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Semantic and Trusted Cloud Service Selection Based On Context and Credible

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***Abstract*— Cloud services is diversity in nature, a challenging problem for potential cloud consumers is how to select the most suitable cloud service, for any cloud service the subjective assessment from a cloud user in a context may be much different from that of different user in a different context. Hence, the effectiveness of cloud service selection approaches can be significantly affected by all these factors. Cloud service selection model based on the comparison and aggregation of circumstantial subjective assessment and objective assessment. An objective assessment of a cloud service is applied as cloud framework to dribble out biased subjective assessments since objective assessment through scientific and statistical analysis is usually perfect than the users' subjective feelings. The credit assessments include feedbacks that include ratings and reviews. Reviews are extracted using text mining process. Then process of such filtering is based on the context sameness betwixt objective assessment and subjective assessment. The more similar the context, the much reliable subjective assessments, and then the benchmark level are dynamically adjusted. After such filtering, the final aggregated conclusion based on the rest assessments can reflect the overall performance of cloud services according to potential users' personalized requirements. Finally providing Semantic web service for user preferred trusted web services in consideration of objective assessment.**

***Index Terms*— semantic cloud service selection, subjective assessment, objective assessments, credibility of cloud user, context similarity.**

I. Introduction

The web has been a phenomenal success at enabling simple computer/human interactions at Internet scale. The original HTTP and HTML protocol stack used by today's Web browsers has proven to be a cost-effective way to project user interfaces onto a wide array of devices. A key factor in the success of HTTP and HTML was their relative simplicity both HTTP and HTML are primarily text-based and can be implemented using a variety of operating systems and programming environments.

Web services take many of the ideas and principles of the Web and apply them to computer interactions. Like the World Wide Web, Web services communicate using a set of foundation protocols that share a common architecture and are meant to be realized in a variety of independently developed and deployed systems. Like the World Wide Web, Web services protocols owe much to the text-based heritage of the Internet and are designed to layer as cleanly as possible without undue dependencies within the protocol stack.

An important area in which Web services differ from the World Wide Web is scope. HTTP and HTML were designed around "read-mostly" interactive browsing of content that is often static, or at least highly cacheable. In contrast, the Web services architecture is designed for highly dynamic program-to-program interactions. In the Web services architecture, many kinds of distributed systems may be implemented. Examples include synchronous and asynchronous messaging systems, distributed computational clusters, mobile-networked systems, grid systems, and peer-to-peer environments. The broad spectrum of requirements in program-to-program interactions forces the Web services protocol stack to be much more general purpose than the first Web protocols. However, like the Web, Web services rely on a small number of specific protocols.

Web service protocol composition is based on the modular architecture of SOAP. SOAP's architecture anticipates the composition of infrastructure protocols through the use of a flexible header mechanism. One advantage of this approach is that the protocol surface area for a particular application is based on the actual features used by that application. A given protocol imposes absolutely no cost to applications that do not use it. Software operating on computing devices of various scales can use the exact protocols they need, maximizing the applicability of the architecture. A second advantage is that new protocols can be introduced at any time to complement the existing ones and extend functionality. The ability to innovate is thus built-in to the architecture. The challenge of getting a coherent and comprehensive view of the spectrum of available protocols is real.

A. *Benefits of web service*

1. Interoperability

This is the most important benefit of Web Services. Web Services typically work outside of private networks, offering developers a non-proprietary route to their solutions. Services developed are likely, therefore, to have a longer life-span, offering better return on investment of the developed service. Web Services also let developers use their preferred

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programming languages. In addition, thanks to the use of standards-based communications methods, Web Services are virtually platform-independent.

2. Usability

Web Services allow the business logic of many different systems to be exposed over the Web. This gives your applications the freedom to choose the Web Services that they need. Instead of re-inventing the wheel for each client, you need only include additional application-specific business logic on the client-side.

