Raft

consensus algorithm to everyone

@luizbafilho

Consensus

Replicated Log

Raft

consensus algorithm for managing a **replicated log**

Raft

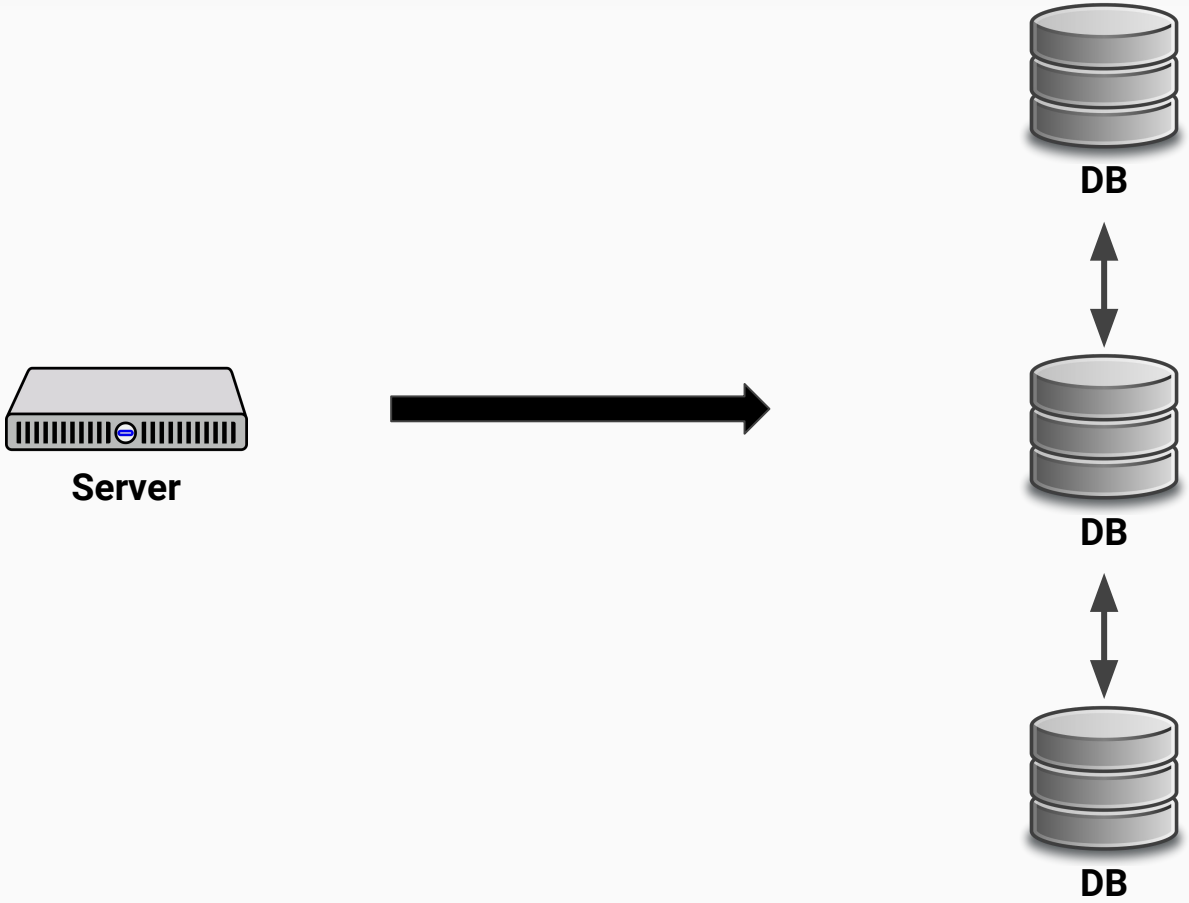
Understandable

Complete foundation for implementation

Easy to implement

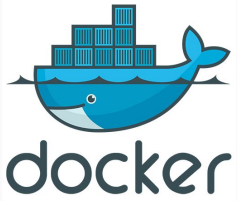
Where?

