

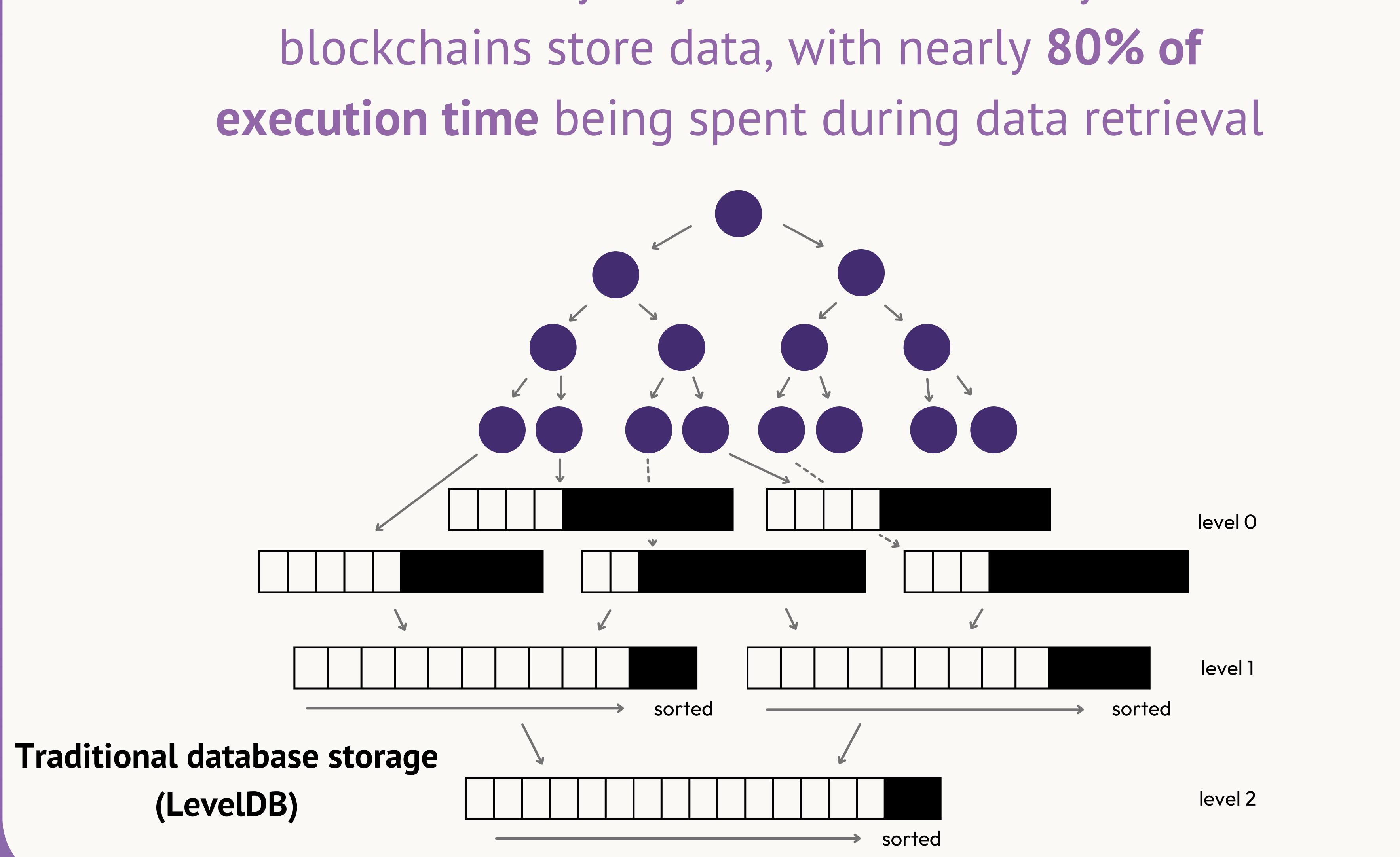


# Optimizing Blockchain Storage

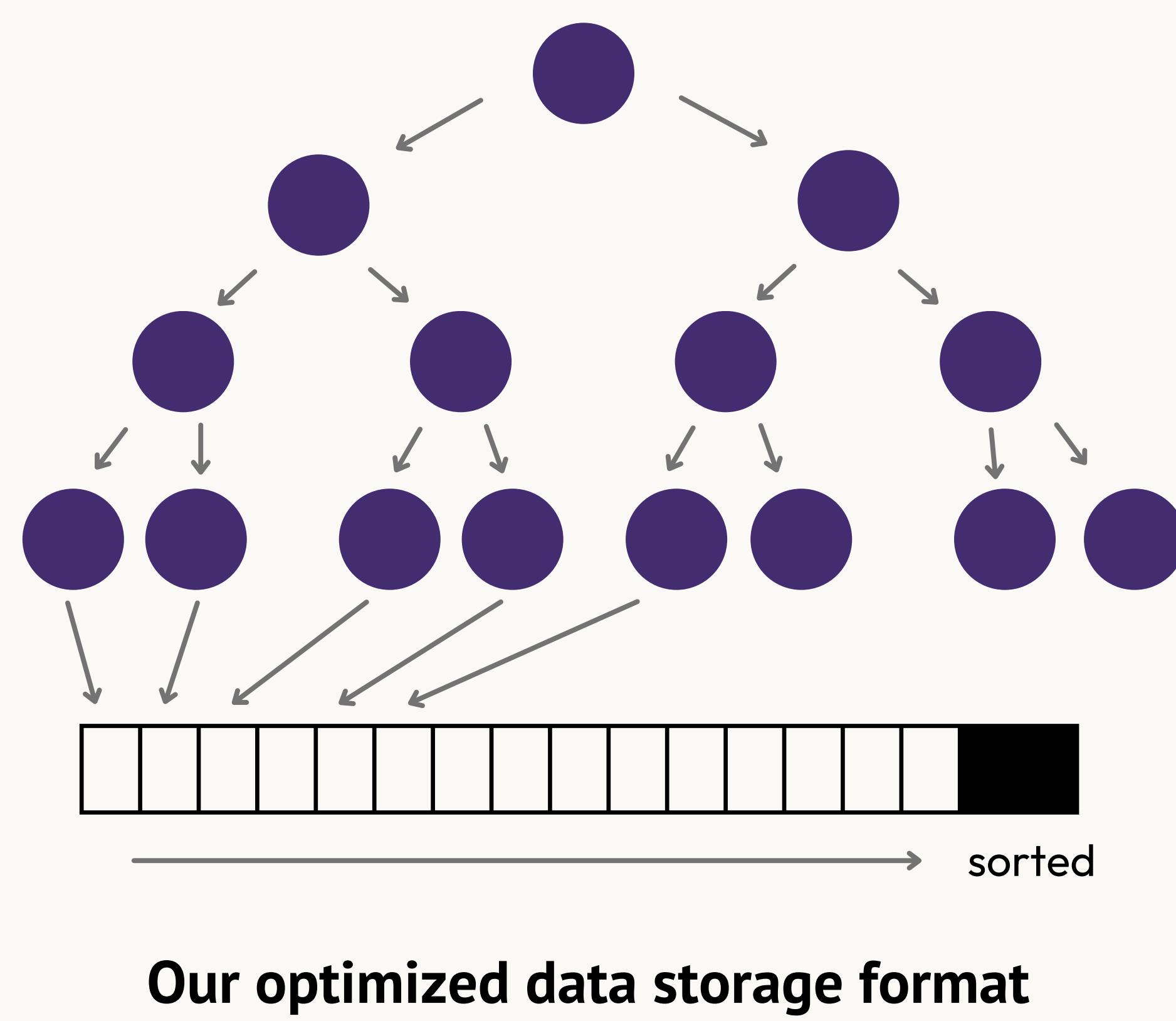
Aaron Lee • Adyah Rastogi • Jiahua Ren • Justin Lang • Wesley Truong

