

Assignment-2

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1 Analysis :

I used a total of 3n ports for part1 and part2

1.

RTT values of each chunk is recorded :

The average of RTT values of chunks in part 1 are :

| number of clients | average time |
|-------------------|--------------|
| 5 | 0.043514 |
| 10 | 0.05417 |
| 20 | 0.0913 |
| 50 | 0.234 |

The average of RTT values of chunks for part 2 are :

| number of clients | average time |
|-------------------|--------------|
| 5 | 0.0023 |
| 10 | 0.0413 |
| 20 | 0.4973 |

RTT values of part 2 are larger for larger values of n

As, Packet drop may take place in UDP.

2.

Yes, there are chunks whose RTT is significantly greater than remaining chunks.

3.

Total time taken for PSP Network :

| number of clients | total time |
|-------------------|------------|
| 5 | 4.367 |
| 10 | 12.516 |
| 20 | 83.371 |
| 50 | 212.866 |

The trend was expected to be increasing as the chunks at the client decreases if there are more clients in beginning and exchange of number of packets drastically increases so , the time taken also increases.

4.

As cache size increases the total time decreases as probability to hit increases and it can be directly sent by the server itself without requesting for the clients.

For part 1

| size of cache | total time |
|---------------|------------|
| 5 | 210.111 |
| 10 | 197.384 |
| 50 | 149.248 |

5.

Random Request takes more time than Sequential Request as the hit rate will be maximum in sequential request as in our implementation the request of packets in client takes place in sequential way so, sequential request gives less time and more hit.

2 Food For Thought :

This Method provides High security and privacy as the clients cant communicate with each other , but in P2P the clients communicate with each other.

This Method also doesn,t get complicated when there is an increase in number of clients.

Although P2P becomes more and more complicated when we increase the number of clients.

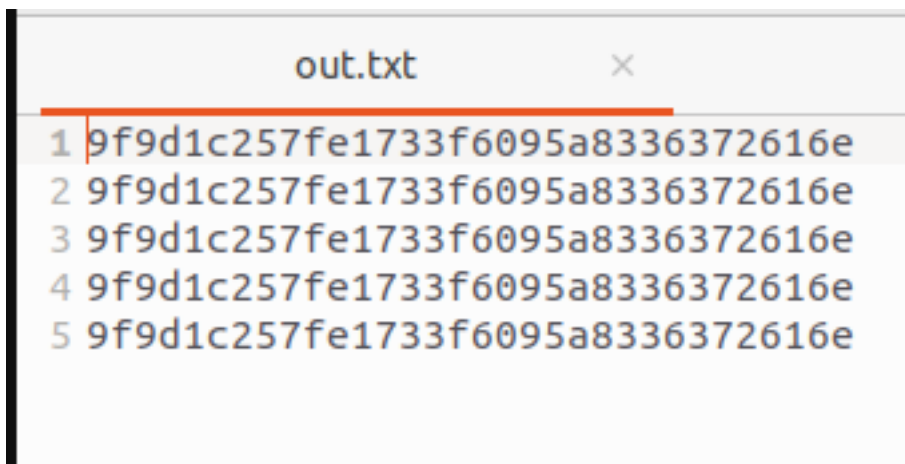
As we are sharing chunks of files one by one It is faster and adequate than traditional file sharing network.

The server doesn't need to carry all the data along with it as it can request the clients , which brings the advantage of memory utilisation in server.

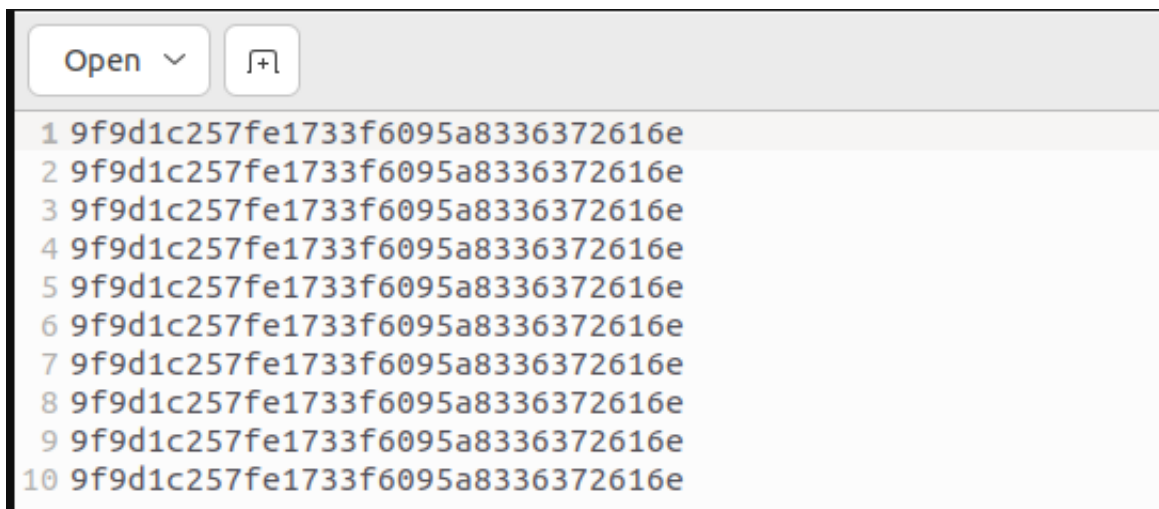
We can place a header to every file along with its chunk number such as a1,a2,a3 belong to file a while that of b1,b2,b3 belongs to file b

