

QUALITY OF SERVICES IN CLOUD COLLABORATION

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CERTIFICATE

This is to certify that thesis report entitled “**Quality of Services in Cloud Collaboration**”, submitted by **Tanuja Kumari Sharma** in partial fulfillment for the award of degree of Master of Technology in Computer Science & Engineering to Jaypee University of Information Technology, Waknaghat, Solan has been made under my supervision.

This work has not been submitted partially or fully to any other University or Institute for the award of this or any other degree or diploma.

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Name of student- Tanuja Kumari Sharma

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Signature

TABLE OF CONTENT

CHAPTER-1

1 Introduction.....	2
1.1 What is cloud.....	3
1.2 Definition of cloud collaboration	4
1.3 Real time application of cloud collaboration.....	4
1.4 Architecture of cloud collaboration.....	4
1.4.1 Three important interface in cloud collaboration.....	
1.5 Quality of services in cloud collaboration.....	6-8
1.5.1 Quality of services factors.....	8
1.6 Characteristics of cloud collaboration.....	9-10
1.6.1 Robustness.....	9
1.6.2 Scalability.....	9
1.6.3 Integrity.....	9
1.6.4 Security.....	9
1.6.5 Flexibility in services	9
1.6.7 Independent activity.....	10
1.6.8 Adoption of standard.....	10
1.6.9 Availability of resources.....	10
1.7 Difference between cloud complexity and cloud collaboration.....	10
1.7.1 Cloud computing.....	10
1.7.2 Description of cloud computing layers	11
1.7.3 Various classes of cloud collaboration challenges.....	12
1.7.4 Attributes of cloud service.....	13
1.8 Problem context.....	14

CHAPTER – 2

2.1 Literature survey.....	15-24
----------------------------	-------

CHAPTER – 3

3.1 Problem Description.....	25
3.2 Problem statement.....	26
3.3 Identification of important research gap based on previous point.....	26
3.3.1Representation of single user editing conflicts	27
3.3.2 Sharing of objects in cloud collaboration.....	28
3.3.3 Concurrent revision problem.....	29
3.3.4 Lock mechanism deployment base on single user editor system.....	29
3.4 Drawbacks of lock mechanism	30
3.5 Problem context of cloud collaboration.....	30

CHAPTER – 4

4.1 Proposed solution.....	31
4.2 Description of proposed solution.....	31
4.2.1 Important interfaces of cloud collaboration.....	32
4.2.2 State transition diagram of an objects states	33
4.2.3 Multi-version techniques deployment on objects.....	34
4.2.4 Importance of multi-version in cloud for objects.....	34
4.3 Deployment of multi-version technique on a document	34
4.3.1 Need of multi-version in single editing system.....	34
4.3.2 Implementation of multi-version technique on objects.....	35
4.3.3 Multi-version deployment on a object.....	36
4.3.4 Advantage of content filtering approach.....	37
4.4 Implementation of content based filtering approach.....	38
4.4.1Advantage of content filtering	38
4.4.2 Representation of content filtering approach.....	39

4.4.3 Testing phase in document editing process of cloud collaboration.....	39
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CHAPTER -5

Methodology

CHAPTER-6

6.1 Implementations and experiment.....	41-43
6.1.1 Starting window of net bean tool.....	44
6.1.2 Project creation in net bean.....	44-46
6.2 Importance of java language.....	47
6.2.1 Important features of java.....	47
6.3 Java important integrated programming domain.....	48
6.4 Relational operation of java.....	49
6.4.1 Reading of data from the buffer.....	49
6.4.2 Client and server domain reading of data through socket.....	49
6.4.3 Write data to socket.....	50
6.4.4 Writing process reverse of reading process of socket.....	50
6.5Types of integer application in java.....	51
6.6 RMI remote method invocation.....	52
6.6 Remote method invocation.....	52
6.7 Implementation of remote services.....	53
6.8 Programming concept of remote interface.....	54
6.9 What is servlet.....	54

CHAPTER – 7

7.1 Experiments and results.....55 - 69

CHAPTER -8

8 Conclusion.....70

9 Future scope.....71

9 References72- 74

LIST OF FIGURES

Sr. no	Title	Page no.
1.a	Components of cloud architecture	3
1.b	Cloud architecture	5
1.c	Delay and throughput metric analysis in cloud	7
1.d	Deployment of cloud at different location	11
1.e	Cloud computing layers	11
1.f	Challenge sin cloud collaboration	12
1.g	Cloud ranking process	18
1.h	Representation of different state of an object	19
1.i	Collaboration model for different clients	21
1.j	Framework of quality of services	22
1.k	Single user editing system confliction problem in cloud collaboration	27
1.l	Object sharing phenomena between cloud and users	28
1.m	Representation of concurrent revision problem	29
1.n	Waiting for resource fetch by users	30
1.o	Transition state of editing of an object	33
1.p	Implementation of multi-version technique on object l state	35
1.q	Need of multi-version technique on object for co-editing on common object	36
1.r	Context based filtering approach in central cloud	39
1.s	Flow control diagram of multi-version and context filtering process	41
1.t	Start window of net-beans	44
1.u	Project path establishment on disk	45
1.v	Net bean IDE 8	46
1.w	Merging of various java environment for development of an application	47
1.x	Java programming compilation phases	48
1.y	Relational operator commonly use in java	48
1.z	Buffer reading process between server and destination	49
1.a1	Editing service deployment	50
1.a2	Network and virtual connection establishment in RMI	52
1.a3	Client request servlet	54
1.a4	Home page screen of cloud users	56
1.a5	Online registration of new users	57
1.a6	Details of new user in registration form	57
1.a7	User login page for already registered users	58
1.a8	Authentication check for unregistered users	59
1.a9	Entry of individual users and then submit validation form	50
1.a10	Database entry of valid user credentials	60
1.a11	Local host database entries	60
1.a12	User panel webpage	61

1.a13	Disable link due to unavailability of current uploading file	62
1.a14	File uploading link	63
1.a15	File upload to server link	64
1.a16	Available file page with new file uploading link	64
1.a17	Read mode of file by user	65
1.a18	Represent the share mode of a document in collaboration	67
1.a19	Sharing of file to selected collaborated users	67
1.a20	Admin log in page	68
1.a21	Administration panel web page	69
1.a22	File filter system to remove update intension problem	69

LIST OF TABLES

Sr .no	Title	Page no
1.1	Quality of services and their description	7
1.2	Cloud service attributes	13
1.3	Literature survey analysis of cloud collaboration process	24
1.4	Relational operator commonly use in java	48
1.5	Types of Integer specification in java	51
1.6	Types of Integer specification in java	52

LIST OF ACRONYMS

QOS: quality of services

SDCD: Support for Fine Grained Data Access

CHAC: Cloud Based Hierarchal Access Control

RBAC: Role Based Access Control

CLWFDL: Cloud Collaboration Workflow Definition Language

CRBAC: Collaboration Role Based Access Control

CAAS: Cloud as a Service

ABSTRACT

Today ,cloud collaboration become an integral part of large scale of applications ,which describes how can multiple domains like cloud and users collaboratly share their knowledge ,information ,documents, files at virtual location. Collaboration is also important because it reduce the communication cost of various large scale business applications like, e-commerce websites, online education system . Sharing, coauthoring are its important characteristics. QOS that is quality of service in cloud collaboration act as a monitor of services with respect to the cloud integrated with user domain.

Quality of service parameters like performance, bandwidth, throughput, response time of services affect the cloud collaboration in greater extent .QOS, are used to satisfy the user domain for their requested services, if requested service are not reliable or satisfactory then they are not use by the user again which degrade the service performance for user utilization . Collaboration factor is secure if used services in clouds are also secure and reliable.

Significant importance of QOS are to increase the robustness, availability , reliability, reduced response time of a services .Cloud collaboration use uploading services, editing services ,sharing services. Cloud-based systems are gaining enormous popularity due to a number of promised benefits, including ease of use in terms of deployment, administration and maintenance, high scalability as well as flexibility to create new services. The growing presence of cloud-based services creates new problems for users and resource share domain, results in a number of challenges that need to be addressed in order to ensure successful adoption of new paradigm. Besides well known and frequently raised issues of privacy and security, a major problem the cloud collaboration technique faces is about the quality experienced by those who using coud services.

The focus of the work will remain to remove the waiting time problem for editing of document by user and also solve the updation intension problem without any intervention of priority concept.

OVERVIEW

Cloud collaboration is very important technique which helps remote location authorized users to share their work, information and files over the cloud. This technique is cost effective because mutual sharing work office can be established easily over the network anywhere in any part of the nation. In addition to this, Co-authoring is also a significant technique in which a common document can be edited by any user in authorized cloud domain. Major problem of this technique is to produce editing conflicts of an object due to inefficient process of locking mechanism. Holding of current state of an object for a document depends on user working zone due to which other users for same state remain in ideal state for same attribute editing of an object. This work discusses multi-version technique of an object as a solution for single user editor confliction problem in cloud dependent co-authoring environment.

Update conflict is another important problem in cloud collaboration which effects the quality of service as well editing of an document problem in future work implementation. Conflicts produce due to interference of more than one service at same time. Waiting is main problem for user which produces a deadlock. Quality factor of a document degrades if deadlock occur. In my work I have use a content base testing phenomena which depend on a stop word count method of a user document. File which contain maximum number of stop words count discard automatically and at a time only one document update in major cloud which act as a center cloud of a cloud collaboration process. quality of services improve because no selection policy demand for rejection of another file of user on base of priority factor. Major or central cloud keep only one updating document after this circulates among the entire subcloud domain.

CHAPTER- 1

Quality of Services in Cloud Collaboration: An

Introduction

1 INTRODUCTION

Cloud collaboration is such technique where “more than two groups work together by doing interactive activities to achieve a set of shared goals” [1]. This is an integrated process in which each individual person of various group at remote location uses the shared protocols and structures of knowledge in order to perform a collaborative task instantly.. This collaboration process involves working with people all over the world in actual time on a different types of documents or objects by using different devices and virtual locations. The term cloud collaboration can be defined as a technique of sharing and coauthoring of document objects and different types of word and text files [2]. Object means resource which get share among a group of users of cloud collaboration services. In cloud collaboration documents and objects are uploaded to central cloud server which further collaboratly access by other distributed servers [3]. Cloud collaboration technique allows users to upload, edit, share, documents or objects through different interfaces within the cloud. Cloud is a server which accesses the requests of various users according to their services requirement, to complete this approach distributed clouds upload and share their services to main cloud which act as central cloud. Central cloud act as controlling manager which provides access to various requesting services of clouds integrated with user needs.

Object or document sharing among different user and cloud in cloud collaboration greatly deal with security as well as with quality of services factors. Quality of services produces various quality features in sharing object in term of efficiency, consistency and security [4]. Cloud dependent services and systems gaining enormous popularity in field of deployment, administration, business and maintenance to achieve high scalability as well as flexibility to create new services [5].

The growing presence of cloud-based application creates new problems for both users and resource share domain, resulting in a number of challenging factor that need to be addressed in

order to ensure successful adoption of new paradigm. Besides this well known and frequently raised issues of privacy and security another main problem the cloud collaboration technique faces is about the quality experience by different users during use of cloud services. If the experienced quality levels do not reach expectations of different types of service users then users will automatically reject the service or deny its adoption for future perspective. For this reason the concept of experience base quality level of services (QoE) has the potential to become one of the main guiding paradigms for managing typical services of the cloud in network [6].

1.1 What is cloud

Cloud is a collection of more than one server. Cloud access information every location any time. It reduces the extra purchasing cost of external memory devices because cloud also act as a datacenter or storage system for various file and documents of remote user. Storage service, accepted request service, acknowledgement service, denial of service, real time deployment of user requests are important services of an cloud. It is not so easy to maintain the efficiency and other quality of services feature a server. Maintenance of server is very important which we deploy on various kind of test at each phase of services whether it is local user service or remote user service.

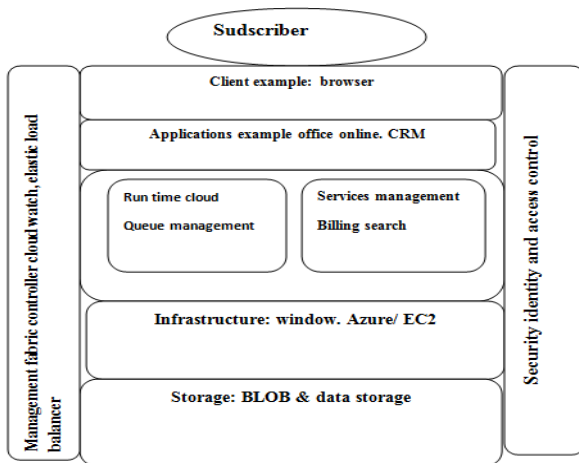


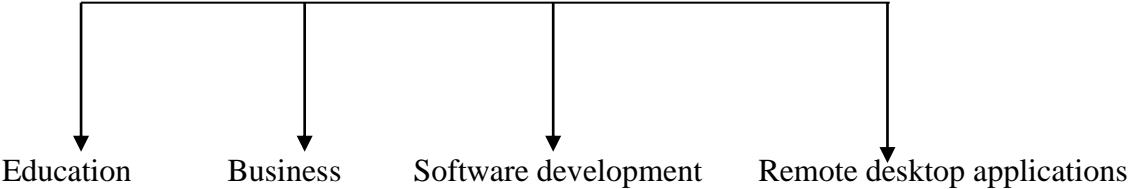
Figure 1.a Cloud architecture components

1.2 Definition of cloud collaboration

Collaboration means group activity. In business if we have to make software which will satisfy all user requirement then it is necessary to fulfill all the user requirements according to real time. Cloud collaboration now days adopting a big profit in real time world. More than one user from various remote locations work in co-ordination for common task so that work can be complete with good result in real time. The process of cloud collaboration is beneficial if this should hold with security, throughput and efficiency parameters.

1.3 Real time application of cloud collaboration

In real time or real life the cloud collaboration use in various fields



In real life cloud collaboration consumes so many cost and time factors. Through remote interaction of desktop application we can share large files to other remote user within few seconds. This is time consuming process in term of quality factors.

1.4 Architecture of Cloud Collaboration

Cloud collaboration model as well as architecture explains in figure 1.a represent the overall working about the interaction and communication between user domain and cloud domain. Central cloud is act as a main cloud storage component for different services. User domain interacts with cloud domain through sharing or updating interface. Request for a resource to the near or local server is send by different user after that acknowledgement regarding that service is send back to the user. If demanded resource placed in local cloud immediately accessed the user otherwise request for that resource send to major cloud by the local cloud.

Architecture of cloud collaboration

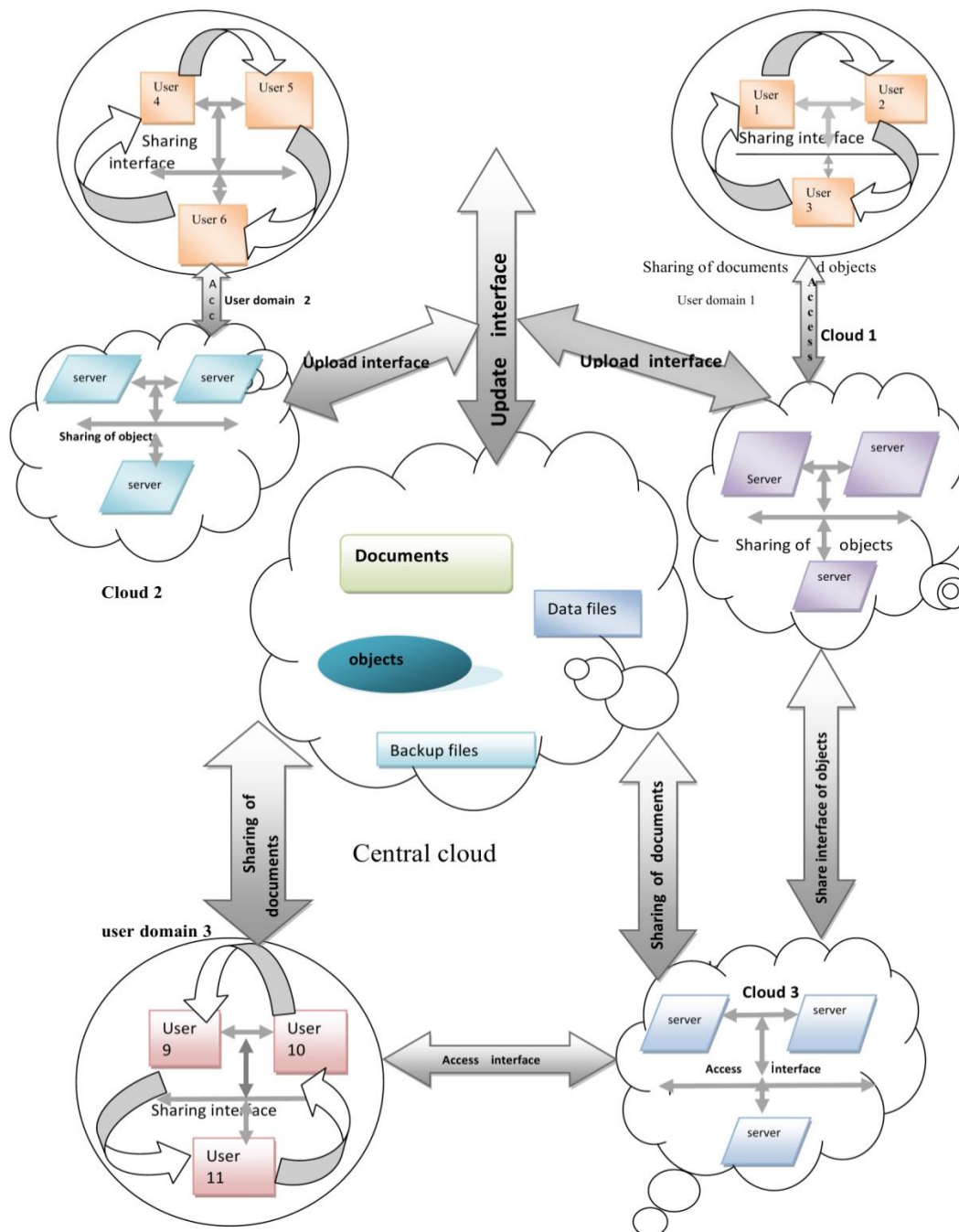


Figure 1.b Architecture of cloud collaboration

1.4.1 Description on three important interfaces in cloud collaboration

Editing interface- Through editing interface more than one user from remotely placed cloud location can edit their documents collaboratively. Documents contain various objects on which editing policies are deployed.

Sharing interface - Through sharing interface different users of remotely placed clouds can share their services in terms of files as well as in form of documents. A common document gets shared by all the users involved in the clouds of cloud collaboration process.

Updating interface- If one user in a cloud edits some context of the object then new information in the resulting object can also be shared with all other users in the cloud so that editing conflicts in a single editor system can be prevented. Sharing and updating is the main phase of cloud collaboration. If update conflicts occur many other services in cloud collaboration workflow process are affected to a greater extent.

1.4 Quality of services in cloud collaboration

Quality of service itself is a big term which not only ensures the workflow of the system but also improves the quality of trust factors for remote location users. TABLE 1 depicts different quality aspects of services for cloud domain as well as for user domain. Concurrent editing processes in cloud collaboration produce update conflicts, edit conflicts, intention violation types of errors which generally affect the workflow of the entire cloud collaboration process [7].

