IMPLEMENTATION OF CLOUD COMPUTING USING AN OPEN SOURCE

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ABSTRACT

Cloud computing is clearly one of today's most enticing technology areas due, at least in part, to its cost-efficiency and flexibility. Cloud computing is a general term for anything that involves delivering hosted services over the Internet. In cloud computing, the computing resources such as processor, memory, and storage are not physically present at the user's location. Instead, the computing resources are owned and managed by a service provider and the users access the resources via the Internet. In this applications so many software's are uploaded. So that the needed software could be download from this application. Since this is an online web application, much software has to be uploaded in order to build this application using an open source PHP. The cloud computing technique has been implemented by using a cloud server and many client users. The server which has got used here is WAMP server for computing the cloud and usual clients with certain specialization in it.

Keywords- Cloud Computing, Cloud Server and Clients, WAMP, PHP.

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1. Introduction

Cloud computing is a new type of service provided through the Internet or Intranet. In cloud computing, the computing resources such as processor, memory, and storage are not physically present at the users' location. Instead, the computing resources are owned and managed by a service provider (WAMP) and the users access the resources through the Internet. For example, Amazon offers Elastic Compute Cloud (EC2) and Simple Storage Service (S3); personal data can be stored on their cloud using S3 and computation can be performed on the stored data using EC2. This type of computing paradigm provides many advantages for businesses, including low initial capital investment, shorter start-up time for new services, lower maintenance and operation cost, higher utilization through virtualization, and easier disaster recovery. Such advantages make cloud computing an attractive option. Some reports suggest that there are only benefits in shifting computing from desktops to the cloud.

2. PHP (Hypertext Pre-Processor):

PHP is a widely-used general-purpose scripting language that is especially suited for Web development and can be embedded into HTML. PHP can be deployed on most Web servers and also as a standalone shell on almost every operating system and platform free of charge. Any PHP code in a requested file is executed by the PHP runtime, usually to create dynamic Web page content or dynamic images used on Web sites or elsewhere. Formerly computer application development just develops in one computer with one application, if one user wants to use some application in other computer (e.g. a computer or device) then the computer or device must be deployed or reinstalled the application in another computer. As a result, due to improve this problem, many application developer start redesign or translate elder application as Web application, early phases technology we commonly see such as CGI, the near future we commonly see such as WAMP Server, Active code is PHP.

The relationship between the cloud computing and the application is the work made inside. It is in order to explain way of getting the sub application/software from the main

application. According to the cloud computing, there is no specific server machine or the client machine. The thing is, assuming that a particular system is called as sever by installing the WAMP server in it. For safety caution, we are made to install set up as each and every system which we are using must be installed with the WAMP server. A following fig (1) shows the positives and negatives of the cloud.

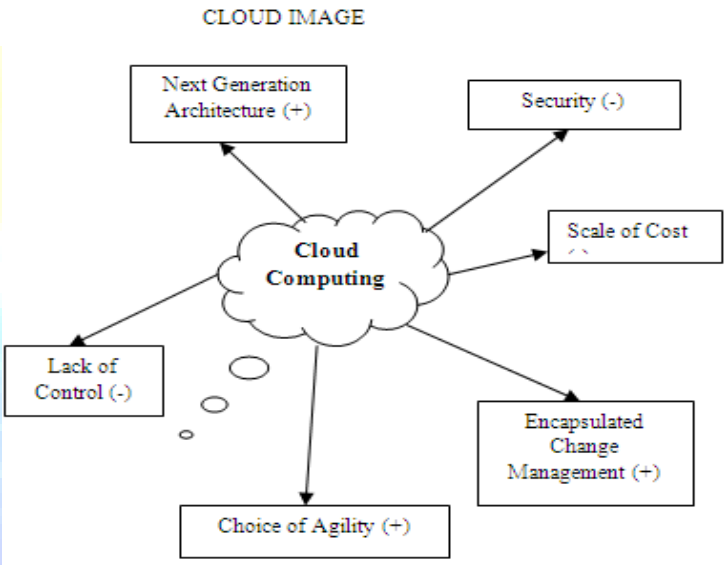

Figure 1. Positives and negatives of the cloud

This is the way by which our Cloud Computing set up was made. This Cloud Computing set up also has some major positives and negatives. This Cloud Computing also has the same structure with different positives and negatives. Those positives and negatives which have been come out from the works are explained below with detailed example.

2.1 Positives:

Next Generation Architecture: The current approaches to enabling real-time, dynamic infrastructure are inadequate, expensive and not scalable to support consumer mass-market requirements [1]. The work of the next generation architecture in this paper is countable in which, it could be made to get the needed software from the inbuilt application. The matter of building the application must be stronger in order to get use of this web application even in the future.

