OCaml in Practice : Building Functional systems

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Log Structured Merge

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RAFT Distributed consensus protocol

Abstract

The Raft consensus Algorithm was desiged by Diego Ongaro and John Ousterhout at Stanford University. Apart from other characteristics they argue that it is designed for **Understandability**.

The following primary characteristics are what the Raft authors mention.

- Consensus is agreement of shared state
- System is up if majority of servers are up
- Needed for consistent, fault-tolerant storage systems

2.1 Remote Procedure Calls and State Machine

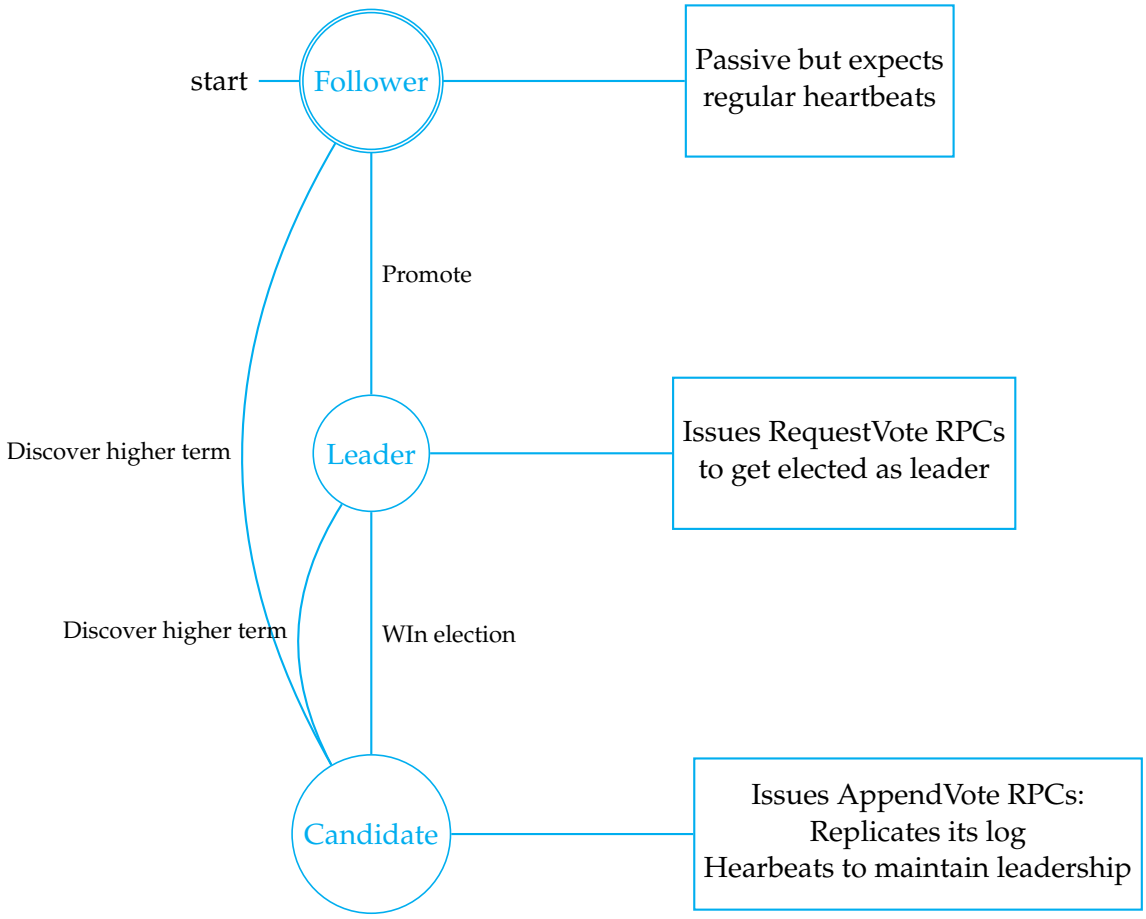

Figure 2.1

2.2 Leader Election

2.3 The Term

A term is a value that is sent with every RPC and received in every response. It is used to identify obsolete information *(e.g)* If a peer has a later term, the term is updated and the status is reverted to *Follower*. Every server maintains its own term and so there is no-*Global view*.

```
1    let get_state = function
2      | `Leader -> "leader."
3      | `Follower -> "follower."
4      | `Candidate -> "candidate."
5      | `Dead -> "␣dead."
```

Code 2.1: A example with parameter in a environment.

- `RequestVote` : Solicits votes from other members of the cluster
- `AppendEntries` : Replicates the log and can also server as a heartbeat

