Review for Paper 4

Towards Private Active Choreographies on Public Blockchain
by Henry Bergstroem and Jan Mensch

This review is structured in three parts. The first part summarizes the paper from my point of view, for you to compare with the list of points you aim to make with the paper and adapt accordingly. The second part is the review itself, it lists the paper by its chapters showing strengths and weaknesses of the content. The third and last part concludes the review outlining key points and giving general advice.

1 Paper Summary

Kicking off the paper, the introduction motivates the task to explore privacy and visibility constraints while executing choreographies on a public blockchain. Before showing the approach chapter 2 reflects on 2 different papers regarding active mediators and active choreographies setting the foundation for the paper content. Additionally visibility levels of an on-chain model are presented and possible privacy enhancing technologies like obfuscation, homomorphic encryption and zk-SNARKs are explained briefly.

The approach afterwards introduces the concept of circles as a possibility to implement visibility constraints in a public blockchain environment. Furthermore the proposed consensus mechanism, which is the core of the described work, is explained in detail and demonstrated using a small business process as an example. Using this example the validation of the signing process, included in the consensus mechanism, is briefly explained. The implementation chapter afterwards compares the approach to the current exemplary implementation laying out differences and future implementation work.

Continuing to the discussion, weaknesses of the current approach are documented and future work is noted briefly. Finishing up, alternative approaches are presented and the paper is concluded by a short summary.

2 Strengths and Weaknesses

Nothing of the afterwards stated is supposed to be offensive. Please use this as constructive feedback in order to improve the paper further. Please also refer to the commented version of the paper for detailed annotations.

Aside from the content: As suggested by the first annotation in the commented version, add input encoding to correctly display the paper head.

Throughout the whole paper, I noticed that you use active voice frequently. This is rather uncommon in scientific papers and I highly recommend changing that. I added 2 annotations in the introduction for you to consider, but left it uncommented afterwards.

2.1 Introduction

A well written introduction, giving a head start into the presented content. The goal of 'increasing the collaboration between businesses' might be set a bit high. Consider changing that to something like your last sentence in the conclusion. Furthermore, there is a long sentence and two really short sentences inside the introduction. Please refer to the commented version of the paper for more information about this issue.

2.2 Background

I really like the combination of related work with fundamentals, needed to understand the approach. Aside from some minor things, like long sentences, the last paragraph feels a bit out of place in this chapter. For the reader to understand why this introduction into Parity is important, consider moving the explanation from 5.2 (Alternative Approaches) to this chapter.

2.3 Approach

Overall the approach has good content, but is very hard to read, because of the many assumptions numbered a to m. I highly recommend reducing the number of points to reference further. Additionally please state the assumption you are referencing briefly instead of just printing a letter. I recommend the writing style of 'Protecting the Model Layer' as an example for good references to the assumptions.
Furthermore, there is a large blank space before the first mention of Figure 3. This is probably caused by blank lines around the figure inside the latex document.

2.4 Implementation

Nice short chapter concerning your implementation. A github link would be very nice though. Additionally, if you reference other chapters please do so using latex references. Please refer to the commented version for a code snippet.

2.5 Discussion and Conclusion

Discussion and conclusion are very well written and left me with without open questions.

3 Conclusion

Overall the paper has a very nice golden thread and reads fluidly. The key takeaways from this review should be: First of all, consider using passive instead of active voice. Secondly, please improve number of references inside the approach and change the reference style. Thirdly, please consider all the annotations inside the commented version of the paper.

Finally: Well done, nice paper!