Part-1

For 5 clients :



For 10 Clients :



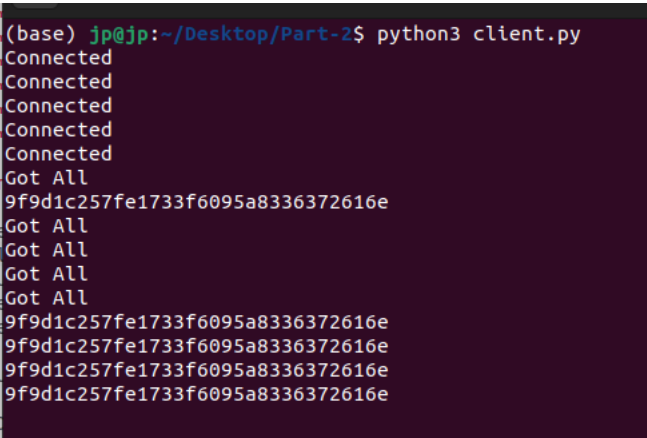
For 20 Clients :

```
out.txt
1 9f9d1c257fe1733f6095a8336372616e
2 9f9d1c257fe1733f6095a8336372616e
3 9f9d1c257fe1733f6095a8336372616e
4 9f9d1c257fe1733f6095a8336372616e
5 9f9d1c257fe1733f6095a8336372616e
6 9f9d1c257fe1733f6095a8336372616e
7 9f9d1c257fe1733f6095a8336372616e
8 9f9d1c257fe1733f6095a8336372616e
9 9f9d1c257fe1733f6095a8336372616e
10 9f9d1c257fe1733f6095a8336372616e
11 9f9d1c257fe1733f6095a8336372616e
12 9f9d1c257fe1733f6095a8336372616e
13 9f9d1c257fe1733f6095a8336372616e
14 9f9d1c257fe1733f6095a8336372616e
15 9f9d1c257fe1733f6095a8336372616e
16 9f9d1c257fe1733f6095a8336372616e
17 9f9d1c257fe1733f6095a8336372616e
18 9f9d1c257fe1733f6095a8336372616e
19 9f9d1c257fe1733f6095a8336372616e
20 9f9d1c257fe1733f6095a8336372616e
```

The final File printed :



Part-2



RTT Values for each chunk :

```
0.044008731842041016
0.04395318031311035
0.0011548995971679688
0.04638957977294922
0.045789480209350586
0.04772043228149414
0.04609370231628418
0.04760479927062988
0.04351472854614258
0.04355812072753906
0.0005841255187988281
0.0012319087982177734
0.04712986946105957
0.04359936714172363
0.04371833801269531
0.0008597373962402344
0.0012352466583251953
0.0011372566223144531
0.0011134147644042969
0.046930551528930664
0.04633021354675293
0.0007884502410888672
0.0012359619140625
0.0008635520935058594
```

```
0.3157932758331299
0.31565141677856445
0.07360219955444336
0.8532154560089111
0.8532235622406006
0.8536505699157715
0.9262974262237549
0.8534789085388184
0.0008904933929443359
0.0008533000946044922
2.4723949432373047
2.4723961353302
2.472327470779419
2.4976701736450195
2.49788498878479
0.2933168411254883
0.29341840744018555
0.27915334701538086
0.30537891387939453
0.28000950813293457
0.1440737247467041
0.13179445266723633
0.1445598602294922
0.13260412216186523
```