Performance Evaluation

In this section we discuss the performance of our implementation in terms of average response time for both sequential requests from the peers as well as concurrent requests.

First, we'll see the response time when a single peer makes 500 sequential requests.

1 Peer (500 sequential requests)

```
C:\WINDOWS\system32\cmd.exe

"Setting the Class path"
"For Evaluation of Peer to Peer File transfering system, we are running multiple clients at once..."
"Starting to set up all configurations. "

Waiting for 0 seconds, press a key to continue ...
"#############################"
"LOAD TESTING of P2P started"
"#############################"
Enter the choice for Single Client Evaluation or Multi Client (2 Clients) :
Single
Please Enter a path
K:\IIT Life\Lecture Notes\SEM 1 - DIC AOS DPA\AOS\Homework-Programming\Eval_Peer1
Registering details of File name ajaxsearch.txt in Indexing Server
Registering details of File name ajaxwatch.txt in Indexing Server
Registering details of File name arrow_first.txt in Indexing Server
Registering details of File name Category~Websites_which_use_Wikipedia_a160.txt in Indexing Server
Registering details of File name commonPrint.txt in Indexing Server
Registering details of File name DIC_22082018.txt in Indexing Server
Registering details of File name DIC_27082018.txt in Indexing Server
Registering details of File name IE70Fixes.txt in Indexing Server
Registering details of File name IEFixes.txt in Indexing Server
Registering details of File name Image~12-07-07_2153.jpg.txt in Indexing Server
Registering details of File name lookup.txt in Indexing Server
Registering details of File name MediaWiki~Common.txt in Indexing Server
Registering details of File name Process Flow.txt in Indexing Server
Registering details of File name User~EDUCA33E_2e3c.txt in Indexing Server
Registering details of File name User~Korg_ff2d.txt in Indexing Server
Registering details of File name User~Pill_monobook.js_03c0.txt in Indexing Server
Registering details of File name utf8.txt in Indexing Server
start is: 855735515213657
end is: 855735886357513
Avg Response time of PeerID Peer1 is 0.742ms
```

The average response time in this case is 0.742 ms

Now we see the change when we add Peers one by one :

2 Peers (500 sequential requests each)

```
C:\WINDOWS\system32\cmd.exe
"#############################"
Enter the choice for Single Client Evaluation or Multi Client (2 Clients) :
Multi
Please Enter a path for 1st Peer
K:\IIT Life\Lecture Notes\SEM 1 - DIC AOS DPA\AOS\Homework-Programming\Eval_Peer1
Please Enter a path for 2nd Peer
K:\IIT Life\Lecture Notes\SEM 1 - DIC AOS DPA\AOS\Homework-Programming\Eval_Peer2
Registering details of File name ajaxsearch.txt in Indexing Server
Registering details of File name ajaxwatch.txt in Indexing Server
Registering details of File name arrow_first.txt in Indexing Server
Registering details of File name Category~Websites_which_use_Wikipedia_a160.txt in Indexing Server
Registering details of File name commonPrint.txt in Indexing Server
Registering details of File name DIC_22082018.txt in Indexing Server
Registering details of File name ajax.txt in Indexing Server
Registering details of File name DIC_27082018.txt in Indexing Server
Registering details of File name Category~User_de_e7ec.txt in Indexing Server
Registering details of File name IE70Fixes.txt in Indexing Server
Registering details of File name cologneblue.txt in Indexing Server
Registering details of File name IEFixes.txt in Indexing Server
Registering details of File name DIC_17092018.txt in Indexing Server
Registering details of File name Image~12-07-07_2153.jpg.txt in Indexing Server
Registering details of File name Image~Strong_Bad.png_c596.txt in Indexing Server
Registering details of File name lookup.txt in Indexing Server
Registering details of File name md5.txt in Indexing Server
Registering details of File name MediaWiki~Common.txt in Indexing Server
Registering details of File name preview.txt in Indexing Server
Registering details of File name Process Flow.txt in Indexing Server
Registering details of File name Process Flow.txt in Indexing Server
Registering details of File name User~EDUCA33E_2e3c.txt in Indexing Server
Registering details of File name rtl.txt in Indexing Server
Registering details of File name User~Korg_ff2d.txt in Indexing Server
Registering details of File name shared.txt in Indexing Server
Registering details of File name User~Pill_monobook.js_03c0.txt in Indexing Server
Registering details of File name Talk~Main_Page_Archive_1_12c9.txt in Indexing Server
Registering details of File name utf8.txt in Indexing Server
Registering details of File name User~Lothar_b2a9.txt in Indexing Server
start is: 855636188899169
Registering details of File name wikistandard.txt in Indexing Server
start is: 855636269161982
end is: 855636826934159
Avg Response time of PeerID Peer2 is 1.114ms
end is: 855636877335189
Avg Response time of PeerID Peer1 is 1.376ms
```

Average Response Time for Peer 1 : 1.376 ms
Average Response Time for Peer 2 : 1.114 ms

