

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 |