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Identity-Based Distributed Provable Data Possession in Multi-cloud Storage

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ABSTARCT:Cloud is basically a term of virtualiaty in terms of services.In the entire world there are many problem related to cloud security, but here we are going to focused only on our phase and that is user and cloud tenant service provider.In this case user are not interested to pay money for corrupted data means this is the case of provable data from user to service provider it cause a guarantees which is required by the user to prove whether they are used that much amount of data over cloud services or not.Hence we use “Identity-Based Distributed Provable Data Possession in Multi-cloud Storage” technics which proves the overall transaction done by user over internet with more security using the concepts of multi-cloud infrastructure concepts.

KEYWORD:ID-DPDP(Identity based distributed provable data possession), CDH(computational DiffieHellmanproblem), HDD(Hard disk), VS(Visual Studio).

I. INTRODUCTION

Cloud is one of the most important terms in our present world and it's security is one of the most common concern. So first we need to know what is cloud computing So cloud is a kind of storing device which can be accessed only through internet. Hence every time we need to connect it through internet for accessing any data from cloud. We can Say that “Cloud “ as a readymade office because here customer only pay for what they want to used w/o the concern of entire things whatever related to their project or works. Cloud is not all about having the dedicated NAS(N/W Attached Software H/W) on server in residence.

We all known cloud is third party source that's why there were concern of security is arises. Here Problem like data integrity and data hacked may deeply cause. But almost 90% of our world population is only depends on the service of cloud, so we are going to discuss here how we can provide more secure cloud services to the client with less cost expenditure.Now we use remote data integrity checking for overcome the remote data on cloud. All we known about the outside data on cloud which is out of the client hands hence not in control of clients only developer can handle each and every concern all activities held on cloud. When the client stores his data on multi-cloud servers, the distributed cloud storage and it's integrity checking are cost efficient and also flexible one. Hence we read this techniques which is based on distributed environment means everywhere at a glance system.

II. LITERATURE SERVEY

Problem Statement:In the entire world there are many problem related to cloud security, but here we are going to focused only on our phase and that is user and cloud tenant service provider. In this case user are not interested to pay money for corrupted data means this is the case of provable data from user to service provider.

Means user needs some guarantees to prove rather they are used that much amount of data over cloud services or not. Hence we use “identity-based distributed provable data possession in multi-cloud storage” technics which proves the



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overall transaction done by user over internet with more security using the concepts of multi-cloud infrastructure concepts.

Purpose of the project: We consider our project as a future mode cloud, because in it we are going to provide four level of security which is most important point as for client point of views .Our motive is to give more secure system with minimum data cost which innovates our world in greater ways.

DisadvantagesOf Existing System: It is not flexible which causes system rigidity, cost expenditure is to high, it is time consuming and less secure model.

III. SYSTEM ANALYSIS

In the today's world everything is only running on graphical representation ,hence the use of GUI is on greater demand and for flexibility and integrity we need some cloud services and modelling for providing security at client gateways because each and every data pushed by client is necessary one so we need these two level for finding some admiral idea towards the security concern over cloud:

1. Administrative user interface design
2. The operational and generic user interface design

It is the first one which means a legislative position of admission. Here admission means the first steps of authentication whether the user is valid or un-valid. When IPDP proves the un-authorize user means it deny to login the cloud services. The Second one is "The operational and generic user interface design" in which the hole transactional related job's are maintain here by the means of provable data. Provable data means client need some assurance of data usages over the cloud if we failed to so the overall transactional history with greater projection then as a cloud tenants we lost our customer support marketing. So this is one of the important steps towards cloud services.Hence the first steps towards the transaction is the user login and registration. Once these steps is over then user can make any transaction provided by the service provider. And it consists of these following steps:-

Modules :

Cloud user module:

- This is an entity in which user can believe very much because the level of security is at top level in this section.
- User first fill a registration form in which user details is saves for future works.
- Then the user login concept is there in which user can make a successful transaction after one successful login in the cloud services.
- Here data is available for download , Read and lot more here everything is loaded by data up-loader and can be secure by verifier with provided encrypted and decrypted key system for data downloading and data reading and etc.
- Multi-cloud is used here to provide different server for sharing load from the server.

