

SECURE AND EFFICIENT STATE PRESERVATION IN ETHEREUM BASED SMART CONTRACT PLATFORMS

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Objective

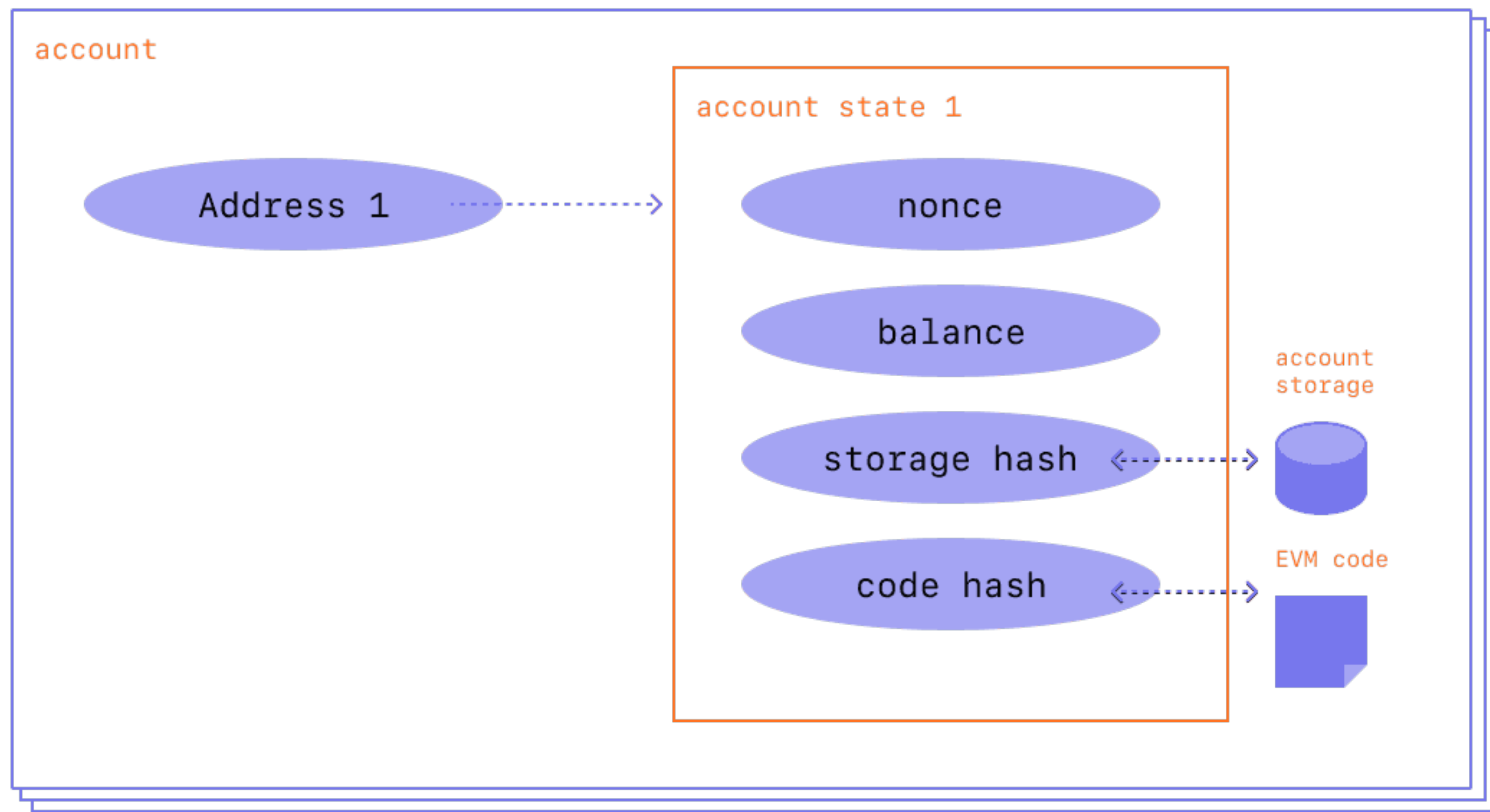


Fig. 1: Account representation in Ethereum (ethereum.org)

