

What Is Consensus

- Agreement on shared state

Paxos Protocol (1989)

- Most confusing thing written to solve the Consensus
- It was rejected till 1988
- No one understood it till 1998 and got published as "The Part-Time Parliament"

Paxos quotes

“The dirty little secret of the NSDI community is that at most five people really, truly understand every part of Paxos ;-).”

—NSDI reviewer

“There are significant gaps between the description of the Paxos algorithm and the needs of a real-world system...the final system will be based on an unproven protocol.”

—Chubby authors

ZAB (2011)

- By Zookeeper (no it's not Paxos)
- Does leader proposers, crash recovery, atomic broadcasting
- Paper: <https://ieeexplore.ieee.org/document/5958223>

Raft - Replicated and Fault Tolerant (2013)

- Leader election
- Log replication
- Safety
 - Only a server with an up-to-date log can become leader
- <http://thesecretlivesofdata.com/raft/>