## Motivation

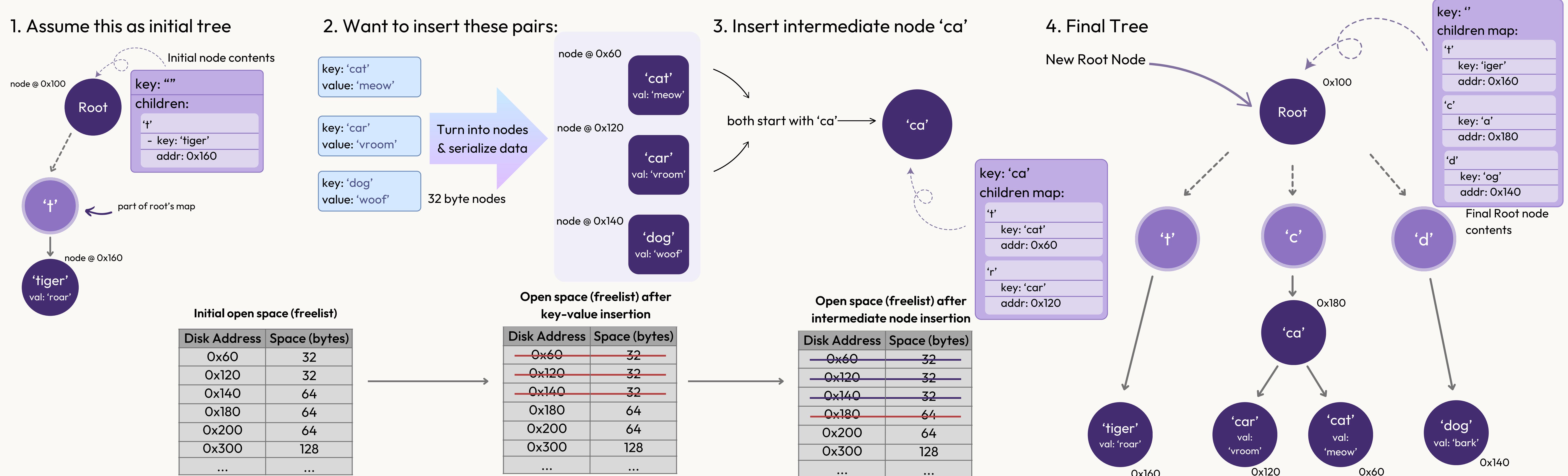
There is currently a systemic inefficiency in how blockchains store data, with nearly **80% of execution time** being spent during data retrieval



