Cloud Storage Securing through Cooperative Access Control and Secure De-duplication

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Abstract. Attribute Based cooperative access control and de-duplication established here to secure cloud from security issues, As the most common security issue is unauthenticated access of data file without the knowledge of owner so access control concept established here, attribute based encryption esteemed to be a finest cryptography attribute based access control idea considered besides disadvantage of access control too took into consideration, disadvantage like limited upload and view of file may result in over waiting, interference for the authenticated user beside some crucial data file may need of multiple access so as a next version of access control cooperative access control concept promoted, through cooperative access control the multiple different authenticated user access and function the data under data owner surveillance and policy rule, access policy permission towards the data file determine by only the authenticated data owner, cooperative users allowed under the policy rule created by data owner if that cooperative access not mentioned in policy by data owner cooperative took into the consideration as collusion and they not allowed to stepping towards the access of data file, And to provide extra layer of security de-duplication concept projected here, when cooperatively access and function take place to a single data file necessity to ensure same data file not duplicated for the reason that same data file may arise security issue and occupy accumulated space on cloud storage cause space demand in cloud storage server therefore under secure rule de-duplication check happen for file as well as to data of the file though the file not duplicated file data ensured as duplicate content not permissible to upload by any users of a cloud server, combined effect of cooperative access control and de-duplication help to reduce challengeable security issues besides determined as finest by calculation and comparison of encryption time decryption time duplicate check time access time with prevailed solution in the way it provides advantage of reducing complexity of cloud storage and reducing cost of process of data file in cloud server.

Keywords: Cryptography, Cooperative Access Control, De-Duplication, Cloud Server, Cloud Storage, Attribute Based Access Control, Attribute Based Encryption (ABE).

I.INTRODUCTION

Cloud storage viewing as a one of the best services of cloud computing, to store and manage multiple crucial data efficiently here security is very much needed, (1) cloud computing made it client to access data from anywhere at any time this distribution share of data may affect security of data so in cloud security is much needed one (3-4).

In this paper establish a idea to provide a security to a data stored in a cloud through the way of controlling access and de-duplication, here the security issue due to access of data by unauthenticated user and multiple copies of data is taken into consideration as the solution to this in this paper bring out the idea to implement combine access of data with data loss aware of de-duplication, combine access of data is much important to the vital data, consider the situation in the educational institution stored student details need to access by multiple authorities like head of the institution as well as head of the specific department the specific student may need to access data to make updating to determine the student grade level as

for more needs generally the crucial data maintain multiple copies may give up chance to attacker have aware about data as well as more space in cloud storage get waste so it is better to have combine access to that crucial data instead of having multiple copies of data (5).

Combine access of data and data loss aware of de-duplication together provide extra layer of security to the crucial data (6). In combine access of data the multiple authorized user of data get access under policy written by one who upload the data in cloud (data owner) according to the role of authority rights towards the data to determine in policy and then duplication check take place to for every upload of file to strictly avoid deduplication through check of duplication for data in file able to eradicate loss of data (7).

II. RELATED W`ORKS

The previous chapter discussed the Blowfish-algorithm representing the symmetric block cipher as the alternate for "DES- algorithm" IDEA- algorithm" etc. The variable length of key may be taken from the 32 bits to 448 bits. These bits are used for the household and the exportable use. The person “Bruce-Schneier" designed the Blowfish-algorithm in the year “1993” which is suitable for the cryptographic algorithm (10). The processing speed of the crypto graphic shows the main advantage of the algorithm. The Blowfish algorithm may be open source and freeware. The key distribution is the older method for the decoding using the cereal boxes (8). The unlocking concept uses the secret key with the unwanted data, the key distribution and changes applied on the original data. The Blowfish does not come with the cereal box key, because it cannot generate the thousands of keys for the user. The box key shares the key to the user. The cooler feature does not generate with the single key. The cooler feature does not generate with the single key (9).

In (3) discovered the improvement with the security - level for the blowfish. The blowfish proposed the Inter bit exchange and merge ("IBEM") is the example for the data application to be fed with the S-Boxes. The Inter-bit-Exchange and Merge ("`IBEM’") be the example for the data permission for intruders may be easy in key generation mechanism may be actually sent. The result for the experiment shows the combining step in conclusion with the security for Inter-bit Exchange and the merge process, which gives the data to the common point conclusion with the security for merging process (15).

