

**VERIFICATION  
TESTS  
STAR TOPOLOGY**

**[NOTE: We have attach following output files :**

**Busoutputfile.txt: runs 200 time**

**BUSoutputfile.txt and STARoutputfile.txt : runs 1 times for different conditions**

**Star\_200.txt: runs 200 times]**

**Test Case 1: Between 2 Clients, F\_1KB.txt (size: 1KB)**

\*\*\*\*\* Lookup for file \*\*\*\*\*

-----  
Average Response Time from '1' Clients in Milliseconds: 67  
-----

\*\*\*\*\* Download file \*\*\*\*\*

1. Client1 IP:127.0.0.1 Port:40002 Response Time :- 67ms  
-----

Transfer Time in milliseconds: 4

Downloaded file :F\_1KB.txt File size : 1.01KB

Performance speed 0.23MB/sec

---

**Test Case 2: Between 2 Clients, F\_10KB.txt (size: 10KB)**

\*\*\*\*\* Lookup for file \*\*\*\*\*

-----  
Average Response Time from '1' Clients in Milliseconds: 9  
-----

\*\*\*\*\* Download file \*\*\*\*\*

1. Client1 IP:127.0.0.1 Port:40002 Response Time :- 9ms  
-----

Transfer Time in milliseconds: 6

Downloaded file :F\_10KB.txt File size : 10.08KB

Performance speed 1.48MB/sec

---

**Test Case 3: Between 2 Clients, F\_100kb.txt (size: 100KB)**

\*\*\*\*\* Lookup for file \*\*\*\*\*

-----  
Average Response Time from '1' Clients in Milliseconds: 12  
-----

\*\*\*\*\* Download file \*\*\*\*\*

1. Client1 IP:127.0.0.1 Port:40002 Response Time :- 12ms  
-----

Transfer Time in milliseconds: 4

Downloaded file :F\_100kb.txt File size : 100.78KB

Performance speed 21.98MB/sec

#### **Test Case 4: Between 3 Clients, F\_1KB.txt (size: 1KB)**

\*\*\*\*\* Lookup for file \*\*\*\*\*

-----  
Average Response Time from '2' Clients in Milliseconds: 34  
-----

\*\*\*\*\* Download file \*\*\*\*\*

1. Client1 IP:127.0.0.1 Port:40002 Response Time :- 18ms  
-----

Transfer Time in milliseconds: 5

Downloaded file :F\_1KB.txt File size : 1.01KB

Performance speed 0.18MB/sec  
-----

2. Client2 IP:127.0.0.1 Port:40003 Response Time :- 49ms  
-----

Transfer Time in milliseconds: 2

Downloaded file :F\_1KB.txt File size : 1.01KB

Performance speed 0.35MB/sec  
-----

#### **Test Case 5: Between 3 Clients, F\_10KB.txt (size: 10KB)**

\*\*\*\*\* Lookup for file \*\*\*\*\*

-----  
Average Response Time from '2' Clients in Milliseconds: 12  
-----

\*\*\*\*\* Download file \*\*\*\*\*

1. Client1 IP:127.0.0.1 Port:40002 Response Time :- 12ms  
-----

Transfer Time in milliseconds: 5

Downloaded file :F\_10KB.txt File size : 10.08KB

Performance speed 1.73MB/sec  
-----

2. Client2 IP:127.0.0.1 Port:40003 Response Time :- 13ms  
-----

Transfer Time in milliseconds: 5

Downloaded file :F\_10KB.txt File size : 10.08KB

Performance speed 1.9MB/sec  
-----

#### **Test Case 6: Between 3 Clients, F\_100kb.txt (size: 100KB)**

\*\*\*\*\* Lookup for file \*\*\*\*\*

-----  
Average Response Time from '2' Clients in Milliseconds: 16  
-----

-----  
\*\*\*\*\* Download file \*\*\*\*\*

1. Client1 IP:127.0.0.1 Port:40002 Response Time :- 15ms

-----  
Transfer Time in milliseconds: 2

Downloaded file :F\_100kb.txt File size : 100.78KB

Performance speed 43.71MB/sec

-----  
2. Client2 IP:127.0.0.1 Port:40003 Response Time :- 16ms

-----  
Transfer Time in milliseconds: 8

Downloaded file :F\_100kb.txt File size : 100.78KB

Performance speed 12.11MB/sec

---

**Test Case 7: Between 4 Clients, F\_1KB.txt (size: 1KB)**

\*\*\*\*\* Lookup for file \*\*\*\*\*

-----  
Average Response Time from '3' Clients in Milliseconds: 29

-----  
\*\*\*\*\* Download file \*\*\*\*\*

1. Client1 IP:127.0.0.1 Port:40002 Response Time :- 16ms

-----  
Transfer Time in milliseconds: 4

Downloaded file :F\_1KB.txt File size : 1.01KB

Performance speed 0.2MB/sec

-----  
2. Client2 IP:127.0.0.1 Port:40003 Response Time :- 20ms

-----  
Transfer Time in milliseconds: 4

Downloaded file :F\_1KB.txt File size : 1.01KB

Performance speed 0.21MB/sec

-----  
3. Client3 IP:127.0.0.1 Port:40004 Response Time :- 51ms

-----  
Transfer Time in milliseconds: 2

Downloaded file :F\_1KB.txt File size : 1.01KB

Performance speed 0.36MB/sec

-----  
**Test Case 8: Between 4 Clients, F\_10KB.txt (size: 10KB)**

\*\*\*\*\* Lookup for file \*\*\*\*\*

-----  
Average Response Time from '3' Clients in Milliseconds: 17  
-----

\*\*\*\*\* Download file \*\*\*\*\*

1. Client1 IP:127.0.0.1 Port:40004 Response Time :- 15ms  
-----

Transfer Time in milliseconds: 4

Downloaded file :F\_10KB.txt File size : 10.08KB

Performance speed 2.14MB/sec  
-----

2. Client2 IP:127.0.0.1 Port:40003 Response Time :- 18ms  
-----

Transfer Time in milliseconds: 5

Downloaded file :F\_10KB.txt File size : 10.08KB

Performance speed 1.66MB/sec  
-----

3. Client3 IP:127.0.0.1 Port:40002 Response Time :- 19ms  
-----

Transfer Time in milliseconds: 3

Downloaded file :F\_10KB.txt File size : 10.08KB

Performance speed 2.98MB/sec  
-----

**Test Case 9: Between 4 Clients, F\_100kb.txt (size: 100KB)**

\*\*\*\*\* Lookup for file \*\*\*\*\*

-----  
Average Response Time from '3' Clients in Milliseconds: 19  
-----

\*\*\*\*\* Download file \*\*\*\*\*

1. Client1 IP:127.0.0.1 Port:40003 Response Time :- 19ms  
-----

Transfer Time in milliseconds: 3

Downloaded file :F\_100kb.txt File size : 100.78KB

Performance speed 25.93MB/sec  
-----

2. Client2 IP:127.0.0.1 Port:40004 Response Time :- 19ms  
-----

Transfer Time in milliseconds: 5

Downloaded file :F\_100kb.txt File size : 100.78KB

Performance speed 17.71MB/sec

-----  
3. Client3 IP:127.0.0.1 Port:40002 Response Time :- 20ms  
-----

Transfer Time in milliseconds: 6

Downloaded file :F\_100kb.txt File size : 100.78KB

Performance speed 15.51MB/sec

-----  
**Test Case 10: Between 5 Clients, F\_1KB.txt (size: 1KB)**

\*\*\*\*\* Lookup for file \*\*\*\*\*

-----  
Average Response Time from '4' Clients in Milliseconds: 29  
-----

\*\*\*\*\* Download file \*\*\*\*\*

1. Client1 IP:127.0.0.1 Port:40004 Response Time :- 18ms  
-----

Transfer Time in milliseconds: 4

Downloaded file :F\_1KB.txt File size : 1.01KB

Performance speed 0.21MB/sec

-----  
2. Client2 IP:127.0.0.1 Port:40002 Response Time :- 22ms  
-----

Transfer Time in milliseconds: 5

Downloaded file :F\_1KB.txt File size : 1.01KB

Performance speed 0.2MB/sec

-----  
3. Client3 IP:127.0.0.1 Port:40003 Response Time :- 22ms  
-----

Transfer Time in milliseconds: 4

Downloaded file :F\_1KB.txt File size : 1.01KB

Performance speed 0.24MB/sec

-----  
4. Client4 IP:127.0.0.1 Port:40005 Response Time :- 54ms  
-----

Transfer Time in milliseconds: 3

Downloaded file :F\_1KB.txt File size : 1.01KB

Performance speed 0.3MB/sec

### **Test Case 11: Between 5 Clients, F\_10KB.txt (size: 10KB)**

\*\*\*\*\* Lookup for file \*\*\*\*\*

-----  
Average Response Time from '4' Clients in Milliseconds: 20  
-----

\*\*\*\*\* Download file \*\*\*\*\*

1. Client1 IP:127.0.0.1 Port:40005 Response Time :- 19ms  
-----

Transfer Time in milliseconds: 5

Downloaded file :F\_10KB.txt File size : 10.08KB

Performance speed 1.71MB/sec  
-----

2. Client2 IP:127.0.0.1 Port:40004 Response Time :- 19ms  
-----

Transfer Time in milliseconds: 5

Downloaded file :F\_10KB.txt File size : 10.08KB

Performance speed 1.91MB/sec  
-----

3. Client3 IP:127.0.0.1 Port:40003 Response Time :- 20ms  
-----

Transfer Time in milliseconds: 2

Downloaded file :F\_10KB.txt File size : 10.08KB

Performance speed 4.52MB/sec  
-----

4. Client4 IP:127.0.0.1 Port:40002 Response Time :- 20ms  
-----

Transfer Time in milliseconds: 2

Downloaded file :F\_10KB.txt File size : 10.08KB

Performance speed 3.55MB/sec  
-----

### **Test Case 12: Between 5 Clients, F\_100kb.txt (size: 100KB)**

\*\*\*\*\* Lookup for file \*\*\*\*\*

-----  
Average Response Time from '4' Clients in Milliseconds: 27  
-----

\*\*\*\*\* Download file \*\*\*\*\*

1. Client1 IP:127.0.0.1 Port:40004 Response Time :- 22ms  
-----

Transfer Time in milliseconds: 1

Downloaded file :F\_100kb.txt File size : 100.78KB

Performance speed 51.78MB/sec

---

2. Client2 IP:127.0.0.1 Port:40002 Response Time :- 28ms

---

Transfer Time in milliseconds: 2

Downloaded file :F\_100kb.txt File size : 100.78KB

Performance speed 47.1MB/sec

---

3. Client3 IP:127.0.0.1 Port:40003 Response Time :- 28ms

---

Transfer Time in milliseconds: 3

Downloaded file :F\_100kb.txt File size : 100.78KB

Performance speed 26.84MB/sec

---

4. Client4 IP:127.0.0.1 Port:40005 Response Time :- 29ms

---

Transfer Time in milliseconds: 7

Downloaded file :F\_100kb.txt File size : 100.78KB

Performance speed 13.31MB/sec

---

**Test Case 13: Between 6 Clients, F\_1KB.txt (size: 1KB)**

\*\*\*\*\* Lookup for file \*\*\*\*\*

---

Average Response Time from '5' Clients in Milliseconds: 34

---

\*\*\*\*\* Download file \*\*\*\*\*

1. Client1 IP:127.0.0.1 Port:40005 Response Time :- 20ms

---

Transfer Time in milliseconds: 4

Downloaded file :F\_1KB.txt File size : 1.01KB

Performance speed 0.23MB/sec

---

2. Client2 IP:127.0.0.1 Port:40004 Response Time :- 23ms

---

Transfer Time in milliseconds: 4

Downloaded file :F\_1KB.txt File size : 1.01KB

Performance speed 0.24MB/sec

---

3. Client3 IP:127.0.0.1 Port:40003 Response Time :- 32ms

-----  
Transfer Time in milliseconds: 4

Downloaded file :F\_1KB.txt File size : 1.01KB

Performance speed 0.23MB/sec

-----  
4. Client4 IP:127.0.0.1 Port:40002 Response Time :- 36ms

-----  