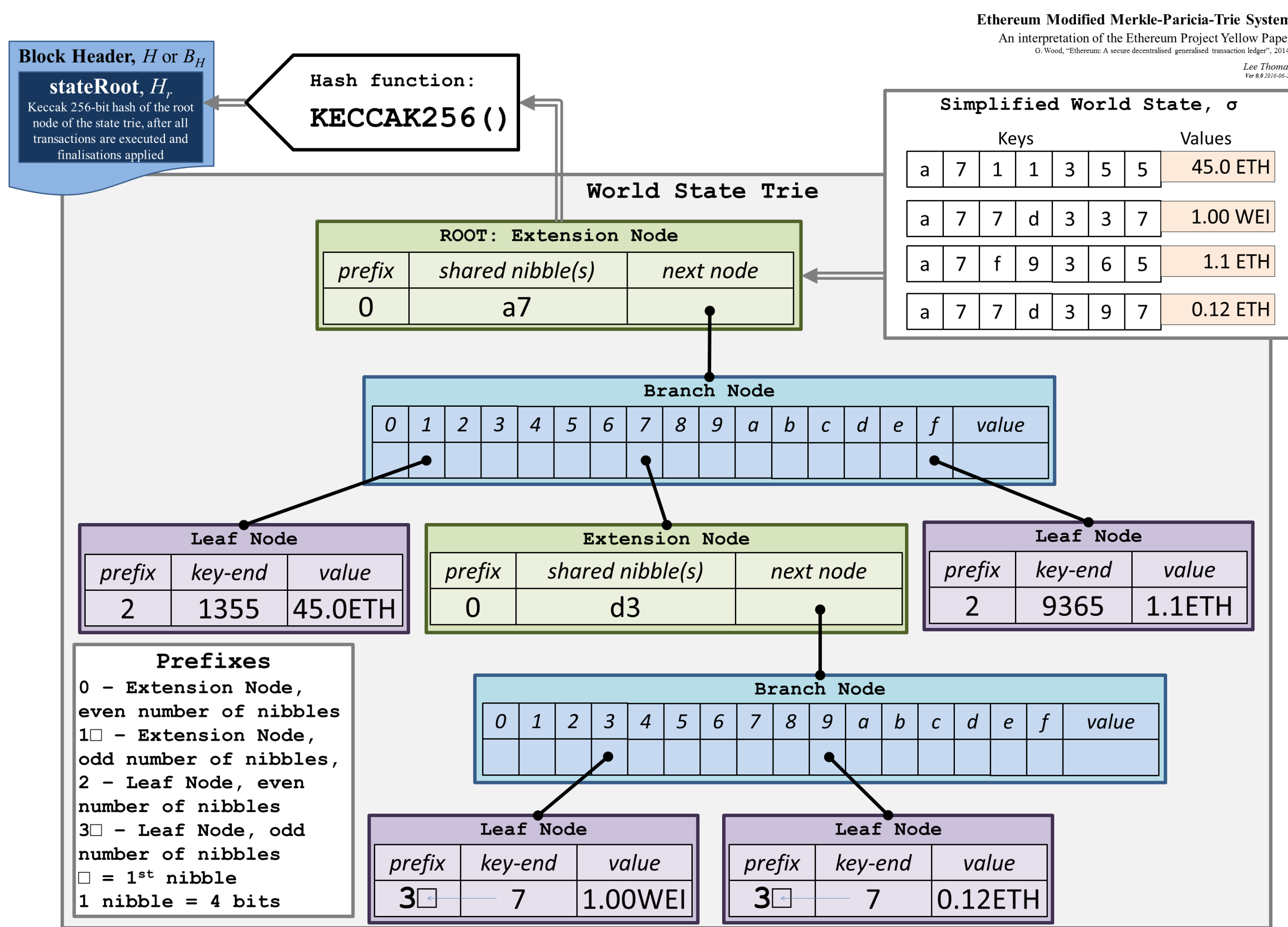


Fig. 2: Merkle Patricia Trie (Lee Thomas)

