Homework Questions on P2P Networking

Q1. As discussed in the lecture, a DHT is a pure overlay network. Consequently, the assignment of keys to the peers does not take into account the underlying network topology. Do you think this may have an impact of the search performance?

Q2. Consider the circular DHT example that we discussed in the lecture. Explain how peer 6 would join the DHT assuming that peer 15 is the designated contact peer for the DHT.

Q3. Consider a new peer Alice that joins BitTorrent without possessing any chunks. Without any chunks, she cannot become a top-four uploader for any of the peers, since she has nothing to upload. How then will Alice get her first chunk?

Q4. Consider distributing a file of F = 10 Gbits to N peers. The server has an upload rate of us = 20Mbps, and each peer has a download rate of di = 1 Mbps and an upload rate of u. For N=10, 100 and 1000 and u = 200Kbps, 600 Kbps and 1 Mbps, prepare a chart giving the minimum distribution time for each of the combinations of N and u for both client-server distribution and P2P distribution.

End of homework