



INTERNATIONAL JOURNAL OF PURE AND APPLIED RESEARCH IN ENGINEERING AND TECHNOLOGY

A PATH FOR HORIZING YOUR INNOVATIVE WORK

MULTIDIMENSIONAL PASSWORD AUTHENTICATION IN CLOUD COMPUTING

RUCHA R. RAUT¹, AJAY B. GADICHA²

1. Scholar of Computer Science and Engineering Department, P.R. Pote College of Engineering Amravati, Sant Gadage Baba Amravati University, Amravati, Maharashtra, India.
2. Assistant Professor of Information Technology Department, P.R. Pote College of Engineering Amravati, Sant Gadage Baba Amravati University, Amravati, Maharashtra, India.

Accepted Date: 27/02/2014 ; Published Date: 01/05/2014

Abstract: Cloud computing is drastically growing technology which provides an on-demand software, hardware, infrastructure and data storage as services. This technology is used worldwide to have a greater improvement in the business infrastructure and performance. However, to utilize these services by intended customer, it is necessary to have strong and secure password authentication. At present, cloud password authentication can be done in several ways, such as, in text format, graphical and 2D-3D password. In this paper, we are conducting comprehensive survey of the strong password generation technique by considering multiple input parameters of cloud paradigm referred as a multidimensional password. This paper proposed the multidimensional password generation technique, its architecture, algorithms. In this paper we also proposed the probability of hacking the strong password generated by multidimensional authentication technique.

Keywords: Cloud Computing, Algorithm, Security Services In Cloud, Hacking Probability

Corresponding Author: MS. RUCHA R. RAUT



PAPER-QR CODE

Access Online On:

www.ijpret.com

How to Cite This Article:

Rucha Raut, IJPRET, 2014; Volume 2 (9): 558-564

INTRODUCTION

Cloud computing technology is an open standard and service- based, Internet centric, safe, fast and convenient data storage and network computing services ^[1] In these days each and every organization such as association, group, institute, union, business etc uses cloud computing. The benefits of cloud computing are vast. Cloud computing provides highly scalable data solutions to businesses, infrastructure less costly is reduced ^[2], location independent, cost. In cloud computing the data accessibility is increased and improved flexibility. So the security of cloud computing is decreased. Providing a security to cloud environment is a major problem. Cloud computing environment is not a place to store sensitive data. Securing a cloud is a problem giving task.. Dealing with "single cloud" providers is predicted to become less popular with customers due to risks of service availability failure and the possibility of malicious insiders in the single cloud. Computing power is the main advantage of cloud computing, achieved from relatively low-cost personal computers and servers. When you tap into the power of the cloud, you get supercomputing power at personal computer prices. Figure 1 represents how single users connect to the cloud from their own personal computers or portable devices, over the Internet. To these single users, the cloud is seen as a single application, device, or document. Operating systems and hardware are the invisible components of the cloud ^[3].



Fig1: Connection of single user to the cloud

Cloud Computing Technologies are grouped into four different services as shown in Figure 2. They are SaaS (Software as a Service), DSaaS (Data Storage as a Service), IaaS (Infrastructure as a Service) and PaaS (Platform as a Service) ^[4].

- 1) SaaS is an on-demand application service. It gives software as a service over the Internet. Removal of need of running and installing the application on the customer's own computers is done by SaaS .
- 2) PaaS is an on demand platform service to host customer application.
- 3) DSaaS is an on demand storage service.
- 4) IaaS is an on- demand infrastructure service. It delivers the computer infrastructure typically a platform virtualization environment like service, along with raw (block) storage and networking.



Fig2: Cloud computing services

2. ARCHITECTURE OF MULTI-DIMENSIONAL AUTHENTICATION SYSTEM

Data integrity is one of the most important problem related with cloud computing^[6]. The Multidimensional Authentication system generates multidimensional password in multiple levels, is a combination of Multidimensional^[7] and Multilevel Technique^[8]. Each level requires an authentication details. Based on the authenticated password, individuals can access the cloud services. There are three main areas of concern related to security and privacy of data. They are 1) location of your data 2) Control of your data 3) Secure transfer of your data^[9].