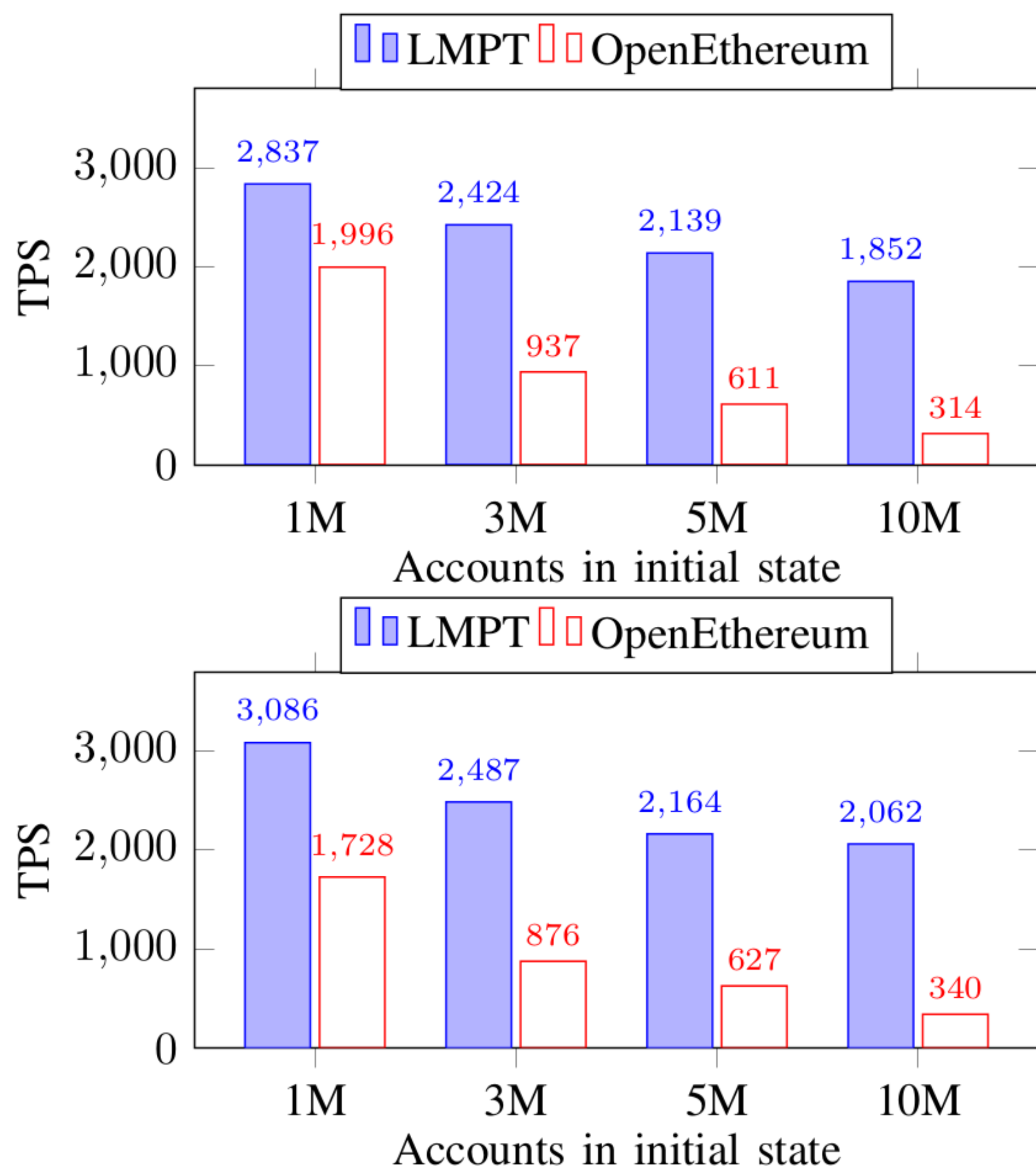


Fig. 3: Transaction throughput benchmark (LMPT paper)

