|| Volume 3 || Issue 6 || June 2018 || ISSN (Online) 2456-0774
INTERNATIONAL JOURNAL OF ADVANCE SCIENTIFIC RESEARCH AND ENGINEERING TRENDS

Heterogeneous-Cloud for Improving Cloud Data Security

Rucha Dixit[1], Abhishek Gaikwad[2], Omkumar Pal[3], Mahesh Tawaskar[4], Aditya Sankpal [5]

Assistant Professor, Computer Department, JSPM JSCOE Pune.1
Computer Department, JSPM, Pune Savitribai Phule Pune University234

ABSTRACT - Daily large integer bytes of knowledge are generated, from this it can predict the number of knowledge which will be generated in future. It is necessary, to introduce some techniques for providing security such a huge quantity information and to deal with limitation of 'Cloud Security'. Such cloud security will beused nearly in each side of cloud atmosphere system. The motive of this paper is to grasp however cloud security is prime and the necessity of multi cloud system. This paper conjointly offers a short glimpse of multi cloud security implications within the world and its role in each field beside challenges and blessings. This paper conjointly explores varied techniques, algorithms admire Shamir Secret and Blowfish, systems of multicloud system in varied sectors of digital world

Keywords*-Cloud Data security, Multi-Cloud Data Encryption and Decryption.*

I INTRODUCTION

What is Cloud Computing?

Cloud computing is merely transaction or leasing of resources that is needed by a corporation. It helps in reducing the infrastructure value in project. varieties of cloud:

- Public or External Cloud
- Private Cloud
- Community Cloud
- Hybrid Cloud

In the recent years, cloud service gains monumental quality with the growing of huge knowledge. The cloud storage service relieves the burdens of purchasers on storage management and access management. The cloud service system of current lacks knowledge integrity and knowledge security in multi cloud. The presently wide used clouds embody Amazon S3, Google filing system, etc. All of them have the common features: a service interface provides centralized management by a worldwide namespace, files area unit split into blocks or sectors and area unit hold on on remote servers, and also the systems area unit consisted of inter-connected clusters of service nodes.

What is Multi-Cloud Computing?

Multi Cloud is that the use of multiple cloud computing services in an exceedingly single heterogeneous design. let's say, Associate in Nursing enterprise could at the same time use separate cloud suppliers for infrastructure (IaaS) and computer code (SaaS) services, or use multiple infrastructure (IaaS) suppliers. within the latter case, they will use totally different infrastructure suppliers for various workloads, deploy one employment load balanced across multiple suppliers (active-active), or deploy one employment on one supplier, with a backup on another (active-passive). There ar variety of reasons for deploying a multi-cloud design, together with reducing reliance on any single marketer, increasing flexibility through alternative, and mitigating against disasters. it's kind of like the utilization of best-of-breed applications from multiple developers on a private pc, instead of the defaults offered by the OS marketer. it's a recognition of the very fact that nobody supplier may be everything for everybody. It differs from hybrid cloud in this it refers to multiple cloud services instead of multiple readying modes (public, private). numerous problems additionally gift themselves in an exceedingly multi-cloud setting. Security and governance is additional difficult, and additional "moving parts" could produce resiliency problems. choice of the correct cloud product and services may gift a challenge, and users could suffer from the contradiction in terms of alternative.

Advantages of Multi-cloud Computing:

- It offers multi decisions for the business organisation.
- It offers additional security for the information storage, if the information gets corrupted.
- It offers versatile shift between totally different clouds.
- It is price economical.
- It permits combination of personal and Public Cloud.

Present Multi-cloud architecture for cloud computing:

Cloud Computing

The present architecture of cloud computing involves MRVR Algorithm and Blowfish Algorithm. The user will upload data into cloud. Further, Data is encrypted with the Blowfish Algorithm and encrypted is send to Cloud Middleware or Auditors. Data is encrypted for increasing security and if data is hacked the hacker will get encrypted data. Lastly, the data is send to different cloud as replicas of encrypted data.

