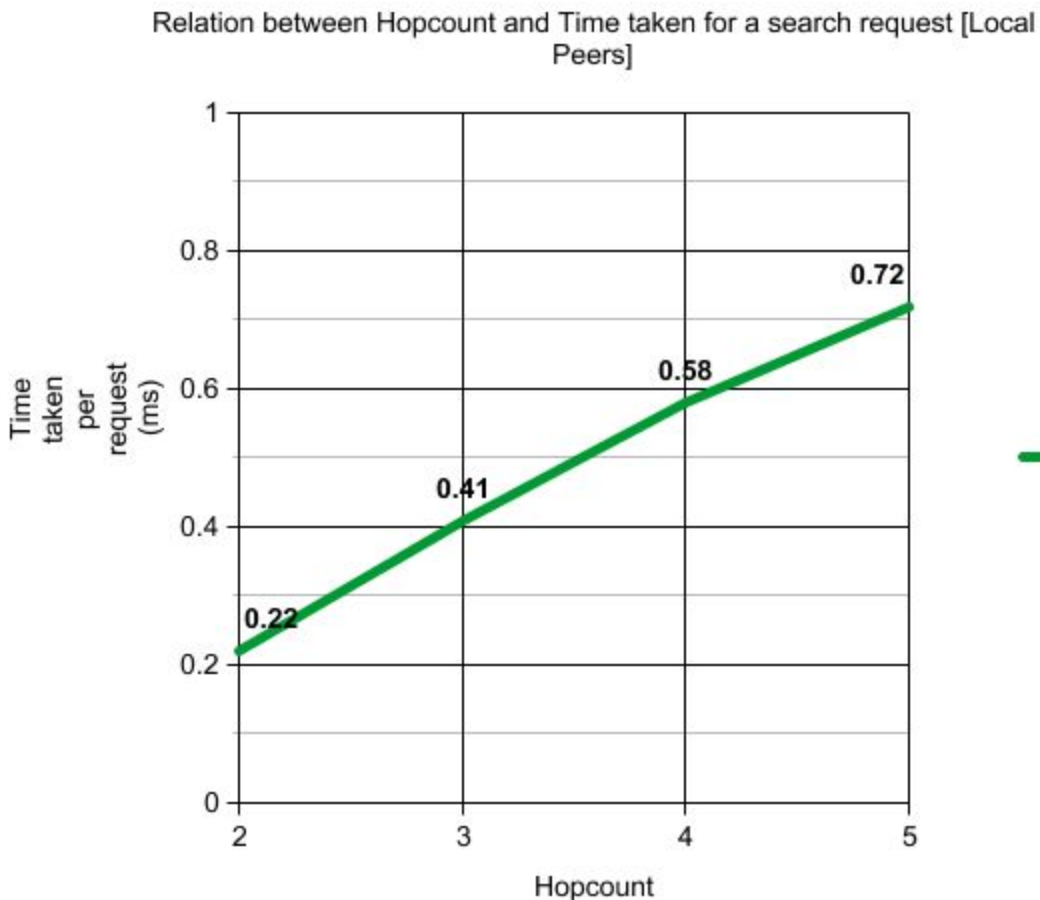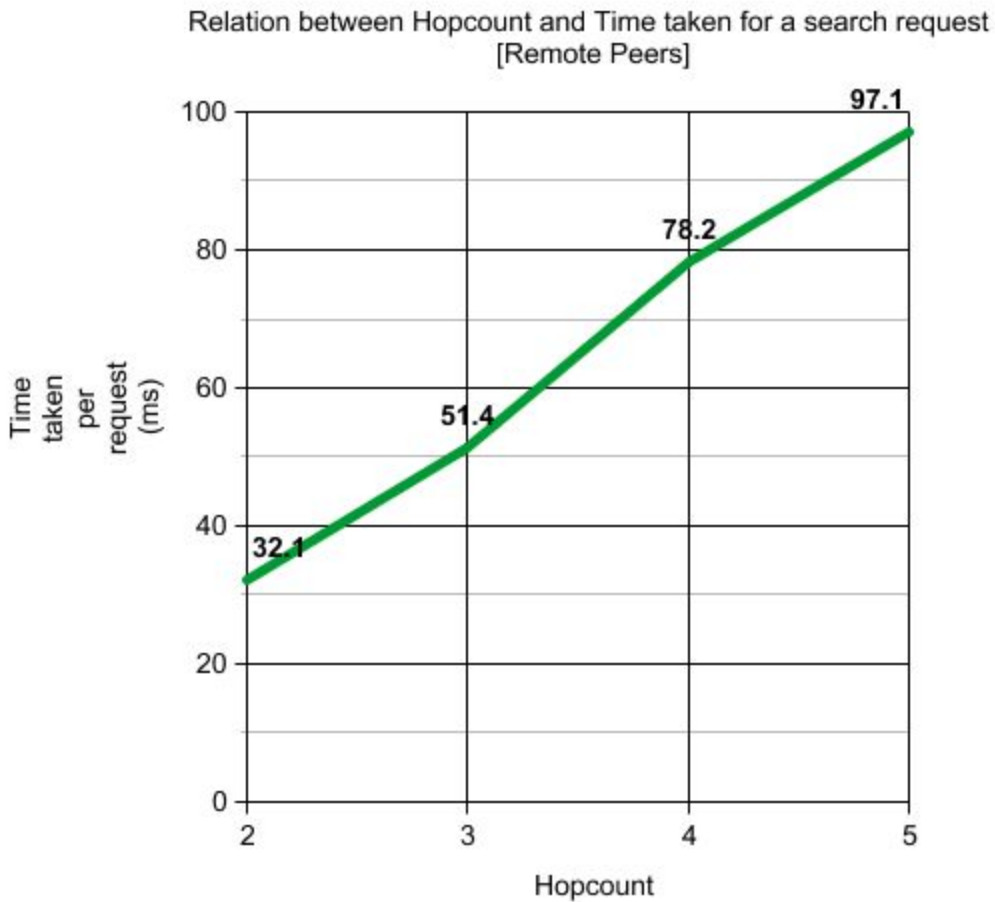We measured the average response time per client search request by measuring the response time seen by a client for 1000 lookup requests. To simulate this, we manually set the roles of the peers in the system. There is one buyer, and there are 5 sellers. The buyer continuously tries to buy from on of the 5 sellers. We vary the hop count from 2 through to 5, and measure the time for a lookup in each case. We did this test in two scenarios.

In scenario 1, the buyer and the sellers are all running on the same machine. We plot the average time per request as a function of hop count.

Relation between Hopcount and Time taken for a search request [Local Peers]

In scenario 2, the buyer is running on one machine (machine A), and all the sellers are running a another machine (machine B). Here is the plot.

Relation between Hopcount and Time taken for a search request
[Remote Peers]

As we can see, in general, the time taken per request increases almost linearly with hop count. Also, remote lookup requests take much more time, almost 3 orders of magnitude more than local lookups.