Topology: Bus Peer to Peer Manual:-

Run Peer1: (Output is generated of Amazon EC2 instance)

1. Copy BusToPeer Folder to Linux or windows
2. Cd BusToPeer
3. Type Ubuntu>make -> Its create 9 fresh copy of Client1 and reset conf file

ubuntu@ip-172-31-46-19: ~/BusToPeer

```
ubuntu@ip-172-31-46-19:~$ cd BusToPeer/
ubuntu@ip-172-31-46-19:~/BusToPeer$ make
rm -rvf Client2 Client3 Client4 Client5 Client6 Client7 Client8 Client9 Client10
removed 'Client2/Client.jar'
removed 'Client2/Client.java'
removed 'Client2/input_files/F_8kb.txt'
removed 'Client2/input_files/F_4KB.txt'
```

4. Cd Client1
5. Type Ubuntu> make   ->compile and run client 1

```
ubuntu@ip-172-31-46-19:~/BusToPeer$ cd Client1
ubuntu@ip-172-31-46-19:~/BusToPeer/Client1$ make
javac *.java
jar -cvfm Client.jar Manifest.txt *.class
added manifest
adding: Client.class(in = 4131) (out= 2265)(deflated 45%)
adding: NPeers.class(in = 624) (out= 362)(deflated 41%)
adding: Query.class(in = 1499) (out= 674)(deflated 55%)
adding: QueryType.class(in = 839) (out= 496)(deflated 40%)
adding: peerClientThread.class(in = 5907) (out= 3306)(deflated 44%)
adding: peerServerThread.class(in = 5244) (out= 2869)(deflated 45%)
adding: updateThread$RemindTask.class(in = 624) (out= 429)(deflated 31%)
adding: updateThread.class(in = 475) (out= 337)(deflated 29%)
rm *.class
java -jar Client.jar sam 10 10
Input Format : java Client <Client Name> <TTL> <Flush Time>
127.0.0.1 60001 taken
127.0.0.1 60002 available
127.0.0.1 60003 available
127.0.0.1 60004 available
127.0.0.1 60005 available
127.0.0.1 60006 available
127.0.0.1 60007 available
127.0.0.1 60008 available
127.0.0.1 60009 available
127.0.0.1 60010 available
127.0.0.1 60011 available
1. 127.0.0.160002
2. 127.0.0.160003
3. 127.0.0.160004
4. 127.0.0.160005
5. 127.0.0.160006
6. 127.0.0.160007
7. 127.0.0.160008
8. 127.0.0.160009
9. 127.0.0.160010
10. 127.0.0.160011
127.0.0.1  60001

 Client listening on 60001


       1. Lookup Files
       2. Exit
       Enter :-
```

Client1 take first ip address and port from bus conf.txt and mark “taken” so that no other client can take same address and port no. Client pass 3arg first is client name second is time to live and 3rd is flush time which holds the record of queryhit.

6. **Press 1 for lookfiles and enter file name and wait for 2sec to collect all response if file is present it will display list of server who contain that files or else list is empty**

```
 Client listening on 60001


        1. Lookup Files
        2. Exit
        Enter :- 1


 Enter File name :- file1.txt
************    Lookup for file    ************
File Not Found

        1. Lookup Files
        2. Exit
        Enter :-
```

```
 Enter File name :- F_100kb.txt
************    Lookup for file    ************
--------------------------------------------------------------------------------
Average Response Time from '8' Clients in Milliseconds: 52
--------------------------------------------------------------------------------
************    Download file    ************
 1.   Client1   IP:127.0.0.1  Port:40001   Response Time :- 46ms
 2.   Client2   IP:127.0.0.1  Port:40007   Response Time :- 46ms
 3.   Client3   IP:127.0.0.1  Port:40009   Response Time :- 48ms
 4.   Client4   IP:127.0.0.1  Port:40006   Response Time :- 51ms
 5.   Client5   IP:127.0.0.1  Port:40008   Response Time :- 52ms
 6.   Client6   IP:127.0.0.1  Port:40005   Response Time :- 55ms
 7.   Client7   IP:127.0.0.1  Port:40004   Response Time :- 57ms
 8.   Client8   IP:127.0.0.1  Port:40002   Response Time :- 58ms


Select Client to Download (Please Enter No.) :-
```

