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Sync Consensus Algorithm: Trying to Reach an Agreement at Full Speed

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Abstract : Recently, distributed storage systems have been used more and more in various aspects of everyday life. They provide such necessary properties as Scalability, Fault Tolerance, Durability, and others. At the same time, not only reliable but also fast data storage remains one of the most pressing issues in this area. That brings us to the consensus algorithm as one of the most important components that has a great impact on the functionality of a distributed system. This paper is the result of an analysis of several well-known consensus algorithms, such as Paxos and Raft. The algorithm it offers, called Sync, promotes, but does not insist on simultaneous writing to the nodes (which positively affects the overall writing speed) and tries to minimize the system's inactive time. This allows nodes to reach agreement on the system state in a shorter period, which is a critical factor for distributed systems. Also when developing Sync, a lot of attention was paid to such criteria as simplicity and intuitiveness, the importance of which is difficult to overestimate.

Keywords : sync, consensus algorithm, distributed system, leader-based, synchronization.
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