Seminar Report: Chordy

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1 Open questions

Try to answer all the open questions in the assignment. When asked to do so, perform experiments to support your answers.

a) What are the pros and cons of a more frequent stabilizing procedure?
The pros is that the ring will be updated faster and more frequently, which means nodes that are suspected to be up will be up with a high probability, leading to better consistency. The cons is that a lot of messages will be sent and it might reduce the speed of the network.

b) Do we have to inform the new node about our decision? How will it know if we have discarded its friendly proposal?
No, we don't need to send anything, we check by ourselves in what position of the ring this node belongs to. It will know you discarded the proposal because your predecessor won't be nil anymore, and they can check by themselves your key value, which means they know which position you should be placed on.

c) What would happen if we did not schedule the stabilize procedure? Would things still work?
Unless new nodes never join the ring and nodes never fail (very bad assumption and unreal), this wouldn't work because the ring wouldn't be updated (it's the stabilize procedure's work).

d) What will happen if a node is falsely detected of being dead (e.g. it has only been temporally unavailable)?
The predecessor of this node will assume this node is dead, and will adopt the "dead's" node successor as its own successor. This successor will set its predecessor to nil and wait for someone to tell them they are a candidate to be their predecessor. This means, this node will be totally ignored, since the procedures described previously are the same ones of those of a node that actually died.

e) What node must send the confirmation message to the client when adding a key-value element to the store?
The one that adds this key to its own replica.

f) How does the code deal with duplicated requests by the same client to add elements to the store?
It replaces the previous pair of key and value for the new pair.

g) Outline the necessary changes in the code to implement finger tables.

- Instead of having a node for the successor, we should have a list of nodes with m entries, where m is the number of bits used for each key.
- In the lookup we should have to search on the successor list the last node that doesn't exceed the searched key.
- Every time a node exits, we should modify the finger tables from nodes that had this node.

2 Personal opinion

Give your opinion of the seminar assignment, indicating whether it should be included in next year's course or not.

- **Albert:**
  I've found this assignment really long and as it's placed in weeks were we have many other exams and high workload it is quite difficult to finish. However, I think is an interesting seminar to have done.

- **Pol:**
  It was difficult because it was very long (the code and the seminar) and each time we completed an Erlang file, we had to modify loads of functions from the code. On the other hand, the replication part was difficult because we didn't really know if the duplication error was ours or from the seminar itself (where it said that the code "almost" works).

- **Noa:**
  A bit too long, but I guess it's normal taking into account we have one week more to work in this lab.