Verifier module:

- The public data verifier first check an authenticate user and then the data integrity on the cloud.
- Verifier do the work towards producing encryption and decryption key for secure login and secure authentication towards user side.

Private key generator module

- An entity, when receiving the identity, it outputs the corresponding private key.
- Here ID-DPDP is only one things which is responsible for secure login with one secure user id and password and from one point the generation of private key is generated from this concept.



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- Distributed computing is used to store the client's data on multi-cloud servers. At the same time, distributed computing is also used to combine the multi-cloud servers' responses to respond the verifier's challenge.
- Based on the provable data possession protocol, the ID-DPDP protocol is constructed by making use of the signature and distributed computing.

Cloud server module:

- This is one of important terms under these types and most probably the most important one. Here client gateways is provided because authentication parts is started from this point only.
- Hence verifier verify the authenticated user and it's allowance for further transaction.

IV. PERFORMANCE REQUIREMENT

To get a better performance out of the given four performances competencies which requires some mitigation from sales and distributor performance requirement. We are going to read all these competencies for generating the best performance from the cloud and these are the sections discussed below:

- Cloud Customer Relationship Management
- Cloud Platform
- Cloud Productivity
- Small and Midmarket Cloud Solutions

Cloud Customer Relationship Management:-The Cloud Customer Relationship Management competency is for individuals and organizations who deploy cloud customer relationship management solutions. You can go to the Cloud Customer Relationship Management competency page to learn more about the competency and to view the full list of requirements.

Cloud Platform competency:-This is a type of competency suitable for individuals and deals with those organization which works on the basis of the delivery of infrastructure and service and platform based cloud services which is the solution of Microsoft cloud which is Microsoft Azure.

Cloud Productivity competency:- This is a type of competency suitable for individuals and deals with those organization which works on the basis of the delivery of Microsoft Office and Microsoft word and power point .

Small and Midmarket Cloud Solutions competency:-This type is working on the basis of how the delivery of Microsoft office 365 is developed and share among the different stakeholder.

V. ARCHITECTURE

This data is loaded on to the cloud in the encrypted format which means it is more secure and it's decrypted key is sent to the user account by the verifier for further transaction. As we seen in the below diagram in which cloud tenant divides the available data into multiple parts and later saves into subsequent amount of cloud.

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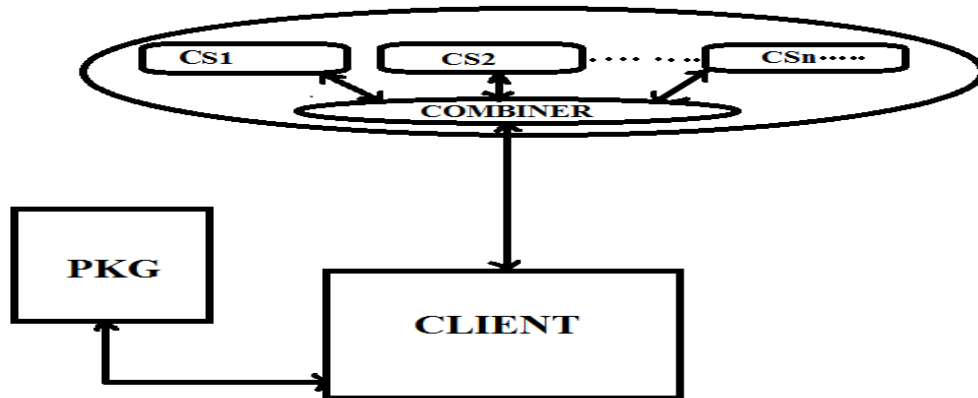