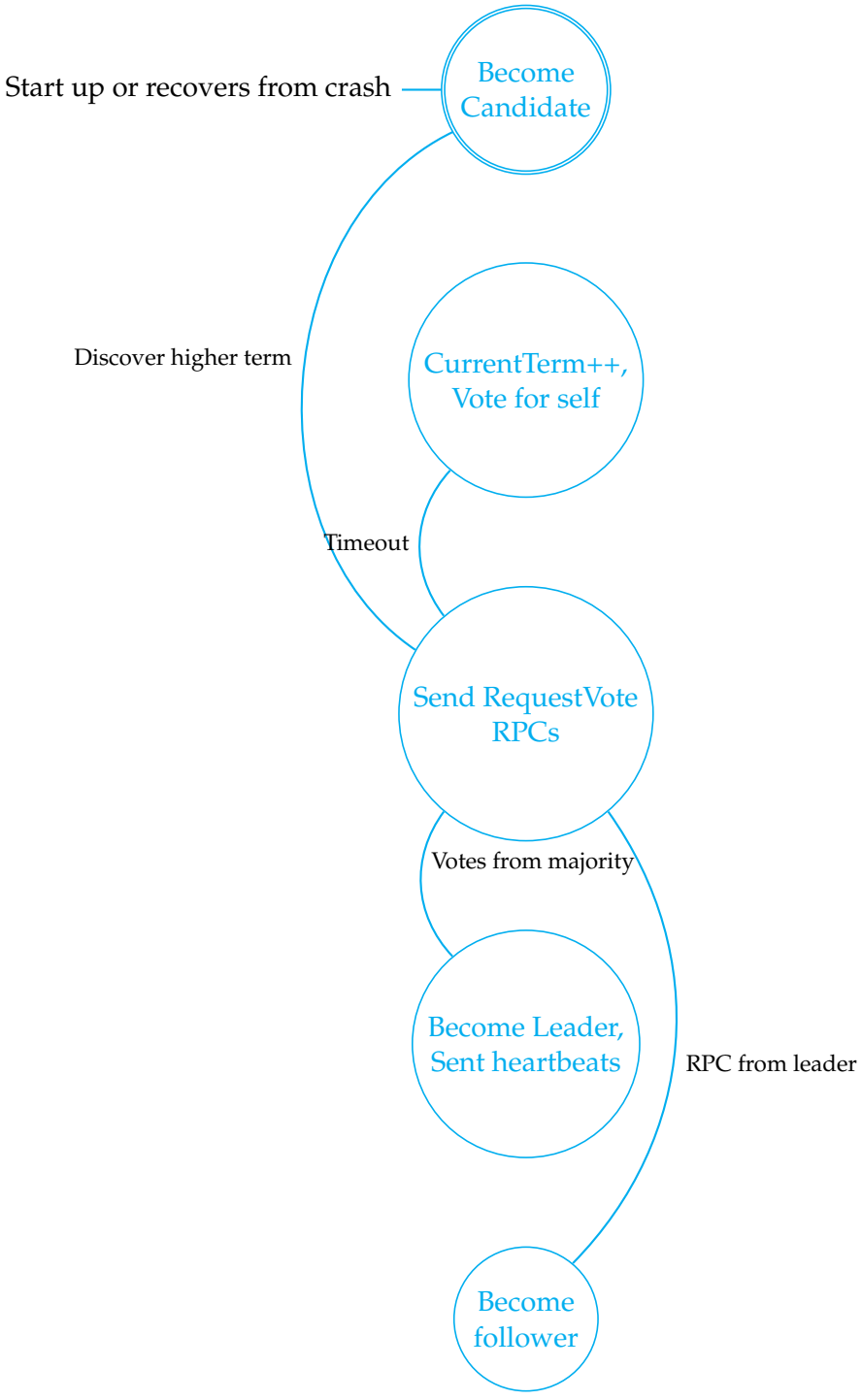

Figure 2.2: John Outershout's presentation.

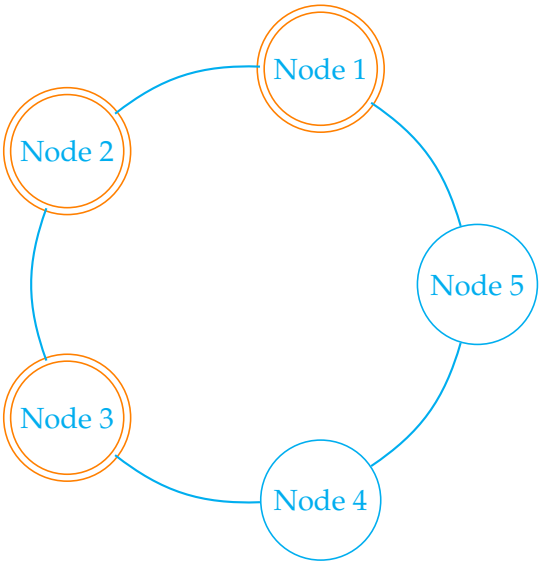

Figure 2.3: John Outershout's presentation

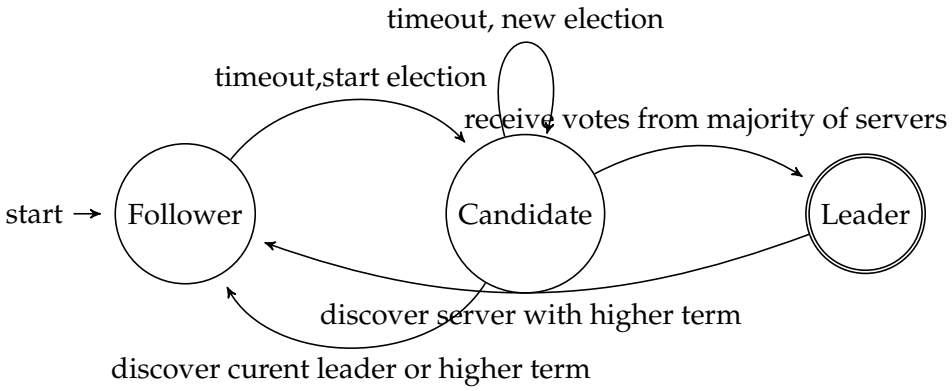

Figure 2.4