BlockReg

Blockchain-based Data Integrity

Whitepaper

MunichInnovationLabs

BlockReg: Intraorganisational document registration

Distributed ledger technologies that record and verify transactions in distributed databases using proof-of-work cryptographical concepts have received widespread attention in recent years. Apart from the well-publicized applications in so-called “cryptocurrencies”, distributed ledgers have the potential to record other types of transactions in a cryptographically secure and verifiable manner.

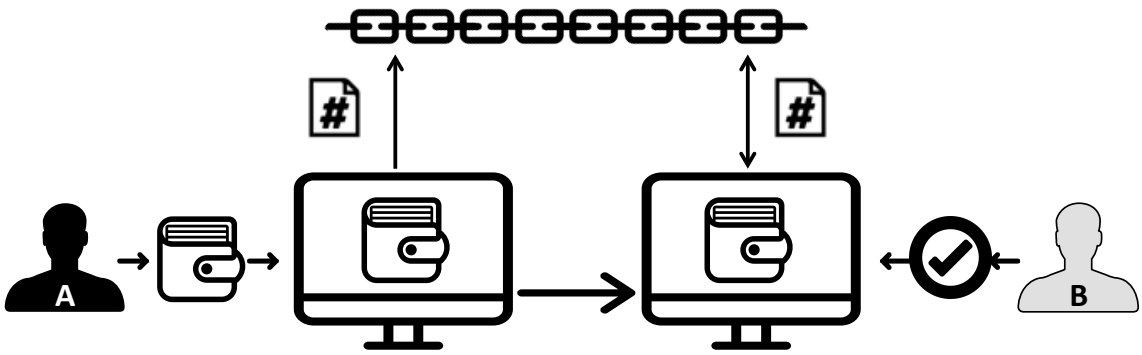
Registration and record-keeping for sensitive documents is of utmost importance in large organizations that deal with sensitive information where authorship, time of authorship, and authenticity are of high relevance. In these cases, authors typically have an interest in safely registering their authorship and making sure this authorship can be verified within the larger organisation.

For most large organisations it is not desirable to use a publicly distributed ledger so that the nature and amount of transactions will be kept within the boundaries of the organisation. The database should hence rely on the intraorganisational IT resources.

Technical Concept

A distributed ledger (database) using Blockchain - technology is used to register digital documents. Entries in the database are verified in a decentralized manner using the Blockchain - infrastructure. The database is in principle accessible by all participants of the organisation. A modification of existing entries to the database by individuals however is prevented by the underlying cryptographical concept. This is a unique feature of blockchain-based technologies.

Digital documents are registered using a web application the organisational intranet. The documents themselves are not stored, only a cryptographic hash, a fingerprint of the document, is stored in the distributed database along with relevant metadata such as author and time. Using this fingerprint and the “write once” property of the database, authorship can be proven for every user that is in possession of the document itself by checking its fingerprint using a web application.



Given that the underlying IT infrastructure is distributed within the organisation, the concept is robust against failures of parts of the infrastructure.

Applications

Applications in public administration and law enforcement agencies

Results of criminal investigations are highly sensitive and even intermediary steps need to be recorded in a way that holds up to scrutiny in legal proceedings. Using the described approach, preliminary results of investigations can be registered and the existence of a report and authorship can be proven in an indisputable manner. Modifications and tampering with documents can be ruled out.

Applications in corporations to support compliance efforts

Compliance to laws and regulations is of utmost importance for international corporations. Especially in large organisations, the described concept can be used to improve the situation for individual employees drawing attention to potential breaches of regulations. Reports submitted to supervisors, compliance departments or organizational ombudsmen can be registered verifiably. This makes sure that necessary follow-up actions and investigations of the alleged issues are carried out, while the organisation has the opportunity to address these issues internally.

Applications in supporting intellectual property and invention filings

Employees can register their inventions, making sure that priority dates are recorded and due process is followed within the organisation for the decision of filing a patent or granting the rights to the invention to the inventor. Disputes can be avoided or settled using the records kept.

Contact

Dr. Stefan Taing
Managing Partner
st@munich-innovation.com
+49 89 125 030 73

Dr.-Ing. Jens Elsner
Chief Technology Officer (CTO)
je@munich-innovation.com

Munich Innovation Labs GmbH

Office Munich
Schillerstr. 53
D-80336 München

Office Bremen
Fahrenheitstr. 1

D-28359 Bremen

www.mi-labs.de

info@mi-labs.de