Transfer Time in milliseconds: 6

Downloaded file :F\_1KB.txt File size : 1.01KB

Performance speed 0.14MB/sec

-----  
5. Client5 IP:127.0.0.1 Port:40006 Response Time :- 61ms

-----  
Transfer Time in milliseconds: 2

Downloaded file :F\_1KB.txt File size : 1.01KB

Performance speed 0.36MB/sec

-----  
**Test Case 14: Between 6 Clients, F\_10KB.txt (size: 10KB)**

\*\*\*\*\* Lookup for file \*\*\*\*\*

-----  
Average Response Time from '5' Clients in Milliseconds: 21

-----  
\*\*\*\*\* Download file \*\*\*\*\*

1. Client1 IP:127.0.0.1 Port:40005 Response Time :- 19ms

-----  
Transfer Time in milliseconds: 6

Downloaded file :F\_10KB.txt File size : 10.08KB

Performance speed 1.46MB/sec

-----  
2. Client2 IP:127.0.0.1 Port:40003 Response Time :- 20ms

-----  
Transfer Time in milliseconds: 1

Downloaded file :F\_10KB.txt File size : 10.08KB

Performance speed 5.35MB/sec

-----  
3. Client3 IP:127.0.0.1 Port:40004 Response Time :- 20ms

-----  
Transfer Time in milliseconds: 7



Downloaded file :F\_10KB.txt File size : 10.08KB

Performance speed 1.4MB/sec

---

4. Client4 IP:127.0.0.1 Port:40006 Response Time :- 21ms

---

Transfer Time in milliseconds: 7

Downloaded file :F\_10KB.txt File size : 10.08KB

Performance speed 1.32MB/sec

---

5. Client5 IP:127.0.0.1 Port:40002 Response Time :- 22ms

---

Transfer Time in milliseconds: 3

Downloaded file :F\_10KB.txt File size : 10.08KB

Performance speed 2.88MB/sec

---

**Test Case 15: Between 6 Clients, F\_100kb.txt (size: 100KB)**

\*\*\*\*\* Lookup for file \*\*\*\*\*

---

Average Response Time from '5' Clients in Milliseconds: 33

---

\*\*\*\*\* Download file \*\*\*\*\*

1. Client1 IP:127.0.0.1 Port:40003 Response Time :- 26ms

---

Transfer Time in milliseconds: 8

Downloaded file :F\_100kb.txt File size : 100.78KB

Performance speed 11.25MB/sec

---

2. Client2 IP:127.0.0.1 Port:40005 Response Time :- 29ms

---

Transfer Time in milliseconds: 1

Downloaded file :F\_100kb.txt File size : 100.78KB

Performance speed 50.02MB/sec

---

3. Client3 IP:127.0.0.1 Port:40004 Response Time :- 29ms

---

Transfer Time in milliseconds: 5

Downloaded file :F\_100kb.txt File size : 100.78KB

Performance speed 17.55MB/sec

---

4. Client4 IP:127.0.0.1 Port:40006 Response Time :- 38ms

---

Transfer Time in milliseconds: 9

Downloaded file :F\_100kb.txt File size : 100.78KB

Performance speed 9.94MB/sec

---

5. Client5 IP:127.0.0.1 Port:40002 Response Time :- 41ms

---

Transfer Time in milliseconds: 1

Downloaded file :F\_100kb.txt File size : 100.78KB

Performance speed 51.94MB/sec

---

**Test Case 16: Between 7 Clients, F\_1KB.txt (size: 1KB)**

\*\*\*\*\* Lookup for file \*\*\*\*\*

---

Average Response Time from '6' Clients in Milliseconds: 29

---

\*\*\*\*\* Download file \*\*\*\*\*

1. Client1 IP:127.0.0.1 Port:40005 Response Time :- 19ms

---

Transfer Time in milliseconds: 3

Downloaded file :F\_1KB.txt File size : 1.01KB

Performance speed 0.25MB/sec

---

2. Client2 IP:127.0.0.1 Port:40006 Response Time :- 21ms

---

Transfer Time in milliseconds: 2

Downloaded file :F\_1KB.txt File size : 1.01KB

Performance speed 0.36MB/sec

---

3. Client3 IP:127.0.0.1 Port:40003 Response Time :- 23ms

---

Transfer Time in milliseconds: 7

Downloaded file :F\_1KB.txt File size : 1.01KB

Performance speed 0.13MB/sec

---

4. Client4 IP:127.0.0.1 Port:40004 Response Time :- 27ms

---

Transfer Time in milliseconds: 4

Downloaded file :F\_1KB.txt File size : 1.01KB

Performance speed 0.22MB/sec

---

5. Client5 IP:127.0.0.1 Port:40002 Response Time :- 27ms

---

Transfer Time in milliseconds: 2

Downloaded file :F\_1KB.txt File size : 1.01KB

Performance speed 0.39MB/sec

---

6. Client6 IP:127.0.0.1 Port:40007 Response Time :- 58ms

---

Transfer Time in milliseconds: 2

Downloaded file :F\_1KB.txt File size : 1.01KB

Performance speed 0.39MB/sec

---

**Test Case 17: Between 7 Clients, F\_10KB.txt (size: 10KB)**

\*\*\*\*\* Lookup for file \*\*\*\*\*

---

Average Response Time from '6' Clients in Milliseconds: 22

---

\*\*\*\*\* Download file \*\*\*\*\*

1. Client1 IP:127.0.0.1 Port:40006 Response Time :- 20ms

---

Transfer Time in milliseconds: 9

Downloaded file :F\_10KB.txt File size : 10.08KB

Performance speed 1.08MB/sec

---

2. Client2 IP:127.0.0.1 Port:40003 Response Time :- 21ms

---

Transfer Time in milliseconds: 3

Downloaded file :F\_10KB.txt File size : 10.08KB

Performance speed 2.74MB/sec

---

3. Client3 IP:127.0.0.1 Port:40007 Response Time :- 22ms

---

Transfer Time in milliseconds: 10

Downloaded file :F\_10KB.txt File size : 10.08KB

Performance speed 0.9MB/sec

---

4. Client4 IP:127.0.0.1 Port:40004 Response Time :- 22ms

---

Transfer Time in milliseconds: 1

Downloaded file :F\_10KB.txt File size : 10.08KB

Performance speed 7.34MB/sec

---

5. Client5 IP:127.0.0.1 Port:40005 Response Time :- 23ms

---

Transfer Time in milliseconds: 1

Downloaded file :F\_10KB.txt File size : 10.08KB

Performance speed 5.52MB/sec

---

6. Client6 IP:127.0.0.1 Port:40002 Response Time :- 24ms

---

Transfer Time in milliseconds: 4

Downloaded file :F\_10KB.txt File size : 10.08KB

Performance speed 2.27MB/sec

---

**Test Case 18: Between 7 Clients, F\_100kb.txt (size: 100KB)**

\*\*\*\*\* Lookup for file \*\*\*\*\*

---

Average Response Time from '6' Clients in Milliseconds: 31

---

\*\*\*\*\* Download file \*\*\*\*\*

---

1. Client1 IP:127.0.0.1 Port:40005 Response Time :- 26ms

---

Transfer Time in milliseconds: 3

Downloaded file :F\_100kb.txt File size : 100.78KB

Performance speed 31.34MB/sec

---

2. Client2 IP:127.0.0.1 Port:40004 Response Time :- 31ms

---

Transfer Time in milliseconds: 6

Downloaded file :F\_100kb.txt File size : 100.78KB

Performance speed 14.77MB/sec

---

3. Client3 IP:127.0.0.1 Port:40006 Response Time :- 31ms

---

Transfer Time in milliseconds: 7

Downloaded file :F\_100kb.txt File size : 100.78KB

Performance speed 14.03MB/sec

---

4. Client4 IP:127.0.0.1 Port:40003 Response Time :- 31ms

---

Transfer Time in milliseconds: 1

Downloaded file :F\_100kb.txt File size : 100.78KB

Performance speed 49.99MB/sec

---

5. Client5 IP:127.0.0.1 Port:40007 Response Time :- 33ms

---

Transfer Time in milliseconds: 6

Downloaded file :F\_100kb.txt File size : 100.78KB

Performance speed 14.58MB/sec

---

6. Client6 IP:127.0.0.1 Port:40002 Response Time :- 34ms

---

Transfer Time in milliseconds: 4

Downloaded file :F\_100kb.txt File size : 100.78KB

Performance speed 19.7MB/sec

---

**Test Case 19: Between 8 Clients, F\_1KB.txt (size: 1KB)**

\*\*\*\*\* Lookup for file \*\*\*\*\*

---

Average Response Time from '7' Clients in Milliseconds: 39

---

\*\*\*\*\* Download file \*\*\*\*\*

1. Client1 IP:127.0.0.1 Port:40006 Response Time :- 22ms

---

Transfer Time in milliseconds: 8

Downloaded file :F\_1KB.txt File size : 1.01KB

Performance speed 0.11MB/sec

---

2. Client2 IP:127.0.0.1 Port:40004 Response Time :- 28ms

---

Transfer Time in milliseconds: 7

Downloaded file :F\_1KB.txt File size : 1.01KB

Performance speed 0.12MB/sec

---

3. Client3 IP:127.0.0.1 Port:40007 Response Time :- 33ms

---

Transfer Time in milliseconds: 3

Downloaded file :F\_1KB.txt File size : 1.01KB

Performance speed 0.27MB/sec

---

4. Client4 IP:127.0.0.1 Port:40005 Response Time :- 34ms

---

Transfer Time in milliseconds: 4

Downloaded file :F\_1KB.txt File size : 1.01KB

Performance speed 0.23MB/sec

---

5. Client5 IP:127.0.0.1 Port:40003 Response Time :- 34ms

---

Transfer Time in milliseconds: 6

Downloaded file :F\_1KB.txt File size : 1.01KB

Performance speed 0.15MB/sec

---

6. Client6 IP:127.0.0.1 Port:40002 Response Time :- 48ms

---

Transfer Time in milliseconds: 2

Downloaded file :F\_1KB.txt File size : 1.01KB

Performance speed 0.46MB/sec

---

7. Client7 IP:127.0.0.1 Port:40008 Response Time :- 70ms

---

Transfer Time in milliseconds: 2

Downloaded file :F\_1KB.txt File size : 1.01KB

Performance speed 0.35MB/sec

---

**Test Case 20: Between 8 Clients, F\_10KB.txt (size: 10KB)**

\*\*\*\*\* Lookup for file \*\*\*\*\*

---

Average Response Time from '7' Clients in Milliseconds: 26

---

\*\*\*\*\* Download file \*\*\*\*\*

1. Client1 IP:127.0.0.1 Port:40007 Response Time :- 20ms

---

Transfer Time in milliseconds: 6

Downloaded file :F\_10KB.txt File size : 10.08KB

Performance speed 1.61MB/sec

---

2. Client2 IP:127.0.0.1 Port:40005 Response Time :- 23ms

---

Transfer Time in milliseconds: 1

Downloaded file :F\_10KB.txt File size : 10.08KB

Performance speed 5.95MB/sec

---

3. Client3 IP:127.0.0.1 Port:40008 Response Time :- 23ms

---

Transfer Time in milliseconds: 3

Downloaded file :F\_10KB.txt File size : 10.08KB

Performance speed 2.5MB/sec

---

4. Client4 IP:127.0.0.1 Port:40006 Response Time :- 23ms

---

Transfer Time in milliseconds: 2

Downloaded file :F\_10KB.txt File size : 10.08KB

Performance speed 4.23MB/sec

---

5. Client5 IP:127.0.0.1 Port:40004 Response Time :- 24ms

---

Transfer Time in milliseconds: 4

Downloaded file :F\_10KB.txt File size : 10.08KB

Performance speed 2.43MB/sec

---

6. Client6 IP:127.0.0.1 Port:40003 Response Time :- 30ms

---

Transfer Time in milliseconds: 4

Downloaded file :F\_10KB.txt File size : 10.08KB

Performance speed 2.18MB/sec

---