Fig.1. Framework for data integrity in multi-cloud

This system ensures the secure gateway for user and service provider in which unauthorized user can't think to enter in the area of data storage w/o permission. And through ID-DPDP (identity-based distributed provable data possession) in multi-cloud storage we can also take care of about the amount of fair data consumed by the user without any miss complexion. An another diagram we will show in the next page for better idea about this architect:

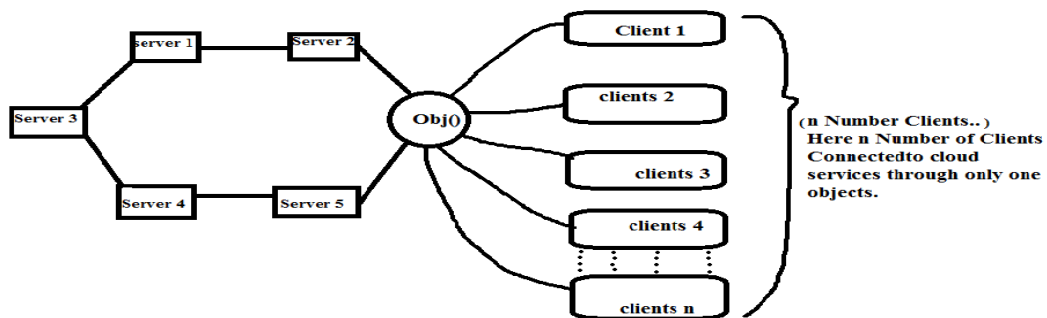


Fig.2. Execution Of Architecture.

Here we seen the executions of cloud which show the use of single ton in which one object can handled n no. of client response simultaneously Which also saves complexity problem in cloud execution or execution overloading. That's why this proposed system is cost efficient.

Let's see all the UML and activity diagram one by one as shown below:-

A:) Data Flow Diagram:-It is a way to create anything using 1st hand of graphical representation. Means DFD is one the basic steps towards any software mythology. Where we can show how the architecture is going to run as we seen in the below fig where 1st registration and then login parts is available and soon...

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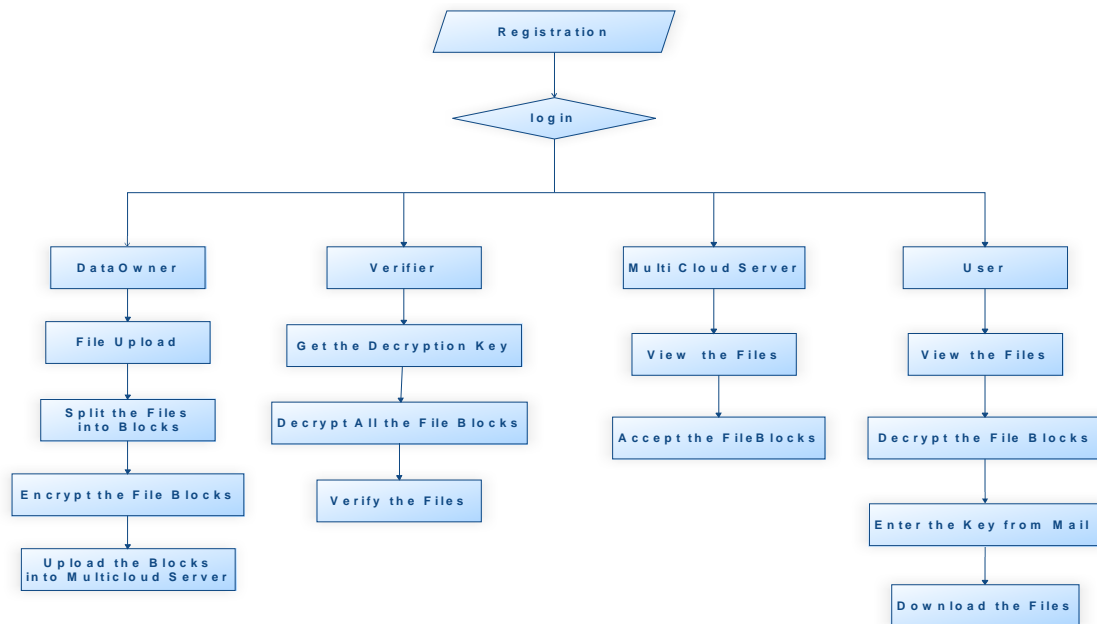


Fig.No-02.Basic Data Flow.

