

# CS550 – Advanced Operating System

## Programming Assignment 2

### Implementation Details:

The program contains a file called ipeer.cpp.

The ipeer.cpp contains the program for peer. It contains the HashMap for the storing the files along with the IP address of the files. The iPeer program has two main functions to send the requests and handle request. It contains the code to transfer the file from one machine to another.

### Test Environment:

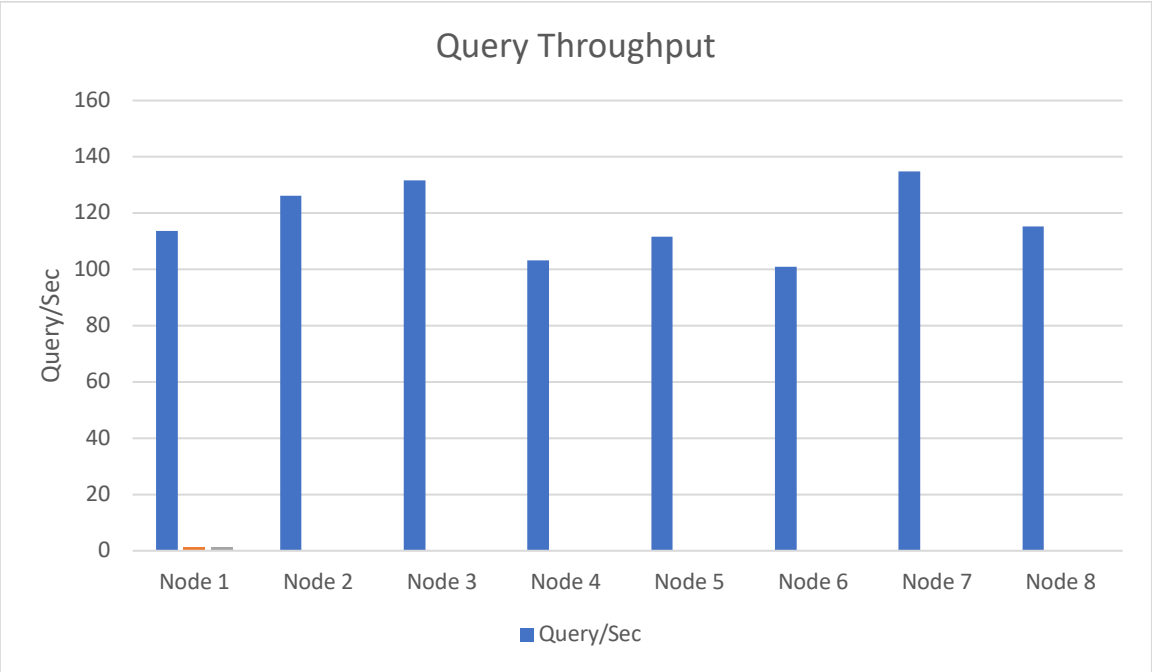
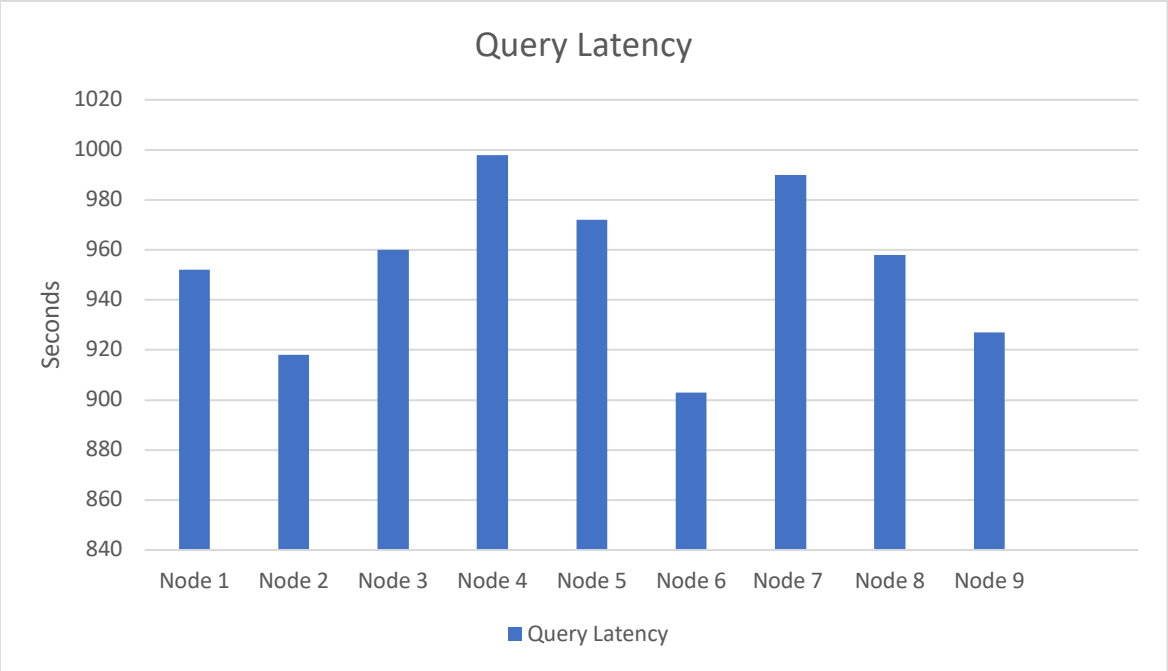
**Chameleon Cloud:** We used 10 M1.small instances.