Alternative and proposed solutions

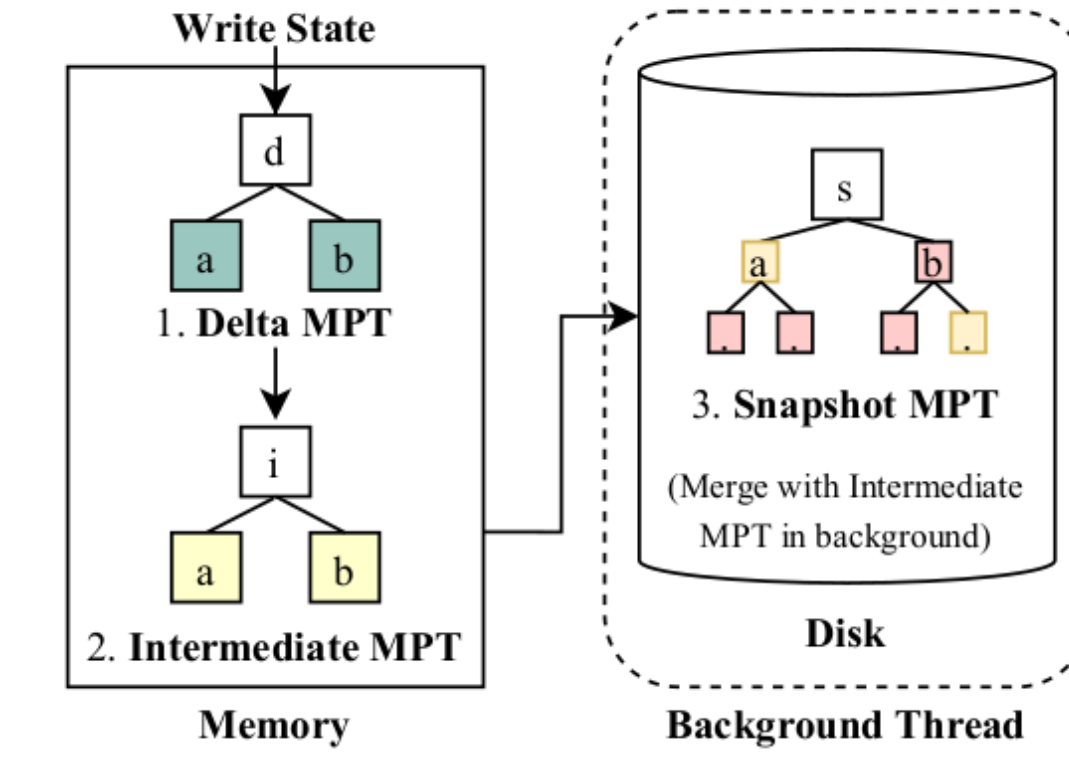


Fig. 4: LMPT (LMPT Paper)

