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Crime Mining from Encrypted Files Warehouse on Cloud

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Abstract*— *The proposed system is a Crime Mining tool that will predict the criminals based on the data that will be stored in the data warehouse in the encrypted form.

Data security emphasizes on three issues: confidentiality, integrity, and availability. Crime Records were maintained by the Criminal investigation Department in the written form. Data Warehouse (DWH) provides storage for huge amounts of historical data from various operational sources, which help decision-makers to improve the organization's business processes .Data is analysed not only for market trend identification, but also to examine the effectiveness of all their activities and to make decisions. Cryptography involves encryption and decryption. We have two types of encryption symmetric and asymmetric. Both have some advantages and disadvantages. Symmetric encryption is used to encrypt huge data. If symmetric encryption is used to encrypt the data, so its decryption is needed to perform on the same device. It can happen that the unauthorized party gets the access to the keys by which we encrypt the data and access the data easily. For this purpose we can use asymmetric encryption. If the keys are accessed by the attacker the data is accessed by the attacker and he/she can manipulate the data and we can't do anything to protect by manipulation.

Keywords—Cryptography,Encryption,ecryption, Warehouse, Cloud Computing, Crime.

1. INTRODUCTION

Crime mining is done from encrypted data warehouse. Cryptography is a technique to protect the data by converting the data into ***un***readable type so that the unauthorized users cannot access it. Many cryptographic algorithms are available to secure data .***The main conditions*** used in the cryptography are Encryption and ***Decryption. Encryption means*** transformation ***of*** data into ***secret code*** and Decryption means to get back that ***secret code*** into its original form.

A data warehouse must ensure that sensitive data does not fall into the wrong hands, and this is essential when the data is put into one large data warehouse. Data is analysed by the organization not only for sales identification, but also to scrutinise the effectiveness of their activities and to make decisions that affect their bottom line.

In this paper, we present a description of the security approaches available for DWHs and the issues concerning each type of security approach. Conventionally, DWHs have been accessed by high level users such as business analysts. Therefore, confidential access-control issues also arise at the front end of a DWH. Most DWH vendors assume that there is no need to provide access-control support for a DWH frontend because it restricts the discovery of analytical information. However, this assumption is not appropriate because many users can access such tools to question the DWH. Development of information technology is a double-edged concept: On one hand, information technology provides us with countless possibilities of designing various information systems for effective management of information. But, vulnerability of the information assets in digital forms has resulted in more chances for intrusion. These attacks include financial fraud, affecting data/networks, theft of proprietary information, etc.

The cloud computing term holds good promise for the scientific community. Clouds promise to be a cheap alternative to supercomputers, a much more reliable platform, and a much more scalable platform than the largest of clusters.

Cloud computing services are as : Infrastructure-as-a-Service (IaaS), that is, raw infrastructure and associated

middleware, Platform-as-a-Service (PaaS), that is, APIs for developing applications on a platform, and Software-as-a-Service (SaaS), that is, support for software services remotely .The scientific community has not yet started to adopt PaaS or SaaS solutions, mainly to avoid legacy applications and for lack of the needed scientific computing services, respectively. Unlike traditional data centres, which have physical resources, most clouds use virtualized resources which are mapped crystal clear to the user by the cloud's virtual platform.

Data mining in the field and analysis of criminology can be categorized into main areas, crime control and crime suppression. Crime control tends to use knowledge from the analyzed data to use and prevent the occurrence of crime, while the criminal suppression tries to catch a criminal by using the history recorded in data mining. As information science and technology progress, high-level data mining and artificial intelligence tools are increasingly accessible to the Crime department. Once reserved for large agencies and research centres, data mining tools are now available to improve decision making and analysis at the state and local levels. Many of the software's available today are extremely fast, powerful, and easy to use, which makes them appropriate for live environments, such as task forces or planning sessions.

When all organizations attempt to address the problems associated with congestion increases in available information, new tools and a different approach to analysis are required. Thus to solve this problem, data mining tools are the answer. This is extensively in the business community, the newer data mining tools do not require huge IT budgets, specialized personnel, or advanced training in statistics. All these products are highly intuitive, easy to use, Computer-based, and very accessible to state, and even local, law enforcement agencies .The system accesses, denial of service attacks, cyber stalking, identity theft, virus attacks, hacking by ID hopping, interruption of ecommerce business, and breaches in national security. These attackers, termed computer hackers, crackers, and cyber criminals frequently have displayed remarkable levels of sophistication in their attacks. Their goals run this trend from the relatively harmless, such as responding to technical challenges or basic human curiosity, to the misguided attempts to expose and reveal system vulnerabilities, to the purely criminal, seeking system destruction for political or financial gain.

