

## SECURITY OF CLOUD COMPUTING USING CRYPTOGRAPHIC MECHANISM: A REVIEW

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### Abstract

Cloud services are offering flexible & scalable services. But there is always issue of security. When data is transferred from centrally located server storage to different cloud compromise of person & private data would increase. There is always risk to confidentiality & availability of data prior to selecting a cloud vender or choosing own cloud & cloud service migration. Cloud services usually have their security concerns that must be addressed. In this paper we have discussed threats to cloud service & data in case of conventional security system & modern security system & proposed an idea to secure data on cloud using multiple layers of security.

**Keyword:**-Cloud Computing, Server, Cloud Model

### [1] Cloud Computing

Cloud may be network or internet&it is something that is available at remote place. It provides services over network that are public&private. They are used in wide area network, local area network or virtual private network. Several application like email&web based conferencing executes on cloud.

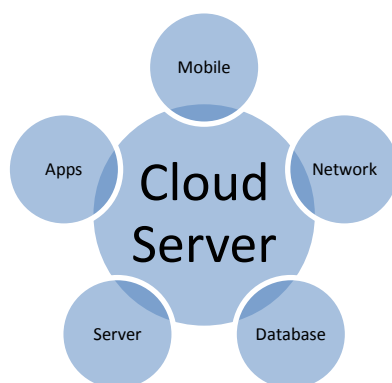


Fig 1 Cloud sever

Platform independency is offered by cloud computing because there is no need to install software on personal computer. So we can say that our business applications are mobile&collaborative due to cloud computing.

There are several services that are making cloud computing more feasible&easily accessible tousers.

Cloud computing is providing number of advantages but there are several risks associated with this technology.

### [2] Cloud Server model

Type of access to cloud has been defined by Deployment model. There are four types of accessibility in cloud that are public access, private access, Hybrid access&Community access.

### **Public Cloud**

Access to general public is allowed by public cloud. Due to openness public cloud is less secure

### **Private Cloud**

Due to its private nature private cloud is considered more safe&secure.

### **Community Cloud**

Accessibility to a particular group is allowed by community cloud.

### **Hybrid Cloud**

A Hybrid Cloud could be considered as combination of public cloud&private cloud where private cloud does critical tasks&public cloud does non-critical tasks.

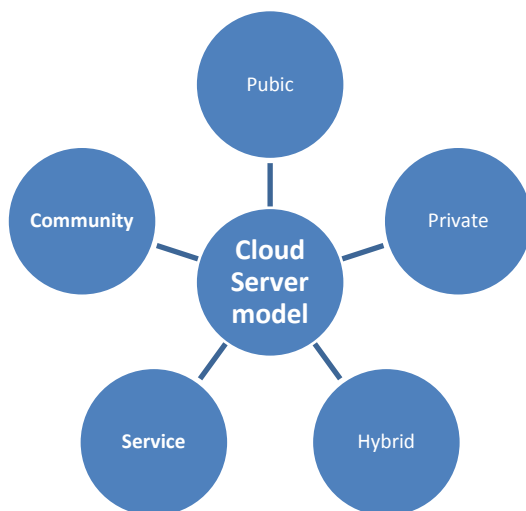


Fig 2 Cloud Server model

### **Service Models**

There are three service models in cloud computing. First is Infrastructure as a Service, Second one is Platform as a Service&last one is Software as a Service.

### **[3] Literature Review**

#### **Saju Mathew (2012) Implementation of Cloud Computing in Education**

Author has explain main object to identifyspecial of cloud computing which can be considered as a latestdawn tohigher education&hasfull potential to make a revolution infield of education.

#### **Security Threats in Cloud Computing Environments byKangchan Lee**

Model of Cloud computing for enabling service clientever present, convenient&on-demand network to a shared pool of configurable computing resources. The security for Cloud Computing is emerging area for study&this paper provide security topic in terms of cloud computing based on analysis of Cloud Security treats&Technical Components of Cloud Computing.

#### **Mladen A. Vouk (2014) Cloud Computing Issues, Research&Implementations Cloud**

Computing relativelyrecent term, builds on decades of research invirtualization, distributed computing, utilitycomputing,&more recently networking, web&software services. It explain a service architecture, cheap informationtechnology overhead forend-user, greatelasticity, reduced total cost of ownership, on demandservices&many other things.