3. Reusability

Web Services provide not a component-based model of application development, but the closest thing possible to zero-coding deployment of such services. This makes it easy to reuse Web Service components as appropriate in other services. It also makes it easy to deploy legacy code as a Web Service.

4. Deployability

Web Services are deployed over standard Internet technologies. This makes it possible to deploy Web Services even over the fire wall to servers running on the Internet on the other side of the globe. Also thanks to the use of proven community standards, underlying security (such as SSL) is already built-in.

B. PROJECT DESCRIPTION

Cloud services have become increasingly popular. Many individuals and organizations have started to consume cloud services in their daily work because of their many advantages, such as unlimited resources, flexibility, low-cost and especially the pay-as-you-go pattern. Due to the diversity and dynamic nature of cloud services, selecting the most suitable cloud service has become a major issue for potential cloud consumers. Prior to cloud service selection, an evaluation of cloud services should be performed first. There are two types of approaches which can be used to conduct such an evaluation. The first type of approaches is based on objective performance assessment from ordinary QOS parameters (Quality-of-Service, e.g., service response time, availability and throughput) and predesigned benchmark testing

As cloud services are highly virtualized, some methods and tools for traditional IT computation measurements can be appropriately applied in cloud environments. By combining these methods and tools ac-cording to the characteristics of cloud services, many metrics can be quantitatively assessed (e.g., the speed of CPU and I/O). The second type of approaches is based on ordinary consumers' subjective assessments extracted from their subjective ratings for every concerned aspect of cloud service .In this type of approaches, cloud services are usually treated like traditional web services, thus some rating based reputation system can be utilized for cloud service selection.

Nevertheless, these two types of cloud service evaluation approaches have their own limitations. That is because, firstly, objective performance assessment can only be carried out for the performance aspects which can be easily quantified. Conversely, objective assessments are not appropriate for those aspects which are quite hard to quantify, such as data security, privacy and after-sales services. On the other hand, subjective assessments have the risk of inaccuracy since users' subjective feelings are very likely to contain bias and not to reflect the real situations of cloud performance.

In addition, as cloud consumers who give subjective assessments are usually distributed throughout the world, for any cloud service, the subjective feelings of a cloud consumer in a particular context may be much different from those of another consumer in a different context (e.g., morning in Sydney vs. afternoon in Paris). There may also be malicious consumers who give unreasonable subjective assessments to deceive others and/or benefit themselves in some cases. As a result, the accuracy of overall subjective assessments for cloud services can be significantly affected.

Furthermore, the credibility of cloud users who provide assessments has a strong influence on the effectiveness of cloud service selection. In cloud environments, cloud users can be generally classified into two classes according to the different purposes of consuming cloud services. The first class comprises ordinary cloud consumers whose purpose is to consume a cloud service having high quality performance and spend as little money as possible. Such consumers usually offer subjective assessments of cloud services via feedback.
The second class comprises professional cloud performance monitoring and testing parties whose purpose is to offer objective assessments of cloud services to potential cloud consumers for helping them select the most suitable cloud services. In general, objective assessments are considered more reliable than subjective assessments due to scientific and statistical analysis. However, because objective assessments cannot reflect all the performance aspects of cloud services, cloud service selection based on the aggregation of both subjective assessments and objective assessments should be more effective than either type of approaches alone to reflect overall performance of cloud services.

II. RELATED WORKS

A. Lyu.M.R, Wang.J, Wu.X, Zahang.Y and Zheng.Z et al [1]

Cloud computing is becoming popular. Building high quality cloud applications is a critical research problem. QOS rankings provide valuable information for making optimal cloud service selection from a set of functionally equivalent service candidates. To obtain QOS values, real-world invocations on the service candidates are usually required. To avoid the time-consuming and expensive real-world service invocations, this paper proposes a QOS ranking prediction framework for cloud services by taking advantage of the past service usage experiences of other consumers. Our proposed framework requires no additional invocations of cloud services when making QOS ranking prediction. Two personalized QOS ranking prediction approaches are proposed to predict the QOS rankings directly.

