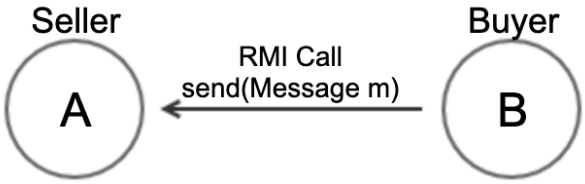
1. Latencies to process an RMI call

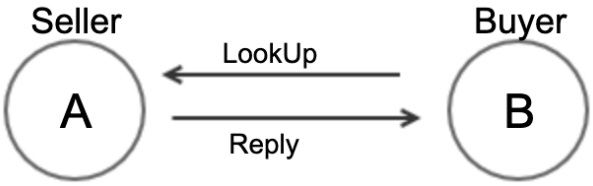


We use RMI to implement communication between our Nodes. In seller Node A, there is a thread waiting for RMI call, the name of RMI function is “send”. Other Nodes call “send” function to push Message m into Message Queue of A.

In order to test latencies to process an RMI call, I set up a timer in Buyer, record the local time before and after calling RMI function “send” and calculate the duration. The process is repeated over 1000 times. The average time to process RMI function is listed below. Experiment 1 is close to experiment 2. Experiment 2 is faster than 3, because Nodes in experiment 2 are running on the same machine, no need Network to transfer message.

1	Nodes on the same local machine	1.80 millisecond
2	Nodes on the same edlab machine	1.85millisecond
3	Nodes on different edlab machine	2.56 millisecond

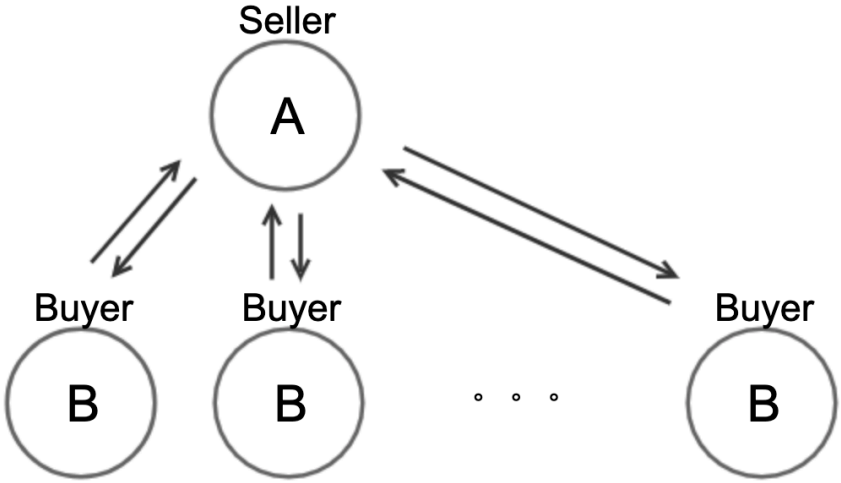
2. Time for LookUp Method corresponding to host machine



For one buyer, we calculate the time between flooding LookUp message and receiving first Reply Message. The result is shown below,

1	Nodes on the same local machine	3.05 millisecond
2	Nodes on the same edlab machine	1.85 millisecond
3	Nodes on different edlab machine	2.64 millisecond

3. Time to for LookUp Method corresponding to number of Buyers



We set up one Seller, and set up different number of Buyers from 1-5 separately, and calculate the average LookUp time for Buyers. The LookUp time is the duration between sending LookUp Message and receiving first Reply Message. All Seller and Buyer nodes are running on the same machine.

From the result, we can see that with the number of Buyer increases, the respond time increases also. This is because more Buyers send “LOOKUP” Message to Seller, Seller has a longer Message Queue to deal with, and it takes longer average time to respond each Buyer.

Number of Buyers	Average LookUp time
1	3.05 millisecond
2	4.78 millisecond
3	4.91 millisecond
4	5.30 millisecond
5	5.55 millisecond