# IMPLEMENTATION OF SECURITY ISSUES IN CLOUD COMPUTING AND RESEARCH CHALLENGES IN CLOUD COMPUTING

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**Abstract**

Cloud computing is information that grants access to the services anywhere, anytime and paying for the services that are being used. This permits cloud users to apply the data and purpose, if needed somewhere but must have admittance to the internet. The main task to be handled is the examines arriving at the server for service. It is compulsory to switch all services by doing suitable scheduling mechanism so as to offer they service in well maintained manner. Better Quality of Service has to be provided to all clients. This strategy is used to schedule multiple users' services which start at any time and the QoS requirements are major consideration. Two scheduling algorithms i.e. First Come First Serve and Round Robin scheduling algorithms have been executed. Experiments have been done to timetable services of fixed length as well as variable length. In both the cases this has been proved that First Come First Serve shows less average waiting time as compared to Round Robin Scheduling. The main important phases of character recognition include pre-processing, segmentation, feature extraction and classification. Diverse feature extraction techniques and organization techniques have been surveyed in this paper.

**Keywords**: Cloud computing, Experiments, mechanism, Round Robin scheduling

**Introduction**: Cloud computing is utility based computing as it presents right of entry to the services on exact and then one has to pay for the service that is being used. The main concept of cloud to be introduced was to circumvent overutilization and underutilization of resources**.** It will allow cloud users to use the data and application, if needed anywhere but must have access to the internet.

Maintenance of quality of service is the main issue

as all cloud customers are to be satisfied and one has

Quality of service is principally concerned with the scheduling technique that has to be used on the cloud so that the services approaching the cloud should be satisfied with the least waiting time and providing them better response time.

Cloud computing is recognized as a alternating to traditional in order information due to its intrinsic resource-sharing and low-maintenance characteristics. In the cloud computing the cloud service suppliers supply miscellaneous types of services such as Infrastructure, data storage etc. There have been many attempts to recognize cloud computing and illustrate the security issues involved with such technologies. It also poses an important risk to the confidentiality of those stored files. Specifically, the cloud servers supervised by cloud suppliers are not fully trusted by users while the data files stored in the cloud might be sensitive and confidential, such as business plans.

**Characteristics of cloud computing**

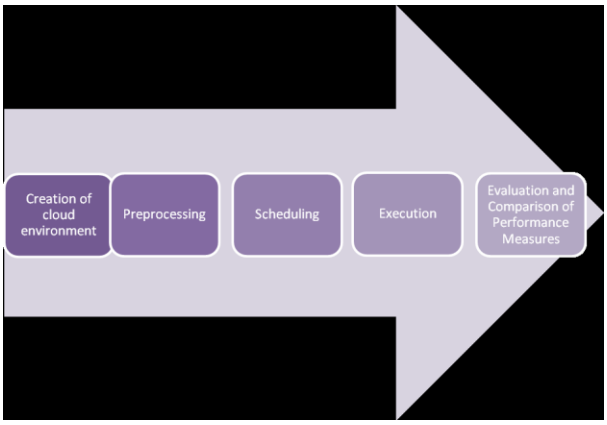
1. On demand self-service – computer services like the e-mails, applications, or server examine can be provided lacking requiring human communication with each service provider. 2. Broad system access – Cloud Capabilities are obtainable over the system and accessed through typical mechanisms that promote use by heterogeneous thin or thick client platforms. 3. Resource pooling – In cloud computing the provider's in the computing resources where pooled together to serve multiple customers using multiple-tenant model, with unusual physical and virtual resources which are dynamically assigned and reassigned according to consumers demand. The resources encompass among others storage, processing, memory, virtual machines and the email services. Pooling altogether of the resource builds economies of measure. 4. Rapid elasticity – the Cloud services can be expeditiously and flexible provisioned, in some cases automatically, to immediately scale out and rapidly released to immediately scale in. To the client, the capabilities existing for formularization often appear to be unbounded and can be purchased in any amount at any time. 5. Measured service – the Cloud computing resource usage can be controlled, measure and reported by providing transparency for both the provider and the consumer of the utilized service. Cloud computing services can use a metering capability which enables to manage and optimize the resource. This may implies that just like electricity or municipality water IT services are charged as pay per use. The more you utilize the higher will be the bill. 6. Multi Tenacity - it is the $6^{th}$ characteristics of cloud computing advocated by the Cloud Security intimacy.