### **Raj Kumar (2015) Research on Cloud Computing Security Threats using Data Transmission**

Computer Science&Software Engineering Cloud computing is set of resources&services offered throughInternet. Cloud services model should delivered from security data centers located throughoutworld. Cloud computing facilitates its consumers by providing virtual resources via internet. General example of cloud services is Google apps, provided by Google&Microsoft SharePoint. The rapid growth in field of “cloud computing” also increases severe security concerns.

#### **[4] Advantages of cloud computing**

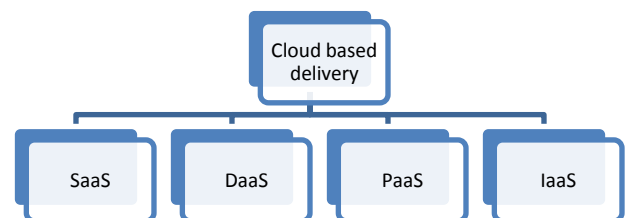
Cloud computing provides several benefits&they are listed below

1. User on internet could access remote applications in form of utilities.
2. User at any time can change&configureapplication online
3. Online development tools are offered by cloud computing.
4. Online deployment tools are provided by cloud computing.
5. Clients are provided platform independent access of cloud resources that are available on internet.
6. On-demand self services are offered by cloud computing&there is no need of interaction with cloud service provider.
7. Cloud computing operates at high efficiency&it does optimum utilization so it is highly cost effective.

8. Load Balancing feature of cloud computing represent that it is more reliable.

#### **Need of Cloud Computing**

1. Its provides 24x7 Support
2. Cloud computing pay as we use
3. It has lower Total Cost of owner ship
4. Cloud computing provides Reliability, scalability, sustainability.
5. It provides Secure Storage Management Expenditure.
6. It is capable to Free up Internal Resources.
7. Such systems are Highly Automated.
8. These Systems are Utility Based.
9. It allows Easy & Agile Deployments.
10. Such systems are Device & Location Independent.



**Fig 3 Cloud Based Delivery**

#### **[5 ] Security issues in Cloud computing**

Third party provides data&infrastructure management in cloud computing sosecurity of cloud is biggest concern. There is a risk in providingsensitive data to cloud service provider. Any security breach could result in customer or business loss so venders provide protection toaccounts.



Fig 4 Data Security on cloud

Customer cannot switch from one cloud service provider to another quickly so he is dependent on cloud service provider for service. Customer management interface is usually accessible on network in case of various public cloud service providers.

Data security must be considered in cloud because data is frequently transferred over Internet. The basic mechanisms to protect data over cloud are data auditing, data access control, data authentication&data authorization.

**[6] Cryptography**

Cryptography is process of hiding plan data or information in form of cipher text. It is process used to keep information safe&hidden. Modern Cryptography is combination of computer science, mathematics&electrical engineering.

It is used in computer passwords&ATM Cards&e-commerce sites.

During data transmission data is encrypted before data is transferred.

The encrypted data is known as cipher text. This modification makes data non readable. To understand this data user have to decrypt data. Cryptanalysis is process of

studying cipher text in order to find hidden data.

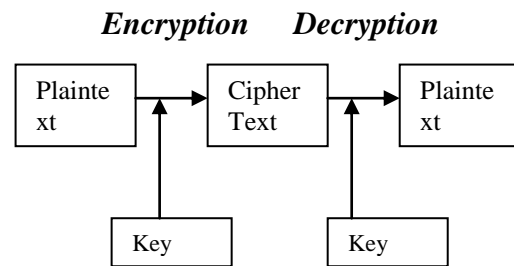


Fig 5 Encryption&Decryption process

**[7] Future Scope**

Cloud has provided flexible&scalable services. But there would issue of security due to data transfer from one cloud server storage to another cloud. This research would reducerisk to confidentiality&availability of data prior to selecting a cloud vender or choosing own cloud. The security concerns of cloud services have been addressed in our research. In this research we would provide modern security system&proposed an idea to secure data on cloud using multiple layers of security.

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