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A Review On Software Based Architecture For Cloud Computing Security

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Abstract: ***Cloud computing is the transfer of computing facilties above the Internet. Cloud amenties permits the consumers to use software and hardware that are accomplished by third parties at isolated positions. The appearances of cloud computing comprise on request self service, wide-ranging network access, resource assembling, rapid elasticity and measured provision. On request self service means that consumers can appeal and accomplish their individual computing resources. Wide-ranging network access permits amenties to be accessible above the Internet or isolated networks. Cloud amenties are general because individuals can admittance their e-mail, social networking location or snap service from everywhere in the world, at every time. There is no cost involve in it. Cloud computing has the numerous amenties, but then security is the key matter in cloud computing.***

Keywords: Cloud Computing, Security, Pattern based security, Diffie-Hellman algorithm

I. INTRODUCTION

Cloud computing is a fresh developing technology. Cloud computing is a extensive solution that distributes information technology as a amenties. [1] Cloud computing supports the changed data and applications that are cast-off on the remote servers. It permits the consumers to access the private files with the service of internet. Cloud computing customs the three formost services like: SAAS, IAAS, PAAS. To deliver these services, the service sources are castoff. The sources assistances to convey the storing and computing services thru the habit of internet access. To stock the data in cloud computing, it makes global data access probable. They can run their applications on much more influential cloud computing platforms by software positioned in the cloud which lessen the consumers burden of complete software installation and frequent upgrade on their native devices.

A. Components of Cloud Computing

Cloud computing be made up of three key components. Every element in cloud computing shows a definite role.

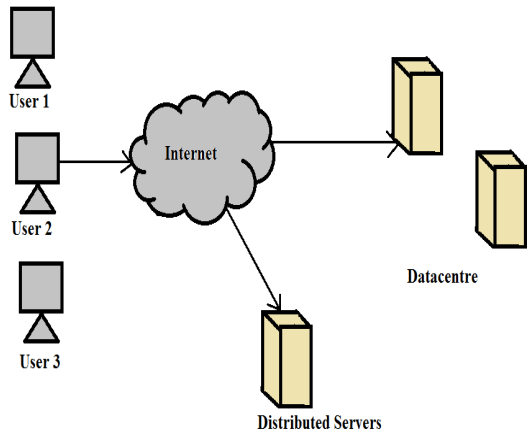

Fig 1: Cloud computing components

1) *Clients:* Clients are the first component or we can say consumers. In the cloud computing, the information is accomplished through end users. They interrelate with the clients to accomplish information linked to clouds. The clients are further organized into three classes [2]:

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a) *Mobile Client:* In nature the clients can be mobile. It contains windows mobile smart phone, like a Blackberry or I Phone.
b) *Thin:* Computation work is not done by the clients. They only used to display information. These clients don't have the core memory; the servers do all the work intended for the clients.
c) *Thick:* These clients use dissimilar browsers to connect the internet cloud. These browsers comprises internet explorer, Mozilla Firefox or Google Chrome to connect to the Internet cloud.

2) *Datacenter:* The second component is datacenter. It is a group of servers. These servers host the numerous applications. An end user links to the datacenter to contribute different applications. A datacenter is occurs at a huge distance from the clients. At present, the conception named virtualization is castoff to set up a software that permits numerous occurences of virtual server applications.
3) *Distributed Servers:* Distributed server is third component.These are the aspects of a cloud computing. These servers are existing throughout the Internet. These sever hosts the numerous applications.

B. *Aspects of cloud management systems*

The cloud management system is a grouping of software and technologies, these technologies are intended to accomplish various cloud environments. The cloud management system is caable to accomplish a pool of assorted compute resources. It offers the access to end users and it also aids to monitor security and accomplish resource allocation. The cloud management systems include frameworks intended for workflow planning and management. The cloud management system has features like, it has the capability to accomplish various platforms from a single point of reference. [3] It is capable to handle system failures routinely with abilities such as self monitoring, an open notification mechanism, and contains failover and self curing capabilities.

C. *Introduction of Diffie-Hellman algorithm*

The Diffie-Hellman algorithm hang on for its effeciency on the effort of computing discrete logarithms. We can describe the discrete logarithm in the following manner. First, we define a primitive root of a prime number *p* as one whose powers modulo *p* generate all the integers from 1 to *p* 1. That is, if *a* is a primitive root of the prime number *p*, then the numbers are distinct and consist of the integers from 1 through *p* 1 in some permutation.

$$a \bmod p,\ a^2 \bmod p,\ldots,\ a^{p1} \bmod p$$

For any integer *b* and a primitive root *a* of prime number *p*, we can find a unique exponent *I* such that

$$b \equiv a^{i} \pmod{p} \text{ where } 0 \leq i \leq (p\ 1)$$

The exponent *i* is referred to as the discrete logarithm of *b* for the base *a*, mod *p*.

