



## A Proposed Model for Three Way Authentication in Cloud Computing for Sensitive Information

**Pankaj Kr. Gupta**

M.Tech, (Computer Science and Engineering),  
JECRC University, Jaipur, India

**Dr. Manju Kaushik**

Associate Professor (Computer Science and Engg.),  
JECRC University, Jaipur, India

**Abstract**— Cloud computing is emerging software technology based on the network and it is a technique that provide to access data from server. It describes extremely scalable computing assets provided as an external service via the internet on a pay- as- you-go basis. As we all know about cloud computing so there are many factors which we have to focus on. “Security” is one of the major topic in cloud computing or we can say security of customer’s sensitive information. There are many approaches framework and methods are given for that purpose. So on this way we are also proposed a model or a method to secure a cloud of a client or their sensitive information. We called it “Three Way Authentication” in cloud computing.

**Keywords**— OTP, Image Matrix, secure cloud, virtualization,

### I. INTRODUCTION

Cloud computing is emerging software technology based on the network or virtualization technique it is a technique that provide to access data from server. Cloud Computing is ever where it represents “all that other stuff” that makes the network works it kind of like. For the rest of the solution map. It describes highly scalable computing resources provided as an external service via the internet on a pay- as- you-go basis. The main theme of the cloud computing is that customers or we can say client to use the services from the basis of their need and pay according to their actually use resources aces by customers from thee cloud at any time from any location via the internet.

We all are study about security in cloud computing or we can say cloud computing data security, but what actual need of developer of cloud or cloud service provider and client that both is afraid of hacking and cracking and damaged the data. So a first and very much need of client is the secure data storage on the cloud environment. The cloud provider thinks that how they can make a cloud much secure as compare to other. Indrajit and Ria Das explain very better approach “One Time Password” in cloud computing [1]. Here we also present or proposed a model for cloud computing security. This model is based on the matrix where user is shown a text image and we provide a matrix to the user and the user put the code according to text image given in the matrix. The image provided by us for the user. So we call/Name it as “Three way Authentication Scheme” for sensitive information. Here we also use RSA & AES algorithm to improve the security of the data as much as possible. This paper also provides new research criteria to improve the cloud security and provide good security with third scheme for the client purpose. We are not use the high secure complex algorithm because non-technical user cannot handle this very well. Modern work discuss the concept of virtualization it allows abstraction & isolation. Function virtualization provides probability to sharing of resources [2]. Virtualization is the basic and main theme of cloud computing that provide a facility to a user that setting on the her/his system or any system can access the data from anywhere so it’s provide a better facility it is the main use of virtualization that provide the feel like that we are setting on or our data is on system with which we connected to the Internet.

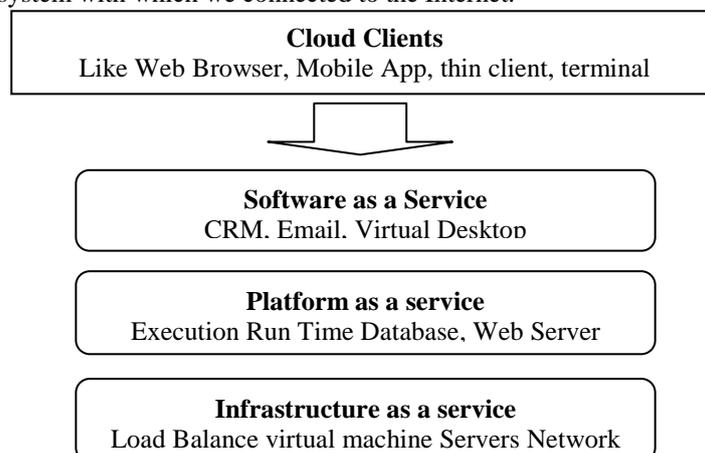


Fig. 1 Cloud Computing Services

## II. RELATED WORK

In this section we have study about or review of the other author resources and write about their research. It is not a new technology when we are used like GMAIL service it is also used as cloud computing. It provide us that we are sitting anywhere and can access the mail service from anywhere we required only user name and password. Cloud computing provide the service to other like on demand services [3] [4].For eg. The company that provide cloud computing like Microsoft, IBM, DELL, FUJITSU & VMWARE.

### A. Problem with Cloud Computing

Security attacks problem in cloud computing is that if client uses the cloud services then it's need to regular update & upgrade at the regular interval or day by day cloud provider complete the request of the client as per their requirements.

