

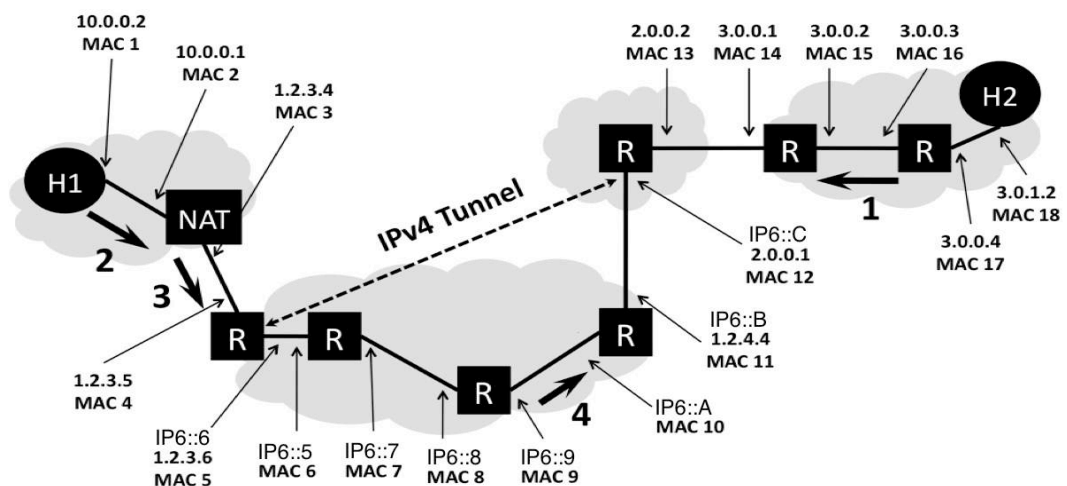
Due Monday April 27, 2015 in class.

1. [20 points] Consider the network shown in the figure below.

The network on the left of the figure uses NAT to connect to the Internet. IPv4 datagrams corresponding to *one TCP connection* are sent from H1 to H2 and vice-versa over Ethernet links, shown as solid lines. Note that there is an IPv4 tunnel since the “network with the 4 routers” uses IPv6 internally! This means that the IPv4 datagrams are tunneled as payloads of IPv6 datagrams in the 4-router network. The MAC, IPv4, and IPv6 addresses of the interfaces are shown in the figure. Assume that the format for an IPv6 address is IP6::N where N is a hexadecimal digit.

A packet traveling over the arrow-1-link has the following headers:

Header Type	Source	Destination
First header: Ethernet	MAC 16	MAC 15
Second header: IPv4	3.0.1.2	1.2.3.4
Third header: TCP	Port 80	Port 50000



Complete the following tables for packets on the arrow-2, arrow-3, and arrow-4 links. Explain your entries.

Arrow-2

Header Type	Source	Destination
First header:		
Second header:		
Third header:		

Arrow-3

Header Type	Source	Destination
First header:		
Second header:		
Third header:		

Arrow-4

Header Type	Source	Destination
First header:		
Second header:		
Third header:		

2. [20 points] NAT – Problem 21 in Chapter 4 in textbook.
3. [20 points] BGP – Problem 37 in Chapter 4 in textbook.
4. [40 points] Wireshark Lab on DNS – Posted on Moodle.