B:)Use Case Diagram:-It's represent the behavioural diagram which is used to represent the set of playable action which decides which steps taken 1st and which is on next, As we seen in the below fig the area of uses means there are four agent and all have it's substquent work like data owner has works like registration, file upload, split the files into blocks & uploaded to multi-cloud server and soon...

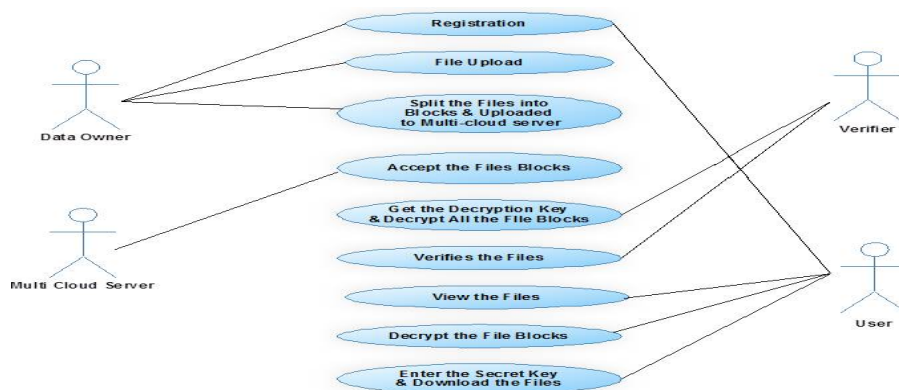


Fig.No-05.Basic Use Case Diagram.

C:)Real Step wise execution through deep UML diagram:-Here we seen in below fig login pages are divided into 4 parts and all 4 parts doing it's separate action of performance but these all are combined to form a system at last to provides services to the user. Like Data owner doing data work and verifier doing the job of verification of valid userand soon.....

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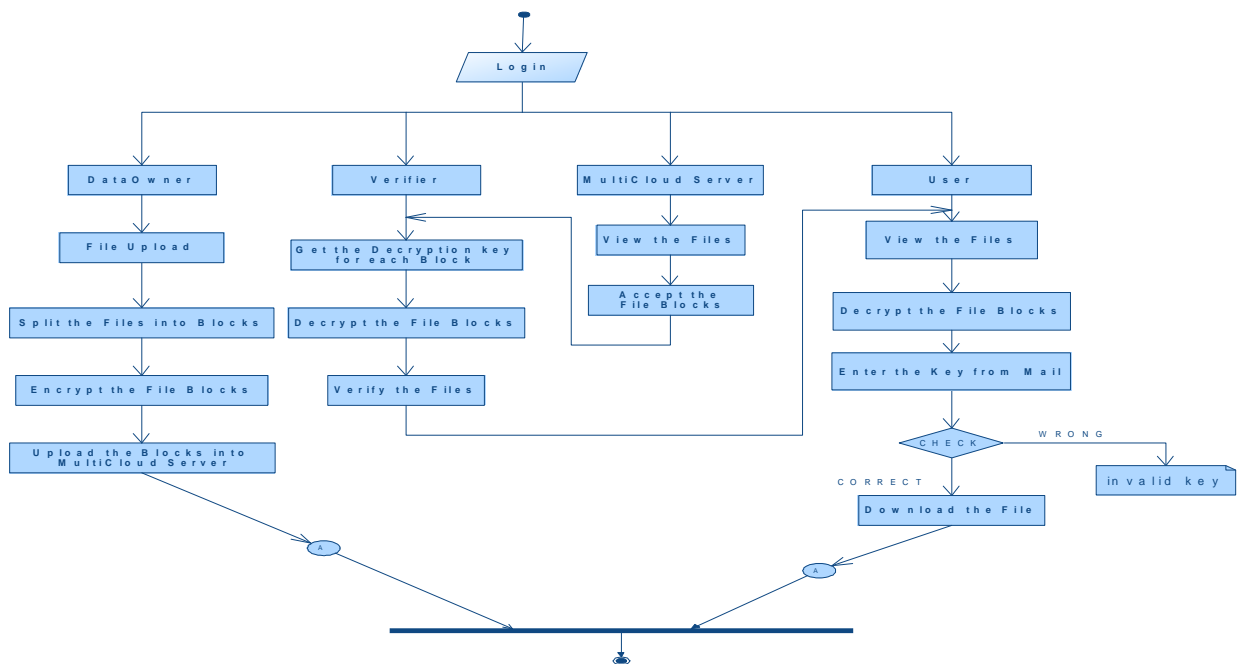


