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A Framework for Cloud Computing Data Backup and Recovery

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Abstract: *Electronic data has been created today in large quantities requiring data recovery services organization's work may experience the various type of disasters whether it was natural or man-made, which may result in huge loss of data. In our project we are using High Security Distribution and Rake Technology (HSDRT).This Project presents evaluation results for a high security disaster recovery system using distribution and rake technology. In an experimental evaluation, the encryption and spatial scrambling performance and the average response time have been estimated in terms of the data file size. Discussion is also provided on an effective shuffling algorithm to determine the dispersed location sites. The Data user verifies the document with the proof and decrypts the encrypted file if verification is correct. Finally, this paper describes a prototype system configuration for several practical network applications, including the hybrid utilization of cloud computing facilities and environments which are already commercialized.*

Keywords: High Security Distribution and Rake Technology (HSDRT), Cloud Computing, Data Backup, Data Recovery.

Introduction

Cloud computing is a distributed community that provides calculating or storage space as services to end users. The architecture/model of cloud computing is that all servers, networks, presentations or other basics connected to the facts center are accessible to the end users. Cloud computing is upward in attention of technology and business organizations, but this is useful for solving social problems. It can also be beneficial. Cloud computing refers to online operation, configuration or access to applications. It provides online data storage, infrastructure or submissions.

Cloud computing allows individuals and businesses to shift the burden by managing large amounts of data or performance processes that require computing for powerful servers. Due to the growing approval of cloud figuring, more or more data proprietors are being encouraged to subcontract their data to cloud attendants in order to provide great convenience and reduce data management costs. Data tenants provide services to many businesses and companies, and they insist on improving data security standards by following a covered method, including following: data encryption, key organization, strong admission controls, or security intellect.

Today the demand of Cloud computing is increased rapidly as it offer dynamic flexible scalable resource allocation. Cloud computing provide computing resources as a reliable services such as IaaS, PaaS and SaaS to users as pay as you go manner. The Cloud provider can gain profit only if it provides services under the terms and condition stipulated between provider and customer mentioned in SLA. Also by efficient management of data enter; Cloud providers can reduce the cost of maintaining the servers and provide their services at lower cost and make more revenue. The main expenditure has been noticed due to the power consumption by data enter. It has also been noticed, the life of hardware is reduce if they work in high temperature continuously. The data enter emits huge amount of harmful CO2 gas and tremendous heat. So for the servers to be work reliable require their energy efficient and eco friendly maintenance. Many methods have been proposed to solve the power consumption problem and task scheduling problem in Cloud. These proposed method solved these issues separately however, they are inter-related. There is a need of integrated approach that takes into account these related problems together.

In Cloud computing, each application runs on a virtual machine, where the resources be distributed virtually. hosting and management surroundings for submission services. Therefore, the task scheduling problem in Cloud is two step problems. Thus, there is a requirement, when proposing an approach of solving one issue at one level; must also consider the other related issues either same level or another level i.e. some kind of integrated task scheduling approach need to be proposed.

II. Related Work

In the paper discussed that, cloud computing originates with many potentials or contests at the same time. If the security is consistent and secure, the load or compensation provided by cloud computing will give us less sureness. Sometimes, a person desires to store 35 files on a isolated cloud server. If you do not know exact location of the data storage, it may violate and may affect data security behaviour in some areas. The security of data or its position is an imperative aspect of computer sanctuary. In this article, author addresses security issues that exist in cloud substructure or cloud computing environments, or arranges that security is number one priority of this kind of computer, so of course to expect that security issues are for the cloud world It is also very imperative. Transferring complex data to the cloud server, relocating statistics from cloud to client computer, or storing client's personal data on the server (the server rather than remote server for customer) are three situations or complex situations in cloud computing Specific environmental considerations. Confidence in the home can become the key to construction a effective cloud computing situation. Such threats contain abortion, harassment, mugging, moderation or comparable attacks. With this DDoS attack (denial of service), it is a common but major persecution of cloud infrastructure.