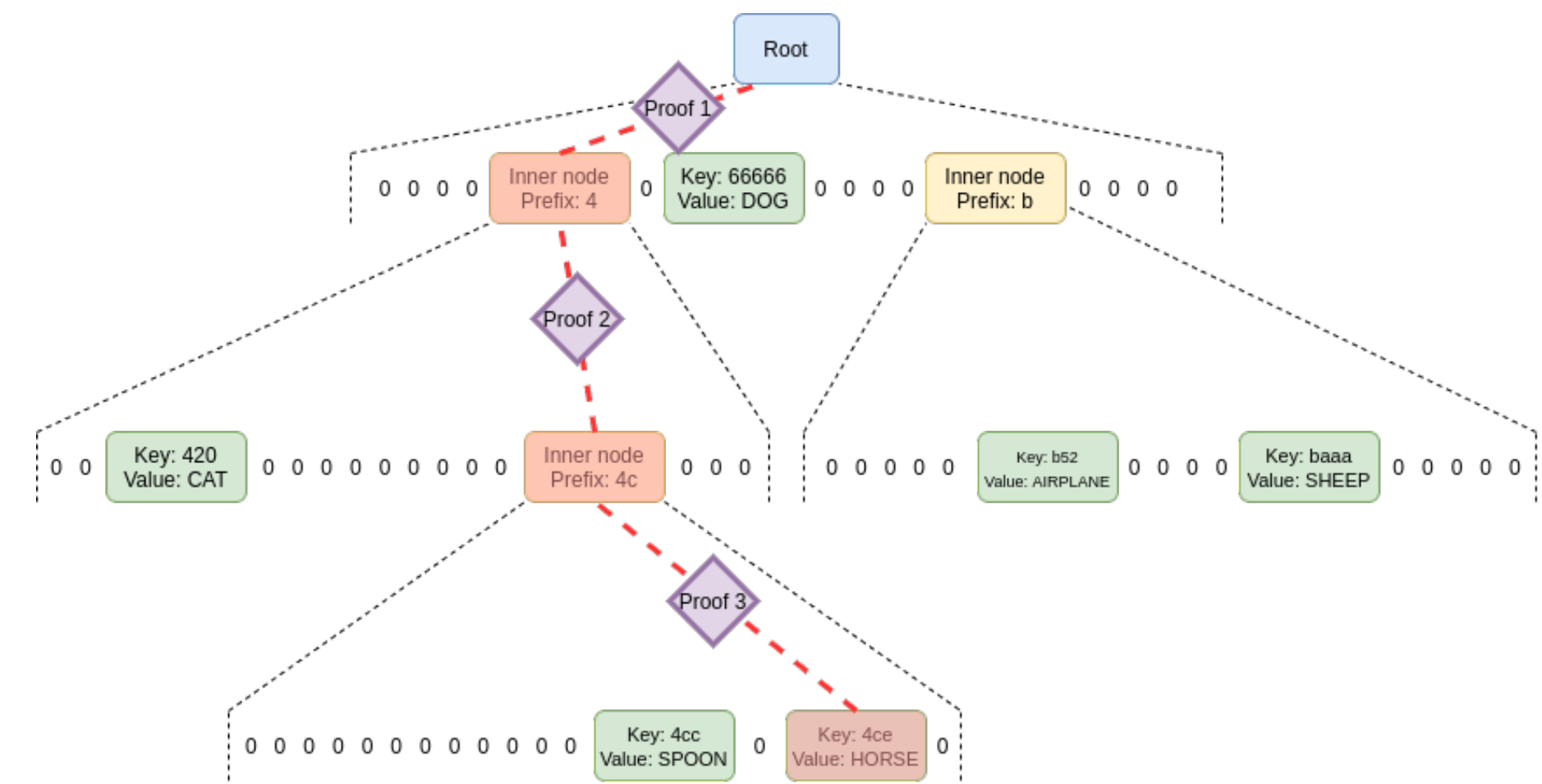


Fig. 5: Verkle Trie (vitalik.ca)