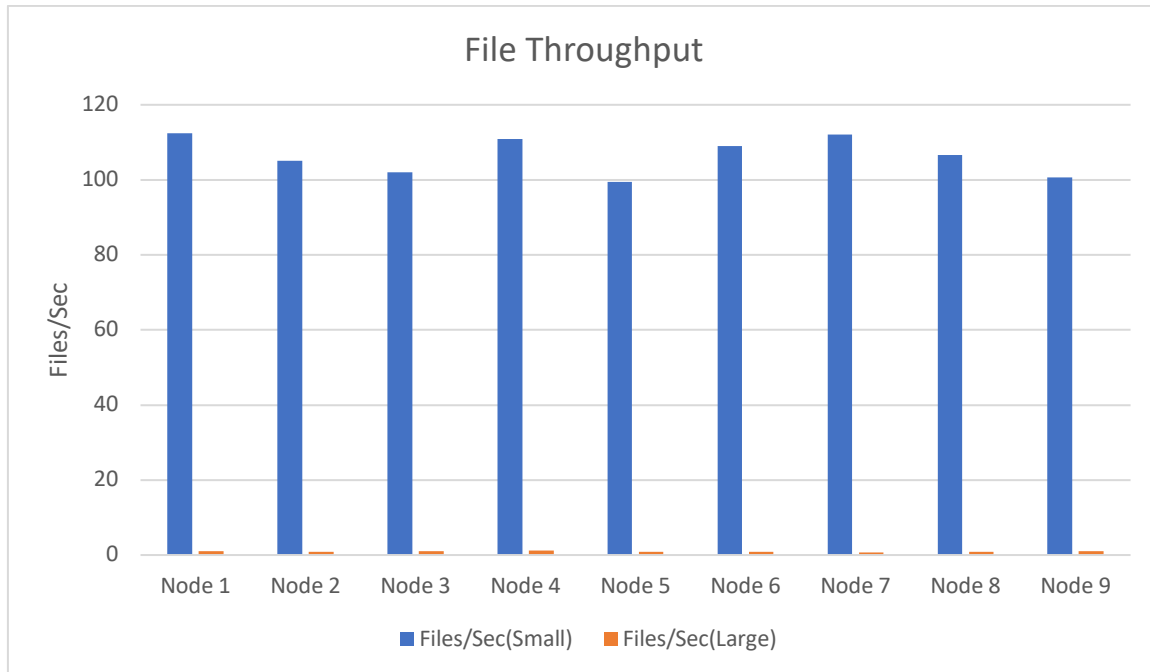
**Data:** 100K : 10KB text Files, 10: 100MB binary file