3 Peers (500 sequential requests each)

C:\WINDOWS\system32\cmd.exe

```
Registering details of File name Category~User_nl-N_e104.txt in Indexing Server
Registering details of File name DIC_17092018.txt in Indexing Server
Registering details of File name commonPrint.txt in Indexing Server
Registering details of File name DIC_27082018.txt in Indexing Server
Registering details of File name DIC_22082018.txt in Indexing Server
Registering details of File name Image~Strong_Bad.png_c596.txt in Indexing Server
Registering details of File name DIC_27082018.txt in Indexing Server
Registering details of File name feed.txt in Indexing Server
Registering details of File name IE70Fixes.txt in Indexing Server
Registering details of File name md5.txt in Indexing Server
Registering details of File name IEFixes.txt in Indexing Server
Registering details of File name IE60Fixes.txt in Indexing Server
Registering details of File name Image~12-07-07_2153.jpg.txt in Indexing Server
Registering details of File name preview.txt in Indexing Server
Registering details of File name lookup.txt in Indexing Server
Registering details of File name lookup.txt in Indexing Server
Registering details of File name MediaWiki~Common.txt in Indexing Server
Registering details of File name Process Flow.txt in Indexing Server
Registering details of File name Process Flow.txt in Indexing Server
Registering details of File name preview.txt in Indexing Server
Registering details of File name User~EDUCA33E_2e3c.txt in Indexing Server
Registering details of File name rtl.txt in Indexing Server
Registering details of File name User~Korg_ff2d.txt in Indexing Server
Registering details of File name quickbar-right.txt in Indexing Server
Registering details of File name User~Pill_monobook.js_03c0.txt in Indexing Server
Registering details of File name shared.txt in Indexing Server
Registering details of File name utf8.txt in Indexing Server
Registering details of File name upload.txt in Indexing Server
start is: 855402764197164
Registering details of File name Talk~Main_Page_Archive_1_12c9.txt in Indexing Server
Registering details of File name User_talk~Node_ue_c819.txt in Indexing Server
Registering details of File name User~Lothar_b2a9.txt in Indexing Server
Registering details of File name User~EdmundEzekielMahmudIsa_fe9e.txt in Indexing Server
Registering details of File name wikistandard.txt in Indexing Server
Registering details of File name Wikipedia~Sandbox_ae3e.txt in Indexing Server
start is: 855403098289499
start is: 855403167242204
end is: 855403785840786
Avg Response time of PeerID Peer3 is 1.236ms
end is: 855403875374305
Avg Response time of PeerID Peer2 is 1.554ms
end is: 855403968561708
Avg Response time of PeerID Peer1 is 2.408ms
```

Average Response Time for Peer 1 : 2.408 ms
Average Response Time for Peer 2 : 1.554 ms
Average Response Time for Peer 3 : 1.236 ms

4 Peers (500 sequential requests each)

```
C:\WINDOWS\system32\cmd.exe
Registering details of File name lookup.txt in Indexing Server
Registering details of File name DIC_22082018.txt in Indexing Server
Registering details of File name preview.txt in Indexing Server
Registering details of File name rtl.txt in Indexing Server
Registering details of File name MediaWiki~Monobook.txt in Indexing Server
Registering details of File name shared.txt in Indexing Server
Registering details of File name quickbar-right.txt in Indexing Server
Registering details of File name DIC_27082018.txt in Indexing Server
Registering details of File name upload.txt in Indexing Server
Registering details of File name Talk~Main_Page_Archive_1_12c9.txt in Indexing Server
Registering details of File name Process Flow.txt in Indexing Server
Registering details of File name User~Lothar_b2a9.txt in Indexing Server
Registering details of File name User_talk~Node_ue_c819.txt in Indexing Server
Registering details of File name IE70Fixes.txt in Indexing Server
Registering details of File name User~EdmundEzekielMahmudIsa_fe9e.txt in Indexing Server
Registering details of File name wikistandard.txt in Indexing Server
Registering details of File name Rob_Spurr_7000.txt in Indexing Server
start is: 855229999860926
Registering details of File name Wikipedia~Sandbox_ae3e.txt in Indexing Server
Registering details of File name IEFixes.txt in Indexing Server
start is: 855230061830709
Registering details of File name rtl.txt in Indexing Server
Registering details of File name Image~12-07-07_2153.jpg.txt in Indexing Server
Registering details of File name Special~Categories_101d.txt in Indexing Server
Registering details of File name lookup.txt in Indexing Server
Registering details of File name sticky.txt in Indexing Server
Registering details of File name MediaWiki~Common.txt in Indexing Server
Registering details of File name User~Aurevilly_fc9e.txt in Indexing Server
Registering details of File name Process Flow.txt in Indexing Server
start is: 855230228985672
Registering details of File name User~EDUCA33E_2e3c.txt in Indexing Server
Registering details of File name User~Korg_ff2d.txt in Indexing Server
Registering details of File name User~Pill_monobook.js_03c0.txt in Indexing Server
Registering details of File name utf8.txt in Indexing Server
start is: 855230507390135
end is: 855230992071275
Avg Response time of PeerID Peer4 is 1.526ms
end is: 855231055896738
end is: 855231052010380
Avg Response time of PeerID Peer1 is 1.088ms
Avg Response time of PeerID Peer3 is 1.988ms
end is: 855231265130906
Avg Response time of PeerID Peer2 is 2.53ms
```