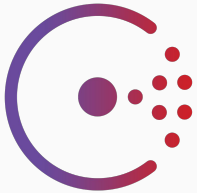
Example



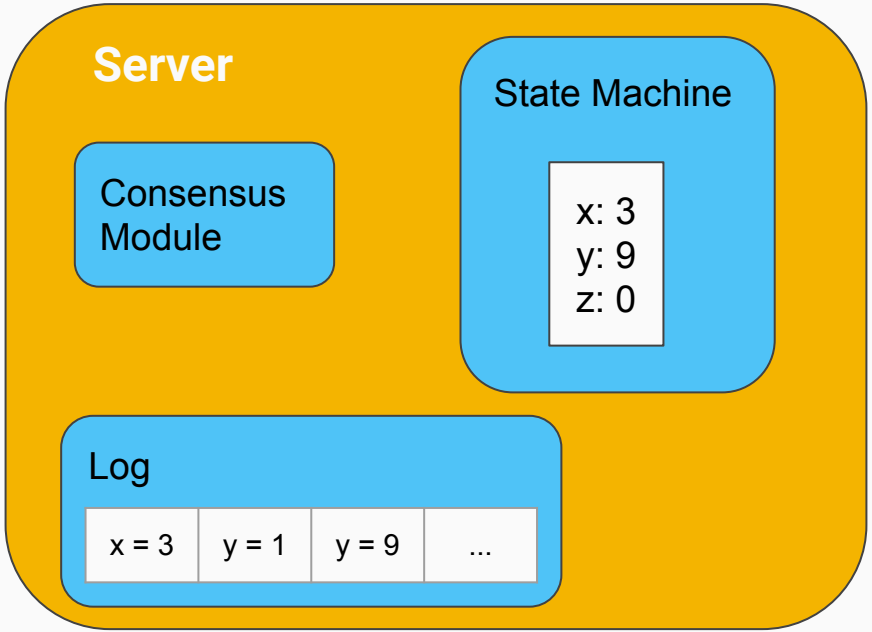
Raft

Open-source projects using it

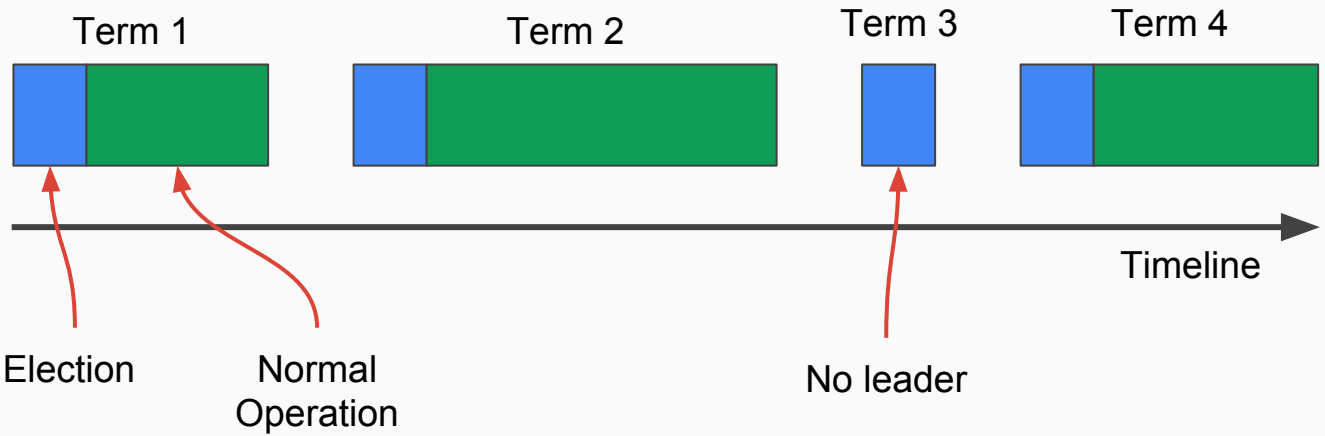




Raft Server



Raft Term Timeline



Raft Messages

RequestVotes
Term Candidate Id Last Log Index Last Log Term

AppendEntries
Term Entries Previous Log Index Previous Log Term

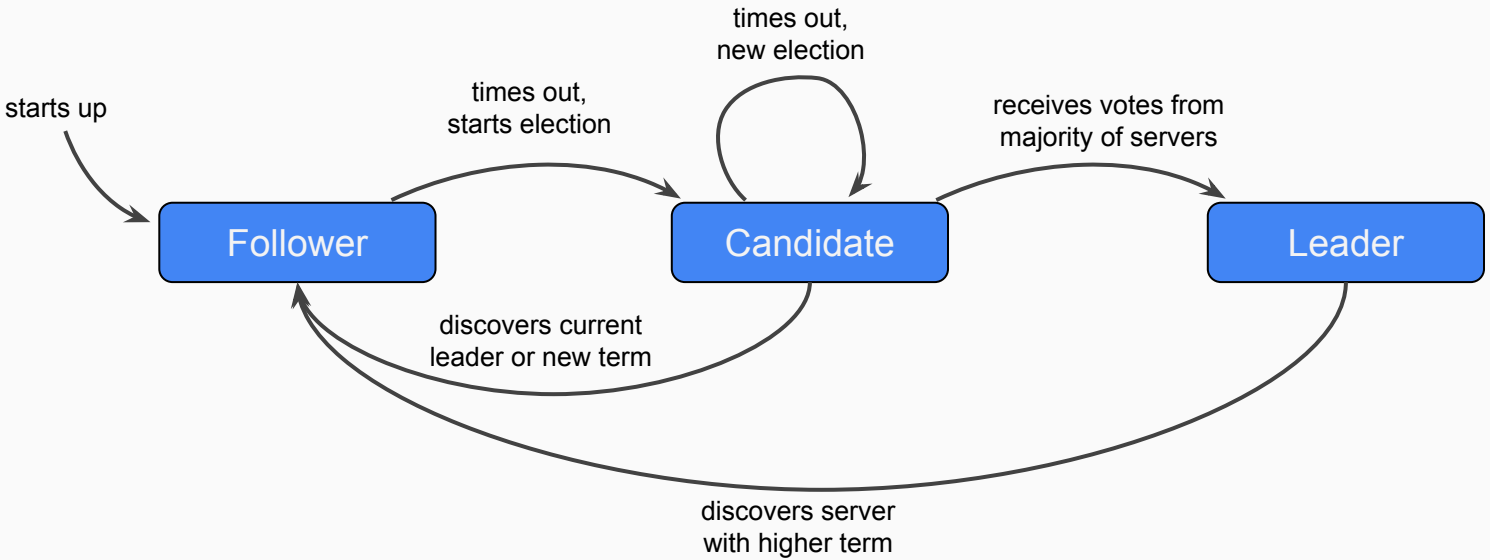
