SECURED AND SCALABLE OPERATIONAL MODEL IN REAL TIME BANKING SYSTEM USING CLOUD COMPUTING

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Abstract- **Cloud computing is an emerging computing paradigm in which resources of the computing infrastructure are provided as services of the internet. Cloud computing allows consumers and businesses to use applications without installation and access their personal files at any computer with internet access. As promising as it is, this paradigm also brings forth many new challenges for data security and access control when users outsource sensitive data for sharing on cloud servers which is not within the same trusted domain as data owners. To keep sensitive user data confidential against untrusted servers, cryptographic methods are used by disclosing data decryption keys only to authorized users. This paper explores secured and scalable operational model in real time banking system using cloud computing. Cloud computing has the potential for tremendous benefits, but wide scale adoption has a range of challenges that must be met. We review these challenges and how they relate to computing. Thus this paper is able to achieve the secured and scalable operational model in real time banking system using cloud computing by forming and applying new generated algorithms.**

Keywords- **Cloud, Cryptographic, Algorithms, Servers, Secured, Scalable**

I INTRODUCTION

Cloud computing is the embryonic paradigm with changing definitions but for this research project, we can define in the term of a virtual infrastructure which will provide shared information and communication technology services, via an internet "cloud," for "multiple external users" by the use of the Internet or "large-scale private networks."[1] A computer user access can be provided to Information Technology services i.e., applications, servers, data storage, there is no need to understand the technology or also ownership of the infrastructure. An analogy to an electricity computing grid is to be useful for comprehend cloud computing. A power company maintains and owns the infrastructure, a distribution company disseminates the electricity, and the consumers merely use the resources without the ownership or operational responsibilities. [2]. It is a subscription-based service where networked storage space and computer resources can be obtained. One way to think of cloud computing is to be considered our experience with email. Our email clients, let it be Yahoo!, Gmail, Hotmail, and so on are taken care of housing all of the hardware and software necessary to support our personal email account. When if we want to access our email we should open our web browser and go to the email client and log in. The internet access is the most important part of the equation. Our physical computer does not house our email. It is accessed through an internet connection anywhere by us our email can be checked everywhere let it be at work on a trip or down the street getting coffee, as long as we have access to the internet. [3] Our email and software which is installed on our computer both are different, such as a word processing program. When a document is created using word processing software, that document remains on the device. It is used to make it unless we physically move it. An email client is similar to how cloud computing works. Except instead of accessing just our email, we can choose what information. We have access to within the cloud. Similarly, a user's cloud computing access enables "shared resources, software, and information on-demand, [4] on a fee-for-service basis.

II BASICS OF CLOUD COMPUTING:

Cloud computing is an evolving model with changing definitions, but for this research project, it can be defined as a virtual infrastructure that shared information is provided and communication technology services, via an internet “cloud,” for “multiple external users” through use of the Internet or “large-scale private networks.” A computer user access will be provided by it to Information Technology (IT) services, without requiring an considerate of the technology. [5] To comprehend cloud computing, an analogy to an electricity computing grid is useful. The infrastructure is maintained by a power company, a distribution company disseminates the electricity, the resources are merely used by consumer without ownership or operational responsibilities. Similarly, a user’s cloud computing access enables “shared resources, software, and information on-demand” on a fee-for-service basis. The National Institute of Standards and Technology has done a serve, cloud computing exhibits several characteristics:

- **“On-demand self-service”:** automatically request can be done and obtain provisions of “server time and network storage.”
- **"Broad network access":** access to network is made available through multiple platforms i.e., cellular phones, laptops, and Personal Digital Assistants.
- **"Resource pooling":** To collocate resources applications, memory, bandwidth, virtual machines to service many users regardless of location all are done by the providers.
- **"Rapid elasticity":** resources can be provided quickly often automatically and in a scalable manner more is available and provided if more is needed and less is provided if less is needed.
- **"Utility computing":** Transparently meters, monitors, controls and documents service usage for billing all are done by the provider.

