

A Cloud based Approach of Secure Statistics for Data Aggregation and Storage of Smart Meter Data

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ABSTRACT

The soft car is used in electronic items to provide reliable activities about electricity. The continued report of the customer's energy meter for a number of 1 minute or higher, so you have to save and check the terabyte. Some companies try to send data into a cloud to reduce the pressure and the account. However, this describes the secret customer with the risk. In this article, the frequency of smoking in the outer cloud provides a stable system (PCS) and statistics. Three questions have been reached from the energy company that published this scheme. In addition, personal information and authenticity of this method has been confirmed. Finally, we organize the map you use algorithm to show the quantity of the cloud

Keywords : terabyte, cloud, authenticity

INTRODUCTION

The energy company encourages a temporary to provide power service today. Example, more 70% of customers to enter a workman in Europe. This calculator allows energy companies to prevent the micro-handed power. Information on energy that can help corporate development. More than 800,000 customers have been installed solid meters in the United States. All words of intelligible words can announce customers every few minutes or minutes. The equal meter will inform the number of energy per minute. If the electronic company wants to search for a year's study, a long report and must be stored and is being stored. The cryptography system and the battery box first to protect the first privacy. Smart Grid. The first type is trying to use politeness and more information to help you read the original customer and meter safe at the network. The second type uses batteries switch to stimulate energy before sending this advantage to the network. Unfortunately, all the opponents are recruiting the counter reading in the cloud, so you need an electronic company to study the major terabytes.

For the first time, an encryption-based and battery-based system is proposed to maintain confidentiality in the smart grid. The first attempt uses the original cryptographic elements and protocols to reduce the number of client IDs and read their counters, and then safely transmit these reads over the network. Use rechargeable batteries to reduce consumers' energy consumption before sending them to the grid. Unfortunately, all existing circuits require utilities to analyze terabytes. Big data because they don't consider storing meter readings in the cloud.

Provided for the first time an encryption and battery-based system to maintain confidentiality in the smart grid. The first attempt was to use the original encryption elements and protocols

to reduce the number of client IDs, read its counter, and then enable secure transmission. These measured values are transmitted via the network. Before connecting the charger to the power source, please use rechargeable batteries to reduce consumer energy consumption. Unfortunately, all existing solutions require terabytes of analysis utilities. Big data because they don't consider storing meter readings in the cloud.

II.EXISTING SYSTEM

Several companies, such as Siemens, IBM, and eGlobalTech Incorporated, have tried to provide data in the cloud to reduce pressure and billing, but the main drawback is that reading metrics is easy. Specifically, the imported cloud runs a seamless tracking algorithm to analyze the power consumption of electronic devices from reading these frequencies, thus exposing regular customer activity.

Accounting protocols that maintain confidentiality are useful in environments where electricity meters measure the user's consumption of certain services (for example, on the user side). B. Intelligent measurement of electricity consumption, driving insurance and electronic toll collection system. The measurement [1]equipment provides users with detailed consumption reports. The agreement allows users to pay service providers without the need to report consumption metrics to users. Our contribution is twofold: First, we propose a general model in which one meter can send readings to multiple users, and one user can receive readings from multiple meters. An agreement based on polynomial commitments can improve the efficiency of previous tariff policy agreements that used to calculate expiration prices.

Disadvantages

Unfortunately, all existing systems do not consider storing meter readings in the cloud, requiring the user to analyze big data at terabyte prices.

III.PROPOSED SYSTEM

The wisest way is to hide all meter readings before sending them to the cloud, as the external cloud is not always reliable, which makes data collection in the cloud more difficult. Become. Some projects have tried to address the security challenge of analyzing released cloud frequency measurements, but have not provided a specific schema to technically address this issue. In short, as far as we know, no system has the most important and most accurate datasets.

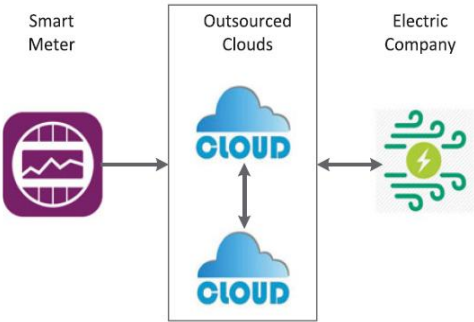


Fig1.0

Advantages

To support day-to-day cloud queries, the user proposes a secure cloud storage system and three cloud computing schemes.