7. Client7 IP:127.0.0.1 Port:40002 Response Time :- 36ms

---

Transfer Time in milliseconds: 2

Downloaded file :F\_10KB.txt File size : 10.08KB

Performance speed 4.36MB/sec

---

**Test Case 21: Between 8 Clients, F\_100kb.txt (size: 100KB)**

\*\*\*\*\* Lookup for file \*\*\*\*\*

---

Average Response Time from '7' Clients in Milliseconds: 32

---

\*\*\*\*\* Download file \*\*\*\*\*

1. Client1 IP:127.0.0.1 Port:40005 Response Time :- 29ms

---

Transfer Time in milliseconds: 2

Downloaded file :F\_100kb.txt File size : 100.78KB

Performance speed 38.51MB/sec

---

2. Client2 IP:127.0.0.1 Port:40007 Response Time :- 32ms

---

Transfer Time in milliseconds: 4

Downloaded file :F\_100kb.txt File size : 100.78KB

Performance speed 21.49MB/sec

---

3. Client3 IP:127.0.0.1 Port:40006 Response Time :- 32ms

---

Transfer Time in milliseconds: 3

Downloaded file :F\_100kb.txt File size : 100.78KB

Performance speed 29.36MB/sec

---

4. Client4 IP:127.0.0.1 Port:40004 Response Time :- 33ms

---

Transfer Time in milliseconds: 2

Downloaded file :F\_100kb.txt File size : 100.78KB

Performance speed 41.74MB/sec

---

5. Client5 IP:127.0.0.1 Port:40002 Response Time :- 33ms



-----  
Transfer Time in milliseconds: 5

Downloaded file :F\_100kb.txt File size : 100.78KB

Performance speed 18.64MB/sec  
-----

6. Client6 IP:127.0.0.1 Port:40008 Response Time :- 34ms  
-----

Transfer Time in milliseconds: 5

Downloaded file :F\_100kb.txt File size : 100.78KB

Performance speed 17.57MB/sec  
-----

7. Client7 IP:127.0.0.1 Port:40003 Response Time :- 34ms  
-----

Transfer Time in milliseconds: 13

Downloaded file :F\_100kb.txt File size : 100.78KB

Performance speed 7.41MB/sec  
-----

**Test Case 22: Between 9 Clients, F\_1KB.txt (size: 1KB)**

\*\*\*\*\* Lookup for file \*\*\*\*\*  
-----

Average Response Time from '8' Clients in Milliseconds: 36  
-----

\*\*\*\*\* Download file \*\*\*\*\*

1. Client1 IP:127.0.0.1 Port:40007 Response Time :- 25ms  
-----

Transfer Time in milliseconds: 5

Downloaded file :F\_1KB.txt File size : 1.01KB

Performance speed 0.16MB/sec  
-----

2. Client2 IP:127.0.0.1 Port:40008 Response Time :- 27ms  
-----

Transfer Time in milliseconds: 12

Downloaded file :F\_1KB.txt File size : 1.01KB

Performance speed 0.08MB/sec  
-----

3. Client3 IP:127.0.0.1 Port:40006 Response Time :- 30ms  
-----

Transfer Time in milliseconds: 4

Downloaded file :F\_1KB.txt File size : 1.01KB

Performance speed 0.23MB/sec

---

4. Client4 IP:127.0.0.1 Port:40005 Response Time :- 33ms

---

Transfer Time in milliseconds: 7

Downloaded file :F\_1KB.txt File size : 1.01KB

Performance speed 0.14MB/sec

---

5. Client5 IP:127.0.0.1 Port:40004 Response Time :- 33ms

---

Transfer Time in milliseconds: 12

Downloaded file :F\_1KB.txt File size : 1.01KB

Performance speed 0.08MB/sec

---

6. Client6 IP:127.0.0.1 Port:40002 Response Time :- 34ms

---

Transfer Time in milliseconds: 1

Downloaded file :F\_1KB.txt File size : 1.01KB

Performance speed 0.76MB/sec

---

7. Client7 IP:127.0.0.1 Port:40003 Response Time :- 43ms

---

Transfer Time in milliseconds: 1

Downloaded file :F\_1KB.txt File size : 1.01KB

Performance speed 0.52MB/sec

---

8. Client8 IP:127.0.0.1 Port:40009 Response Time :- 61ms

---

Transfer Time in milliseconds: 2

Downloaded file :F\_1KB.txt File size : 1.01KB

Performance speed 0.36MB/sec

---

**Test Case 23: Between 9 Clients, F\_10KB.txt (size: 10KB)**

\*\*\*\*\* Lookup for file \*\*\*\*\*

---

Average Response Time from '8' Clients in Milliseconds: 31

---

\*\*\*\*\* Download file \*\*\*\*\*

1. Client1 IP:127.0.0.1 Port:40005 Response Time :- 27ms

---

Transfer Time in milliseconds: 3

Downloaded file :F\_10KB.txt File size : 10.08KB

Performance speed 2.92MB/sec

---

2. Client2 IP:127.0.0.1 Port:40006 Response Time :- 29ms

---

Transfer Time in milliseconds: 1

Downloaded file :F\_10KB.txt File size : 10.08KB

Performance speed 6.27MB/sec

---

3. Client3 IP:127.0.0.1 Port:40008 Response Time :- 30ms

---

Transfer Time in milliseconds: 5

Downloaded file :F\_10KB.txt File size : 10.08KB

Performance speed 1.95MB/sec

---

4. Client4 IP:127.0.0.1 Port:40004 Response Time :- 30ms

---

Transfer Time in milliseconds: 3

Downloaded file :F\_10KB.txt File size : 10.08KB

Performance speed 2.69MB/sec

---

5. Client5 IP:127.0.0.1 Port:40007 Response Time :- 30ms

---

Transfer Time in milliseconds: 2

Downloaded file :F\_10KB.txt File size : 10.08KB

Performance speed 3.7MB/sec

---

6. Client6 IP:127.0.0.1 Port:40003 Response Time :- 34ms

---

Transfer Time in milliseconds: 1

Downloaded file :F\_10KB.txt File size : 10.08KB

Performance speed 5.14MB/sec

---

7. Client7 IP:127.0.0.1 Port:40002 Response Time :- 35ms

-----  
Transfer Time in milliseconds: 1

Downloaded file :F\_10KB.txt File size : 10.08KB

Performance speed 6.6MB/sec

-----  
8. Client8 IP:127.0.0.1 Port:40009 Response Time :- 36ms

-----  
Transfer Time in milliseconds: 5

Downloaded file :F\_10KB.txt File size : 10.08KB

Performance speed 1.94MB/sec

-----  
**Test Case 24: Between 9 Clients, F\_100kb.txt (size: 100KB)**

\*\*\*\*\* Lookup for file \*\*\*\*\*

-----  
Average Response Time from '8' Clients in Milliseconds: 40

-----  
\*\*\*\*\* Download file \*\*\*\*\*

1. Client1 IP:127.0.0.1 Port:40005 Response Time :- 34ms

-----  
Transfer Time in milliseconds: 2

Downloaded file :F\_100kb.txt File size : 100.78KB

Performance speed 37.8MB/sec

-----  
2. Client2 IP:127.0.0.1 Port:40007 Response Time :- 37ms

-----  
Transfer Time in milliseconds: 3

Downloaded file :F\_100kb.txt File size : 100.78KB

Performance speed 32.42MB/sec

-----  
3. Client3 IP:127.0.0.1 Port:40006 Response Time :- 37ms

-----  
Transfer Time in milliseconds: 2

Downloaded file :F\_100kb.txt File size : 100.78KB

Performance speed 33.81MB/sec

-----  
4. Client4 IP:127.0.0.1 Port:40008 Response Time :- 38ms

-----  
Transfer Time in milliseconds: 2

Downloaded file :F\_100kb.txt File size : 100.78KB

Performance speed 46.86MB/sec

-----  
5. Client5 IP:127.0.0.1 Port:40004 Response Time :- 39ms  
-----

Transfer Time in milliseconds: 4

Downloaded file :F\_100kb.txt File size : 100.78KB

Performance speed 20.84MB/sec

-----  
6. Client6 IP:127.0.0.1 Port:40003 Response Time :- 43ms  
-----

Transfer Time in milliseconds: 6

Downloaded file :F\_100kb.txt File size : 100.78KB

Performance speed 15.45MB/sec

-----  
7. Client7 IP:127.0.0.1 Port:40002 Response Time :- 44ms  
-----

Transfer Time in milliseconds: 4

Downloaded file :F\_100kb.txt File size : 100.78KB

Performance speed 21.44MB/sec

-----  
8. Client8 IP:127.0.0.1 Port:40009 Response Time :- 44ms  
-----

Transfer Time in milliseconds: 4

Downloaded file :F\_100kb.txt File size : 100.78KB

Performance speed 19.86MB/sec

-----  
**Test Case 25: Between 10 Clients, F\_1KB.txt (size: 1KB)**

\*\*\*\*\* Lookup for file \*\*\*\*\*

-----  
Average Response Time from '9' Clients in Milliseconds: 44  
-----

\*\*\*\*\* Download file \*\*\*\*\*

1. Client1 IP:127.0.0.1 Port:40008 Response Time :- 29ms  
-----

Transfer Time in milliseconds: 3

Downloaded file :F\_1KB.txt File size : 1.01KB

Performance speed 0.26MB/sec

---

2. Client2 IP:127.0.0.1 Port:40006 Response Time :- 32ms

---

Transfer Time in milliseconds: 7

Downloaded file :F\_1KB.txt File size : 1.01KB

Performance speed 0.14MB/sec

---

3. Client3 IP:127.0.0.1 Port:40009 Response Time :- 36ms

---

Transfer Time in milliseconds: 2

Downloaded file :F\_1KB.txt File size : 1.01KB

Performance speed 0.37MB/sec

---

4. Client4 IP:127.0.0.1 Port:40007 Response Time :- 36ms

---

Transfer Time in milliseconds: 4

Downloaded file :F\_1KB.txt File size : 1.01KB

Performance speed 0.22MB/sec

---

5. Client5 IP:127.0.0.1 Port:40005 Response Time :- 39ms

---

Transfer Time in milliseconds: 1

Downloaded file :F\_1KB.txt File size : 1.01KB

Performance speed 0.67MB/sec

---

6. Client6 IP:127.0.0.1 Port:40004 Response Time :- 45ms

---

Transfer Time in milliseconds: 2

Downloaded file :F\_1KB.txt File size : 1.01KB

Performance speed 0.35MB/sec

---

7. Client7 IP:127.0.0.1 Port:40002 Response Time :- 47ms

---

Transfer Time in milliseconds: 1

Downloaded file :F\_1KB.txt File size : 1.01KB

Performance speed 0.59MB/sec

---

8. Client8 IP:127.0.0.1 Port:40003 Response Time :- 61ms

---

Transfer Time in milliseconds: 2

Downloaded file :F\_1KB.txt File size : 1.01KB

Performance speed 0.46MB/sec

---

9. Client9 IP:127.0.0.1 Port:40010 Response Time :- 71ms

---

Transfer Time in milliseconds: 3

Downloaded file :F\_1KB.txt File size : 1.01KB

Performance speed 0.28MB/sec

---

**Test Case 26: Between 10 Clients, F\_10KB.txt (size: 10KB)**

\*\*\*\*\* Lookup for file \*\*\*\*\*

---

Average Response Time from '9' Clients in Milliseconds: 33

---

\*\*\*\*\* Download file \*\*\*\*\*

1. Client1 IP:127.0.0.1 Port:40006 Response Time :- 24ms

---

Transfer Time in milliseconds: 3

Downloaded file :F\_10KB.txt File size : 10.08KB

Performance speed 2.62MB/sec

---

2. Client2 IP:127.0.0.1 Port:40009 Response Time :- 32ms

---

Transfer Time in milliseconds: 6

Downloaded file :F\_10KB.txt File size : 10.08KB

Performance speed 1.63MB/sec

---

3. Client3 IP:127.0.0.1 Port:40005 Response Time :- 32ms

---

Transfer Time in milliseconds: 3

