IMPLEMENTING EXPERT TECHNIQUES FOR IMPROVING QUALITY OF IAAS IN CLOUD COMPUTING

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ABSTRACT

In the world of technology when we refer the term IaaS – Infrastructure as a Service, we start analysing the architecture of the system whether it is front end or back End .I have taken Cloud Computing revolving around the three terms i.e Hard ware , Software and Networking .In this paper I have introduced the Hi Security issues for IaaS in Cloud Technology. In my research work I have introduced the concept of Dynamic configuration which increases the security in Cloud technology. IaaS covers the architecture of all the section as our server, storage architecture, network hub, virtualization and many more which we randomly use in our daily routine.

Keywords: Cloud Hosting, Cloud Services, Dynamic Configuration, Expert Techniques, Infrastructure As A Service.

I INTRODUCTION

Infrastructure as a Server is an abstraction by showing you the essential features and hiding the internal details. It hides the complete backend from the user without getting him to know what lies within and fulfilling all his needs without any extra pay with least effort. It covers one third of Cloud Technology and is considered as a Base of Cloud Computing. The other two technologies are Platform as a Service and Software as a Service. My effort is to provide a technology that improves the quality of Services in terms of Security, flexibility and cost with efficient speed for the base we work on. This base refers to storage capacity and capability, connection, virtualization, processing capacity and all hardware. It is a technology which works with the security for the user hiding all the security issues. I have implemented four expert techniques which provide the updated and secured services to the User.[1][2][5]

II. INFRASTRUCTURE AS A SERVICE

Infrastructure as a Service is an abstraction of Hardware, Networking and Storage Component. It is a subset of Cloud Computing and handles three important components of an Organization i.e. Speed Flexibility and Control. It is responsible for Storage, Execution, Support and Maintenance. It finds its special application in Cloud Hosting and virtual Servers with extensive underlying Infrastructure. As the Name specifies it offers Infrastructure as a Service where Software and Servers are purchased as per the demand of User. It presents a Utility Component in a sharp way and brings a new way of using, purchasing and designing. It has brought the

complete infrastructure solution for an organization. IaaS provides users abstraction of infrastructure in Server with user's demand of configuration and operational Environment. It follows users billing model. The complete model of IAAS consists of IAAS Component, IAAS Services, IAAS Outcome and IAAS application [2]. The flow diagram of IAAS Model is shown in Figure 1.
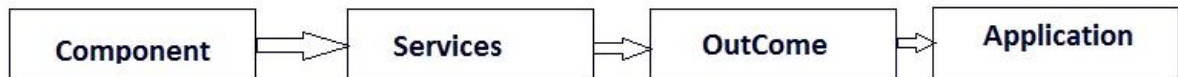

Fig 1: Flow Diagram

III IAAS COMPONENTS

3.1 The three components of IAAS

Hardware, Networking and Storage System are the back bone of IAAS[7][9]. Hardware Refers to all sorts of hardware like processor, Ram, Hard Disk and so on and so forth. Networking refers to the link between two or more systems including connection between client server and between clients. Storage capacity refers to the security of the Data and timely back of data which avoids loss of data due any kind of system failure. IAAS Components are shown in figure 2
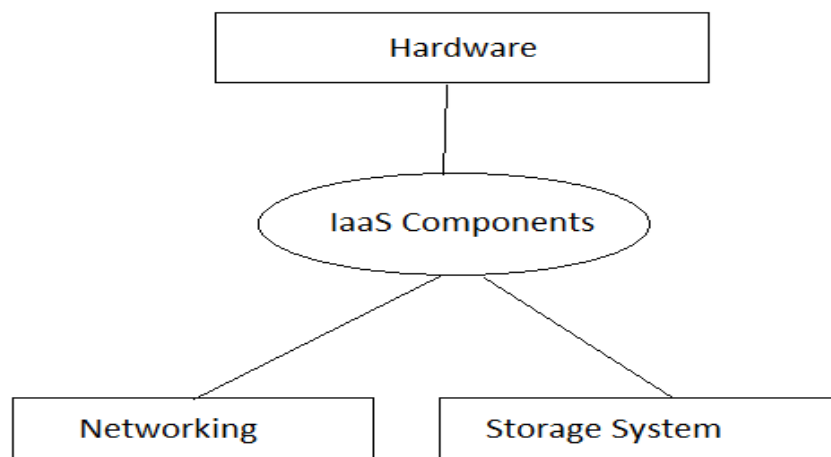

