21CY681– Internet Protocol lab

ASSIGNMENT -10

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Title: Analyzing bittorent and bht protocols using wireshark

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3. Open Wireshark in the background by choosing the appropriate interface.

4. Then open your torrent file and start the download at least 20%. Stop the capture and document the answers to the following questions:

a. Give a detailed study about the working of BitTorrent in your downloading scenario.

BitTorrent peer-to-peer (P2P) protocol finds users with files other users want and then downloads pieces of the files from those users simultaneously.

Once connected, a BitTorrent client downloads bits of the files in the torrent in small pieces, downloading all the data it can get. Once the BitTorrent client has some data, it can then begin to upload that data to other BitTorrent clients in the swarm. In this way, everyone downloading a torrent is also uploading the same torrent. This speed up everyone's download speed.

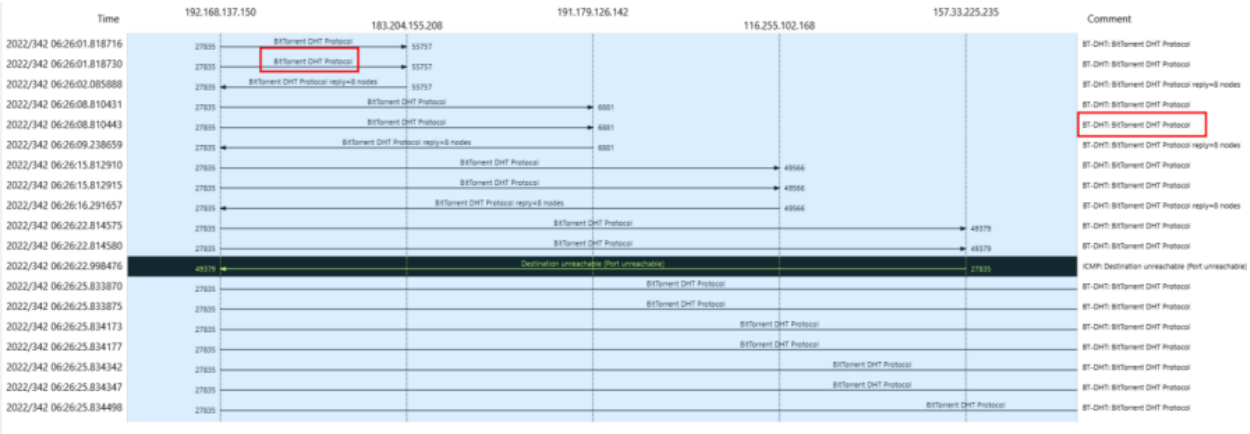
b. Working of BitTorrent.

BitTorrent is a communication protocol for peer-to-peer file sharing (P2P), which enables users to distribute data and electronic files over the Internet in a decentralized manner. The computers in a BitTorrent "swarm" (a group of computers downloading and uploading the same torrent) transfer data between each other without the need for a central server.

c. Protocol Level Analysis

BITTORENT-

DHT –



d. Tracker's status.

e. DHT status.

Files | Info | Peers | Trackers | Graphs

Name	Status	Update In	Seeds	Peers	Download...
[DHT]	working	22m 14s	13	91	0
[Local Peer Discovery]	working		0	4	0
[Peer Exchange]	working		0	5	0
udp://tracker.openbittorrent.com:80/ann...		updating...	0	0	0
udp://tracker.opentrackr.org:1337/annou...	working	26m 51s	23	3	2383
udp://tracker.publicbt.com:80/announce	No such host i...	20m 38s	0	0	0

Here we can see that while downloading the torrent file the DHT status is set to working.