Downloaded file :F\_10KB.txt File size : 10.08KB

Performance speed 2.63MB/sec

---

4. Client4 IP:127.0.0.1 Port:40007 Response Time :- 33ms

-----  
Transfer Time in milliseconds: 3

Downloaded file :F\_10KB.txt File size : 10.08KB

Performance speed 3.1MB/sec  
-----

5. Client5 IP:127.0.0.1 Port:40008 Response Time :- 33ms  
-----

Transfer Time in milliseconds: 5

Downloaded file :F\_10KB.txt File size : 10.08KB

Performance speed 1.73MB/sec  
-----

6. Client6 IP:127.0.0.1 Port:40010 Response Time :- 33ms  
-----

Transfer Time in milliseconds: 11

Downloaded file :F\_10KB.txt File size : 10.08KB

Performance speed 0.88MB/sec  
-----

7. Client7 IP:127.0.0.1 Port:40004 Response Time :- 34ms  
-----

Transfer Time in milliseconds: 1

Downloaded file :F\_10KB.txt File size : 10.08KB

Performance speed 5.14MB/sec  
-----

8. Client8 IP:127.0.0.1 Port:40003 Response Time :- 35ms  
-----

Transfer Time in milliseconds: 1

Downloaded file :F\_10KB.txt File size : 10.08KB

Performance speed 6.94MB/sec  
-----

9. Client9 IP:127.0.0.1 Port:40002 Response Time :- 39ms  
-----

Transfer Time in milliseconds: 4

Downloaded file :F\_10KB.txt File size : 10.08KB

Performance speed 2.45MB/sec  
-----

**Test Case 27: Between 10 Clients, F\_100kb.txt (size: 100KB)**

\*\*\*\*\* Lookup for file \*\*\*\*\*



-----  
Average Response Time from '9' Clients in Milliseconds: 40  
-----

\*\*\*\*\* Download file \*\*\*\*\*

1. Client1 IP:127.0.0.1 Port:40006 Response Time :- 30ms  
-----

Transfer Time in milliseconds: 1

Downloaded file :F\_100kb.txt File size : 100.78KB

Performance speed 50.31MB/sec  
-----

2. Client2 IP:127.0.0.1 Port:40009 Response Time :- 35ms  
-----

Transfer Time in milliseconds: 5

Downloaded file :F\_100kb.txt File size : 100.78KB

Performance speed 16.48MB/sec  
-----

3. Client3 IP:127.0.0.1 Port:40007 Response Time :- 36ms  
-----

Transfer Time in milliseconds: 3

Downloaded file :F\_100kb.txt File size : 100.78KB

Performance speed 27.01MB/sec  
-----

4. Client4 IP:127.0.0.1 Port:40008 Response Time :- 39ms  
-----

Transfer Time in milliseconds: 3

Downloaded file :F\_100kb.txt File size : 100.78KB

Performance speed 30.58MB/sec  
-----

5. Client5 IP:127.0.0.1 Port:40005 Response Time :- 40ms  
-----

Transfer Time in milliseconds: 4

Downloaded file :F\_100kb.txt File size : 100.78KB

Performance speed 20.81MB/sec  
-----

6. Client6 IP:127.0.0.1 Port:40010 Response Time :- 43ms  
-----

Transfer Time in milliseconds: 3

Downloaded file :F\_100kb.txt File size : 100.78KB

Performance speed 31.86MB/sec

---

7. Client7 IP:127.0.0.1 Port:40003 Response Time :- 44ms

---

Transfer Time in milliseconds: 13

Downloaded file :F\_100kb.txt File size : 100.78KB

Performance speed 7.3MB/sec

---

8. Client8 IP:127.0.0.1 Port:40004 Response Time :- 44ms

---

Transfer Time in milliseconds: 6

Downloaded file :F\_100kb.txt File size : 100.78KB

Performance speed 14.3MB/sec

---

9. Client9 IP:127.0.0.1 Port:40002 Response Time :- 46ms

---

Transfer Time in milliseconds: 1

Downloaded file :F\_100kb.txt File size : 100.78KB

Performance speed 49.91MB/sec

---

**Few more test cases screen shots :**



# VERIFICATION TESTS BUS TOPOLOGY

## Test Case 1: Between 2 Clients, F\_1KB.txt (size: 1KB)

\*\*\*\*\* Lookup for file \*\*\*\*\*

-----  
Average Response Time from '1' Clients in Milliseconds: 71  
-----

\*\*\*\*\* Download file \*\*\*\*\*

1. Client1 IP:127.0.0.1 Port:40002 Response Time :- 71ms  
-----

Transfer Time in milliseconds: 3

Downloaded file :F\_1KB.txt File size : 1.01KB

Performance speed 0.29MB/sec  
-----  
-----

Average Transfer Time from '1' Clients in Milliseconds: 3ms  
-----

## Test Case 2: Between 2 Clients, F\_10KB.txt (size: 10KB)

\*\*\*\*\* Lookup for file \*\*\*\*\*

-----  
Average Response Time from '1' Clients in Milliseconds: 12  
-----

\*\*\*\*\* Download file \*\*\*\*\*

1. Client1 IP:127.0.0.1 Port:40002 Response Time :- 12ms  
-----

Transfer Time in milliseconds: 9

Downloaded file :F\_10KB.txt File size : 10.08KB

Performance speed 1.01MB/sec  
-----  
-----

Average Transfer Time from '1' Clients in Milliseconds: 9ms  
-----

## Test Case 3: Between 2 Clients, F\_100kb.txt (size: 100KB)

\*\*\*\*\* Lookup for file \*\*\*\*\*

-----  
Average Response Time from '1' Clients in Milliseconds: 12  
-----

\*\*\*\*\* Download file \*\*\*\*\*

1. Client1 IP:127.0.0.1 Port:40002 Response Time :- 12ms  
-----

Transfer Time in milliseconds: 7

Downloaded file :F\_100kb.txt File size : 100.78KB

Performance speed 13.54MB/sec

-----  
Average Transfer Time from '1' Clients in Milliseconds: 7ms  
-----

**Test Case 4: Between 3 Clients, F\_1KB.txt (size: 1KB)**

\*\*\*\*\* Lookup for file \*\*\*\*\*

-----  
Average Response Time from '2' Clients in Milliseconds: 32  
-----

\*\*\*\*\* Download file \*\*\*\*\*

1. Client1 IP:127.0.0.1 Port:40002 Response Time :- 15ms  
-----

Transfer Time in milliseconds: 1

Downloaded file :F\_1KB.txt File size : 1.01KB

Performance speed 0.51MB/sec

-----  
2. Client2 IP:127.0.0.1 Port:40003 Response Time :- 49ms  
-----

Transfer Time in milliseconds: 4

Downloaded file :F\_1KB.txt File size : 1.01KB

Performance speed 0.21MB/sec

-----  
Average Transfer Time from '2' Clients in Milliseconds: 2ms  
-----

**Test Case 5: Between 3 Clients, F\_10KB.txt (size: 10KB)**

\*\*\*\*\* Lookup for file \*\*\*\*\*

-----  
Average Response Time from '2' Clients in Milliseconds: 20  
-----

\*\*\*\*\* Download file \*\*\*\*\*

1. Client1 IP:127.0.0.1 Port:40002 Response Time :- 18ms  
-----

Transfer Time in milliseconds: 2

Downloaded file :F\_10KB.txt File size : 10.08KB

Performance speed 3.81MB/sec

-----  
2. Client2 IP:127.0.0.1 Port:40003 Response Time :- 23ms  
-----

Transfer Time in milliseconds: 7

Downloaded file :F\_10KB.txt File size : 10.08KB

Performance speed 1.34MB/sec

---

Average Transfer Time from '2' Clients in Milliseconds: 4ms

---

**Test Case 6: Between 3 Clients, F\_100kb.txt (size: 100KB)**

\*\*\*\*\* Lookup for file \*\*\*\*\*

---

Average Response Time from '2' Clients in Milliseconds: 24

---

\*\*\*\*\* Download file \*\*\*\*\*

1. Client1 IP:127.0.0.1 Port:40003 Response Time :- 21ms

---

Transfer Time in milliseconds: 3

Downloaded file :F\_100kb.txt File size : 100.78KB

Performance speed 31.33MB/sec

---

2. Client2 IP:127.0.0.1 Port:40002 Response Time :- 27ms

---

Transfer Time in milliseconds: 6

Downloaded file :F\_100kb.txt File size : 100.78KB

Performance speed 15.68MB/sec

---

Average Transfer Time from '2' Clients in Milliseconds: 4ms

---

**Test Case 7: Between 4 Clients, F\_1KB.txt (size: 1KB)**

\*\*\*\*\* Lookup for file \*\*\*\*\*

---

Average Response Time from '3' Clients in Milliseconds: 43

---

\*\*\*\*\* Download file \*\*\*\*\*

1. Client1 IP:127.0.0.1 Port:40003 Response Time :- 19ms

---

Transfer Time in milliseconds: 4

Downloaded file :F\_1KB.txt File size : 1.01KB

Performance speed 0.22MB/sec

---

2. Client2 IP:127.0.0.1 Port:40002 Response Time :- 32ms

-----  
Transfer Time in milliseconds: 5

Downloaded file :F\_1KB.txt File size : 1.01KB

Performance speed 0.19MB/sec  
-----

3. Client3 IP:127.0.0.1 Port:40004 Response Time :- 77ms  
-----

Transfer Time in milliseconds: 3

Downloaded file :F\_1KB.txt File size : 1.01KB

Performance speed 0.32MB/sec  
-----  
-----

Average Transfer Time from '3' Clients in Milliseconds: 4ms

---

**Test Case 8: Between 4 Clients, F\_10KB.txt (size: 10KB)**

\*\*\*\*\* Lookup for file \*\*\*\*\*  
-----

Average Response Time from '3' Clients in Milliseconds: 35  
-----

\*\*\*\*\* Download file \*\*\*\*\*

1. Client1 IP:127.0.0.1 Port:40004 Response Time :- 16ms  
-----

Transfer Time in milliseconds: 7

Downloaded file :F\_10KB.txt File size : 10.08KB

Performance speed 1.25MB/sec  
-----

2. Client2 IP:127.0.0.1 Port:40002 Response Time :- 45ms  
-----

Transfer Time in milliseconds: 6

Downloaded file :F\_10KB.txt File size : 10.08KB

Performance speed 1.42MB/sec  
-----

3. Client3 IP:127.0.0.1 Port:40003 Response Time :- 46ms  
-----

Transfer Time in milliseconds: 6

Downloaded file :F\_10KB.txt File size : 10.08KB

Performance speed 1.52MB/sec  
-----  
-----

Average Transfer Time from '3' Clients in Milliseconds: 6ms

---

**Test Case 9: Between 4 Clients, F\_100kb.txt (size: 100KB)**

\*\*\*\*\* Lookup for file \*\*\*\*\*

-----  
Average Response Time from '3' Clients in Milliseconds: 28  
-----

\*\*\*\*\* Download file \*\*\*\*\*

1. Client1 IP:127.0.0.1 Port:40004 Response Time :- 20ms  
-----

Transfer Time in milliseconds: 3

Downloaded file :F\_100kb.txt File size : 100.78KB

Performance speed 32.72MB/sec  
-----

2. Client2 IP:127.0.0.1 Port:40003 Response Time :- 26ms  
-----

Transfer Time in milliseconds: 6

Downloaded file :F\_100kb.txt File size : 100.78KB

Performance speed 15.83MB/sec  
-----

3. Client3 IP:127.0.0.1 Port:40002 Response Time :- 38ms  
-----

Transfer Time in milliseconds: 4

Downloaded file :F\_100kb.txt File size : 100.78KB

Performance speed 22.09MB/sec  
-----  
-----

Average Transfer Time from '3' Clients in Milliseconds: 4ms  
-----

**Test Case 10: Between 5 Clients, F\_1KB.txt (size: 1KB)**

\*\*\*\*\* Lookup for file \*\*\*\*\*

-----  
Average Response Time from '4' Clients in Milliseconds: 47  