Disadvantages of Present architecture:

- Organization must trust the cloud middleware or Auditors for the protection of knowledge.
- Insider Threat Attack could leak the confidential information from Auditors.
- Due to the present organization could suffer significant loss or could bankrupt.

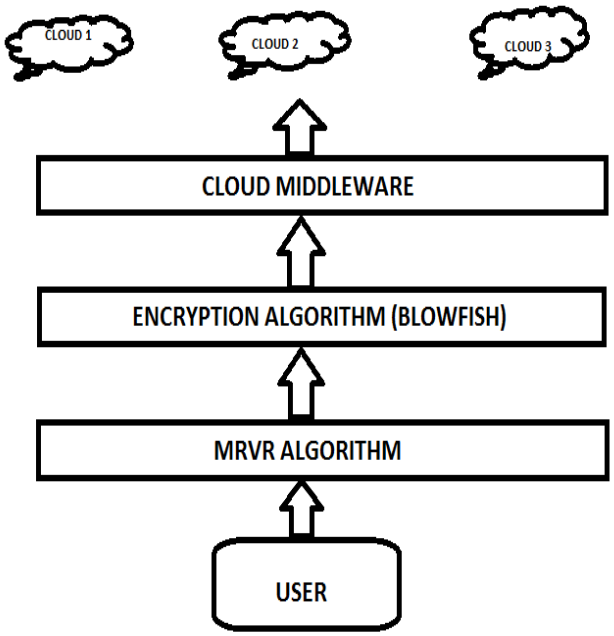


Figure 1 Present Architecture for

II. LITERATURE SURVEY

Table: 1 Literature Survey

Paper no.	Techniques/Methods/ Algorithms	Tools	Journ	
1	TPA	Data storage, Public auditability, Data dynamics, Cloud computing	IEEE	2011
2	Auditing Protocol,Batch Auditing for multiowner.	Storage auditing, Batch auditing, Privacy-preserving auditing	IEEE	2013
3	Remote Data Checking (RDC)	Data security, Robustness	IEEE	2012
4	Remote data possession checking protocols	Management of computing and information system, Database management	IEEE	2014
5	Pairing based provable multi-copy data possession (PB-PMDP) scheme	Data integrity, Cryptographic protocol	IEEE	2012
6	OPoR	Data Retrievability	IEEE	2015
7	Ranked Merkle Hash Tree, BLS Signature	Authorized auditing, data security	IEEE	2014

III. PROPOSED ARCHITECTURE

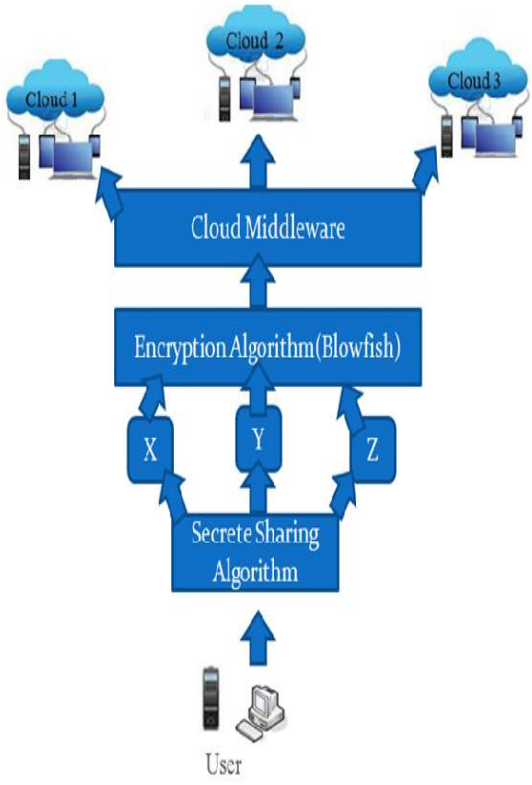


Figure: 2 Proposed Architecture for Cloud Computing

IV. EXPLANATION OF PROPOSED SYSTEM

To improve the information Security it's necessary and economical to use combination of Shamir's secret rule and Blowfish rule along. It works expeditiously and breaks the user information so encipher the information thus it provides increased security. The operating of system is explained in Fig.2.the user information initial forced the lock smaller items by Shamir Secret rule. any the tiny items of information is encrypted by Blowfish rule. Lastly, the encrypted little items of information is hold on in numerous cloud servers.