Leader Election

Log Replication

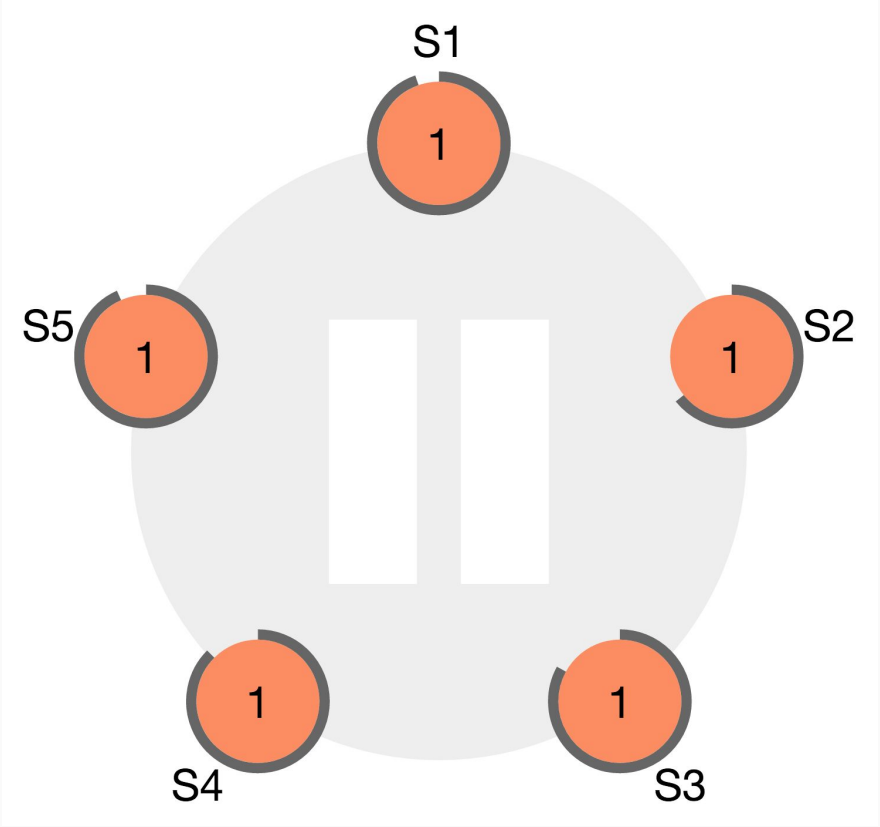
Safety

Leader Election

Leader Election

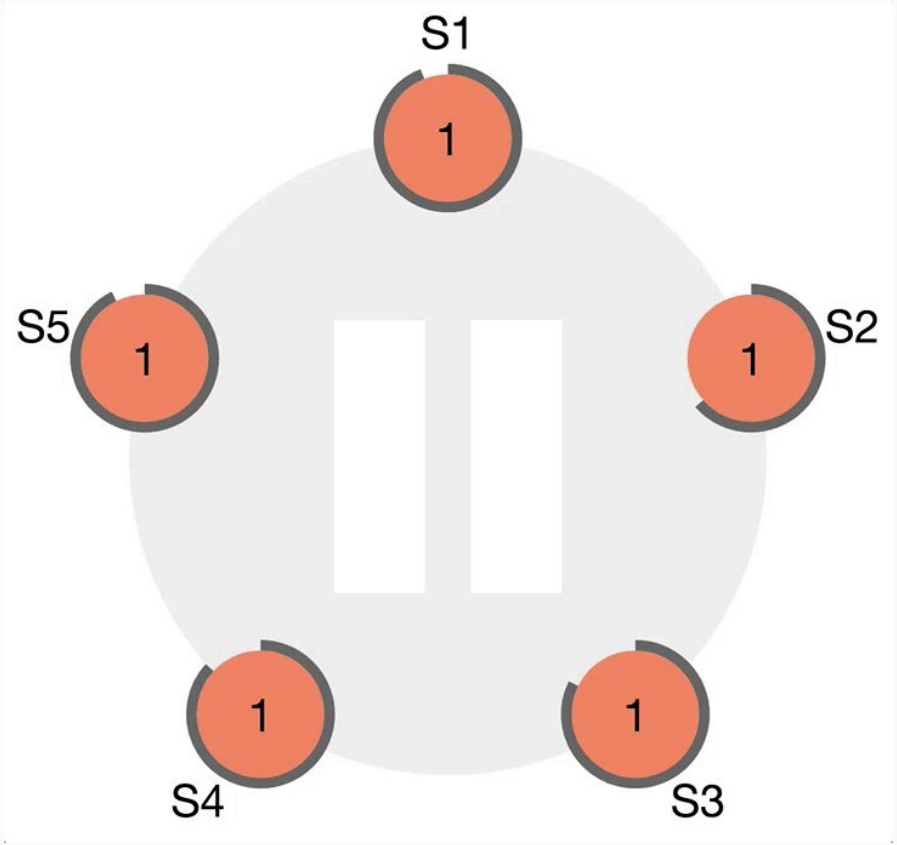


Raft Scope



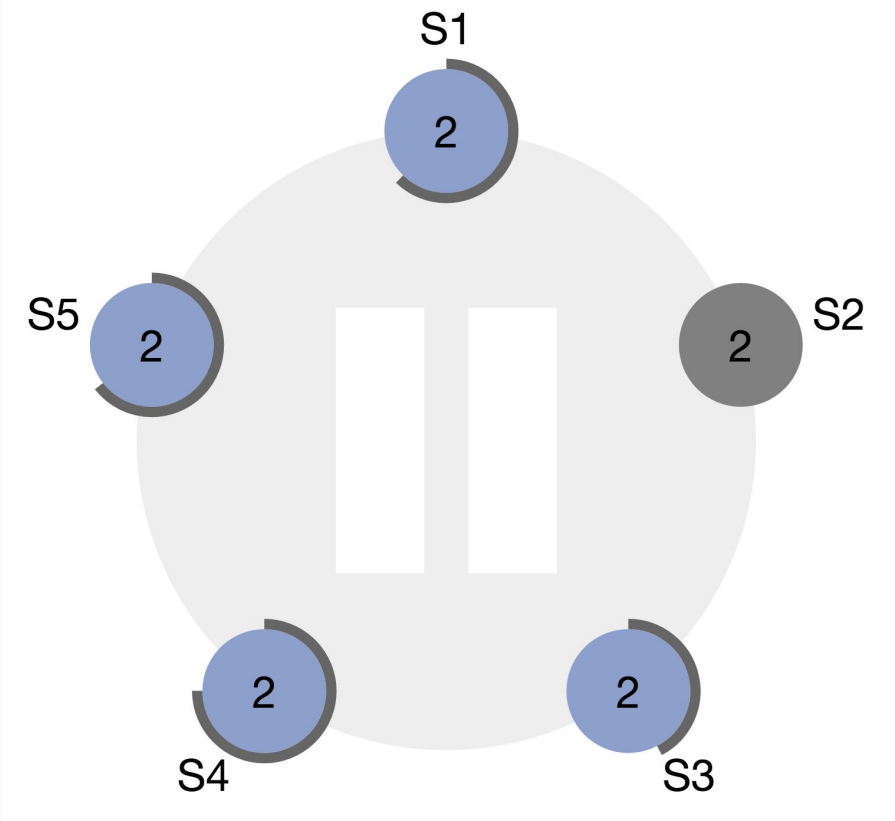
Source: https://raft.github.io/raftscope-replay/index.html

Raft Scope



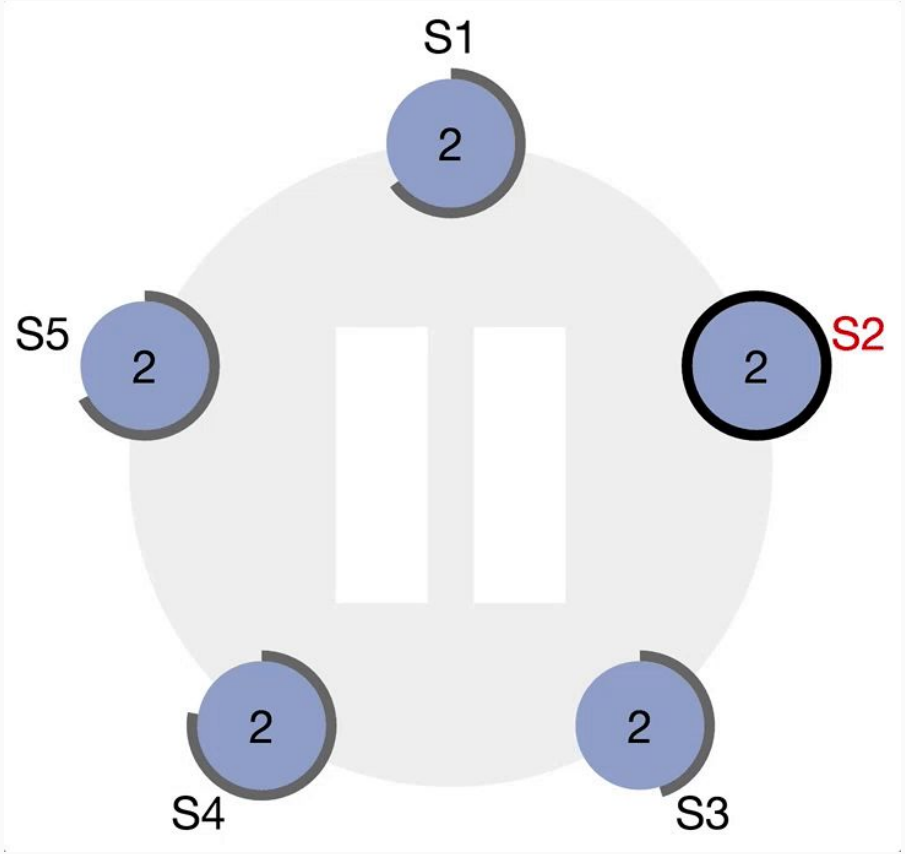
Source: https://raft.github.io/raftscope-replay/index.html