1.5.1 Quality of services factors

- 1 Security
- 2 Throughput
- 3 Latency
- 4 Cost
- 5 Efficiency

Table 1.1 [8]Quality of service attributes and their description

Previously proposed quality of service (QoS) model for Web service [5]	
QoS attributes	Descriptions
Cost (C)	Execution fee per request
Execution time (ET)	Time to perform the service functionality
Time to perform the service functionality	Request waiting time before execution
1_ Failure rate	
Latency time (LT)	Uptime/(uptime+downtime)
Request waiting time before execution	$\frac{\text{Throughput}}{\sum_{i=1}^{\text{task number}} \text{unit time} * \text{task number}}$
Reliability (R)	
Availability (A)	
Efficiency(E)	

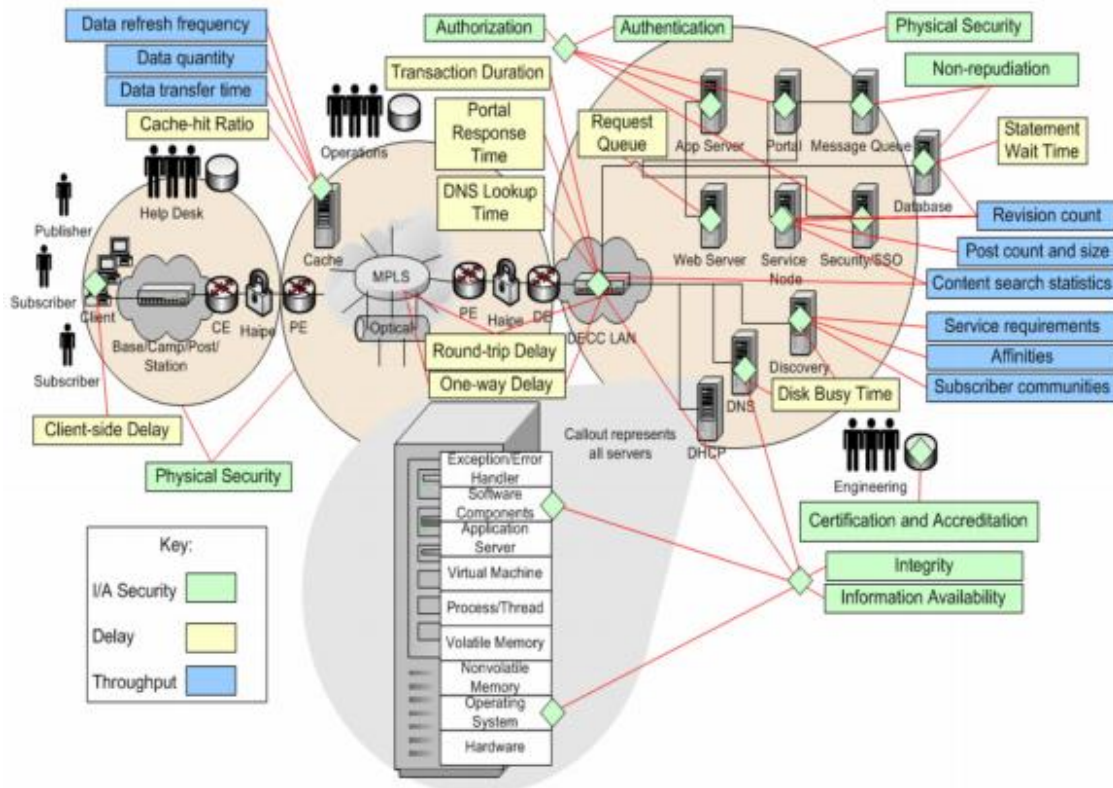


Figure 1.c delay and throughput metric analysis in cloud

Security

Encryption is important parameter for different services in cloud. Sharing interface is main feature of cloud collaboration. When sharing of file from one cloud domain to another cloud domain or in between cloud domain to user domain take place then chances of information packet loss become greater [9]. Unauthorized user can make wrong use of this packet information. Security breach all important information and result into higher business profit loss which result in to degrade quality of service factor in all cloud collaboration services. Access control mechanism should be deploying properly to prevent from this problem.

Throughput

Data transfer rate in network is measured in term of throughput. Throughput is measured in mbps and kbps.

Latency

Latency is measured as round trip delay time in network. To maintain the proper flow of data in network is also necessary hence latency needed in proper ration. Difference of time interval between simulation and acceptance considered as latency.

Cost

Cost is defined as the amount of time spent for the receiving of an efficient result. Reliable network is cost independent because each phase is properly tested or integrated. Cost depends on the performance of the system.

Efficiency

Efficiency is measure of the important possible outcome from the total number of counts. This factor is important because it produce the relevant results. Efficiency is reciprocal to the cost factor. Flow of information through network increase efficiency with reducing cost factor.

Characteristics of cloud collaboration

1.6.1 Robustness

Robustness of cloud and user domain defines its strength to cope with each fault. Each and every time the data is available on the central server or in local server. Chances of failure in the remote service are reduced to greater extent.

1.6.2 Scalability

Scalability defines in terms of demand of the cloud server services. User from local as well as from remote domain if request for the service from server it should available at that moment else acknowledgement sent to the user so that long waiting time can minimize.

1.6.3 Integrity

Integrity means if one cloud domain1 could not be able to fulfill all the requirements of the user then it can easily fetch all the requesting services from cloud domain2. Integrity in itself a big definition of data science.

1.6.4 Security

Trust of the user on the requested server is very important in term of cloud service. Information can fail all the business main agenda on which it works. Quality of service degrades in big ratio. We have to deploy a good encryption algorithm so that our system can secure for future perspective.

1.6.5 Flexibility in services

Collaboration tool work efficiently to cope with the characteristics of flexibility.co-editing is an very important factor in which process users from more than one user domain can edit the common document in real time.

1.6.6 Independent activityIndependent working nature of a document object makes the process of collaboration faster. Information among various services execute in faster ratio. There is no dependency among the documents of a cloud. User any time can edit, share or write the content of other file.

1.6.7 Adoption of standard

Standard method makes the real time results according to the work of users. Standard tool means maximum possibility to achieve the better results.

1.6.8 Availability of resources

Resources are easily available in cloud because storage of file is take place in central cloud. Resource failures are not there in cloud collaboration process.

1.7 Difference between cloud computing and cloud collaboration

1.7.1 Cloud computing

Cloud computing is on demand availability of services internet connection is important for both the cloud computing and collaboration. in cloud computing different types of cloud service provider are work for their respected domain [10].

For example:

- a) software service
- b) Infrastructure service
- c) Platform service

Types of clouds

1. Public - A public cloud access by any subscriber with an internet connection.

2. Private - A private cloud is associates with specific group or organization and access provide only to authorized group.

3. Community – A community cloud execute by the same group who has the similar requirements.

4. Hybrid - A hybrid cloud is merging of public, private and community cloud.

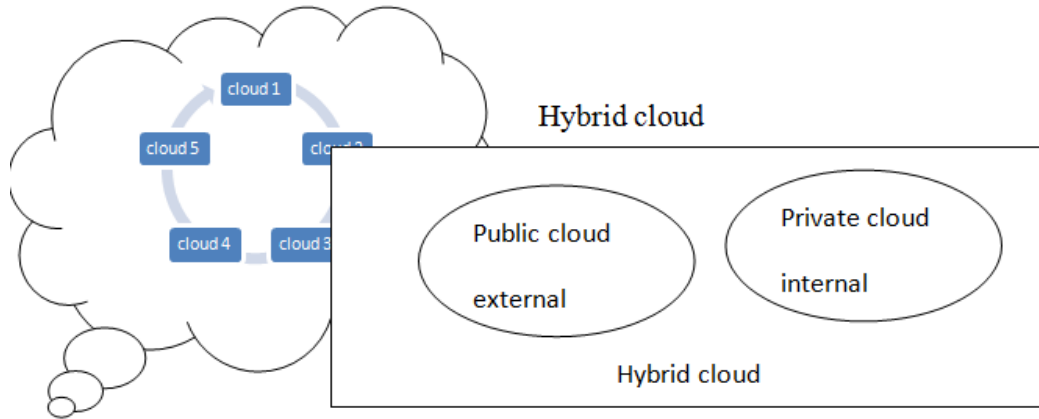
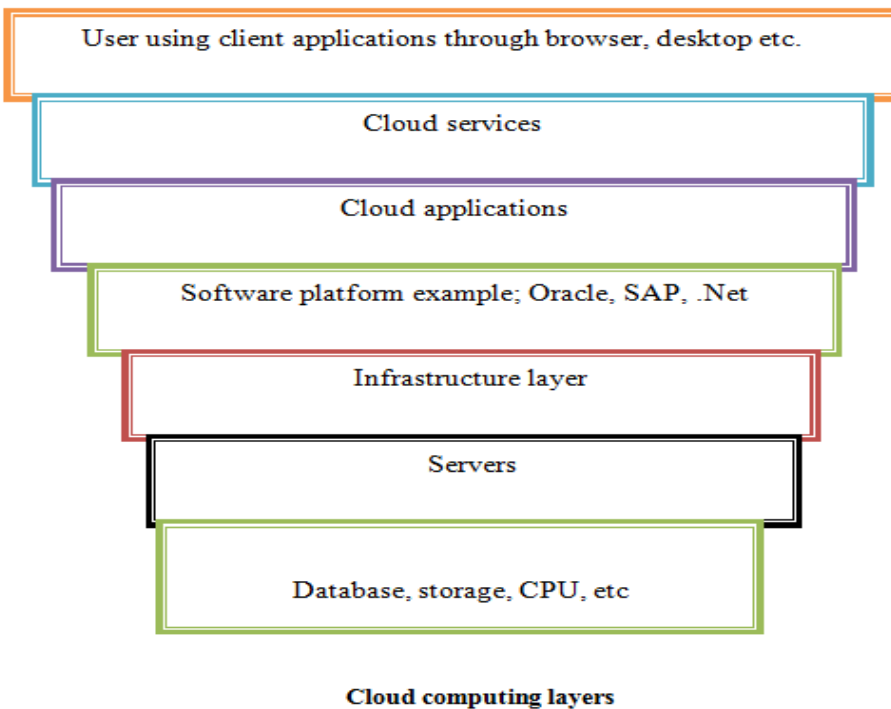
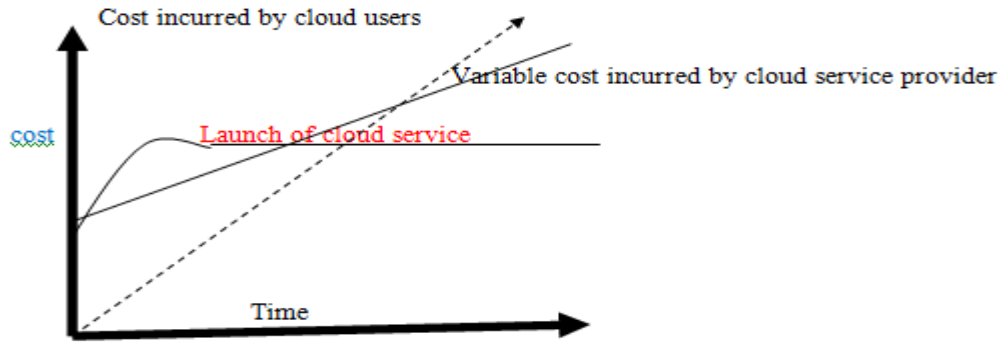


Figure 1.d deployment of cloud types at different location

1.7.2 Description of Cloud computing layers:



Cloud user upfront cost is non-existent but recurring cost increase as number of user increase [11, 12]. Here dotted line shows the cost by cloud user after cloud service provider executes his or her service.



1.7.3 Classes of cloud collaboration challenges

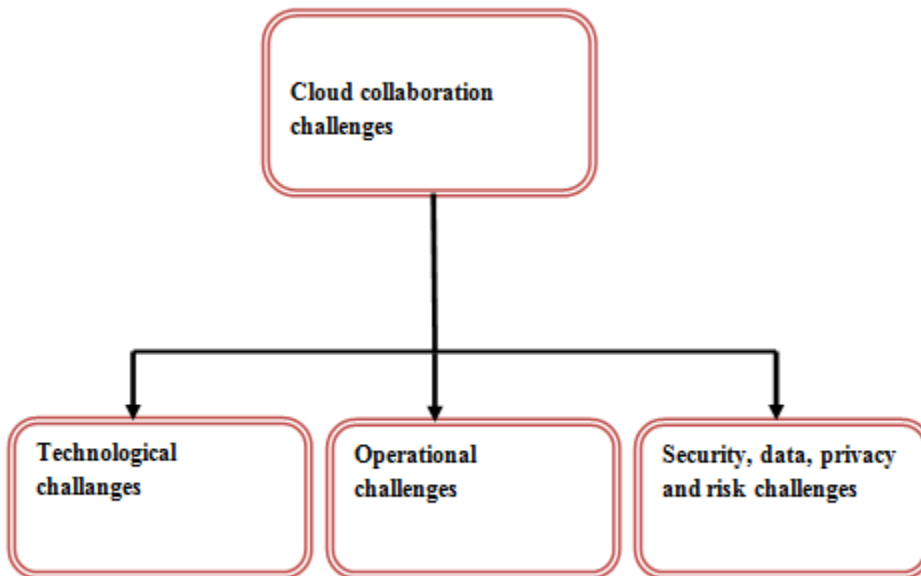


Figure1.f challenges in cloud collaboration

Technological challenges – These changes occur due to interruption of noise in communication channel among users and cloud domain.

Operational challenges- Includes the respond services of server towards the set of goal of users.

Security and data challenges- These are important risk factor in cloud services. Leakage of information to third party user may damage overall business logic of a process.

1.7.4 Attributes of cloud service

a) Application

- b) Core services
- c) Infrastructure
- d) Platform features
- e) Storage

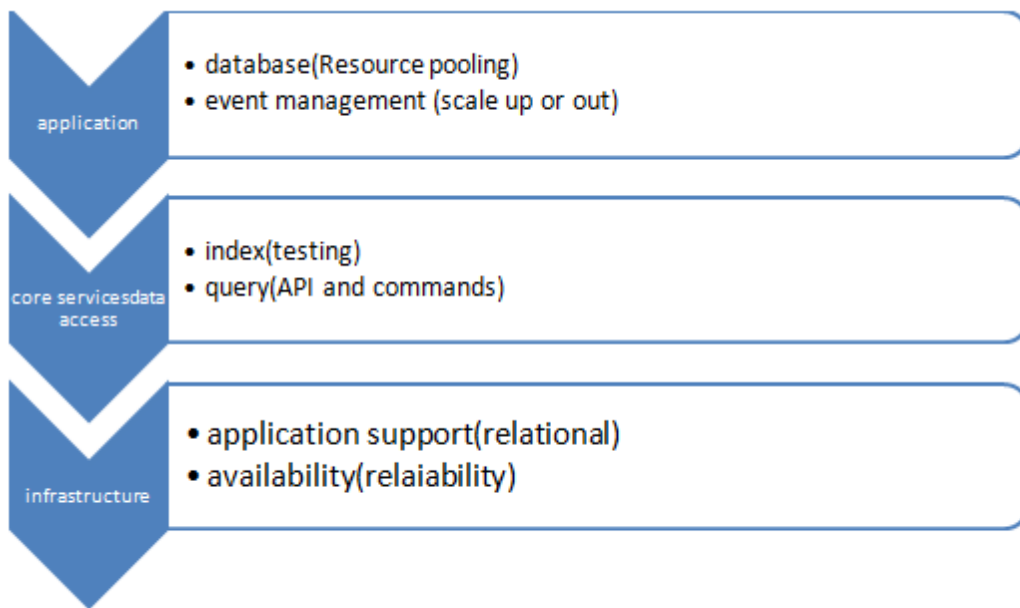


Table 1.2 Cloud service attributes

1.7.4 Various services in cloud implementation

1.a Cloud advisory service – This define future state of cloud application. Improve the performance and reliability of application.

1.b Cloud migration service- Merging of existing cloud application into the new one define as cloud migration service. Management tool are require to merge the old and new services into new cloud domain [13].

1.c Cloud development service- Cloud deployment occur which is base on the already define cloud architecture. Work of cloud is base on accurate framework.

1.d Cloud optimizing service- Cloud optimization includes the merger of public and private cloud into the new form that is hybrid cloud. These services deploy automatically without manual intervention.

1.8 Problem context

Quality of services in cloud collaboration can achieve perfectly if we use standard protocols policies and tools. A good source of knowledge can tackle with any kind of problem very easily. In this work I have to deal with co-editing process of cloud text or other document to remove the updation intervention problem. Tackle with this problem is not so easy because simultaneously editing of a document at real time occur by more than on authors. This cause a writing conflicts as well overwriting of a document. To cope with such type of problem I found a solution name as **multi-version of an object**. After deploy this step on specific number of user I propose content based filtering of a already written document. Stop word base content filtering approach is use in this overall work which is helpful to increase the efficiency of cloud collaboration process in term of quality. Author face a problem which relates to critical section but content base counting remove this problem easily and user no need to wait for their turn. Overall process automatically executes in major host or central cloud. Document copies in local cloud automatically remove only one document get a priority as winner.

CHAPTER- 2

2.1 LITERATURE SURVEY

Cloud collaboration holds so many aspects of real time system in it. Perspective of cloud collaboration is to achieve the common shared goal which can be possible to achieve through group co-ordination activities. Many remote applications can share and edit their work .remote desktop control of another system is also a key feature of this concept. Example of desktop sharing process describe as let we have User 1 to n which belongs to n user domain. User 1 and user 2 are member of group one and user3 and user 4 are member of group 2. Similarly rest of the users are in group n. users of group domain I and group two have to access .text extension file. One of the solution is to use the editing interface to edit the file and then upload the edit file through updating interface into the cloud.

Once the file is upload into central cloud it can access simultaneously by rest of the user domain up to n. cloud collaboration process is beneficial if change in one document automatically receive by other user or cloud domain. Wireless network connectivity and good internet connection require fulfilling the demonstration of cloud collaboration. Collaboration approach is time and cost consuming approach. In real life many healthcare, business, education, environment sensor, software development sector adopt this technique which provide a great benefits to their services. Large scale business process completes their task within few minutes because sharing and editing policy is document independent. Modification of any user can take place without his permission.

This technique describes all users as admin of service and central cloud act as a main datacenter. Abort protocol do not exist due to central database. This is guaranty that requesting service if not available in local cloud it can be fetch from the main cloud. Storage component of cloud collaboration is main cloud. Security of the central cloud is important to protect overall process of current deploy applications. The main difference between cloud computing and cloud collaboration is that no need of service provider in collaboration process whereas service provider act as key role in cloud computing.

Title: "A research on workflow process of cloud collaboration"

Author: Taipei and Taiwan

They proposed a workflow definition language model for cloud collaboration. This work described the problems of concurrent and single user editor system. Analysis's of study use the AND, OR splits to identify the main working difference of single and concurrent system. Various locking mechanism has discussed in detail. Concurrent editing of an object by more than one user resulted into wait condition problem which is the kind of deadlock occurred in this frame work. Developed technique of these two author transformed concurrent editing model into single user editing system. One more issue still was not explained in this which described as if one resource already held by user 1 then user 2 have to wait for long time to access the same object or file. Non specific waiting condition described in it by doing some AND, OR split on an algorithmic working.

Title: "Late join approach of real time cloud collaboration process"

Author: Ji, Liang Cai, Chun Chen and Bo Jiang

Research aim was to maintain a consistency of an object in internet based collaboration scenario. Object which in editing condition cannot give access to other user which prevent editing and sharing conflicts .When a user edit a document in local cloud it automatically spread into other user domain. Refresh data of an old services updates into new one after that it circulate to main server. Late join algorithm discussed in detail which explain how to manipulate and circulate the new data after a process of data transformation. This process increases the network performance and decreases the network task burden. Due to late join algorithm asynchronous problem occur. Communication among different users depends on message passing protocols.

Title: "Research work based on p2p base locking mechanism in collaborative system."

Author: Ruixuan Li, Guangcan Yu, Zhengding Lu, Wei Song.

