

## Assignment 3 in Computer Communications – EDA 343

### Instructions:

1. You must pass this assignment and the two programming+lab assignments to pass the lab-part of the course.
2. Submit your answer to the assignment as instructed at the web site of the course. The solution should have a front page which states the authors' names, group number and email addresses.
3. Justify/explain your answers.
6. Please answer in English, to the extent that is possible.

### Questions

1. Try to find out the hostname and IP address of a computer you use to access the Internet. How can you do that?
2. What routers or networks does a packet from your computer cross when going to a server in Stockholm, for example to [www.kth.se](http://www.kth.se)? How do you find out?
3. Look at a cookie that the web browser has saved on your machine. Try to understand the contents of the file. What does it contain? It may help to connect via telnet to a web site that uses cookies and look at the header when it sends the cookie line to the client. The standard RFC may also help you finding the info.
4. How can you configure your local browser for local caching? What caching options do you have?
5. What does the command *nslookup* do? Use it and try to find a web server that has multiple IP addresses. Why can multiple IP addresses be useful? (make literature/web search to find out)
6. Visit the IANA web site (<http://www.iana.org/assignments/port-numbers>). What port numbers are used for HTTP, Telnet, IMAP and DNS (Domain Name Server)? What does IANA do?
7. Draw space-time diagrams for (a) a stop-and-wait protocol connection and (b) a TCP connection between a pair of nodes S, R. For simplicity assume no errors happen, there is no congestion and there is only one link between S and R.
8. What is streaming stored and what streaming live video? What are some well-known Web sites that provide these services?
9. Suppose that an intruder could insert DNS messages into and remove DNS messages from the network. Give some scenarios showing the problems that such an intruder could cause.

10. Skype offers a service that enables to make a phone call from a PC to an ordinary phone. This means that the voice call must pass through both the Internet and through a telephone network. Discuss how this might be done.
11. Discuss some of the problems NATs cause for IPsec security (see L. Phifer, "The trouble with NAT", The Internet Journal, vol. 4, n. 4, Dec 2000, [http://www.cisco.com/web/about/ac123/ac147/ac174/ac182/about\\_cisco\\_ipj\\_archive\\_article\\_list.html](http://www.cisco.com/web/about/ac123/ac147/ac174/ac182/about_cisco_ipj_archive_article_list.html))
12. Read some of the interviews in your book and/or investigate other sources, focusing on the question of "How do you see for the future of networking and the Internet". Make a summary of views in 1/2-1 page. What are your own reflections on the issues pointed out?