Shamir's Algorithm:

- Divide secrete info into components.
- Using of a number of the components or all of them area unit needed so as to reconstruct the key info

Blowfish Algorithm:

- Blowfish provides a decent secret writing rate in software package.
- The algorithmic rule is herewith placed within the property right, and might be freely utilized by anyone.

Advantages:

- Organization shouldn't be totally supported cloud middleware for security.
- Hacker can get incomplete encrypted info if the server is hacked, which info is of no use.
- The knowledge uploaded are a lot of secured and trustworthy.

V. MATHEMATICAL MODEL OF PROPOSED SYSTEM

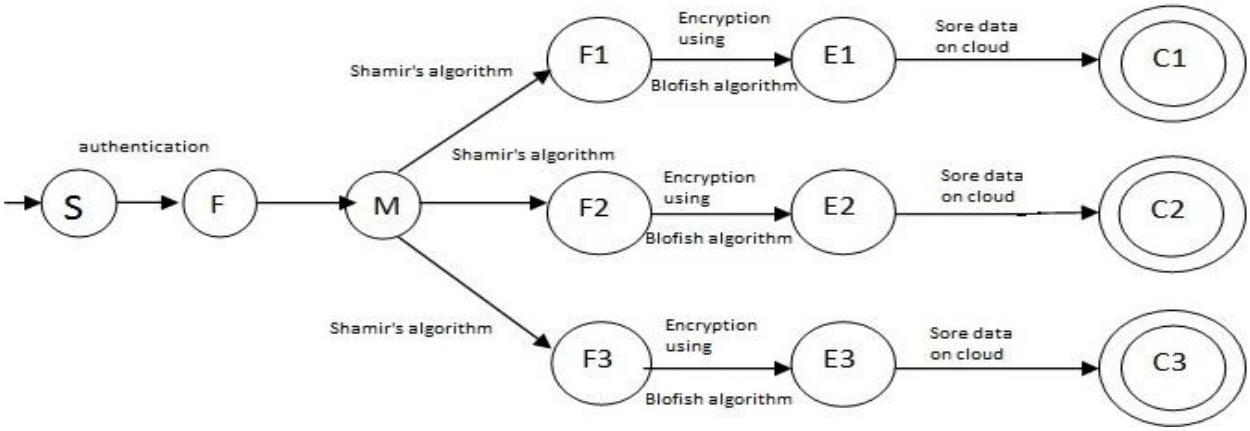


Figure: 3 Uploading of Data from User

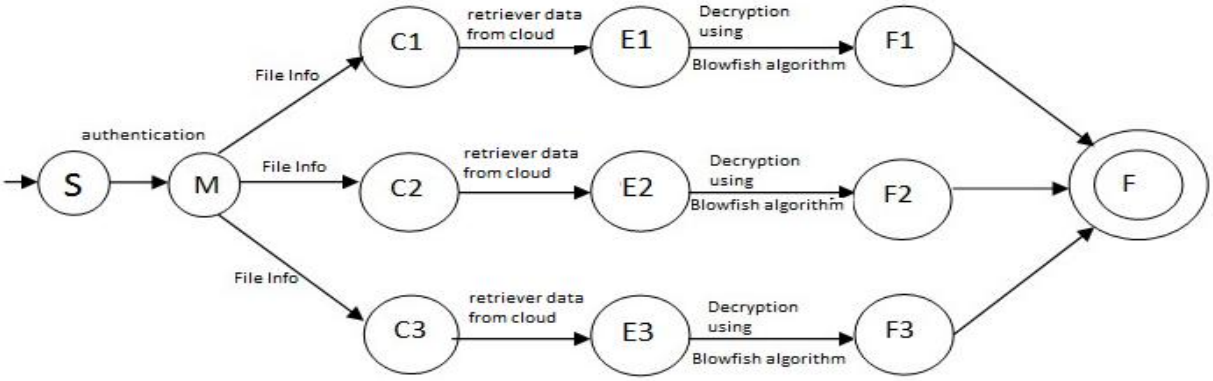


Figure 4 Retrieving of Data from Cloud

S= Start state
F= Data file
M= Meta file
{F1, F2, F3}= divided file using Shamir's algorithm
{E1, E2, E3}= Encrypted File using Blowfish algorithm
{C1,C2, C3}= different clouds