III CLASSIFICATION OF CLOUD COMPUTING:

Cloud Computing is a vast concept. We can classify cloud computing in the following forms:

➢ Public Cloud:

The basic of cloud computing touches an important aspect that is Public Cloud. Public cloud applications, storage, and other resources can be made available to the general public. These services are offered on a pay-per-use model. Normally, public cloud service providers like Amazon AWS, Microsoft and Google own and function the communications and access can be obtainable only by the use of Internet straight connectivity will not be offered . [6]

➢ Community Cloud:

Communications be able to be shared by it amid more than a few organizations from a exact group of people with ordinary concerns security, fulfillment, authority, etc , it be able to be completed by a third-party and hosted inside or outwardly. The expenditure will be increase over less users than a public cloud but more than a personal cloud , so only a number of of the cost savings possible of cloud computing can be realized.[7]

➢ Hybrid Cloud

The term Hybrid Cloud is used for two or more clouds create hybrids cloud, which has only one of its kind entities but be able to be surrounded jointly, when it offers the profit of multiple use models. By utilizing "hybrid cloud" structural design, companies and persons will be clever to get degrees of error broadmindedness joint with locally instant usability with no habit on internet connectivity’s. Hybrid cloud structural design requires both on-premises capital and off-site out-of-the-way server-based cloud communications are required. Hybrid clouds does not have the elasticity, safety and confidence of in-house applications.[8] Hybrid cloud is provided the elasticity of in house applications with the responsibility broadmindedness and scalability of cloud based services.

➢ Private cloud:

Confidential cloud is cloud communications which is operated exclusively for a single association, it be able to be managed by a third-party and hosted inside or outwardly.[9] A important level and degree of appointment is essential to undertake a personal cloud to virtualized the business environment, and it be able to be necessary the association to reconsider decisions about obtainable resources, it will have a positive impact on a business, but on every one steps in the project security issues are raised that must be addressed in order to avoid serious vulnerabilities. Criticism can be done because users "still have to buy, build, and manage them" and thus it does give not benefit from less hands-on management,[10] essentially " lacking the economic model that makes cloud computing such an intriguing concept".[11]

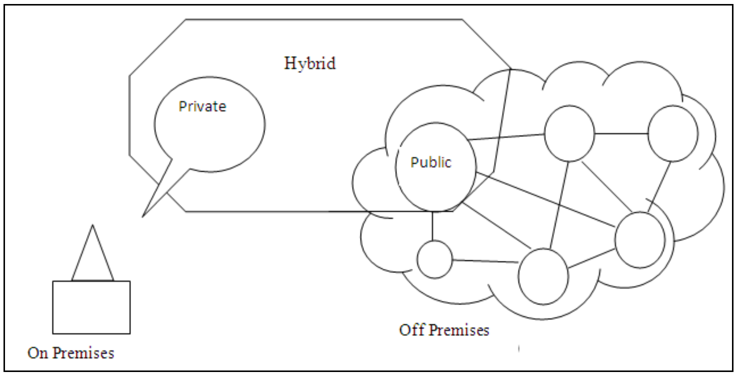

FIGURE 1: TYPES OF CLOUD COMPUTING

IV RESEARCH SETUP

In this section we have given our observation, result and discuss various issues related to security of cloud computing in special respect to the banking system as Cloud computing receives significant attention recently. Public clouds are available from Amazon, Google, Yahoo!, Microsoft, Salesforce.com and others. Private cloud technologies, in which the cloud software is loaded locally, are available from VMware, Eucalyptus, Citrix, and there are thousands of vendors offering “cloud solutions”. We have develop the following algorithm for secured and scalable operational model in real time banking system using cloud computing

