Pseudocode for P2P Client

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Required variables:

1) recordList – arraylist of local (content, IPaddr) records

2) requestedRecord – record requested by client

3) DHTserverList – arraylist[4] of DHTserver records (DHTserverNum, IPaddr, status)

4) sharedDir – path directory of shared files

5) jobNum – index of uploaded jobs.

6) transferStatus – (pending, seeding, done) indicates status of upload/download.

client (class DHT\_Server)

main(){

Init\_Vars()

Init().

Prompt user for content filename to download.

If filename is present in sharedDir

Show message “file already downloaded.”

else

Query\_For\_Content().

exit().

}

init\_Vars(){

Create/instantiate new object DHTserverList[4].

Create/instantiate new object recordList.

Create/instantiate variable requestedRecord.

}

init(){

Store the 1st DHT server (DHTserverNum, IPaddr) record.

Create UDP socket

Do

Request (UDP:GETDHT) DHTserverList[0] for IP addresses of remaining servers.

While return message code is not equal to SENDDHT

Retrieve DHT servers 1-3 info from message

Close socket.

}

query\_For\_Content(){

DHTserverNum = hash(contentName).

Create UDP socket

Send (UDP:REQINFO) record(contentName) to DHTserverNum

Receive UDP response message from DHT server

Close UDP socket

If message return code = CODE404 (content does not exist)

Show message “content not found”

Else if message return code = INFORM

Determine IP address of P2P Server

Get\_Content(P2P Server IP, content)

}

hash(content){

sum decimal values of ASCII characters of content name

set x to sum of decimal values

set y to x mod 4

set DHT ID to Y + 1 (actually, just Y for our implementation)

}

exit(){

Free allocated memory.

}

/\* download content file (via TCP) from remote P2P server\*/

Get\_Content(P2P Server IP, content){

Open TCP socket (P2P server IPaddr)

Set Request Message code to GET

Set HTTP version to 1.1

Send Request (content) Message

Receive Response Message

While true

if Response Code = 200

Save to file

Output message: File downloaded successfully.

Break

Else If Response Code = 400

Set message code to GET

Send request (content)

Else if Response Code = 404

Output message: file not found.

Break.

Else if Response Code = 505

Output message: HTTP version not supported

Break.

End while

Close TCP socket

}

**DHT\_Server Status Codes**

(Used to communicate between DHT Servers and (P2P Servers or Clients)

1) GETDHT – received from P2P client to query for IPs of other DHT servers.

2) SENDDHT – sent by DHT server to P2P client, contains IPs of other DHT servers.

3) REQINFO – sent by P2P client to DHT server to request records of all P2P servers that have content name.

4) SHUTDOWN – sent from DHT server to DHT server disconnects/closes all sockets and connections with P2P servers and clients

5) INFORM – received from P2P client, contains record (content name, client IP).

6) INFORM – sent by DHT server to P2P client, containing records (content, IPaddr). This is in response to REQINFO from P2P client.

7) QUIT – send by P2P Server to each DHT Server. Each DHT server will delete P2P Server’s content records.

8) CODE404 – sent from DHT server if ip address of client not found.

**P2P\_Client and P2P\_Server Status Codes**

(Used to communicate between P2P Servers and P2P Clients

1) GET – sent by P2P client to request a content file.

2) 200 – sent by P2P server if request succeeded (i.e. client IP found).

3) 400 – sent by P2P server if request message corrupted.

4) 404 – sent by P2P server if content file not found.

5) 505 – sent by P2P server if HTTP version not supported.