User's Involvement in Cloud Selection Exercising Cloud Broker

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***Abstract*– Cloud computing is the need of this era. It is the power house in the sense of demanding services, computing power, accessibility, scalability, transparency, efficiency, fault-tolerance, cost-effectiveness, interoperability, and portability. Authors have the believe, that processing power is or will be out of the scope of single processor, so need of distributed computing arose, and hence because of aforementioned properties cloud computing jumped in to give the pleasure of computing. Furthermore, it is an emerging technology and its rapidly growing span will soon make it a necessity of life. Similarly, to make strengthen this vision, authors have thought that a number of clouds that are available now or in future are huge, so how user will evaluate each of them. Since every new technology that emerges mainly focuses users so that it can prosper with user comments. Same is required in cloud computing. User involvement in cloud selection will force service providers to compete each other in providing better, cheap and fast services to users. To achieve the same purpose, cloud brokers could be used which can serve as an intermediary between service providers and users. In this paper persons responsible have made use of broker cloud to facilitate user involvement in cloud selection as per requirement accordingly.**

***Keywords*–** Broker Cloud, Agent and XMPP

I. INTRODUCTION

Cloud computing has gained much popularity in very small time. Different features of cloud computing is presenting multiple benefits to users from different areas of life. Why users are migrating towards this technology? The answer is due to its flexibility and characteristics like pay-as-go, on demand services, scalability, quick and fast response etc. User is mostly concerned with the services he needs rather than who provides them and how. There are many service providers offering different services but there are few problems. First, there are no performance measurement standards, which can measure performance of different service providers. Every service provider has his own standards which cannot be acceptable by all. Second, User is not given rates per unit time of different services available on different clouds. Third, User may not be aware about different cloud provider services in context of different characteristics. Keeping in view these problems, authors are going to propose a solution with the element of broker cloud: which provide facility to make possible user involvement in selection of cloud as per standard, rate, no of VMs (virtual Machines) available, percentage load of particular service, services available on particular cloud and performance, so that user is satisfied to work with a particular cloud provider.

A broker cloud is basically a common interface showing features of multiple clouds. It operates outside of the clouds. Furthermore, it would help to provide the single interface to all the clouds. Hence it will increase the exercise of clouds in our experience.

Now, rest of the paper is divided as follows: Section II shows the architecture of our proposed solution and also describes working mechanism of our proposed solution and section III is the conclusion of our work.

II. PROPOSED ARCHITECTURE

Broker cloud will be having agents which are to match user requirements with information stored in database and to bring relevant information from other clouds if requirements are not matched. Agent stores updated information in database; information includes: requested service or resource load on different clouds, resource or service categories on different clouds, distance that has to be covered to reach to different clouds.

When a user connects to broker cloud, agent would get activated and take user request (user request will be a simple query about a particular service or resource which he needs), it will match user request with the information stored in database. Broker cloud database will store information about all near by clouds. Two cases could arise here:

Case I: If request is matched, agent will fetch all information of different clouds related to user query. Agent will display all relevant information on user screen. User will then select appropriate cloud matching his needs and will forward his request to the agent of that particular cloud.

Case II: If request is not matched with database, agent will prompt XMPP server to discover nearby clouds and their services [1]. XMPP (Extensible Messaging and Presence Protocol) is a set of open XML technologies for services discovery and secure real time communication. XMPP will respond with information about near by clouds and their services. Now the broker agent will broadcast a query to all clouds having matching service or resource.

Respective clouds' agent will entertain the query and will return all related information stored in their databases. Broker cloud after receiving all information from different clouds will save them in its own database and will display the same information on user screen. User will then forward his request

