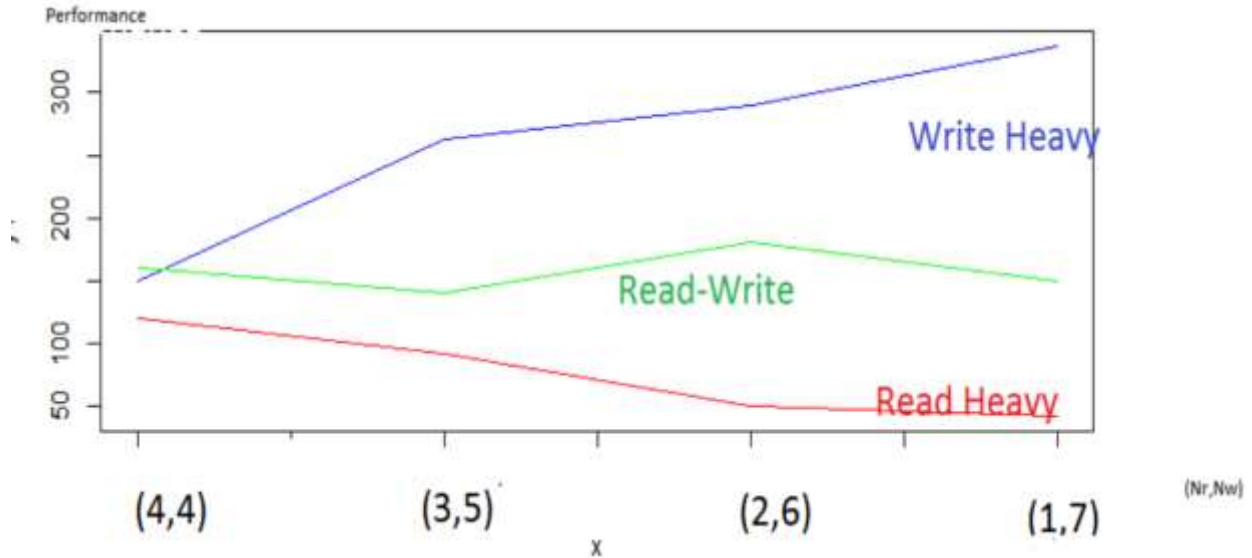


Results



Time measured in milliseconds

Nr	Nw	Read-Heavy	Write-Heavy	Read-Write
4	4	12037	15002	16563
3	5	9240	26323	14121
2	6	5025	29094	18089
1	7	4235	33787	15548

Above were the minimum recorded values.

The above graph represents our experiments for three different loads: read heavy, write heavy and read-write heavy operations on the distributed file system in which we have implemented the quorum based protocol. The different combinations of (Nr, Nw) used for the purposes of this project are (4,4), (3,5), (2, 6), (1,7) where Ntotal=7.

From the above graph we can conclude that the optimal combination of (Nr, Nw) for read heavy work-loads is when Nr is minimum (in this case the combination (1,7)). This is because the low number of nodes in read quorum ensures minimum number of read operations are done while retrieving a file. On the other hand, for write-heavy operations, the optimal combination of (Nr, Nw) is when Nw is minimum (while still satisfying the basic conditions for quorum protocol), in this case (4,4). Intuitively again, this is because we want to do minimum number of write operations every time so having low number of nodes in the write quorum facilitated this. For the read-write heavy, no discernible pattern can be obtained as it is seen fluctuating with different combinations of Nr and Nw. Again, all the observations are made taking into consideration that there is substantial noise in the communication medium as there are many users concurrently accessing the virtual machines on which the experiment was conducted. If given the provision for isolated runs, one can arrive at more informative results.