

BOĞAZİÇİ UNIVERSITY

CMPE 487

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## Workshop 4

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FALL 2020

# 1 Packet Types

As requested, we have implemented "FILE" and "ACK" packets as UDP packets, and we decided that it would be better to send the other packets types as TCP packets.

## 1.1 TCP Packets

```
1. 1      {  
    2      "NAME": USER_NAME,  
    3      "MY_IP" : USER_IP,  
    4      "TYPE" : "DISCOVER",  
    5      "PAYLOAD": ""  
    6      }
```

```
2. 1      {  
    2      "NAME": USER_NAME,  
    3      "MY_IP" : USER_IP,  
    4      "TYPE" : "RESPOND",  
    5      "PAYLOAD": ""  
    6      }
```

```
3. 1      {  
    2      "NAME": USER_NAME,  
    3      "MY_IP" : USER_IP,  
    4      "TYPE" : "MESSAGE",  
    5      "PAYLOAD": <STRING>  
    6      }
```

```
4. 1      {  
    2      "NAME": USER_NAME,  
    3      "MY_IP" : USER_IP,  
    4      "TYPE" : "REQ_MANIFEST",  
    5      "PAYLOAD": ""  
    6      }
```

```

5.  1      {
      2      "NAME": USER_NAME,
      3      "MY_IP" : USER_IP,
      4      "TYPE" : "MANIFEST",
      5      "PAYLOAD": <STRING>
      6      }

```

```

6.  1      {
      2      "NAME": USER_NAME,
      3      "MY_IP" : USER_IP,
      4      "TYPE" : "REQ_DOWNLOAD",
      5      "FILE_NAME": FILE_NAME,
      6      "CHUNKS_OWNED": <STRING>,
      7      "RWND": <INTEGER>
      8      }

```

## 1.2 UDP Packets

```

1.  1      {
      2      "SERIAL": SERIAL_ID,
      3      "TYPE": "FILE",
      4      "MY_IP": USER_IP,
      5      "PAYLOAD": <STRING>
      6      }

```

```

2.  1      {
      2      "SERIAL": SERIAL_ID,
      3      "TYPE": "ACK",
      4      "MY_IP": USER_IP,
      5      "RWND": <INTEGER>
      6      }

```

## 2 Downloading Protocol

After the users have recognized each other by Discover and Respond protocol, these steps must be followed in order to download a file:

1. The leech requests the manifest from the seed. The manifest represents the files and chunks the seed owns. The format of a manifest is as follows:

```

{
  file1.txt: [chunkid1_1, chunkid1_2, ..., chunkid1_a]
  file2.txt: [chunkid2_1, chunkid2_2, ..., chunkid2_b]
  .
  .
  .
  img1.jpg: [chunkidM_1, chunkidM_2, ..., chunkidM_c]
}

```

2. After receiving the manifest, the leech can choose any file to download from this seed.
3. After the download has been initiated, there are two mechanisms that signals the end of download:
  - The leech can send a TERMINATE packet saying that she/he received all the chunks in the manifest.
  - The seed can decide that there are no chunks left that are not ACKed. If any of these two conditions are satisfied, the sending/downloading will be stopped.