In real time collaboration process a common object or common document can be access from remote location at same time by set of users. P2p based locking firstly broadcast to each collaborative site. After broadcasting of locking process it identify the active locking node of an

shared objects. Main aim of this research based on finding of an service node. Overall concept of p2p follows the distributed dynamic environment. This algorithm solves the hot spot and broadcast communication problem. Methodology of this work quickly identifies the service node which holds the locking policy. Basic locking policies has implemented through p2p in cloud collaboration process. Disadvantage of this process is that service node break the locking node into unlocking situation. Current user if unlock by service node still this user unaware of unlocking process. Concurrency control is advantage of p2p base locking phenomena.

Title: “Research on Adaptive granularity logarithm in cloud collaboration.”

Author: Li', Lei Li', Hao Cuil, Hai Wan.

Proposed work has based on adaptive locking mechanism of an object which based on the level of granularity. This factor may be minimum or maximum. Higher level of adaptive approach updates system smoothly. Algorithm affects the performance of the system in term of users willing condition of locking on object. To achieve concurrency among services of cloud and uses research analysis done on collaborative editing process. Adaptive approach locks starting node and then add update lock with higher level of granularity. When intervention or conflicts solve then finally overall editing system update and overall update get placed in cloud. Hieratical approach explains in detail which described that how the object get link to their intension or read, write lock.

Title: “Quality of service based prediction for a cloud base framework”

Author: Zibin Zheng, Xinmiao Wu, Yilei Zhang, and Jianmin Wang

Focused approach of these authors was to do the quality analysis for the different cloud services. Services should be satisfactory according to their work. For example more than one user demands for training data. Now quality ranking policy applied on different users first so that fetching of training data can acquire from the database. The main issue is that overall analysis

done over the old data. If old data is not accurate system quality may degrade which was not discussed in this.

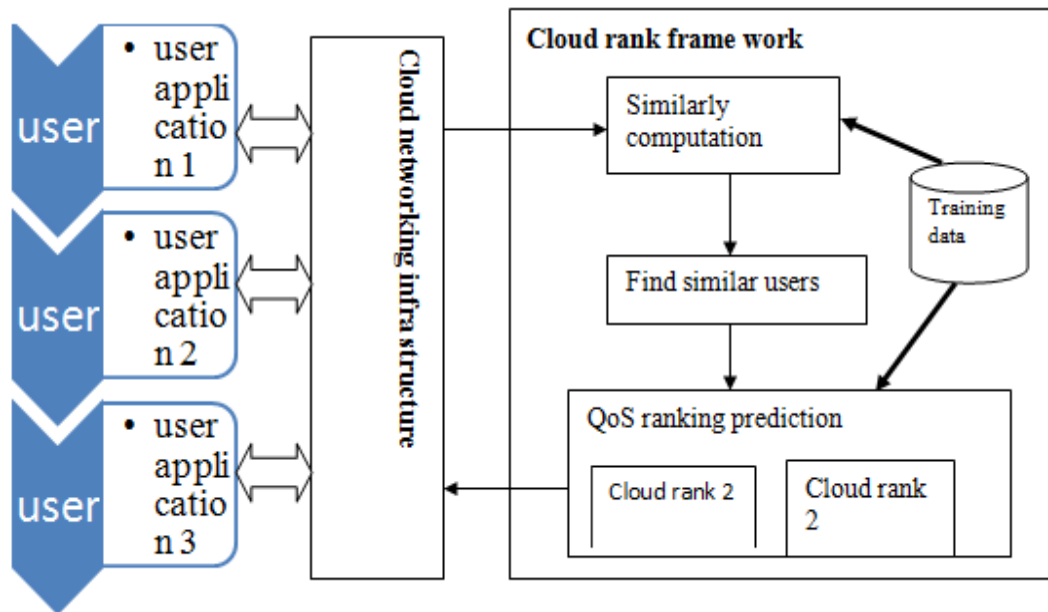


Figure 1.g Cloud ranking process [14]

Title :“ consistency maintenance in real time system without request of locking phenomena”

Author: Xue and Mehmet A. Orgun

Reactive approach was on concurrent editing system. Different types of locking mechanism explained in this work. Exclusive lock was interesting one because it do not create conflict during writing mode of an object. Problem of multi-version phenomena discuss on the base of storage problem. When more than one version of an object got created this become important which object has to update first. Problem of storage occur when we have to simulate the results on large scale.

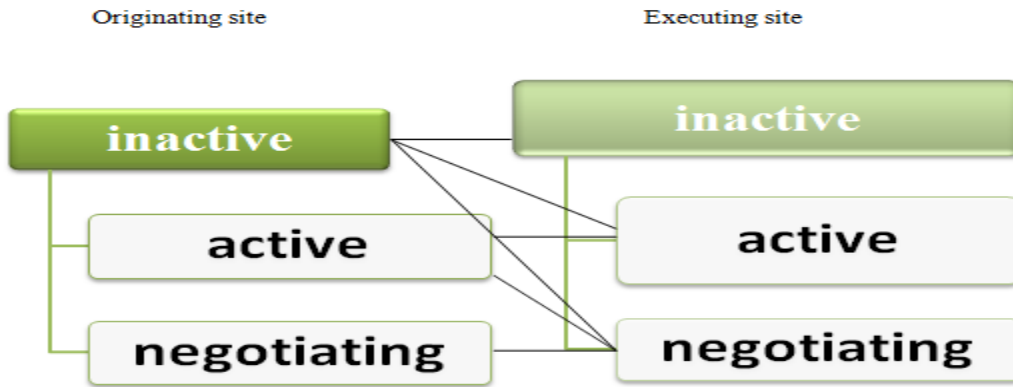


Figure 1.h Representation of different state of an object

Title : “A survey on Real time geographical (GIS) approach on collaborative environment base system”

Author: Yaqin Sun, Songnian Li

Main outline of proposed work was based on geographical information system. Collaboration as we know is very powerful field because most of the server activity embeds on it. If we have to collect the data from all over the world cloud has to work in co-ordinate ay. Somewhere we know theoretical result are easy to explain but not so easy to explain in real life. This work discussed about the future issue and about old problems which is not going to solve till today date. If we have to launch the satellite what we need is deployment of substation around some work place so that co-ordination among the activity may achieve frequently and efficient.

Title: “Scientific workflow of cloud collaboration process in real time environment”

Author: Hongzhi Song, Yu Qi, Zhaoming Ou, Yueming Hu, Zichao Zhang

Proposed approach based on scientific collaboration ontology in which service-oriented collaboration model supported by a set of composite collaboration primitives and patterns. The collaboration protocols were then applied to support effective concurrency control in the process of collaborative workflow composition .The design and development of Confucius, a service-oriented collaborative scientific workflow composition tool that extends an open-source, single-user environment.

Title: “Distributed lock manager deployment in shared disk environment”

Author: Choi, Minseuk Choi, Chunkyeong Lee, Yong Youn

Work based on maintenance of consistency parameter in actual collaborative Business model. Results showed that method can deal with most of the complex problems and make a good business modeling environment. Consistency and availability preserve due to deployment of distributed disk system. Services some time not easy to require from one server as a result chances of failure of process occur and abort command work automatically. Command destroys all the current execution of the process and we have to implement the overall system from initial thread mode. Distributive environment create a more than one shared disk at each server. Failure of one server does not affect the execution of current state of system because data fetch from another disk. More than one copies of files store on different server which increases the quality of service in term of availability parameter. Lock manager deploy on each server which executes the process in perfect order and reduce the chances of information and packet lost over a disk.

Title: “Simplified centralized operational transformation algorithm for collaborative environment”

Author: LiuJun-hui1, wei Geng-yu, wang Cong

Proposed approach describe about how more than one user can edit any document at any remote location. User if make a change in any document at same time that change shown by the other user on another desktop system. Live editing process show by all the user integrates into the cloud collaboration process. Redo and undo scheme of the process remove all the transformation scheme. Change produce in one document automatically propagate to the entire cloud collaboration server model. This process work for text document. Disadvantage of this approach is do not cope with document other than text.

Title: “Collaborative scientific workflow deployment”

Author: Zhang, Daniel Kuc, and Shiyong Lu

Proposed approach work on LSST that use large synoptic survey telescope. Scientific work data is too much typical to store on disk. Implementation of appropriate algorithm is necessary. This workflow work on three steps as data retrieval from other source, pre-processing mechanism and modeling of trained data. Maintenance of trained data is another important issue. Business based ontology approach follow by the subscribed process.

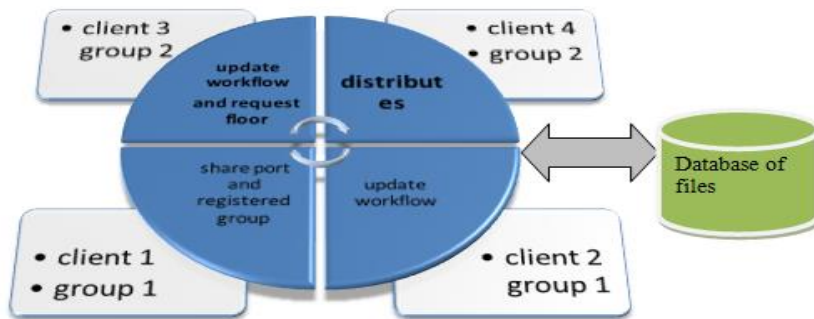


Figure 1.1 Collaborative model for different clients.

Title: “Semantic based quality of service in cloud”

Author: Koutesis, jose Maria, Iraklis

Focus of this research work based on the improvement of various quality of service parameter. Quality of service become better if latency, throughput, efficiency factors are good. Noise and jitter cause problem in the communication process of resources. Consistency maintains if failure of service is minimum. Appropriate algorithm required for access of good service.

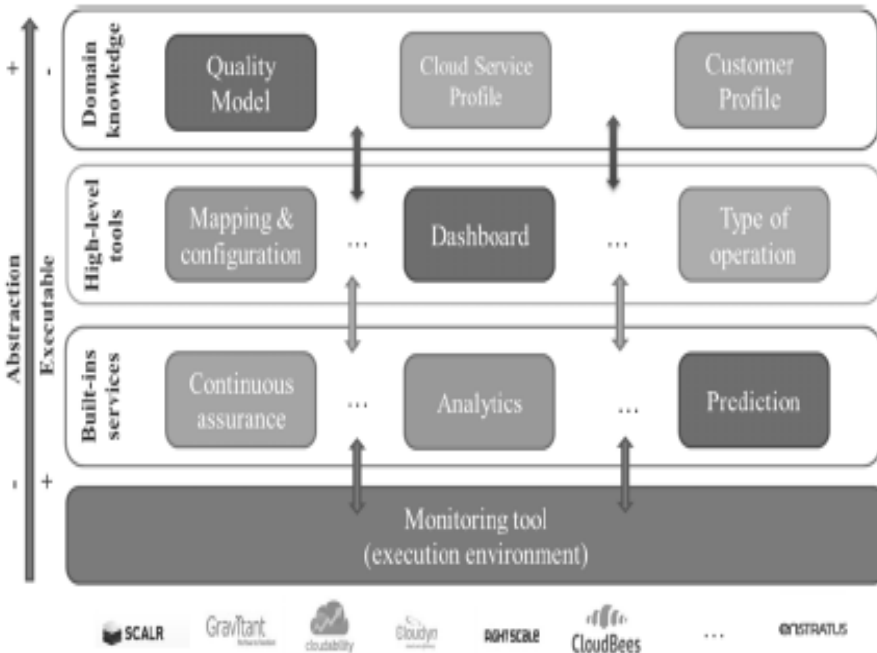


Figure 1.j Framework on quality of services

Title: “Secure and scalable data collaboration.”

Author: Dong, Jiadi Yu, Yanmin Zhu, Yingying Chen, Yuan Luo Minglu Li

Research work defines the process to secure the data in cloud network. SECO model was proposed in which security of the data described on the bases of hierarchy identity based encryption.

Literature survey in tabular form

REFERANCE	OBJECTIVE TO ACHIEVE	APPROCH USED	IDENTIFIABLE REMARKS
Lee et al.2013	Working model of cloud collaboration define a workflow in the CLWFDL and reduce the cost, since collaborating users do not have to be in the same space and human intervention is not needed to analyze the requirements of users	Novel workflow definition language called the CLWFDL Cloud Collaboration Workflow Definition Language—for defining workflow in the working model of cloud collaboration. The CLWFDL supports distributed definition and concurrent revision problem.	CLWFDL cloud workflow definition collaborate the services and objects in distributed environment.

Piechotta et al. 2015	Secure the cloud environment such that non authorized user cannot access the collaborates services.	Cloud-based Hierarchical Access Control (CHAC) used to secure the research into ext SDCD, who adding support for fine-grained data access control.	Role-Based Access Control (RBAC) model with SDCD introduced, which enables Support for fine grained data access in dynamic cloud collaboration.
Xue et a,2005	Proposed work base on “Locking without requesting a lock: A consistency maintenance mechanism in Internet-based real-time group editors”.	Implementation based on tickle version locking protocol. POLO system used for this.	Different quality of services is analyzed with results.
Almutairi et al.2012	Securing inter-cloud collaboration which may take either in same layers (IaaS-IaaS, PaaS etc.) or in cross layers (IaaS-PaaS, PaaSSaaS).	Distributed access control module (ACM) and virtual resource manager (VRM) have been proposed which are to be implemented in all the layers of cloud. ACM makes authorization decisions based on credentials and context, while VRM provides and deploys virtual resources.	Distributed access control module deploy the security in cloud services
Madani et al.2015	Deployment of collaborated session as an abstract entity in which users may have concurrent access to the shared objects during a session depending on their roles.	CRBAC, Collaboration Role-based Access Control. CRBAC consists of an extended version of the RBAC model. CRBAC defines new entities to support access control in collaborative session.	CRBAC, the Collaboration Role-based Access Control do not give a result description.
Liu et al.2013	Describe the cloud collaboration framework cloud as a service (CaaS). It introduces a generic approach to interacting with distributed resources, also illustrates a mechanism to coordinating resources and people into effective collaboration sessions	CaaS that is cloud as a service framework used to increase the performance of business application through collaboration as a service framework.	CaaS, platform is used to integrate the distributed user domain according to their virtual location in cloud.
Dong et al.2014	Communication cost evaluation and computation complexity addressed on bases of cloud collaboration environment.	SECO: SECO model provide the secure services environment in cloud.	Security analysis shows that SECO is secure and can realize fine grain access control and collusion resistance.

Singhal et al.2013	proposed security for dynamic collaborations and sharing of resource among multiple clouds which do not have any pre established collaboration agreement or standardized interfaces.	The paper proposed a proxy-based multi-cloud computing framework. A proxy is an edge node-hosted software instance that a client or a CSP can delegate to carry out operations on its behalf. Proxies can act as mediators for collaboration among services on different clouds.	Experimental results secure the cloud services through some proxy algorithmic analysis.

Table 1.3 literature survey analysis of collaboration processes

CHAPTER-3

3.1 PROBLEM DESCRIPTION

The definition of research is associated with new approaches on previous results either a self-invention of a new problem. Problem statement integrates with every new life problem because without facts or real-time services, a problem is not acceptable. Each problem has two phases: valid or invalid.

In my work, I have to solve the problem of co-editing and updating of a document in a server. To reach near to this problem, previous analysis is put into consideration. Identification of a problem depends on the previous described results.

Cloud collaboration in terms of quality of service needs some improvements which are important to take into consideration. Set of problems of the same kind are discussed below from training data.

Author

Lee et al. 2013. Invented work discusses on “workflow definition of cloud collaboration”. Proposed results give a better solution to tackle with various types of user requirements on the basis of “CLWfDL” (Cloud Collaboration Workflow Definition Language) which is a working model of cloud collaboration. Represented following drawbacks are not discussed in this research.

Drawback

Lock mechanism deployment in a single editor system environment of cloud collaboration produces two major drawbacks which are as follows

- a) Occurrence of inefficiency due to long time editing of current user on a document in a collaborative system.
- b) Absence of mechanism to prevent a user from modifying the requirement of other user.
Modification
- c) Intervention problem is still in cloud collaboration systems.

Author

Xue et al,2005 proposed work based on “consistency maintenance mechanism of real-time group editors”. Various locks algorithms have discussed which produces a good results in internet base concurrent editing systems.

Drawback

Multi-version mechanism of an object in collaboration process has already discussed on base of POLO system but not discussing how the multi-version mechanism in cloud collaboration environment work. How this multi-version approach of an object work with the object in single editor system in cloud collaboration environment produces a future work for analysis for a researcher?

3.2 Problem statement

Quality of services in cloud collaboration consist various types of problem in real time applications as per these my work will focus precisely to solve the problem of lock mechanism unaffected deployment in co-authoring process particularly in central cloud domain, The simulation tool use to solve this problem is base on JDK, Net beans and wamp server [15].

3.3 Identification of important research gap based on previous point

On the bases of previous study of cloud collaboration various research gaps has produces which if analyzing with good efforts may leads to more good results. This research gaps refinement act as a good contribution for future valid results.

Working aspect of this present study is relating to removal of single user editing confliction problem in cloud collaboration environment. Lock mechanism prevent the concurrent editing conflicts by change this concurrent editing of an object in to single user editor system .This lock mechanism again produce occurrence of inefficiency problem due to long time editing of single user on an object of single editor system in cloud collaborative process. Inefficiency is other important aspects to remove otherwise this may affect various user trustworthy services into conflicting zone.