Fig 2: IAAS Components

3.2 IAAS Services

I have explained the four basic services provided by IAAS. Figure 3 shows these four Services that are Abstracted Infrastructure, Speed as a Service, and Flexibility as a Service and control as a Service.

   a.   Abstracted Infrastructure makes the user unaware of platform running at the background. This extends the security issues in Cloud Technology.

b. Speed as service is the most important key feature of IAAS. It handles the processing speed of the request send by the client. It takes care of the processor running in the back ground. The processing speed of the request depends on the processor.

c. Flexibility as a Service is another key feature of IAAS. It can be implemented in any environment and can be moved from small to larger scale. This feature attracts the Entrepreneur .It provides the facilities from big to small organization.[3][11][12]

d. Control as a Service: IAAS gives the overall control of the Cloud to the Administrator and allows him to maintain his security status.

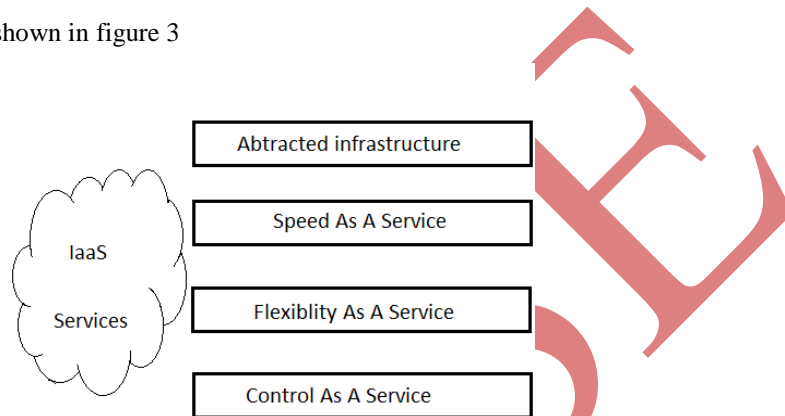The four Services of IAAS are shown in figure 3

Fig 3: Services of IAAS

3.3 IAAS Outcome

This model has given high storage support fast execution and proper maintenance. This attracts more users as they find it secured in carrying their data with any extra cost and effort. The figure shows the outcome brought by IAAS.
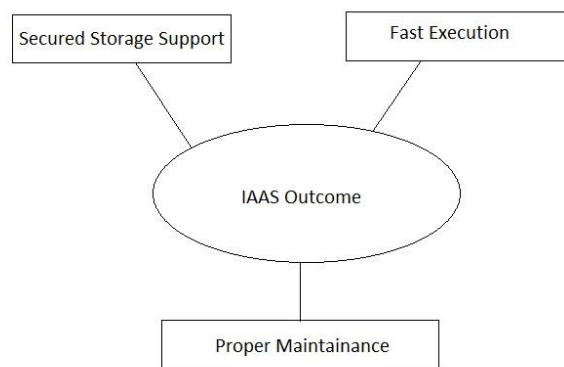

Fig 4: IAAS Outcome

3.4 IAAS Application

IAAS has given new definition to the technologies. Starting from personal mailing system to social networking site it has attracted more and more user.[11][13] Due to fast increase of user the problem of high traffic has raised. It has brought the extensive abstracted Infrastructure, given the users secured Cloud hosting feature. It has

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motivated the users to become the owner of the organization rather than working as an Employee. It has introduced Application virtualization and networking abstraction. The Figure 5 shows the Application of IAAS.
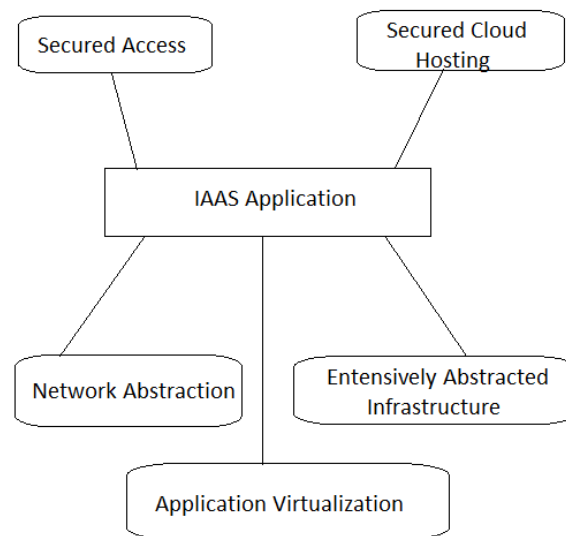

Fig 5: IAAS Application

IV PROPOSED THEORY

Methodology: I have divided my complete work in Three Modules. Module IAAS, Module PAAS, Module SAAS.I have discussed Module IAAS in this Paper. Module IAAS is divided in Three Tier.