Raft Scope - Leader Stop



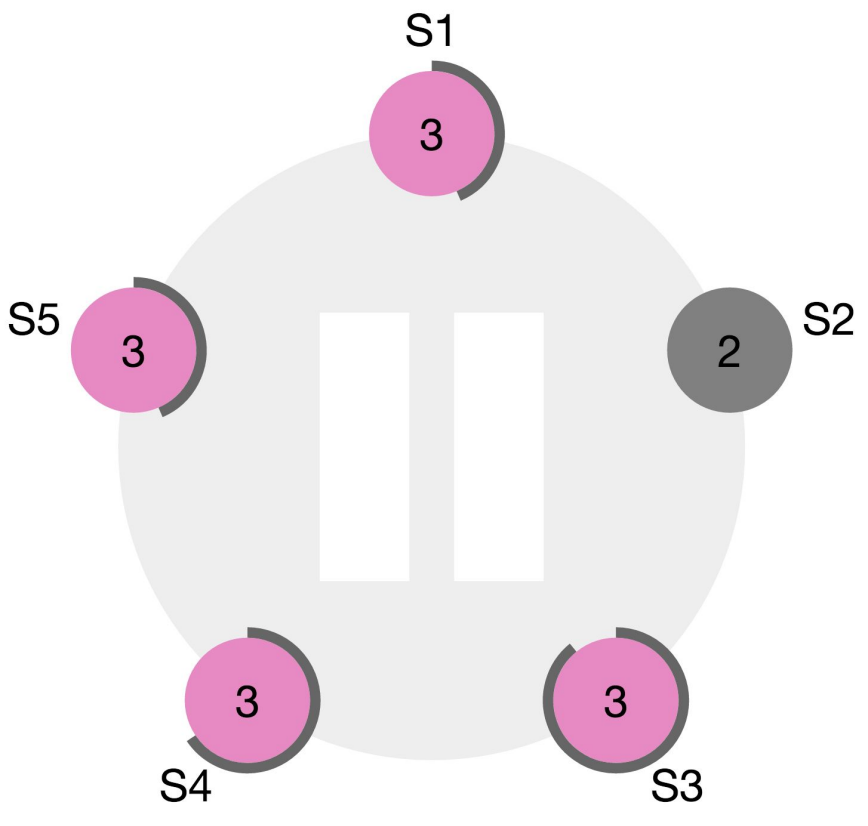
Source: https://raft.github.io/raftscope-replay/index.html

Raft Scope - Leader Stop



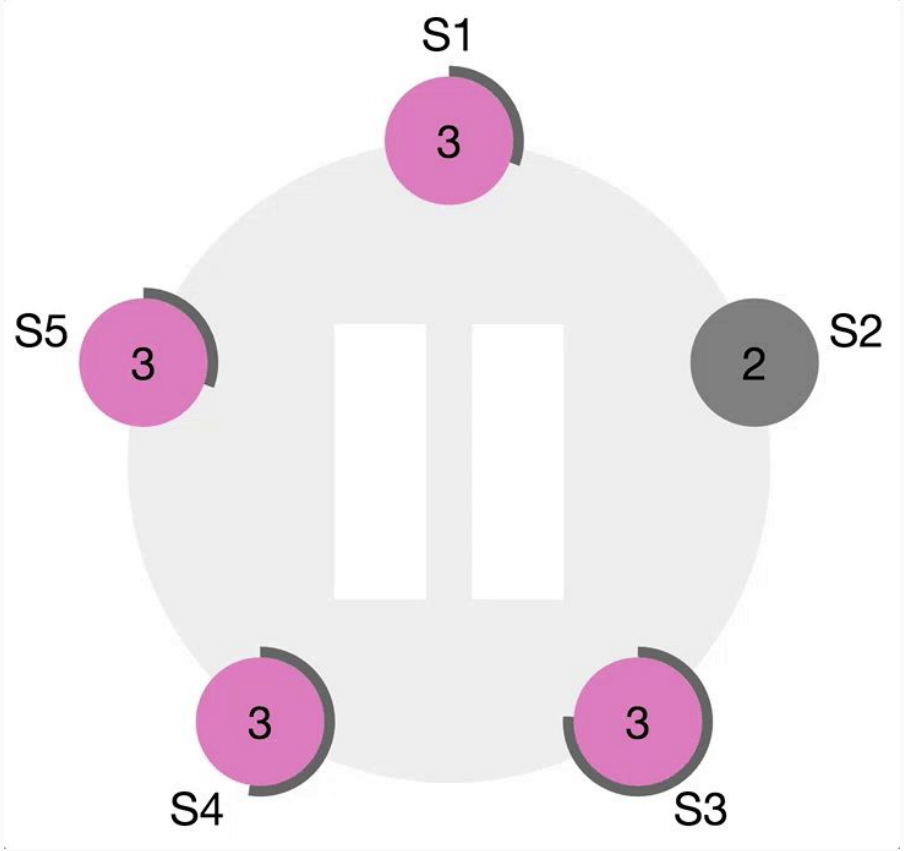
Source: https://raft.github.io/raftscope-replay/index.html