3.3.1 Representation of single user editing conflicting problem produced on object 1 state

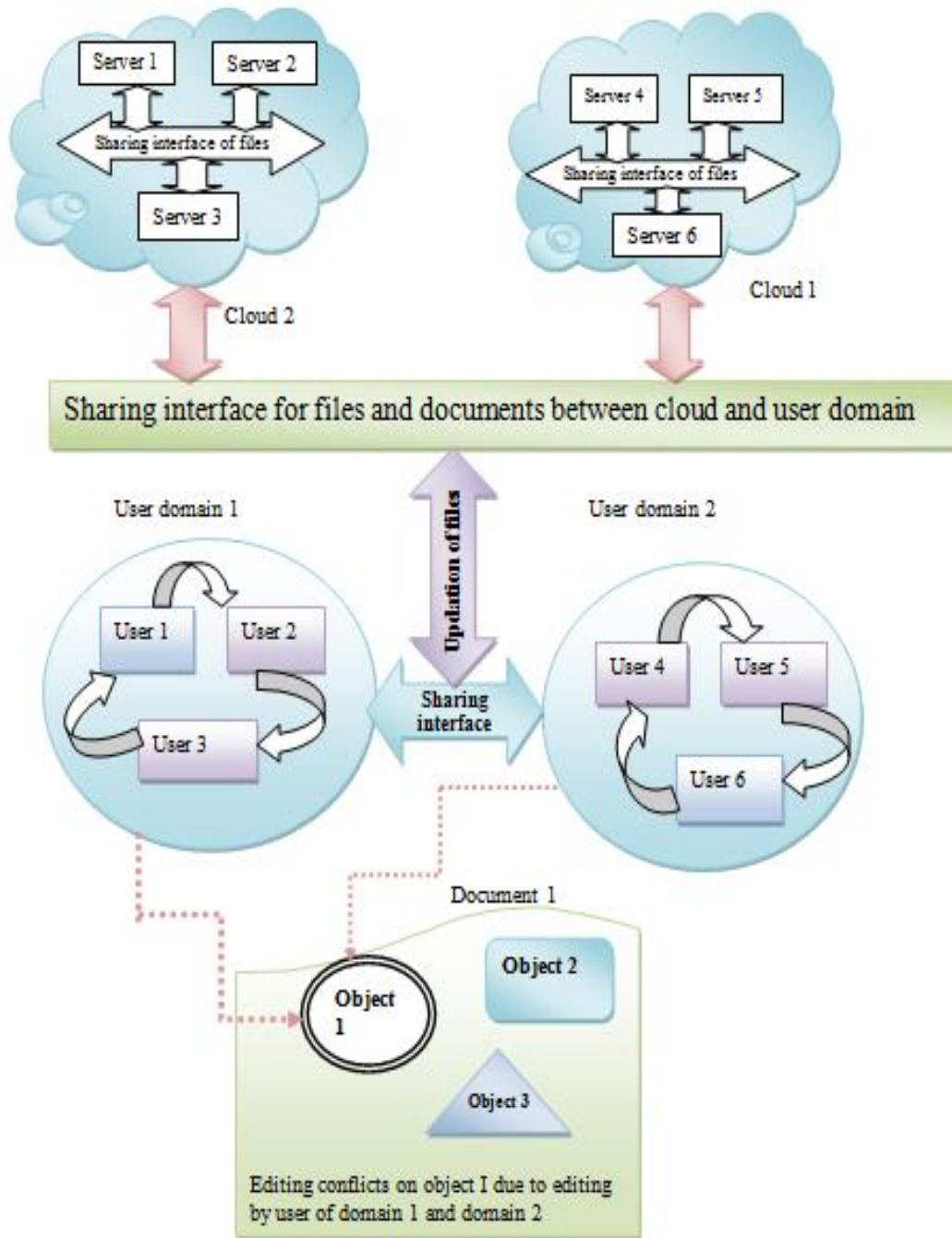


Figure 1.k single user editing system conflict problems in cloud collaboration

3.3.2 Sharing of objects between clouds in cloud collaboration through object sharing interface

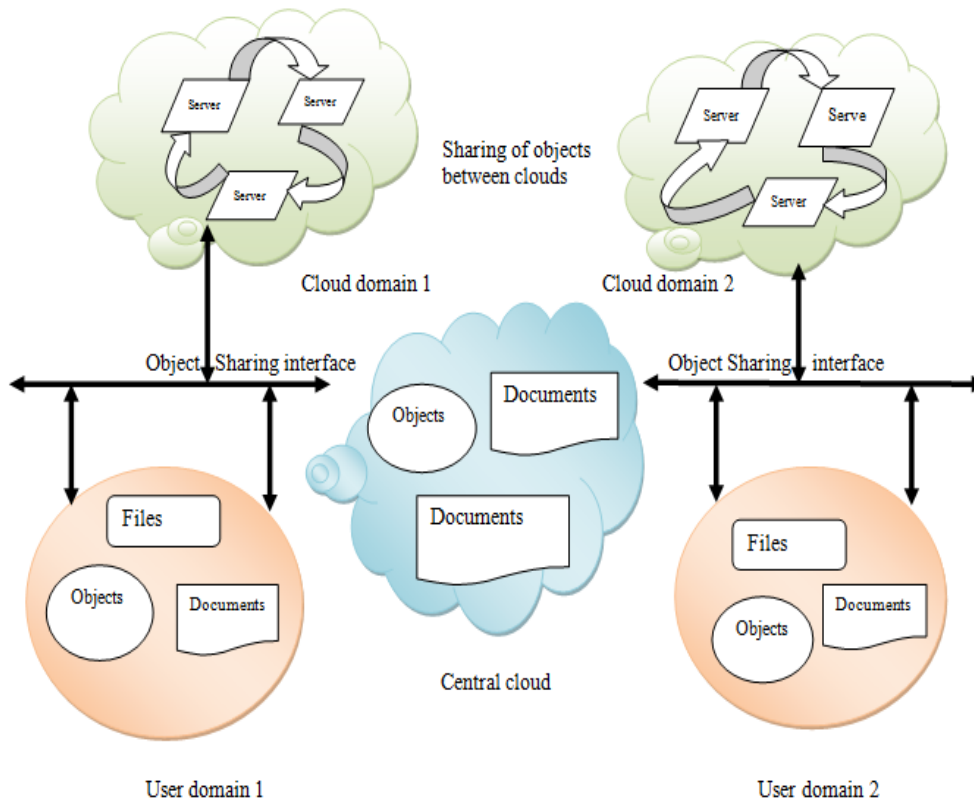


Figure 1.1 object sharing phenomena between clouds and users in cloud collaboration process

Object is a resource which encapsulate with file and documents. In cloud collaboration process resource sharing occur between different cloud and user domain. Sharing process make all the requested service available for remote users through sharing interface. Similarly updation of files into local and main cloud is possible by updating interface. Central cloud consist property of consistency [16]. One advantage of cloud collaboration in term of quality of service is fault tolerance property.

Central cloud act as main database which is robust in nature and adopt the property of availability of services for local cloud. User fetch the requesting service from its sub cloud domain. Security maintenance is important in major cloud because breaching of information from central cloud may damage the overall business logic. Authentication of user is important before involvement into the cloud collaboration process.

3.3.3 Concurrent revision problem

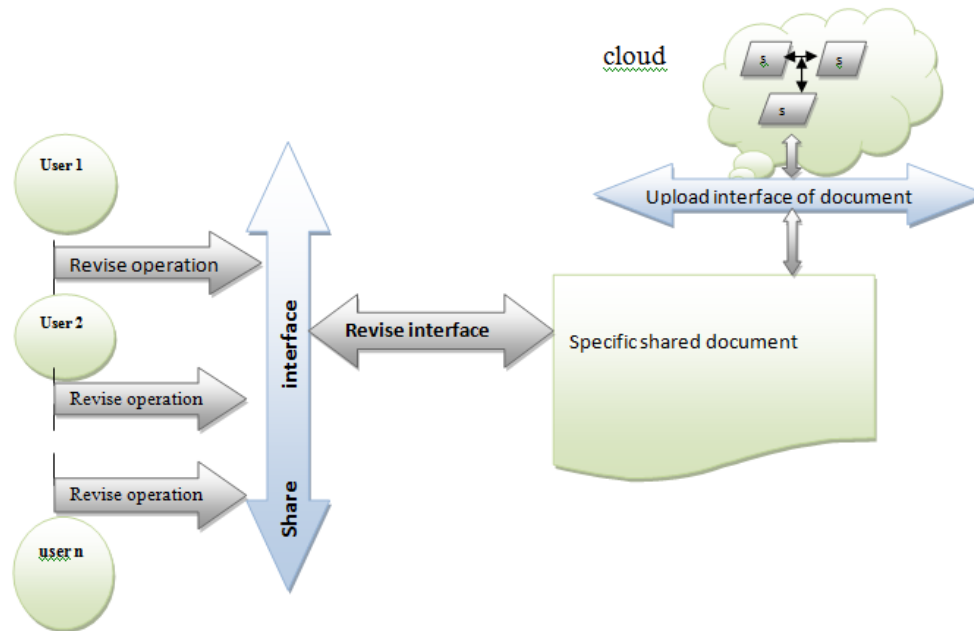


Figure 1.m representation of concurrent revision problem

Simultaneous access of same object by more than one user on common document produces difficulties in real time collaboration system. In this figure 1.i we can see that user 1, 2,n interact with share interface .after this integration of previous phase bind with revise interface which change the overall structure of a document.

Central cloud can store original file by accepting the one update of a document among n number of users. Suitable deployments of algorithm and business logic need to implement for proper removal of this **update intervention problem**[17]. Once original file get update then copies of updated files circulates to sub cloud by the main cloud. Redundant updated files remove automatically due to one file updation acceptance mechanism in central cloud.

3.3.4 Lock mechanism deployment based on single user edit document system

- 1) Lock mechanism deployed in cloud collaboration to prevent multi editing and co-authoring mechanism.
- 2) In co-authoring multiple documents are operated simultaneously by more than one user.
- 3) Co-authoring creates the problem of concurrent revise problem, lock based mechanism is used to tackle with this problem.

3.4 Drawbacks of Lock mechanism

Lock mechanism allow one author to edit a document in particular time, this prevent concurrency but increase the waiting time factor of other users. Produce bottleneck problem .There is no mechanism to prevent a user from modifying the requirements of other user.

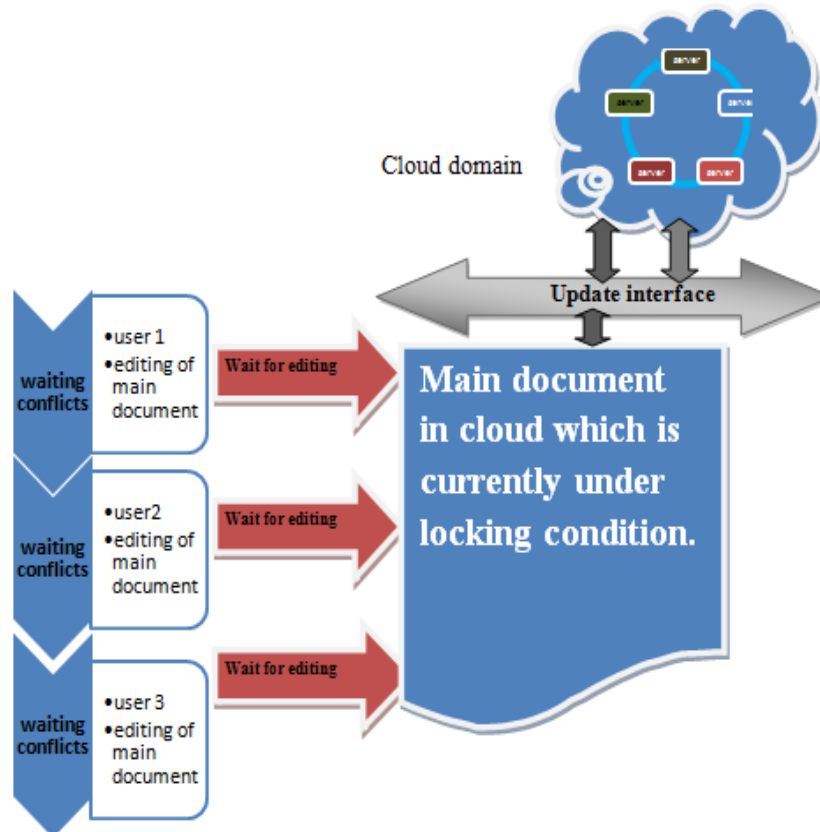


Figure 1.n waiting for resource fetch by users

3.5 Problem context of this work mainly focus on two problems

3.5.1 Co-editing of a document by more than one user.

3.5.2 Updation intervention problem.

CHAPTER-4

4.1 Proposed solution

Cloud collaboration process cover so many applications domain in real life service. Real life data mining application adopt the process of collaboration. Tremendous amount of new development seem to be happen in today world. Cloud embedded with so many fields like healthcare system, scientific workflow deployment, web mining and share desktop computers system. File sharing and co-editing are main feature of real time application of cloud collaboration. Major two types of solution are define properly in overall of my work. Solution approaches are multi-versioning of an document and content based filtering of an content.

4.2 Description of proposed solution

Proposed solution is base on the deployment of multi-versioning technique in single editor system in cloud collaboration environment. Proposed modeling deployment in cloud system associate itself with following points which are as follows:

- 1 In cloud collaboration collaborative environment established when more than one remotely location placed users can share their files as well as also get the access right to edit the same document collaboratly.
- 2 concurrent editing cause many editing problems on same object editing process, this problem name as editing confliction problem .transformation process from multi-editing environment to single editor environment established in cloud which resolve editing confliction .
- 3 Resulted produced editing conflicting problem further produces a intension violation as well as updation violation problems.
- 4 To prevent the cloud collaboration editing system from intension as well as updation problem a new solution get involving in the form of multi-version creation of object.
- 5 To resolve the updation intension problem a content base filtering is using such that further editing confliction cannot generate in the system.

6 In cloud collaboration process a sharing of document get take place among different clouds. Cloud integration is deploying in such a way so that a central cloud can retain all the essential details of the clouds system interfaces for updation and information storage. Main cloud acts as a controller for cloud collaboration process. Any cloud in the process of collaboration which is already involves in business process can retrieve a copy of document for editing from central cloud. All the updating files are placed in central cloud.

4.2.1 Three important interfaces for the presented scenario of collaboration which are as follows:

- a) Editing interface
- b) Sharing interface
- c) Updating interface

✓ **Editing interface**

Edit interface provide a co-editing for more than one user from remotely placed cloud location. They may edit their documents collaboratly. Documents associate with objects on which editing policies are deploying.

✓ **Sharing interface**

Share interface integrate different users of remotely place clouds who can share their services in term of files as well as in form of document. A common document get share by all the users involving in the clouds of cloud collaboration process. this interface domain is very important which describe the process of sharing of files among remote users.

- ✓ **Updating interface:** if one user in a cloud edits some context of the object then new formation of information in the resulted object can also be share with all other users in the cloud so that editing confliction in single editor system can prevents. Sharing and updation is the main phase of cloud collaboration. If updation conflicts occur many other services in cloud collaboration workflow process effects in greater extent.

Objects states: object is the main unit of editing process on which editing policies are deploying through various approaches by multiple users.

4.2.21 Three main states of an object

- a) Active state
- b) Inactive state
- c) Negotiating state

Active state: current editing phase of an object.

Inactive state: non editing state of an object.

Negotiating state: this is resultant of concurrent editing on the same base object from which the version is derived.

4.2.2 State transition diagram of an objects states in cloud domain

Object state writing phase description

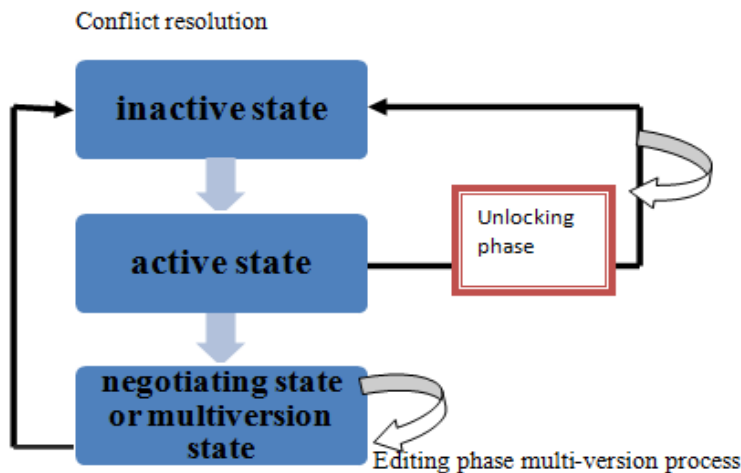


Figure1.o transition state of editing of an object

4.2.3 Multi-versioning technique initialize with the negotiating state of an object. If conflicts are not producing in the system then multi-versioning scheme is not necessary. Multi-version scheme is only become important to introduce in this work because single editor system cause the problem of inefficiency [18]. When more than one user are trying to access the same event of an object editing confliction occur which can resolve through the creation of more versions one of common object for common event editing process.

4.2.4 Importance of multi-version in clouds for objects: multi-version approach is directive state in term of confliction resolver. This improves the efficiency because at the same time more than one user can edit the same event of an object simultaneously.

If multi-version is solution for the problem of single user editor system holding process then also produce problem in term of updation conflicts. If user A do the color filling phenomena for an object O_1 then user B also do the color filling phenomena for the same object O_1 then conflicts occurs so a protocol is necessary to resolve the problem of updation intension.

4.3 Deployment of multi-version technique on a document in single editor system

4.3.1 Need of multi-version in single user editing system

Multi-versioning means formation of one and more exact version of current document. This technique is beneficial without requirement of read and writes lock in on a document because shared lock make all this happen smoothly. Sharing of lock we can understand as sharing of information. Lock get share among requested real time user for a common document. This solution creates the storage problem but this is not going to happen in reality in this work. I am providing a solution in such manner no need of extra storage requires to store the data. Files automatically get stored on the server database[19].

4.3.2 Implementation of multi-version technique on object I state

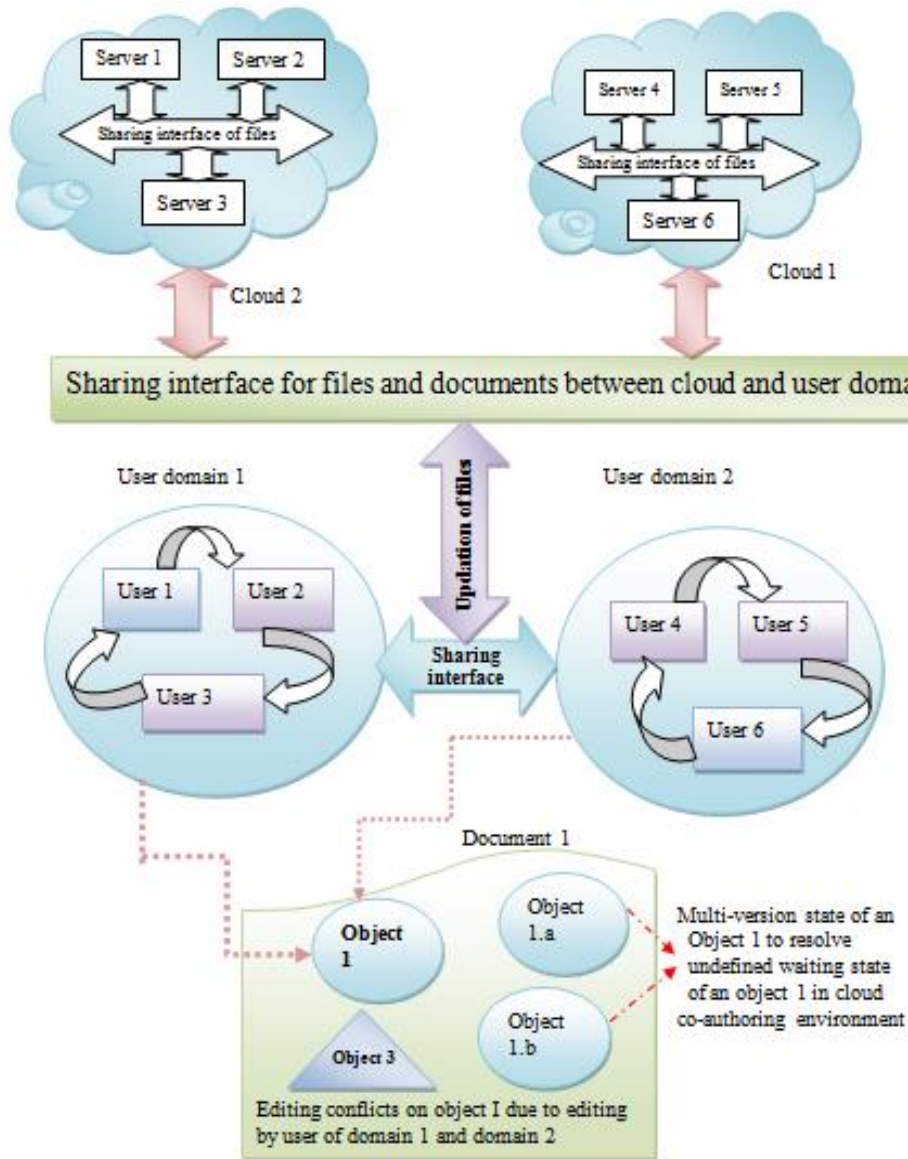


Figure1.p Deployment of an multi-version process on object 1 to resolve the problem of editing confliction in single editor system

4.3.3 Importance of multi-version technique on objects of cloud

Multi-version approach is directive state in term of confliction resolver. This improves the efficiency because at the same` time more than one user can edit the same event of an object simultaneously. Multi-version techniques give solution for the problem of single user editor system in term of editing conflict resolution. Specific numbers of users are allowed to access the

version of current object by the users at a time. This technique also produce problem in term of updation conflicts. If user A do the color filling phenomena for an object O_1 then user B also do the color filling phenomena for the same object O_1 then conflicts occurs so a version control protocol is necessary to resolve the problem of updation intension.