In el opine's paper it appears that cloud computing brings a lot of assistances to enterprise sector, but there are also major barriers, i.e. security or one of main barriers to application these amenities. To improve the security of cloud computing, many efforts have been made, especially for the cloud for the public, it is still unsettled. This article comprises 9 major threats to cloud security and censorship that have been publicised by Cloud Security Alliance (CSA), such as data quarrying, data loss, clarifications or traffic operation, containing session management, SQL injection, web-based web design, execution, and packages. Attacks, malware attacks, social engineering doses, phishing doses, unsolicited transportations and APIs, Denial of service, malicious miners, exploitation of cloud services, inadequate readiness and delivery of technical susceptibilities. This paper offers decoy technology based on user behaviour examination as a solution to identify doses of cloud theft in order to perceive invalid users and prevent their users from being hacked to be eradicated. The decoy file will immediately confuse or confuse the attackers so that they do not know what is real or what is not, or they are designed to create an alarm even if the aggressor catches them. The decoy file contains the Key Hash Message Authentication Code (HMAC), which is concealed in title section of file. The authors conclude that with the growth of cloud-based architecture, future will face security and secrecy dares, and future implementation systems will be needed.

In this article, cloud computing is designated as an developing cloud example, which is given to the resources of the Internet. This article discusses ACID (atomism, constancy, separation, or durability) properties, non-denial, existence or major subjects in cloud computing, and raises many subjects related to data security. data, such as location of data? Who can get data on all these issues, author also provides a list of cloud security pressures or their views. The list of attacks contains security mitigation, such as SQL attack engineers, cross-site schema doses (XSS), or human attacks (MITM). Network security documentation addresses DNS attacks, sniffer attacks, IP address recovery issues, BGP tampering, and the use of security in application settings, such as security issues for hypervisors, denial of service. Attacks, Cookie poisoning, secret hacking, external attacks, DOS distribution, CAPTCHA Breaking or Google Hacking.

In this article, position of Kerberos authentication mechanics or requirement to move to multi-cloud. These are necessary measures to ensure cloud security, reliability, transparency and scalability. Kerberos authentication discussions use the authentication server (AS) to verify user / customer authentication by thorough username or password on site, and provide access to the ticket server (TGS). A customer requesting a service from a cloud provider uses the ticket received from the verification server to request a service ticket from TGS. This article also focuses on the reinforcement method and the Kerberos method used to migrate to multiple clouds.

In this article, Cloud supports individuals or small industries to better design and build business-level services. However, there is still widespread concern among large companies to transfer control of data to cloud providers. Users must be content that they can defend discretion, integrity or admission to data complete controls and regulations. There are several security issues in the cloud business, but these are divided into two:; The second is safety subjects facing customers. For example, verification and safety checks.

This article introduces security verification models, security threats to the user interface and vulnerabilities. Cloud computing security architecture has been released, which has security information per computer information, DMZ security for each vApp, system management, image resource management, network information per network, data security. Strengthening security, licensing and monitoring, and individuality supervision can be enhanced by applying security technology in this cloud-based construction. Patrons provide great critical service. Because cloud services are transmitted over Internet complete traditional system protocols and formats, hidden loopholes of these procedures or threats stood by the redesign have caused many problems or privacy concerns. This piece also converses influence of cloud adoption, vulnerability or attack, or defines solution explanations desirable to improve cloud security and privacy.