After that another author concentrate Blowfish for the implementation for a banking system. In (6) discusses about the various services comprises for paying of bills, transfer of fund and the accounting statement process etc,. The customer or end user get the details about the banking through internet, which enables the computer and the smart phone using the WiFi , 3G and 4G system. The fund transfer is the big concern. The work closer to be the biggest task. The end user attacker can catch the account details over the internet. Cryptography is good solution for the outside attackers in the encryption process.

The current paper implements the banking system using the Blowfish algorithm. The system designed the well secured web application for the authorized user can access the information with a valid secret- key. In (8) represented the network safety in the encryption process continuous the separate part. There exists the loss of confusion in selecting the best encryption standards among the encryption standards to transmit the secret data. In many applications Blowfish is the current secured method. This method is modified at the different levels of the safety in the reliable communication channels. The Blowfish algorithm may be modified in the present way for the platform separately (14). The encryption scheme may be restricted in the platform related proposal. The proposal modifies the blowfish algorithm that supports the text, images and the media files (13).

In (9) deals with the current development of information and the communication industry, storing of data in the cloud and the sharing the valuable information across networks, which raised the need for the security for the data. The data processing units such as the computer laptops and the handheld devices like the mobiles and the tabs. The long information and the communication industry, data transfer communication of information, storing data using the technical advancement for cryptography (13).

The cryptography be the physical process samples the data rescheduling and the replacement within formation which creation with the incomprehensible except self-able of sorting out process. An algorithm varies with the data likes the text, image, audio video etc. The parameters such as the throughput, speed, CPU time, consumption of power and the security based on the cryptographic algorithm are analyzed. The current wok analyses the common symmetric cryptography algorithm likes the DES- algorithm, 3DES - algorithm, AEs algorithm and Blowfish algorithm for the above parameter. Further in details the Blowfish algorithm and the recent to be discussed (11).

Load balancers mainly depend on network performance, availability and system hardware components. On developing an open flow network which is having limited switched memory from SDN centralized controllers (11). The energy

consuming algorithm has been installed in all the devices in such a way the energy should not be wasted because there is a less amount of power consumption of all the batteries in the devices, which ignores to allow infinitive operation time for all the nodes. This algorithm is better to be implemented for multipath such as both primary path and secondary path for every request in the network. These alternative links within the network connections must be disjoint for all the paths to share links to communicate among themselves and maintain the computation of the overlay network and reliability of connections. Data loss is also a major considered issue in cloud through hash value able to find whether data is missed or not but very crucial one is needed to find which data is missed in which they came up with an idea to sense missed data using wireless sensor network (11).

A. Cloud security

Some security issues are must to consider they are Vulnerability occurs anywhere in the system, requires defense in depth, attacker bypass controls implement a single point of failure [6]. Threat take place when unauthorized user/attacker try to mishandle cloud service Potential attack that can be carried out on an information technology, attacks under two categorization they are

- Active attack
- Passive attack

Passive attack does not modify it as man in the middle attack. It took the responsibility without the knowledge of the authenticated user or owner. The best scenario is listening communication between two people without their knowledge through phone call record, these attacks are more dangerous (6). These attacks are done with the knowledge of the person. The attacks include modification of data, when sender sending data to receiver the attacker intermediately accessed the data and made some alteration in the data for example if sender sending message “add ram as a user “ the attacker change the message as “add sam as a user” before the message reach to the receiver. Deny operation, if the attacker tries to denial the transformation of data between sender and receiver. Negation of data made by sender or receiver because of attacker influence. Asset: Asset means information it means the data stored by the user and then user identity.

B. Cryptography and Hashing

The 1st approach is predictable; get out a viable algorithm to have appropriate support to get a 100% accurate efficient result through processing cryptography in a cloud server. Such algorithms are MD5, SHA, RSA, DES, AES (19-20)

The 2nd approach is predictable; get out a viable algorithm to have appropriate support to get a 100% accurate efficient result through processing hashing in a cloud server. But this hashing would not be efficient as a cryptography technique since hashing does not support encryption as well as decryption so hashing technique had dropped (19).

And then considered major issue in hashing technique is incapable to provide a decrypted or un-hashed text to the final user after. The below mentioned Algorithms projected as best encryption support algorithm for cloud-server:

- Algorithm SHA 256
- Algorithm X11

After a while Microsoft azure came with the idea to propose a key vault feature to make it easy to store property files in cloud storage the key vault featured with cryptographic techniques to encrypt files which stored in cloud storage the end user can access it by using. Appropriate application key, later this feature starts to get used by multiple end users by deployed in software applications which run over the host cloud servers (19).