Service Developers want the Service Providers to ensure or provide the capability to dynamically allocate and manage resources in response to changing demand patterns in real-time [2]. The service provider has the sole responsibility to give the needed application from the built server. This could not be modified unless the editing work was made to the coding..

Encapsulated Change Management: Change Management is an essential process of any IT department. Change Management ensures that only authorized and carefully considered Changes are implemented. In a Cloud Computing Environment, the requirements are very similar except, there is a change in Architecture to address growing needs – RFC raised by Capacity Management [3].

Choice of Agility: software services and service oriented architecture (SOA) trends are here to stay and pose many challenges for both business and IT on how to leverage them to enhance the overall productivity, agility and efficiency of the overall organization. More specifically, how to realize business agility requirements through the potential synergies between SOA and Cloud Computing [4].

2.2 Negatives:

Lack of Control: The concern matching way of result would be received. The focus on the output regarding the customer would be satisfied. The satisfaction of the result would be real and it will never be in the form of any abstraction. The complexity resulting from the sheer amount of virtualization and data distribution carried out in current clouds has also revealed an urgent need for research in cloud accountability, as has the shift in focus of customer concerns from server health and utilization to the integrity and safety of end-users' data.[8]. A perfect output would be received during the time of output to show the result in a clear way of sample rather than getting it out in the virtualized format.

Security: Besides the companies are binding there business from cloud computing because the fear of data leakage. Due lack of proper security control policy and weakness in safeguard which lead to many vulnerability in cloud computing [5]. In the work done here, there is no chance of data loss or data leakage and proposes a framework works, since it could be a secular work. Here an accurate way of protecting the data from leaking, a security manipulation has been made, in order to maintain the security level. The cloud computing model is considered to be a very

promising internet-based computing platform, it results in a loss of security control over the cloud-hosted assets [6], here in our work, the outsourcing of the application is not been lead to be accessed by other hand. This makes the whole enterprises to work on our control; this would over the lack of control.

Scale of Cost: The cost estimation in our work is a continuous one, unless or until their presence no connectivity problem, there will not be any disturbances in the cloud. So our application has a high cost resistance. These applications require to scale, are highly available, and fault tolerant and able to run uninterrupted for long periods of time (or even indefinitely). Moreover as new cloud providers appear there is a natural tendency towards choosing the best provider or a combination of them for deploying the application [11]. The model which is presented in our work is simple, but it has some different way of handling and the performance of the application is speedy when it is analyzed and performed at the time of result. The aforementioned model is studied through simulation in order to analyze the performance and overall cost of Gang Scheduling with migrations and starvation handling [10]. The cost of the set up and the model and its performances plays the vital role. The sequence of maintaining the smooth work result is important when it is compared with the other misleading or distributes model or architecture.

3. Secured Connectivity between Cloud Server and Client

There finds differences between online data privacy Data Security. Both the **data security** and **online privacy** both are interlinked even though there come some bit differences. fig(2) shows the secure data transferring between the Cloud server and Client. Both the data security and online privacy has violation from their part. Companies have violation towards online privacy and the data security has the violation from the community outside the company.

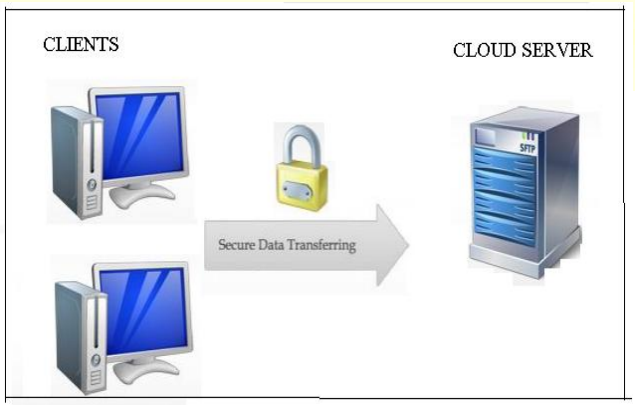

Figure 2 : The secure data transferring between the Cloud server and Client

Companies use to protect their online privacy and data security, but even the own concern could reveal out those data's that could be called as **Self Violation.** The data security and the online privacy could be leaked due to the weak protection of the information. So whatever the cases may be, there would be at least a minute leak. Because securing the information is a hard matter too, but the security matter would be overcome without any prior information

The greatest online data holder for example Amazon.com has undergone such a data loss due to the lack of security. This was made to happen by the team of hackers has made the whole concern dry by uprooting all the details. Millions of people are getting affected daily by loosing there credit card details and even their common details from the Facebook.com. The main thing to be overcome in the cloud computing are, maintain security. Since their presence more servers, and happens to take place more transaction, there is a chance of losing data with servers and might go to the hand of cybercrimes. The process of cloud is seems to be bit glamour, it has got attracted by the people of crimes.