Fig.no.7.Basic Execution OF UML diagram.

VI. COMPARISON OF EXISTING AND PROPOSED SYSTEM.

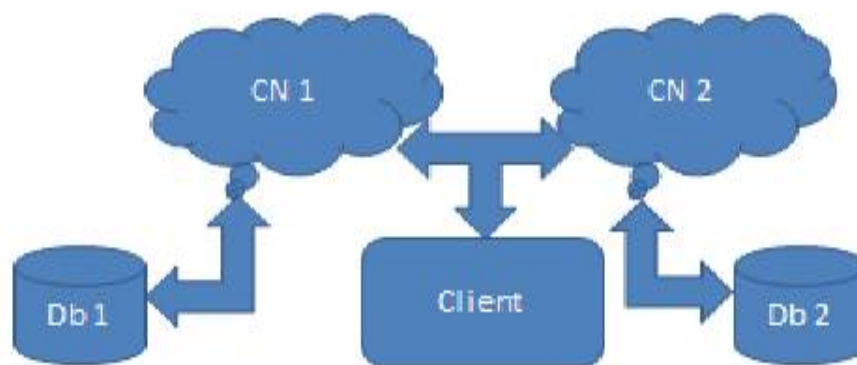


Fig.no....Traditional Architecture.

a:)Traditional Architecture.

- Here all the cloud nodes manages it's own database for saving any kind miss happening.
- But it is time and cost consuming architecture.
- Less Security because in this format there is no concept of encryption and decryption.
- Simple login and authentication security is provided.
- Should be crashed when the number of user get's increased.

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Fig..no.. Proposed Architecture

b.)Proposed Architecture:-

- This is my proposed architecture in which a common database can be efficient to use and managed.
- This database is distributed in nature so no worry about any data corruption or any miss happening.
- It is more secure because at each level the concept of encryption is applied and equivalently decrypt key will be sent to the verifier for opening cloud data on the verified user only.

Advantages Of Proposed System:The proposed system is time efficient and cost efficient along with Flexibility. Hence we can use cloud service from anywhere.

VII. SYSTEM REQUIREMENT

These are the requirement:-

SYSTEM	PENTIUM 4 2.4GHZ.
HARD DISK	40GB
RAM	512MB
OPERATING SYSTEM	ABOVE WINDOWS VISTA
CODING LANGG.	C#,ASP.NET
DATABASE	SQL SERVER
TOOL OR IDE	VISUAL STUDIO



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VIII. CONCLUSION

In our Multi-cloud concept we know the concept of multiple use of cloud from different remote location. In which ID-DPDP protocol is designed to provide 100% provable guarantees to the client side hence we conclude the efficient and balanced relation of both cloud tenants and cloud user with best performance and security with the help encryption and decryption.

We know the proposed system is secure under the consideration of CDH and the use of multi-cloud along with IP-DPDP is most valuable one for providing data security.

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