It displays response time for all clients

7. **Select Client no. to download file**
8. **After Select client no. Files is download to output folder of client who request for that files.**

9.

```
 Enter File name :- F_100kb.txt
************    Lookup for file    ***********
--------------------------------------------------------------------------------
Average Response Time from '8' Clients in Milliseconds: 52
--------------------------------------------------------------------------------
************    Download file    ***********
 1.   Client1   IP:127.0.0.1  Port:40001   Response Time :- 46ms
 2.   Client2   IP:127.0.0.1  Port:40007   Response Time :- 46ms
 3.   Client3   IP:127.0.0.1  Port:40009   Response Time :- 48ms
 4.   Client4   IP:127.0.0.1  Port:40006   Response Time :- 51ms
 5.   Client5   IP:127.0.0.1  Port:40008   Response Time :- 52ms
 6.   Client6   IP:127.0.0.1  Port:40005   Response Time :- 55ms
 7.   Client7   IP:127.0.0.1  Port:40004   Response Time :- 57ms
 8.   Client8   IP:127.0.0.1  Port:40002   Response Time :- 58ms


Select Client to Download (Please Enter No.) :-  1
sending request to peer
--------------------------------------------------------------------------------
Transfer Time in milliseconds: 6

Downloaded file :F_100kb.txt File size : 100.78KB

Performance speed 15.3MB/sec
--------------------------------------------------------------------------------
```

Topology Star

Run Peer1: (**Output is generated of Amazon EC2 instance**)

1. Copy StarToPeer Folder to Linux or windows
2. Cd StarToPeer
3. Type Ubuntu>make -> Its create 9 fresh copy of Client1 and reset conf file and copy conf files to each clients

```
ubuntu@ip-172-31-46-19:~/BusToPeer$ cd ../StarPeer/
ubuntu@ip-172-31-46-19:~/StarPeer$ make
rm -rvf Client2 Client3 Client4 Client5 Client6 Client7 Client8 Client9 Client10
removed 'Client2/Client.jar'
removed 'Client2/Client.java'
removed 'Client2/input_files/F_8kb.txt'
removed 'Client2/input_files/F_4KB.txt'
```

4. Cd Client1
5. Type Ubuntu> make   ->compile and run client 1

```
ubuntu@ip-172-31-46-19:~/StarPeer/Client1$ make
javac *.java
jar -cvfm Client.jar Manifest.txt *.class
added manifest
adding: Client.class(in = 4128) (out= 2262)(deflated 45%)
adding: NPeers.class(in = 624) (out= 362)(deflated 41%)
adding: Query.class(in = 1499) (out= 674)(deflated 55%)
adding: QueryType.class(in = 839) (out= 496)(deflated 40%)
adding: peerClientThread.class(in = 5907) (out= 3306)(deflated 44%)
adding: peerServerThread.class(in = 5244) (out= 2869)(deflated 45%)
adding: updateThread$RemindTask.class(in = 624) (out= 429)(deflated 31%)
adding: updateThread.class(in = 475) (out= 337)(deflated 29%)
rm *.class
java -jar Client.jar Client1 10 10
Input Format : java Client <Client Name> <TTL> <Flush Time>
127.0.0.1 40001 taken
127.0.0.1 40002 taken
127.0.0.1 40003 taken
127.0.0.1 40004 available
127.0.0.1 40005 available
127.0.0.1 40006 available
127.0.0.1 40007 available
127.0.0.1 40008 available
127.0.0.1 40009 available
127.0.0.1 40010 available
1. 127.0.0.140001
2. 127.0.0.140002
3. 127.0.0.140004
4. 127.0.0.140005
5. 127.0.0.140006
6. 127.0.0.140007
7. 127.0.0.140008
8. 127.0.0.140009
9. 127.0.0.140010
127.0.0.1  40003

 Client listening on 40003


        1. Lookup Files
        2. Exit
        Enter :-
```

Client1 take first ip address and port from bus conf.txt and mark “taken” so that no other client can take same address and port no. Client pass 3arg first is client name second is time to live and 3rd is flush time which holds the record of queryhit.