Raft Scope - Split Votes



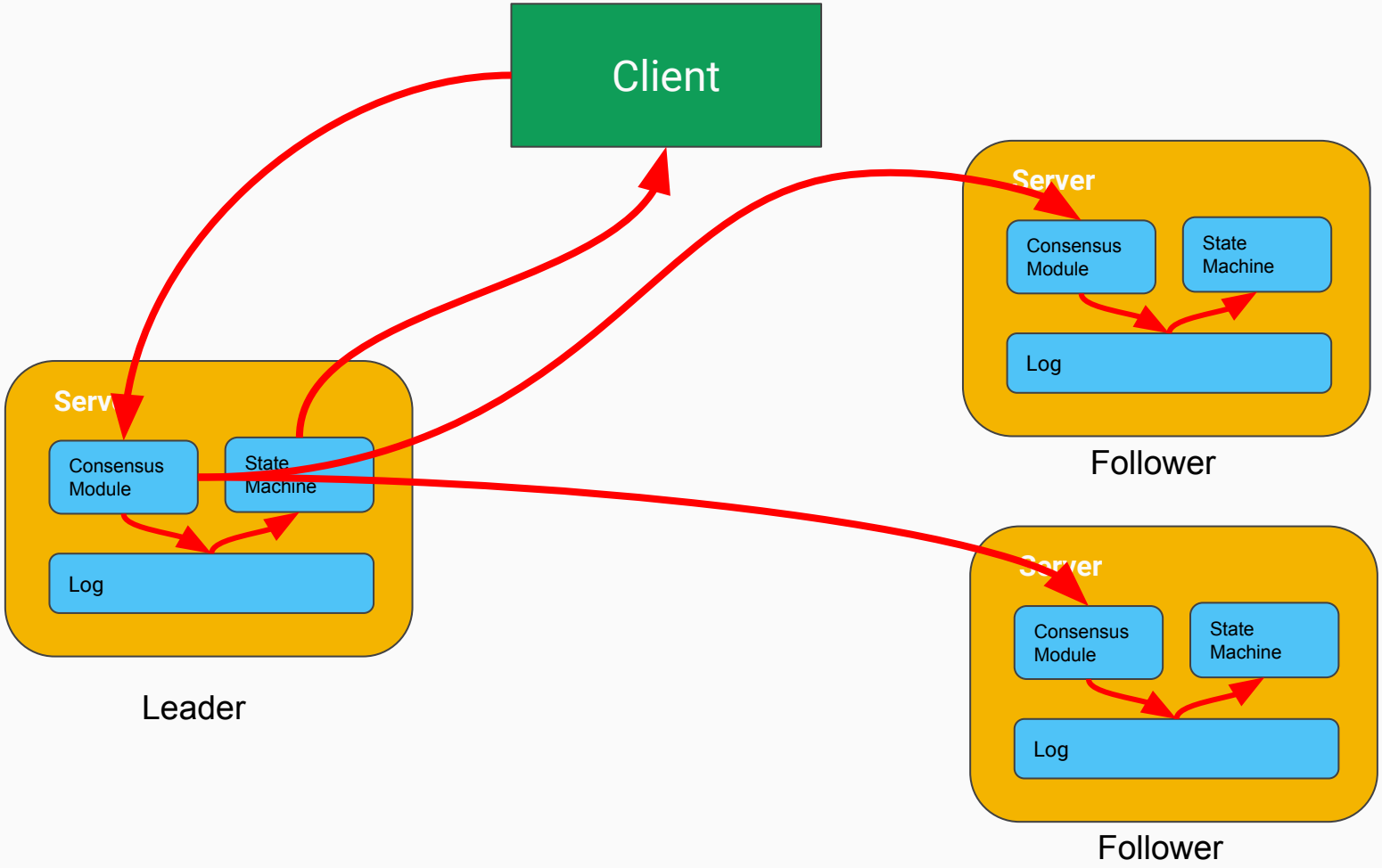
Source: https://raft.github.io/raftscope-replay/index.html

