

Team Decided – Raft Consensus

Inception Iteration Plan 5 - Starting 07/05/2018

1. Key Milestones

Milestone	Date
Iteration Start	07/05/2018
Complete TDD for RaftNetworking Security	12/05/2018
Complete TDD for Raft-DistributedLog	12/05/2018
Complete TDD for Raft-NodeInfo	12/05/2018
Implement Raft Networking security	12/05/2018
Complete TDD for Raft Consensus + API	19/05/2018
Complete Raft Distributed Log Implementation	19/05/2018
Complete Raft Consensus Implementation	19/05/2018
Complete a functional demonstration prototype	19/05/2018
Confirm all integration and unit tests pass	19/05/2018
Iteration End	20/05/2018

2. High-level Objectives

ID	Objective	Date
1	Complete TDD for RaftNetworking Security	12/05/2018
2	Complete TDD for Raft-DistributedLog	12/05/2018
3	Complete TDD for Raft-NodeInfo	12/05/2018
4	Implement Raft Networking security	12/05/2018
5	Complete TDD for Raft Consensus + API	19/05/2018
6	Complete Raft Distributed Log Implementation	19/05/2018
7	Complete Raft Consensus Implementation	19/05/2018
8	Complete a functional demonstration prototype	19/05/2018
9	Confirm all integration and unit tests pass	19/05/2018

3. Evaluation Criteria

Obj. ID	Evaluation Criteria
1	Have completed TDD for RaftNetworking Security
2	Have complete TDD for Raft-DistributedLog
3	Have complete TDD for Raft-NodeInfo
4	Implemented Raft Networking Security, works as desired
5	Have complete TDD for Raft Consensus + API
6	Have completed Raft Distributed Log Implementation
7	Have completed Raft Consensus Implementation
8	Have completed a functional demonstration prototype
9	Confirmed all integration and unit tests pass

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)
1.1	Complete TDD for RaftNetworking Security		C	Joshua	6:00	6:00	0:00
2.1	Complete TDD for Raft-DistributedLog		C	Sean	2:00	2:00	0:00
3.1	Complete TDD for Raft-NodeInfo		C	Joshua	2:00	2:00	0:00
4.1	Implement Raft Networking security		C	Joshua	5:00	5:00	0:00
5.1	Complete TDD for Raft Consensus + API		P	Sean	20:00	6:00	8:00
6.1	Complete Raft Distributed Log Implementation		C	Joshua	2:00	2:00	0:00
7.1	Complete Raft Consensus Implementation		P	Joshua	20:00	22:00	40:00
8.1	Complete a functional demonstration prototype		W	Sean	6:00	0:00	6:00
9.1	Confirm all integration and unit tests pass	Including some cleanup	C	Sean	2:00	2:00	0:00
Totals					65:00	47:00	54:00

5. Issues

Issue	Status	Notes
Overcommit in iteration, Jim granted extension	Closed	We had too much time estimated for our iterations work log, Jim said he'll grant us a two week extension to help spread out the work.
Consensus algorithm us taking longer than expected	Open	We estimated it would take 20 hours, it's taken 22 so far, and it's around a third done. After the extension from Jim, we're still going to have to over work during the next iteration.
Too optimistic about features for prototype	Closed	We've dropped custom networking interface, logging, non-event based usage of networking/consensus, fitness selection of next node, and gracefully shutting down cluster

6. Assessment

Assessment target	Inception Iteration 5	
Assessment date	20/05/2018	
Participants	All - Joshua and Sean	
Project status	<p>Red</p> <p>We've been too optimistic with the features added to prototype so we've dropped a lot of them for now, sticking to a minimal approach. Our future estimates for time required for various work items is above and beyond the reasonable expectation from members for hours per week, however there isn't an option besides completing the work. We've again bumped into inaccurate estimates because things are just too hard to estimate without the wisdom of experience doing these things and not understanding the problem exactly enough. We're running into needing to use our spare time for preparing for exams for other subjects, it is a balancing act.</p>	
Assessment against objectives	Objective	Result
	Complete TDD for RaftNetworking Security	Completed and tested
	Complete TDD for Raft-DistributedLog	Completed and tested
	Complete TDD for Raft-NodeInfo	Completed and tested
	Implement Raft Networking security	Completed and test, took longer than expected to implement key exchange encryption and authentication (zero knowledge proof)
	Complete TDD for Raft Consensus + API	Working through implementation currently able to form cluster and exchange simple messages commit to log.
	Complete Raft Distributed Log Implementation	Complete and tested.

	Complete Raft Consensus Implementation	Started, however it will take longer than expected. Work in progress. Currently the biggest project risk!!! Should have probably done first
	Complete a functional demonstration prototype	Not yet started
	Confirm all integration and unit tests pass	Completed, tests cleaned up