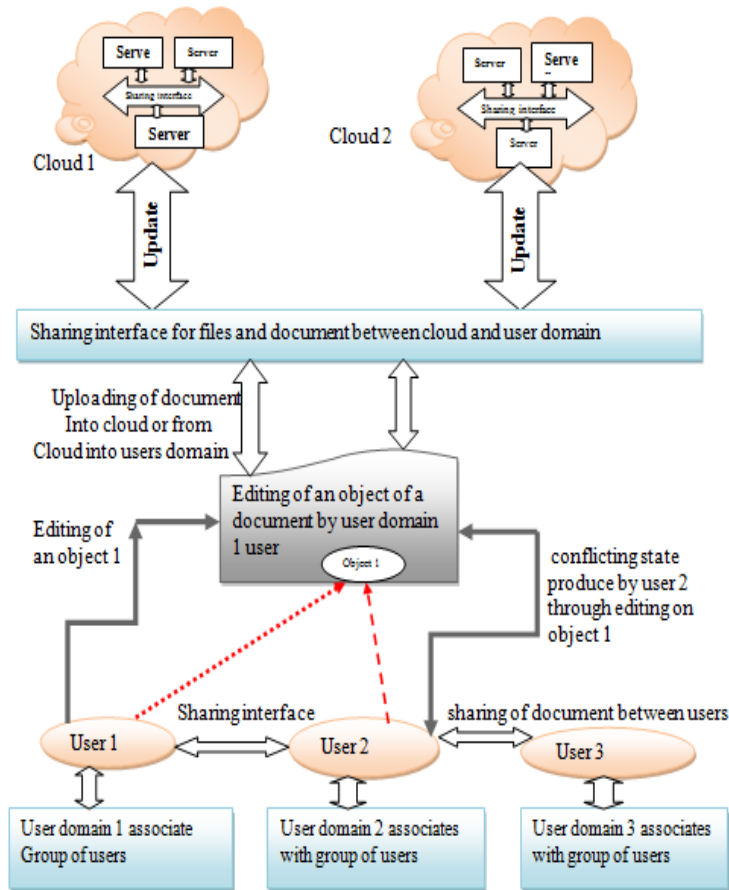


Figure 1.q show the need of multi-version technique of on object

4.3.4 Advantages of multi-version technique of an document

- ✓ **This is true that** when this process implement on a document it makes multiple copies of that document which can create redundancy but all such not going to be happen in this work. Duplication or formation of version can creates a problem if the entire file has to provide a permanent storage in cloud.

Two types of storage work in his work

a) **Local cloud storage domain**

b) **Permanent cloud or main cloud storage domain**

✓ **Local cloud storage**

Local storage of file and document and other types of information can be stored in a server. Version of a document is stored temporarily in this domain. Non-updated files are stored on this. Local storage can create unavailability of current information due to non-updated phenomena of copied documents. Hence storage could not make a bigger effect on the storage service.

✓ **Permanent and main cloud storage**

Main cloud storage phenomena are important on security as well as on update policy. An important phase of overall work of cloud collaboration is dependent on central cloud. Central or sub-cloud itself are cloud admin. Central cloud is the main controller of overall process. In this work I have defined one protocol which states that only updated and non-conflicting files are acceptable by main cloud. This policy removes all unnecessary information of rest of services. Relevant information is only going to be stored in major host I can also say in main cloud.

4.4 Implementation of content base filtering approach

Content is a combination of text and images and combination of characters or numeral value. Understanding of a file is defined through its contents. There are two phases of document: valid or invalid phase. Content filtering phenomena is good because it does not produce a waiting condition for any user for similar documents [20].

Stop-word count technique is used to remove the critical section problem. Processing of user common files in their respected domain of cloud does not affect to a greater extent because a waiting situation does not exist. Maximum number of stop-word combinations for specific files according to their content will be considered as final accepted documents for central cloud. Content base filtering will be deployed on a temporary server which is placed in an intermediate position between local and main cloud. Users, after ending their content, write up, save their file, and at the same time demand for their document access in main cloud. Major cloud accepts the file on the basis of content check mechanism. Priority and waiting time of users are removed completely because files are updated to temporary storage where the filtering process of concurrent documents gets cross-checked. According to users, they have to upload their request to central cloud but to remove redundancy, a checker needs to implement a multi-version main file. Automatically, the rest of the files from local cloud and main cloud only accept the one original form of updated file.

In reality it is not possible to keep store all the version of a file because this will create a redundancy and lack of consistency as well storage problem. Bulkiness of document or data can be removed through proper deployment of a good practice approach. This mechanism prevents the intention violation problem of user for a common document. Central domain only accepts one appropriate version of document which is acceptable. More than one form of a document at same time is not possible. Best case always need acceptance as a winner.

4.4.1 Advantages of content filtering approach

- ✓ Removal of waiting condition is main advantage of this work. Document processing work on two modes which are read and write mode. Maximum ratio of work is based on “read many and once write policy”. This work is totally different because due to deployment of multi-version approach.
- ✓ Removal of update intervention problem on the bases of content filtering approach. In practical multi-version of a same document for similar document is not acceptable. This is true that waiting condition can be minimize for which user are waiting for long time. Every solution further produces some change in next processing phase of a document. As in present work development of updation intervention problem occur which removed by the content filtering process. file with relevant content will store into the central cloud and rest of the copies get removed from local cloud[21]. Central clouds have some protocol according to which it accept or discard the document without priority factor.

4.4.2 Representation of content filtering approach

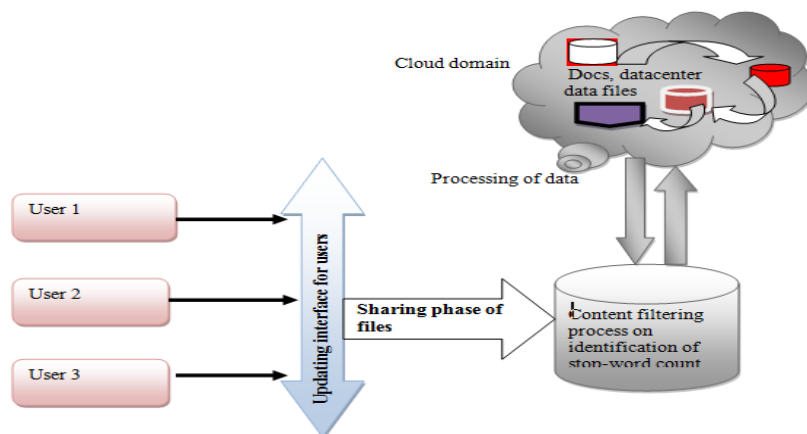


Figure 1.rcontent based filtering approach in central cloud

Description of above represented figure

1 Initially user has finished their write up content in respected domain. In same time all the document demands for central cloud.

2 Real life applications this is not possible to simultaneously accept the document by three users and give them execution because quality of cloud effected in greater extent.

3 Main host will receive all the files but in temporary storage of its database. Text tester is deploy in database will check the essential word in document based on important stop-word content.

4 Document of which important stop-word count is maximum get priority to get access of updation service.

4.4.3 Testing phases in document editing process of cloud collaboration

- ✓ user domain testing
- ✓ cloud domain testing
- ✓ upload interface testing
- ✓ share interface testing
- ✓ edit interface testing
- ✓ Update interface testing

User domain testing

in cloud only those users can share the files who are already registered with cloud collaboration process of particular field. For example cloud collaboration of business workflow system [22]. Users integrate together with clouds through collaboration process.

Cloud domain testing

Cloud is a network which integrates itself with some other cloud for the sharing of resources. Various wireless protocols are used for the communication process. in terms of cloud testing in collaboration process when a user request for a service from this it should be available . If cloud is not able to process service then through upload interfaces it fetch services from other cloud and process for the requested user.

Upload interface testing

Upload phase testing based on the fact that in collaborating editing system if a user edit new object then the transformation of new state from old state take place. This new updating state

should be necessary to upload to each cloud which involve in the process of workflow definition of cloud collaboration editing system[23].

Share interface testing

In share interface testing it is necessary to check whether the users in cloud are capable to collect a common document from other users in the process or not.

Edit interface testing

Edit interface testing the editing conflicts are trying to resolve through the accessing of new techniques.

Update interface testing

Update interface testing new copy of updating event should be available to each cloud domain users. If upload interface do not work properly new schemes cannot available to other users in the process which results to inefficiency.

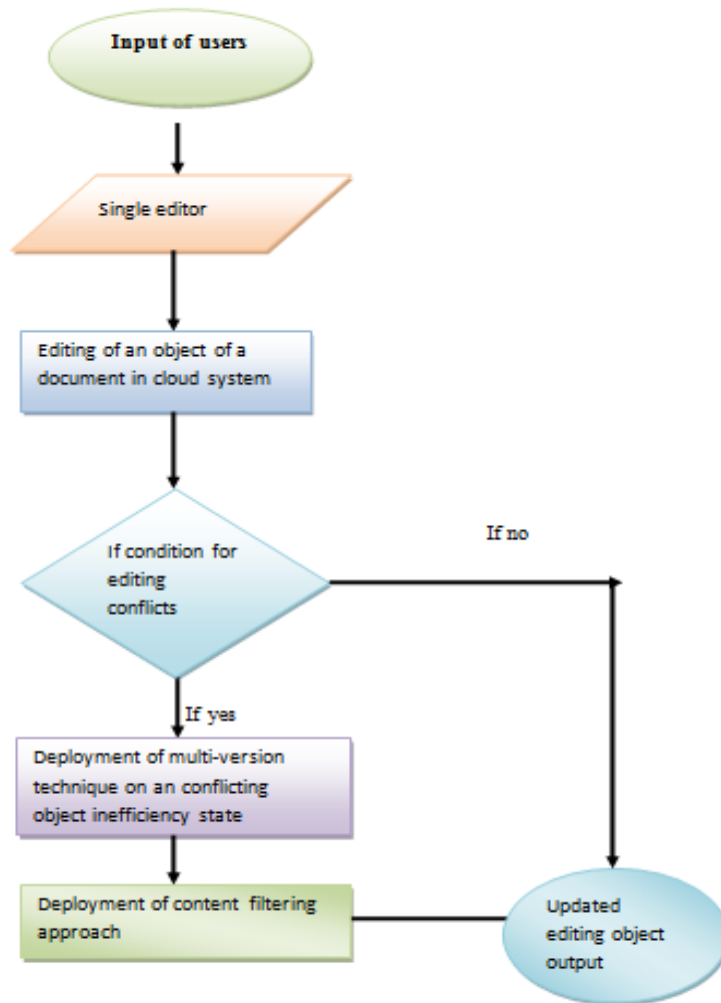


Figure 1.s Flow chart diagram of multi-version and content filtering deployment

✓ **Integrity of connection between the clouds**

Number of user should be specifying before the deployment of overall architecture of cloud collaboration.

User in cloud collaboration process should be specific according to business oriented approach.

CHAPTER -5

METHODOLOGY

Overall implementation of this research work depends on this model. Proposed model of his work depend on the connectivity of the sub modules. Core research work embeds this proposed model into cloud collaboration architecture. Following steps are embedded in this work.

Step 1 login page will open at starting step known as registration form page. Authentication of member in cloud collaboration process defined here. User need to fill his detail according to mandatory condition. Already registered user cannot login again as a new user. All login details are entering into a database [24, 25].

Step 2 Registration page link to the new cloud and fill details into major cloud. In next step login as user page open.

Step 3 Next page which open after registration is user log in form. Only authenticated user can further use the services.

Step 4 now user panel page open and all the service are attach with inbox, uploading of new file, get file like options. After fill the appropriate query we fetch towards a logout tab.

Step 5 Edited file will upload to database page where a checking of valid or non valid conditions apply on a page. If file is not valid then it does not exist in the database any more.

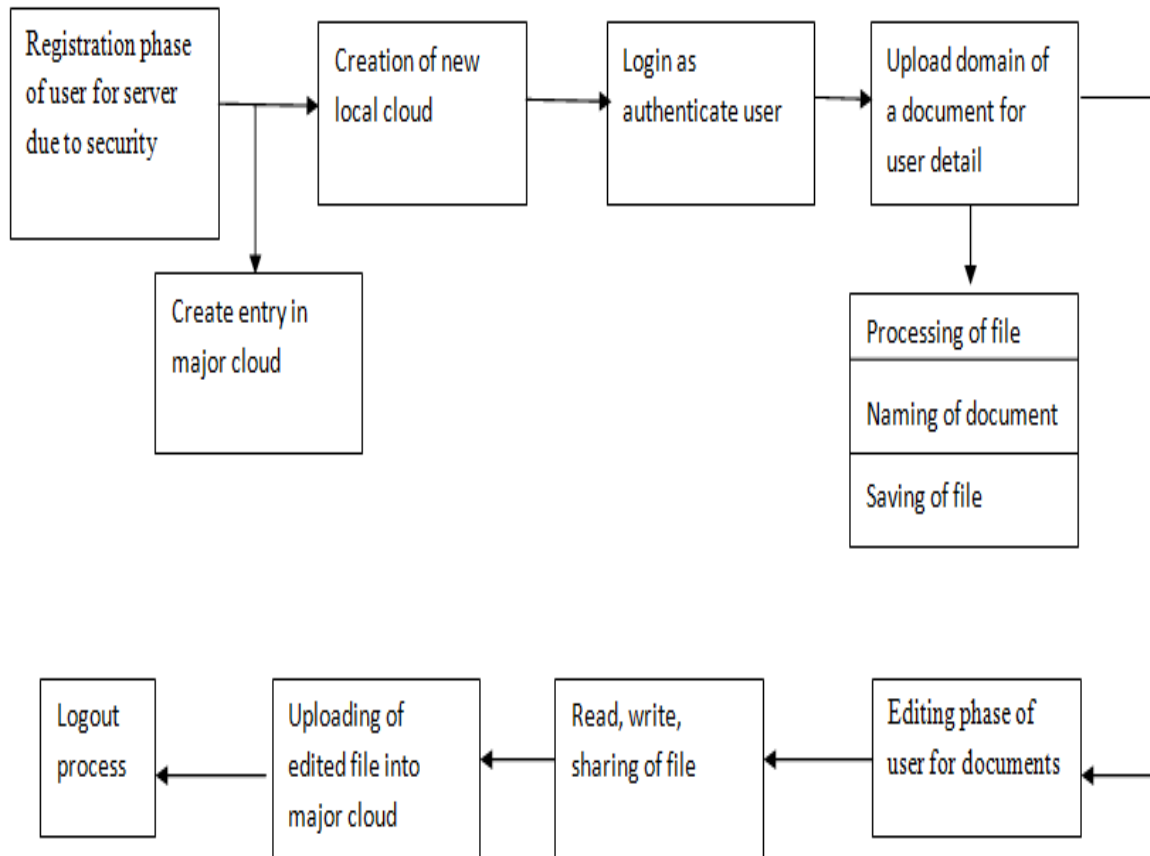
Step 6 read write mode option placed in available file. File can be writing or upload by a same user. Common user also can edit other domain author file but firstly it has to save in its own storage on cloud.

Step 7 After finishing of editing user can upload a file into central cloud without intervention of others. File upload to main server without any priority option. File filter page will check the valid page updation according to its stop-word count policy.

Only one file will place in major cloud and then it get updated to all the user through sharing option.

5.1 Proposed model

Part 1



Proposed mode of implemented work

CHAPTER -6

6.1 IMPLEMENTATION AND EXPERIMENT

Implementation of this work embeds on net beans which are a good tool for server deployment and also describe the environment of cloud collaboration. Work of this research mainly depend on two approaches which are

- a) Implementation of multi-version process.
- b) Deployment of content base filtering.

6.2 Cloud is a combination of more than one server.java programming is fruitful for this work.

A net bean is a java developing tool. This tool supports an integrated development environment to tackle with java program. Editing and debugging of files take place smoothly with graphical user interface. Programming performance increase with use of this tool. Net beans can use on windows, Linux, Mac OS X.

6.1.1 Starting window of this tool

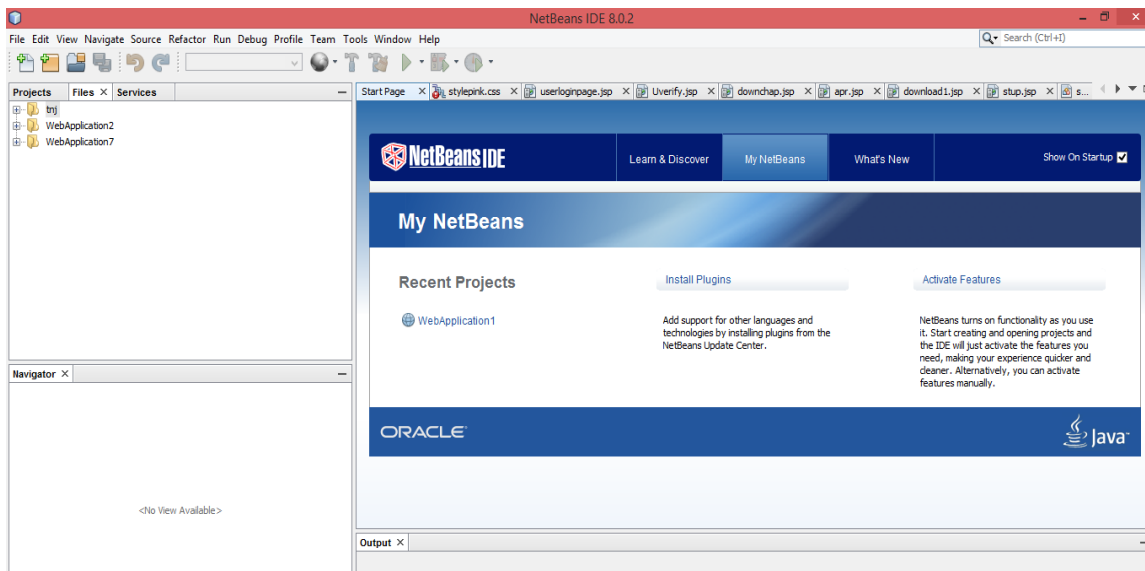


Figure 1.t Start window of net bean tool of java

- ✓ Java main window contain project, file, services tab which provide interaction with further services.

- ✓ Main pallet of net bean window contains all commands which need to access this tool.
- ✓ Toolbar pallet contains the editing and redoes option for program execution.
- ✓ Speed of tool bar is good than menu bar.
- ✓ Workspace is combination of windows panel which associate with debugging tool and methods.

6.1.2 Project creation

This phase of tool is important because it integrates with all of the programming files. When we open the choose project option of a tool window then it associates with categories for example, java, java FX, javaEE.HTML, Maven, PHP, Groovy, C/C++.

Project tab integrate itself with three different types of tabs which are as follows

- ✓ Application of web
- ✓ Web application with existing resources
- ✓ Web-free form application

6.1.3 New web application window

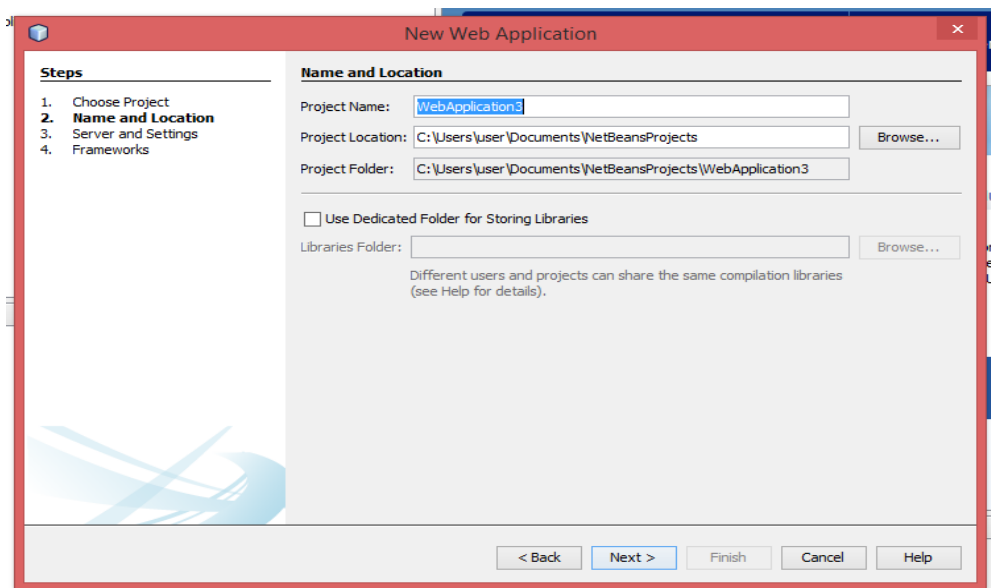


Figure1.u This window of net bean specifies a project path domain on disk.