### Evaluation:

#### 1. Centralized System:

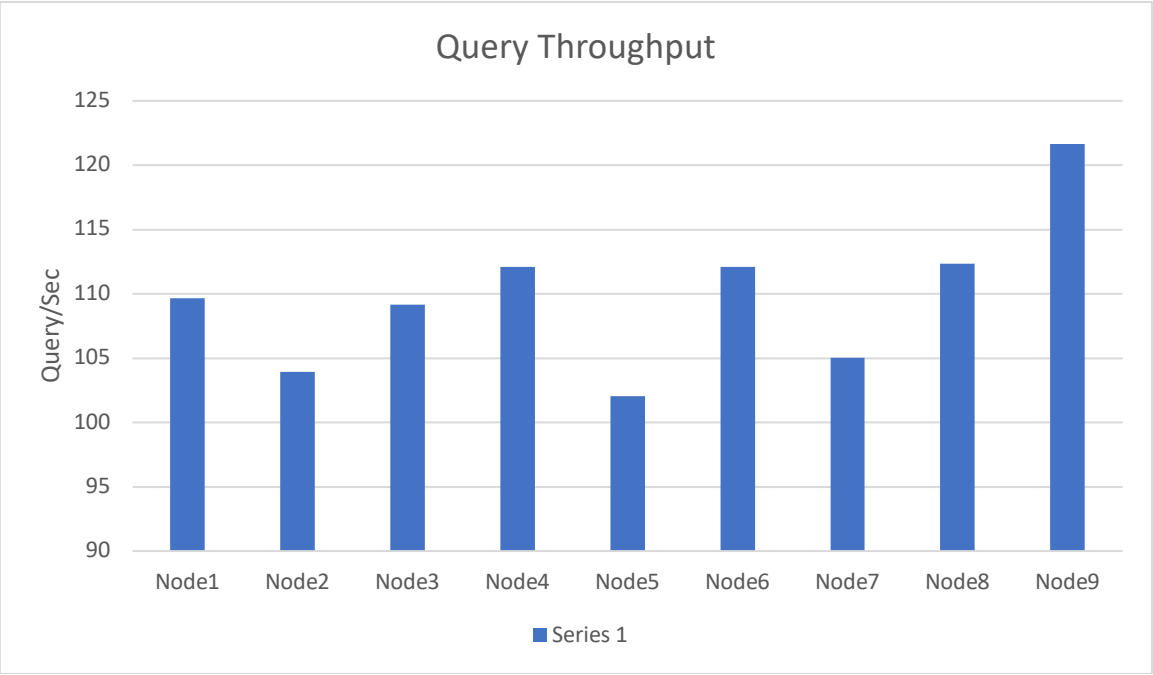
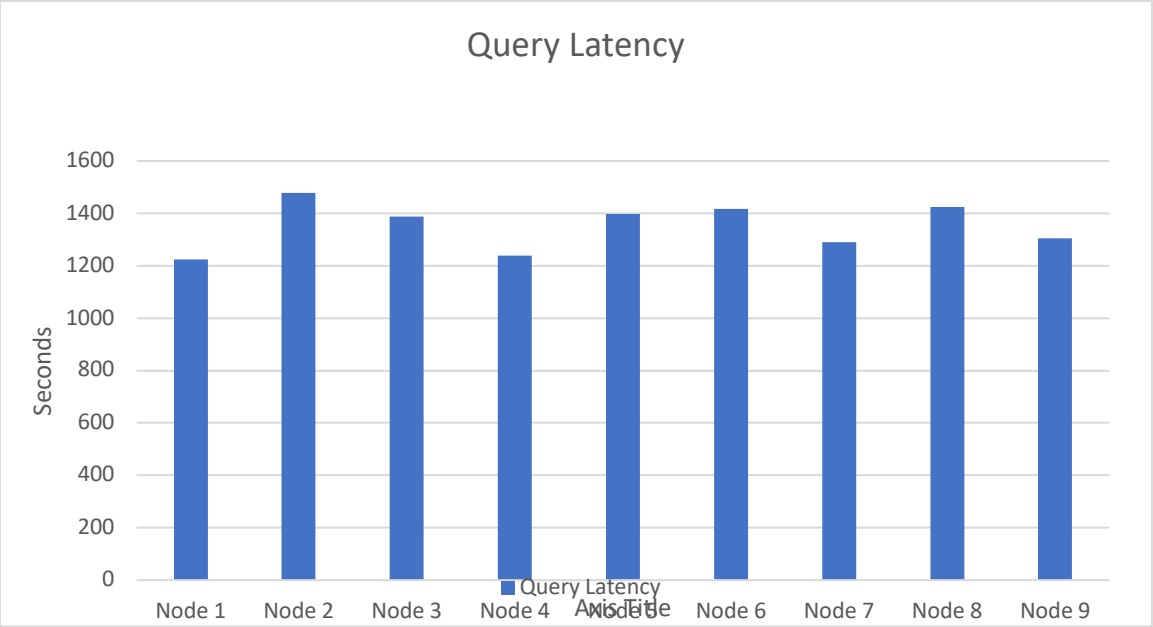
Node	Query Latency (Seconds)	Query Throughput (Query/Sec)	Transfer Throughput Small (Files/Sec)	Transfer Throughput Large (Files/Sec)
Node 1	952	113.6364	112.3596	0.980392
Node 2	918	126.2626	105.042	0.925926
Node 3	960	131.5789	102.0408	1.010101
Node 4	998	103.3058	110.8647	1.123596
Node 5	972	111.6071	99.40358	0.847458
Node 6	903	100.9082	108.9325	0.892857
Node 7	990	134.7709	112.1076	0.746269
Node 8	958	115.2074	106.6098	0.869565
Node 9	927	111.1111	100.7049	1.020408
	Average=953.11	Average= 116.48	Average= 106.45	Average=0.935
	Standard Deviation=30.24	Standard deviation=11.23	Standard Deviation=4.674	Standard Deviation=0.105

