Chair of Information System Development and Operation TUM School of Computation, Information and Technology **Technical University of Munich**

Bachelor Thesis

DevOps for Multi-Party Blockchain Applications

To ensure the correctness of smart contracts, blockchain application developers rely on DevOps practices such as automated testing and continuous integration/deployment [1, 2]. However, the pipelines are controlled by a single entity, which does not suit multi-party settings, e.g., in business-to-business (B2B) cooperation. In this thesis, we want to propose a method and tools supporting a decentralized deployment pipeline, where each party implements and runs their own tests, before engaging in the use of a (newly deployed) smart contract. Based on existing work, the goal is to provide a reference implementation, and evaluate the proposal thoroughly.

Contact

Every theses starts with an exposé, where you shape the topic towards your interest (in consultation with us). If you're interested, please contact us as outlined at https://www.cs.cit.tum.de/en/isdo/teaching/theses/.

Recommended Prerequisites

Familiarity with blockchain technology, Strong programming and DevOps skills

[1]: M. Wöhrer and U. Zdun, "DevOps for Ethereum blockchain smart contracts," in 2021 IEEE International Conference on Blockchain (Blockchain). IEEE, 2021, pp. 244–251. [2]: T. Gorski, "Towards continuous deployment for blockchain," Applied Sciences, vol. 11, no. 24, p. 11745, 2021.





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Tasks

- 1. Based on existing work at the chair, develop or extend a containerised multi-party CDP for local and cloud usage.
- 2. Evaluate the CDP thoroughly by, e.g., analysing transaction cost and usability (by demonstrating the use of the CDP on an existing blockchain application).



Fig. 1. CI: Continuous Integration, CD: Continuous Deployment

