Comparative Study of Data Availability Schemes in Various Blockchains

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Abstract—We make a Comparative benchmarking study of currently polkadot's ELVES data availability protocol with emerging data availability solutions which includes Avail, Celestia, Espresso's-Tiramisu and NEAR's sharded DA.

We made a comparison in terms of bandwidth, time, latency, block time, block size, robustness degree and cost per megabyte of data availability.

I. INTRODUCTION

In recent years, the field of [Your Field] has seen significant advancements, driven by [mention key factors or technologies]. This paper aims to explore [briefly state the main topic or problem addressed in the paper].

The motivation behind this research stems from [explain the motivation, why this topic is important]. By addressing [specific issues or gaps in the existing literature], we hope to contribute to [state the expected contributions or outcomes of the research].

The objectives of this study are as follows:

- Objective 1: [Describe the first objective]
- Objective 2: [Describe the second objective]
- Objective 3: [Describe the third objective]

This introduction sets the stage for the subsequent sections, where we will delve into the methodology, results, and conclusions drawn from our research.

II. METHODOLOGY

In this section, we detail the methods and approaches used in our research. The methodology is structured as follows:

A. Research Design

We employed a quantitative research design to gather and analyze data systematically.

B. Data Collection

Data was collected through surveys distributed to a sample population. The survey included questions designed to assess various parameters relevant to our study.

C. Data Analysis

The collected data was analyzed using statistical methods, including descriptive statistics and inferential statistics, to draw meaningful conclusions.

D. Limitations

We acknowledge certain limitations in our methodology, including potential biases in survey responses and the representativeness of the sample.

Future research may address these limitations by employing a more diverse sample and utilizing mixed methods for data collection.

III. RESULTS

In this section, we present the results of our research. The findings are summarized in the following subsections.

A. Data Analysis

We conducted a thorough analysis of the collected data, which revealed significant trends and patterns. The results are illustrated in Figure **??**.

B. Findings

The key findings from our research indicate that [insert key findings here]. These results contribute to the understanding of [insert relevant field or topic].

C. Discussion

The implications of these results are discussed in relation to existing literature. Our findings suggest that [insert discussion points here]. Further research is needed to explore [insert future research directions].

IV. CONCLUSION

In this paper, we have explored the significance of [insert key findings or contributions]. The results indicate that [summarize main results]. These findings have important implications for [discuss implications]. Future work could focus on [suggest future research directions]. Overall, this research contributes to [state the broader impact of the work].