**Conception of cloud computing:** cloud computing knowledge is one of the majority concerned new computer technologies, often referred to as "cloud"[5]. It is a interactions of on-demand freedom resources and allege by using. It makes the objective of computing services clearer, at the same time promoting high efficiency and low cost of such services. Its openness has attracted more developers and researchers, and recognized by the market. Firstly, we recognize cloud forensics as a cross-discipline among cloud computing and digital forensics. Cloud computing has five essential characteristics, on-demand self-service, broad system entrance, supply pooling, rapid elasticity and measured service.

**Proposed Procedure**

The major purpose of improving Quality of examine is that clients arriving at cloud should be provided with least waiting time. So cloud surroundings have been created and scheduling of clients according to both approaches *i.e.* FCFS and Round Robin scheduling algorithm has been done. Time full during execution has been taken into consideration and assessment of both scheduling criterion has to be done. The approach we are following to pursue that process is shown below:




**Creation of Cloud Environment:** The Cloud surroundings have been created by creating servers and clients. Server supplies the check of sorting. Different measures are taken into consideration when server is being called. Servers are created to serve the need of clients so as soon as demand from client side approaches at the server, it creates performing sorting. Time taken by server to fulfill the need of clients is recorded.

**Preprocessing Method:** When there arises want of sorting, pre-processor is the first section to be called in. At the time of pre-processing values are created by clients that are to be sorted. Tasks are created from client side which need sorting. After the pre-processing there comes the need of scheduling that which type of scheduling algorithm is implemented on it. Every time when one of the client is being served then there comes the turn of pre-processor to check if added services are there and if yes, then array of that much values is created which are to be sorted.

**Scheduling Method:** In this there are two scheduling algorithm have been executed to assess different measuring parameters. First Come First Serve and Round Robin scheduling algorithm are used in our computing environment to measure dissimilarity in the parameters. FCFS algorithm provides the service to the clients in the position in which they arrive. Round Robin algorithm provides time quantum to each clients which arrive at the servers.

**Execution Task:** Scheduling algorithm being chosen is implemented so as to estimate its constraints that how they are executed by two dissimilar algorithms. Based on the algorithm being used its execution is done. When there arises the need of a diverse client after execution of one, then again there is turn of pre-processor to start its working. This process repeats until all of them have been served.

**Evaluation and Comparison of Performance Measures:** Waiting time, Arrival time, Burst time of every procedure is evaluated on the basis of their arrival time in cloud environment.

Cloud computing is a way to supplement the capability or add capabilities dynamically devoid of investing in new infrastructure, training new personnel, or licensing new software. It extends in series technology's existing capabilities. A new model targeting at improving features of an existing model have to not risk or threaten other significant features of the current model.

**Parameters For Analysis**

There are definite inherent requirements that have to be met by any Security protocol developed for the cloud computing. We present these parameters below:

**Access control:** The requirement of admittance manages is twofold. First, group members are clever to use the cloud resource for data operations. Second, unauthorized users cannot right to use the cloud resource at any time, and revoked users will be incapable of using the cloud again once they are revoked.

**Data confidentiality:** Data confidentiality requires that unauthorized users including the cloud are unable of learning the content of the stored data. A significant and challenging subject for data confidentiality is to preserve its availability for dynamic groups. Specifically, new users should decrypt the data stored in the cloud before their participation, and revoked users are unable to decrypt the data moved into the cloud after the revocation.

**Anonymity and traceability**: Anonymity guarantees that group members can admittance the cloud without revealing the real identity. Although anonymity symbolizes an effective defense for user identity, it also poses a potential inside attack risk to the system. For example, an inside attacker may store and share a mendacious information to derive substantial benefit. Thus, to tackle the inside attack, the group manager should have the capacity to reveal the real identities of data owners.

**Efficiency**: Any group associate can accrue and split data files with others in the group by the cloud. User revocation can be achieved without involving the remaining users. That is, the remaining users do not need to notify their private keys or re-encryption operations. New granted users can learn all the satisfied data files stored before his participation without contacting with the data owner.