II. LITERATURE SURVEY

Privacy-Preserving Public Auditing for Data Secure in Cloud Storage, Cong Wang, et.al, [2010]: In this paper, author talk over the security in cloud computing. Cloud Computing entails the architecture of IT enterprise. The cloud computing has numerous benefits in the field of information technology: on request self service, global network access, location librated resource pooling, fast resource elasticity, usage-based pricing and conversion of risk. [4] Cloud computing carries the fresh and inspiring security threats towards consumers subcontracted data. For this resolution, cloud service providers are castoff. These are the distinct administrative entities. The data perfection the great matter in cloud computing. For the cloud computing, third party assessor is castoff. It customs the two formost requirements as: the third party assessor should be capable to proffesionally audit the cloud data storage without challenging the local copy of data and the auditing process should bring in no new liabilities towards consumers data privacy. Here author talk about the public key based homomorphism authenticator. For this the random masking is castoff. It supports to attain the privacy preserving public cloud data auditing system, which come across all requirements.

The Management of Security in Cloud Computing, Sumit Goyal,[2013]: In this paper, author talk over numerous types of cloud computing. Cloud computing is ultimately of four types: public cloud, private cloud and hybrid cloud, community cloud. Cloud computing is a distributed computer system, it concentrates on **providing** a great range of consumers with distributed access to

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scalable and virtualized infrastructure above the internet. Cloud computing mentions to both the applications distributed as services above the Internet and the hardware and systems software in the datacenters that deliver those services.

How to Manage Information Security in Cloud Computing, Jen-Sheng Wang, et.al,[2011]: In this paper, author talks over the numerous methods and procedures which supports in handling the security of cloud computing. The information security is serious matter in the age of Internet. [10] The information is appreciated and vital. The cloud computing has made information security handeling a most important and serious matter. The information security in cloud computing requires several influences. In this paper, the significant Success issues are castoff. These issues contains many aspects as: external dimension, internal dimension, technology dimension, and execution dimension. These issues are castoff to purpose a fresh scheme, which is castoff to overwhwlmed the several difficulties in cloud computing that are associated to the security.

To Enhance Multimedia Security in Cloud Computing Environment using Crossbreed Algorithm, Sonal Guleria, Dr. Sonia Vatta, [2013]: In this paper, author describes that the Cloud computing is developing field because of its presentation, great obtainability, minimum cost and many others. In cloud computing, the data will be kept in storage provided by service providers**.** Cloud computing offers a computer consumer access to Information Technology (IT) services which comprises applications, servers, data storage, without requiring an understanding of the technology. An equivelance to an electricity computing grid is to be convenient for cloud computing. To allowing suitable and on-demand network access to a common pool of configurable computing resources are castoff for as a model of cloud computing.[5] Cloud computing can be stated as a grouping of Software-as-a-Service which denotes to a service delivery model to enabling castoff for business services of software interface and can be shared by producing fresh business services distributed using flexible networks and Platform as a Service in which Cloud systems contribution an additional construct level which delivering a virtualized infrastructure that can provide the software platform where systems should be run on and Infrastructure as a Service which Providers accomplish a large set of computing resources which is castoff for loading and handeling capacity. But still various business companies are not keen to accept cloud computing technology due to absence of appropriate security control policy and dimness in safeguard which lead to several susceptibility in cloud computing. This paper has been written to attention on the problematic odata security. To confirm the security of consumers' data in the cloud, we recommend an actual and flexible scheme with two dissimilar algorithms .A consumer can access cloud services as a convenience service and initiate to use them almost immediately. These features that create cloud computing so flexible with the detail that services are reachable everywhere every time lead to more than a few possible risks. The significant concentrating of this research work is to explore the current security schemes and to make sure data confidentiality, integrity and authentication.