In the paper believe that, Cloud computing is an innovative new concept that brings many benefits to users. But it can also cause safety problems, which can reduce its use. Understanding vulnerabilities through cloud computing will help organizations move towards the cloud. Because cloud calculating uses many technologies, it also inherits security issues. The authors have studied traditional data hosting, web submissions or virtualization, but some of answers provided are somewhat inadequate or unsuccessful. we discuss the security issues of cloud models such as SaaS, PaaS or IaaS, contingent on model. They also discussed storage, virtual and networking as main security issues in cloud computing. Independence that allows numerous users to share a physical attendant is one of main matters for cloud users. In addition, another challenge is the availability of dissimilar types of virtualism technologies, and different types of technologies can handle the process in different ways. Virtual networks are chief goal of some attacks, particularly when related to isolated virtual technologies. They talked about cloud security, and there is no difference between vulnerability and threat.

This article considers that cloud computing is a normal development of computers and information centers with automated organization systems, product harmonizing, or virtual knowledge. From network-level pressures to application-level threats, cloud is acceptable for many security threats. To maintain cloud security, these security threats need to be controlled. In addition, cloud-based data is defence less to many threats and many other matters, such as security problems, accessibility, confidentiality, and data integrity. Service workers and customers should ensure that cloud is well protected from any external threats. As a result, there will be a strong or mutual understanding among customer or cloud service benefactor which will minimized customers involvement to minimum, enabling smooth functioning. They also emphasized security matters, privacy or control problems, availability issues, discretion, and honour of data for Cloud Computing and also discussed recent explanations for these security risks. they made a list of security items that all users must be conscious of before selecting to use cloud based facilities and discussed devices for agreeing the user to select precise security stage.

In the paper contends that, Cloud-based substructure or cloud-related services make up the cost, but the service relies heavily on virtual reality, which is called hypervisor or hypervisor. However, it can also result in safety breaches or privacy subjects. CSA-level security threats provide various levels, such as simulated pressures, such as Do-and-DDoS shutdown services, cloud suspension technology, data loss or leakage, risk factors unknown, abuse, accounting and writing services. The authors attempt to combine the many security threats in a categorized manner and list the risks / threats from low to high. The complexity of discretion or data safety keeps the market unverified. In the case of virtual security, one of the most important considerations is hypervisor. Information of many hypervisor doses will help in the development of virtual security programs. In this article, we will converse common trends of cloud totaling technology, which introduce new risks to existing risks. The main hurdle for organizations setting up cloud services is the risk of service interruption due to attacks such as DoS attacks, information theft, loss of privacy and information corruption.

The authors use the IDC results to show that security is the highest barrier set by the establishment. They outline ten security issues, and some of the resolutions to cloud computing security issues contain system security, tweet algorithms, backups or access- customer's heart. Importantly, the author presents a security managing model called CMM, which outlines twenty security managing copies. This paper also examines the rarities in the cloud and security threats founded on the concept of attacking cloud creation birds and outlines the security objectives to be achieved. Great cloud computing is another difficult that will be successful in the near future. The benefits of cloud computing are discussed in the paper, but bring more problems, such as virtualization security, application security, self-management, monitoring and validation. The latest research related to cloud security, and finds various security brands in cloud computing, such as architecture, risk management, compliance, traffic management, telecommunications , enterprise continuity, regional data center, event response, change And basic management security, etc. They use classification results and search results to find similarities, analyze differences in cloud sports architecture, and identifies areas in need of in-depth research based on detailed analysis.

III. Proposed Work

The data owner first citations keywords of each article or build a keyword directory. He/she encrypts papers as well as keyword index. The data owner subcontracts the scrambled papers as well as encrypted keyword directory to cloud. Data users get every result, proof or public confirmation key, o they or others can even verify freshness, validity and integrity of search results without decryption. The advantages of cloudity parity services provide a secure return on investment, but the disadvantages are far greater. Compared to traditional computer technology, cloud computing offers various advantages. Cloud computing provides its customers with supercomputing capabilities and high-end devices at affordable prices

