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Implementing Blockchain Technology to Comply with GDPR Legislation, a Simple Solution

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*Abstract*— Blockchain is a highly attractive new technology, due to its security features, in a time where concern for consumer data protection is on the rise. The immutability of blockchain through its decentralized framework is an appealing option for conforming to regulations protecting consumer data privacy such as the European Union’s (EU) General Data Protection Regulation (GDPR) and similar legislation proposed in the United States (US), however companies needing to conform to regulations will likely need to keep costs as low as possible and solutions simple. Although many other proposals have introduced the idea of a blockchain-database hybrid or a mutable blockchain, this paper seeks to implement a third, more simple solution.

# INTRODUCTION

Blockchain technology has attracted interests from a wide span of industries; mainly due to its ability to operate in a decentralized fashion [1]. A blockchain utilizes a digital ledger of transactions where all participants edit in a secure way and is shared over a distributed network of computers [2]. The blockchain has an append-only structure, which helps it protect old data against modification or deletion [3]. In order to make changes, all the nodes present in the network must evaluate, verify, and match the transaction information; if the majority of the nodes agree a new block is added to the chain [2]. Considering several recent highly publicized data breaches raising public concern, and in the face of looming legislative changes in the United States [4, 5], after the implementation of the General Data Protection Regulation (GDPR) [6], this extra-secure framework is an attractive one.

Some possible challenges for companies trying to conform to GDPR-like legislation include the “Right to be forgotten” where citizens are given strict control over their personal data [7]. Conforming to a GDPR-like regulation and securing the data are two dynamically opposed paradigms that must be reconciled with each other.

One solution that has been presented includes implementing a blockchain-traditional database hybrid where user data is stored on a traditional database and modifications are recorded on the blockchain [8, 7]. Alternatively, another solution is a blockchain with the ability to forget has been proposed. This proposal uses the pruning features of traditional blockchains like Bitcoin or newer smart-contracts like Ethereum to remove blocks in a traceable way [3].

In this paper, we will give a brief overview of the blockchain and its background. We will give a condense summary of the European Union’s GDPR. Following this, we will discuss the different methods proposed and their weaknesses. The remainder of this paper will contain our proposal, its implementation and drawback.

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