Our goal is to leverage the inherent **underlying Merkle Tree structure** to design a high-performance, **on-disk** storage system

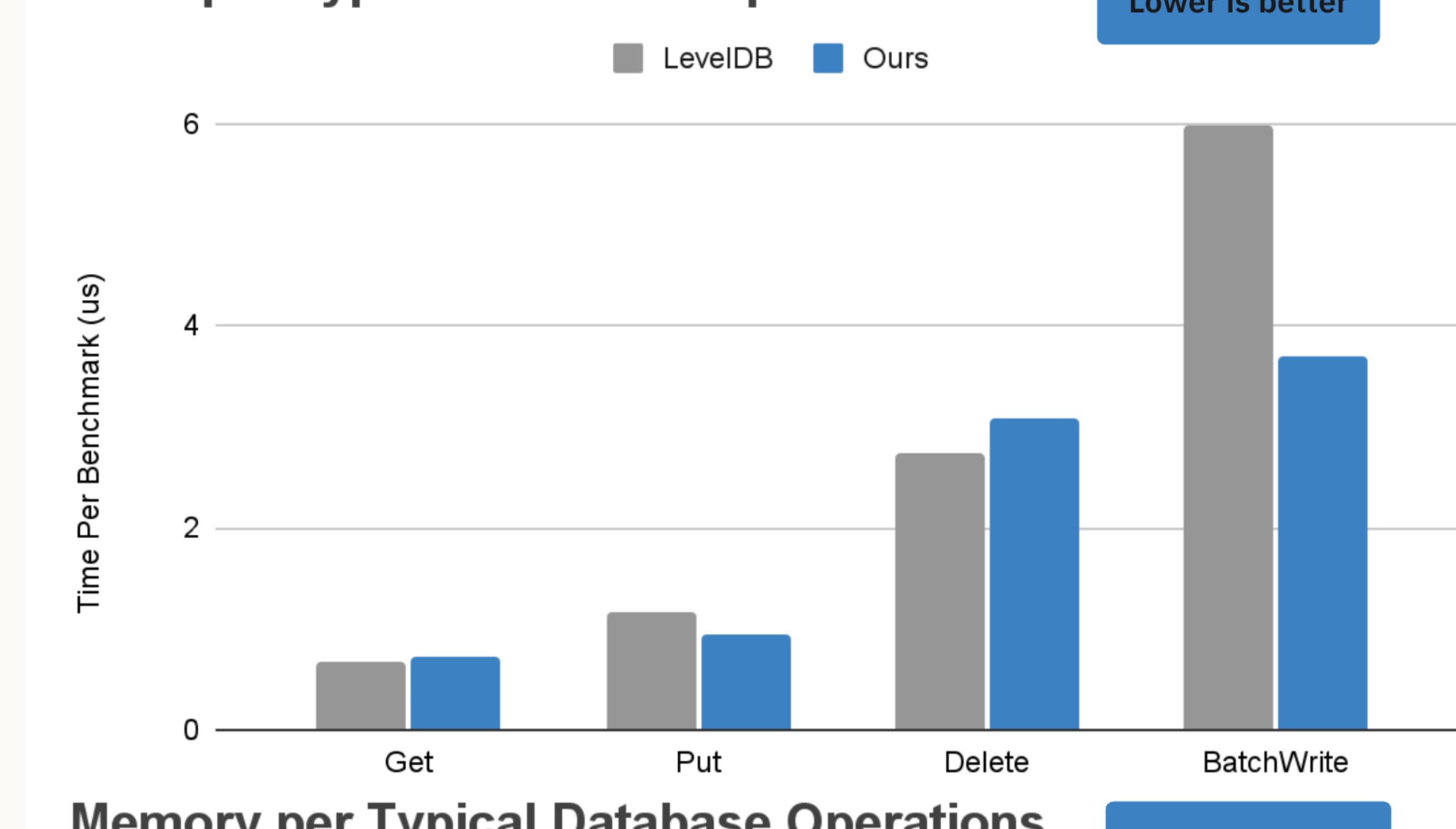


## Key-Value Insertion

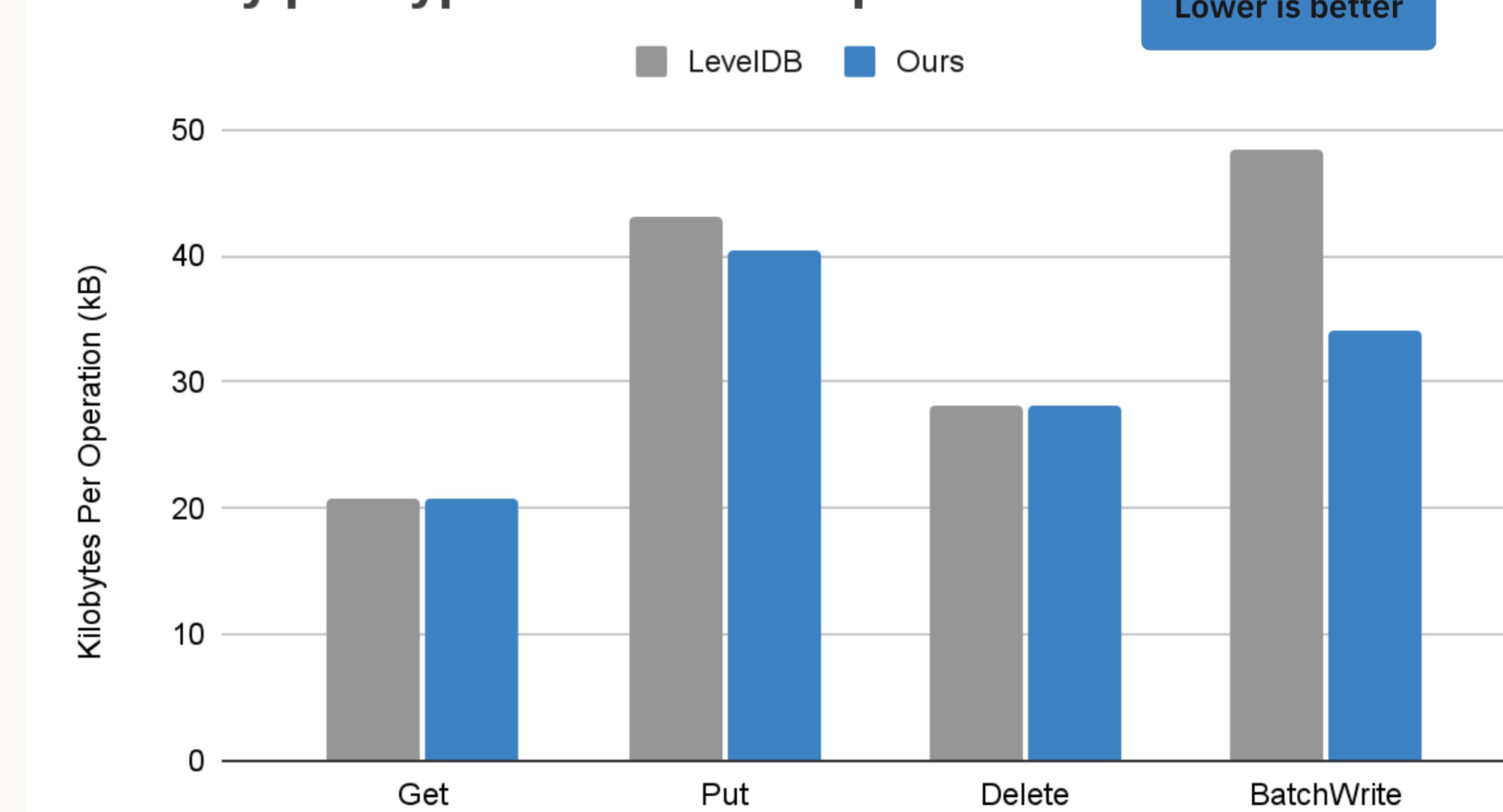


## Results

Time per Typical Database Operations



Memory per Typical Database Operations



## Impact

- Highlights **scalability** and immediate application to **any system** that relies on **key-value stores** for data persistence
- As a **proof of concept**, successfully competes and **outperforms** optimized databases like LevelDB
- Serves as baseline for **future optimization**, greatly raising ceiling for blockchain storage