582615: Overlay and peer-to-peer Networks, Fall 2010

Assignment/Exercise 3

Instructions:
- Group work allowed, groups of up to 3 people allowed
- Due date: 13.10. 4pm
- What to return: Your answers as plain text e-mail, PDF, DOC, RTF, ODT. Please do not use DOCX.
    1. Email title: `overlay-ex3`
    2. File name: `overlay-ex3 – marion member, william writer.<suffix>`
    3. example: `overlay-ex3 – eemil lagerspetz, sasu tarkoma.pdf`
- Please include all the names and student numbers in the document.
- Submission address: eemil.lagerspetz(at)hiit.fi
- This exercise accounts for maximum +8% bonus (extra, added) points to the exam.

Question 1

a) What is the role of a routing geometry for a distributed overlay network?
--Description maximum 250 words.

b) Compare three different routing geometries.
--Description maximum 250 words.

Question 2

a) Explain consistent hashing and discuss how it differs from traditional hashing techniques.
--Description maximum 250 words.

b) Compare the routing functions of Chord and Pastry. What are the key differences?
--Description maximum 500 words.

c) Illustrate the differences of Chord and Pastry with a step-by-step worked example.
--Description: a sequence diagram or step-by-step description

Question 3

Download the OverSim P2P simulator from the following address:
http://www.oversim.org/

a) Install and setup OverSim

b) Run the Chord DHT algorithm in an example topology and plot/report forwarding traffic and packet hop count statistics.

c) Introduce churn into the network (for example random node churn) and report the new statistics. Explain the difference to the previous case without churn.