-----

\*\*\*\*\* Download file \*\*\*\*\*

1. Client1 IP:127.0.0.1 Port:40004 Response Time :- 26ms  
-----

Transfer Time in milliseconds: 2

Downloaded file :F\_1KB.txt File size : 1.01KB

Performance speed 0.41MB/sec  
-----

2. Client2 IP:127.0.0.1 Port:40003 Response Time :- 33ms



---

Transfer Time in milliseconds: 4

Downloaded file :F\_1KB.txt File size : 1.01KB

Performance speed 0.23MB/sec

---

3. Client3 IP:127.0.0.1 Port:40002 Response Time :- 41ms

---

Transfer Time in milliseconds: 1

Downloaded file :F\_1KB.txt File size : 1.01KB

Performance speed 0.65MB/sec

---

4. Client4 IP:127.0.0.1 Port:40005 Response Time :- 90ms

---

Transfer Time in milliseconds: 2

Downloaded file :F\_1KB.txt File size : 1.01KB

Performance speed 0.47MB/sec

---

---

Average Transfer Time from '4' Clients in Milliseconds: 2ms

---

**Test Case 11: Between 5 Clients, F\_10KB.txt (size: 10KB)**

\*\*\*\*\* Lookup for file \*\*\*\*\*

---

Average Response Time from '4' Clients in Milliseconds: 36

---

\*\*\*\*\* Download file \*\*\*\*\*

1. Client1 IP:127.0.0.1 Port:40004 Response Time :- 20ms

---

Transfer Time in milliseconds: 4

Downloaded file :F\_10KB.txt File size : 10.08KB

Performance speed 2.12MB/sec

---

2. Client2 IP:127.0.0.1 Port:40005 Response Time :- 28ms

---

Transfer Time in milliseconds: 6

Downloaded file :F\_10KB.txt File size : 10.08KB

Performance speed 1.42MB/sec

---

3. Client3 IP:127.0.0.1 Port:40003 Response Time :- 47ms

-----  
Transfer Time in milliseconds: 6

Downloaded file :F\_10KB.txt File size : 10.08KB

Performance speed 1.47MB/sec  
-----

4. Client4 IP:127.0.0.1 Port:40002 Response Time :- 48ms  
-----

Transfer Time in milliseconds: 7

Downloaded file :F\_10KB.txt File size : 10.08KB

Performance speed 1.25MB/sec  
-----  
-----

Average Transfer Time from '4' Clients in Milliseconds: 5ms

---

**Test Case 11: Between 5 Clients, F\_100KB.txt (size: 100KB)**

\*\*\*\*\* Lookup for file \*\*\*\*\*

-----  
Average Response Time from '4' Clients in Milliseconds: 37  
-----

\*\*\*\*\* Download file \*\*\*\*\*

1. Client1 IP:127.0.0.1 Port:40005 Response Time :- 20ms  
-----

Transfer Time in milliseconds: 7

Downloaded file :F\_100kb.txt File size : 100.78KB

Performance speed 13.52MB/sec  
-----

2. Client2 IP:127.0.0.1 Port:40004 Response Time :- 30ms  
-----

Transfer Time in milliseconds: 2

Downloaded file :F\_100kb.txt File size : 100.78KB

Performance speed 44.96MB/sec  
-----

3. Client3 IP:127.0.0.1 Port:40003 Response Time :- 43ms  
-----

Transfer Time in milliseconds: 2

Downloaded file :F\_100kb.txt File size : 100.78KB

Performance speed 34.95MB/sec  
-----

4. Client4 IP:127.0.0.1 Port:40002 Response Time :- 56ms  
-----

Transfer Time in milliseconds: 4

Downloaded file :F\_100kb.txt File size : 100.78KB

Performance speed 23.76MB/sec

-----  
Average Transfer Time from '4' Clients in Milliseconds: 3ms  
-----

**Test Case 13: Between 6 Clients, F\_1KB.txt (size: 1KB)**

\*\*\*\*\* Lookup for file \*\*\*\*\*

-----  
Average Response Time from '5' Clients in Milliseconds: 49  
-----

\*\*\*\*\* Download file \*\*\*\*\*

1. Client1 IP:127.0.0.1 Port:40005 Response Time :- 23ms  
-----

Transfer Time in milliseconds: 1

Downloaded file :F\_1KB.txt File size : 1.01KB

Performance speed 0.49MB/sec

-----  
2. Client2 IP:127.0.0.1 Port:40004 Response Time :- 31ms  
-----

Transfer Time in milliseconds: 5

Downloaded file :F\_1KB.txt File size : 1.01KB

Performance speed 0.18MB/sec

-----  
3. Client3 IP:127.0.0.1 Port:40003 Response Time :- 37ms  
-----

Transfer Time in milliseconds: 1

Downloaded file :F\_1KB.txt File size : 1.01KB

Performance speed 0.51MB/sec

-----  
4. Client4 IP:127.0.0.1 Port:40002 Response Time :- 61ms  
-----

Transfer Time in milliseconds: 2

Downloaded file :F\_1KB.txt File size : 1.01KB

Performance speed 0.43MB/sec

-----  
5. Client5 IP:127.0.0.1 Port:40006 Response Time :- 93ms  
-----

Transfer Time in milliseconds: 2

Downloaded file :F\_1KB.txt File size : 1.01KB

Performance speed 0.41MB/sec

---

Average Transfer Time from '5' Clients in Milliseconds: 2ms

---

**Test Case 14: Between 6 Clients, F\_10KB.txt (size: 10KB)**

\*\*\*\*\* Lookup for file \*\*\*\*\*

---

Average Response Time from '5' Clients in Milliseconds: 44

---

\*\*\*\*\* Download file \*\*\*\*\*

1. Client1 IP:127.0.0.1 Port:40005 Response Time :- 22ms

---

Transfer Time in milliseconds: 11

Downloaded file :F\_10KB.txt File size : 10.08KB

Performance speed 0.89MB/sec

---

2. Client2 IP:127.0.0.1 Port:40002 Response Time :- 35ms

---

Transfer Time in milliseconds: 4

Downloaded file :F\_10KB.txt File size : 10.08KB

Performance speed 1.99MB/sec

---

3. Client3 IP:127.0.0.1 Port:40004 Response Time :- 43ms

---

Transfer Time in milliseconds: 8

Downloaded file :F\_10KB.txt File size : 10.08KB

Performance speed 1.23MB/sec

---

4. Client4 IP:127.0.0.1 Port:40003 Response Time :- 50ms

---

Transfer Time in milliseconds: 3

Downloaded file :F\_10KB.txt File size : 10.08KB

Performance speed 3.28MB/sec

---

5. Client5 IP:127.0.0.1 Port:40006 Response Time :- 69ms

---

Transfer Time in milliseconds: 6

Downloaded file :F\_10KB.txt File size : 10.08KB

Performance speed 1.44MB/sec

---

Average Transfer Time from '5' Clients in Milliseconds: 6ms

---

**Test Case 15: Between 6 Clients, F\_100kb.txt (size: 100KB)**

\*\*\*\*\* Lookup for file \*\*\*\*\*

---

Average Response Time from '5' Clients in Milliseconds: 43

---

\*\*\*\*\* Download file \*\*\*\*\*

1. Client1 IP:127.0.0.1 Port:40003 Response Time :- 23ms

---

Transfer Time in milliseconds: 7

Downloaded file :F\_100kb.txt File size : 100.78KB

Performance speed 13MB/sec

---

2. Client2 IP:127.0.0.1 Port:40006 Response Time :- 31ms

---

Transfer Time in milliseconds: 2

Downloaded file :F\_100kb.txt File size : 100.78KB

Performance speed 35.74MB/sec

---

3. Client3 IP:127.0.0.1 Port:40004 Response Time :- 42ms

---

Transfer Time in milliseconds: 4

Downloaded file :F\_100kb.txt File size : 100.78KB

Performance speed 23.46MB/sec

---

4. Client4 IP:127.0.0.1 Port:40005 Response Time :- 51ms

---

Transfer Time in milliseconds: 2

Downloaded file :F\_100kb.txt File size : 100.78KB

Performance speed 42.11MB/sec

---

5. Client5 IP:127.0.0.1 Port:40002 Response Time :- 69ms

---

Transfer Time in milliseconds: 2

Downloaded file :F\_100kb.txt File size : 100.78KB

Performance speed 48.83MB/sec

-----  
Average Transfer Time from '5' Clients in Milliseconds: 3ms  
-----

**Test Case 16: Between 7 Clients, F\_1KB.txt (size: 1KB)**

\*\*\*\*\* Lookup for file \*\*\*\*\*

-----  
Average Response Time from '6' Clients in Milliseconds: 78  
-----

\*\*\*\*\* Download file \*\*\*\*\*

1. Client1 IP:127.0.0.1 Port:40006 Response Time :- 30ms  
-----

Transfer Time in milliseconds: 2

Downloaded file :F\_1KB.txt File size : 1.01KB

Performance speed 0.46MB/sec

-----  
2. Client2 IP:127.0.0.1 Port:40005 Response Time :- 56ms  
-----

Transfer Time in milliseconds: 3

Downloaded file :F\_1KB.txt File size : 1.01KB

Performance speed 0.26MB/sec

-----  
3. Client3 IP:127.0.0.1 Port:40004 Response Time :- 65ms  
-----

Transfer Time in milliseconds: 2

Downloaded file :F\_1KB.txt File size : 1.01KB

Performance speed 0.39MB/sec

-----  
4. Client4 IP:127.0.0.1 Port:40003 Response Time :- 85ms  
-----

Transfer Time in milliseconds: 12

Downloaded file :F\_1KB.txt File size : 1.01KB

Performance speed 0.08MB/sec

-----  
5. Client5 IP:127.0.0.1 Port:40002 Response Time :- 96ms  
-----

Transfer Time in milliseconds: 2

Downloaded file :F\_1KB.txt File size : 1.01KB

Performance speed 0.43MB/sec

---

6. Client6 IP:127.0.0.1 Port:40007 Response Time :- 138ms

---

Transfer Time in milliseconds: 3

Downloaded file :F\_1KB.txt File size : 1.01KB

Performance speed 0.27MB/sec

---

Average Transfer Time from '6' Clients in Milliseconds: 4ms

---

**Test Case 17: Between 7 Clients, F\_10KB.txt (size: 10KB)**

\*\*\*\*\* Lookup for file \*\*\*\*\*

---

Average Response Time from '6' Clients in Milliseconds: 57

---

\*\*\*\*\* Download file \*\*\*\*\*

1. Client1 IP:127.0.0.1 Port:40006 Response Time :- 32ms

---

Transfer Time in milliseconds: 3

Downloaded file :F\_10KB.txt File size : 10.08KB

Performance speed 2.95MB/sec

---

2. Client2 IP:127.0.0.1 Port:40005 Response Time :- 41ms

---

Transfer Time in milliseconds: 1

Downloaded file :F\_10KB.txt File size : 10.08KB

Performance speed 6.57MB/sec

---

3. Client3 IP:127.0.0.1 Port:40003 Response Time :- 54ms

---

Transfer Time in milliseconds: 2

Downloaded file :F\_10KB.txt File size : 10.08KB

Performance speed 3.32MB/sec

---

4. Client4 IP:127.0.0.1 Port:40007 Response Time :- 60ms

---

Transfer Time in milliseconds: 2

Downloaded file :F\_10KB.txt File size : 10.08KB

Performance speed 4.03MB/sec

---

5. Client5 IP:127.0.0.1 Port:40004 Response Time :- 66ms

---

Transfer Time in milliseconds: 2

Downloaded file :F\_10KB.txt File size : 10.08KB

Performance speed 4.37MB/sec

---

6. Client6 IP:127.0.0.1 Port:40002 Response Time :- 90ms

---

Transfer Time in milliseconds: 2

Downloaded file :F\_10KB.txt File size : 10.08KB

Performance speed 3.69MB/sec

---

Average Transfer Time from '6' Clients in Milliseconds: 2ms