Efficient and Enhanced Algorithm in Cloud Computing, Tejinder Sharma, et.al, [2013]: In this paper, author discuss about the cloud computing. As, the computer networks are still in their initial stages, but they evolve and develop sophisticated. Cloud computing is developing as a original paradigm of large scale dispersed computing. It has stimulated computing and data away from desktop and portable PCs, into large data centers. It has the capability to connect the power of Internet and wide range area network to custom resources that are obtainable remotely.[7] There are numerous security issues in the cloud computing. In this paper, author discuss about the number of scheduling problems. One of the inspiring scheduling problems in Cloud datacenters is to take the allocation and immigration of reconfigurable virtual machines into deliberation as well as the united features of introducing physical machines. In order to select the virtual nodes for performing the task, Load balancing is a procedure to allocate workload through manifold computers. The key objective of this paper to propose efficient and improved scheduling algorithm that can preserve the load balancing and provides better upgraded strategies through effectual job scheduling and reformed resource allocation techniques.

Pengfei Dai et.al, [2012]: in this paper author discuss about the importance of software watermark based architecture in cloud computing for its security needs. As it has now emerged as a resource sharing platform for different service providers. One must provide necessary security protection against the threats of critical data processing and e-business, a software watermark enhanced platform should be proposed to run the platform. Cloud computing also introduces significant security concerns. In this paper author proposed an architecture which employs software watermarking method to reduce the threats for security risks. In this architecture RAWS is designed to choose the proper watermarking algorithms based on the user's requirements and the JVM is customized to verify the validity of that software in the cloud. Experiments shows that the architecture is feasible for low performance slowdown. Software watermark architecture also protect more software applications such as java programs, c-c++, python etc. in the cloud.[9]

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Enhancing Data Security in Cloud Computing Using 3D Framework & Digital Signature with Encryption, Pradeep Bhosale et.al, [2012]: In this paper, author discuss that present world depend on cloud computing to store their public as well as some private information which is desirable by the consumer itself or some other persons. Cloud service is one service obtainable to its consumers by cloud. As cloud computing comes in service there are some difficulties such as privacy of consumer's data, security of consumer's data are very significant aspects. In this paper author discuss about the enrichment of data security. Not only this makes investigators to make some modifications in the current cloud structure, discover innovative model cloud computing and much more but also there are some extensible features of cloud computing that make him a super power.[8] To enhance the data security in cloud computing castoff the 3 dimensional framework and digital signature with RSA Encryption algorithm. In 3 Dimensional frameworks, at client side user choice the parameters reactively among CIA (Confidentiality, Integrity & Availability) and already actual storing the data in cloud a digital signature is formed by MD 5 Algorithm and then RSA Encryption algorithm is applied then it stored on cloud.

Ensuring Data Storage Security through: A Novel Third Party Auditor Scheme in Cloud Computing, Shuai Han, et.al, [2011]: In this paper, author usages a third party auditor scheme. Cloud computing technology turns as following generation architecture of IT solution. It allows the consumers to transfer their data and application software to the network which is unlike from traditional solutions. [6] Cloud computing offers the various IT services, due to which it comprises numerous security tasks. The data storage security is the great issue in cloud computing. In this paper, author purpose a fresh scheme named third party auditor. It helps in providing the trustful authentication to consumer.

III. CONCLUSION

In a shared pool outside the enterprise, you do not have any knowledge or control of where the resources run. Storage services provided by one cloud vendor may be unable to get along with another vendor services. Data integrity is guarantee that the data is reliable and accurate. Confirming the integrity of the data really means that it changes only in reaction to approved transactions. The cloud service provider for cloud assured that the customer does not face any difficulty such as loss of data or data theft. There is also a possibility where a mischievous user can enter the cloud by imitating a authentic user, there by infecting the complete cloud.

In another case , the Diffie-Hellman algorithm is cast-off with the AES. The AES is very large in size. Hence the complication of the system is enlarged. To reduce the system complexity, we integrate the diffie Hellman algorithm with pattern based password. It helps to make the cloud computer more efficient than the current one. The diffie Hellman algorithm is castoff to provide the security to the system and it also helps in the management of the information.

As we know that security is a most important mtter in cloud computing because data is stored of some far location from user so number of attacks is possible on cloud computing like:

A. Denial of Service (DoS) attacks
B. Cloud Malware Injection Attack
C. Authentication Attacks
D. Man In The Middle Cryptographic Attacks
E. We are going to use two way security on cloud computing.
F. Here pattern base password provides security from authentication attacks at user end.

To avoid these attacks currently proposed schema which is based on diffie Hellman and pattern based security. It works like in initial stage is shows us a simple authentication with user name and password then after it will show pattern based password. Now there is a pattern in user's mind and he will fill password according to that pattern and that we are going to use diffie Hellman to encrypt data.

