600.337 Distributed Systems Assignment 2

Yixiao wu [ywu66@jhu.edu](mailto:ywu66@jhu.edu)

Sihao Lu [slu21@jhu.edu](mailto:slu21@jhu.edu)

First Draft

Single Ring Protocol

1. mcast.c

We need to build a message structure containing the following fields

* sender\_name: specify the which machine initiates the message
* data: the actual contents of message
* Config\_num: Make sure the message is delivered in causal order
* Seq: the sequence number of the message

The message circulates in the ring (ordered by machine num)

Then we need to have a token with the following fields

* t\_seq: keep a token sequence number to avoid token duplication and neglect redundant tokens.
* aru: Determine whether all processors have received all messages with seq num less or equal to the sequence number.
* rtr: retransmissions request list of missing packets
* aru\_id: The id of the processor that has the smallest aru

process struct

* local\_t\_seq: Keep track of the token num and compare with the token received
* local\_aru: sequence received all messages with sequence number <= sequence number
* new\_message: message need to be broadcasted
* received\_message: message received from other processes

The Protocol

Start\_mcast checks the connection status of each process. A special message packet will be delivered to each machine when all processes are standing by.

On receipt of a token, the process will check the configuration of the message to make sure that all the messages are sent in correct order. It then broadcasts new messages and possible retransmissions. It updates the seq and passes the token.

When a process receives a token, it updates the aru field if needed. Whenever the seq and aru\_id are identical, the process increments aru and local\_aru.

If the seq is greater than local\_aru, the put the missing pakcets index into rtr. If the process has received messages in rtr, then removes the index from rtr.

A time limit should be implemented since token might go missing during the process.

Any redundant token will be removed after comparing t\_seq.