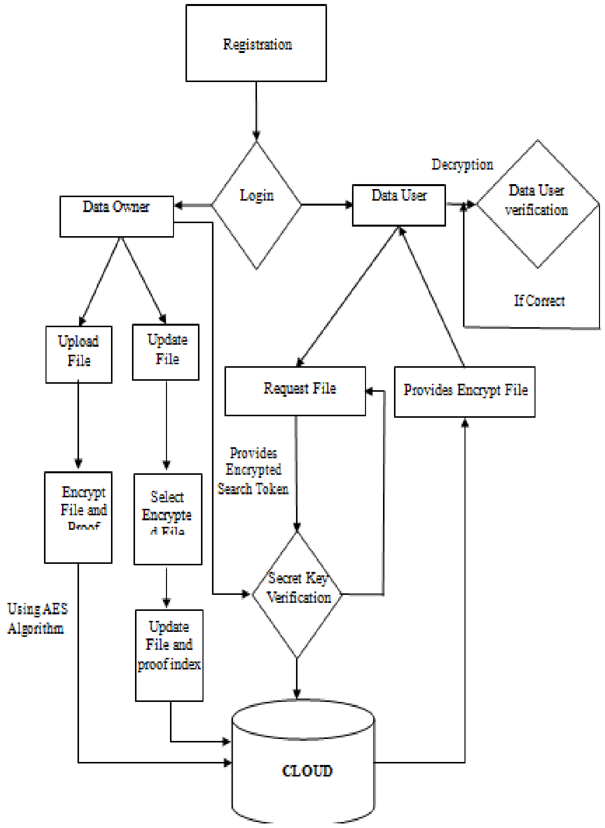


Fig. 1: Data flow Diagram

IV. Result Analysis

Many programming languages with language-specific APIs have libraries to open MySQL databases. These include MySQL Connector / Net (the most common languages are C # and VB) used in Microsoft Visual Studio and Java JDBC drivers. An ODBC interface called Modoc allows other programming languages that support ODBC content to communicate with MySQL, such as ASP or ColdFusion. MySQL server or official library is implemented in ANSI C / ANSI C ++.

Modules Description:-

Registration

This is the process of registering or registering to cloud. To take benefit of cloud documents, all data owners and data users must register. During this process, your basic information (such as email, contacts, etc.) will be collected and stored in the cloud. During the registration process, a particular user's cloud ID is generated automatically.

Cloud ID

Each user must produce a Cloud ID or use it to classify an identifier with near security. The identifier does not repeat the identifiers that have been or will be twisted to identify other identifiers. Therefore, the information marked with Cloud ID by liberated parties can later be collective into a single folder or transmitted on same channel without the need to tenacity struggles among identifiers

Data Owner

Data Owner extracts keywords of each article or also figures a keyword Index. Data Owner encrypts documents are keyword Index using a key and outsources in Cloud. Data Owner provides the Public Verification Key and Proof Index to the Data User via Cloud for document verification. Data Owner is the only authorized person to add, modify, or delete the document(s) from the cloud.

Cloud Service Provider

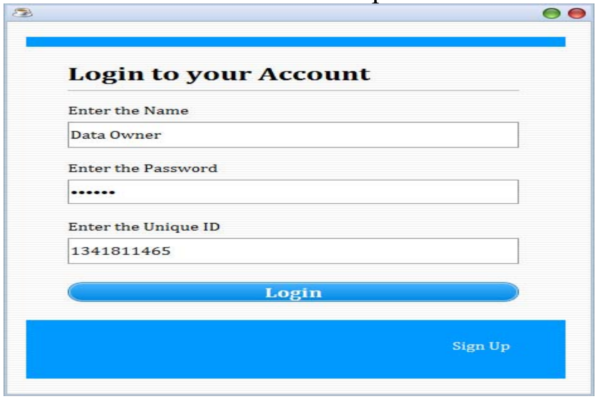
The cloud service provider can see all uploaded or transferred documents in cloud. CSP obtains document request from the data user, verifies identity before granting permission, and then CSP executes query or revenues encrypted document based on search token, or also returns document with other evidence on document to confirm search results.