6.1.4 Sever setting tab

According to our building requirement of project we select the server from in built option of a tool. Suppose I have to install a glassfish server 1.4 then I will select that option and future connectivity with server get set up.

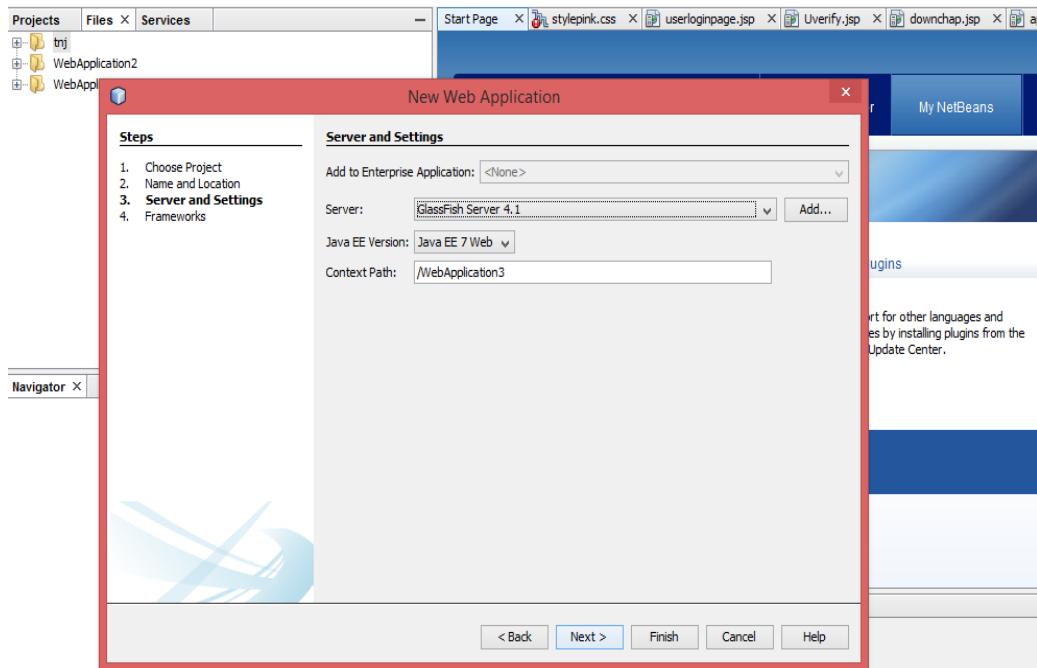


Figure 1. Server

setup window

6.1.5 Programming connectivity with net bean

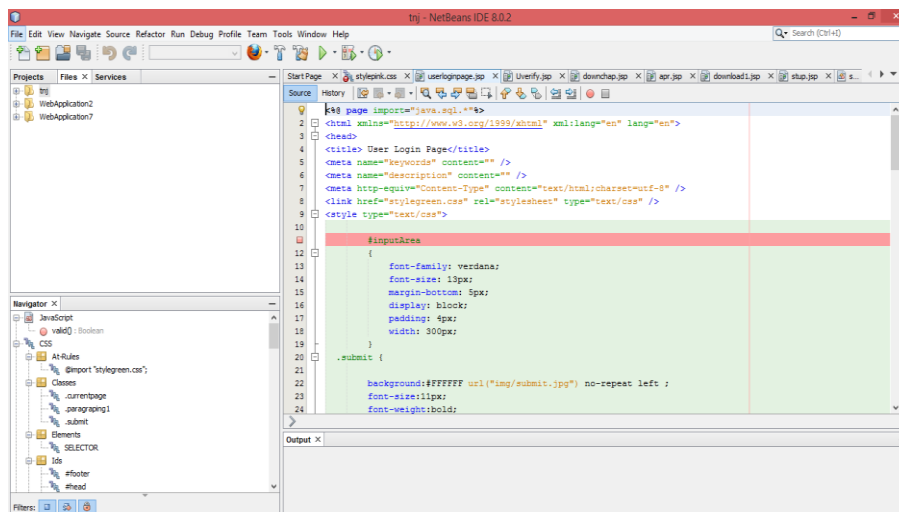


Figure 1.v. Net bean IDE 8

6.2 Introduction of java language

James gosling in 1991 develops a java programming language as Sun Microsoft. Ancient name of java was oak. Due to conflicts between two languages naming convention get transform. Formation after coding result work as big tool for development of sensors. First success of java was seen in star7 remote control.

As time grow up it spread its wings in World Wide Web application and slowly with time come into internet.

Java technology supported environment

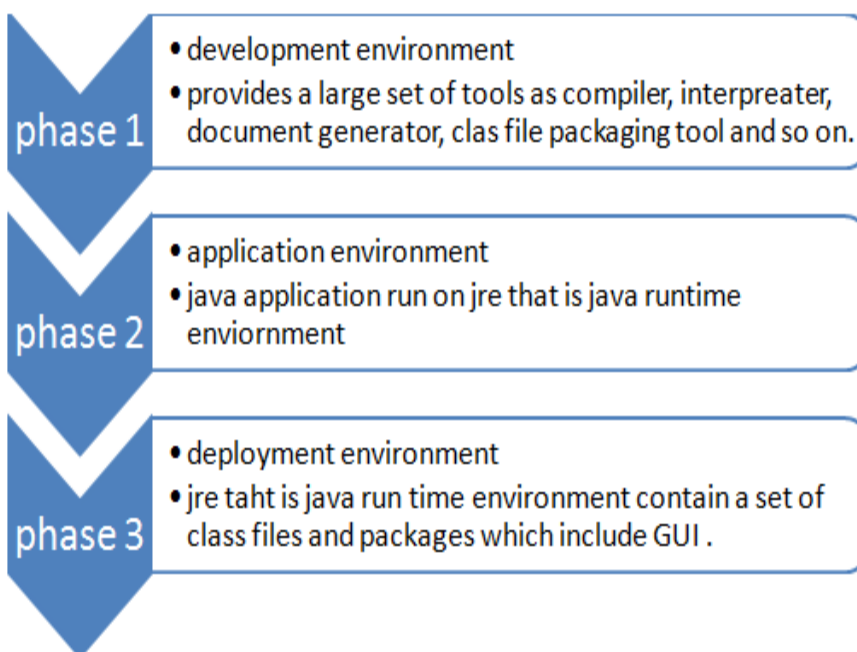


Figure 1.w merging of various java environments for development of an application.

6.2.1 Important features of java

1 JVM- Define as java virtual machine

This machine is considered as a virtualization of java machine on a real system. Hardware dependency of java program depends on it also provide support for java programs. It works on byte code. System independent nature is its important feature but one important condition is that virtual machine should download on that system.

2 Garbage collections

This is an important feature of java language which makes it unique and attractive from rest of the languages like C, C++ etc. Programmer donot have to worry about deallocate process of memory. Garbage collection thread of java makes this automatically happen to provide a freed space for thread.

2 Security of a code

Byte code provides security for all information thread of this language. Java run time environment is another important aspect which makes these characteristics to happen in reality.

6.3 Java important integrated programming domain

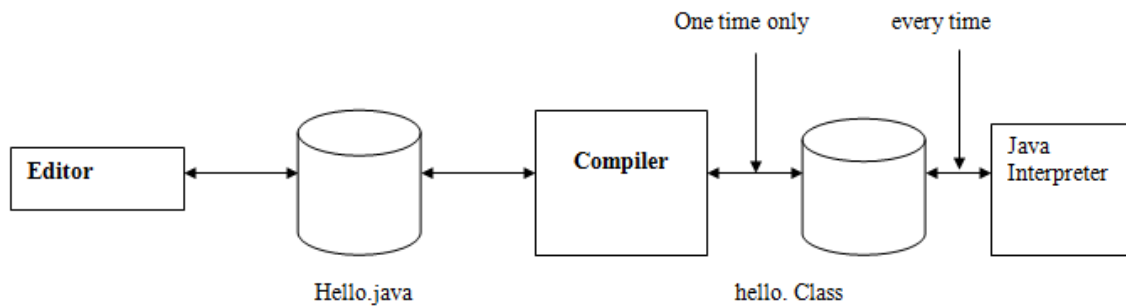


Figure 1.x Java programming compilation phases

6.3.1 Relational operator in java

Table 1.4 Relational operator commonly use in java

operator	use	description
>	Op1>op2	Op1 is greater than op2
>=	Op1>=op2	Op1 is greater than or equal to op2
<	Op1<op2	Op1 less then 1 to op2
<=	Op1<=op2	Op1 and op2 are not equal
==	Op1==op2	Op1 and op2 are equal
!=	Op1!=op2	Op1 and op2 are not equal

6.4 Communication process through java

Client work on following important points on which we need to pay attention

- 1 Connection between client and server
- 2 Message send service to server
- 3 Message receiving process from server.

6.4.1 Reading of data from the buffer

Step 1 Connection setup to server

Socket chatsocket = new socket ("127.0.0.1, 5000"); Port number is the port for our chat server.

Step 2 Make an input StreamReader chained to the sockets

```
InputStreamReader stream = new Input StreamReader (chatsocket.getInputStream ());
```

Step 3 Make a BufferedReader

```
BufferedReader reader = new BufferedReader (stream);
```

```
String message =reader.readLine ();
```

Figure 1.y Represent a socket communication in java threads

6.4.2 Client and server reading of data through socket

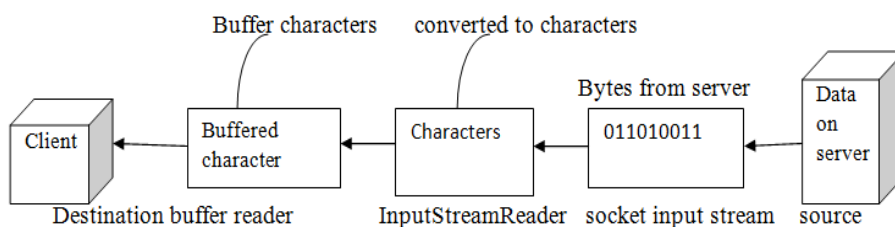


Figure 1.z Buffer reading process between source (server) and destination (client)

6.4.3 Write data to socket

Step 1 Socket connection to server

Socket chatsocket = new socket ("127.0.0.1", 5000); make able to write to a server

Step 2 socket low level connections.

PrintWriter writer = new PrintWrite (chatsocket.getOutputStream()); this socket gives us a low level connection stream and print writer give it to print writer constructor.

Step 3 Write (print)

Writer.println ("message to send");

6.4. 4 writing process reverse of reading process of socket based communication

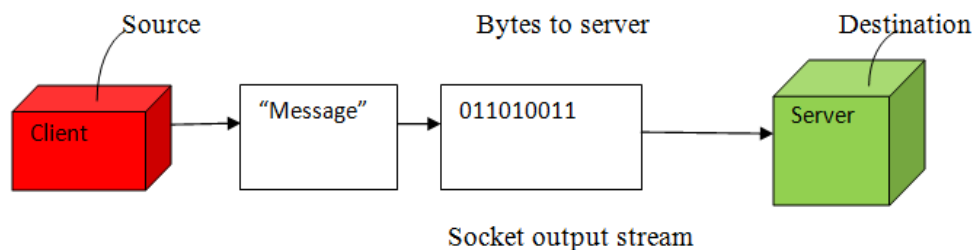


Figure 1.A1 Editing service deployment

- ✓ Client and server communicate through socket connection.
- ✓ This process represents a communication setup between two applications that is client or server.
- ✓ Port number including 1023 represent services of FTP, HTTP, SMTP.
- ✓ Buffer Reader integration with InputStreamReader produces reading of text data from server domain.
- ✓ Print Writer command link with socket output stream, prints () method use for sending of string to server. These processes write text into server.

Table 1.5 Representation of integer

6.5 Types of Integer specification in java

Name	Width	Range
Long	64	-9,223,372,036,854,775,808,775 to 9,223,372,036,854,775,807
Int	32	-2,147,483,648 to 2,147,483,647
Short	16	-32768 to 32,767
byte	8	-128 to 127

Byte

Byte is smallest integer type. This is 8 bit type range from -128 to 127. byte are especially useful with stream of data. This is use by byte keyword.

Short

Short is 16 bit. Range of short is from -32,768 to 32,767. This type of short is rarely used in java. This is mostly acceptable by 16 bit of computer.

For example : Declaration of short is as

```
Short s;
```

```
Short t;
```

Int

Int is mostly used by the java. It has range of 32 bit. Accepted range is from -2,147,483,648 to 2,147,483,647.

Long

This is 64 bit type and helpful to for such value which is not acceptable by int. Range of long is quite high and acceptable by the whole numbers.

Floating point type

Single precision value is use by the float which is of 32 bits. Precision are of two types single and double precision. Fractional value calculation is important in float. When we have to represent the cent or the dollar we need deployment of float.

Table 1.6 Representation of floating point type in java

Name	Width in bits	Approximate range
double	64	4.9e-324 to 1.8e+308
float	32	1.4e-045 to 3.4e+038

6.6 RMI (Remote Method invocation)

This application allows the invoking of an object of two systems on which java virtual machine has already imbedded. It do not work without jvm. Package on which it works is java.rmi. Deployment of this invocation method is too much helpful in distributed applications.

Architecture on which RMI woks

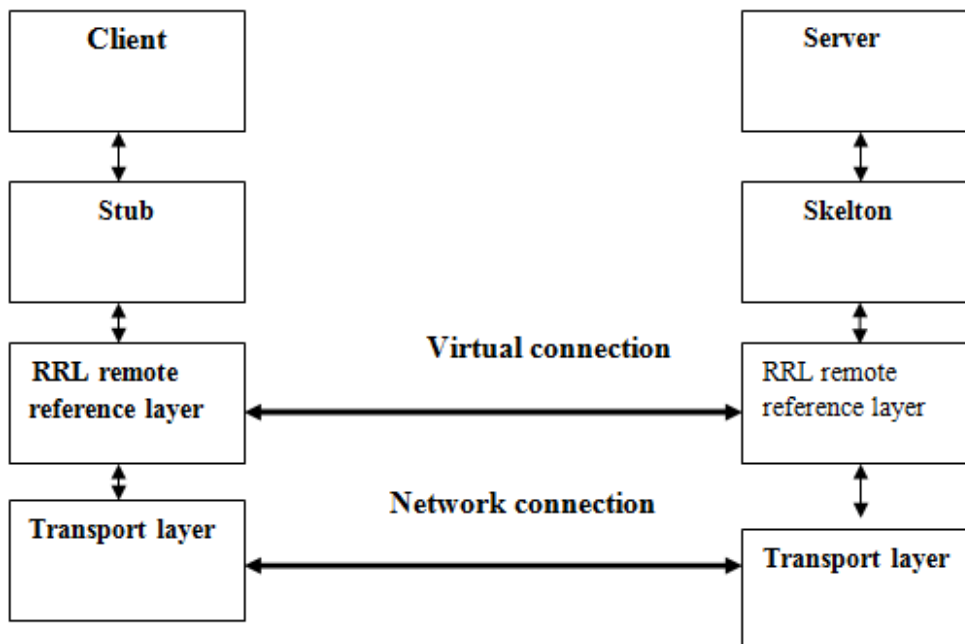


Figure1.A2 Network and virtual connection establishment in RMI

6.6.1 Description of architecture

This representation work on two phases

- 1) Client program
- 2) Server program

In server domain creation of remote object occur in which reference is deliver to such object which is easily received by the client domain.

Client program make client request for a service from server and then method invoke phenomena start to implement.

6.7 Implementation of remote service.

We can make the remote service which is easily acceptable by the server is describes as follows.

Step 1 Make a remote interface.

The remote interface defines the methods that client call remotely. Stub and actual service will implement this.

Step 2 make a remote a implementation

Real work is base on this. It has remote method which is define in remote interface.

Step 3 generation of stub and skeleton

These are client and server helper. We do not care about the source code which produces it. All this make happened by the runic tool embed with java development kit.

Step 4 RMI registry

In this user have to get proxy.

Step 5 starting of remote service

Here we get the service object up and running. Class instances get registered with RMI registry. This registry makes service available for clients.

6.8 Programming concept of remote interface

6.8 Programming concept of remote interface

```
1 Extend java.rmi.Remote
Public interface My Remote extends Remote{
2 Declare a RemoteException
Import java.rmi.*;
Public String sayHello () throws RemoteException:
}
3public String sayHello () throws Remo Exception;
```

6.9 What is servlet ?

6.9.1 Servlet work with java and execute oh HTTP web server.

Client fills out a registration form and click submit. HTTP server get request and check is this for server and then sends the reuest to the servlet.

Servlet work with java and execute oh HTTP web server.

Client fills out a registration form and click submit. HTTP server get request and check is this for server and then sends the reuest to the servlet.

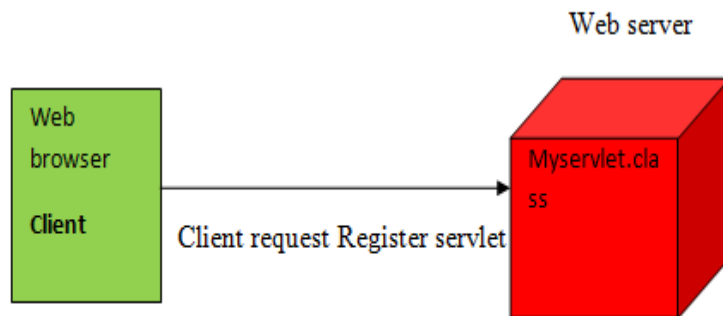
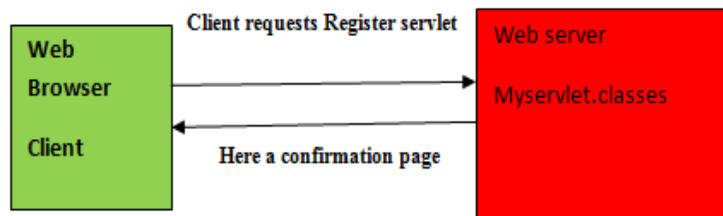


Figure 1.A3 client request servlet

6.8.1 Addition of the data into the database. This form a web page and send it back to the client abd display on browser.



CHAPTER-7

7.1 Experimental results

Cloud computing is becoming an increasingly popular enterprise model in which computing resources are made available on-demand to the user as needed. The unique value proposition of cloud computing creates new opportunities to align IT and business goals. Cloud Computing is broadly classified into three services: —IaaS, PaaS and SaaS. The cloud provides various facilities to its users under the umbrella. Hence it also provide the access to the various users on the cloud such as users can upload the files, download the files and edit the files which leads to the multiple access to the file i.e. multiple users can access a file at same time which can leads to the a synchronization in the process and sometimes it may also leads to the losing the content or file.

This project provides a solution to the problem of multiple access to the files by multiple users at the same time. In this project the users have to register before accessing the files over the cloud. At the time when user gets registered the corresponding local cloud server will be generated with respect to the particular user which will save the various information tables regarding the data related to the user, a file table which will consist of all the files that are uploaded by the user on the cloud and an inbox.

Correspondingly, there is a major server which will track the activities every local cloud server of every user. The major cloud server will maintain two tables such as user which will consist of information regarding all of the users and a files table which will maintain the records of each and every file that is whether uploaded or downloaded by the users.

ACCESS: In this project user will get the following access to the files:

1. Detail
2. File Upload
3. Get File
4. Share File

The figure below is the first page of the project which displays a welcome message for the user. This page has three tabs or buttons embedded on it as “Home”, “User Register” and “User Login”. For the new users the user register button will link towards the registration page, for already registered users user login page will leads to the login page where user can login to the cloud by entering the valid identity.