4. Cloud Server and Cloud Client Accessibility

To prevent the information less from the cyber hunters the security has been made strict in our work. Since it is personally necessary to prevent the details from the wrong hand, we had analyzed and developed a data savage in our work. Even Wiki Leaks and National Security Letters to Twitter and others have heightened awareness of the data leak threat. The investigation of the data leak threat has been informed and the pressure to the producers has also been alerted by the government. The reason for lack of information leak is recognized and the solution is also described.

In order to protect the personal information and the data of the company could be stolen by the foreign security agencies. In our case, the information cannot be snatched by the foreign government, unless the authorization was get reached. In their places, nation's intimate personal and company's detailed information will be stored in the data center of the nation.

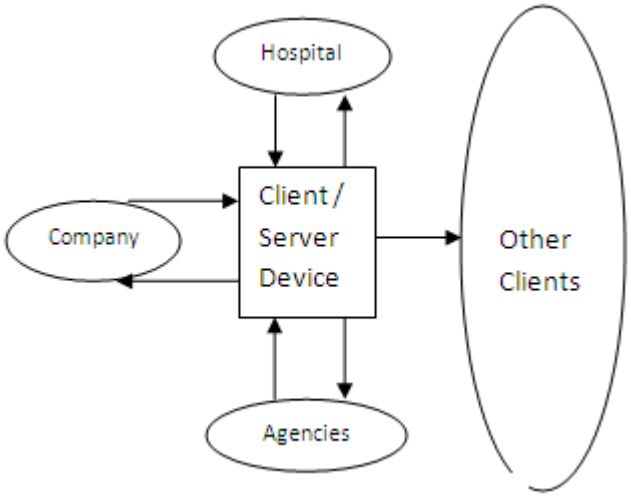

Figure 3: Multi-client Accessing

In accordance to our work, the emerging competitor will be facing the challenge towards the Datacenter's integration; it will definitely perform the information regarding integration with the help of cloud datacenters instead from the customer equipments like smart phones. Figure (3) shows the connection between multiple clients. To start an agency, the single person or the company first gets the permission from the nation. In the circumstances the concern are taking major attempt to gather the information and implement it over cloud computing. Some of the problems and the threat as it was explained can be managed here by following solutions.

(a) *Lower Costs:* The massive work regarding information integration is computationally made. The work would be made with less expense when compared to the opponents. In our case, the client with data information integration will be lower in the data communication and with the less necessary, when it is compared with the opponents.

(b) *Faster Response:* Because the faster response has the less necessary while using the client with the datacenters. The information integration will definitely provide the faster response because, all the required information will present there in the devices of the customers.

(c) Less Regulation: Integration of Information towards customer equipment can be performed and also the opponent can store the information in the datacenter. The stored

data in the datacenter will be encrypted so that it would be decrypted using the users password. In this process, there happens a regulation of fewer requirements with the opponents while getting the usage of datacenter integration. This will have the less private information towards datacenter.

(d) Overcoming the opponents. The opponent who configures the integration of data will provide information to the users and their devices. For example the encryption of medical information of a user can be decrypted by the medical practitioner and it will be sent to the user's family, friends and others who belong to them.

5. Screenshots:

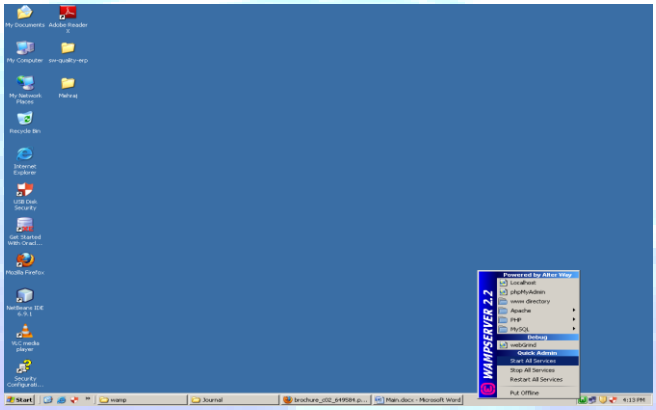

Figure 4: Apache Server Service Starting up

This is the start screen for the making of cloud computing server. A higher end server has been made to act as a Cloud Computing server by installing the WAMP server. The normal installation work will be taken to install the WAMP server to make the ordinary server into Cloud Computing Server. Here the way of installation was told and the screenshot for the presence of the WAMP server was shown. This is the normal home page screen of the server. We had introduced the language PHP on windows operating in our paper. Windows operating system is used by many users. But on the ramp of WAMP server is something different. There is a very useful and simple solution has been given. There is no need of installing many thing than installing WAMP server. The following are needed for using the PHP on the windows operating system.

(a) Apache Server.

(b) MySql

(c) PHP

A latest version of Windows Web Development server is called as WAMP server. Applications like Apache, PHP and especially database can be created on this server. To manage the admin in the operating system, PHPMyAdmin is getting used. This is a defaulter which is already present in the database.

