Encrypted IT Auditing and Log Management on Cloud Computing

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Abstract: **In this paper we are conducting the investigation studies over the IT auditing for assuring the security for cloud computing. During this investigation, we are implementing working of IT auditing mechanism over the cloud computing framework in order to assure the desired level of security. In the IT auditing mechanism, the concept of checklists are prepared for the cloud computing application and their lifecycle. Those checklists are prepared on the basis of models of cloud computing such as deployment models and services models. With this paper our main concern is to present the cloud computing implications for large enterprise applications like CRM/ERP and achieving the desired level of security with design and implementation of IT auditing technique. As results from practical investigation of IT auditing over the cloud computing framework, we claim that IT auditing assuring the desired level of security, regulations, compliance for the enterprise applications like CRM and ERP. Another problem in cloud computing is that huge amount of logs make the system administrator hard to analyze them. In this paper we proposed the method that enables cloud computing system to achieve both effectiveness of system resource and strength of security service without trade-off between them**

Key words: **Customer Relationship Management,Enterprises Resource Planning**

I.RESEARCH BACKGROUND

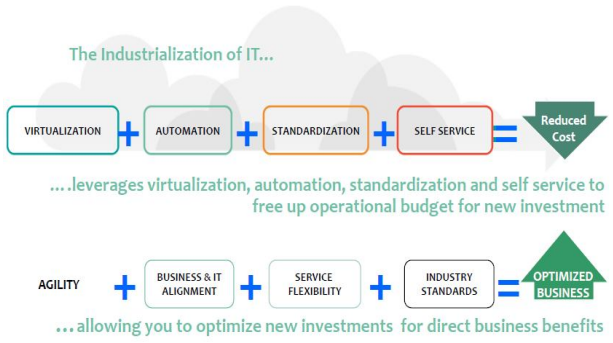

Fig 1.Cloud Computing

Recently, all over the world mechanism of cloud computing is widely acceptable and used by most of the enterprise businesses in order increase their productivity. However there are still some concerns about the security provided by the cloud environment are raises.

The top concern of Cloud adoption- Security [2]

Cloud computing is most probability of collection such as service oriented topic, as well as on-centric concept and good practices techniques. Cloud computing gives benefit of provisioning resources and application of services to customer. Customer is needs to subscribe its related services. This service is to depend upon its development, infrastructure, and storage capacity. These services also provide of two types of computing services software and desktop services. In the cloud computing is the thin client interaction with remote cloud using operating system. It give the virtual desktop in virtual local operating .this operating system is access the virtual data storage. This o.s executes application at anytime & anywhere. When IBM Watson claimed the world is needed only five machine. It is back all the all things.

Now a day's why IT is reaching a critical point of view. In storage total growth is 54% of Explosion of information. Large scientific calculation such as medicine, forecast, and healthcare is most energetic and faster processing capacity. In reality near about 85% computing capacity is idle. Average of IT budget as 70%.It is specifically managed by IT infrastructure added by new things. Many technologies are different than cloud computing such as parallel computing, virtual computing, architecture of services oriented, and autonomic computing. All computing are advancing computing in unusual pace. Connectivity is additional part of the keeps falling. Cloud can be depicted based on web application through internet, this application are standard application.

People can understand without most of period of knowledge's, training section, and they understand to operating system as well as basic thing such as hardware maintenance it can be accomplished of their work done easily and properly. Consumers are purchase on demand for cloud computing capacity but they are not concerned used in underlying technologies. Typically computing data & resources can be accesses by own. They are access by third party provider. It is not copulation to locate nearly. They are potentially beyond state in physical boundary country. Those applications can be moving there its own infrastructure to cloud. It has shifted in house control to a third party.[2][11]

Fig 2. Checklist for Cloud

Checklist for public cloud:

Government is kept to use public cloud to take the advantages of the cost effective by the providing public useful information in cloud. It can mention the cloud concepts to the integrated computing resources. there are different departments in the manageable pool. It auditing in public cloud can have different type which is based on different type of services model. There are address two popular service models in this topic, Infrastructure as a Service(IaaS) and Software as a Service (SaaS).[1]

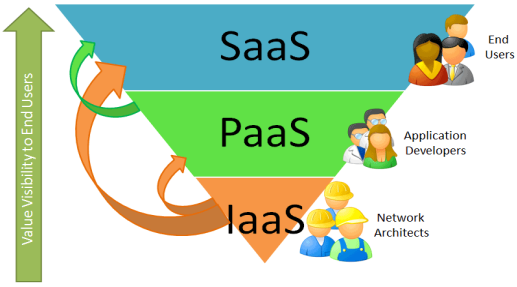

Fig 3. Cloud Computing Layers

Checklist for Private Cloud

Checklist for a private cloud is a very practical approach and attractive option to many security sensitive enterprises. The private cloud gives not only the self control but also the benefits of cloud computing, it is mainly sharing computing resources including processing power and storage capacity among different departments within an enterprise. Traditionally, department computing resources are not shared due to data sensitivity, self control and different business nature of departments. Private cloud could remove or blur these boundaries

Each department is allocated by computing resources from the pool by provisioning need on demand. From the department point of view, the computing resource is unlimited. Therefore achieving a task faster or making a task not achievable before due to computing power constrain.