- 1) *Update*: when cloud is regularly use the cloud services due to these service depends on the network connection so regular updation is required. Client has to depend on the provider to upgrade maintain and administer it. The user does not have direct access to the software to fix the problems if something wrong in application and must bank on the service provider.
- 2) *Maintenance*: Cloud computing basically network dependent so the regular interval of the maintenance is required. Any fault can be resolved at that time of fault generate.
- 3) *Data Integrity*: Assureds that message are received as sent with no duplication, insertion, modification, reordering, or replays.
- 4) *True User*: Also known as true user, this service is related with assuring that transaction is authentic means user who entering in the system is correct or authenticate user.
- 5) *Data Conversion into another form at the time of sending*: Also known as cryptography, in which data is converted simple or plain text to cipher text or authenticate form.
- 6) *Access Control*: In the situation of network security, admittance control is capability to limit and organize the access to host systems and applications via interactions links. To get this, each entity trying to gain access must first be acknowledged, or authentic, so that access privileges can be tailored to the individual [5].
- 7) *Data Confidentiality*: It is the protection of transmitted data from passive attack and traffic from analysis. It provides that an attacker not be able to observe the source and destination.

### B. Solution

- 1) *Regular Update*: Solution provide is need to update cloud server regularly because cloud is based on the network so it is must that cloud network update regularly.
- 2) *Highly secure Encryption algorithm*:- When data is transfer from source to destination the data is completely Travel in to the encrypted form so no one can detect the original message between source and destination.
- 3) *Highly secure login password* that content a special character and number also .We will describe it next section.

### C. Level of Security

- 1) *One-Level of Security*: - The first level it is the basic security that cloud client login with user is and password like service provide by Gmail account.
- 2) *Two-Level of Security*: - Also known as OTP (One Time Password) is just what the names infers, a pin that is only legal for one login. The help of OTPs is that it proposals much higher safety than static passwords, in expenditure of user openness and formation issues. OTPs is protected against password sniffing attacks, if an attacker use software to gather your data traffic, videorecords you when you type on your console, or use social business, it doesn't matter since the password that the attacker gets hold on will not be valid to use [6].
- 3) *Third Level of Security-Matrix Image*:- It's can be a solution given by us in which we describe the method of the following :
  1. Prove a better security approach then the Mobile One Time Password.
  2. Cloud Client is required only a matrix image given by the cloud provider, cloud provider can also mail this image.
  3. More security implementation over the other cloud services model.
  4. We can also increase complexity of matrix if requiredIn the next section of this paper we fully introduce with this technique.

## III. PROPOSED MATRIX IMAGE

A Diagrammatic representation is shown below in the given figure of matrix image that provide us an combination of alphabets means when a cloud client is request to more secure data on cloud then we can also provide this or we can facilities to the cloud user for this and can improvement in the security of cloud data. So this is a may be a model that can provide security at a level in the cloud environment. As the Das is explained in the object Cloud computing has developed quickly over the past few years. However, cloud services also present a couple of problems. Since the capitals are put under another source, the customer will have no switch over the condition. You don't know how your data is pickled in the cloud, how delicate data is encrypted, how the provider's handle Idleness and backup of your data, can the properties always be read etc.

A	B	Z	E	F	g
11	1	13	7	8	9
H	I	K	L	M	o
25	24	21	23	12	14
R	S	T	U	X	X
26	17	19	10	18	26

Fig. 2 Matrix Image for Secure Cloud Service

Here we are generate an algorithm which we will introduce into the next part of this paper this algorithm is generate a unique combination of the number and cloud user which is registered for this facility also received the image on when he try to access their data according to the shown image user enter alphabets according to given matrix to the user by the cloud provider for every 100<sup>th</sup> cloud user it matrix image will change and the number of combinations are randomly according to programming of the cloud matrix image concept. After the entering the character according the display image cloud client can access their data. So by this processes we can improve the security on the cloud computing as well as requirement of the user. So it's really helpful in the cloud computing environment that is provide the much and better security aspects. Due to high security is the first need of every user and the millions of people connected through the Internet so for processes the better approach in the internet environment like millions of people use Gmail service drives hot mail Skype driver so secure authentication is needed. Thus three way authentications by this model is better secure approach then the two way authentication.