A.ARCHITECTURE

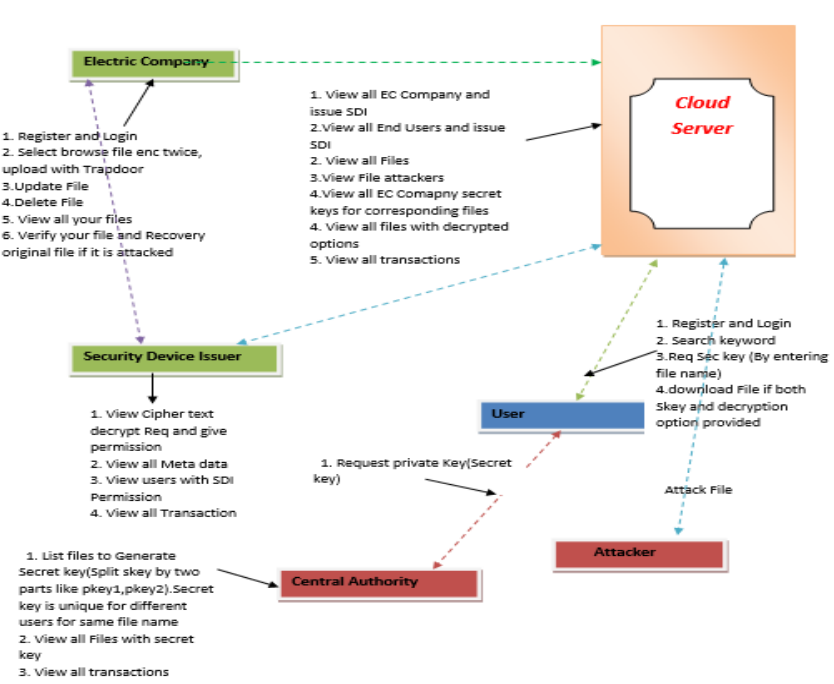


Figure1.1

IV.LITERATURE SURVEY

A.Privacy-Preserving Smart Metering Revisited

Privacy subscriptions are useful in settings where the meter measures usage of various user services such as smart service usage, payment insurance, and electronic billing. In that agreement, the service provider implements a detailed tax policy that requires frequency to provide detailed information about the interests of the user. This agreement allows the user to pay the service provider without disclosing the user's usage level. We have many

contributions. First, we recommend a large model where an accountant can provide frequency readings to multiple users and users receive frequency readings from multiple calculations. Unlike previous models, our model employs a smart measurement application. Next, we will discuss the tax policy that uses this line to calculate the maturity value, an agreement based on a polynomial commitment that enhances the validity of the previous agreement. Examples are electricity, water and gas sensors. In this [2] arrangement, the utility provider installs a cost-effective meter in the home to measure the interests of the user. The appropriate frequency provides the service provider with a frequency reading. This course of service provider is used to calculate controlled system. The schedule system is complicated by using different rumors based on the time that can be used to reach the door. A collection of a collection of car insurance. In this case, the driver was informed of the service providers which uses the procedure and when the rate schedule applies to different steps. Way (E. Toll Road, the way), during the day (E. Days or night, or even running the privacy of the user. The frequency of study applicants have access to personal information. For example, readings from electric meters reveal when the user is at home and the electrical equipment they are using, as well as the receipt of the electric bill and the insurance of “driving time payment” reveal where the driver is. In a personal payment agreement, the accountant does not send a usage meter to the service provider. Alternatively, the amount of the charge is calculated locally and the unpaid amount is only disclosed to the service provider. A way for users to report accurate meter ratings. Check for incorrect location, etc. with the above electronic money collection protocol.

B.Load Shaping Based Privacy Protection in Smart Grids: An Overview

Details about the use of energy collected by high frequency (SM) is one of the key elements of the efficient grid (SG). While this data collection improves SG quality and flexibility, it also poses a significant threat to consumer privacy. Through technologies such as Device Load Management (NALM), this information can be used to identify the device being used, thus revealing the consumer's privacy. Several approaches have been introduced in the literature to protect consumer privacy. This article focuses on inventory management (LS), which changes usage data across homes to ensure privacy. To [3] examine the validity and application of these methods in the main grid lines, information is provided about the privacy protection techniques, as well as the LS methods used for privacy, privacy measures and recipes for home. Finally, the potential for references to research is related to privacy issues. The debate over the evolution of the fast-moving technology line from the end of the 20th century to the beginning of the 21st century will change people's lives and energy levels. With the dynamics of digital and new products, everyday life depends on strength. Vehicle block (ENP) and so on. Existing power lines are expected to be reliable, efficient and reliable to meet the demand of the consumer. To meet these expectations, utility grids (SGs) have been developed in which energy is integrated with two-way flows between network system components.

