

COMP102 Fall 2006
Assignment 2 – Part 2/2
Due: Thursday, October 5th, 2006, 8:35 a.m.

Please show all your work. No grade will be given for providing the final answer only. However, partial grade will be given for incomplete answers. Unacknowledged use of resources is prohibited. The answers given must be your own.

3. Peer-to-Peer [30]

In class we talked about pure P2P networks and Client-Server type networks. There is also a third type called hybrid P2P networks. A hybrid network combines certain aspects of both pure P2P and Client-Server. For example, in a hybrid file sharing network all the sharing could be done in the P2P style; however, the searches to locate the files could only be executed on specific dedicated servers.

(a) In such a network is there a need for a JXTA type rendezvous super peer? Please explain. [10]

(b) Suppose the creator of the network found out that his or her network was used for exchanging a few documents (say 5), which are copyrighted. Is it possible to prohibit this behaviour without completely shutting down the network? Explain how this can be done. [10] Would the same be possible in a pure P2P network? [5]

(c) Suppose a very large number of edge peers join the network. Assuming that all peers would want to actively exchange files, how would the network performance be affected? Hint: Use your combined knowledge of what would happen in a pure P2P network and a Client-Server network. [5]

4. Cache [30]

In class we talked about CPU cache, this cache is used to speed up computations. There are other kinds of cache. For example, hard disk cache is used to speed up reading from the disk. Similarly, Microsoft Internet Explorer stores Web pages to speed up Web browsing in a special folder called “Temporary Internet Files” stored locally on your computer. This is another kind of cache.

You are to come up with strategies for filling and maintaining this cache. Specifically, you are to suggest 3 strategies for what information needs to be stored in the cache and/or how it should be managed (added/deleted/updated). Describe each strategy. What are its advantages and disadvantages? [24, 8 points per strategy] Which strategy would you choose to use if you were the designer of this cache? Why? [6]