582615: Overlay and peer-to-peer Networks, Autumn 2011

Exercise 2

Instructions:
• The exercises are to be done in the groups assigned on the lecture, or individually
• Answer the questions 1-2 and return your answers by email to petri.savolainen ät hiit.fi
• Due date 5.10.2011 at 10:15, before the exercise session
• Accepted formats: plain text e-mail, PDF, ODT, DOC, DOCX, or RTF.
• Please include all the names and student numbers of all the group members in the submission.
• Groups/individuals will be picked randomly to present their answers at the exercise session
• The practical exercise 3 should not be returned electronically. The practical exercise is submitted by demonstrating the running software and answering the questions related to the practical exercise at the exercise session.

Questions

1. a) Explain onion routing. (3 points)
   b) Explain how Tor implements onion routing. (3 points)

You can refer to the following article for more information about onion routing and Tor:
https://svn.torproject.org/svn/projects/design-paper/tor-design.pdf

2. a) What are the design goals of Freenet 0.7.5? (3 points)
   b) Explain how Freenet 0.7.5 works to reach these goals? (3 points)

You can refer to the following article for more information about Freenet 0.7.5:
http://freenetproject.org/papers/freenet-0.7.5-paper.pdf

Practical exercise

3. a) Download and install OverSim. This is better to be done on a computer that you have root access on. (3 points)

On Ubuntu, first do:

sudo apt-get install libxml2-dev libpcap0.8-dev mpi-default-dev

Then follow the instructions for installing and running OverSim on:

http://www.oversim.org/wiki/OverSimInstall

b) Run the GIA simulation. How does GIA differ from the original Gnutella? More information on GIA: http://citeseerx.rcc.psu.edu/viewdoc/summary?doi=10.1.1.10.5444 (3 points)

c) Have a look at the source code of the GIA example at OverSim-20101103/src/overlay/gia. Compare the source code to the last week's NS3 code examples. Compare your overall experience with NS3 and OverSim. Which one would you choose as your testing/development tool if you were to implement a real-life P2P system? (3points)