CISC856
BitTorrent HW
Kevin Kaminski
kkaminsk@udel.edu

1. How is P2P redundant? What are the disadvantages in P2P's implementation of redundancy?

2. Below is the raw text from the metainfo file for a Backtrack ISO torrent. The piece hashes have been omitted. Assume the local peer's client supports the latest version of BitTorrent.

d8:announce35:udp://tracker.1337x.org:80/announce13:announce-listll38:udp://tracker.publicbt.com:80/announceel35:udp://tracker.1337x.org:80/announceel44:udp://tracker.openbittorrent.com:80/announceel43:udp://fr33domtracker.h33t.com:3310/announceel35:udp://tracker.istole.it:80/announceel38:http://exodus.desync.com:6969/announceee18:azureus_propertiesd17:dht_backup_enablei1ee7:comment61:Torrent downloaded from torrent cache at http://torcache.net/10:created by15:Azureus/3.1.0.013:creation datei1213971579e8:encoding5:UTF-84:infod6:lengthi728705024e4:name13:bt3-final.iso10:name.utf-813:bt3-final.iso12:piece lengthi524288e6:pieces27800:

a. Which URL will the local peer contact first? What transport layer protocol will the peer use to contact the tracker?
b. What is the size of each piece in KB? How many pieces is the file broken into?

3. When a tracker receives a GET request from a peer, what identifies which file the peer wants to download?

4. Peer A sends a handshake message to port 9001 on Peer B. How does Peer A know which port Peer B is listening on? How did Peer B provide that information?

5. What are two advantages of optimistic unchoking?

6. Peer A is enjoying a steady upload and download rate with Peer B. Suddenly, Peer A receives a Choke message from Peer B. Under what circumstances would Peer B choke a currently uploading peer?

See the Wireshark pcap for the following questions. Type “tcp” into the Filter to make it easier to find the packets. In this capture, the local peer is 192.168.1.8. “Packet No.” refers to the first column in the Wireshark packet list.

1. Find the first **completed** two-way BitTorrent handshake. What are the packet No.'s for the two packets?

The remote peer involved in the first completed BitTorrent handshake will be referred to as the *remote peer in the following questions.*

2. Find the bitfield the remote peer sends to the local peer. How many pieces is the remote peer missing from a complete file?

3. In what packet does the local peer express interest in downloading from the remote peer? In what packet does the remote peer unchoke the local peer? List the packet No.'s.

4. What is the packet No. of the first block request by the local peer? What is the index of the piece the block is located in? What is the size of the block in KB? In what packet is the block sent by the remote peer?

5. Filter by “bittorrent”. Observe how the local peer requests and downloads the next few pieces, and how the “begin” value increments after each block download. Once a full piece is downloaded, the local peer sends a “have” message to the remote peer. What is the packet No. of the have message for the first requested piece?

Extra credit: uTorrent establishes connections with multiple trackers during this capture. Most are over UDP and are sent in binary. However, one connection is over TCP and the HTTP messages are viewable in ASCII. List the packet No.'s of the GET request sent by the local peer and the response sent by the tracker.