Cloud computing play a vital role in more organizations to simplify the process of manage information through handling equipment software of information technologies and play a role as partial owner as it took responsibility to support and maintenance of information technology to cloud service providers with advantage of on demand, less cost as cost are renewed as operating expenses from capital expenses. But due to this renovation management of infrastructure might be complex therefore must have solid prearrangement in assembly changeover to guarantee gain profit.

III. PROBLEM STATEMENT

Computing over the cloud elevates adequate security issues. The more data is commenced from the cloud through publicly available sources (like web) this makes unauthorized access to data, especially in public cloud security issues be more. Most commonly security issues happen when unauthenticated access of data made by hackers so to handle security issues need to have finest access control as well as important to concern that access control flexibility not made a authenticated user to lose access. Even more solutions came to fix security issues but yet some security issues corrupting the data and then more risk threats and vulnerabilities crashed the data stored in the cloud (17, 21). To keep data from security issues the idea in use is instead of storing data in a single server use to store data in multiple servers it high crucial data availability but this idea would not bring a flexible solution to security issues. Even the encryption and decryption of data is not only enough to protect data from hackers while hackers hack the key too therefore much research is required to fix security issues of data in the cloud.

IV. PROBLEM SOLUTION

To provide efficient solution to fix the security issues need proper demonstration of issues to proper demonstrate some effective steps need to take

- Examine about the cloud security's major issues factors like vulnerability attacks
- Most need is aware of necessities to secure data so have a knowledge information about access rate of file, availability of file like about every functionalities of data, file
- Examine the data secrecy level differs as the cloud type (public, private, community, hybrid) change
- Keep update of file function information like more consideration want to take into the consideration to provide a secrecy to data file

In this paper according to our considering and awareness about security issues found the major challengeable security issue is attacks mean when the crucial data file get access by unadmitted (attacker) user so had a idea to imitate access control to the data file in database through access policy as well as had a consideration about data needs and to assure data available to authenticated user easily brought out the cooperative access control that means some data need to access by multiple user when access control in establishment for data file of with rights of access by multiple to reduce waiting time intervention and to ensure data availability cooperative access control considered as must concept to establish

With cooperative access control to provide two layer of security de-duplication to introduced here, while the need of multiple person access and function a single data file may the confusion arise about data file inside the storage so may same data file repeatedly upload and get process when the same data file occur and process multiple time also might be a impact to secrecy of data as well as lot of space get waste inside data storage therefore by considering the issues due to same data file take place multiple times in storage de-duplication idea established here

System Model

i) Data Owner

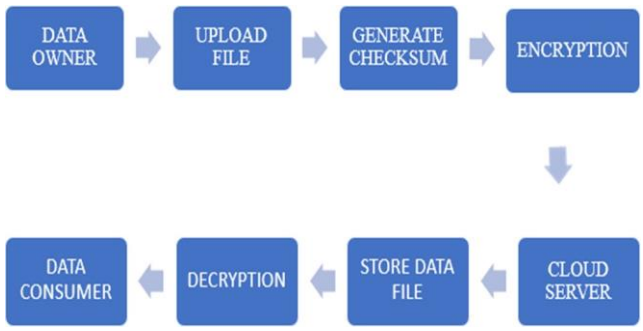

Figure. 1. Flow Diagram of the architecture

Data owner is the authenticated person have a multiple responsible towards data file data owner is the person create access control policy according to the data upload in file, when data file upload by authenticated owner de-duplication process take place to ensure the currently uploading data file is not there in storage as the data upload in storage collaborative access control policy to detected and enabled to that data file by the authenticated owner in that policy as multiple user having access right some permission condition commit by owner to the each user/accessor of data file permission such as modify, upload, download, encrypt, decrypt.

ii) Data consumer

Data consumer the person have a view of data file under the data owner rules policy according to the identity of data consumer access and other permission to the data file is detected and confirmed by data owner, data consumer must under data owner surveillance, Through login credential secret key data consumer identity get verify by data owner as well as through his identity attribute permission rights to enable to the respective data consumer, Data consumer can the one modify , upload , trash ,perform cryptography under the permission of data owner in cloud storage

iii) Cloud Server

cloud server is a data file home , data file's owner and data file assessors have an access to cloud server under some secure concerns, Data file owner, accessory examine and ensure whether they authenticated or not by verify their identity attributes through login credential and secret key of them secret key is unique key to every user of cloud server, cloud server is the database of data file, through blow fish algorithm of with more accuracy data file get encrypt and upload by authorized proprietor, the cloud server storage used here is amazon ec2 as it is open source server of cloud.