**Analysis**

In this section we will analyses the dissimilar protocols that have been developed for Security touching the parameters discussed in the previous section.

**Access Control**: To access the cloud, a user involves computing a group signature for his/her authentication. The employed cluster signature scheme can be regarded as a variant of the short group signature, which inherits the inherent enforceability property, anonymous authentication, and tracking capability.

For achieving the access control, we use the notion of Dynamic Broadcast Encryption. An essential property very much desired in broadcast encryption is that the group should be dynamic in the sense that the group manager can invite new members to join or permanently revoke undesired members in a very efficient way. Although long term revocation necessarily implies a modification of the keys, there is no such theoretical requirement when a new member joins the group. In this respect, we say that a broadcast system is dynamic when

The arrangement setup as well as the cipher text size is completely self-determining from the expected number of users or an upper bound thereof,

A new user can link anytime without implying a modification of preexisting user decryption keys

A dynamic broadcast encryption organization involves two authorities: a group executive and a broadcaster. The group manager grants new members access to the group by providing to each new member a public label labi and a decryption key dki. The generation of (labi, dki) is performed using a secret manager key mk.

**Advantages of Cloud Computing**

1. **Accommodation -** You can influence your information anywhere you can also meet to the Internet.

2. **Security -** Most companies use industrial level protection software which makes it harder for hackers to get at your in sequence.

3. **Backups -** You have a backup of your material in case your local computer crashes.

4. **Collaboration -** With your permission, others can approach, view, and modify your documents.

5. **Environmentally friendly -** It takes fewer resources to cloud, thus excepting energy. Some dealing takes it a step further and incorporate cloud computing into their telecommuting strategies.

6. **Easy Approach to data -** Once you register yourself in the cloud, you can accessible the data's and information's.

7. **Fast Deployment -** it gives you the advantage of fast deployment. Once you operate for this method of functioning, your whole channel can be fully dynamic in a minutes the amount of time taken here

Will depend on the exact kind of technology that you need for your business.

8. **Availability**- we can Access the information anytime and where ever we want. The Internet cloud infrastructure maximizes enterprise productivity and

Efficiency by ensuring your application is always acquirable. This permits for simple complicity and communion among users in multiple locations.

9. **Flexibility for development** - The cloud is easily scalable so companies can add or subtract resources based on their needs. As companies develop, their system will develop with them.

10**. Efficient improvement** - Cloud computing delivers faster and more accurate retrievals of demand and data. With certain time, it is the most achieved development plan.

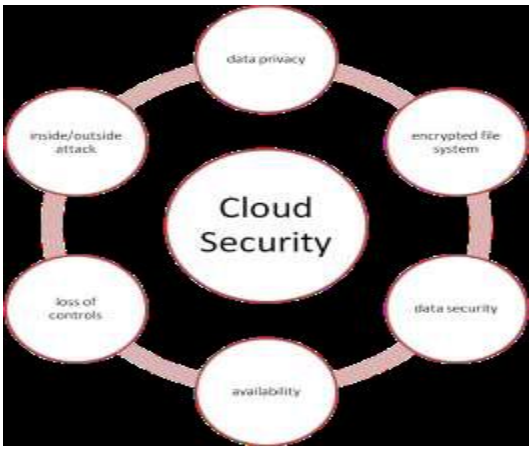
**Issues and Challenges**

Cloud computing has been widely accepted by the industry, but the cloud computing research is quite at the early stage. Numerous irreducible issues are not been fully addressed, while new challenges keep emerging from trade applications. Here we will now summarize several of the challenging research issues in cloud computing.

In the cloud protection is an evolutionary sub division of domain of workstation security network and, more considerably, information security. It conclude to a huge set of, techniques, and controls deployed to secure data, applications, and the associative infrastructure of cloud computing

**Security and privacy**

It is understandable that the protection issue play the significant role in hindering Cloud computing acceptance. There are numerous security threats which comes from inside or outside of cloud providers/consumers atmosphere which has classified into the outsider threats, and the insider adverse attacks, data loss, issues concerned to multi-tenancy, loss of control, service break-down. In a cloud environment the security features has to take possession to defend cloud illusory infrastructure. presentation and Availability, outside attacks, inimical Insiders, Loss of Control, Service Disintegration and Multi-tenancy are the attacks that have to be mainly addressed. The adventitious venture is possessed by a variety of persons and institutions.