C.Smart Grid – The New and Improved Power Grid: A Survey

Considering the next-generation power line, the user grid uses two power sources and data to create an automated distributed network. This article examines the literature up to 2011 on the technology of intelligent grid understanding. We will consider the three [4] major components of the intelligence equipment system, the intelligence management system and the intelligence protection system and suggest the future for each system. In particular, for improved infrastructure, smart energy systems, smart data systems and smart communication systems, smart management systems, energy efficiency development, data acquisition, more government services, cost reduction, and more . Consider multiple management goals, such as waste management. We will also consider several management strategies to achieve this. For a smart protection system, consider the types of disaster protection methods that increase safety. Investigate the grid and its privacy and security issues.

V.IMPLEMENTATION

With the development of cloud computing and the popularization of smart mobile devices, people have gradually adapted to the new era of data exchange models in which data is stored in the cloud and mobile devices are used to store/retrieve data from the cloud. People (data owners) can upload their documents and other files to the cloud and share this data with other people (data users) who want to share them. CSP also provides data management functions for data owners. Should your data file be publicly available or only to certain data users. Obviously, the confidentiality of sensitive personal data is very important to any data owner. We provide LDSS, which is a platform for simplifying communication in the mobile cloud. It consists of the following six parts

a.Cloud

This section first defines all the notifications used to create the schema. The following is a cloud-based cloud storage (PCS) scheme for low frequency bandwidth in the cloud. Finally, we introduce three Secure Cloud Computing (SCS) systems by extending the PCS scheme.

b.Smart meter data

Smart frequency data consists of three components. The meter read indicates the customer address, the customer ID provided by the user in relation to the current time, and the use of customer power between current and last.

c.PCS and SCS

Use a functional search that allows you to change the whole world to make sure that PC and SC says 3 can access quality and SCS. This study allows PC and SCS to obtain security.