---

**Test Case 18: Between 7 Clients, F\_100kb.txt (size: 100KB)**

\*\*\*\*\* Lookup for file \*\*\*\*\*

---

Average Response Time from '6' Clients in Milliseconds: 62

---

\*\*\*\*\* Download file \*\*\*\*\*

1. Client1 IP:127.0.0.1 Port:40004 Response Time :- 26ms

---

Transfer Time in milliseconds: 1

Downloaded file :F\_100kb.txt File size : 100.78KB

Performance speed 59.24MB/sec

---

2. Client2 IP:127.0.0.1 Port:40005 Response Time :- 39ms

---

Transfer Time in milliseconds: 7

Downloaded file :F\_100kb.txt File size : 100.78KB

Performance speed 12.84MB/sec

---

3. Client3 IP:127.0.0.1 Port:40006 Response Time :- 58ms

---



Transfer Time in milliseconds: 3

Downloaded file :F\_100kb.txt File size : 100.78KB

Performance speed 29.18MB/sec

-----  
4. Client4 IP:127.0.0.1 Port:40007 Response Time :- 65ms  
-----

Transfer Time in milliseconds: 4

Downloaded file :F\_100kb.txt File size : 100.78KB

Performance speed 22.33MB/sec

-----  
5. Client5 IP:127.0.0.1 Port:40003 Response Time :- 88ms  
-----

Transfer Time in milliseconds: 2

Downloaded file :F\_100kb.txt File size : 100.78KB

Performance speed 36.14MB/sec

-----  
6. Client6 IP:127.0.0.1 Port:40002 Response Time :- 95ms  
-----

Transfer Time in milliseconds: 8

Downloaded file :F\_100kb.txt File size : 100.78KB

Performance speed 11.91MB/sec

-----  
Average Transfer Time from '6' Clients in Milliseconds: 4ms

---

**Test Case 19: Between 8 Clients, F\_1KB.txt (size: 1KB)**

\*\*\*\*\* Lookup for file \*\*\*\*\*

-----  
Average Response Time from '7' Clients in Milliseconds: 84  
-----

\*\*\*\*\* Download file \*\*\*\*\*

1. Client1 IP:127.0.0.1 Port:40006 Response Time :- 22ms  
-----

Transfer Time in milliseconds: 12

Downloaded file :F\_1KB.txt File size : 1.01KB

Performance speed 0.08MB/sec

-----  
2. Client2 IP:127.0.0.1 Port:40007 Response Time :- 53ms  
-----

Transfer Time in milliseconds: 3

Downloaded file :F\_1KB.txt File size : 1.01KB

Performance speed 0.29MB/sec

-----  
3. Client3 IP:127.0.0.1 Port:40005 Response Time :- 62ms  
-----

Transfer Time in milliseconds: 2

Downloaded file :F\_1KB.txt File size : 1.01KB

Performance speed 0.39MB/sec

-----  
4. Client4 IP:127.0.0.1 Port:40004 Response Time :- 68ms  
-----

Transfer Time in milliseconds: 3

Downloaded file :F\_1KB.txt File size : 1.01KB

Performance speed 0.25MB/sec

-----  
5. Client5 IP:127.0.0.1 Port:40003 Response Time :- 108ms  
-----

Transfer Time in milliseconds: 8

Downloaded file :F\_1KB.txt File size : 1.01KB

Performance speed 0.11MB/sec

-----  
6. Client6 IP:127.0.0.1 Port:40002 Response Time :- 111ms  
-----

Transfer Time in milliseconds: 5

Downloaded file :F\_1KB.txt File size : 1.01KB

Performance speed 0.18MB/sec

-----  
7. Client7 IP:127.0.0.1 Port:40008 Response Time :- 161ms  
-----

Transfer Time in milliseconds: 2

Downloaded file :F\_1KB.txt File size : 1.01KB

Performance speed 0.37MB/sec

-----  
Average Transfer Time from '7' Clients in Milliseconds: 5ms

---

**Test Case 20: Between 8 Clients, F\_10KB.txt (size: 10KB)**

\*\*\*\*\* Lookup for file \*\*\*\*\*

-----  
Average Response Time from '7' Clients in Milliseconds: 78  
-----

\*\*\*\*\* Download file \*\*\*\*\*

1. Client1 IP:127.0.0.1 Port:40006 Response Time :- 23ms  
-----

Transfer Time in milliseconds: 2

Downloaded file :F\_10KB.txt File size : 10.08KB

Performance speed 3.95MB/sec  
-----

2. Client2 IP:127.0.0.1 Port:40005 Response Time :- 58ms  
-----

Transfer Time in milliseconds: 6

Downloaded file :F\_10KB.txt File size : 10.08KB

Performance speed 1.57MB/sec  
-----

3. Client3 IP:127.0.0.1 Port:40007 Response Time :- 67ms  
-----

Transfer Time in milliseconds: 4

Downloaded file :F\_10KB.txt File size : 10.08KB

Performance speed 2.25MB/sec  
-----

4. Client4 IP:127.0.0.1 Port:40004 Response Time :- 73ms  
-----

Transfer Time in milliseconds: 5

Downloaded file :F\_10KB.txt File size : 10.08KB

Performance speed 1.95MB/sec  
-----

5. Client5 IP:127.0.0.1 Port:40008 Response Time :- 81ms  
-----

Transfer Time in milliseconds: 2

Downloaded file :F\_10KB.txt File size : 10.08KB

Performance speed 4.44MB/sec  
-----

6. Client6 IP:127.0.0.1 Port:40003 Response Time :- 120ms  
-----

Transfer Time in milliseconds: 12

Downloaded file :F\_10KB.txt File size : 10.08KB

Performance speed 0.77MB/sec

-----  
7. Client7 IP:127.0.0.1 Port:40002 Response Time :- 126ms  
-----

Transfer Time in milliseconds: 1

Downloaded file :F\_10KB.txt File size : 10.08KB

Performance speed 6.27MB/sec

-----  
Average Transfer Time from '7' Clients in Milliseconds: 4ms

---

**Test Case 21: Between 8 Clients, F\_100kb.txt (size: 100KB)**

\*\*\*\*\* Lookup for file \*\*\*\*\*

-----  
Average Response Time from '7' Clients in Milliseconds: 76  
-----

\*\*\*\*\* Download file \*\*\*\*\*

1. Client1 IP:127.0.0.1 Port:40006 Response Time :- 26ms  
-----

Transfer Time in milliseconds: 7

Downloaded file :F\_100kb.txt File size : 100.78KB

Performance speed 14.05MB/sec

-----  
2. Client2 IP:127.0.0.1 Port:40007 Response Time :- 62ms  
-----

Transfer Time in milliseconds: 3

Downloaded file :F\_100kb.txt File size : 100.78KB

Performance speed 27.86MB/sec

-----  
3. Client3 IP:127.0.0.1 Port:40008 Response Time :- 75ms  
-----

Transfer Time in milliseconds: 2

Downloaded file :F\_100kb.txt File size : 100.78KB

Performance speed 45.14MB/sec

-----  
4. Client4 IP:127.0.0.1 Port:40005 Response Time :- 79ms  
-----

Transfer Time in milliseconds: 2

Downloaded file :F\_100kb.txt File size : 100.78KB

Performance speed 47.19MB/sec

-----  
5. Client5 IP:127.0.0.1 Port:40004 Response Time :- 83ms  
-----

Transfer Time in milliseconds: 2

Downloaded file :F\_100kb.txt File size : 100.78KB

Performance speed 41.95MB/sec

-----  
6. Client6 IP:127.0.0.1 Port:40003 Response Time :- 104ms  
-----

Transfer Time in milliseconds: 2

Downloaded file :F\_100kb.txt File size : 100.78KB

Performance speed 37.52MB/sec

-----  
7. Client7 IP:127.0.0.1 Port:40002 Response Time :- 105ms  
-----

Transfer Time in milliseconds: 1

Downloaded file :F\_100kb.txt File size : 100.78KB

Performance speed 57.58MB/sec

-----  
Average Transfer Time from '7' Clients in Milliseconds: 2ms  
-----

**Test Case 22: Between 9 Clients, F\_1KB.txt (size: 1KB)**

\*\*\*\*\* Lookup for file \*\*\*\*\*

-----  
Average Response Time from '8' Clients in Milliseconds: 95  
-----

\*\*\*\*\* Download file \*\*\*\*\*

1. Client1 IP:127.0.0.1 Port:40007 Response Time :- 50ms  
-----

Transfer Time in milliseconds: 11

Downloaded file :F\_1KB.txt File size : 1.01KB

Performance speed 0.09MB/sec

-----  
2. Client2 IP:127.0.0.1 Port:40006 Response Time :- 62ms  
-----

Transfer Time in milliseconds: 4

Downloaded file :F\_1KB.txt File size : 1.01KB

Performance speed 0.22MB/sec

---

3. Client3 IP:127.0.0.1 Port:40005 Response Time :- 75ms

---

Transfer Time in milliseconds: 4

Downloaded file :F\_1KB.txt File size : 1.01KB

Performance speed 0.23MB/sec

---

4. Client4 IP:127.0.0.1 Port:40008 Response Time :- 80ms

---

Transfer Time in milliseconds: 4

Downloaded file :F\_1KB.txt File size : 1.01KB

Performance speed 0.2MB/sec

---

5. Client5 IP:127.0.0.1 Port:40002 Response Time :- 102ms

---

Transfer Time in milliseconds: 1

Downloaded file :F\_1KB.txt File size : 1.01KB

Performance speed 0.71MB/sec

---

6. Client6 IP:127.0.0.1 Port:40003 Response Time :- 110ms

---

Transfer Time in milliseconds: 5

Downloaded file :F\_1KB.txt File size : 1.01KB

Performance speed 0.19MB/sec

---

7. Client7 IP:127.0.0.1 Port:40004 Response Time :- 112ms

---

Transfer Time in milliseconds: 4

Downloaded file :F\_1KB.txt File size : 1.01KB

Performance speed 0.2MB/sec

---

8. Client8 IP:127.0.0.1 Port:40009 Response Time :- 170ms

---

Transfer Time in milliseconds: 2

Downloaded file :F\_1KB.txt File size : 1.01KB

Performance speed 0.48MB/sec

-----  
-----  
Average Transfer Time from '8' Clients in Milliseconds: 4ms

---

**Test Case 23: Between 9 Clients, F\_10KB.txt (size: 10KB)**

\*\*\*\*\* Lookup for file \*\*\*\*\*

-----  
Average Response Time from '8' Clients in Milliseconds: 81

-----  
\*\*\*\*\* Download file \*\*\*\*\*

1. Client1 IP:127.0.0.1 Port:40005 Response Time :- 26ms

-----  
Transfer Time in milliseconds: 6

Downloaded file :F\_10KB.txt File size : 10.08KB

Performance speed 1.43MB/sec

-----  
2. Client2 IP:127.0.0.1 Port:40007 Response Time :- 64ms

-----  
Transfer Time in milliseconds: 1

Downloaded file :F\_10KB.txt File size : 10.08KB

Performance speed 6.14MB/sec

-----  
3. Client3 IP:127.0.0.1 Port:40004 Response Time :- 69ms

-----  
Transfer Time in milliseconds: 1

Downloaded file :F\_10KB.txt File size : 10.08KB

Performance speed 5.7MB/sec

-----  
4. Client4 IP:127.0.0.1 Port:40006 Response Time :- 74ms

-----  
Transfer Time in milliseconds: 2

Downloaded file :F\_10KB.txt File size : 10.08KB

Performance speed 4.82MB/sec

-----  
5. Client5 IP:127.0.0.1 Port:40002 Response Time :- 80ms

-----  
Transfer Time in milliseconds: 2

Downloaded file :F\_10KB.txt File size : 10.08KB

Performance speed 4.52MB/sec

-----

6. Client6 IP:127.0.0.1 Port:40009 Response Time :- 100ms

-----  
Transfer Time in milliseconds: 2

Downloaded file :F\_10KB.txt File size : 10.08KB