Raft Scope - Split Votes

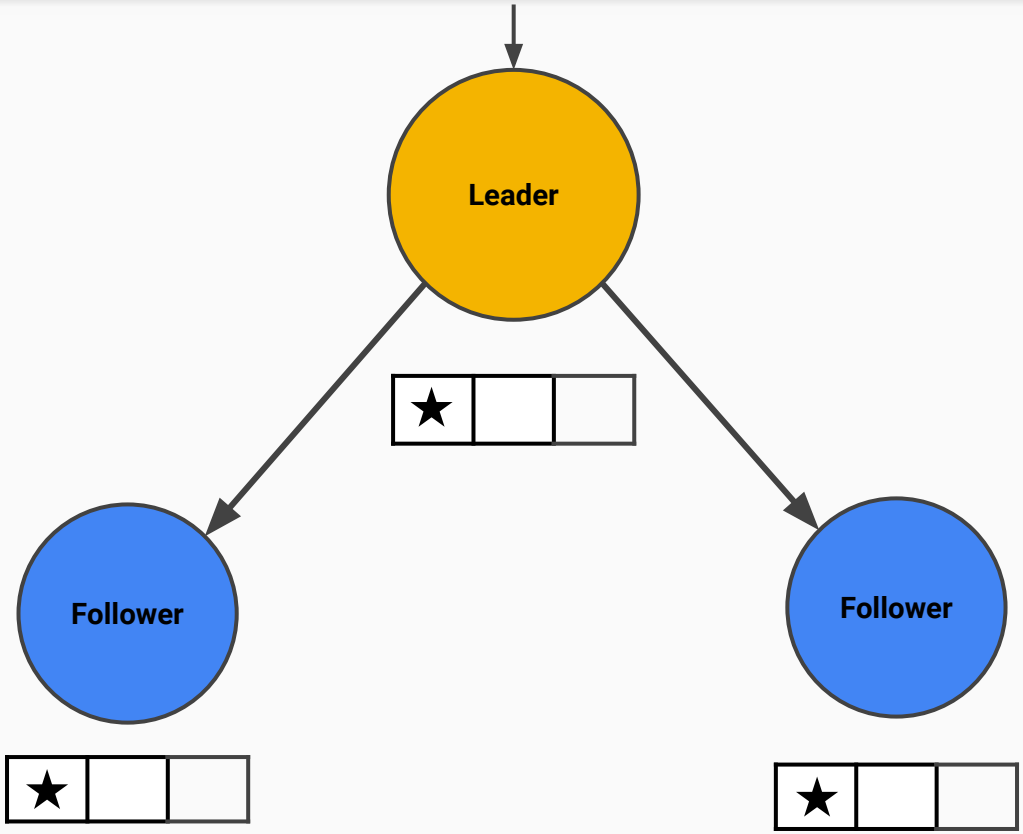


Source: https://raft.github.io/raftscope-replay/index.html

Log Replication

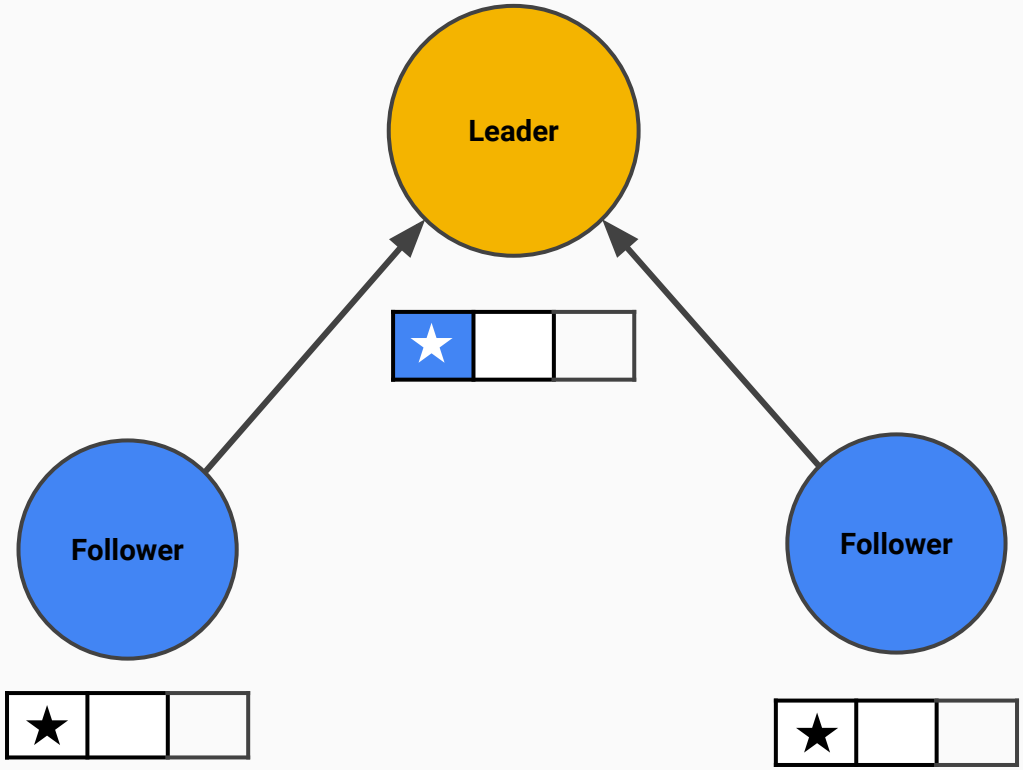

Client
Server
Consensus Module
State Machine
Log
Follower
Server
Consensus Module
State Machine
Log
Leader
Server
Consensus Module
State Machine
Log
Follower

Log Replication - Happy Path



Source: http://bit.ly/2fyk4K5

Log Replication



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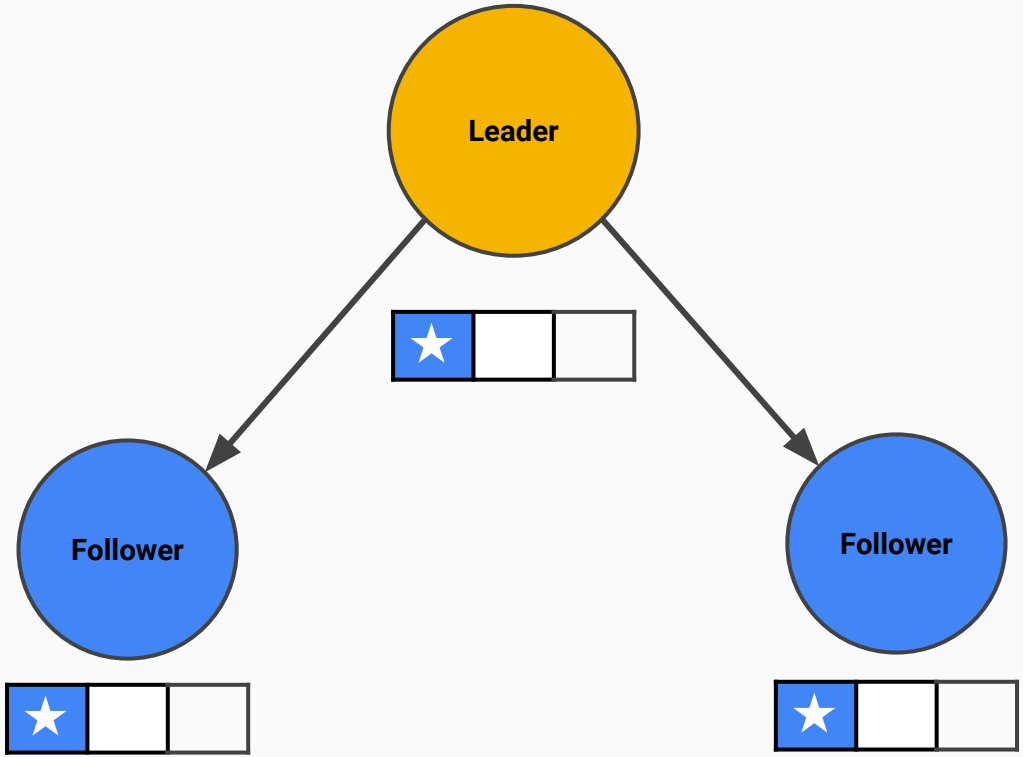
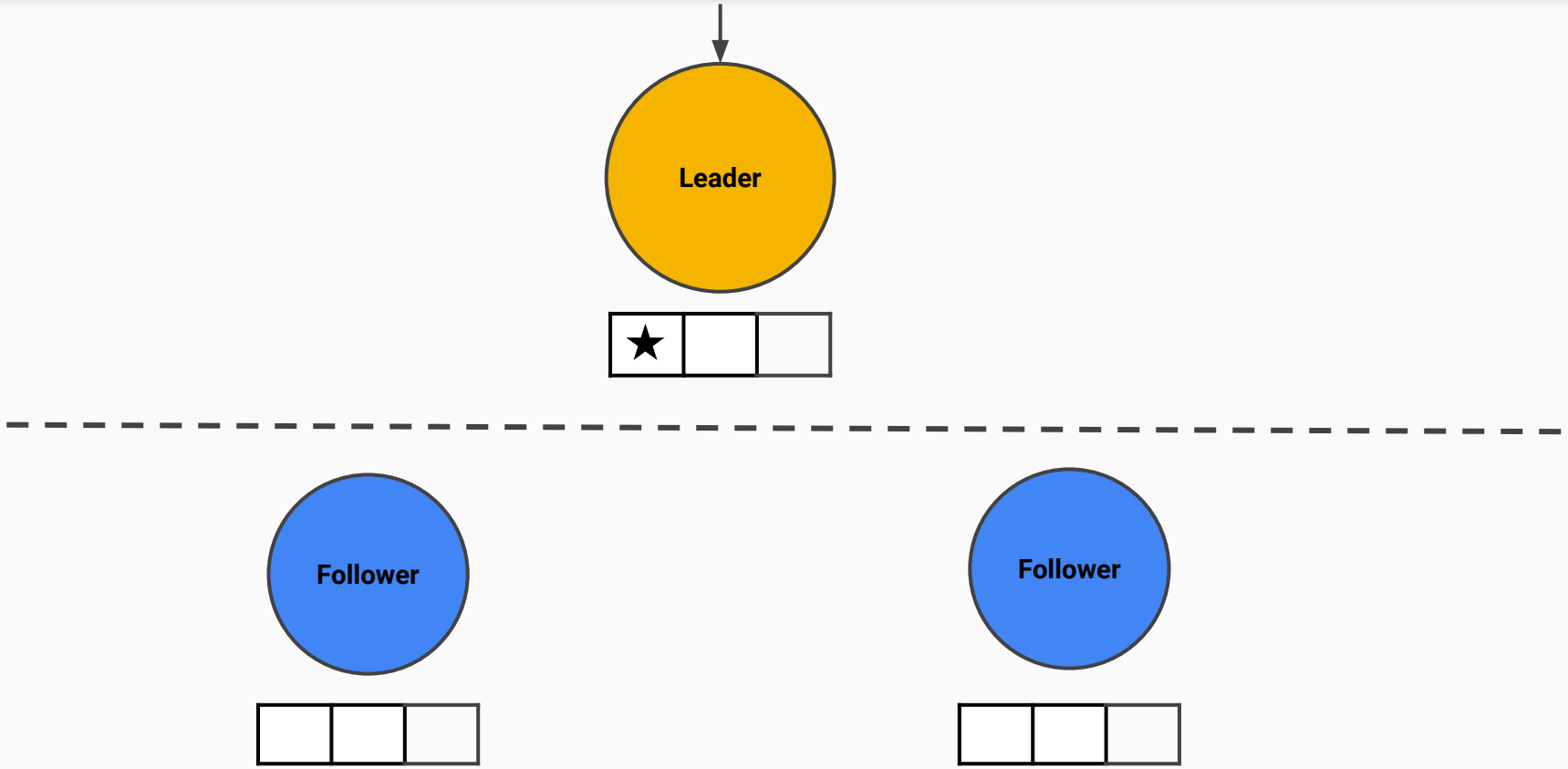
Log Replication