Security issues like the phishing, data loss pose severe threats to organization's data and software, the joint computing and the multi-tenancy sculpt resources in cloud computing has deputize new security challenges that require novel techniques to deal with. For ex, hackers can use Cloud to manage bonnet as Cloud frequently provides more authentic communications services at a relatively cheaper price for them to create an attack. Cloud clients' data stores in data centers that cloud providers diffuse all over the globe within hundreds of servers that correspond through the Internet have several well-known potential risks within them. since cloud services are using the Internet as their communication infrastructure, cloud computing involves numerous kinds of security risks.

**Resource availability and reliability**

Reliability indicates how often resources are existing without dislocate and how often they fail. Reliability stays a confront for cloud overhaul providers everywhere Cloud providers still lack round-the-clock service. It is significant to observe the service being provided using internal or third-function device. It is necessary to have plans to handle manipulation, presentation, and business dependency of these services. The significant chapter that form solid difficulty for the reliability of cloud computing is down time. One way to achieve reliability is dispensable resource utilization. Availability can be unstated as the possibility of obtaining the resources whenever they are needed with the consideration to the time it takes for these resources to be supplied. Regardless of assigning planning having property for high reliability and accessibility, the services in the cloud computing can knowledge denial of favor rush, stuff outages and natural accident.

**Interoperability and portability**

Interoperability is the aptitude to use the similar tools or submission there on various cloud service providers programs. A possible solution to the resources availability trouble is the use of multiple clouds to ensure the required quantity of resources. Portability and interoperability both are relate to the facility to build networks from re-usable components. Portability and interoperability of communications components are achieved by hardware and virtualization architectures. The major types of cloud computing portability to are application portability, platform portability and data portability. These are the portability in that arrange of submission platform and data factors. Cloud users must have the flexibility of migrating in and out and switching to clouds whenever they fancy without no vendor lock-in time. The cause for the current bad portability and limited interoperability between clouds is the lack of standardized API's.

**Performance**

Presentation is the second major issue in cloud environment. The cloud provides enhanced presentation when a user moves to cloud computing messages. Performance is commonly on reason by capabilities of applications working on the cloud system. Imperfect presentation and non-availability of in order to an end user means the same as the services required are not in working order. Highlighted some factors in control of bad performance in cloud computing atmosphere. These include: limited bandwidth, disk space, memory CPU cycles, web connection and the majority forcefully delay which reduces the end to-end reaction time. Many times users prefer to use services from more than one cloud where some applications are located on private clouds while some other facts or implementation being on public or system cloud.

**Virtualization**

It is a method, which allows sharing single physical example of an application or resource among multiple organizations or tenants (customers). It does so by assigning a logical name to a physical Resource and providing a pointer to that physical resource when demand. In computing, virtualization denotes to create a virtual version of a device or source, like the storage devices, server system or even an operating system where the framework holes the resource into one or more presentation environments. Operating system virtualization is the use of software to allow a piece of hardware to run multiple operating system images at the same time. Virtualization software was adopted faster than anyone imagined, including the experts. In the field of IT there were three areas where the virtualization is making, system virtualization, storage virtualization, head roads and server virtualization. It can be part of an overall trend in enterprise IT that includes autonomic enumerating, a circumstances in which the IT conditions will be able to manage itself based on perceived profession, and benefit computing, in which computer processing power is seen as a efficacy that clients can pay for only as needed. Virtualization makes communications organization more compounds, and huge automation is required in organization to support the key aspects such as mechanization, on-demand and flexibility necessity.

**Conclusion**

Cloud computing is a representation, where dissimilar tests and issues are there like the solitude, security, virtualization, bandwidth cost, resource availability, performance, portability etc. Cloud computing be able to be seen as being a new phenomenon which can be set to revolutionize just how we search online, there is certainly much for being careful of. There are different technologies emerging at a express rate, every with technological advancements and with the potential of creating human's lives easier. So, one should require to identify about the security risks and challenges that are posed in utilizing.cloud computing technologies. Cloud computing is not any exception. Cloud examine providers must notify their potential customers for the level of security that they can provide on their cloud.

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