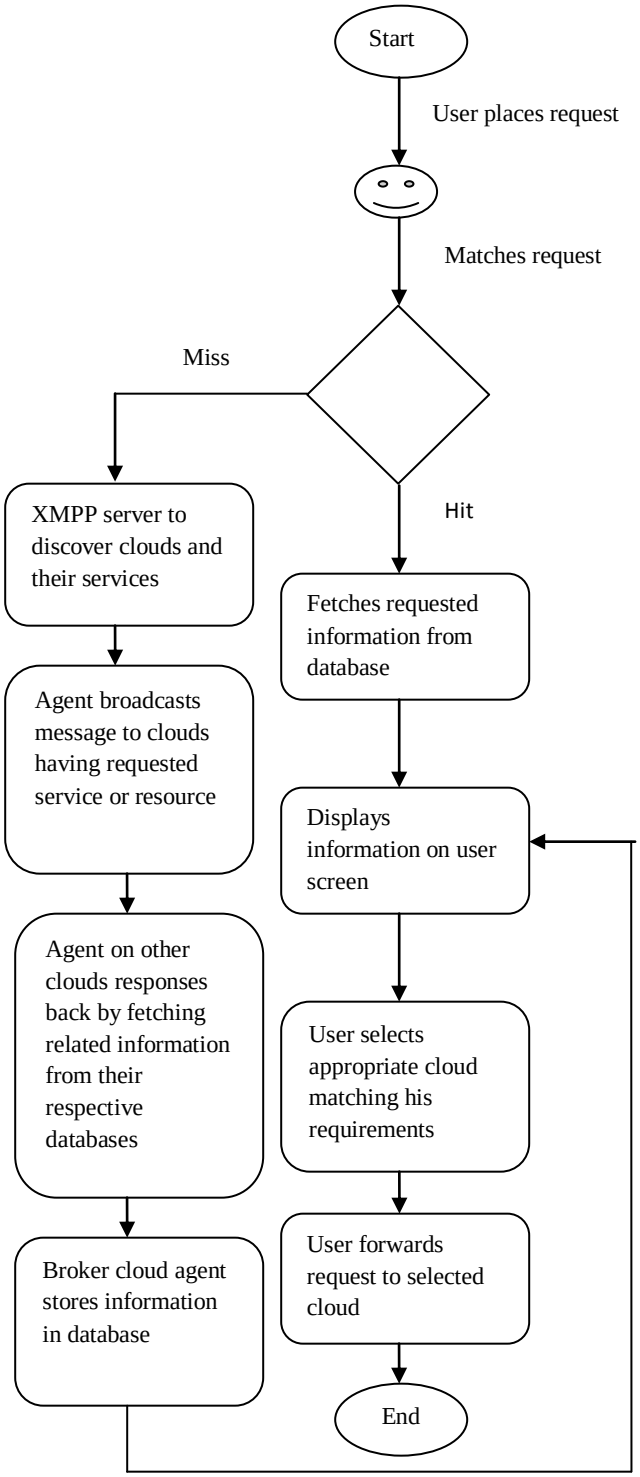


Figure: 1 Flowchart of proposed architecture

to selected cloud. The flow chart of above architecture is shown in Fig: 1.

How Information is calculated by clouds about their own environment?

a) MAP (Mobile Access Place) calculates services workload percentage on its underlying VMs (virtual Machines). MAP here acts as hypervisor layer connecting all VM having similar features. MAP performs workload calculation on each VM.

b) MAP sends calculated data to TS (Task manager) plus information about the resources residing on it (free + under use resources). TS is responsible for billing, resource indexing, disaster management [2] etc.

c) TS stores this data into database and adds cost per service in per unit time or cost of per resource in per unit time. TS manager is responsible for billing [2].

The architecture of broker cloud is shown in Fig. 2.

Abstract view of the proposed solution is shown in Fig. 3.

Database entries that are returned to users are shown in Table 1.