4.1 Algorithm 1:

```
Int counter =0;
Int k=1;//for the fileds specified by user ;
If (model.Is Selected ) // If the client has selected the specific model for his entry
{// to detect the rbac(role based access control )
For(int i=0;i<counterfiled;i++)// this loop will check the no of access provided to each user
{if(counterfield.checked==true)//the the displayed role in check box is true
{ Rbsc rbc=new rbac(); // created a new object for the rbac class defined in the dll
Rbc.roles.add(counterfiled.text);//add role to the rbc class object
If(user.confirms.rbc.roles.added==true)
{
Put (xml.schema.action);//generates the tag according to the script
}
}
Else
{
Move.next(); // check the next filed ……..
}
For(int i=0;i<filedcount;i++)
{for(k!=null)
Draw(xmlschema.xml.rbc()) ; / / To generate the schema of Xml
Xmlschema.rbc.fieldcount=filedcount ; // Total no of tags in XML =Total no of fields selected by user
Xmlschema.xmltag=new xmltag(“<”+filedname+”>”);
Xmlschema.xmltag=new xmltag(“<”+filedname+”/>”);
Xmlschema.show() // it shows we the generated XML
Put.Azure(spcefilled.rest.databaseschema);//to put the schema on Azure
Exit
Count++; //T~~o increase~~ the counter
}
}
Else
{
This .close(); //to close current schema ;
Goto whileback; // to return to main program
}
}
```

4.2 Algorithm 2:

```
start countertb ;// To count the no of tables
start counterfields;
START counterrole // To count no of roles
IMPORT TO XML START TAG(<”XML>”)
END TAG (“</XML>”)
LOOP
RUN TILL
STARTINGVALUE < = USERAREAVALUE
{
Generate.tag(“<table”>).xml(name);
Countertb ++;
Counterfiled=USERDATA.MAX.DATA;
Countefiled ++;
Loopwhileback (i!=max)
GENERATE OPENING TABLE TAG(<”tbname”>).xml(name).roottag(“<table>”);
GENERATE CLOSING TABLE TAG(<”/tbname”>)(xmlname) roottag(“<table>”;
MERGEXML (name).roottag(<”tbname”>).data(boxdata);// From here whatever the data will be put from drop box will be inserted into the root tag tbname;
While(!counterfield=max)
Generate.tag(<”field”>)(xmlname) roottag(“<tbname>”);
Generate.tag(<”/field”>)(xmlname) roottag(“<tbname>”);
Merge.xml(name).roottag(<”field”>).data(boxdata);
}
START COUNTERROLE;
GENERATE ROLES TAG (<”roles”>)
GENERATE LOOP
RUN TILL COUNTERROLE!=MAX
GENRATE Tag (“<rolename”>)
GENRATE Tag (“</rolename”>)
GENERATE Tag(“<AccessRights>”).BaseTag(“<RoleName.”);
GENERATE Tag(“</AccessRights>”).BaseTag(“<RoleName.”);
LOOP RUN TILL FIELDCOUT!=MAX PER TABLE
GENERATE Tag (“.<RIGHT1><TABLE NAME ><FIELD NAME><READ><ALLOWED>VALUE from
USER</ALLOWED></READ></FIELD NAME></TABLE
NAME ><RIGHT1>
<RIGHT 2><TABLE NAME ><FIELD
NAME><WRITE><ALLOWED>VALUE from
USER</ALLOWED></WRITE><FIELD NAME></TABLE
NAME ><RIGHT 2>
<RIGHT 3><TABLE NAME ><FIELD
NAME><DELETE><ALLOWED>VALUE from
USER</ALLOWED></DELETE><FIELD NAME></TABLE
NAME ></RIGHT 3>

</PERMISSION>
GENERATE ROLES TAG (<"/roles">)
```

4.5 ALGORITHM 3

```
SET.Microsoft.Cloud(Azure.Cloud.DomainName("Name"));
Import.Type=ImportType.Xml;
Draw.Into.DomainName("Name").Xml;// To draw a basic XML
Lawet in Azure
Int countertable=0;
Int tagcounter=0;
Countertable=XML.FileName("xmlfilename".tagcount);
XSLT:foreach(int x in tagcount)
{
Puttoazure(tag.basic.element);// to put the basic element of the
tag
Tagcounter++;
If(!found.lastelement)
{
Puttoazure(tag.child.element.name)//to put the child element
name
}
Else
{
Goto xslt;
}
If(tagcounter==tagcounter.max)
{
Exit.Azure.Cloud(save.saveas.Azure.sqllitefile);
}
```

