Picolo: Fast, Fully decentralized, Globally distributed Open Database Network

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version 1 (private release, still work-in-progress)

Whitepaper for the project can be found at [1]

Abstract

Picolo is a fast, scalable, verifiable, fully-decentralized, globally distributed transaction oriented database for Blockchain-based Applications. Picolo uses a probabilistic replication framework on top of DHTs to achieve a O(1) lookup latency for most queries. Its the first and so-far only system of its kind to distribute data at a global scale will full-decentralization and externally-consistent distributed transactions. Its design is tailored to support Blockchain-based applications.

- Allows for verifiable transaction logs.
- Token economics that gamify honest participation from nodes over malicious intent.

1 Introduction

- Introduce the database problem on the blockchain.
- Overview of current approaches and limitations (details in the Background and Related work section).

2 Background

3 Related Work

4 Overall Design

- Overall Picolo architecture.
- Token economics.

5 Network Subsystem

- DHT layer for lookup. Replication and caching for O(1) lookups for popular items.
- Token economics for incentivized participation.
- Building with BFT.

6 Database Subsystem

6.1 Cluster

6.2 Versioning

6.3 Replication and Token economics

6.4 Handling Failures

Some factors that affect prices of cryptos are listed below. These factors are by no means exhaustive but provide a framework within which mechanisms to analyze them can be discussed. See the sub sections where some techniques are presented. Factors affecting the prices of crypto assets:

7 Conclusion

Initial implementations of AI algorithms that analyze structured and unstructured data are discussed. Unstructured data is analyzed in two steps: first, at a unit level and second as a sequence by feeding it to an LSTM. Structured data consisting of live feed from exchanges, current and past bets on the platform amongst others is represented as a game state where an independent decision making agent learns to take actions that maximize its game score. A method of determining payouts to platform users is discussed where they are determined by the magnitude as well as the category of contribution.

References

[1] Adi Kancherla and Arunesh Mishra. Picolo: Ethereum-based open database network. https://picolo.network/Whitepaper.pdf.