Performance speed 3.48MB/sec

-----  
7. Client7 IP:127.0.0.1 Port:40008 Response Time :- 116ms

-----  
Transfer Time in milliseconds: 7

Downloaded file :F\_10KB.txt File size : 10.08KB

Performance speed 1.31MB/sec

-----  
8. Client8 IP:127.0.0.1 Port:40003 Response Time :- 118ms

-----  
Transfer Time in milliseconds: 2

Downloaded file :F\_10KB.txt File size : 10.08KB

Performance speed 3.84MB/sec

-----  
Average Transfer Time from '8' Clients in Milliseconds: 2ms

**Test Case 24: Between 9 Clients, F\_100kb.txt (size: 100KB)**

\*\*\*\*\* Lookup for file \*\*\*\*\*

-----  
Average Response Time from '8' Clients in Milliseconds: 101

-----  
\*\*\*\*\* Download file \*\*\*\*\*

1. Client1 IP:127.0.0.1 Port:40004 Response Time :- 35ms

-----  
Transfer Time in milliseconds: 5

Downloaded file :F\_100kb.txt File size : 100.78KB

Performance speed 18.96MB/sec

-----  
2. Client2 IP:127.0.0.1 Port:40006 Response Time :- 79ms

-----  
Transfer Time in milliseconds: 3

Downloaded file :F\_100kb.txt File size : 100.78KB

Performance speed 29.21MB/sec

-----  
3. Client3 IP:127.0.0.1 Port:40005 Response Time :- 92ms



---

Transfer Time in milliseconds: 3

Downloaded file :F\_100kb.txt File size : 100.78KB

Performance speed 32.19MB/sec

---

4. Client4 IP:127.0.0.1 Port:40009 Response Time :- 99ms

---

Transfer Time in milliseconds: 2

Downloaded file :F\_100kb.txt File size : 100.78KB

Performance speed 38.72MB/sec

---

5. Client5 IP:127.0.0.1 Port:40007 Response Time :- 103ms

---

Transfer Time in milliseconds: 2

Downloaded file :F\_100kb.txt File size : 100.78KB

Performance speed 45.73MB/sec

---

6. Client6 IP:127.0.0.1 Port:40003 Response Time :- 113ms

---

Transfer Time in milliseconds: 2

Downloaded file :F\_100kb.txt File size : 100.78KB

Performance speed 35.2MB/sec

---

7. Client7 IP:127.0.0.1 Port:40008 Response Time :- 144ms

---

Transfer Time in milliseconds: 2

Downloaded file :F\_100kb.txt File size : 100.78KB

Performance speed 33.73MB/sec

---

8. Client8 IP:127.0.0.1 Port:40002 Response Time :- 145ms

---

Transfer Time in milliseconds: 4

Downloaded file :F\_100kb.txt File size : 100.78KB

Performance speed 21.29MB/sec

---

Average Transfer Time from '8' Clients in Milliseconds: 2ms

---

### Test Case 25: Between 10 Clients, F\_1KB.txt (size: 1KB)

\*\*\*\*\* Lookup for file \*\*\*\*\*

---

Average Response Time from '9' Clients in Milliseconds: 122

---

\*\*\*\*\* Download file \*\*\*\*\*

1. Client1 IP:127.0.0.1 Port:40009 Response Time :- 22ms

---

Transfer Time in milliseconds: 2

Downloaded file :F\_1KB.txt File size : 1.01KB

Performance speed 0.34MB/sec

---

2. Client2 IP:127.0.0.1 Port:40007 Response Time :- 76ms

---

Transfer Time in milliseconds: 1

Downloaded file :F\_1KB.txt File size : 1.01KB

Performance speed 0.64MB/sec

---

3. Client3 IP:127.0.0.1 Port:40006 Response Time :- 88ms

---

Transfer Time in milliseconds: 2

Downloaded file :F\_1KB.txt File size : 1.01KB

Performance speed 0.42MB/sec

---

4. Client4 IP:127.0.0.1 Port:40008 Response Time :- 98ms

---

Transfer Time in milliseconds: 3

Downloaded file :F\_1KB.txt File size : 1.01KB

Performance speed 0.26MB/sec

---

5. Client5 IP:127.0.0.1 Port:40005 Response Time :- 107ms

---

Transfer Time in milliseconds: 1

Downloaded file :F\_1KB.txt File size : 1.01KB

Performance speed 0.58MB/sec

---

6. Client6 IP:127.0.0.1 Port:40004 Response Time :- 116ms

-----  
Transfer Time in milliseconds: 2

Downloaded file :F\_1KB.txt File size : 1.01KB

Performance speed 0.41MB/sec  
-----

7. Client7 IP:127.0.0.1 Port:40003 Response Time :- 184ms  
-----

Transfer Time in milliseconds: 4

Downloaded file :F\_1KB.txt File size : 1.01KB

Performance speed 0.24MB/sec  
-----

8. Client8 IP:127.0.0.1 Port:40002 Response Time :- 188ms  
-----

Transfer Time in milliseconds: 1

Downloaded file :F\_1KB.txt File size : 1.01KB

Performance speed 0.7MB/sec  
-----

9. Client9 IP:127.0.0.1 Port:40010 Response Time :- 215ms  
-----

Transfer Time in milliseconds: 5

Downloaded file :F\_1KB.txt File size : 1.01KB

Performance speed 0.17MB/sec  
-----

-----  
Average Transfer Time from '9' Clients in Milliseconds: 2ms

**Test Case 26: Between 10 Clients, F\_10KB.txt (size: 10KB)**

\*\*\*\*\* Lookup for file \*\*\*\*\*  
-----

Average Response Time from '9' Clients in Milliseconds: 115  
-----

\*\*\*\*\* Download file \*\*\*\*\*  
-----

1. Client1 IP:127.0.0.1 Port:40006 Response Time :- 31ms  
-----

Transfer Time in milliseconds: 4

Downloaded file :F\_10KB.txt File size : 10.08KB

Performance speed 2.33MB/sec  
-----

2. Client2 IP:127.0.0.1 Port:40010 Response Time :- 82ms  
-----

Transfer Time in milliseconds: 2

Downloaded file :F\_10KB.txt File size : 10.08KB

Performance speed 3.8MB/sec

---

3. Client3 IP:127.0.0.1 Port:40009 Response Time :- 97ms

---

Transfer Time in milliseconds: 2

Downloaded file :F\_10KB.txt File size : 10.08KB

Performance speed 4.53MB/sec

---

4. Client4 IP:127.0.0.1 Port:40007 Response Time :- 110ms

---

Transfer Time in milliseconds: 3

Downloaded file :F\_10KB.txt File size : 10.08KB

Performance speed 2.67MB/sec

---

5. Client5 IP:127.0.0.1 Port:40005 Response Time :- 115ms

---

Transfer Time in milliseconds: 5

Downloaded file :F\_10KB.txt File size : 10.08KB

Performance speed 1.76MB/sec

---

6. Client6 IP:127.0.0.1 Port:40008 Response Time :- 123ms

---

Transfer Time in milliseconds: 3

Downloaded file :F\_10KB.txt File size : 10.08KB

Performance speed 2.65MB/sec

---

7. Client7 IP:127.0.0.1 Port:40004 Response Time :- 131ms

---

Transfer Time in milliseconds: 5

Downloaded file :F\_10KB.txt File size : 10.08KB

Performance speed 1.9MB/sec

---

8. Client8 IP:127.0.0.1 Port:40003 Response Time :- 168ms

---

Transfer Time in milliseconds: 1

Downloaded file :F\_10KB.txt File size : 10.08KB

Performance speed 7.53MB/sec

---

9. Client9 IP:127.0.0.1 Port:40002 Response Time :- 179ms

---

Transfer Time in milliseconds: 1

Downloaded file :F\_10KB.txt File size : 10.08KB

Performance speed 7.17MB/sec

---

---

Average Transfer Time from '9' Clients in Milliseconds: 2ms

---

**Test Case 27: Between 10 Clients, F\_100kb.txt (size: 100KB)**

\*\*\*\*\* Lookup for file \*\*\*\*\*

---

Average Response Time from '9' Clients in Milliseconds: 116

---

\*\*\*\*\* Download file \*\*\*\*\*

1. Client1 IP:127.0.0.1 Port:40007 Response Time :- 46ms

---

Transfer Time in milliseconds: 3

Downloaded file :F\_100kb.txt File size : 100.78KB

Performance speed 27.32MB/sec

---

2. Client2 IP:127.0.0.1 Port:40008 Response Time :- 82ms

---

Transfer Time in milliseconds: 3

Downloaded file :F\_100kb.txt File size : 100.78KB

Performance speed 30.31MB/sec

---

3. Client3 IP:127.0.0.1 Port:40005 Response Time :- 103ms

---

Transfer Time in milliseconds: 8

Downloaded file :F\_100kb.txt File size : 100.78KB

Performance speed 11.93MB/sec

---

4. Client4 IP:127.0.0.1 Port:40006 Response Time :- 108ms

---

Transfer Time in milliseconds: 1

Downloaded file :F\_100kb.txt File size : 100.78KB

Performance speed 52.31MB/sec

---

5. Client5 IP:127.0.0.1 Port:40010 Response Time :- 113ms

---

Transfer Time in milliseconds: 1

Downloaded file :F\_100kb.txt File size : 100.78KB

Performance speed 61.73MB/sec

---

6. Client6 IP:127.0.0.1 Port:40004 Response Time :- 121ms

---

Transfer Time in milliseconds: 5

Downloaded file :F\_100kb.txt File size : 100.78KB

Performance speed 17.7MB/sec

---

7. Client7 IP:127.0.0.1 Port:40003 Response Time :- 154ms

---

Transfer Time in milliseconds: 4

Downloaded file :F\_100kb.txt File size : 100.78KB

Performance speed 21.56MB/sec

---

8. Client8 IP:127.0.0.1 Port:40009 Response Time :- 157ms

---

Transfer Time in milliseconds: 5

Downloaded file :F\_100kb.txt File size : 100.78KB

Performance speed 18.05MB/sec

---

9. Client9 IP:127.0.0.1 Port:40002 Response Time :- 162ms

---

Transfer Time in milliseconds: 1

Downloaded file :F\_100kb.txt File size : 100.78KB

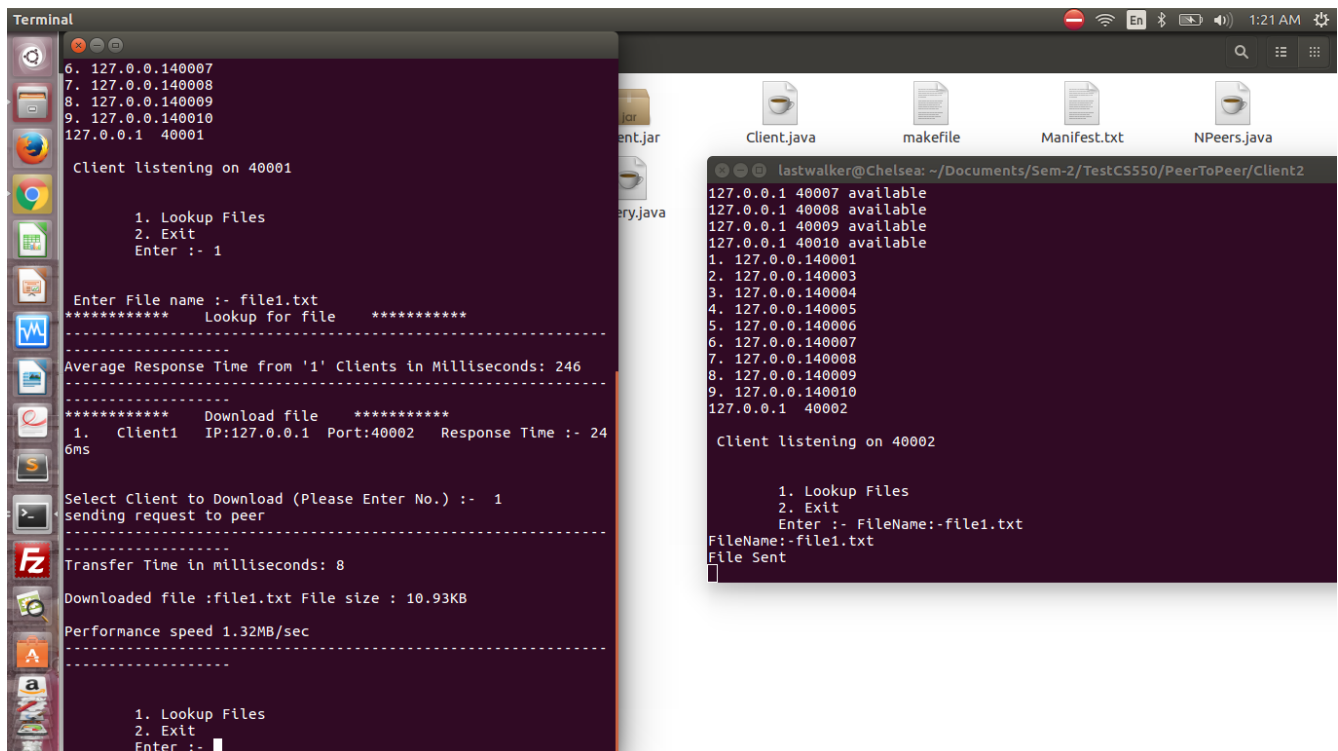
Performance speed 62.34MB/sec

---

Average Transfer Time from '9' Clients in Milliseconds: 3ms

---

**Few snap shots for Bus Topology.**



The image displays two terminal windows from a Linux desktop environment. The left terminal window shows a client (Client9) interacting with a server. It lists available peers (127.0.0.140007 to 127.0.0.140010), enters '1' to select a peer, and then enters 'file1.txt' as the file name. It reports an average response time of 246ms and a download speed of 1.32MB/sec. The right terminal window shows a client (Client2) interacting with a server. It lists available peers (127.0.0.140007 to 127.0.0.140010), enters '1' to select a peer, and then enters 'file1.txt' as the file name. It reports a response time of 162ms and a download speed of 62.34MB/sec.

```
Terminal
6. 127.0.0.140007
7. 127.0.0.140008
8. 127.0.0.140009
9. 127.0.0.140010
127.0.0.1 40001

Client listening on 40001

1. Lookup Files
2. Exit
Enter :- 1

Enter File name :- file1.txt
***** Lookup for file *****
-----
Average Response Time from '1' Clients in Milliseconds: 246
-----
***** Download file *****
1. Client1 IP:127.0.0.1 Port:40002 Response Time :- 246ms
Select Client to Download (Please Enter No.) :- 1
sending request to peer
-----