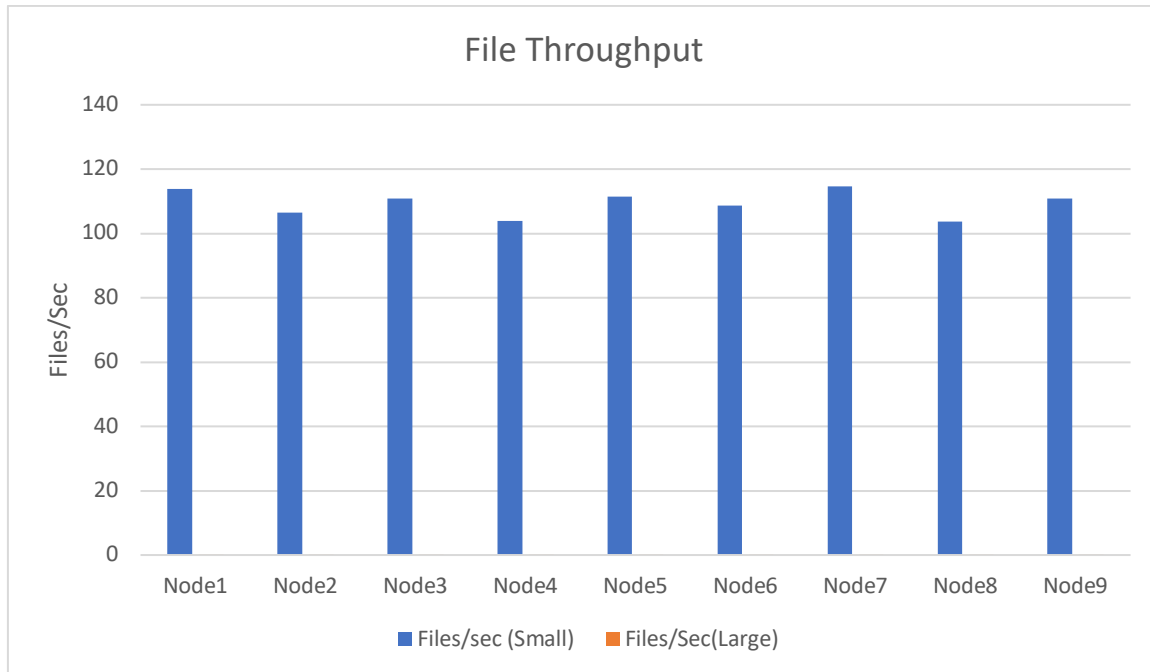




## 2. A Star Topology:

Node	Query Latency (Seconds)	Query Throughput (Query/Sec)	Transfer Throughput Small (Files/Sec)	Transfer Throughput Large (/FilesSec)
Node1	1223	109.6491	113.7656	0.192398
Node2	1478	103.9501	106.383	0.177008
Node3	1389	109.1703	110.8647	0.108642
Node4	1239	112.1076	103.8422	0.114465
Node5	1397	102.0408	111.3586	0.11645
Node6	1416	112.1076	108.5776	0.17027
Node7	1289	105.042	114.6789	0.121729
Node8	1425	112.3596	103.6269	0.149377
Node9	1306	121.6545	110.8647	0.131481
	Average=1351.33	Average=109.78	Average=109.38	Average=0.1424
	Standard Deviation=84.44	Standard Deviation=5.529	Standard Deviation=3.785	Standard Deviation=0.0291





### 3. 2D-Mesh Topology

Node	Query Latency (Seconds)	Query Throughput (Query/Sec)	Transfer Throughput Small (Files/Sec)	Transfer Throughput Large (Files/Sec)
Node 1	1831	122.549	123.4568	0.046429
Node 2	1778	125.3133	127.8772	0.016021
Node 3	1618	121.9512	116.6861	0.090625
Node 4	1872	124.0695	137.1742	0.015456
Node 5	1913	128.5347	116.144	0.010529
Node 6	1764	115.3403	117.9245	0.026178
Node 7	1861	117.3709	134.2282	0.029542
Node 8	1845	130.3781	113.2503	0.021297
Node 9	1918	119.0476	128.866	0.029712
	Average= 1822.22	Average=122.72	Average=123.95	Average=0.0317
	Standard Deviation=87.58	Standard Deviation=4.69	Standard Deviation=8.061	Standard Deviation=0.023