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Comprehensive experiments are conducted employing real-world QOS data, including 300 distributed users and 500 real-world Web services all over the world. The experimental results show that our approaches outperform other competing approaches.

B. Srivastava.A and Sorenson.P.G et al [2]

Selecting the optimal service from a set of functionally equivalent services is non-trivial. Previous research has addressed this issue making use of Quality of Service (QOS) attributes of the candidate services. In doing this, researchers have however assumed that the customers' preference of the various QOS attributes varies linearly with the actual attribute values. In this work, we put forward a technique that overcomes this restriction and compares functionally equivalent services on the basis of the customers' perception of the QOS attributes rather than the actual attribute values. We utilize the 'mid-level splitting' method to track the customer's preference vis-a-vis the actual attribute values. Further, we utilize the 'Hypothetical Equivalents and Inequivalent Method to assign weights, reflecting the importance, to the attributes on the basis of the customer preference.

C. Lenk.A, Menzel.M, Lipsky.J, Tai.S and Offermann.P et la [3]

As part of the Cloud Computing stack, Infrastructure-as-a-Service (IaaS) offerings become more and more widespread. They allow users to deploy and run virtual machines in remote data centers (the Cloud), paying by use. However, performance specifications for virtual machines provided by providers are not coherent and sometimes not even sufficient to predict the actual performance of a deployment. To measure hardware performance, hardware benchmarks are available. For measuring the performance of virtual machines in IaaS offerings, these benchmarks are not sufficient, as they don't take into account the IaaS provisioning model where the host hardware is unknown and can change. We have designed a new performance measuring method for Infrastructure-as-a-Service offerings. The method takes into account the type of service running in a virtual machine. By using the method, the actual performance of the virtual machines running a specific IaaS service is measured. This measurement can be used to better compare prices between different providers, but also to evaluate the performance actually available on a certain IaaS platform. We have evaluated the method on several Cloud infrastructure offerings of the Amazon EC2 platform, Flexiscale platform and Rackspace platform to validate its utility. We show that already on EC2, the performance indicators given by providers, namely Amazon's Elastic Compute Unit, are not sufficient to determine the actual performance of a virtual machine.

III. PROPOSED DESIGN

In dynamic framework that contains multi-criteria assessment to provide service quality in secured manner. This framework contains four layers such as cloud selection service, benchmark testing management service, user feedback management service, and assessment aggregation service. The cloud selection service is responsible for accepting and pre-processing the requests for cloud service selection from potential cloud consumers. The benchmark testing management service is responsible for collecting and managing objective assessments of cloud services from different TPs through benchmark monitoring and testing. In addition, it can request some TPs to carry out some specific cloud performance tests designed according to potential cloud consumers' requirements. The user feedback management service is in charge of collecting and managing subjective assessments extracted from cloud consumer feedback. The assessment aggregation service is responsible for further processing assessments and returning the final aggregated scores of every alternative cloud service to the cloud selection service according to potential cloud consumers' requirements. Then calculate subjective and objective attributes. The attributes are privacy, after sales services, availability, response time and cryptographic calculation. Both services are aggregated and finally provide trustable services to end users.

A. Advantage

- Implement in multi cloud system.
- Provide trusted service to users
- Consider both objective and subjective assessments.
- Each and every service are tested by service provider.
- Rating based recommendation system can be implemented successfully.

