

COMPARISON OF OWN CLOUD AND AMAZON CLOUD PERFORMANCE

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ABSTRACT

Owncloud is a software system for what is commonly termed file hosting. Its open source files sync and share software from individuals operation with free and open-source, to allow installing and operating it without any charge on a private server. Amazon cloud, on the other side, is the provisioning of services to allow the scaling up and down of resources from Amazon Company to customers or organization. In this paper, an exploiting to the features of owncloud and Amazon cloud, this is done by comparing their performance in order to prevent the confusing when selection of the proper cloud to be used is occurred.

Keywords: Owncloud, Private server, Amazon cloud

INTRODUCTION

Owncloud was started and is still maintained by Frank Karlitschek, the German open source software developer. He presented at Camp KDE in 2010 [1]. Owncloud provides safe, secure and compliant file sync and share solution on servers to be controlled. It was described in detail in [2]

Amazon cloud has a long history of using a decentralized Information Technology (IT) infrastructure. This arrangement enabled development teams to access, compute and store resources on demand, and it has increased overall productivity and agility. By 2005, Amazon built and managed the large-scale, reliable, and efficient IT infrastructure that powered one of the world's largest online retail platforms. Figure1 illustrates the Amazon web Services [3].

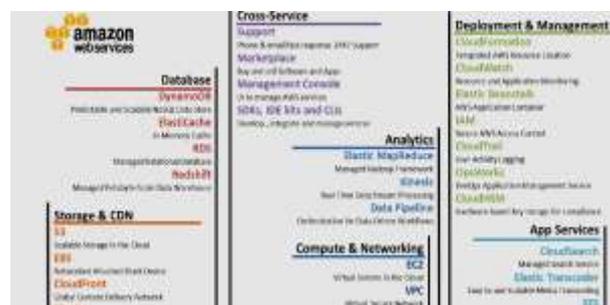


Figure 1- Services According to the Requirements

Requisition compute power, storage, and other services in minutes with flexible chose to the development platform or programming model, which makes the most sense for the problems tried to be solved by using Amazon Web Services (AWS), the payment only for what is used, with no up-front expenses or long-term commitments, making AWS a cost-effective way to deliver applications [3].

II. RELATED WORKS

[2] demonstrated the way of creating, and configuring Owncloud on own computer using Ubuntu12.04 and LAMP stack, and developed it to store and share documents, calendars and contacts in a secure way. [4] demonstrated how to host WordPress on own computer using Ubuntu and Apache web server to overcome some difficulties occur in the server such as server failure or slow loading happened at opening the blogger, this solved by proposing WordPress blog toll, this features exploited by installing, configuring and hosting on any other server. [5] presented performance measurement study of network I/O applications in virtualized cloud. The focus of measurement based analysis on performance impact of co-locating applications in a virtualized cloud in terms of throughput and resource sharing effectiveness, including the impact of idle instances on applications that are running concurrently on the same physical host. [6] designed a flexible framework to test hypothesis, which is called FlexPRICE as a user presented a job to the cloud. The cloud found different schedules to execute the job and presented a set of quotes to the user in terms of price and duration for the execution. The user then chose a particular quote and the cloud is obliged to execute the job according to the chosen quote. [7] described cloud computing, a computing platform for the next generation of the Internet, and defined clouds, types of cloud Provides, Comparison of Cloud Computing with Grid Computing, applications and concerns of Cloud Computing , Concept of Virtualization in Cloud Computing. [8] presented the possibility of making backup copies of data in the cloud, and mainly focused on performance and economic issues of making backups in the cloud in comparison to traditional backups.

III. METHODOLOGY

Both the Owncloud and Amazon clouds have been used to compare their features, this is done by hosting site on Owncloud in order to test the performance, which includes using CPU, Memory, Swap, consuming time, received data, sent data, transfer rate of receiving and sending data. And also hosting the same site on Amazon cloud to test the performance. After that an analysing to the results and comparing between their performance took please. The test is achieved by using system monitor program. Two methods have been applied and tested:

3.1 Hosting Web Application on Owncloud

Before hosting web application on Owncloud, it should be created and configured, also MySQL should be configured to reach final configuration of the system. Owncloud is opened, and then files from the Application list are selected. By using icon named (New), text file or folder can be saved. The selection of save site from link is done by using the URL. Now the web application is saved in the selected place, that mean it is hosting on Owncloud thus could be downloaded and opened from Owncloud. This is illustrated in figure 2 [2].