Attribute based cooperative access control flow:

The access control required for the control mechanism can provide the policies for the access of the files. These files can be uploading by the data holder. An admission control policy may be used in the application's action such as delete file, downloading and view file. The owner of the data can upload the documents to the cloud server. It specifies the access policies with the particular files. The customer can be able to show the respective file. Normal access control policy possess a disadvantage of restricted access to upload files and limited access for certain file so to overcome from the determined issues cooperative access control idea established here.

A cloud provides the different techniques intended for the right of entry control in cloud computing. The methods are not protected and sufficient. Based on the problem a fresh protected and capable scheme for admission be in charge of cloud computing.

Cooperative access control policy set of accessor identified by their common attribute of identity , here user 1 mean as U1 has some identity attributes such as name, id, role, domain, grade, position these mentioned attributes can mention as a1… a6 here to detect the accessor of data file some attributes from a1 to a10 take into consideration, For case owner of the data file is head of the department and the upload data file to related to department stuffs therefore the data file accessor best to be the part of that respective department therefore here the attribute come into the necessity attribute to consider is role, domain, grade therefore this role(a3),grade(a5)took as primary attribute into the consideration and domain took as a main attribute into the consideration for each user who is stepping to access the data file uploaded by the head of the department, The main attribute value must equal to the owner main attribute value, According to the head of the department main attribute value the user primary attribute and main attributes value estimation took place , consider a case with domain as a main attribute and role , grade as a primary attribute and remaining is other attributes and if the head of the department main attribute domain value is IT the users who steeping to access the file validate first by the main attribute domain value if main attribute value of owner and accessor(user) equal then the user check continue with the primary attributes value if the primary attribute value come under the owner esteemed value then the user can access the file the other rights determine by users primary attribute and other attribute values other rights such as modify, upload of modification data , encrypt , decrypt , trash, download.

User->u1……un

Owner->o1…..o10

Normal/other attributes ->a1..an

Main attributes ->m1

Primary attributes ->p1… pn

Owner esteemed value of primary attribute store in table(t) format

Pseudo code:

If (u1(m1)==o1(m1))

If (u1(p1..pn)= =t(p1…pn))

Access granted

// access granted

ag=1 otherwise ag sets to 0

Else

Access denied

If (ag=1)

Rights rule set =1

According to ui(ai…an& pi..pn)

collaborative access policy based on tree structure relationship attributes, Tree approach follow top down as of root to non-leaf node degree would be reduced one by one then the threshold value, leaf node degree persist as 0 affording the node rate precedence will be established and collaborative access policy get generated.

Encryption and decryption of File

The Crypto-graphic technique makes the shield for the data - confidentiality and data integrity process. During the integration process the theft cannot be found. The encryption process makes the guarantee for the secure information visible to the sender and receiver.

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The encryption and decryption use the symmetric ciphers. The data sender and the data receiver may be familiar with the utilization of the same secret key. The full key length satisfied for the data protection and classification. The level of classification may vary from the secret level with the top- secret data required 192 bits or 256 bits keys length. Ten number of rounds required for the key processing. The 10 rounds for the 128 bits keys, the twelve circulars for the key of length 192 bits and the 14 circulars for the key of length 256 bits. The individual steps consist of numerous steps required for the processing, which comprises the replacement and combination of plain text. The output may be with the final stage. The key is the older model for decoding in the cereal boxes. The unlocking the secret key cannot apply to the confused message. During the processing steps the key only knows the substitutions and changes performance over the original data. Only the cereal box shares the key among the user and the blowfish cannot share the thousands of keys to the user. It works as the unique part of the key generation in the encryption method. The other cooler features are not able to generate the single key. The computer using the block cipher may regulate the plain text and convert the data into the cipher text. Hence performing the routine task for the chunks of text named as the blocks. The text decoding function generates the key for the one cipher - text.

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The Blowfish algorithm makes the concentration in speed. The speed in the various parameters uses the bulk encryption and the bulk decryption. So that the rotation reduces from 8 bit to 32-bit table of look up and may be one or two 32 bits operations

such as XOR addition. The pipeline concept uses 32 bits CPUS with a fast cache of 4K Byte. The implementation process produces the code near to optimum value.