In most cases, a private cloud could cut IT cost down; it is increase the flexibility and scalability also, make available 24x7 and even do applications that are impossible before the cloud. Private cloud certainly poses a great management challenging as well as auditing challenging. . It virtualizes of all computing resources from the different departments into the computing resource pool.[1]

II. RESEARCH METHODOLOGIES

Two research methodologies such as qualitative research methods and quantitative research methods:

Qualitative Research Methodologies:

For the collection of data, qualitative research methods used the observations, interviews as well as may include the surveys, case studies, document and historical analysis. Survey researches as well as case study are commonly used methods for the data collection in various researches. Case study and survey research are also often considered methods on their own. [8]

In order to use this research method for determining the research problem, researcher must need to raise some questions.

Methods of Data Collection

Interviews: Interview is nothing but the conversation form in which the main purpose is for the researcher to collect the data which address overall research study questions and goals. This method is directly interactive and frequently used.[8] [9]

***Document and Artifact Analysis*:** In this method things are following roughly into document categories as well as artifact analyses, however, overlapping with other methods. In our case, we identified various artifacts over the SPR, its history, with some kind of analysis with simple experiments of SPR constructions in order to answer the proposed research questions. [8] [9]

Methods of Data Analysis

The data which is collected using above qualitative data collection methods is nothing but just the rough materials that researchers gathering from different aspects of world

related to their research problems and questions. Qualitative data is collected in different forms like objects, photos, video recordings of behaviors, choices patterns in computer materials. But words are frequently are raw materials which are further analyzed by qualitative researchers using the different techniques of data analysis. There many methods are available for the researchers to analyze the qualitative data depending on qualitative researcher basic philosophical approach. According to Huber man and Mile, the process of qualitative data analysis is made up of three parallel flows of activities such as data display, data reduction, as well as conclusion verification or drawing. Hence most of the qualitative analysis researchers use the technique data reduction method for the analysis of collected data in order to seek the correct meaning of it for particular research. [9] [10]

Quantitative Research Methodologies

Using the quantitative research, we can obtain three various classifications of numbers like customer profiles, attitudinal data and market measures. For the data collection in case of quantitative research, there are different ways:

By asking questions related to the research problem either using telephone, face to face, postal or computer medium.

1) By observing the things like person, diaries or instruments.
2) WHAT the people think and WHY must be determined by asking different questions.

Thus, in this research we frequently used the market analysis tool and sampling mechanism for some measurements related to Peer to Peer Networks and Security study. [II]

III. IMPLEMENTATION ENVIRONMENT

Introduction to the application:

Checklist generation for incident management system is an application which is used for online problem solving which can be encountered in the computer and mobile devices.

The basic idea of the application is that the problem solving can be done online and the admin can keep the record of the process that is done as a checklist or in a log format.

Incident management system is a part of corrective software, handles an any event which may cause an stoppage to a service or decrease in the quality of service.

In incident user and customer May reporting by email by telephone, by chat services, voice mail, by letter, and visits.

Incidents are define by IT infrastructure library, incident are classified into

- Software failure
- Hardware failure.
- Service request.

In addition to incidents the system should assets service desk or help desk to handle problems, change request product orders, and development ideas effectively following the time scale defines in service level agreement (SLA).

Incident management is very tool oriented process. Service desk workers use various application while searching solution to the incident such as incident management tools, email application remote desk of application, office application and communication application, remote connection to server ,and internet search tools.

Checklist generation:

Here the admin can view the detailed report of the daily events created by the users of this application. These details are stored in the form of the checklist that can be viewed on admin page.

Encryption and Decryption:

Here the customer registration information is in the encrypted form and it can be decrypted by the user.

Encryption

In the Encryption technique, if new user is register his information in this application, this in information is saved in encrypted form in table. So this private information is not known to any other user .so it is better security to our application.

Decryption

Also we have provided the decryption technique for the user to read the information is correct or not by showing it on below the encryption table. This data is known to only that user which is login.

IV. LOG MANAGEMENT

Log data can provide valuable security and operations insight into enterprises applications like CRM/ERP. Many companies with limited IT staffing will find that outsourcing log management can bring them more value from their log data than they could attain on their own—without all the expenditures in hardware, staffing and product management. If in-cloud providers can deliver prompt, secure, reliable service, cloud-based log management could be a growth sector over the next few years, particularly for the CRM/ERP Applications.

One of the big questions in making a decision between internal and in-cloud log management is how much time can be allocated to monitoring and upgrading the system internally to meet the business needs of the organization. If an organization's primary goal is regulatory compliance or to minimize IT staff requirements, then outsourcing log management to cloud application providers will probably be

suitable.[10][11]

Organizations that decide to outsource their log management should be careful to select flexible services that allow for expanded correlation and use of the log data for organizational benefit. This is also true of internally-developed log management systems, which today are experiencing interoperability issues that make data normalization and correlation difficult for organizations of all sizes.

Cloud Computing system checks user behavior everyday and decreases risk point if user uses cloud computing service more than one hour.so many people use Cloud Computing service so the huge logs arises from transaction between systems,user information update, mass data processing and so on therefore it is very difficult to analyze using log in emergency.to make analyzing log better i proposed the method that divides log priority according to security level.

The auditing priority of logs is also decided by anomaly level of users. it means log generated by who hav most high anomaly level are audited with top priority and log of low level users are audited at last

CONCLUSION

Cloud computing technology provides human to advantages such that enables cloud computing system to achieve both effectiveness of system resource and strength of security service without trade-off between them and manages users logs.

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