CPR E 530 – Mason Berhenke Homework 2 Problems

Homework 2 Problem 5

H1

Destination	Next Hop	Interface
129.186.5.0/24	129.186.5.30	eth0
127.0.0.1	127.0.0.1	lo0
Default	129.186.5.254	eth0

H2

Destination	Next Hop	Interface
129.186.5.0/24	129.186.100.254	eth0
129.186.4.0/24	129.186.100.253	eth0
129.186.100.0/24	129.186.100.40	eth0
127.0.0.1	127.0.0.1	lo0
Default	129.186.100.252	eth0

H3

Destination	Next Hop	Interface
129.186.4.0/24	129.186.4.133	eth0
127.0.0.1	127.0.0.1	lo0
Default	129.186.4.254	eth0

R1

Destination	Next Hop	Interface
129.186.5.0/24	129.186.5.254	en0
129.186.4.0/24	129.186.100.253	en1
129.186.100.0/24	129.186.100.254	en1
127.0.0.1	127.0.0.1	lo0
Default	129.186.100.252	en1

R2

Destination	Next Hop	Interface
129.186.5.0/24	129.186.5.254	en0
129.186.4.0/24	129.186.4.254	en1
129.186.100.0/24	129.186.100.253	en0
127.0.0.1	127.0.0.1	lo0
Default	129.186.100.252	en0

R3

Destination	Next Hop	Interface
129.186.5.0/24	129.186.100.254	en0
129.186.4.0/24	129.186.100.253	en0
129.186.100.0/24	129.186.100.252	en0
127.0.0.1	127.0.0.1	lo0
Default	10.0.0.5	en1

Homework 2 Problem 6

Layer	Field Name	Original	Fragment 1	Fragment 2
	Destination	N/A	00:7c:23:33:19:AA	00:7c:23:33:19:AA
Ethernet	Source	N/A	00:80:08:45:22:FF	00:80:08:45:22:FF
	Type Field	N/A	0x0800	0x0800
	Ver/IHL	4 5	4 5	4 5
	Type	0	0	0
	Len	2740	1500	1240
	ID	3486	3486	3486
	Flags	0 0 0	0 0 1	0 0 0
IP	Offset	0		185
	TTL	150	Computed	Computed
	Protocol	17	17	17
	Checksum	Computed	Computed	Computed
	Source IP	129.186.5.4	129.186.5.4	129.186.5.4
	Destination IP	68.10.7.4	68.10.7.4	68.10.7.4
Data		2700 bytes	1480 bytes	1220 bytes

Homework 2 Problem 9

Not sure what f means, but I assumed it meant H6 to H7

a. 2. 1 for H5, 1 for the rest

H3->H1	H6->H7
c.6	c.4
d 9	d. 5
e. 8	e. 8

CPR E 530 – Mason Berhenke Homework 2 Lab Experiments

Lab Experiments (Using Spock)

1

IP: 129.186.215.40
Netmask:255.255.255.224

2-5

	2	3	4		5	6
Site	Nslookup Address	Average Ping Time	Gateway		Ethernet addresses	Mail Server
a. www.nasa.gov	208.111.171.236	29.361	129.186.215.62 (default)	bce1	fe80::222:19ff:fead:59d7	208.111.171.236
b. www.iac.iastate.edu	129.186.105.22	0.84	129.186.215.62 (default)	bce1	fe80::222:19ff:fead:59d7	129.186.5.3
c. www.cnn.com	157.166.226.26	50.04	129.186.215.62 (default)	bce1	fe80::222:19ff:fead:59d7	208.78.70.4
d. www.iseage.org	129.186.205.33	0.618	129.186.215.62 (default)	bce1	fe80::222:19ff:fead:59d7	129.186.205.33
e. www.iastate.edu	129.186.23.166	6.211	129.186.215.62 (default)	bce1	fe80::222:19ff:fead:59d7	129.186.140.10
f. bones.ee.iastate.edu	129.186.215.41	8.587	Link #1	bce0	fe80::222:19ff:fead:59d9	No answer (might be above)

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IP Address	Host
129.186.215.42	sarek.ee.iastate.edu
129.186.215.43	sulu.ee.iastate.edu
129.186.215.44	mccoy.ee.iastate.edu
129.186.105.22	dougsmac.ece.iastate.edu
129.186.1.99	thumb.iastate.edu
208.111.171.200	Https-208-111-171-200.ord.llnw.net
208.111.150.102	Prod-mon-002.sjc1.yumenetworks.com

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Router Number	Router IP	Time (ms) (-s 50)	Time (ms) (-s 500)	Time (ms) (-s 1000)
1	129.186.215.62	0.778	1.159	1.549
2	129.186.105.253	0.939	1.229	0 (packet lost)
3	129.186.254.131	0.927	1.296	0 (packet lost)
4	192.245.179.54	4.631	7.352	0 (packet lost)
5	192.245.179.163	0.903	1.263	0 (packet lost)

Looking at the values above, it all seems very in line with what it should be. As the packet size gets larger, so does the average response time for each router. The weirdest anomaly is router 4 where the times are vastly different from the rest of the times. I attribute this to perhaps some sort of lag in the server or network at the time that caused many packets to be extremely slow (looking at the files, this theory holds up).

Another interesting aspect is that the last 4 routers when there was a packet size of 1000 wouldn't actually come back. I'm thinking that perhaps it has to do with a security setting where it does not allow pings of that size to actually be processed by the router.