After installing the WAMP server, we will be finding the wampserver icon on the right corner of the taskbar. Then we have to start all the services. We have to locate the folder where the wampserver has been installed. Then there we can run our coding what we had made in PHP.

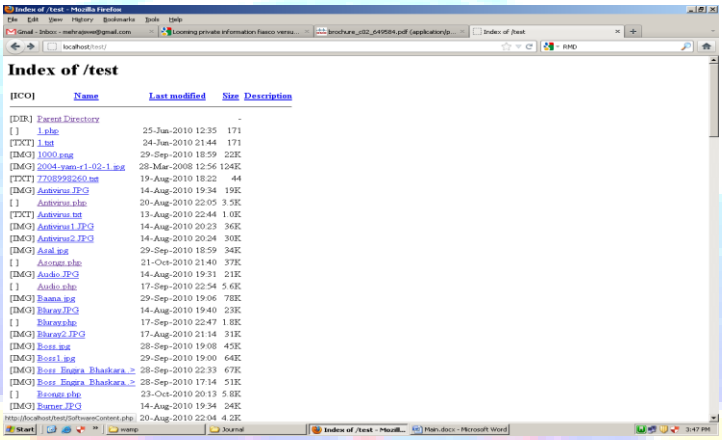

Figure 5: Index File of the Cloud Server

This is the second screenshot, where we had made our coding to run. And this is the first screenshot actually. Figure (5) shows us the content of the item which are all present. By pinging the cloud server we can get this screen all our client machines. We had made to act twenty five systems as a client and successfully made the system to run. Also we had got the best output too. The list of the application's title has been. This is the screenshot which was taken from the Cloud Server machine. This is the index of the software made and the word "test" is the folder name or the directory.

The above shown screenshot shows all the lists of applications which is built, for example many of the browsers, antivirus and etc. On a single click, the user can reach the destination part of the download. For example, if the user needs to download software, on a click, it would lead

to the directory from where the download has to be made. Further oncoming slides would give users, the clean prescribed part.

This screenshot was taken from the client machine also this shows the directory as it was mention earlier in the second screenshot. This is the action which happens after the selection of the software option in the client machine. This software is the option which belongs to the test folder. Hope this was described earlier. It is visible that from the client machine, we can see the software's list. For example Antivirus, internet explorer, and much full version software application could be downloaded from here. We can upload so many software applications in the page from the admin side. That depends upon the presence of the application which is in presence. We can select and make the download of the software application, which is needed.

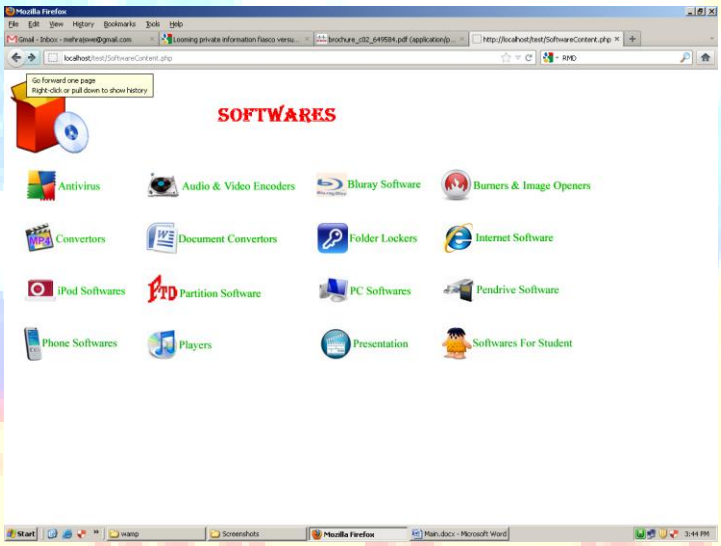

Figure 6: Applications in the Cloud Server

A special operation which was done here is, when an application was called in the client system from the server, the client will be getting the application. In case, if we had downloaded the Antivirus, the client can make the run the antivirus from the server machine. This is the main action which can be done in our application.

6. Challenges

Though already many clouds are present, they are made up of many infrastructures also with many challenging existing systems. Fully automated datacenter with dynamic resource allocation, self service clouding and Service level chargeback are being the vision for the future

cloud. The work towards the future cloud will definitely beat the old technologies and the architectures of the old cloud. This could provide the users to be provided with so many features for networking, computing the networks and would increase the storage of the system and also will manage the solutions for the new oncoming problem.

7. Future Works

The future work is made to work out for making this process still easier. And also regarding the cloud computing for the Television is under process. The computing for the cloud television is working out. Since there is a rise in technology of the Cloud Computing, an idea is getting developed for the making of Television in the field of Cloud Computing.

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