I have used four Expert techniques to increase the Quality parameters. The four Techniques that have been used are: [15][16][19]

    a.   Neural Network

    b.   Fuzzy computing

    c.   Evolutionary Computing

    d.   Probabilistic Technology

4.1 Implementation at TIER 1

In this tier I have implemented Neural Technology with IAAS. Neural Networks deals with implementing brain strategy. This finds its application in Cloud Hosting, Developing Server, forwarding IP Address to the Domain, Application Hosting. The security issues are dealt in this tier where all the data is made public with hiding the internal details. Storage application is on the server side and as the client send the request the data is being uploaded to the clients system. Here it comes the concept of having a Static or Dynamic address. The Concept of having a static address is stable and friendlier to the users. While the Concept of Dynamic is secured and increases the cost to the Cloud Owner. Implementing Neural Technology and developing a nueral network supports the feature of security with users friendly without affecting the speed .The result of this is we get a stable platform which is more scalable and friendly it supports the small organization in increasing nd also a large organization to develop its new branch with less cost.
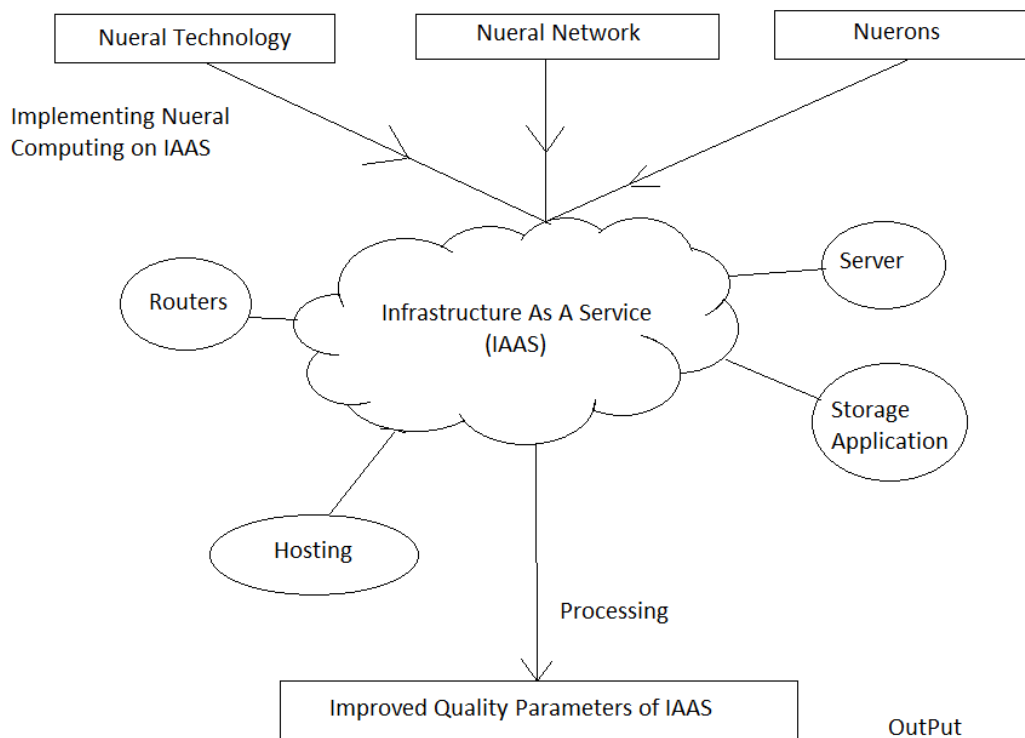
Fig 6: Implementation at TIER 1