Figure 2- Hosting Web Application on the Owncloud

3.2 Hosting Web Application on Amazon Cloud

An account must be created before uploading web application, the creation is instance , then LAMP stack must be installed, which is an acronym for an archetypal model of web service solution stacks, originally consisting of largely interchangeable components: Linux, the Apache HTTP Server, the MySQL relational database management system, and the PHP programming language [4]. Services can be chosen according to the user requirements, there is a need to host web application and speed up transfer rate, therefore; EC2 service is chosen, EC2 gives the virtual server. Amazon gives free service for one year to new customers; Steps to Host Web Application on Amazon Cloud then user should pay for the used services. Figure 3 illustrates the steps of a generating phase, and the following instructions are used for uploading user web application:

First, type “Ls” to see the empty home directory that is connected as a root user with “Sudo su “ and “cd” to the directory , /var/www/html/.Ls Sudosu – cd /var/www/html

Using “wget” to download the file containing our web site, if the file is zip then unzip the file in the same folder by typing wget http://univ2maha.blogspot.com/ Unzip univ2maha.blogspot.com.zip suing “ls” to see the name of web application. To make the web application visible, move it from that sub directory to the main one, the “index.html“ file should be available. mv univ2maha.blogspot.com.zip/*.

Now, this is the checking phase in the AWS, the public IP of EC2 instance will be copied to the new browser window. Figure 4 illustrates the running up of the resultant web application.

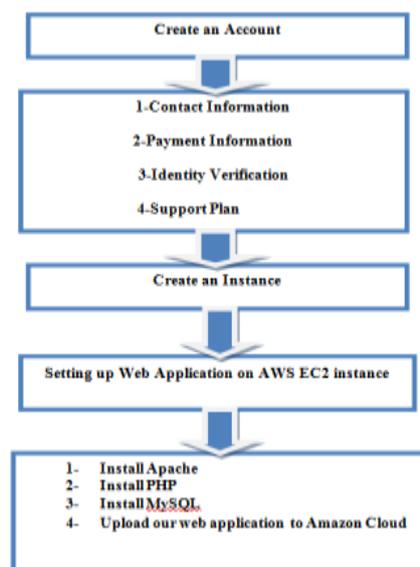


Figure 3- Steps to Host Web Application on Amazon Cloud



Figure 4- Web Application Host in Cloud

IV. THE SIMULATED RESULTS

System monitor program, which is supported by Linux operating system, has been used to test web applications, figure 5 and figure 6 are the resultant. Table 1 contains the results of the compared clouds' performance.



Figure 5- Test of Web Application Hosting on Hosting Owncloud

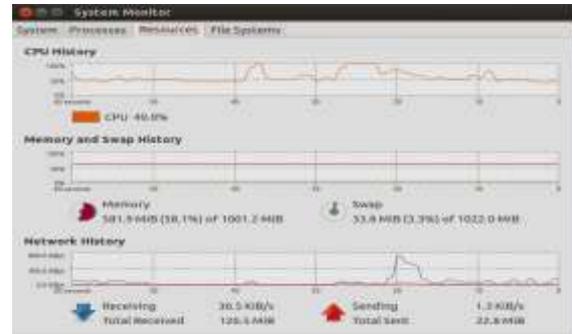


Figure 6- Test of Web Application on Amazon Cloud

Table 1- Test results of Owncloud Vs. Amazon Aloud

Type of Test	Ratio of receiving data	Ratio of sending data	Total received data	Total sent data	Ratio of CPU utilization	Using of Memory	using of swap	Consuming time to see video is 3.19s
Owncloud	13.5 KBPS	3.8 KBPS	115.0 MB	22.2 MB	58.2%	562.6MB (56.2%) of 1001.2 MB	27.9 MB (2.7%) of 1022.0MB	3.20 s
Amazon cloud	36.5 KBPS	1.3 KBPS	126.5 MB	22.8 MB	49.0%	581.0MB (58.1%) of 1001.2 MB	33.8 MB (3.3%) of 1022.0MB	3.20

V. CONCLUSION

From the tests that are made by using system monitor program on web applications to compare the performance of Owncloud Vs. and Amazon cloud, the following could be concluded:

- 1- Ratio of receiving data in Amazon Cloud is higher than ratio of receiving data in Owncloud, that's due to that Amazon cloud server has Default 8 G storage verses Default 5 G storage in Owncloud server .

- 2- Ratio of sending data and Ratio of CPU utilization in Owncloud are higher than that in Amazon cloud, because the setting in Owncloud is on private computer, while the setting in Amazon cloud is on Amazon computers that just have hosted on it.
- 3- Concede that the Owncloud is more secure than Amazon cloud because it is a private cloud, in opposite to the Amazon cloud, which is owned by Amazon company, i.e. to be installed and configured by the Amazon developers.
- 4- All other tests are almost same.

The selection of the suitable cloud is related to the requirements of the application, briefly, Amazon cloud provides speed, while Owncloud provides security.

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