

A Synopsis of Blockchain Technology

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Abstract

When Satoshi Takemoto (the father of blockchain) released the whitepaper Bitcoin in 2008 that described a “purely peer-to-peer version of electronic cash” known as Bitcoin, blockchain technology made its public debut. Since then Blockchain has been considered an emerging technology for decentralized and transactional data sharing across a large network of untrusted participants. It enables new forms of distributed software architectures, where agreement on shared states can be established without trusting a central integration point. It enables the creation of a decentralized environment, where transactions and data are not under the control of any third party organization. Any transaction ever completed is recorded in a public ledger in a verifiable, secure, transparent and permanent way, with a timestamp and other details. For these features blockchain has developed into one of today’s biggest ground-breaking technologies with potential to impact every industry from financial to manufacturing to educational institutions. Blockchain-based applications are springing up, covering numerous fields including financial services, reputation system, Internet of Things (IoT), and so on. This paper presents a comprehensive overview of blockchain technology by giving its brief history, describing its architecture, highlighting the challenges facing blockchain technology currently and consensus algorithms used in blockchain-based systems. Furthermore, some thoughts about where it might go in the future are briefly discussed.

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