

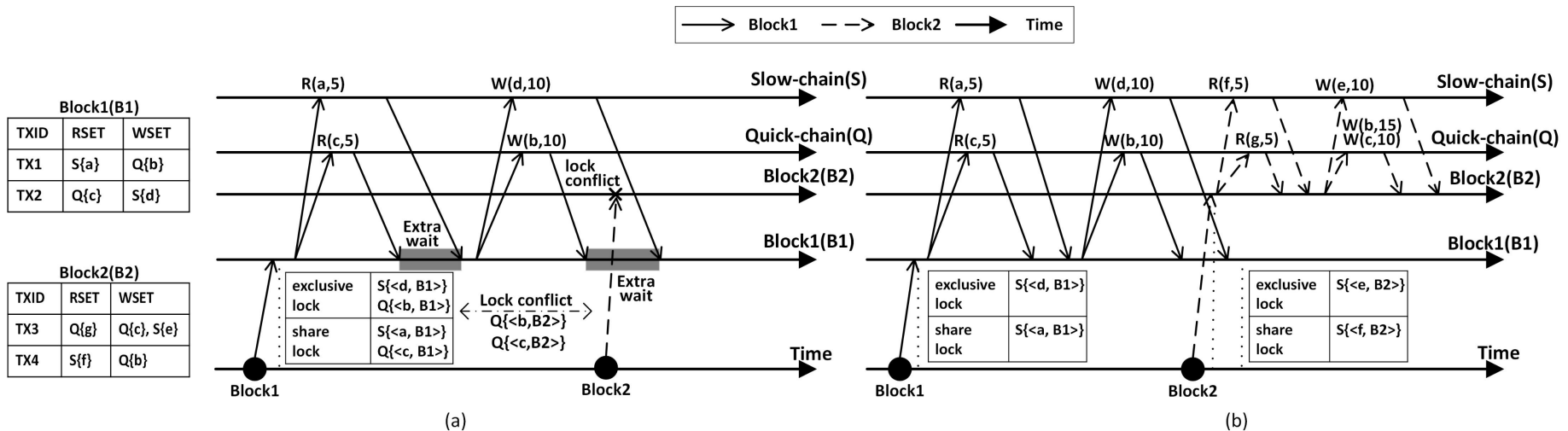
Hybrid concurrency control protocol for data sharing among heterogeneous blockchains

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Problems & Ideas

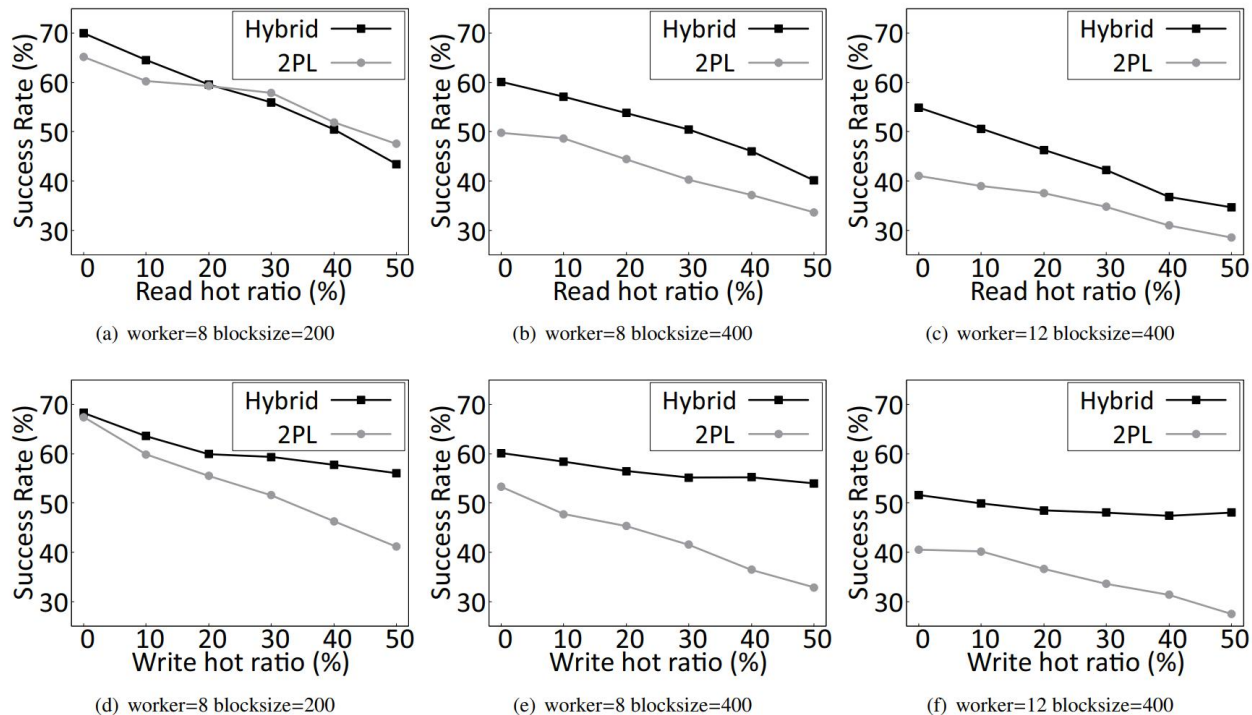
- Problems in data sharing among heterogeneous blockchains:
 - The huge performance differences among heterogeneous blockchains.
 - Traditional concurrency control protocols lead to additional lock conflicts and data expiration.
- Ideas: A hybrid concurrency control protocol that divides blockchains into different categories and employs various concurrency control protocols for each.



Data sharing transactions using different concurrency control protocols. Left: 2PL protocol brings extra lock time which causes transaction failure. Right: Hybrid concurrency control protocol reduces the use of useless locks and enables parallel access to data on the fast chain.

Main Contributions

- Contributions:
 - A novel cross-chain data sharing model and cross-chain hub design not only realize efficient multi-party data sharing but also achieve privacy of raw data and transaction processes.
 - A hybrid concurrency control protocol to eliminate the impact of performance differences between blockchains and improve the transaction success rate and system performance.



Success rate of transactions under varying hot ratios and concurrency levels using 2PL and hybrid concurrency protocols.