2. LITERATURE SURVEY

Brown (1998) constructed a software framework called ReCAP (Regional Crime Analysis Program) for mining data in order to catch professional criminals using data mining and data fusion techniques. Data fusion was used to manage, fuse and interprets information from multiple sources. The main purpose was to overcome confusion from conflicting reports and cluttered backgrounds. Data mining was used to automatically discover patterns and relationships in large databases.

De Bruin et. al. (2006) introduced a framework for crime trends using a new distance measure for comparing all individuals based on their profiles and then clustering them accordingly. This method also provided a ocular clustering of criminal careers and identification of classes of criminals.

This in turn is increasing the need for advanced and effective techniques for analysis. Now,data excavation as an analysis and knowledge discovery tool has immense potential for crime data analysis. As is the case with any other new technology, the requirement of such tool changes, which is further appennded by the new and advanced technologies used by criminals. All these facts confirm that the field is not yet get on and needs further research to create an intrusion-free environment.

3. PROPOSED WORK

To solve all the problems that are stated above, the proposed system will be used for retrieving confidential data from encrypted data warehouse . All the records of the criminals will be stored in an encrypted form in the cloud. Each authenticated official will have his own login id and password. Only registered users will be able to access the confidential data. After logging in, they can use this software to predict future crimes.

This system can will predict the criminal based on its data that is fed into it. The data in the warehouse will be in the encrypted form .Confidentiality emphasizes on protection of information from unattested disclosure, either by indirect logical inference or by direct retrieval.

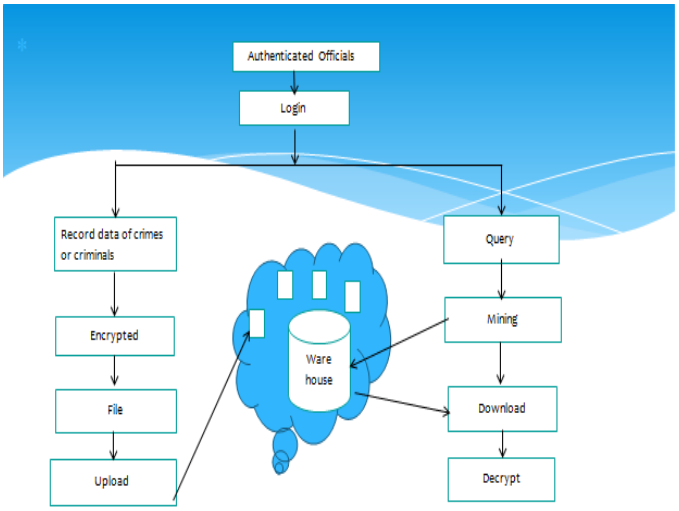

Figure : Data Flow diagram for "CRIME MINING FROM ENCRYPTED FILES WAREHOUSE ON CLOUD"

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Data Integrity involves data protection from accidental or malicious changes such as false data insertion, contamination, or destruction. Availability ensures that data are accessible to all authorized users at any time. In the past, many data security solutions were not available for databases.

Now days, some data mining software products even enable analysts to create and save queries, giving agencies full-time access to crime analysis. Data mining tools also enable users to combine and analyse data resources that do not traditionally coexist. This type of improved analysis is a huge benefit and allows the analyst to see and describe the working scenario in related incidents or data resources, providing a more complete view of events or activities .The data management, and descriptive features offered by commercially available data mining packages are extremely valuable to crime and intelligence analysts. Most of the data analysed in the public safety arena was not created or maintained in a format for analysis, and is less than perfect in many ways. In the crime department's experience, users can clean, characterize, and analyse data from a variety of sources in a data mining environment, resulting in the identification of actionable patterns and trends.

3.CONCLUSION

This Crime Mining software is an efficient tool that will be used by the anti-crime department to hound the criminals. The System will give automatic suggestions about the Criminal committing the crime with the help of historical data stored in the data warehouse in cloud in encrypted form .All the data regarding criminals, criminals' family background, their current location, & crimes committed is analyzed before storing in data warehouse.

Data can be fed into this warehouse only by the registered officials .All the officials will be attested before adding the information. This information will be useful for predicting the criminal and analysis of the data for further use.

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