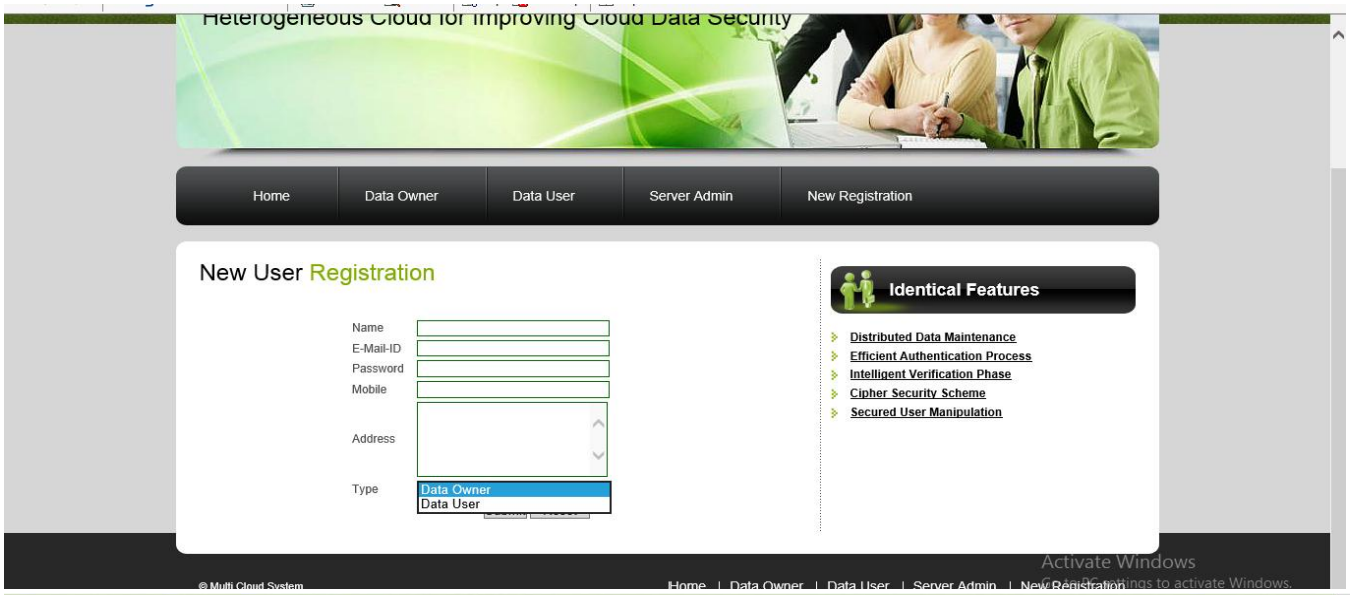
VI RESULTS

Heterogeneous Cloud for Improving Cloud Data Security
Home
Data Owner
Data User
Server Admin
New Registration
Server Administrator
Administrator Identity Checking
Username
Password
Login
Identical Features
Distributed Data Maintenance
Efficient Authentication Process
Intelligent Verification Phase
Cipher Security Scheme
Secured User Manipulation
© Multi Cloud System
Home | Data Owner | Data User | Server Admin | New Registration
Activate Windows
Go to PC settings to activate Windows.