The Blowfish algorithm may be the “Feistel-cipher”, be composite with the utilization for encryption and decryption process. The round keys may be utilized in the similar manner. The expensive work cannot carry out at the start of the beginning round process. The exclusive work for the encryption process may undergo the decryption process with the first exclusive or in round function. The reason for the decryption process mechanism for the Feistel structure cipher. The F-function involves the fixed function and the cipher text with the Feistel structure cipher. The separate half of the plain text be the exclusive or with the round – key and the exclusive or with output for the F- function. The value becomes true for the fixed function for both the encryption and decryption process.

The main XOR operation is performed in the encryption process. Final stage of Blowfish algorithm cipher entails in the 2 stages with the turn around the ultimate swap and carries out the output whitening. The output whitening right side of the output is the exclusive with the 17 round key and the left exclusive with 18 round key. The output will be the cipher text.

PSEUDO CODE

Begin itemizing

The Blowfish algorithm contains 16 rounds.

The x represents the input 64-bit element

The ‘XL and ‘XR’ be the 32 bits of two half using division of x input

The loop continuous for the iteration for 1 to 16 times

xL = xL XOR operation with Pi

xR = F(xL) XOR operation with xR

switch ‘xL’ and ‘xR’

At the end of 16 rounds, exchange ‘xL’ and ‘xR’ once more to open the last exchange.

Then, ‘xR’ = ‘xR’ XOR P17 and ‘xL’ = ‘xL’ XOR P18. Lastly, rejoin ‘xL’ and ‘xR’ process to come cipher-text.
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V. DE-DUPLICATION

Data may be represented as the characteristics or information like numerical. The data can be stored in the storage unit termed as the 'data storage'. The large amount of data in the queue may create the traffic otherwise collusion occurs. So, the data copied once again as the data duplication. The data occurred in the duplication process as an exact copy of original information saved in the different medium. A necessary condition occurs to detect and delete the duplicate copy from the storage device. A process that removes the unnecessary data copies and increases the storage capacity conditions is known as the data de-duplication. Minimum time needed to delete the duplicate copies of data. The action done using the separate domain with an efficient way, another domain running with the client read/ write domain. After the completion of the duplication process the data moves to the DR site, where the real backup moves between the hybrid cloud and public cloud. The process is modeled as the de-duplication engine, which scans the incoming data set, creates the scanner code and fingerprint is converted as hash code save in the data structure memory.

The fingerprint and the lookup transformed to hash perform in the storage process. Using a fingerprint and the hash storage needs the matching process with the data block to represent the duplicate fingerprints (donor block) being searched in the cache memory. The comparison done in the byte by byte between the current data block (recipient block) and the donor block results as the verification makes sure an exact match. The verification results with the recipient block are shared

with the disk. The matching points of donor block are an actual concept for the recipient block in the disk. This technique applies to metadata in tracking and sharing process. The block donor not available in the cache memory condition, the donor block with the already fetched from the disk to the byte by byte comparison step ensure the exact match. Here the recipient block be marked as duplicate cannot write on the disk. The metadata turn itself in tracking process to share details. Similarly, a de-duplication engine works in the same way. The engine scans the data block present in the collective manner. The engine eliminates the duplicate by comparing the fingerprints for the blocks and also ensures a byte by byte comparison gives the false result to eliminate unwanted duplicate data. By using the process verify that no data loss occurred in the de-duplication operation.

The digits indicate the cryptographic hash function, which is the signature meant for the manuscript as a data folder. The SHA version of 256 generates the single 256 bit by 32-byte as the signature for the text data. The hash function used as the side information for the encryption process that cannot be decrypted to the original text. The cryptographic function is the fixed size for any variable text length. The hashed version of texts is opposed with the decrypting text with the original version. The application involves the parameter of list of represent the hash values, verification based on the reliability and the method named the authentication based on handshake and signatures using digital format.

The authentication process for handshake, which avoids the transmission passwords with the client. The information can be sent from the client function for hash with the password sent through the internet over the confirmation with a server making the danger for the unique code word has been traced.
The anti- tamper is the link for a hash message linked with the original data. The recipient had the hash message and compared it with the transmitted hash. The matching function is unchanged and represents the no data loss in transmission. The digital signature is an essential sign of a hash function for a document, which may be encrypted with the private key that produces the digital mark for a file. Somebody able to verify the authentication of text in the decrypting the code word for the key used in the public manner. In addition, with the mix up gain and compare with the information mix with the code work.