To enhance security is based on the integration of authentication, image sequencing password and Diffie-Hellman algorithm. As we know that the data is stored on far location in the cloud computing so we need high security and processing speed to make it confidential. To enhancement of security and performance of cloud computing during network attacks. Cloud needs a high

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performance as well as security because the data on cloud is stored at some far place. A novel approach is built by the integration of authentication, pattern password and Diffie-Hellman algorithm. The pattern password is dynamic in its nature, means it will change every time. It's integrated with Diffie-Hellman for encryption of data. Experiment is done in NetBeans using cloud-sim simulator and results are shown in above section.

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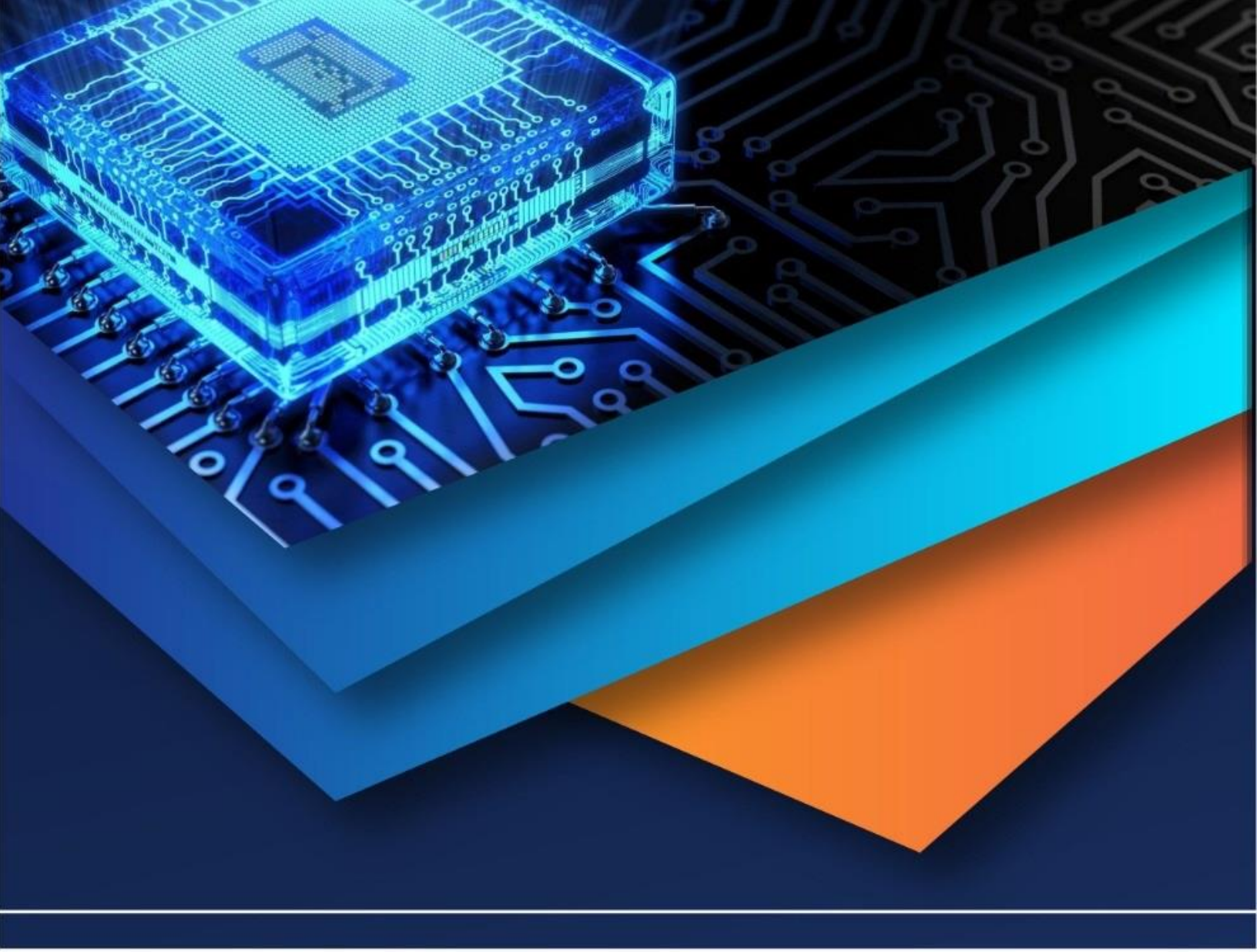

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