Files | Info | Peers | Trackers | Graphs

Name	Status	Update In	Seeds	Peers	Download...
[DHT]	disabled		0	0	0
[Local Peer Discovery]	working		0	5	0
[Peer Exchange]	working		0	2	0
udp://tracker.openbittorrent.com:80/ann...	No such host i...	18m 7s	0	0	0
udp://tracker.opentrackr.org:1337/annou...	No such host i...	17m 8s	0	0	0
udp://tracker.publicbt.com:80/announce	No such host i...	17m 9s	0	0	0

While seeding the DHT status is set as disabled.

f. Identify other peers involved in the communication

From the below screenshot we can see that there are sevreral nodes which represents a peer and it sip address and port number is shown

```
  Key: nodes
  Value: 8 nodes
    Node 1 (id: dfe04db3460fb98d315cbeaa4539e187b92626a7, IPv4/Port: 86.41.10.163:53020)
    Node 2 (id: dfe0bee587f8f3564f342a6ecf155ab146c41206, IPv4/Port: 223.109.186.214:6884)
    Node 3 (id: dfe15bed3bf19c251cf5deb99627aa6f6620c7de, IPv4/Port: 95.79.124.208:21303)
    Node 4 (id: dfe1d2c2ab35c73fe05a538e66b4b2545c262b01, IPv4/Port: 98.242.168.96:27033)
    Node 5 (id: dfe201c9b22a34aae27b81935c0118f944d893b8, IPv4/Port: 185.149.90.126:52007)
    Node 6 (id: dfe283abd9f97e4450ec636f21351e0920844efb, IPv4/Port: 35.139.52.195:6881)
    Node 7 (id: dfe34745b5103072aa9c29eb0d3fbcd8759a4e1e, IPv4/Port: 121.170.44.25:7890)
    Node 8 (id: dfe3e29bc55a2853958a91d730417607565b8156, IPv4/Port: 82.65.162.139:6881)
  Terminator: e
saction ID: a8530000
```

```
  Value: 8 nodes
    Node 1 (id: dfc3c164940003cd8c9e12312aa7b00c02a2a6b3, IPv4/Port: 119.193.226.69:8003)
      ID: dfc3c164940003cd8c9e12312aa7b00c02a2a6b3
      IP: 119.193.226.69
      Port: 8003
    Node 2 (id: dfc66a15d53c851bff95cdbcd4cf9d6611ade402, IPv4/Port: 121.179.12.75:7795)
      ID: dfc66a15d53c851bff95cdbcd4cf9d6611ade402
      IP: 121.179.12.75
      Port: 7795
    Node 3 (id: dfc085c6ab80e2cdcbc473480e19572ee344121a, IPv4/Port: 69.114.169.254:33806)
    Node 4 (id: dfc504adfcb126eb1ecb59245b21bd341f7fcc0f, IPv4/Port: 221.145.147.185:41070)
```

g. Try to identify the name of the file downloaded

```
bt-dht.bencoded.string == 25f241c88bdc49c9b05da6f145164018a22f050a

  ⌄ info_hash: 25f241c88bdc49c9b05da6f145164018a22f050a
      Key: info_hash
      Value: 25f241c88bdc49c9b05da6f145164018a22f050a

⌄ BitTorrent DHT Protocol
  ⌄ Request arguments: Dictionary...
      Key: a
    ⌄ Value: Dictionary...
      ⌄ id: dff503d6ae529049f1f1bbe9ebb3a6db3c870ce1
          Key: id
          Value: dff503d6ae529049f1f1bbe9ebb3a6db3c870ce1
      ⌄ implied_port: 1
          Key: implied_port
          Terminator: e
          Value: 1
      ⌄ info_hash: 25f241c88bdc49c9b05da6f145164018a22f050a
          Key: info_hash
          Value: 25f241c88bdc49c9b05da6f145164018a22f050a
      ⌄ name: Minecraft
          Key: name
          Value: Minecraft
```

5. Try to export the 20% of data you have captured as traffic in Wireshark while downloading files in Torrent.

6. After the Download completes and when it starts seeding, open the Wireshark and analyze the information being transferred in that traffic. Document the difference in Network traffic.