Heterogeneous Cloud for Improving Cloud Data Security
Home
Data Owner
Data User
Server Admin
New Registration
Data Owner Authentication
Data Owner Identity Checking
E- Mail-ID
mahesh@abc.com
Password
Login
Identical Features
Distributed Data Maintenance
Efficient Authentication Process
Intelligent Verification Phase
Cipher Security Scheme
Secured User Manipulation
Activate Windows
Go to PC settings to activate Windows.

Heterogeneous Cloud for Improving Cloud Data Security
Home
Data Owner
Data User
Server Admin
New Registration
Server Administrator
Administrator Identity Checking
Username
Admin
Password
Login
Identical Features
Distributed Data Maintenance
Efficient Authentication Process
Intelligent Verification Phase
Cipher Security Scheme
Secured User Manipulation
Activate Windows
Go to PC settings to activate Windows.

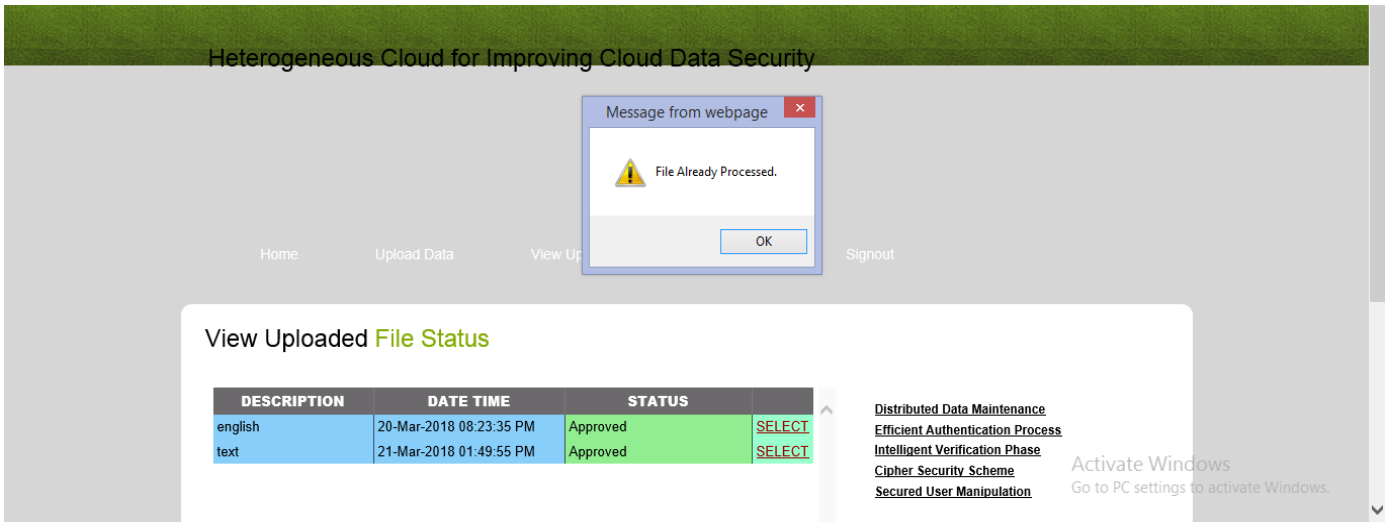
Heterogeneous Cloud for Improving Cloud Data Security
Home
Data Owner
Data User
Server Admin
New Registration
Data User Authentication
Data User Identity Checking
E-Mail-ID
om@abc.com
Password
Login
Identical Features
Distributed Data Maintenance
Efficient Authentication Process
Intelligent Verification Phase
Cipher Security Scheme
Secured User Manipulation
Activate Windows
Go to PC settings to activate Windows.


Heterogeneous Cloud for Improving Cloud Data Security
Home
Data Owner
Data User
Server Admin
New Registration
New User Registration
Name
E-Mail-ID
Password
Mobile
Address
Type
Data Owner
Data User
Identical Features
Distributed Data Maintenance
Efficient Authentication Process
Intelligent Verification Phase
Cipher Security Scheme
Secured User Manipulation
© Multi Cloud System
Home | Data Owner | Data User | Server Admin | New Registration
Activate Windows
Go to PC settings to activate Windows.