Some main thing is that the hash function be an appropriate function for storing the encrypted password. These passwords were designed with the hash function to increase the speed of the computing, the candidate be the brute - force attack where the key derivation functions as the bcrypt or scrypt. These crypt designs to slow the accuracy for the password (npm as the bcrypt and scrypt library and the PHP as the bcrypt uses the implementation with the password hash).

The SHA-256 be the forwarding action for the functions using hash to SHA-1 be together referred as the SHA-2) and single the functions with hash on hand. The SHA-256 is more complex than the SHA-1 and not compressed. The key uses the 256 bits as the good partner function for AES. The NIST is the National Institute of standards and technology). The 'FIPS 180-4' provides the number of test vectors with the verification implementation. Hashing algorithms are used in sorts of ways. The storing passwords are in the computer version as the database. There is a large number of hashing algorithms specified for the purpose to optimize the certain types of data, speed and security etc., the discussion based on the SHA algorithm standards. The SHA stands for the Secure Hashing Algorithm applied for the cryptographic security. The point shows in the algorithm for cryptographic security. The security undergoes the irreversible and the unique hashes. The irreversible shows the original data cannot be separate and unknown. An unique function be the two different set of data not have the same function.

VI. EXPERIMENTS AND RESULTS

The majority of computational experience termed as the computational efficiency for their algorithms. The concepts centered on the amounts for computing resources. The information is important for the large scheduling problems. The main problem defines the attributes affects the computational efficiency for the count of activities and the availability of resource and the structure for the project network.

A. Analytic Effectiveness

The analytic effectiveness as a model able to describe the higher value of the action for the alternative method. The ideas based on the content for the project scheduling algorithm are the analytic effectiveness. It refers to the ability for the heuristic algorithms to schedule and to solve the same problem. The measurement factors are the incremental cost or tardiness might be used. The solution to the optimal problem can be measured as the solution quality. The cost-based calculation divided using the lower bound cost, which introduced by Ritzman may be used. The solution is the quality for comparing the problems between the bund. The analytic efficient be the scheduling algorithm. It may relate with the alternative heuristic approaches. An effective analysis for the heuristic dispatching rules needed for the studies in different simulation

environments. The area before the standardized analytic accepted by David. He concludes the effective review for the possible prior timing in the scheduling approach.

B. Systems Effectiveness

The common resource need for the resource scheduling projects requires the theoretical approach for the problems related with the scheduling. The different scheduling procedure gives the approach the overall results for the problem. The system efficiency may be analyzed as the scheduling parameter. An effective analysis for the heuristic dispatching rules needed for the studies in different simulation environments. The area before the standardized analytic accepted by David. He concludes the effective review for the possible prior timing in the scheduling approach.

C. Cloud sim Results

It results in initialization of a number of virtual machines. It is configured using the end user. The simulation in cloud sim depends on the number of job scheduling / tasks in the VM utilization.

D. Scheduling of Jobs

The unified form of infrastructure of storage compute service was provided by it. The localization and transparent service are adapted. The CSP infrastructure adapts the storage, servers, bandwidth and network equipment. These actions are monitored in the infrastructure and pay with usage options facilities is available. AWS compute service ec2 and go grid's serve path is the utmost widespread samples of IaaS nowadays.

E. Graphs

The bar chart used here to prove the present strategy of the proposed technique.