6. **Press 1 for lookfiles and enter file name and wait for 2sec to collect all response if file is present it will display list of server who contain that files or else list is empty**

```
 Client listening on 60001


        1. Lookup Files
        2. Exit
        Enter :- 1


 Enter File name :- file1.txt
************    Lookup for file    ************
File Not Found

        1. Lookup Files
        2. Exit
        Enter :-
```

```
9. 127.0.0.160010
10. 127.0.0.160011
127.0.0.1  60003

 Client listening on 60003


       1. Lookup Files
       2. Exit
       Enter :- 1


 Enter File name :- file1.txt
************    Lookup for file    ***********
--------------------------------------------------------------------------------
Average Response Time from '3' Clients in Milliseconds: 149
--------------------------------------------------------------------------------
************    Download file    ***********
 1.   Client1   IP:127.0.0.1  Port:60004   Response Time :- 106ms
 2.   Client2   IP:127.0.0.1  Port:60005   Response Time :- 167ms
 3.   Client3   IP:127.0.0.1  Port:60006   Response Time :- 174ms


Select Client to Download (Please Enter No.) :-
```

It displays response time for all clients

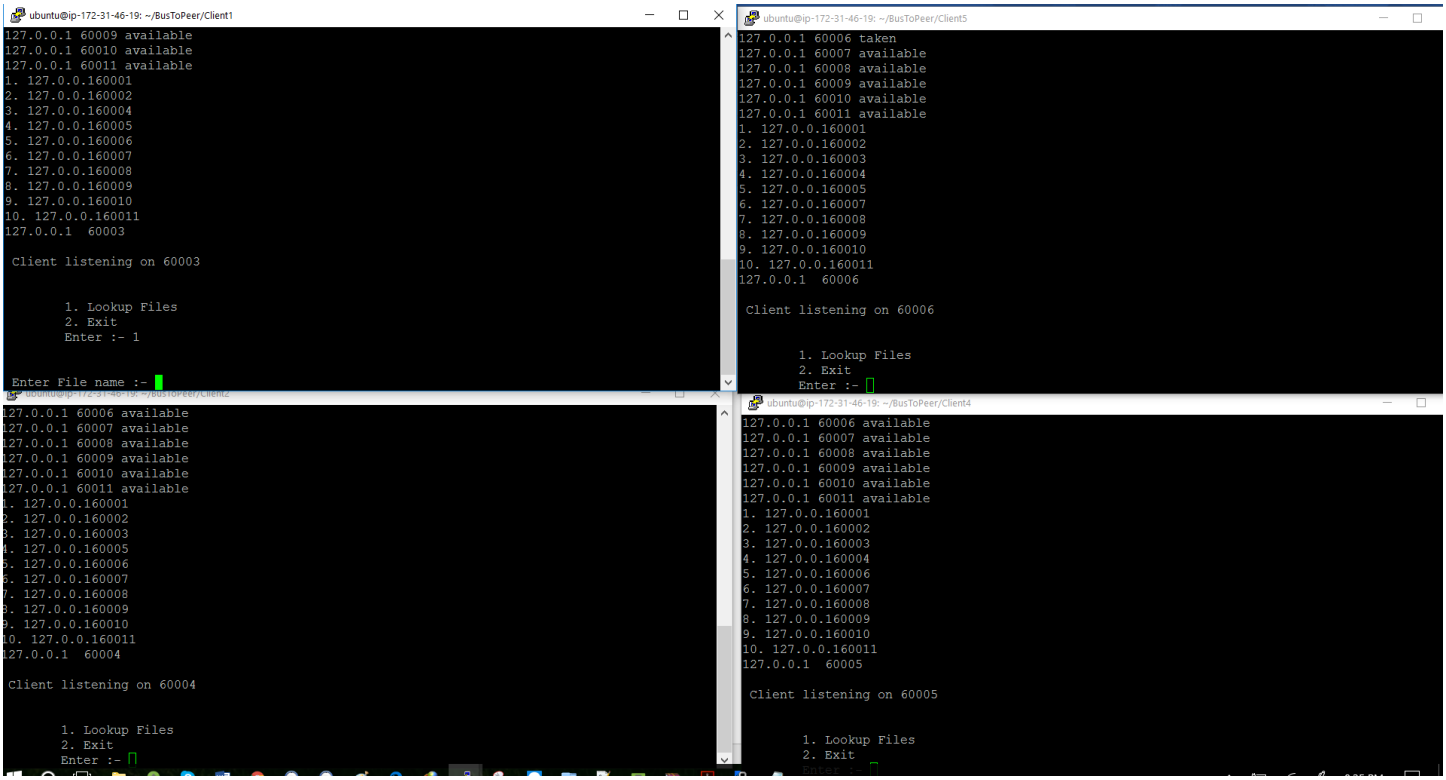
7. **Select Client no. to download file**
8. **After Select client no. Files is download to output folder of client who request for that files.**

