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Research Issues for Privacy and Security of Electronic Health Services

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Abstract

With the prevalence of information and communication technologies, Electronic Health Services (EHS) are commonly used by patients, doctors, and other healthcare professionals to decrease healthcare costs and provide efficient healthcare processes. However, using EHS increases the concerns regarding security, privacy, and integrity of healthcare data. Several solutions have been proposed to address these issues in EHS. In this survey, we categorize and evaluate state-of-the-art electronic health system research based on their architecture, as well as services including access control, emergency access, sharing, searching, and anonymity methods by considering their cryptographic approaches. Our survey differs from previous EHS related surveys in being method-based such that the proposed services are classified based on their methods and compared with other solutions. We provide performance comparisons and state commonly used methods for each category. We also identify relevant open problems and provide future research directions.

Keywords: Electronic Health Services, privacy, security, cryptography, e-health.

1. Introduction

Electronic Health Services (EHS) are increasingly used by patients, providers, employers, doctors, policy makers, and other healthcare workers.

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