Public Verification Key

Public verification key is a safety quantity planned to make sure that your document outsourced in cloud doesn't get hacked. By confirming public key, the Data Owner and the Data User adding added cover of defense to documents or files in the cloud by authorizing each other's identities

Data User

Data User sends a appeal to the cloud server. After request granted from the Cloud, the Data User receiving the Public Verification Key from the Cloud generated by Data Owner. The Data User now decrypts and downloads the encrypted documents, after verifying with the Public Verification Key. After receiving verification from cloud, the data user will download the file within a particular time limit.



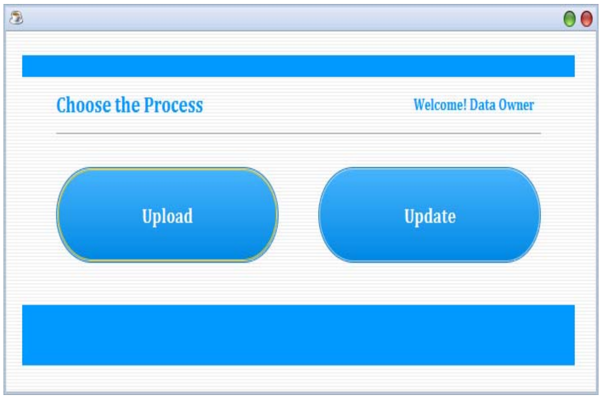
Login to your Account

Enter the Name: Data Owner

Enter the Password: ••••••

Enter the Unique ID: 1341811465

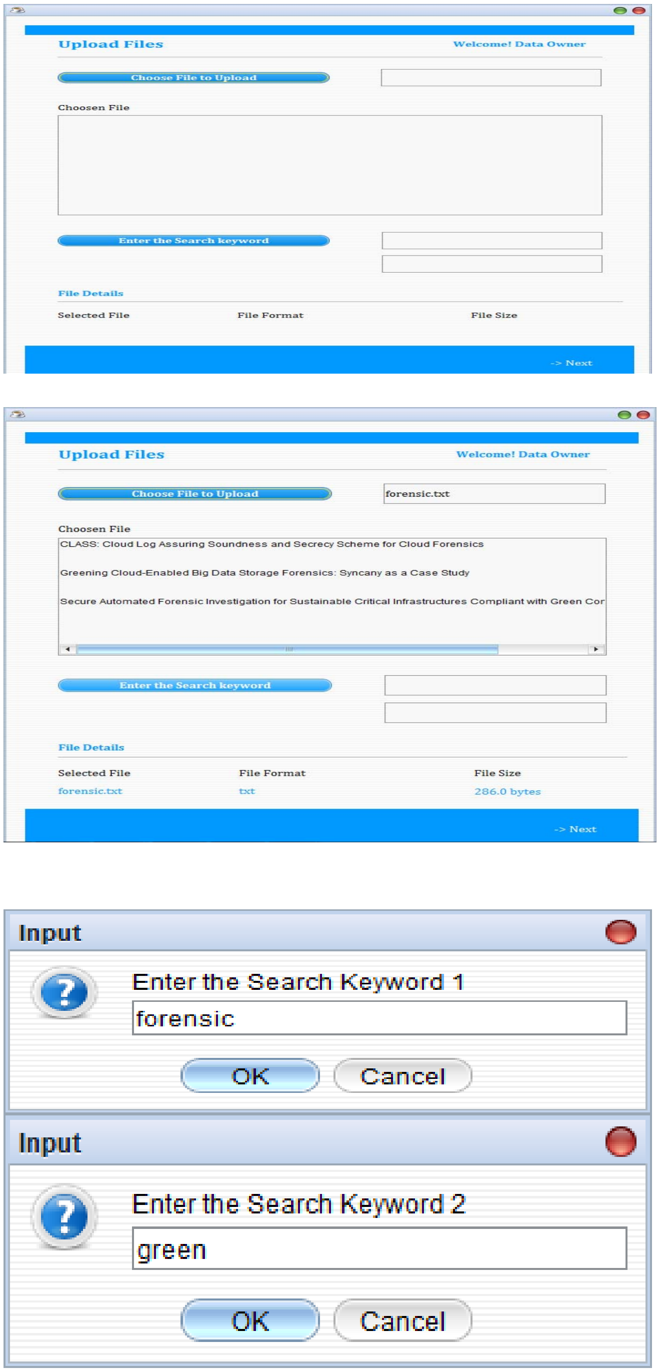
Fig 2: Data Owner Login.