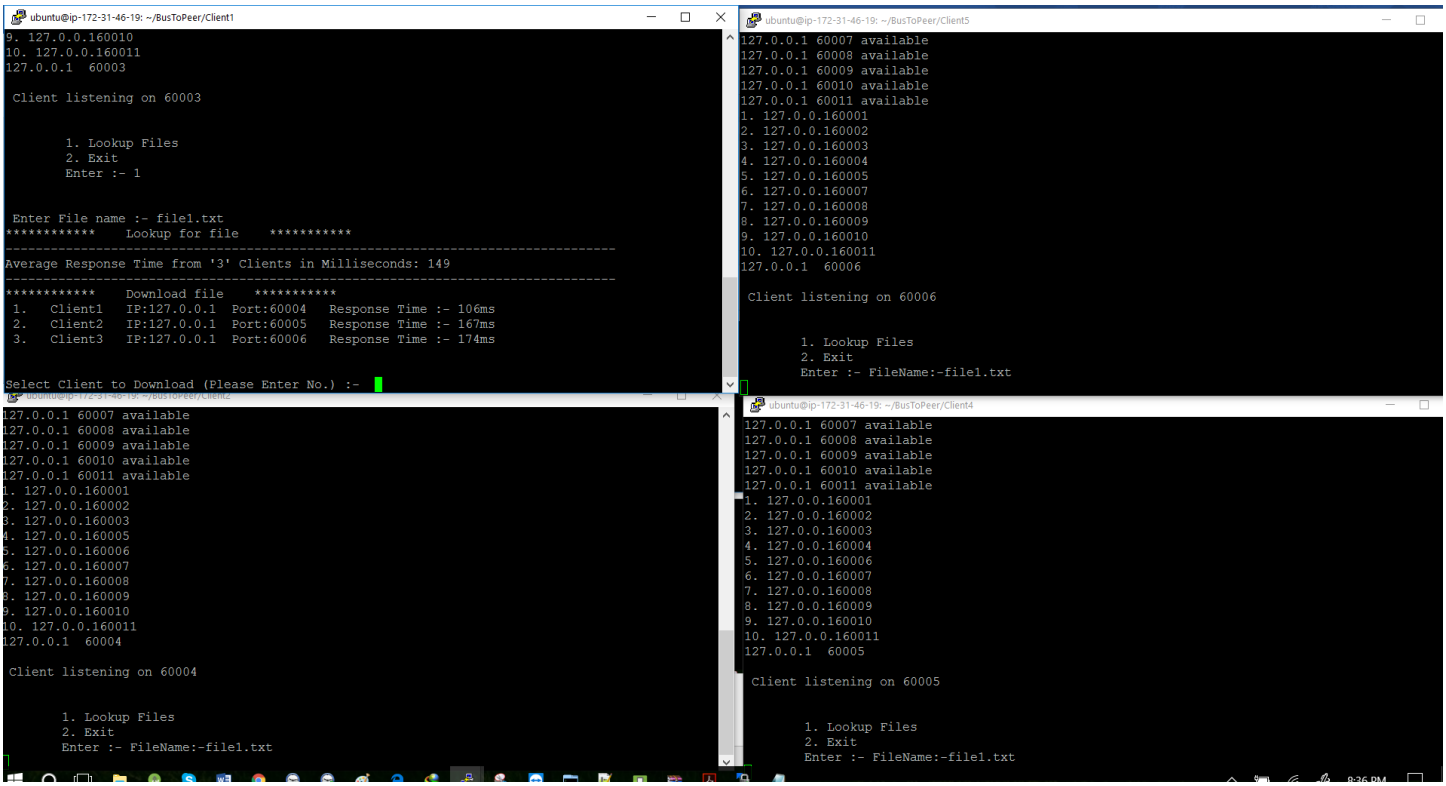
```
 Client listening on 60003


       1. Lookup Files
       2. Exit
       Enter :- 1


 Enter File name :- file1.txt
************    Lookup for file    ***********
--------------------------------------------------------------------------------
Average Response Time from '3' Clients in Milliseconds: 149
--------------------------------------------------------------------------------
************    Download file    ***********
 1.   Client1   IP:127.0.0.1  Port:60004   Response Time :- 106ms
 2.   Client2   IP:127.0.0.1  Port:60005   Response Time :- 167ms
 3.   Client3   IP:127.0.0.1  Port:60006   Response Time :- 174ms


Select Client to Download (Please Enter No.) :-  1
sending request to peer
--------------------------------------------------------------------------------
Transfer Time in milliseconds: 5

Downloaded file :file1.txt File size : 10.93KB

Performance speed 1.99MB/sec
--------------------------------------------------------------------------------


       1. Lookup Files
       2. Exit
       Enter :-
```