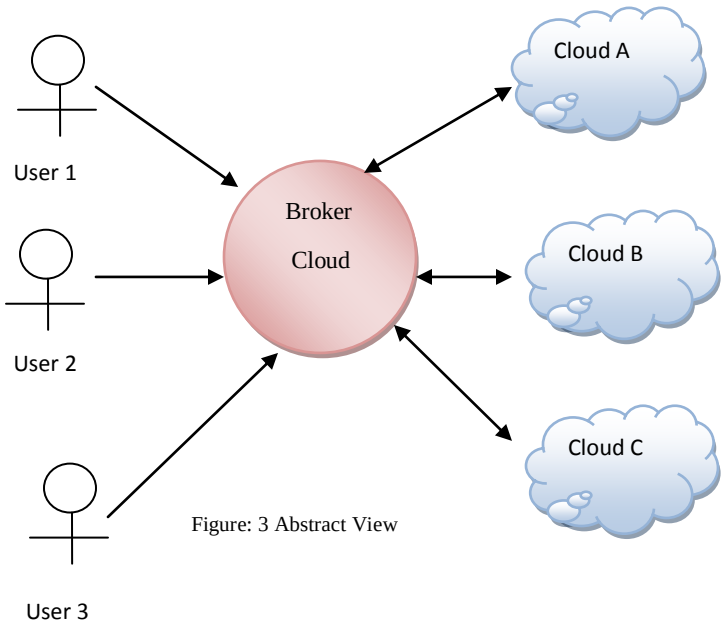
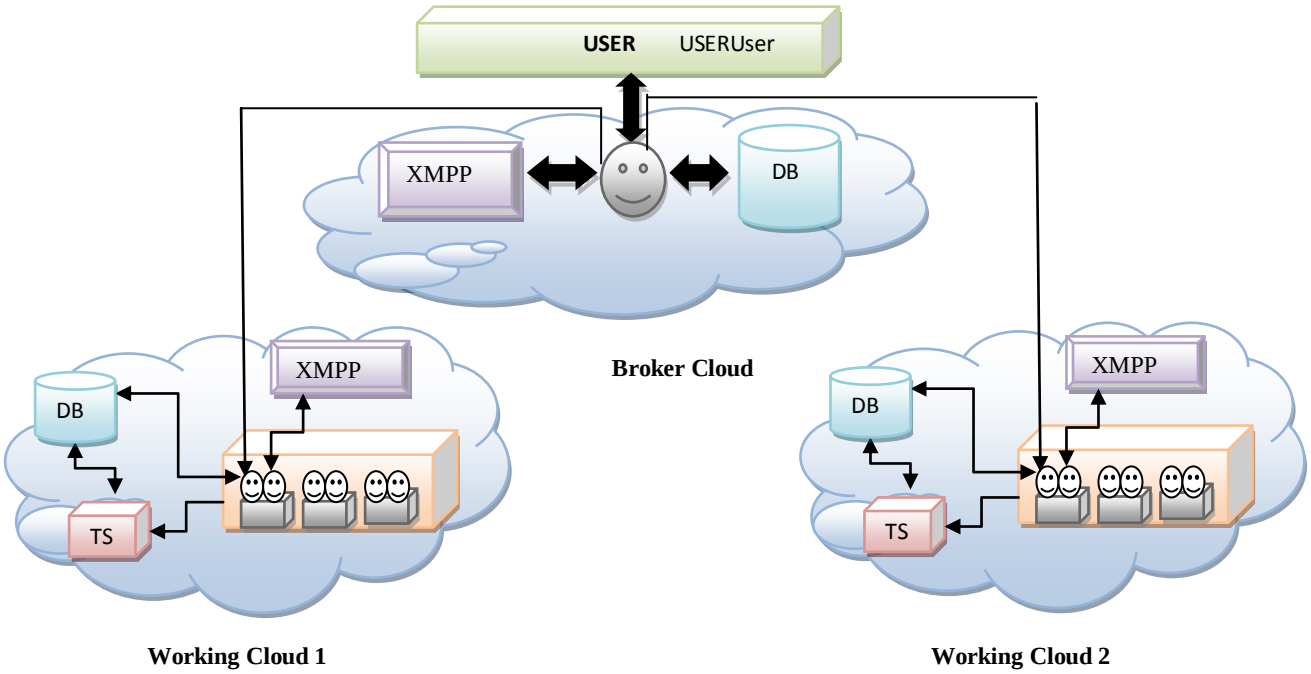


Figure: 3 Abstract View

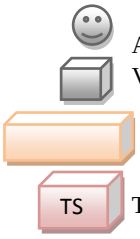
III. CONCLUSION

Cloud computing is still in its infancy stage but the benefits IT world has gained from it are much mature. Many IT companies are now investing in cloud computing to facilitate users at a click. Cloud computing has to be searched more to irradiate the dangers still associated with it. Much of the dangers are due to lack of standards. Once standards are being designed for cloud computing, quality services would be provided to users. Standards must be designed keeping in view user's ease and comfort and for this user involvement is a must in designing standards. In this paper we have tried to put user on main canvas so that he himself can compare performance and cost of services provided by different service providers and can select himself what is good for him.



XMPP: Extensible Messaging and Presence Protocol
DB: Database

Figure: 2 Architecture of Broker Cloud and how it communicates with other working clouds



Agent
Virtual Machine
MAP: Mobile Agent Place
Task Manager

Table 1: Database entries as displayed on user screen

Cloud	Service / Resource	# of HOPs	MAP	% Load	# of VMs	Cost of service / time or resource / time
B	HTTP	30	HTTP-MAP	30%	05	150$
C	HTTP	20	HTTP-MAP	20%	02	50$
B	Memory	30	SMTP-MAP	10%	03	10$
C	Memory	20	SMTP-MAP	25%	05	15%

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