

Evaluation part - I

This evaluation is performed on peers running concurrently. Number of file performing on each peer are constant i.e 10K and each file has size 1KB.

Evaluation is performed on 4 different cases.

1. Running single Peer.
2. Running 2 Peers concurrently.
3. Running 4 Peers concurrently.
4. Running 8 Peers concurrently.

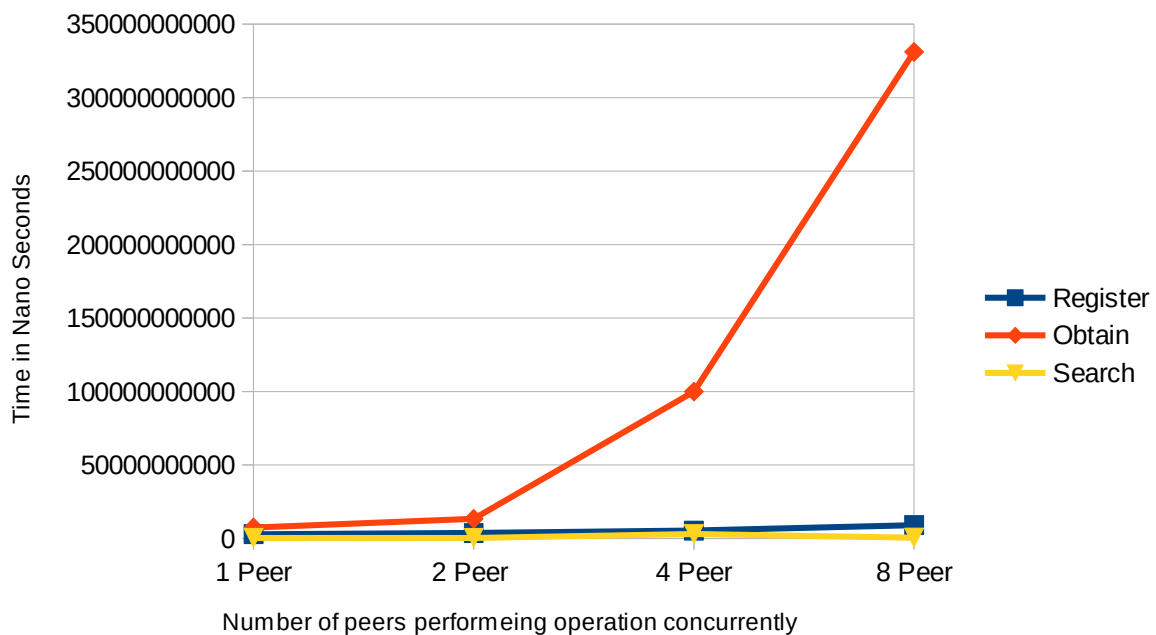
10000 files are processed on each peer. Each size of file is 1KB.

Following is the evaluation report for time required for different operation on different cases.

More details about evaluation is mention after graph.

Time required operation :

	Time required for operation in Nano Second		
	Register	Obtain	Search
1 Peer running	2901782137.00	7504035389.00	388144684.00
2 Peer running concurrent	3751360093.50	13377177791.50	376336908.00
4 Peer running concurrent	5395409368.25	99919666915.25	2939691872.00
8 Peer running concurrent	9051438099.12	331067504897.75	5336265000.62



1. Total Number of Peers Connected : 1
Files each server processing : 10000 Files
Total Number of files system processing : 10000 (1 * 10000)
Each file Size : 1 KB

Time required operation :

	Time required for operation in Nano Second		
	Register	Obtain	Search
Peer 1	2,901,782,137	7,504,035,389	388,144,684

```
sachin@sachin-HP-Pavilion-15-Notebook:~$ python3
1.Obtain
2.Register
3.Search
Enter choice : 2
Registering 10000 files.
Starts at 1402296563339
Operation completed at 1405198345476
Time Required 2901782137
Time Required 2 Seconds

1.Obtain
2.Register
3.Search
Enter choice : 1
Obtaining 10000 files.
Start Time : 1406751225855
DownloadedFiles directory created
Operation completed at 1414255261244
Time Required 7504035389NanoSecond
Time Required 7 Seconds

1.Obtain
2.Register
3.Search
Enter choice : 3
Searching 10000 files.
Start Time : 1416029393205
Operation completed at 1416417537889
Time Required 388144684NanoSecond
Time Required 0 Seconds
```