Step1 Processing of home page



Figure 1.A4 home page

Step 2

The figure2 presents the page that will generate after clicking the user register button. It will contains a form with various fields of interest such as user id, username, password, contact number, country etc. after filling these mandatory fields user have to click on submit button which will leads to the completion of the registration process.



The screenshot shows a web page titled "Welcomes New User" with a navigation bar containing "Home" and "User Login". The main content area is titled "User Register Here" and contains a registration form. The form fields are: User-ID (788), Username, Password, Email, Mobile, State, Country, and Zip code. There are "Submit" and "Clear" buttons at the bottom of the form. A decorative image of hands is on the left. The footer reads "ONLINE REGISTRATION SYSTEM".

Figure 1.A5 Online registration for new users



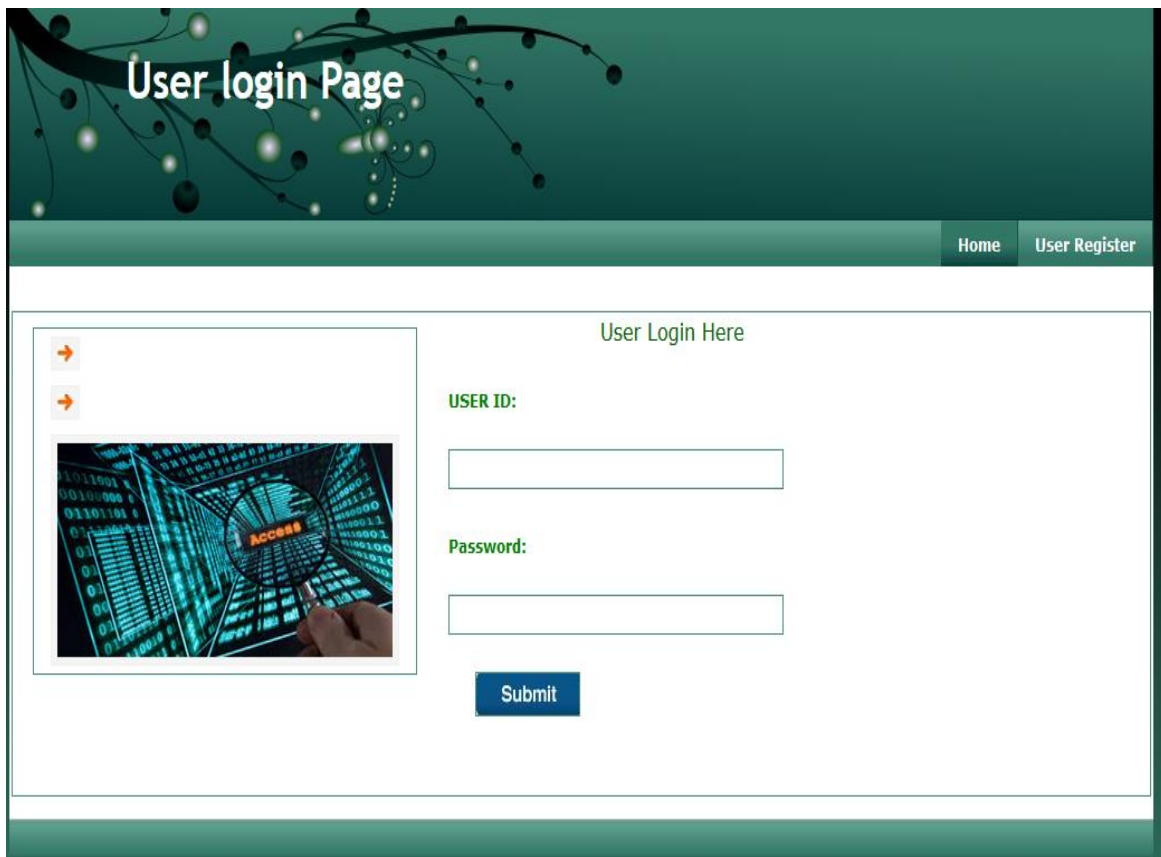
The screenshot shows the same web page as Figure 1.A5, but with the registration form filled out. The details are: User-ID: 583, Username: tanuja, Password: kaki, Email: nujaristaker@gmail.com, Mobile: 9816324560, State: hp, Country: india, and Zip code: 123. The "Submit" and "Clear" buttons are still present. The footer reads "ONLINE REGISTRATION SYSTEM".

Figure 1.A6 Details of new user in registration form

Step 3

User login page

If you are already a registered user then you have click on the login tab that is shown on the right corner of home page. This click will take the user towards the login page where user have to enter the user id and password that was allotted at the time of registration. After filling up the fields last step is to click on the submit button.



The image shows a web page for user login. The header is dark green with the text "User login Page" in white. To the right of the header are two navigation links: "Home" and "User Register". The main content area is white and contains the text "User Login Here" at the top. Below this text are two input fields: "USER ID:" and "Password:". A blue "Submit" button is located below the password field. On the left side of the main content area, there is a small image showing a hand pointing at a digital display with binary code and the word "Access".

Figure 1.1A7User login page which for already registered users

Step 4

Authentication check

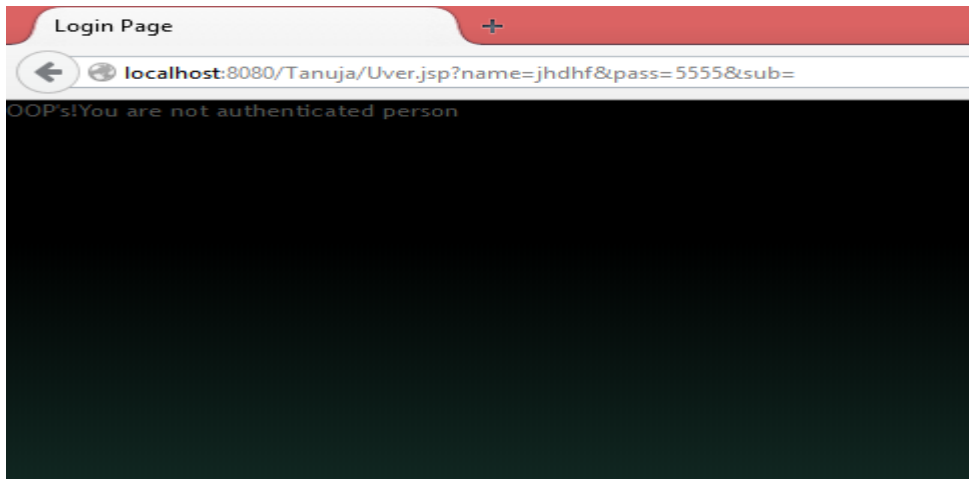


Figure 1.A8 authentication check stop access to undesired users

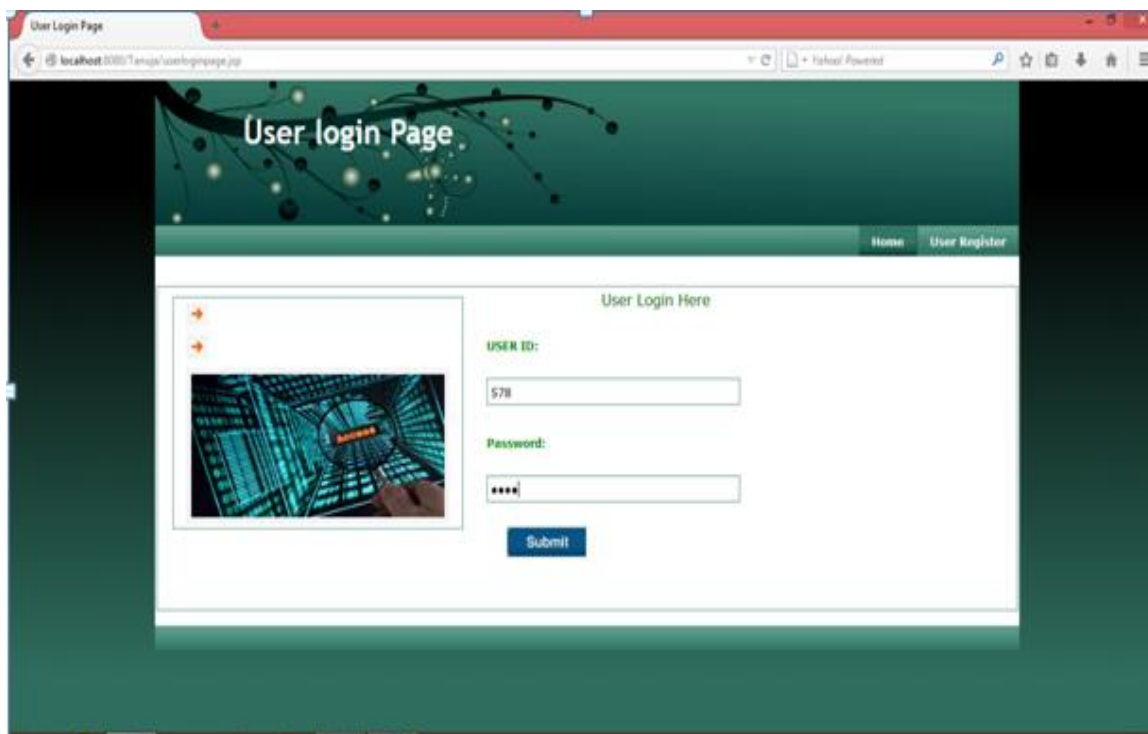


Figure 1.A9 Entry of individual detail and then press submit button if this is valid

Step 5

Sever Database entry of User in main cloud

Central cloud

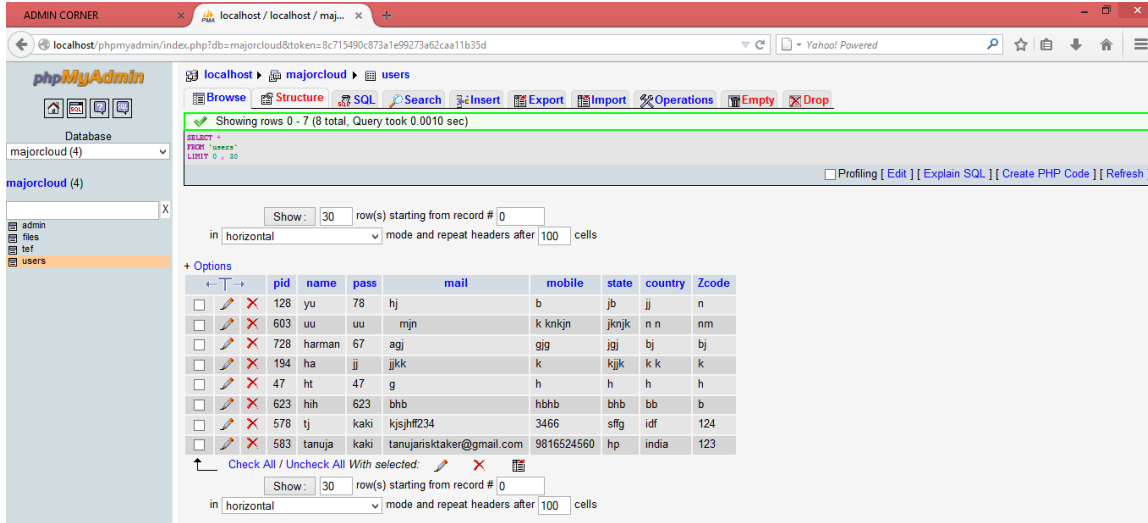


Figure 1.A10 Database entry of valid user credential

Local host database for user

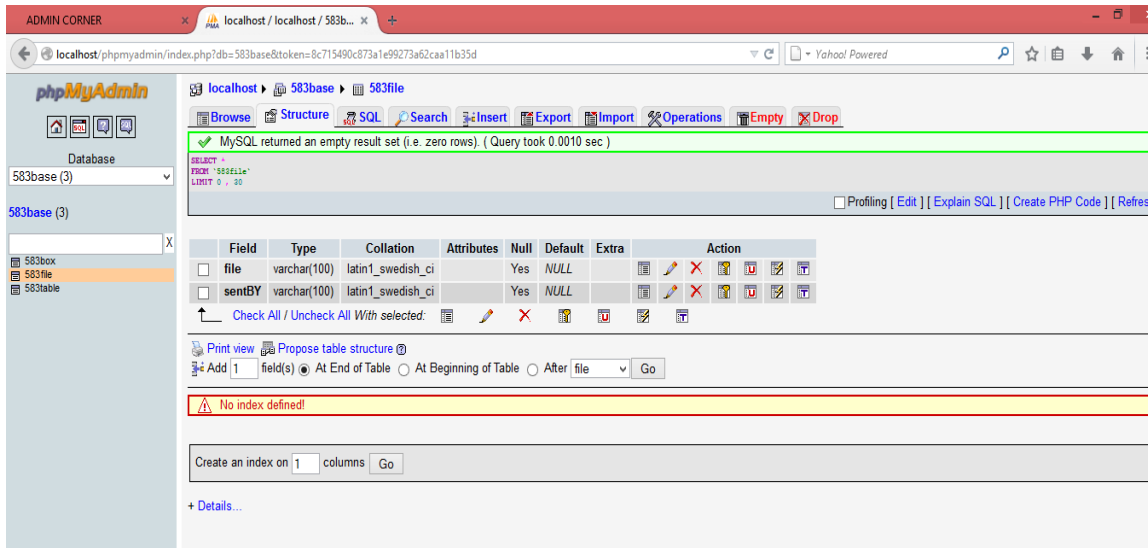


Figure 1.A1 Local host database entries

Step 6

User panel webpage work on six important tabs

1. Detail: On click, this will display all the details related to the user who is logged in currently.
2. Upload New File: This button will allow the user to upload new file to the cloud from user's side.
3. Upload Edited File: This button will require to click only then when the user have edited any file and now wants to upload the edited file over the cloud server.
4. Get File: This will permit the user to download any file from the cloud server to its local cloud server.
5. Logout: On clicking this button the user will logout from current session.

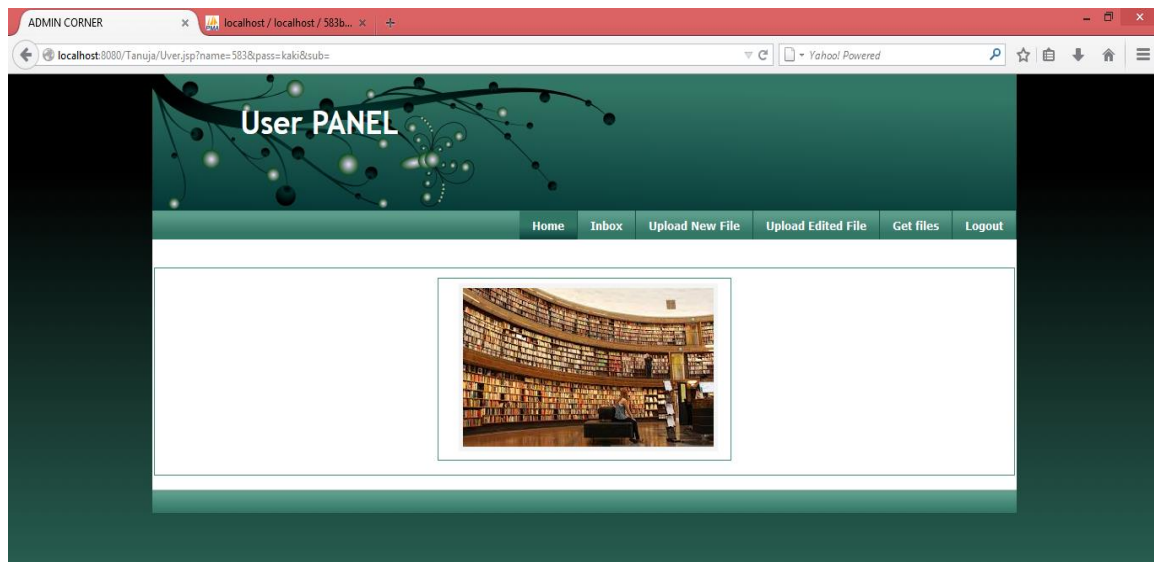


Figure 1.A12 User panel webpage

Important tabs are

- 1 Home tab link
- 2 Inbox tab link
- 3 Upload new file
- 4 Upload edited file
- 5 Get file
- 6 Logout

User panel page inbox tab link

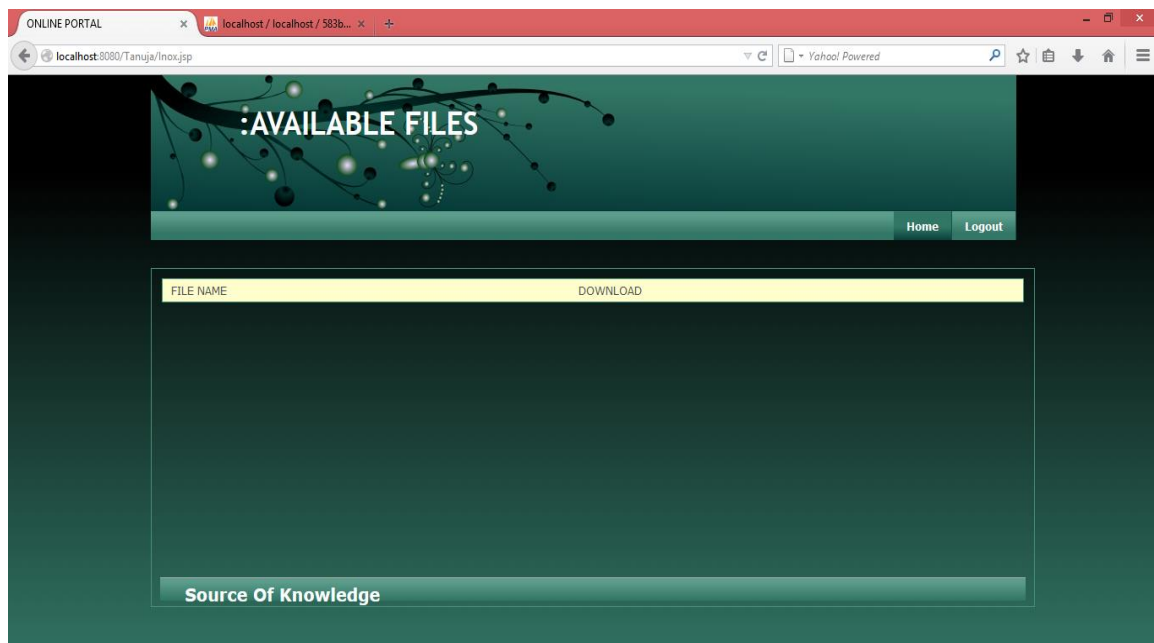


Figure 1.A 1 3Disable link due to unavailability of current uploading of file

Logout accessing

- 1 Logout link option will fetch to further link.
- 2 After this we come back to home page of user again.
- 3 Upload edit files user page link
- ✓ Click on this we get edited file share with database

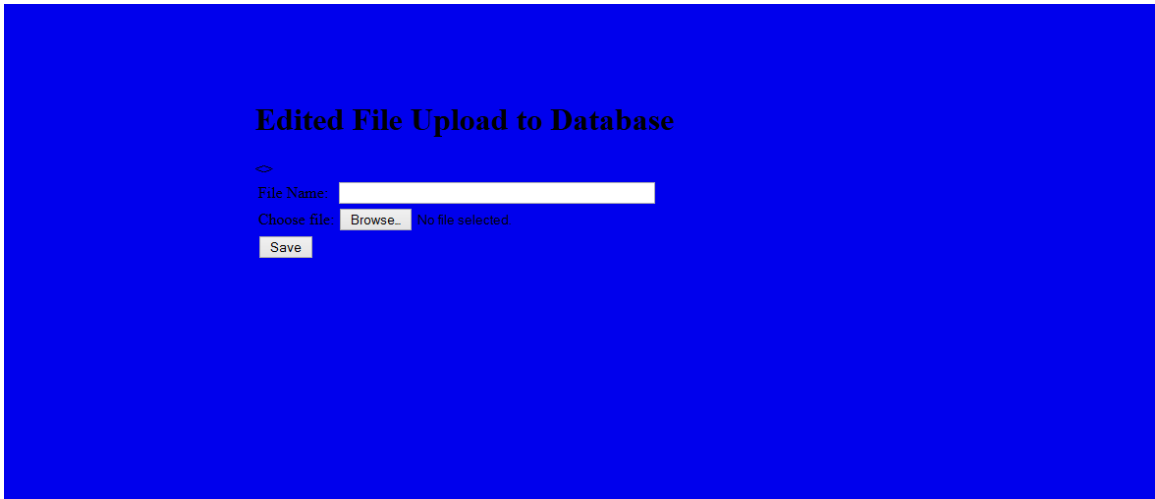
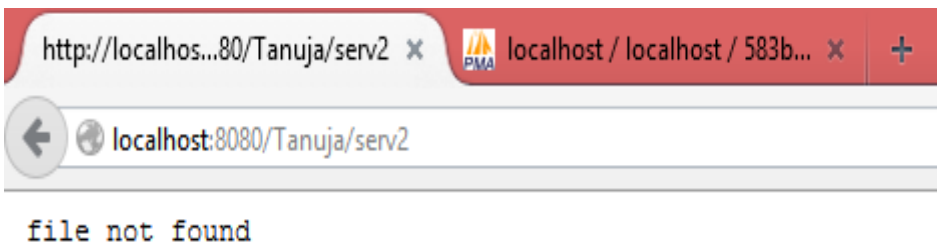


Figure1.A 14 File uploading link

Browsing of a file in choose file tab .if browsing get complete move toward save tab option. If file not exist in database we get file not found option.