Choose the Process

Welcome! Data Owner

Fig 3: Data Owner File upload/update screen.



Upload Files

Welcome! Data Owner

Choose File to Upload

Choosen File

Enter the Search keyword

File Details

Selected File	File Format	File Size

-> Next

Upload Files

Welcome! Data Owner

Choose File to Upload: forensic.txt

Choosen File

CLASS: Cloud Log Assuring Soundness and Secrecy Scheme for Cloud Forensics

Greening Cloud-Enabled Big Data Storage Forensics: Syncany as a Case Study

Secure Automated Forensic Investigation for Sustainable Critical Infrastructures Compliant with Green Cor

Enter the Search keyword

File Details

Selected File	File Format	File Size
forensic.txt	txt	286.0 bytes

-> Next

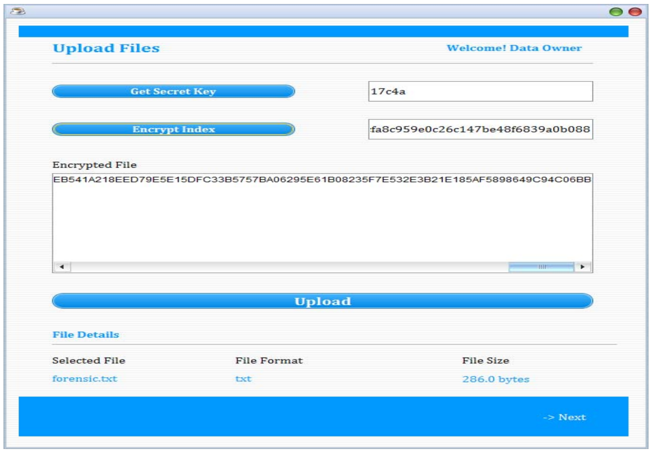
Input

Enter the Search Keyword 1: forensic

Input

Enter the Search Keyword 2: green

Fig 4: Screen after uploading file by data Owner.



Get Secret Key: 17c4a

Encrypt Index: fa8c959e0c26c147be48f6839a0b088

Encrypted File
EB541A218EED79E5E15DFC33B5757BA06295E61B08235F7E532E3B21E185AF5898649C94C06BB

Selected File	File Format	File Size
forensic.txt	txt	286.0 bytes

Fig 5: Secret Key Generation.

V. Conclusion

This is our implementation we studied number of papers and we implement our model Collected on the web servers. It helps in reducing allocation of geographical area required for storing records and also promotes paperless work. Time consumed for searching required documents is less. Every organization prefers computerization as well as remotely accessible web services. Hence data security and protection comes in highest priority so recent developments will be on securing and protecting data collection on web server. We focus on privacy, security and access to the cloud computing environment. While cloud security services can be well-designed and succeeded by experts, they can provide effective organization or threat valuation services. Though, threats we are discussing here show that the implementation of present security mechanisms in the cloud should be carefully considered. In order to accelerate the development of cloud computing, many improvements to existing mechanics are needed, and new innovation systems need to be established. we plan to cover the planned work to other parts of cloud. Cloud computing brings various tasks for structure or submission developers, engineers, system administrators and service providers. we will discuss some of the tasks associated to security or privacy managing in cloud.

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