2. Total Number of Peers Connected : 2
Files each server processing : 10000 Files
Total Number of files system processing : 20000 (2 * 10000)
Each file Size : 1 KB

Time required operation :

	Time required for operation in Nano Second		
	Register	Obtain	Search
Peer 1	3,850,892,667	13,436,863,106	380,145,069
Peer 2	3,651,827,520	13,317,492,477	372,528,747
Average	3751360093.5	13377177791.5	376336908

The screenshot shows an Ubuntu Desktop environment with two terminal windows open. The desktop background is a dark purple gradient. The top bar shows 'Ubuntu Desktop' and system status icons including battery (34%), network, and time (8:18 PM). The left sidebar contains various application icons like Dash, Home, Files, Firefox, LibreOffice, and Amazon. The two terminal windows are titled 'sachin@sachin-HP-Pavilion-15-Note' and display the following output:

```

1.Obtain
2.Register
3.Search
Enter choice : 2
Registering 10000 files.
Starts at 2102188831166
Operation completed at 2106039723833
Time Required 3850892667
Time Required 3 Seconds

1.Obtain
2.Register
3.Search
Enter choice : 1
Obtaining 10000 files.
Start Time : 2111760215579
DownloadedFiles directory created
Operation completed at 2125197078685
Time Required 13436863106NanoSecond
Time Required 13 Seconds

1.Obtain
2.Register
3.Search
Enter choice : 3
Searching 10000 files.
Start Time : 2132206285516
Operation completed at 2132586430585
Time Required 380145069NanoSecond
Time Required 0 Seconds

```

3. Total Number of Peers Connected : 4
Files each server processing : 10000 Files
Total Number of files system processing : 40000 (4 * 10000)
Each file Size : 1 KB

Time required operation :

	Time required for operation in Nano Second		
	Register	Obtain	Search
Peer 1	5849502653	98101141084	3667947393
Peer 2	5598325924	98509732562	3374162810
Peer 3	5293017530	101873683955	2574513995
Peer 4	4840791366	101194110060	2142143290
Average	5395409368.25	99919666915.25	2939691872

The screenshot shows an Ubuntu Desktop environment with four terminal windows open, each displaying the output of a file registration and search operation. The windows are titled 'sachin@sachin-HP-Pavilion-15-Not'. The output in each window follows a similar pattern: 'Registering 10000 files.', 'Starts at [timestamp]', 'Operation completed at [timestamp]', 'Time Required [value] NanoSecond', and 'Time Required [value] Seconds'. The operations are performed in a sequence of 1.Obtain, 2.Register, and 3.Search. The search operation is entered via 'Enter choice : 3'. The search results show the 'DownloadedFiles directory created' and the 'Operation completed at [timestamp]'. The search time required is displayed in both NanoSecond and Seconds. The search results are as follows:

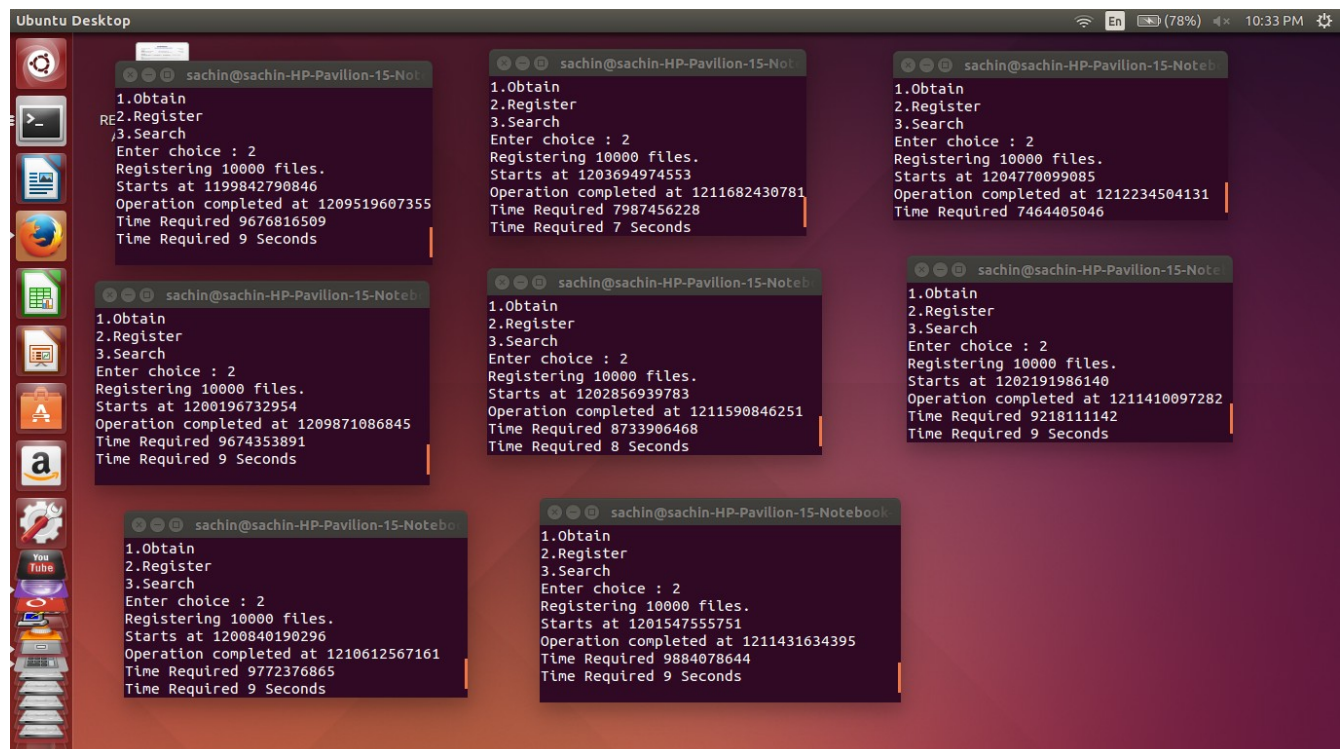
Peer	Register Time (NanoSecond)	Obtain Time (NanoSecond)	Search Time (NanoSecond)
Peer 1	5849502653	98101141084	3667947393
Peer 2	5598325924	98509732562	3374162810
Peer 3	5293017530	101873683955	2574513995
Peer 4	4840791366	101194110060	2142143290

4. Total Number of Peers Connected : 8
Files each server processing : 10000 Files
Total Number of files system processing : 80000 (8 * 10000)
Each file Size : 1 KB

Time required operation :

	Time required for operation in Nano Second		
	Register	Obtain	Search
Peer 1	9676816509	287319210016	619765373
Peer 2	7987456228	320314099394	521413836
Peer 3	7464405046	349587614412	539793281
Peer 4	9674353891	330709794236	558844515
Peer 5	8733906468	337557816204	527867775
Peer 6	9218111142	344790755059	525499690
Peer 7	9772376865	350337703382	450870323
Peer 8	9884078644	327923046479	524957212
Average	9051438099.125	331067504897.75	533626500.625

Screen-shot for Register Operation =>



Screen-shot for Obtain Operation =>

The image shows a desktop environment with a dark theme. On the left is a vertical dock containing icons for various applications: a gear (Settings), a terminal, a document, a web browser (Firefox), a file manager, a presentation viewer, an Amazon logo, a wrench and screwdriver (System Tools), and a YouTube icon. The top of the screen features a status bar with the text 'Ubuntu Desktop', a system clock showing '10:38 PM', and a battery status indicator '(83%)'. Four terminal windows are open, each displaying a different Java program. The first terminal (top left) shows a program that prompts for a choice (1, 2, or 3) and then performs a file download. The second terminal (top right) shows a similar program but with a 'java.net.SocketTimeoutException: Read timed out' error. The third terminal (bottom left) shows a program that prompts for a choice (1, 2, or 3) and then performs a file download. The fourth terminal (bottom right) shows a program that prompts for a choice (1, 2, or 3) and then performs a file download. All terminals show the output of the Java program, including the choice entered, the files obtained, and the time required for the operation. The error messages in the second and fourth terminals indicate a network timeout during the file download process.

Screen-shot for Search Operation =>