Average Response Time for Peer 1 : 1.088 ms
Average Response Time for Peer 2 : 2.530 ms
Average Response Time for Peer 3 : 1.988 ms
Average Response Time for Peer 4 : 1.526 ms

5 Peers (500 sequential requests each)

```
C:\WINDOWS\system32\cmd.exe

Registering details of File name Special~Categories_101d.txt in Indexing Server
Registering details of File name IE70Fixes.txt in Indexing Server
Registering details of File name preview.txt in Indexing Server
Registering details of File name IEFixes.txt in Indexing Server
Registering details of File name sticky.txt in Indexing Server
Registering details of File name Wikipedia~Sandbox_ae3e.txt in Indexing Server
Registering details of File name IE50Fixes.txt in Indexing Server
start is: 855972846746734
Registering details of File name User~Aurevilly_fc9e.txt in Indexing Server
Registering details of File name Image~12-07-07_2153.jpg.txt in Indexing Server
Registering details of File name Process Flow.txt in Indexing Server
Registering details of File name lookup.txt in Indexing Server
start is: 855972930763502
Registering details of File name MediaWiki~Geshi.txt in Indexing Server
Registering details of File name oldshared.txt in Indexing Server
Registering details of File name MediaWiki~Common.txt in Indexing Server
Registering details of File name rtl.txt in Indexing Server
Registering details of File name Process Flow.txt in Indexing Server
Registering details of File name protect.txt in Indexing Server
Registering details of File name User~EDUCA33E_2e3c.txt in Indexing Server
Registering details of File name shared.txt in Indexing Server
Registering details of File name User~Korg_ff2d.txt in Indexing Server
Registering details of File name rtl.txt in Indexing Server
Registering details of File name User~Pill_monobook.js_03c0.txt in Indexing Server
Registering details of File name Talk~Main_Page_Archive_1_12c9.txt in Indexing Server
Registering details of File name utf8.txt in Indexing Server
Registering details of File name Template~Delete_bfa0.txt in Indexing Server
start is: 855973229138601
Registering details of File name User~Lothar_b2a9.txt in Indexing Server
Registering details of File name User~EDUCA33E_2e3c.txt in Indexing Server
start is: 855973328692591
Registering details of File name wikistandard.txt in Indexing Server
start is: 855973367371425
end is: 855974102073220
end is: 855974342420832
end is: 855974480458131
Avg Response time of PeerID Peer2 is 1.468ms
Avg Response time of PeerID Peer3 is 3.266ms
Avg Response time of PeerID Peer5 is 2.026ms
end is: 855974592242371
Avg Response time of PeerID Peer4 is 3.322ms
end is: 855974653004627
Avg Response time of PeerID Peer1 is 2.846ms
```
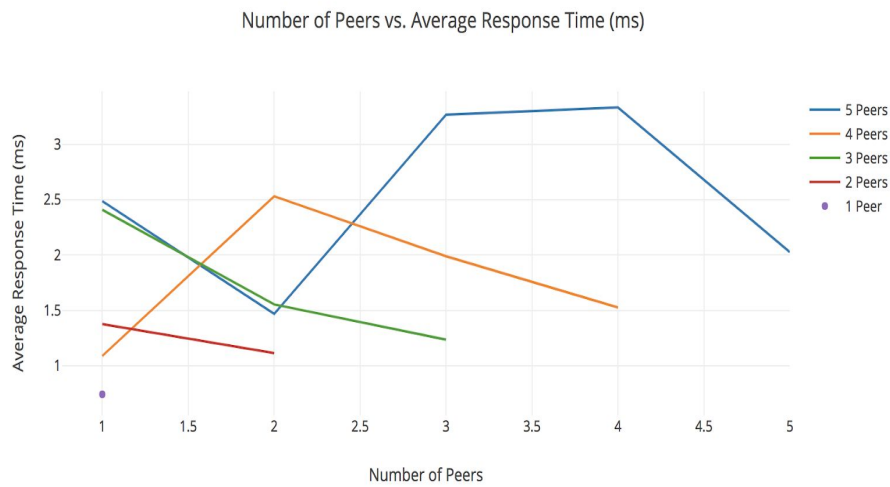
Average Response Time for Peer 1 : 2.486 ms
Average Response Time for Peer 2 : 1.468 ms
Average Response Time for Peer 3 : 3.266 ms
Average Response Time for Peer 4 : 3.332 ms
Average Response Time for Peer 5 : 2.026 ms

Plot

Number of Peers vs. Average Response Time (ms)

We can see from the plot that, there is an overall increase in the response time as the number of peers increase which tells us that the performance of the system implemented deteriorates with each additional peer.

Thus, we need some performance tuning in the implementation w.r.t. To Data Structures and Multi-threading.