

Workshop: Implementing Distributed Consensus



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Disclaimer This work is not affiliated with any company (including Google). This talk is the result of a personal education project!

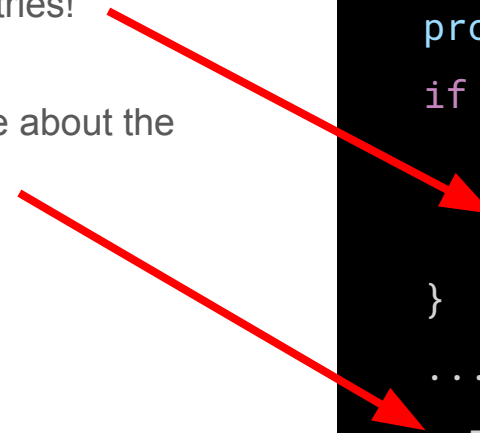
Reliability Story Time...

The Duel

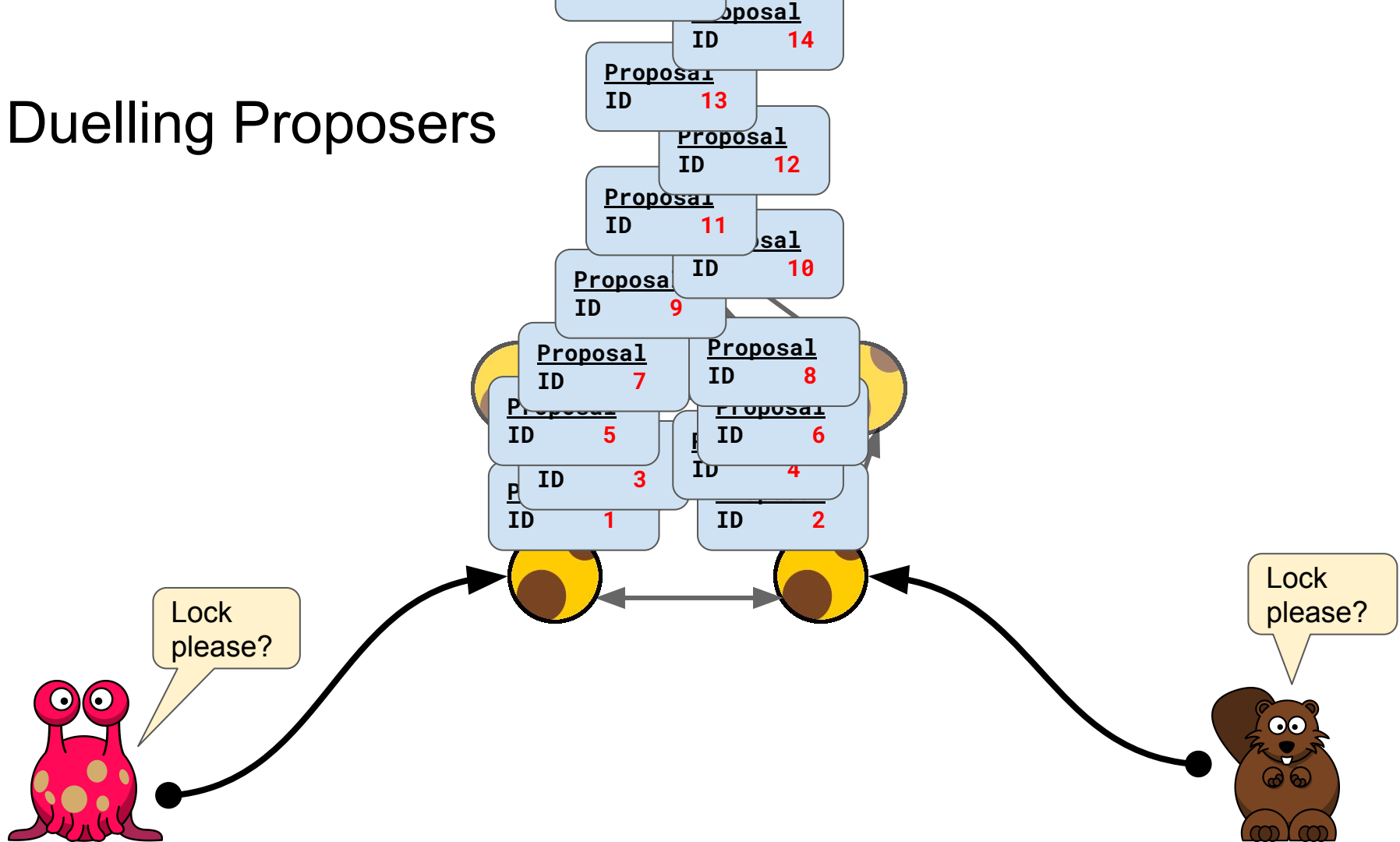
What's wrong?

- Retry Logic
 - Unlimited retries!
- Coding Style
 - I should care about the return value.


```
...
retry:
id := id + in.increment
promised := in.propose(id)
if !promised {
    in.log.Printf("retry (%v)", id)
    goto retry
}
...
_ = in.commit(id, holder)
...
```



Duelling Proposers



Soon...



NAME	INCREMENT	PROMISED	ID	HOLDER	LAST SEEN
london	3	1062520	1062520	_	now
oregon					connection error
spaulo					connection error
sydney	5	1062520	1062520	_	2 seconds ago
taiwan	4	1062520	1062520	_	1 second ago

Instances **oregon** and **spaulo** were intentionally offline for a different experiment

The Fix

- Retry Counter
- Backoff
- Jitter

```
...
retries := 0
retry:
promised := in.propose()
if !promised && retries < 3 {
    retries++
    backoff := time.Duration(retries) *
                2 * time.Millisecond
    jitter := time.Duration(rand.Int63n(1000)) *
                time.Microsecond
    time.Sleep(backoff + jitter)
    goto retry
}
...
```