4.2 Implementation at TIER 2

At this level I have implemented Fuzzy Computing to increase the Quality Parameters of IAAS. In this section we just remove all the confusing data concerning to the server and hosting .The result at this tier is that we get exact data with the exact address which removing all the illegal connections decreasing the volume of Traffic. As a result we get fast and Quality Service .The figure 7 shows the improved Quality parameters after the Implementation of Fuzzy Technology.
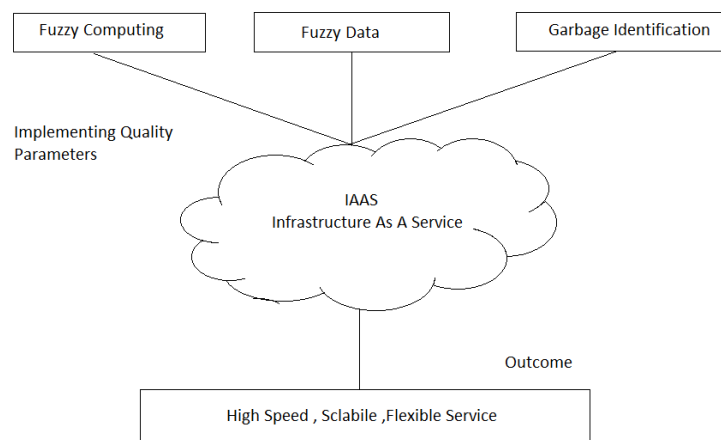

Fig.7: Quality Outcome of IAAS

4.3 Implementation at Tier Three: Evolutionary Computing

At this level we deal with error concerned with hacking or leakage of Data or due to tracking to address by illegal source. So in this we keep track of all the address with the backup. We keep removing illegal contacts or use of any external or unknown tool. This keeps the data secured and helps the user for a secured Transaction. It finds its application in banking system by Security as well as threats are increasing. Implementing Evolutionary Computing results in the Quality parameters of IAAS.
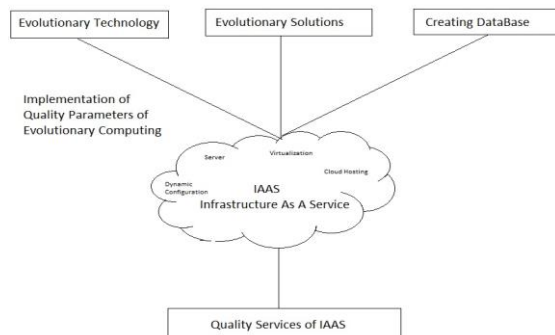

Fig 8: Implementing Evolutionary Computing on IAAS

4.4 Implementation at Tier 4: Probabilistic Computing

At this level we implement the Probabilistic Parameters to get the Quality services of IAAS. In this we deal with risk handling .Calculation of all the risk has been done at this level .There is risk of hacking so the concept of dynamic configuration has been implemented. There is a Risk of overload and illegal tampering with handling with the data. Probabilistic Computing sorts such problem and provides the quality Services of IAAS.
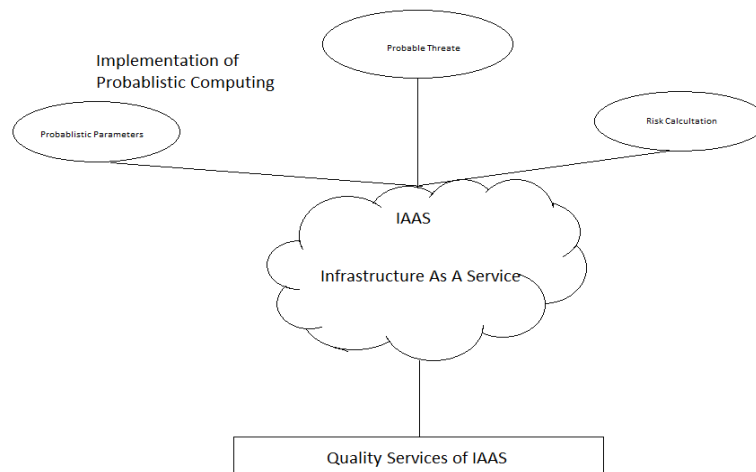