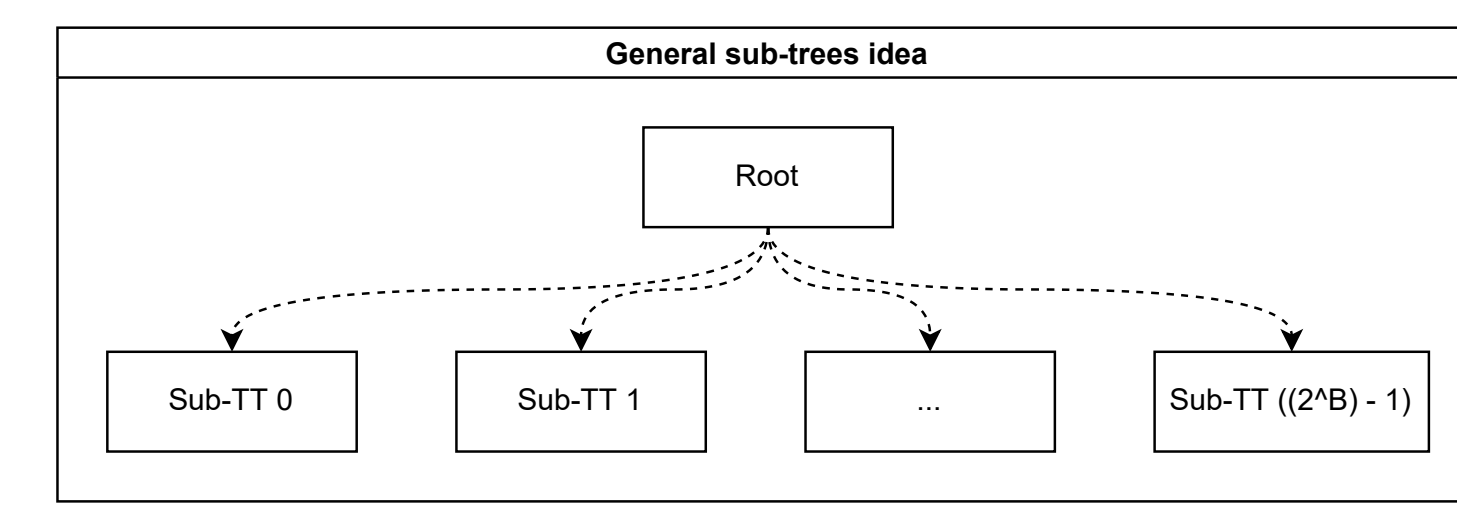


Fig. 6: Proposed solution - PMPT

Results

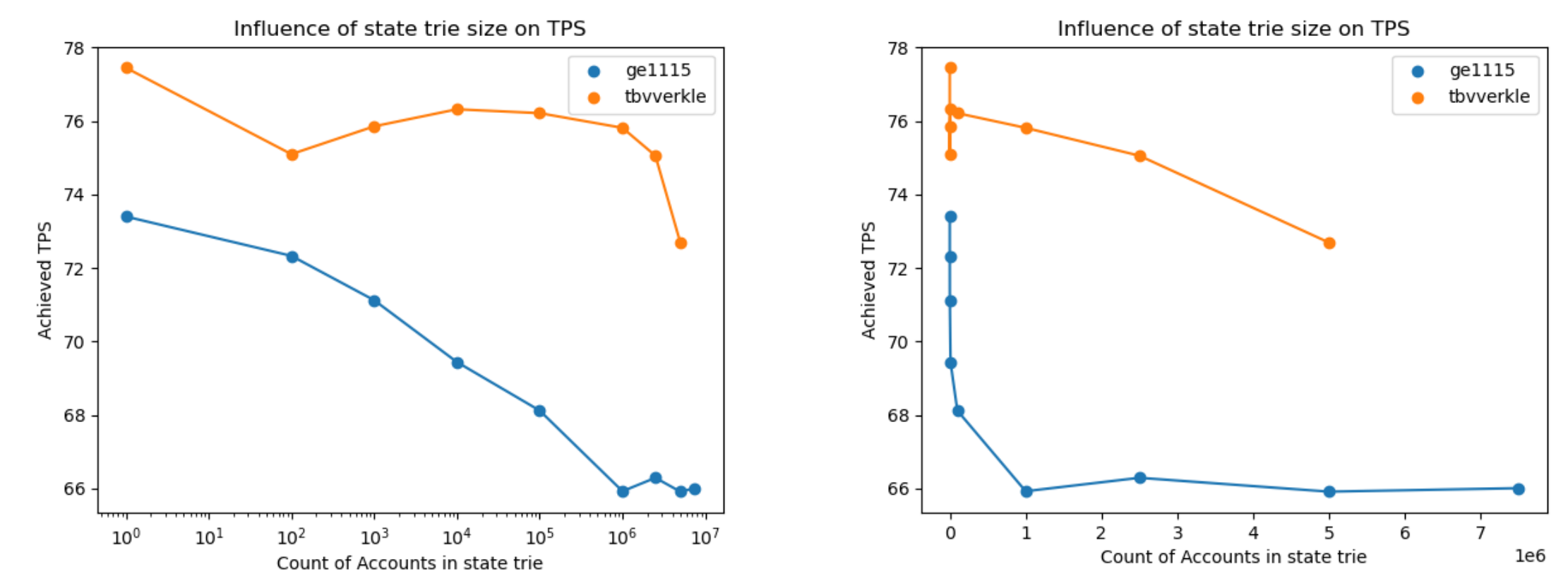


Fig. 7: State trie size influence on TPS

