Team Decided – Raft Consensus

Inception Iteration Plan 9 - Starting 23/07/2018

1. Key Milestones

Milestone	Date
Iteration Start	23/07/2018
Dynamic Cluster Membership (nodes coming and leaving from cluster, cluster expanding/shrinking with more/less nodes) and Designate UAS	23/07/2018
Focusing on code quality/multithreading	23/07/2018
Redesign unit testing suite for further extensive verification of existing functionality	23/07/2018
Iteration End	05/08/2018

2. High-level Objectives

ID	Objective	Date
1	Dynamic Cluster Membership (nodes coming and leaving from cluster, cluster expanding/shrinking with more/less nodes) and Designate UAS	25/07/2018
2	Focusing on code quality/multithreading	25/07/2018
3	Redesign unit testing suite for further extensive verification of existing functionality	25/07/2018

3. Evaluation Criteria

Obj. ID	Evaluation Criteria
1	Create ability to have Dynamic Cluster Membership (nodes coming and leaving from cluster, cluster expanding/shrinking with more/less nodes) and Designating a UAS
2	Completed a full project code review and refactored where necessary to increase code quality/reliability. With a focus on multithreading.
3	Redesigned unit testing suite which better verifies existing functionality

4. Work Item Assignments

State:
C – Complete
P – In Progress
W – Waiting to start

Work ID	Name or keywords	Outcome	State	Assigned to	Est (hrs)	Act (hrs)	Left (hrs)
1	Dynamic Cluster Membership (nodes coming and leaving from cluster, cluster expanding/shrinking with more/less nodes) and Designate UAS	Not yet started	W	Sean	40:00	0:00	40:00
2	Focusing on code quality/multithreading	Refactoring complete, currently tracking down bugs which	C	Joshua	5:00	40:00	0:00
3	Redesign unit testing suite for further extensive verification of existing functionality	Completed (coverage and testing of code base that isn't undergoing changes)	P	Sean	10:00	5:00	5:00
				Totals	55:00	45:00	45:00

5. Issues

Issue	Status	Notes
Debugging multithreaded issue	Closed	We still had a bug after the refactor which took a huge amount of effort to trace down, once again we got bitten by just how hard debugging multithreaded stuff is
Debugging multithreaded log entries	Closed	We had to develop tools to capture log entries which were being fired at sub millisecond increments. The actual writing to disk function of RaftLogging was preventing us from capturing all messages. Opted for an interprocess solution using named pipes.

6.   Assessment

Assessment target	Inception Iteration 9	
Assessment date	05/08/2018	
Participants	All - Joshua and Sean	
Project status	Green - Although we're still behind, we've ensured we have sufficient contingency for complete these milestones. As we've discussed more in depth about log compaction techniques for next iteration, we believe that challenge will be easier to implement than a full 40 hours, so we've also got time in there to be able to make up time here.	
Assessment against objectives	**Objective**	**Result**
	Dynamic Cluster Membership (nodes coming and leaving from cluster, cluster expanding/shrinking with more/less nodes) and Designate UAS	Not yet started
	Focusing on code quality/multithreading	Completed, all known bugs resolved
	Redesign unit testing suite for further extensive verification of existing functionality	Sean added some unit testing for the work we did this iteration, but we only completed Raft Consensus late Sunday so he he'll have to follow through with tests for that next iteration