Transfer Time in milliseconds: 8
Downloaded file :file1.txt File size : 10.93KB
Performance speed 1.32MB/sec
-----
1. Lookup Files
2. Exit
Enter :-
```

```
lastwalker@Chelsea: ~/Documents/Sem-2/TestCS550/PeerToPeer/Client2
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. 127.0.0.140003
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 40002

Client listening on 40002

1. Lookup Files
2. Exit
Enter :- FileName:-file1.txt
FileName:-file1.txt
File Sent
```

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

Enter File name :- file1.txt
***** Lookup for file *****
-----
Average Response Time from '1' Clients in Milliseconds: 9
-----
***** Download file *****
1. Client1 IP:127.0.0.1 Port:40002 Response Time :- 9ms
s
Select Client to Download (Please Enter No.) :- 1
sending request to peer
-----
Transfer Time in milliseconds: 7
Downloaded file :file1.txt File size : 10.93KB
Performance speed 1.39MB/sec
-----

1. Lookup Files
2. Exit
Enter :- 1

Enter File name :- file1.txt
***** Lookup for file *****
-----
Average Response Time from '1' Clients in Milliseconds: 7

Client.java
makefile
Manifest.txt
NPeers.java

lastwalker@Chelsea: ~/Documents/Sem-2/TestCS550/PeerToPeer/Client2
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 40002

Client listening on 40002

1. Lookup Files
2. Exit
Enter :- FileName:-file1.txt
FileName:-file1.txt
File Sent
FileName:-file1.txt
File Sent
FileName:-file1.txt
File Sent
FileName:-file1.txt
File Sent
File Sent
```



```
Terminal
Transfer Time in milliseconds: 7
Downloaded file :file1.txt File size : 10.93KB
Performance speed 1.39MB/sec
-----
1. Lookup Files
2. Exit
Enter :- 1

Enter File name :- file1.txt
***** Lookup for file *****
-----
Average Response Time from '1' Clients in Milliseconds: 7
-----
***** Download file *****
1. Client1 IP:127.0.0.1 Port:40002 Response Time :- 7ms
-----
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 1.9MB/sec
-----
1. Lookup Files
2. Exit
Enter :-
```

Client.java    makefile    Manifest.txt    NPeers.java

```
lastwalker@Chelsea: ~/Documents/Sem-2/TestCS550/PeerToPeer/Client2
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 40002

Client listening on 40002

1. Lookup Files
2. Exit
Enter :- FileName:-file1.txt
FileName:-file1.txt
File Sent
FileName:-file1.txt
File Sent
FileName:-file1.txt
File Sent
FileName:-file1.txt
File Sent
```

```
Terminal
-----
Average Response Time from '1' Clients in Milliseconds: 5
-----
***** Download file *****
1. Client1 IP:127.0.0.1 Port:40002 Response Time :- 5ms
-----
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 1.84MB/sec
-----
1. Lookup Files
2. Exit
Enter :-
```

```
lastwalker@Chelsea: ~/Documents/Sem-2/TestCS550/PeerToPeer/Client2
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 40002

Client listening on 40002

1. Lookup Files
2. Exit
Enter :- FileName:-file1.txt
FileName:-file1.txt
File Sent
FileName:-file1.txt
File Sent
FileName:-file1.txt
File Sent
FileName:-file1.txt
File Sent
```

```
Terminal
lastwalker@Chelsea: ~/Documents/Sem-2/TestCS550/PeerToPeer/Client1
7. 127.0.0.140008
8. 127.0.0.140009
9. 127.0.0.140010
127.0.0.1 40001

Client listening on 40001

1. Lookup Files
2. Exit
Enter :- 1

Enter File name :- file1.txt
***** Lookup for file *****
-----
Average Response Time from '3' Clients in Milliseconds: 132
-----
***** Download file *****
1. Client1 IP:127.0.0.1 Port:40002 Response Time :- 110ms
2. Client2 IP:127.0.0.1 Port:40003 Response Time :- 134ms
3. Client3 IP:127.0.0.1 Port:40003 Response Time :- 154ms

Select Client to Download (Please Enter No.) :- 3
sending request to peer
-----
Transfer Time in milliseconds: 7
Downloaded file :file1.txt File size : 10.93KB
Performance speed 1.4MB/sec
-----
1. Lookup Files
2. Exit
Enter :- 1

lastwalker@Chelsea: ~/Documents/Sem-2/TestCS550/PeerToPeer/Client1
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. 127.0.0.140003
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 40002

Client listening on 40002

1. Lookup Files
2. Exit
Enter :- FileName:-file1.txt

lastwalker@Chelsea: ~/Documents/Sem-2/TestCS550/PeerToPeer/Client1
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 :- FileName:-file1.txt
FileName:-file1.txt
FileName:-file1.txt
File Sent
File Sent
File Sent
```

```
Terminal
lastwalker@Chelsea: ~/Documents/Sem-2/TestCS550/PeerToPeer/Client1
Transfer Time in milliseconds: 7
Downloaded file :file1.txt File size : 10.93KB
Performance speed 1.4MB/sec
-----
1. Lookup Files
2. Exit
Enter :- 1

Enter File name :- file1.txt
***** Lookup for file *****
-----
Average Response Time from '2' Clients in Milliseconds: 21
-----
***** Download file *****
1. Client1 IP:127.0.0.1 Port:40003 Response Time :- 20ms
2. Client2 IP:127.0.0.1 Port:40002 Response Time :- 22ms

Select Client to Download (Please Enter No.) :- 2
sending request to peer
-----
Transfer Time in milliseconds: 7
Downloaded file :file1.txt File size : 10.93KB
Performance speed 1.48MB/sec
-----
1. Lookup Files
2. Exit
Enter :- 1

lastwalker@Chelsea: ~/Documents/Sem-2/TestCS550/PeerToPeer/Client1
127.0.0.1 40008 available
127.0.0.1 40009 available
127.0.0.1 40010 available
1. 127.0.0.140001
2. 127.0.0.140003
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 40002

Client listening on 40002

1. Lookup Files
2. Exit
Enter :- FileName:-file1.txt
FileName:-file1.txt
FileName:-file1.txt
File Sent
File Sent
File Sent

lastwalker@Chelsea: ~/Documents/Sem-2/TestCS550/PeerToPeer/Client1
9. 127.0.0.140010
127.0.0.1 40003

Client listening on 40003

1. Lookup Files
2. Exit
Enter :- FileName:-file1.txt
FileName:-file1.txt
FileName:-file1.txt
File Sent
File Sent
File Sent
```

```
Terminal
lastwalker@Chelsea: ~/Documents/Sem-2/TestCS550/PeerToPeer/Client1
2. Client2 IP:127.0.0.1 Port:40002 Response Time :- 22ms

Select Client to Download (Please Enter No.) :- 2
sending request to peer
-----
Transfer Time in milliseconds: 7
Downloaded file :file1.txt File size : 10.93KB
Performance speed 1.48MB/sec
-----
1. Lookup Files
2. Exit
Enter :- 1

Enter File name :- file1.txt
***** Lookup for file *****
-----
Average Response Time from '2' Clients in Milliseconds: 10
-----
***** Download file *****
1. Client1 IP:127.0.0.1 Port:40002 Response Time :- 8ms
2. Client2 IP:127.0.0.1 Port:40003 Response Time :- 13ms

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 2.01MB/sec

lastwalker@Chelsea: ~/Documents/Sem-2/TestCS550/PeerToPeer/Client1
1. 127.0.0.140001
2. 127.0.0.140003
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 40002

Client listening on 40002

1. Lookup Files
2. Exit
Enter :- FileName:-file1.txt
FileName:-file1.txt
File Sent
FileName:-file1.txt
File Sent
FileName:-file1.txt
File Sent

lastwalker@Chelsea: ~/Documents/Sem-2/TestCS550/PeerToPeer/Client1
127.0.0.1 40003

Client listening on 40003

1. Lookup Files
2. Exit
Enter :- FileName:-file1.txt
FileName:-file1.txt
File Sent
FileName:-file1.txt
File Sent
FileName:-file1.txt
File Sent
```

```
Terminal
lastwalker@Chelsea: ~/Documents/Sem-2/TestCS550/PeerToPeer/Client1
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 :- 1

Enter File name :- file1.txt
***** Lookup for file *****
-----
Average Response Time from '2' Clients in Milliseconds: 20
-----
***** Download file *****
1. Client1 IP:127.0.0.1 Port:40002 Response Time :- 17ms
2. Client2 IP:127.0.0.1 Port:40003 Response Time :- 23ms

Select Client to Download (Please Enter No.) :- 2
sending request to peer
-----
Transfer Time in milliseconds: 5
Downloaded file :file1.txt File size : 10.93KB
Performance speed 2.04MB/sec

lastwalker@Chelsea: ~/Documents/Sem-2/TestCS550/PeerToPeer/Client1
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 40002

Client listening on 40002

1. Lookup Files
2. Exit
Enter :- FileName:-file1.txt
FileName:-file1.txt
File Sent
FileName:-file1.txt
File Sent
FileName:-file1.txt
File Sent
FileName:-file1.txt
File Sent
FileName:-file1.txt
File Sent

lastwalker@Chelsea: ~/Documents/Sem-2/TestCS550/PeerToPeer/Client1
1. Lookup Files
2. Exit
Enter :- FileName:-file1.txt
FileName:-file1.txt
File Sent
FileName:-file1.txt
File Sent
FileName:-file1.txt
File Sent
FileName:-file1.txt
File Sent
```

```
Terminal
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. 127.0.0.140003
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 40004
Client listening on 40004
1. Lookup Files
2. Exit
Enter :- FileName:-file1.txt
FileName:-file1.txt
File Sent
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 40002
Client listening on 40002
1. Lookup Files
2. Exit
Enter :- FileName:-file1.txt

lastwalker@Chelsea: ~/Documents/Sem-2/TestCS550/PeerToPeer/Client1
Client listening on 40001
1. Lookup Files
2. Exit
Enter :- 1
Enter File name :- file1.txt
***** Lookup for file *****
-----
Average Response Time from '4' Clients in Milliseconds: 149
-----
***** Download file *****
1. Client1 IP:127.0.0.1 Port:40002 Response Time :- 113ms
2. Client2 IP:127.0.0.1 Port:40003 Response Time :- 142ms
3. Client3 IP:127.0.0.1 Port:40003 Response Time :- 159ms
4. Client4 IP:127.0.0.1 Port:40004 Response Time :- 182ms
Select Client to Download (Please Enter No.) :- 4
sending request to peer

lastwalker@Chelsea: ~/Documents/Sem-2/TestCS550/PeerToPeer/Client3
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 :- FileName:-file1.txt
FileName:-file1.txt
```