Another client is written for both Bus and Star under client name client_200 to sends query request for 200 times to every clients connected to server and download files to check average response and transfer times.

Point to Remember during Execution:-

1. **Makefile under BusToPeer/makefile and StarToPeer/makefile reset all configurations rest makefile under client1/makefile, client2/makefile only compile code and run code**
2. **Please check port is open.**
3. **In conf.file if IP and Port not “available” is “taken” or by any client sent to “taken” please change to “available” if you wants to use that port and ip address.**


ubuntu@ip-172-31-46-19: ~/BusToPeer/Client1
127.0.0.1 60009 available
127.0.0.1 60010 available
127.0.0.1 60011 available
1. 127.0.0.160001
2. 127.0.0.160002
3. 127.0.0.160004
4. 127.0.0.160005
5. 127.0.0.160006
6. 127.0.0.160007
7. 127.0.0.160008
8. 127.0.0.160009
9. 127.0.0.160010
10. 127.0.0.160011
127.0.0.1 60003
Client listening on 60003
1. Lookup Files
2. Exit
Enter :- 1
Enter File name :-
ubuntu@ip-172-31-46-19: ~/BusToPeer/Client5
127.0.0.1 60006 taken
127.0.0.1 60007 available
127.0.0.1 60008 available
127.0.0.1 60009 available
127.0.0.1 60010 available
127.0.0.1 60011 available
1. 127.0.0.160001
2. 127.0.0.160002
3. 127.0.0.160003
4. 127.0.0.160004
5. 127.0.0.160005
6. 127.0.0.160007
7. 127.0.0.160008
8. 127.0.0.160009
9. 127.0.0.160010
10. 127.0.0.160011
127.0.0.1 60006
Client listening on 60006
1. Lookup Files
2. Exit
Enter :-
127.0.0.1 60006 available
127.0.0.1 60007 available
127.0.0.1 60008 available
127.0.0.1 60009 available
127.0.0.1 60010 available
127.0.0.1 60011 available
1. 127.0.0.160001
2. 127.0.0.160002
3. 127.0.0.160003
4. 127.0.0.160005
5. 127.0.0.160006
6. 127.0.0.160007
7. 127.0.0.160008
8. 127.0.0.160009
9. 127.0.0.160010
10. 127.0.0.160011
127.0.0.1 60004
Client listening on 60004
1. Lookup Files
2. Exit
Enter :-
ubuntu@ip-172-31-46-19: ~/BusToPeer/Client4
127.0.0.1 60006 available
127.0.0.1 60007 available
127.0.0.1 60008 available
127.0.0.1 60009 available
127.0.0.1 60010 available
127.0.0.1 60011 available
