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Smart Secure Healthcare Cloud Data Model by Fog

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Abstract: *Big data in healthcare refers to sets of electronic medical health data that are large and complex. Due to their huge volume and complexity, it is difficult (or infeasible) to manage those data sets using traditional software and/or hardware. The diversity and volume of multimedia medical big data and efficient accessibility of these datasets make it irresistible. Medical Bigdata in the healthcare industry includes patient data in electronic patient records (EPRs); clinical data from computerized physician order entries etc. Healthcare cloud computing has different issues related to its security, the most important of which are: legal and policy issues, data protection, privacy protection. To keep medical data securely we use Advanced Encryption Scheme for encrypting the data, for decrypting the data the user has to enter a one-time password. If the entered password doesn't match the system will show a decoy image. This system also includes a video hiding section in which the video is hiding within the image.*

Keywords: Big data

I. INTRODUCTION

Nowadays, telemedicine is an emerging healthcare service where the healthcare professionals can diagnose, evaluate and treat a patient using telecommunication technology. To diagnose and evaluate a patient, the healthcare professionals need access the electronic medical record (EMR) of the patient, which might contain huge multimedia big data including x-rays, ultrasounds, CT scans, MRI reports, etc. For efficient access and supporting mobility for both healthcare professionals as well as patients, the EMR needs to be kept in bigdata storage in the healthcare cloud. In spite of the popularity of the healthcare cloud, it faces different security issues; for instance, data theft attacks are considered to be one of the most serious security breaches of healthcare data in the cloud. This system is for secure healthcare private data in the cloud using fog computing facility. The private healthcare data are accessed and stored securely implementing a decoy technique.

II. LITERATURE SURVEY

Kevin c Tseng and Chia-Chuan Wu2014 An expert fitness diagnosis system based on elastic cloud computing; this paper presents a cloud based expert fitness diagnosis system; it measures users fitness level based on ifit with a combination of machine learning technique. Discriminative analysis, Naive Bayes and KNN are utilized to build the system. This system classifies users' fitness level into strong, moderate and weak and then give corresponding spot suggestion to user. And uses an elastic allocation algorithm to allocate computation resources automatically.

M. Shamim Hossain and Ghulam Muhammed 2016 Healthcare Bigdata Voice Pathology Assessment Framework, Here focuses on speech signals from patients with or without vocal fold pathology. The speech signals are processed on the server. For feature extraction, we adopt two methods, MPEG-7 low-level audio and IDP, which are complementary in nature. These two methods are then normalized and fused to produce a robust set of features are fed into a classification unit in the cloud. In the classification unit three algorithms, SVM,GMM and ELM, are used.

III. PROPOSED SYSTEM

This project mainly deals with preserving the privacy of medical big data. The system keeps the patients' medical report securely by data encryption. It also provides a video hiding technique to hide the medical related videos with in a image. This system also helps the patients to get their previous consultation details and the doctor can also search a patient using their register. The system can send the patients test reports to corresponding patients and doctor securely.

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IV. METHODOLOGY

Decoy approach: It is a security technique that is used to authenticate the data of a user present in a computing network by replacing the original information with the fake one which is then provided to the attacker.

Figure 1. Original image

Figure 2. Decoy image

AES

The AES encryption algorithm (also known as Rijndael algorithm) is a symmetric block cipher algorithm with a block/chunk size of 128 bits. It converts these individual block using keys of 128, 192, and 256 bits. Once it encrypts these blocks, it joins them together to form the cipher text.

AES decryption has also the same process. By default, it assumes the entered text be in Base 64. The input can be Base 64 encoded or hex encoded image and .txt file too. And the final decrypted output will be Base 64 string.

AES is a symmetric encryption, and is the same speed whether encrypting or decrypting. In fact, in some streaming modes, AES simply generates a stream of bits that are xored with the data to encrypt, with the receiver running the exact same AES to produce the exact same bitstream to xor in to decrypt.

V. CONCLUSION AND FUTURE SCOPE

In conclusion, The project entitled "SMART SECURE HEALTHCARE CLOUD DATA MODEL BY FOG" completed success- fully in PHP and Python. In this Project, I have proposed a mechanism forpreserving the privacy of medical bigdata. The diversity and volume of multimedia medical big data and efficient accessibility of these datasets make it irresistible. Medical Bigdata in the healthcare industry includes patient data in electronic patient records; clinical data from computerized physician order entries etc. Healthcare cloud computing has different issues related to its security, the most

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In future since each and every application should expand and it should provide a way for updating the system has been developed. All modules in the system are being developed carefully. Such that the future enhancement does not affect the basic performance of the system. This system can be incorporated with Hospital Management system. A chat window can be included for the communication of doctor to doctor and doctor to patient. This system can be converted as a android application for doctor and patient.

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