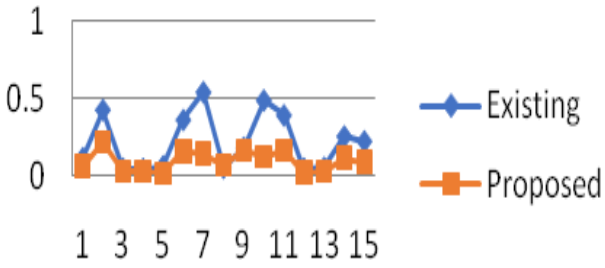

Figure. 2. Show the comparison graph for Encryption time

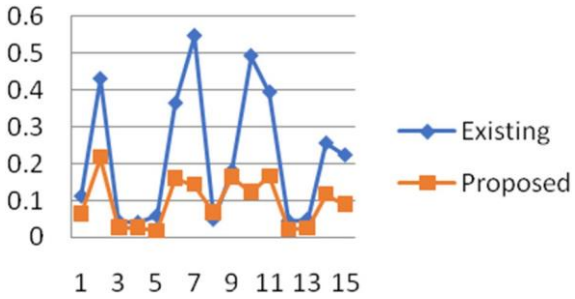

Figure. 3. Show the comparison graph for key generation time

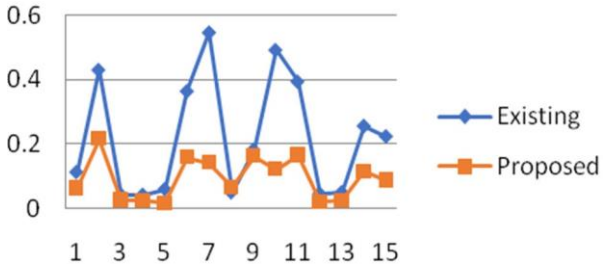

Figure. 4. Show the comparison graph for decryption time

F. CPU Utilization Vs Time

The time taken by each and every job after execution via cloud sim and its cipher-text size during scheduling of jobs or tasks as shown in Fig. 5.

Figure. 5. Depicts the time taken by each and every job after execution via cloud sim and its cipher-text size during scheduling of jobs or tasks.

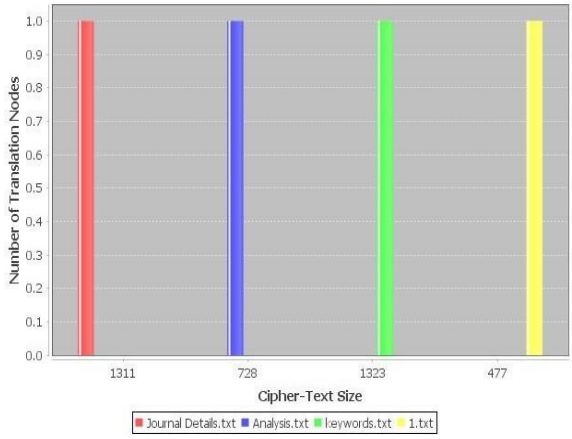

Figure. 5. Comparison of number of translation nodes vs ciphertext sized

algorithm	Block - cipher	Key Length	Flexibility/ Modification	Data center	Data tenant	Block size	Effectiveness	Level of Security	Encryption Speed
Existing	binary	128 bits, 192 bits and 256	YES, Extended from 56 to 168 bits	no	no	128 bits	Slow in software	Adequate security	slow
proposed	binary	1 – 4096 set of integers	YES, 256 key size is multiple of 64	yes	yes	1024 bits	Efficient in software	Highly secure	high

Figure. 6. Tabular representation of comparison of encryption algorithm.

VII. CONCLUSION

Cloud computing feature of distribution may possess advantage as well as disadvantage so here in work considered and determined the security issues of cloud computing bought up the idea to reduce a security issue in cloud storage through combined concept of cooperative access control and de-duplication .

In spite of the way that the preparing of the Cloud might have look as different occurrence this may took us to face another affect through the way of internet usage therefore much are there to take into consideration as too enormous amount of innovation are there in fast rate with establishment of uniqueness of services as to bring a innovative world and to make a human to live uncomplicated life. On the way must everyone be alert so therefore can realize and act against wellbeing risk acted to exploit this development. So that cloud computing has not faced an exception. Here in proposed ideas the data's

secrecy evaluations and complications presently took by cloud into consideration. Cloud computing perchance gets the opportunity to be a developer in advancing arrangements that are nonviolent, simulated and commercially later on.

Data de-duplication considered here as a mandatory one to bring a double layer of secrecy to data hence the data de-duplication must happen under secure way as to ensure through de-duplication another way of risk not to happen towards crucial data.

So as my future work I considered to bring up de-duplication under some secure awareness, As now of having idea to bring up a secure awareness in the place of ensuring of data is duplicated or not that means when one trying to ensure the data is already in load or not may some risk can access in the way of while that one who is ensuring is a unauthenticated user, when the loaded crucial data accessing by multiple users combined even under written privacy policy more chance are there to unauthenticated user intervened and get an idea about loaded data in storage even the data in encrypted form knowing about the availability of data may cause breach therefore to publish zero knowledge de-duplication response is better here to bring a strong secrecy to crucial data and also zero knowledge de-duplication response took into consideration under a advantage of provide affordable cost and lower the cloud storage complication.

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