Fig. 9 : Implementation of Probablistic Computing on IAAS

V. FINAL IMPLEMENTATION AND OUTCOME

Research Never Comes to end. Everyday a new Technology gets birth. My effort is bring a technology which is more secured, reliable flexible and Scalable. I have pointed out the following outcome of our research work. The demand was to bring such a technology which could use better resources and brings a dynamic platform for

the user to work on. My research has brought an improved quality of Services which speed effective and reliable. There are technologies which are not able to cop up with reliable with speed. I have calculated the entire risk of the technology and overcome each and every sort of threats.

    i.   Improved Quality of Services

    ii.   Speed effective Technology

    iii.   Scalability and flexibility

    iv.   Extensive Secured Infrastructure

    v.   Handle Overloading of Users

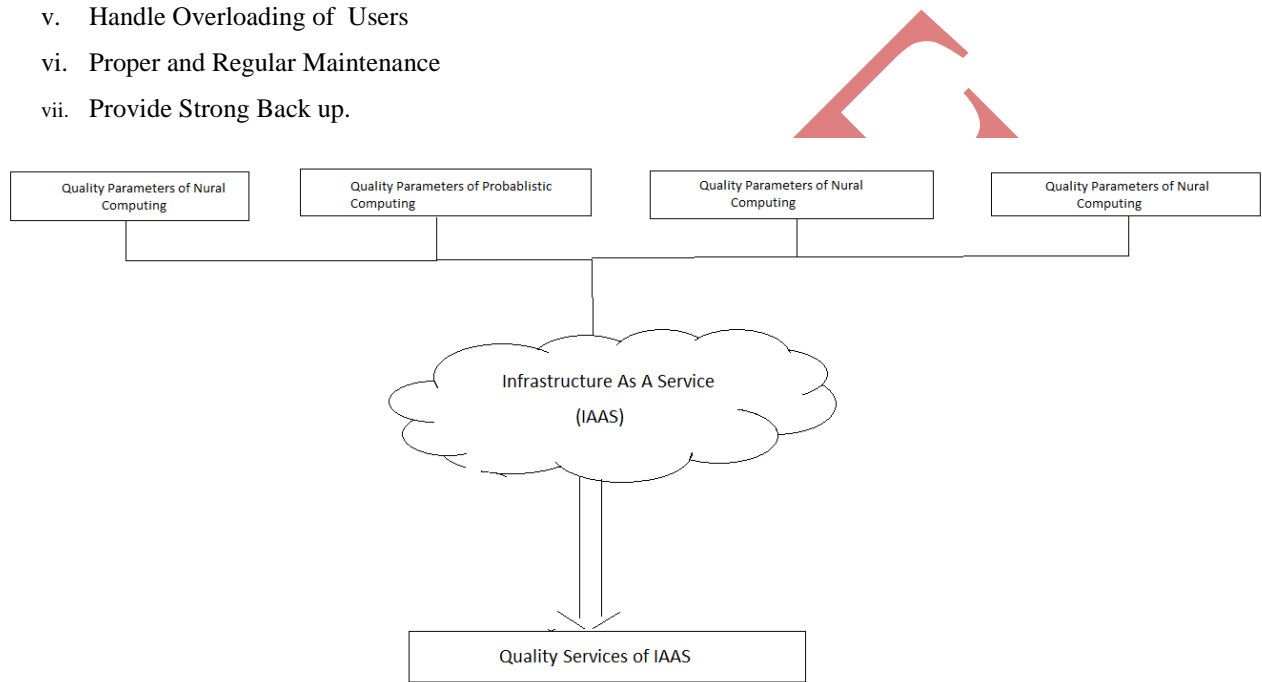   vi.   Proper and Regular Maintenance

    vii.   Provide Strong Back up.

Fig10: Showing Final Implementation and Outcome

VI. CONCLUSION

Research has always been unsatisfactory. Cloud Computing is superset of All the Technologies which covers the whole computer Technology. Day by day the usage as well as the users is increasing. My effort in this technology was to bring a secured technology but there are many more scopes on this. I have taken IAAS as the base of my research but there are PAAS (Platform as a Service) ,Software As A Service(SAAS) which covers other 63% of the computer Technology. Platform as a Service and Software As a Service is the client side usage and has more attraction to threat. IAAS is the backend and threats can be handled by the administrator of the Cloud. Dynamic configuration and implementation of Expert Techniques solves the current scenario. My research has also raised many questions and showed the way for further research.

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