1. 127.0.0.160001
2. 127.0.0.160002
3. 127.0.0.160003
4. 127.0.0.160004
5. 127.0.0.160006
6. 127.0.0.160007
7. 127.0.0.160008
8. 127.0.0.160009
9. 127.0.0.160010
10. 127.0.0.160011
127.0.0.1 60005
Client listening on 60005
1. Lookup Files
2. Exit


ubuntu@ip-172-31-46-19: ~/BusToPeer/Client1
9. 127.0.0.160010
10. 127.0.0.160011
127.0.0.1 60003
Client listening on 60003
1. Lookup Files
2. Exit
Enter :- 1
Enter File name :- file1.txt
********** Lookup for file **********
Average Response Time from '3' Clients in Milliseconds: 149
********** Download file **********
1. Client1 IP:127.0.0.1 Port:60004 Response Time :- 106ms
2. Client2 IP:127.0.0.1 Port:60005 Response Time :- 167ms
3. Client3 IP:127.0.0.1 Port:60006 Response Time :- 174ms
Select Client to Download (Please Enter No.) :-
ubuntu@ip-172-31-46-19: ~/BusToPeer/Client5
127.0.0.1 60007 available
127.0.0.1 60008 available
127.0.0.1 60009 available
127.0.0.1 60010 available
127.0.0.1 60011 available
1. 127.0.0.160001
2. 127.0.0.160002
3. 127.0.0.160003
4. 127.0.0.160004
5. 127.0.0.160005
6. 127.0.0.160007
7. 127.0.0.160008
8. 127.0.0.160009
9. 127.0.0.160010
10. 127.0.0.160011
127.0.0.1 60006
Client listening on 60006
1. Lookup Files
2. Exit
Enter :- FileName:-file1.txt
127.0.0.1 60007 available
127.0.0.1 60008 available
127.0.0.1 60009 available
127.0.0.1 60010 available
127.0.0.1 60011 available
1. 127.0.0.160001
2. 127.0.0.160002
3. 127.0.0.160003
4. 127.0.0.160004
5. 127.0.0.160006
6. 127.0.0.160007
7. 127.0.0.160008
8. 127.0.0.160009
9. 127.0.0.160010
10. 127.0.0.160011
127.0.0.1 60004
Client listening on 60004
1. Lookup Files
2. Exit
Enter :- FileName:-file1.txt
ubuntu@ip-172-31-46-19: ~/BusToPeer/Client4
127.0.0.1 60007 available
127.0.0.1 60008 available
127.0.0.1 60009 available
127.0.0.1 60010 available
127.0.0.1 60011 available
1. 127.0.0.160001
2. 127.0.0.160002
3. 127.0.0.160003
4. 127.0.0.160004
5. 127.0.0.160006
6. 127.0.0.160007
7. 127.0.0.160008
8. 127.0.0.160009
9. 127.0.0.160010
10. 127.0.0.160011
127.0.0.1 60005
Client listening on 60005
1. Lookup Files
2. Exit
Enter :- FileName:-file1.txt