Figure 3 gives the diagrammatic representation of multidimensional authentication system. According to this technique, access to the cloud is authenticated using a multi-dimensional password. It generates the multi-dimensional password by considering the many parameter of cloud paradigm such as: vendor details, consumer details, services, privileges and etc. These parameters are typically considered as input dimension. These many dimensions (input) combined together and generate a new multidimensional password. Fig. 1 gives the representation of the architecture diagram of multidimensional authentication system. This has two different entities i) cloud service provider which provides variety of cloud services and ii) Authenticated client organization to use cloud services (Before using cloud services, company

authentication confirms with service agreement from cloud vendors). This architecture helps in checking authentication against the services and privileges. The multi-dimensional password is generated by considering many aspects and confidential inputs such as company logos, images, textual information and signatures etc. This is represented in figure 4. With the help of this technique, the probability of brute force attack for breaking the password is greatly reduced. Because of strong generation of password.

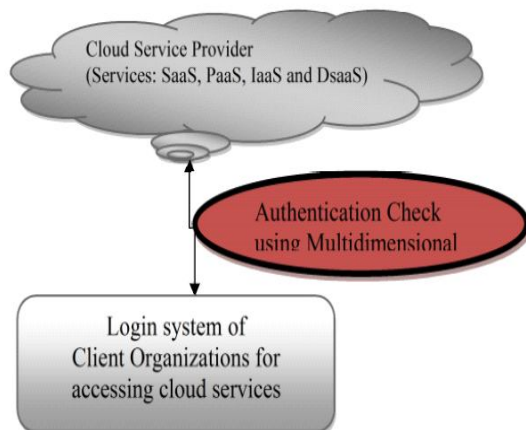


Fig3: Architecture of multi-dimensional authentication system

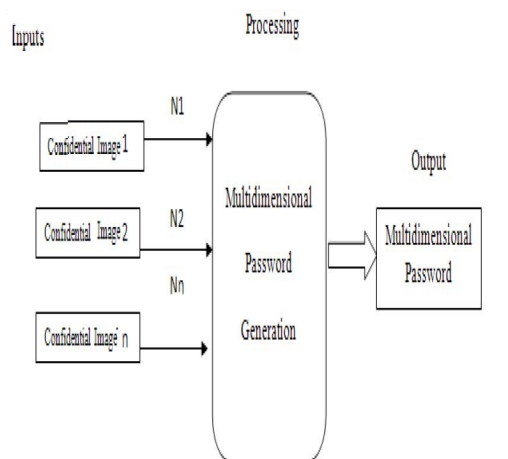


Fig4: Multi-dimensional Password generation technique

3. ALGORITHM:

Generation of Multidimensional Password

Stage 1: Give input values Give company MD name, company logo Read company signature and company Reg no Read no. Of click of mouse on image

Stage 2: Collect and grouped Images and texts (if any) separately

Stage 3: Extract image feature according to user

Stage 4: Combine image features with input texts in a pre-defined sequence

Stage 5: Send combined generated password

Stage 6: stop

4. RESULT AND DISCUSSION:

Attempts = 100	
n= Number of Input	H= Probability of Hacking
3	3.33333E-07
4	2.5E-09
5	2E-11

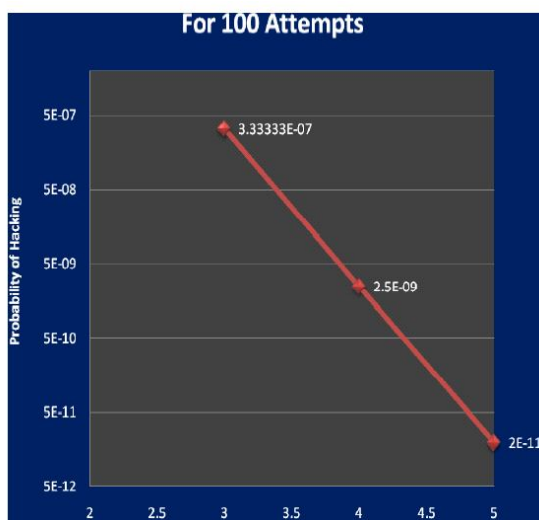


Fig5: Probability graph of Password hacking

From above graph we can concluded and give result that as the no of inputs are given to a system the probability of hacking password will be decrease because of generating strong password..