Source: http://bit.ly/2fyk4K5

Log Replication - Network Partition



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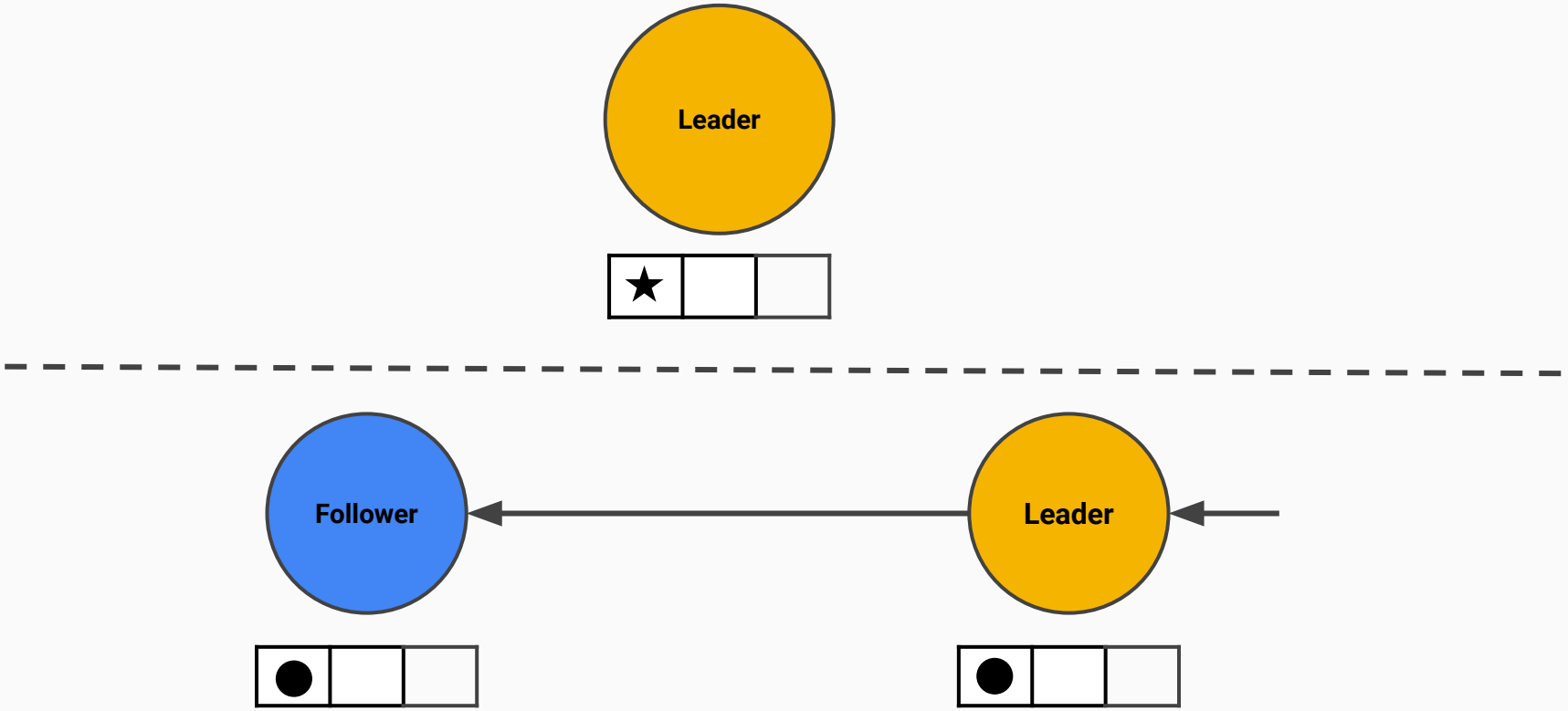
Log Replication - Network Partition



