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Testing in Blockchain-based Systems: A Systematic Review

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Abstract

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Abstract

The Internet of Things (IoT), insurance, healthcare, government systems, financial services, and other industries have recently adopted the blockchain technology. As blockchain technology evolves, the list will continue to expand. Implementing blockchain technology is becoming more challenging due to various problems such as throughput issues, user identity exposure, and smart contract vulnerability.

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Therefore, blockchain-based technology should undergo appropriate testing before deploying to a broader range of businesses. This study conducted a comprehensive systematic review on testing the blockchain systems based on three main issues; performance, privacy and smart contract, which aims to identify opportunities for future research. The recently published publications are extracted from two selected digital libraries, IEEE Xplore and Scopus, by applying selected search terms and conditions. This research found that 27.78% of the relevant research is based on blockchain performance testing, 27.78% on blockchain privacy testing, and 44.44% on blockchain smart contract testing. It was observed that more research focuses on smart contract issues than other issues. © 2022 IEEE.

Author keywords

Blockchain; smart contract; systematic review; testing

Indexed keywords 

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