On top of talk about algorithms be able to be association with the banking system and it is able to create the safe and Scalable prepared replica in actual time banking system by means of cloud Computing. Thus by implementing above said algorithm we have get the following result in respect to security issues and time.

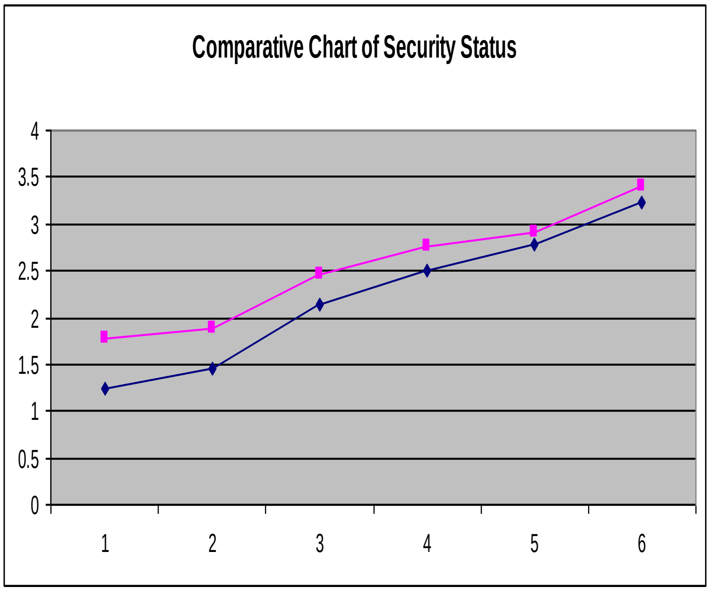

Fig 2: Security Issues

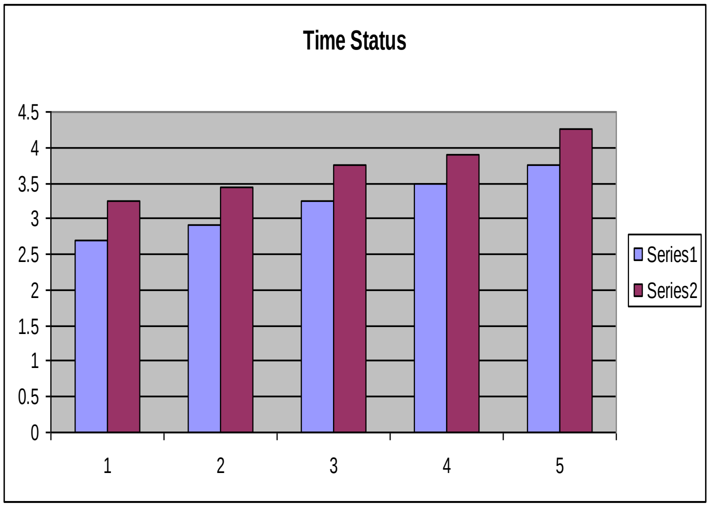

Fig 3: Process Time Issues

V CONCLUSION

This research paper is concluded to explore security issues in real time Banking system, and the preparation of strategies and tactical model of secure Banking system management for the development of banking community particular to overcome vulnerable threats in dealing with money and increasing use of technology, as it is clear from Fig 2 that security will defiantly increase on implementing the above mentioned algorithms. But on the other side process time will increase as it observed from Fig 3. But as the demand of banks security is prior issue then time. And as the new development in the infrastructure is going on day by day the issue of time will no more be a big issue. Thus our algorithm is able to provide secured and scalable operational model in real time banking system using cloud computing.

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