Patient Self-Controllable and Multi-Level Privacy Preserving Cooperative Authentication in Distributed M-Healthcare System

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Abstract— Distributed m-healthcare cloud computing system significantly facilitates efficient patient treatment for medical consultation by sharing personal health information among healthcare providers.patient self-controllable privacy-preserving cooperative authentication scheme realizing three levels of security and privacy requirement in distributed m-healthcare cloud computing system is proposed.

Keywords—Security; Authentication Access Control; Distributed Cloud Computing; M-Healthcare System; Security and Privacy.

1. Introduction

Distributed m-healthcare cloud computing systems have been increasingly adopted in m-healthcare social networks, the personal health information is always shared among the patients located in respective social communities suffering from the same disease for mutual support, and across distributed healthcare providers (HPs) equipped with their own cloud servers for medical consultant. However, it also brings about a series of challenges, especially how to ensure the security and privacy of the patients' personal health information from various attacks in the wireless communication channel such as eavesdropping and tampering.

2. Literature survey

The article outlined the significance and role of individual health management systems along with some scientific confronts and chances. In addition, there are a number of other challenges that require to be considered in order to allow PHMSs to attain the predictable level of operational reliability and begin their place in healthcare. The additions of PHMSs in healthcare entail their interconnection with health data systems (HISs) and (EHRs). The most significant obligation arising from this is the require for interoperability among PHMSs and HISs/EHRs. The possible of wearable and moveable PHMSs to allow the move to citizen-centered modified care has been established through the vocation carried out under the European Commission's Fifth and Sixth Framework Programmed[4].

2.1 Attribute based encryption

Attribute based encryption is the simplification of individuality based encryption that takes attributes as inputs to its cryptographic primitives. Information is encrypted using a set of attributes, and then manifold users can correctly decrypt it.

2.2 Key-Policy based ABE

Key-Policy based ABE suggest a cryptosystem for fine-grained distribution of encrypted data.In this cryptosystem, cipher texts are chosen with sets of attributes and private keys. Private keys are connected with admission structures that in turn identify which kind of cipher texts the key can decrypt.

3. Existing system

In m-healthcare personal health data is always shared among the patients located in respective communal communities distress from the similar sickness for mutual sustain, and across dispersed healthcare suppliers prepared with their possess cloud servers for medical advisor. However, it also carries about a series of challenges, particularly how to make certain the safety and solitude of

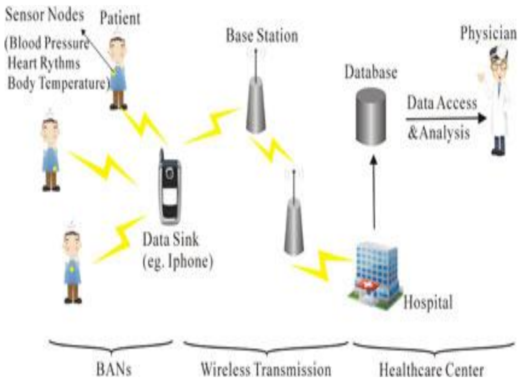

Fig.1. basic architecture of the e-health system

the patients' personal health data from diverse attacks in the wireless communication channel such as eaves dipping and corrupting.

4. Basic Architecture of the E-Health System

The basic e-healthcare structure demonstrated in Figure largely consists of three components: body area networks (BANs), wireless broadcast networks and the healthcare suppliers equipped with their possess cloud servers. The patient's personal health data is firmly broadcasted to the healthcare supplier for the certified physicians to admission and execute medical treatment [1].

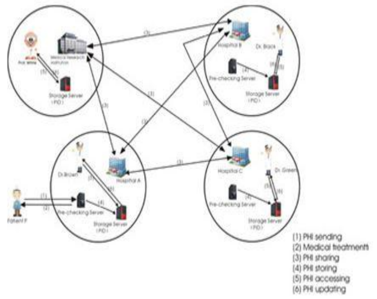

Fig 2: An Overview of Distributed m-Healthcare Cloud Computing System

5. Accessible Privacy Model

The major offerings of this paper are précis as follows. A new certified available privacy model (AAPM) for the multi-level privacy-preserving helpful verification is reputable to permit the patients to approve corresponding rights to dissimilar sorts of physicians situated in dispersed healthcare providers by setting an admission tree sustaining flexible threshold predicates[1]. The recognized safety proof and imitation results demonstrate that our system far outperforms the preceding building in terms of privacy-preserving ability, computational, statement and storage transparency [2].

- Management for validate doctors and patients.Patients can upload their medical reports in cloud from which data can entrée by doctor from anyplace at any time.
- Patients can keep time, they don't desire to squander time while consulting[4]

5.1 Advantages

- No require to stay long time in line
- No require of tokens
- Free Consultation (fee)
- Can stay more than one doctors and can have more than one estimation about their sickness.
- concurrently attaining data privacy and identity privacy with elevated competence

6. PSMPA

Distributed m-healthcare structure appreciably facilitates competent patient treatment for medical discussion by sharing personal health data between healthcare providers. Patient self-controllable solitude-preserving cooperative confirmation scheme apprehending three levels of safety and solitude obligation in distributed m-healthcare structure is proposed. The urgent solution for the disease is proposed at once and the security is provided using the technique of attribute based encryption

6.1 Security Architecture

In distributed m-healthcare systems, all the members can be classified into three groups: the unswervingly official physicians, the circuitously certified physicians, and unlawful persons.The straight certified physicians are recognized with green labels in the restricted healthcare supplier they are certified by the patients and these physicians can admission the patient's individual health data and confirm the patient's identity.

6.2 Application scenario in PSMPA

Consider the app scenario in PSMPA structure shown in the Fig 2, where all associations are bidirectional and the bracketed numbers designate events or swaped messages.

7. Conclusion

In this paper, a new authorized available solitude model and a patient self-controllable multi-level solitude preserving helpful verification scheme apprehending three dissimilar levels of safety and solitude obligation in the dispersed m-healthcare cloud computing method are planned, pursued by the official safety proof and competence assessments which exemplify our PSMPA can oppose different sorts of malicious assails and far outperforms preceding schemes in terms of storage, computational and communiqué overhead.

References

[1] L. Gatzoulis and I. Iakovidis, "Wearable and portable E-health systems", IEEE Eng. Med. Biol. Mag., Vol. 26, no. 5, , Sep.-Oct. 2007, pp. 51–56.
[2] I. Iakovidis, "Towards personal health record: current situation,obstacles and trends in implementation of electronic healthcare records in europe", Int. J. Med. Inf., Vol. 52, no. 1, 1998, pp. 105–115.
[3] E. Villalba, M. T. Arredondo, S. Guillen, and E. Hoyo-Barbolla, "A new solution for a heart failure monitoring system based on wearable and information technologies", Proc. Int.Workshop Wearable Implantable Body Sens. Netw., Apr. 2006, pp. 150–153.
[4] R. Lu and Z. Cao, "Efficient remote user authentication scheme using smart card", Comput. Netw., Vol. 49, no. 4, , 2005, pp. 535–540.