5. CONCLUSION:

Software requirement, hardware requirement, server, storage of data, infrastructure are the various internet based on demand services provided by the cloud computing To provide privacy services to the intended customer, it is a better option to use multi dimensional password generation and authentication technique. This technique helps in generating the password in a large no of dimensions of organization so that the secure transaction or any business related strategies are carried out with secure authentication as we generated a secure and strong passwords so that it can not be hacked by the hackers as the multidimensional password is difficult to hack because of its different factors and it also has different arrangement so the hacker gets confused.

6. REFERENCES:

1. Dinesha H A, Dr. V. K Agrawal, "Framework Design of Secure Cloud Transmission Protocol", IJCSI International Journal of Computer Science Issues, Vol. 10, Issue 1, No 1, January 2013, ISSN (Print): 1694- 0784 | ISSN (Online): 1694-0814,74-81.
2. Nandini Mishara, Kanchan Khushwha, Ritu Chasta, Er. Abhishek Choudhary, "Technologies of Cloud Computing – Architecture Concepts based on Security and its Challenges, International Journal of Advanced Research in Computer Engineering and Technology (IJARCET), Volume 2, Issue 3, March 2013
3. Michael Miller, "Cloud Computing, Web-Based Applications That Change the Way You Work and Collaborate Online", Pearson, Eight Impression, 2013.
4. Atif Alamri, Wasai Shadab Ansari, Mohammad Mehedi Hassan, M.Shamim Hossain, Abdulhameed Alelaiwi, M.Anwar Hossain, "A Survey on Sensor- Cloud: architecture, Applications, and Approaches, Hindawi Publishing Corporation, International Journal of Distributed Sensor Networks, Volume 2013, Article ID 917923, 18 pages, 2013
5. T. Neetha, CH. Sushma, "Security for Effective Data Storage in Multi Clouds", International Journal of Computer Applications Technology and Research, Volume 2, Issue 1, 16-17, 2013

6. Dinesha H A, Dr. V. K Agrawal, "Multi-dimensional Password Generation Technique for accessing cloud services", Special Issue on: "Cloud Computing and Web Services", International Journal on Cloud Computing: Services and Architecture (IJCCSA), Vol.2, No.3, June 2012, 31-39.
7. Dinesha H A, Dr.V.K.Agrawal, "Formal Modeling for Multi-Level Authentication in Sensor-Cloud Integration System", International Journal of Applied Information Systems (IJ AIS) – ISSN : 2249-0868, Foundation of
8. Bhavna Makhija, VinitKumar Gupta, Indrajit Rajput, "Enhanced Data Security in Cloud Computing with Third Party Auditor", International Journal of Advanced Research in Computer Science and Software Engineering, ISSN : 2277 128X, Volume 3, Issue 2, February 2013
9. Bhavna Makhija, VinitKumar Gupta, Indrajit Rajput, "Enhanced Data Security in Cloud Computing with Third Party Auditor", International Journal of Advanced Research in Computer Science and Software Engineering, ISSN : 2277 128X, Volume 3, Issue 2, February 2013
10. Farhad Ahamed, Seyed Shahrestani and Athula Ginige, "Cloud Computing: Security and Reliability Issues", IBIMA Publishing, Communications of the IBIMA, Vol.2013, Article ID 655710, 12 pages, DOI: 10.5171/2013.655710, 2013
11. A.M. Lonea, D.E.Popescu, H.Tianfield, "Detecting DDoS Attacks in Cloud Computing Environment", INT J COMPUT COMMUN, ISSN 1841-9836, 8(1):70-78, February, 2013
12. Dr. A.Padmapriya, P.Subhasri, "Cloud Computing: Security Challenges and Encryption Practices", International Journal of Advanced Research in Computer Science and Software Engineering, ISSN: 2277 128X, Volume 3, Issue 3, March 2013.