VI.RESULTS

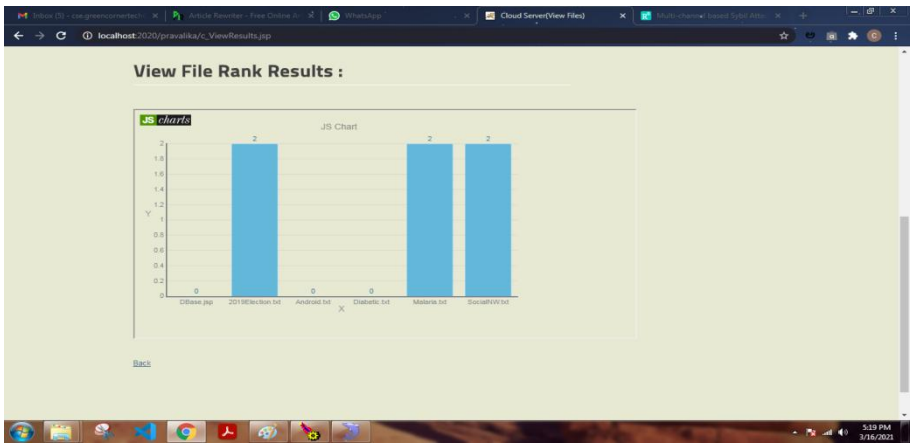


Fig1.2:File Rank Results



Fig1.3Time Delay result

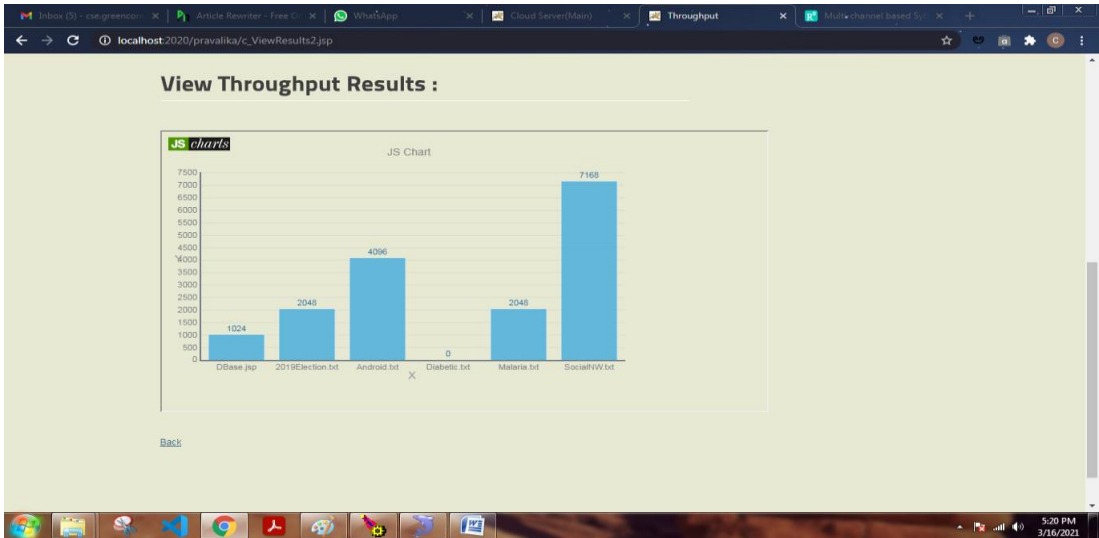


Fig 1.4.Through put result

VII.CONCLUSION:

In this case, we propose friendly planning and unique statistics statistics to ensure the secrets designed to verify privacy. I'm using a global map. Issue an algorithm, questions and questions that try to make a statistical performance to look for a time based on ID.

VIII.FUTURE SCOPE:

Efforts in the future will focus on designing cloud payment plans for smart network customers.

REFERENCES:

- [1] E. Commission, "Cost-benefit analyses and state of play of smart metering deployment in the EU-27," 2014. [Online]. Available: <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52014SC0189>
- [2] F. Hasson, "The path of the smart grid," IEEE Power Energy Mag., vol. 8, no. 1, pp. 18–28, Jan./Feb. 2010.
- [3] X. Fang, S. Misra, G. Xue, and D. Yang, "Smart grid-the new and improved power grid: A survey," IEEE Commun. Surveys Tuts., vol. 14, no. 4, pp. 944–980, Oct.–Dec. 2012.
- [4] K. Ehrhardt-Martinez, K. A. Donnelly, and J. A. Laitner, Advanced Metering Initiatives and Residential Feedback Programs: A Meta-Review of Household Electricity-Saving Opportunities. Washington, DC, USA: American Council for an Energy-Efficient Economy, 2010.
- [5] S.Amudha, M.Murali, 2020,'Deep Learning based energy efficient novel scheduling algorithms for body-fog-cloud in smart hospital', Journal of Ambient Intelligent Humanized Computing, <https://doi.org/10.1007/s12652-020-02421-0>
- [6] Muhammad Aliyu, M.Murali, Abdul Salam Y.Gital, SouleyBoukari, 2020,' Efficient Metaheuristic Population Based and Deterministic Algorithm for Resource Provisioning using Ant Colony Optimization and Spanning Tree', International Journal of Cloud Applications and Computing, 10(2), 1-21.
- [7] Muhammad Aliyu, M.Murali, Zuopeng Justin Zhang, Abdul Salam Y.Gital, SouleyBoukari, Yongbin Huang, Ismail ZahraddeenYakubu, 2021, 'Management of cloud resources and social change in a multi-tier environment: A novel finite automata using ant colony optimization with spanning tree', Technological Forecasting & Social Change, 166(2021) 120591
- [8] A.Venisha, M.Murali, 2019, 'Discovering the Trustworthy Cloud Service provider in Collaborative Cloud Environment', International Journal of Engineering and Advanced Technology,9(252), 360-367
- [9] A.Venisha, M.Murali, 2019, 'A Conception for identifying trust service providers in collaboration cloud computing',International Journal of Recent Technology and Engineering, 8(254), 110-116
- [10] RentachintalaKasyap, M.Murali, 2020, 'Privacy, Data Management and Access Control in Smart Meters: A Survey', European Journal of Molecular & Clinical Medicine', 7(5), 1630-1645
- [11] ShaikSaleem. M, Murali, 2018, 'Privacy preserving public auditing for data integrity in cloud', Journal of Physics: Conf. Series 1000, doi: 10. 1088/ 1742-6596/ 1000/ 1/012164
- [12] Privacy-Preserving Smart Metering Revisited