Heterogeneous Cloud for Improving Cloud Data Security
Home
Upload Data
View Uploads
View Status
Signout
Upload Files
File ID
5
File Description
text
Upload File
C:\Users\Ravindra Bacha
Browse...
Submit
Reset
Identical Features
Distributed Data Maintenance
Efficient Authentication Process
Intelligent Verification Phase
Cipher Security Scheme
Secured User Manipulation
Activate Windows
Go to PC settings to activate Windows.
http://localhost:51577/SourceCode/Index.aspx
ENG
11:51
5/26/2018

Heterogeneous Cloud for Improving Cloud Data Security
Home
Upload Data
View Uploads
View Status
Signout
View Uploaded Files
DESCRIPTION
DATE TIME
FILE NAME
DOWNLOAD
english
20-Mar-2018 08:23:35 PM
Uploads/english speeking.txt
Select
text
21-Mar-2018 01:49:55 PM
Uploads/english speeking.txt
Select
Identical Features
Distributed Data Maintenance
Efficient Authentication Process
Intelligent Verification Phase
Cipher Security Scheme
Secured User Manipulation
Activate Windows
Go to PC settings to activate Windows.

Heterogeneous Cloud for Improving Cloud Data Security
Home
Upload Data
View Uploads
View Status
Signout
View Uploaded File Status
DESCRIPTION
DATE TIME
STATUS
english
20-Mar-2018 08:23:35 PM
Approved
SELECT
text
21-Mar-2018 01:49:55 PM
Approved
SELECT
Identical Features
Distributed Data Maintenance
Efficient Authentication Process
Intelligent Verification Phase
Cipher Security Scheme
Secured User Manipulation
Activate Windows
Go to PC settings to activate Windows.


Heterogeneous Cloud for Improving Cloud Data Security
Message from webpage
File Already Processed.
OK
Home
Upload Data
Signout
View Uploaded File Status
DESCRIPTION
DATE TIME
STATUS
english
20-Mar-2018 08:23:35 PM
Approved
SELECT
text
21-Mar-2018 01:49:55 PM
Approved
SELECT
Distributed Data Maintenance
Efficient Authentication Process
Intelligent Verification Phase
Cipher Security Scheme
Secured User Manipulation
Activate Windows
Go to PC settings to activate Windows.

VII. CONCLUSION

The amount of knowledge generated and kept securely in multi cloud system. By use of Shamir's secret rule and Blowfish rule along with success and enhancing information security and integrity in multi cloud atmosphere. The planned system provides economical use of single and multi-cloud storage atmosphere .In order to attain high security we have a tendency to mix 2 algorithms i.e. Shamir's secret rule. Blowfish rule. Overall information integrity, security, availableness is maintained. we have a tendency to hope the content mentioned during this paper, is useful for future analytics.

ACKNOELEDGMENT

Special thanks to our Staff of Department of Computer Engineering, Jayawantrao Sawant College of Engineering & Sciences Hadapsar Pune and Savitribai Phule Pune University in order to support this work.

REFERENCES

[1] Y. Zhu and H. Hu, "cooperative provable data possession for integrity verification in multicloud storage", IEEE transactions on parallel and distributed systems, Vol. 23, 2012, pp. 2231-2244.

[2] G. Ateniese, R. Burns, R. Curtmola, J. Herring, L. Kissner, Z. Peterson, and D. Song, "Provable data possessionat untrusted stores", in ACM CCS '07, 2007, pp. 598-609.

[3] F. Seb´e, J. Domingo-Ferrer, A. Martinez-Balleste, Y. Deswarte, and J.- J. Quisquater, "Efficient remote data possession checking in critical information infrastructures", IEEE Transactions on Knowledge and Data Engineering, Vol. 20, 2008, pp. 1034 -1038.

[4] Juels and B. Kaliski, "PORs: Proofs of retrievability for large files", In ACM CCS '07, 2007, pp. 584-597.

[5] R. Curtmola, O. Khan and R. Burns, "Robust Remote Data Checking", in 4th ACM StorageSS, 2008, pp.63-68.