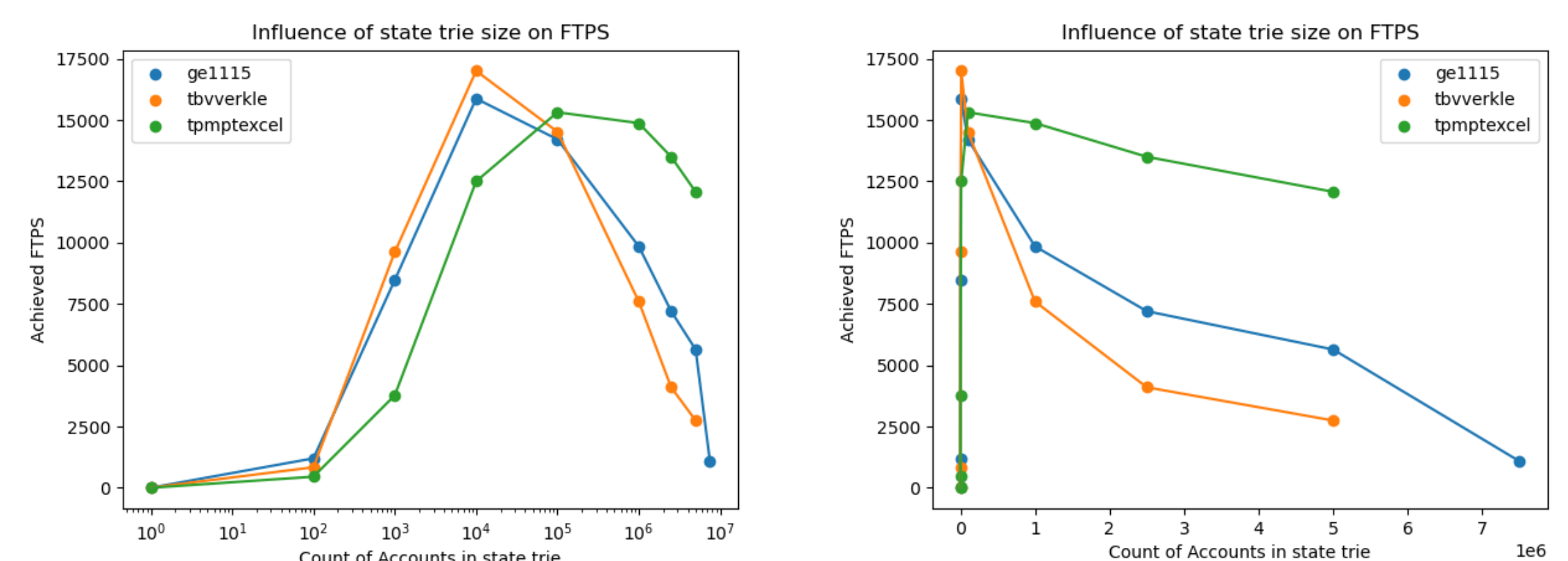


Fig. 8: State trie filling time „TPS“ - FTSP

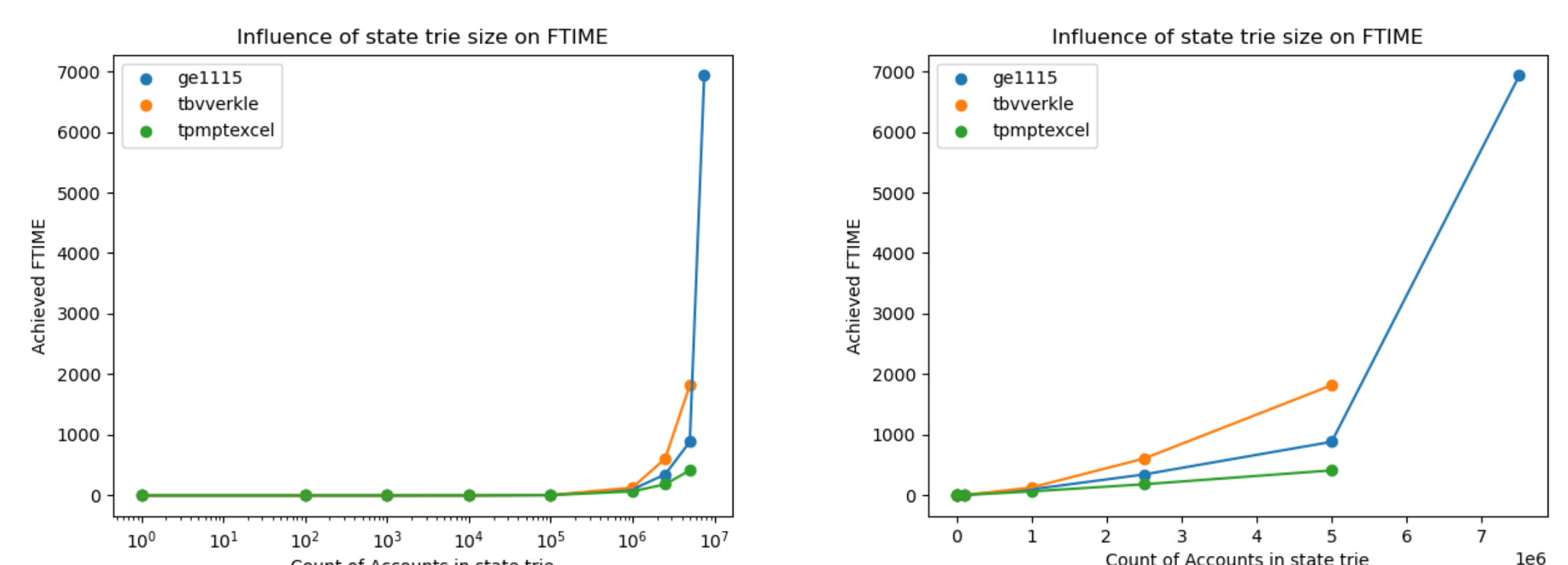


Fig. 9: State trie filling time - FTIME