Comparison of consensus algorithms for blockchain applications

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PhD Track

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Technical Report

March 2022

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1 Abstract

In this report, we will try to do a comparison between different consensus algorithms for blockchain applications. Overviews of those algorithms already exist in the literature. However, we will both try to present new or not well known algorithms as well as try to measure the differences by conducting experiments with code.

2 Acknowledgement

Special thanks to the supervisors of this PhD Track project, namely:

- Lionel Brunie
- Omar Hasan

3 Foreword

This report will be using abbreviations and acronyms, especially for the following:

- consensus algorithms
- consensus protocols
- other algorithms

When possible, they will be defined in the text between parenthesis right after the first occurrence of the word or expression. Each of these abbreviations will be available in the

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4 Introduction

Since the introduction of the Bitcoin protocol and its "Proof of Work" [1], consensus algorithms have seen a rapid development and diversification.

Another now well-known consensus algorithm is the Proof of Stake, which was first introduced in...

4.1 Context of the report

This report has been written in the context of a Phd-Track project. This is a Double-Degree program between INSA Lyon and Universität Passau. This Double-Degree is heavily research oriented. It is intended to prepare students to research and is a first step towards a PhD-Degree.

4.2 Consensus Algorithms

4.3 Blockchain types and impact

5

6 Conclusion

7 Appendices

Acronyms

PoS Proof of Stake. 1

PoW Proof of Work. 1

References

[1] Satoshi Nakamoto. *Bitcoin: A Peer-to-Peer Electronic Cash System*. Tech. rep. Jan. 2009.

7.1 Bibliography