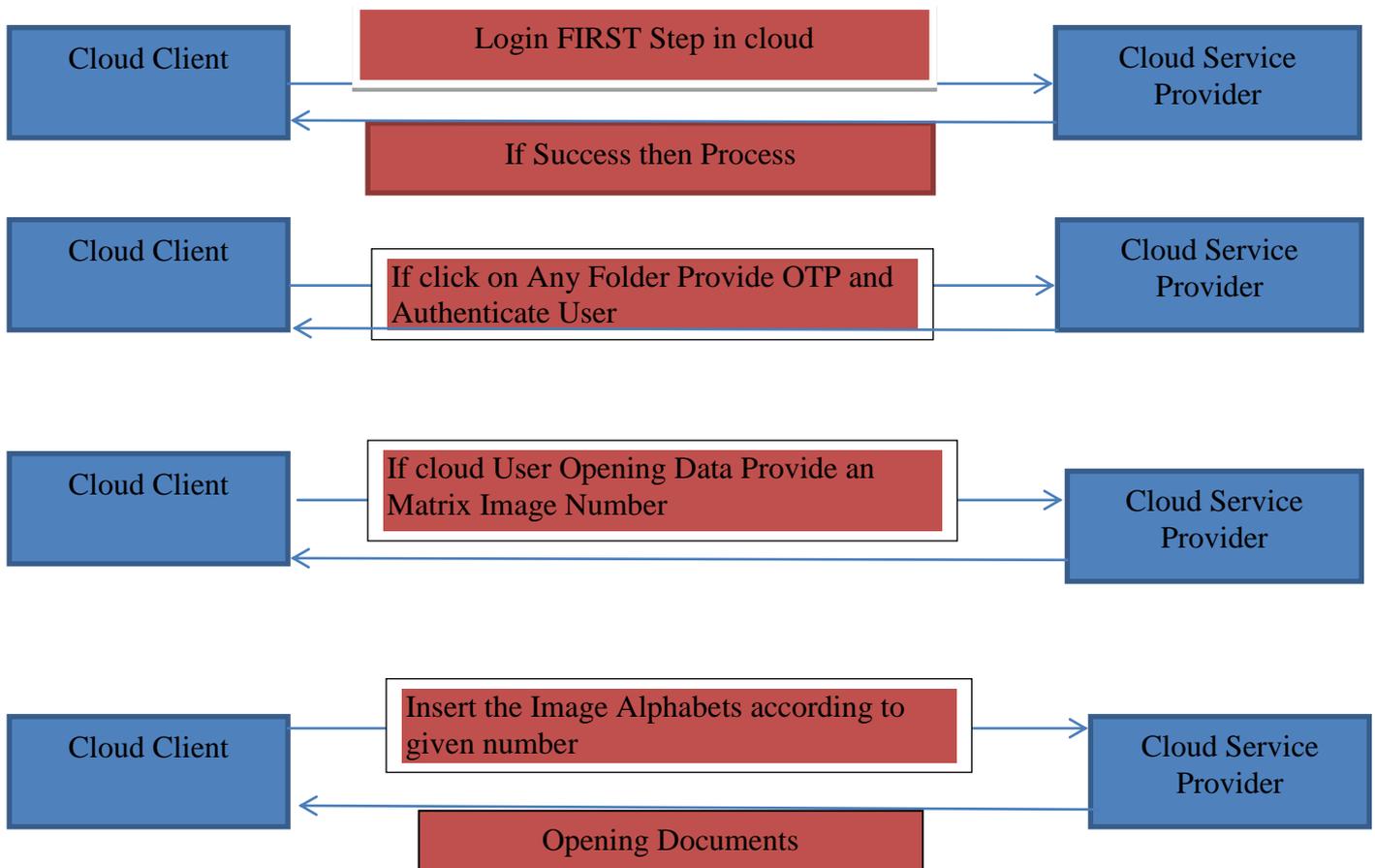


Fig. 3Processing of Proposed Model

#### IV. CONCLUSION

The main motive behind this paper to know how to resolve security issues in cloud computing. In this paper we proposed a model method to solve the security problems in cloud computing. We called it an extended approach or extended method to solve the security problem “three way authentication” or “a matrix approach”. The work in this field also pointed towards the major security issues like authentication, access control and other types of vulnerabilities. So this paper also useful for future works to give a base idea of security and have to extended the work which we are done. In future we want to develop an extended framework and a system to find out the security issues like access control etc. Now in the feature work this matrix can be make more complex as per as security requirement that can handle the security issue in the cloud computing but we are know that movies and songs are not users data file is a file that can be in

pdf or in docx format so if any one can say that it too long process to access the info then it mainly applicable only for the document data files, office files etc.

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