:41. This is the address of the router used to get the address.
3. The hexadecimal value is 0x0800 which corresponds to the IP protocol.
4. From the start of the Ethernet frame, there are 54 bytes until the “G” appears. There are 14 bytes for Ethernet II, 20 bytes for Internet Protocol Version 4, and 20 bytes for Transmission Control Protocol before we reach the data.

Graphical user interface, application

Description automatically generated

1. The Ethernet source address is00:2a:6a:a5:c9:41. This is not the address of my computer nor of gaia.cs.umass.edu, this is the address of the router used to get there.
2. The destination address is d8:f2:ca:76:f5:b6. This is the address of my computer.
3. The hexadecimal value is 0x0800 which corresponds to the IP Protocol.
4. From the start of the Ethernet frame, there are 54 bytes until the “O” appears. There are 14 bytes for Ethernet II, 20 bytes for Internet Protocol Version 4, and 20 bytes for Transmission Control Protocol before we reach the data.

**2. The Address Resolution Protocol**

**For this part, I downloaded the provided packets. Every time I tried clearing the ARP cache, I got error messages.**

1. The Internet Address is the IP address, the Physical address is the Hexadecimal address, and the type is the protocol type.

Text

Description automatically generated

1. The source address is 00:d0:59:a9:3d:68. The destination address is ff:ff:ff:ff:ff:ff.
2. The type field is 0x0806 which corresponds to ARP.
   1. The ARP *opcode* field begins 20 bytes from the beginning of the Ethernet frame.
   2. The value of the *opcode* field is 0x0001.
   3. Yes, the IP address of the sender is 192.168.1.105.
   4. It appears in the Target MAC address which is set to 00:00:00:00:00:00.
3. .
   1. The ARP *opcode* field begins 20 bytes from the beginning of the Ethernet frame.
   2. The value of the *opcode* field is 0x0002.
   3. The answer appears in the Sender MAC Address which is 00:06:25:da:af:73.
4. The source address is 00:06:25:da:af:73 and the destination address is 00:d0:59:a9:3d:68.
5. There is no reply because the reply was sent to the other computer. We can only see the request because it goes through our computer but the not the reply.