Figure1. File not found message



- ✓ after successful file sharing option we fetch towards home page and select further option **for a file.**

Step 7

Upload new file to server link

When click on this tab new file upload to server. It has three important tabs

- 1 file name
- 2 submitted by link
- 3 choose file tab
- 4 save file to database

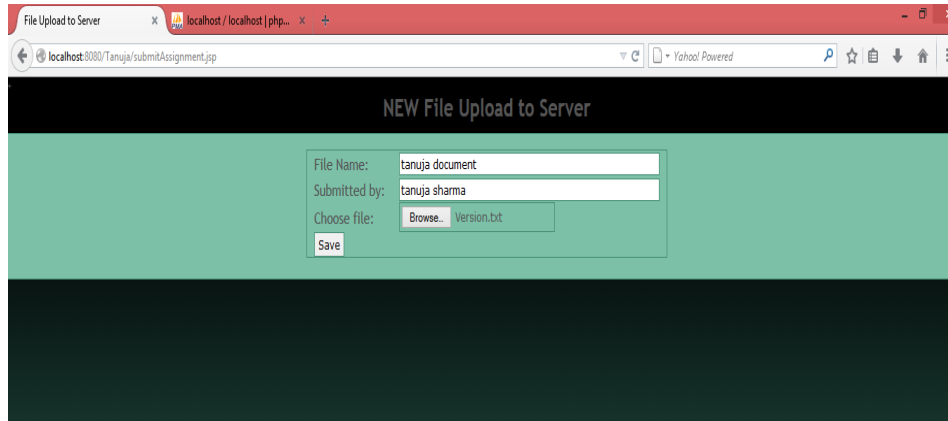


Figure 1.A 15 File upload to server link

Step 8 get file link page

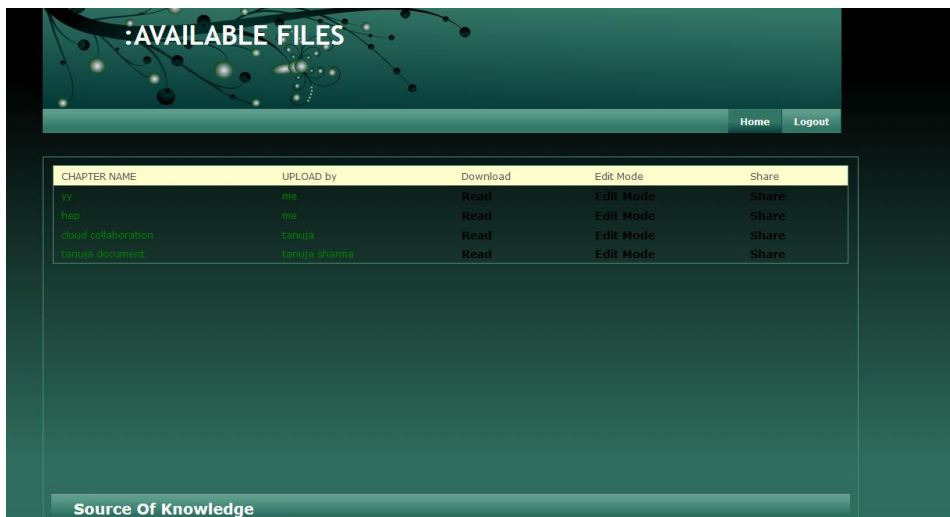


Figure1.A16 Available file page with new file uploading link

✓ Each new uploaded file have four integrate connection to move further

- 1 Uploaded by link

2 Download link

3 Edit mode link

4 File share link

Any file can be read by all users in that domain

✓ **When I click on read file tab I get the following link**

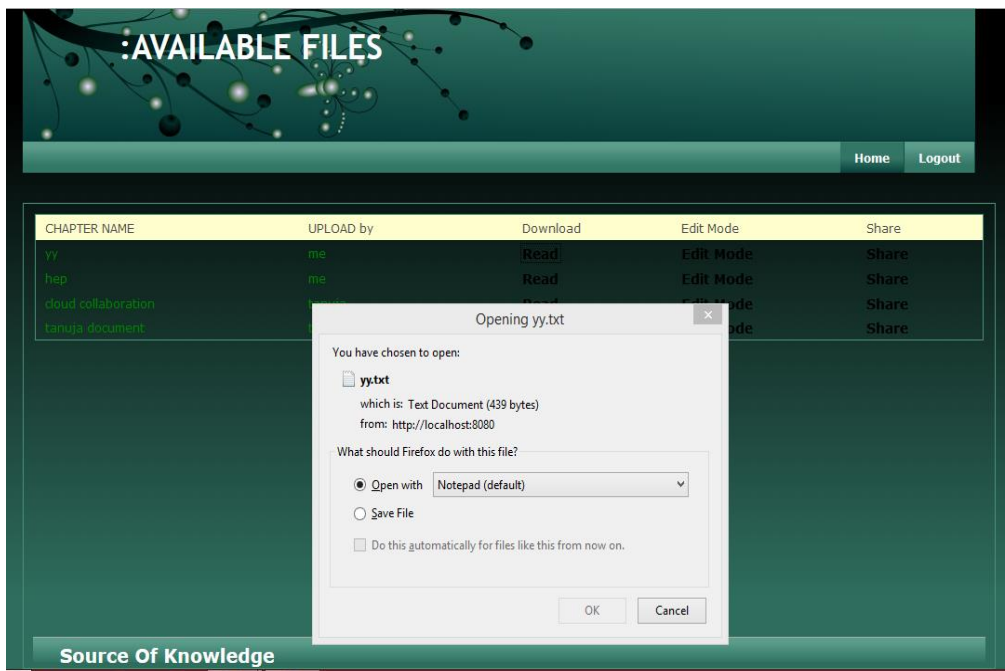


Figure1.17 Read mode of file by user

According to current work I only provide access to .text file

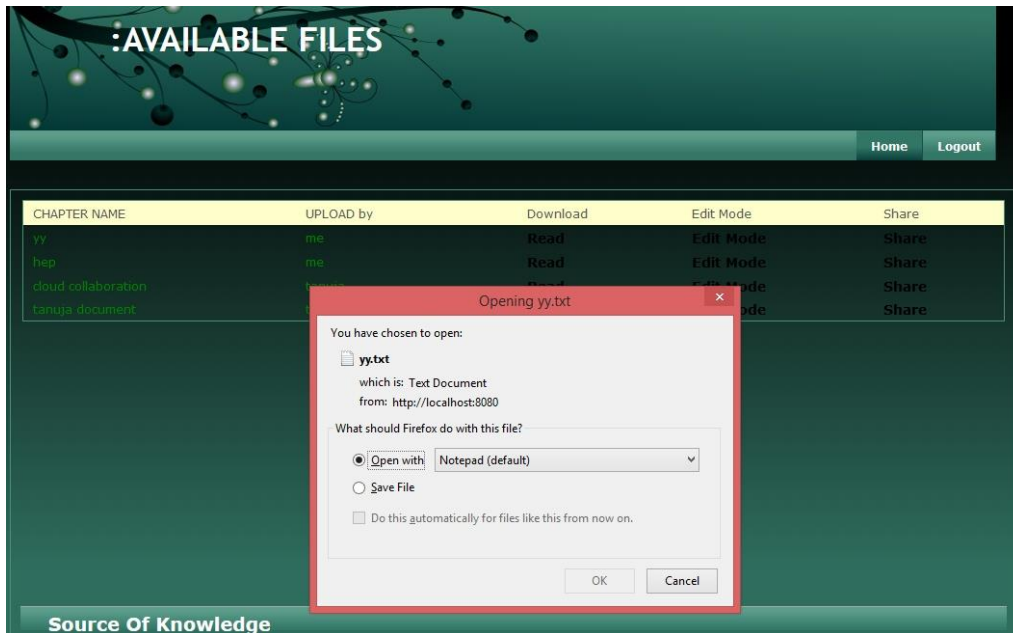
1 Saving file option tab

2Open with option tab

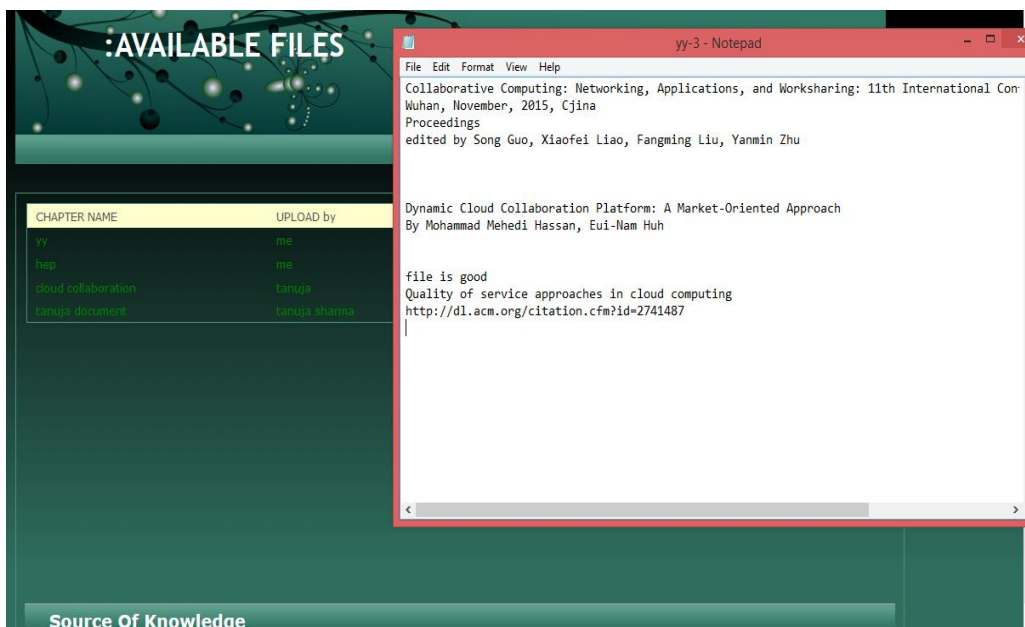
✓ **Write option of a file**

User can write other user file also by click on write tab. Cloud collaboration is user access independent platform. Two tabs like open with and save file tab make all this happen.

Write mode of user in cloud environment



File editing process in already existing file



Sharing tab option access

This page access provides sending file to multiple user capabilities option. It has two link home and logout link.

- ✓ User id, name and select receiver are main links of share page in cloud.

Sending of file to more multiple users



Figure 1.A 18 Represent the share mode of a document in collaboration accessing of files. When click on send tab file received by respected user in that domain.



Figure1. A19 Sharing of file to selected collaborated users of this environment

Step 9

Admin login page credentials

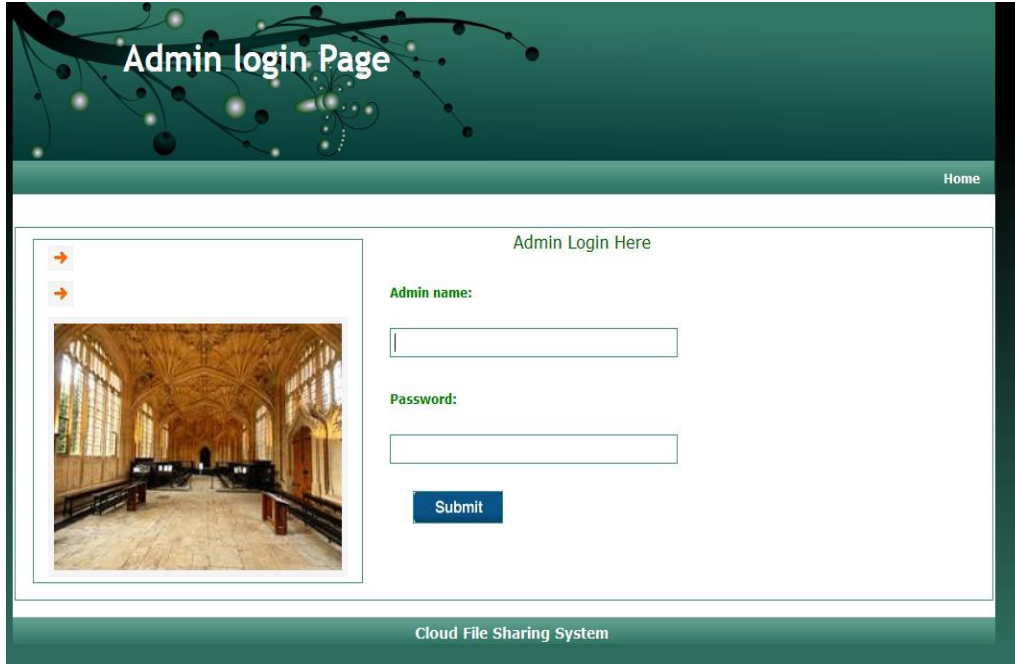


Figure1. A20 ADMIN LOG IN PAGE

Log in detail form

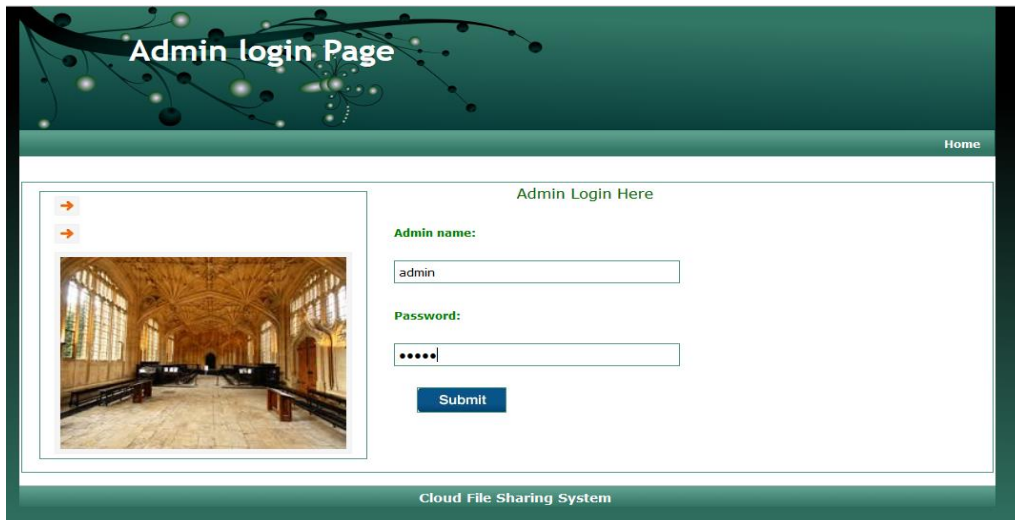


Figure1.A 21 Admin name and password option link after click on submit we get link of next page.

When click on submit button we get new page as administration panel.

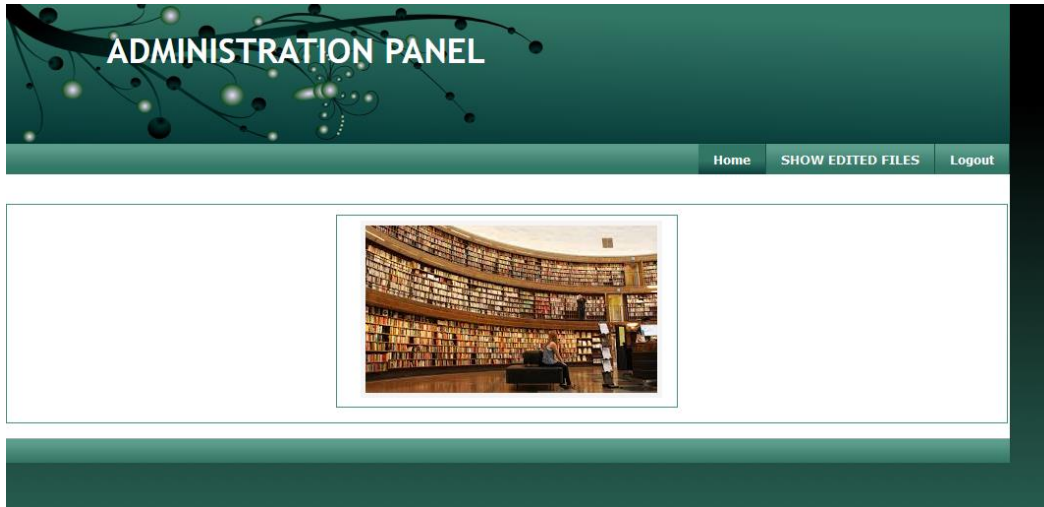


Figure1.A2 1Administration panel web page

Following three option associates with it are as

1Home PAGE

2Show edited file tab

3 Logout link

Sep 9

Content filtering webpage on base of stop-word



Figure1.A22 File filter system to remove updation intension problem

CONCLUSION AND FUTURE WORK

Science in every field link with so many fields as a social network analysis, in form of web mining with goggle application, data structure, cloud computing, field of cloud collaboration. Goal of this work is to remove the basic problem when we talk about the deployment of lock on real time application. Locking mechanism is good as a security and also prevent from conflicts. According to previous analyze of proposed research when I study about the concurrent accessing of file in cloud environment long waiting of user for their turn on specific problem creates a huge problem in term performance, efficiency and the very important is time factor. Major complexity occur in co-editing of cloud collaboration field is co-authoring co-editing of common document and second is updation intension problem. Analysis of this perplex situation solve through multi-version and content filtering approach. Accessing of multi-version approach result as removal of read and write access for single user in single user editor system. If access is given for a particular object or document then rest of user when demand for same object writing process they came under long waiting time for their turn for that document. This solution provides an access the common object in its respective field. Major second issue develops when each user access or have finished their writing procedure and they want to execute the edit document simultaneously in central cloud. Critical section problem evolve if all the files simultaneously accept nu major cloud result unto wrong result and degrades the quality of service factor. Hence updation intension problem try to resolve through content based filter process which only provide access to single file and then update this in to local cloud. Quality improves due to non waiting condition of a process.

FURURE SCOPE

Every research has a invention towards a new work. Refinement is a process in which a new technique is developing to remove the short comes of previous one. Future work of this process in field of business logic give this work a new platform to achieve the more nearly objectives. Real time implementation of this proposed solution at large scale gives higher profits if qualities of different services keep in mind.

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