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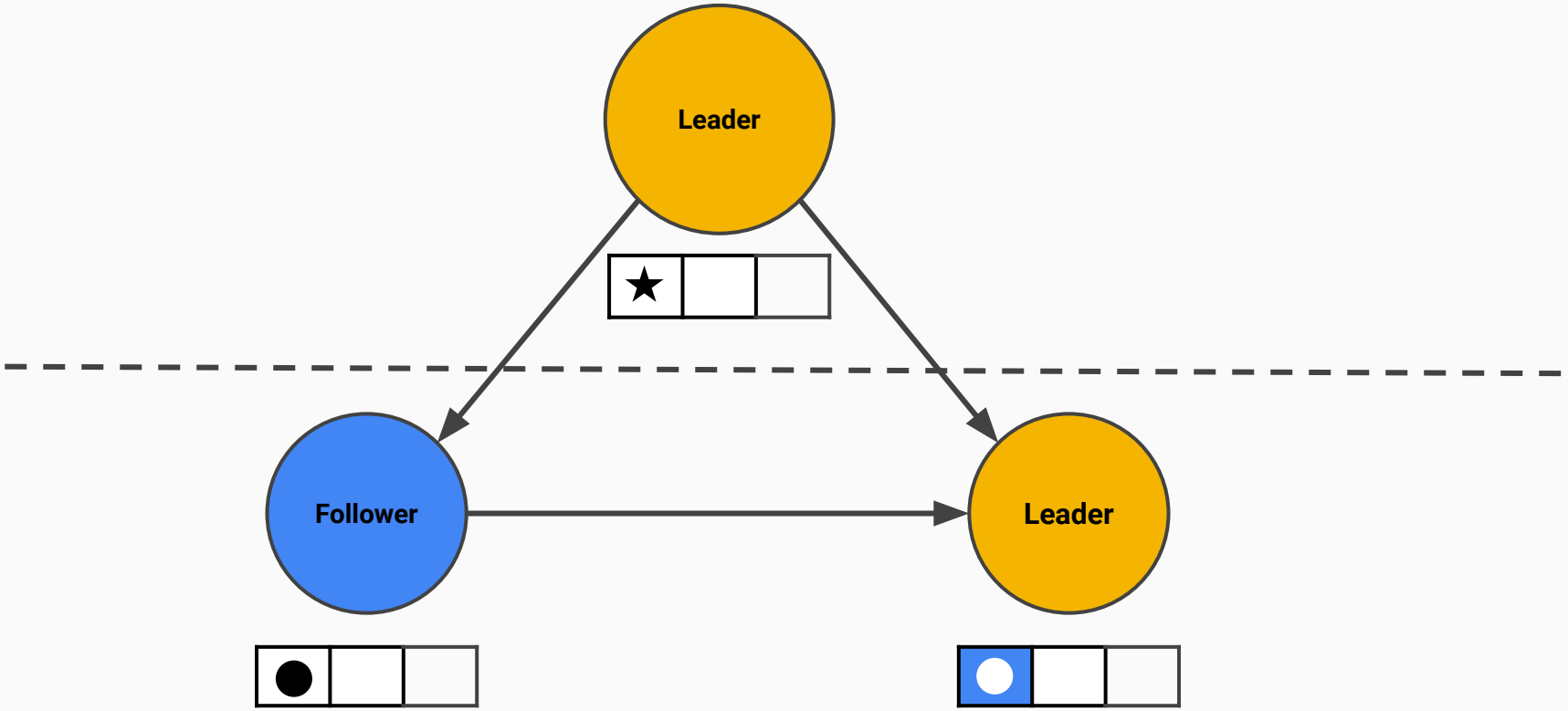
Log Replication - Network Partition



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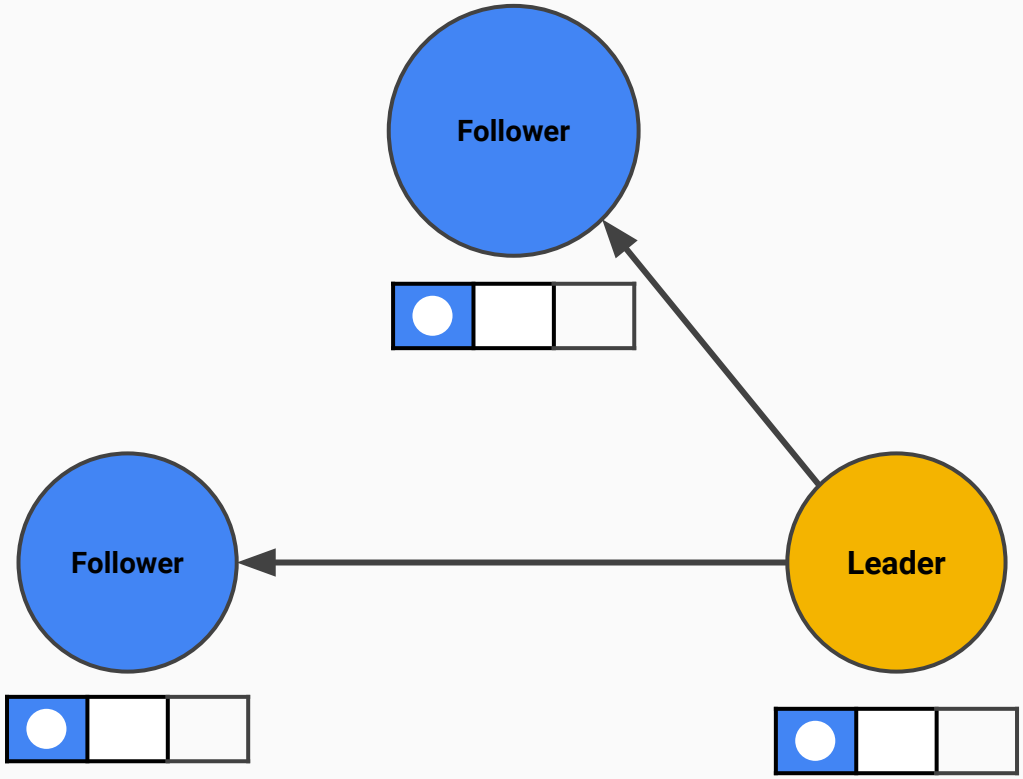
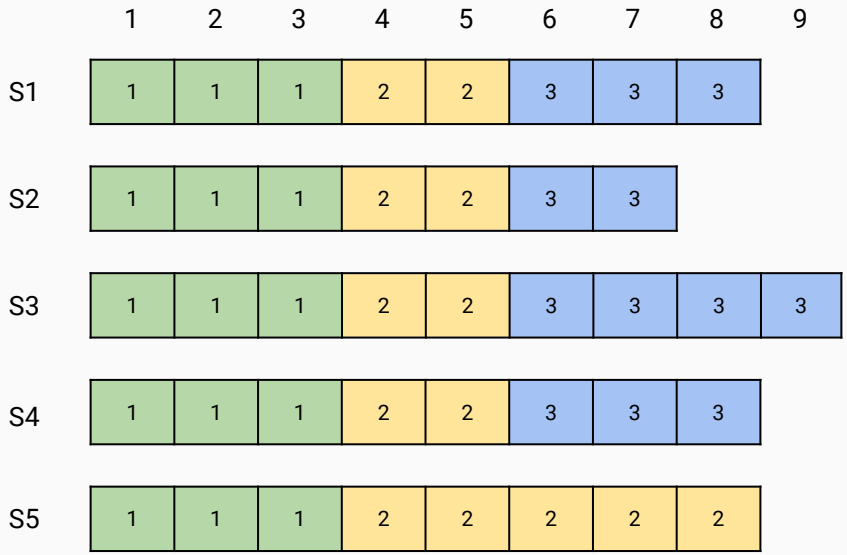
Log Replication - Network Partition



Source: http://bit.ly/2fyk4K5

Safety

Leader Completeness



RequestVotes

Term
Candidate Id
Last Log Index
Last Log Term

Log Compaction

Obrigado!

Estamos Contratando!

https://talentos.globo.com

References

- https://raft.github.io/raft.pdf
- https://raft.github.io/slides/uiuc2016.pdf
- https://raft.github.io/slides/buildstuff2015.pdf
- https://speakerdeck.com/vanstee/raft-consensus-for-rubyists
- https://raft.github.io/raftscope/index.html