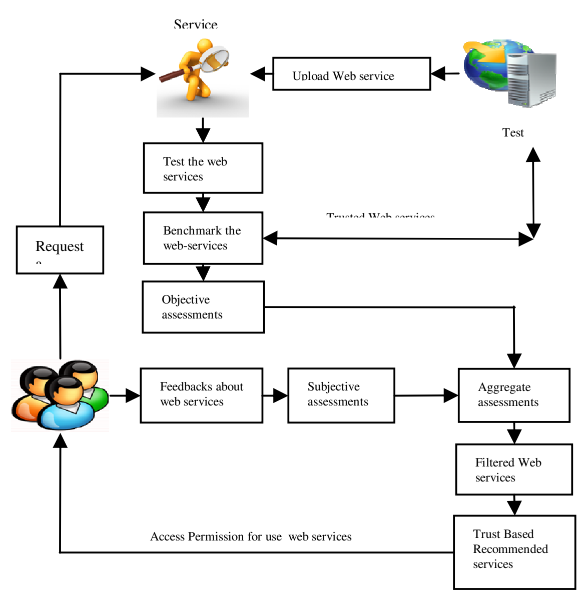

Fig 1 System Architecture

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B. Module description

- Cloud selection service
- Benchmark testing management service
- User feedback management service
- Assessment aggregation service
- Trustable web service recommendation

1. Cloud selection service

The cloud selection service is responsible for accepting and pre-processing the requests for cloud service selection from potential cloud consumers. Provide services which meet all the minimum quantitative functional or non-functional requirements

2. Benchmark testing management service

It is responsible for collecting and managing objective assessments of cloud services from different TPs through benchmark monitoring and testing. Each monitored or tested performance aspect of a cloud service can be considered as an objective attribute of the cloud service.

3. User feedback management service

The user feedback management service is in charge of collecting and managing subjective assessments extracted from cloud consumer feedback. Each aspect that consumers assess can be considered as a subjective attribute of the cloud service.

4. Assessment aggregation service

It is responsible for further processing assessments and returning the final aggregated scores of every alternative cloud service to the cloud selection service according to potential cloud consumers' requirements

5. Trustable web service recommendation

The potential consumer can also determine whether to put more trust on subjective assessments or objective assessments, so that the final scores of alternative cloud services can comprehensively reflect the various needs of different consumers.

C. Algorithm and techniques

1. cloud service selection via cccloud

The first step is to compute the similarity between two values from the same assessment feature. The second step is to model all contexts and their relevant assessment features as a graph and compute the overall similarity between contexts.

2. Steps for algorithm

Step1: Normalizing the values of subjective attributes
Step2: Normalizing the values of objective attributes
Step3: Computing the importance weight for each attribute
Step4: Determining the dynamic benchmark levels

IV. EXPERIMENTAL ANALYSIS

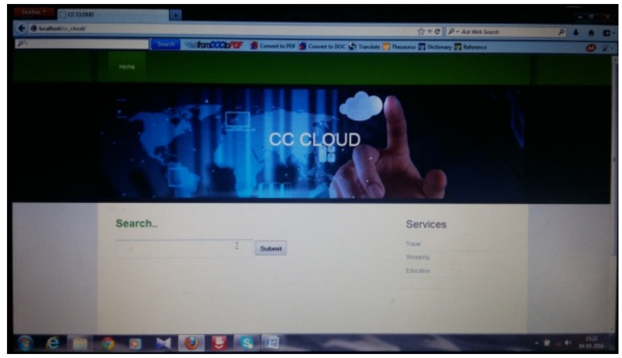

Fig 2 Search

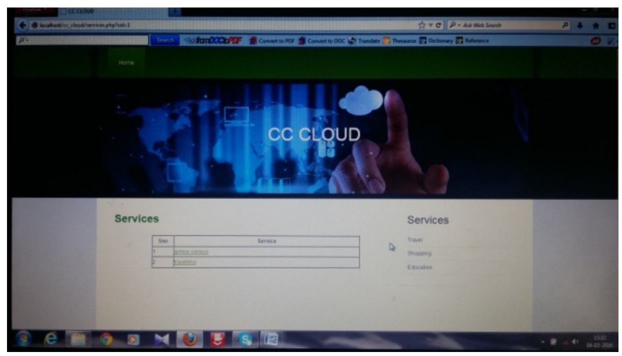

Fig 3 User Services

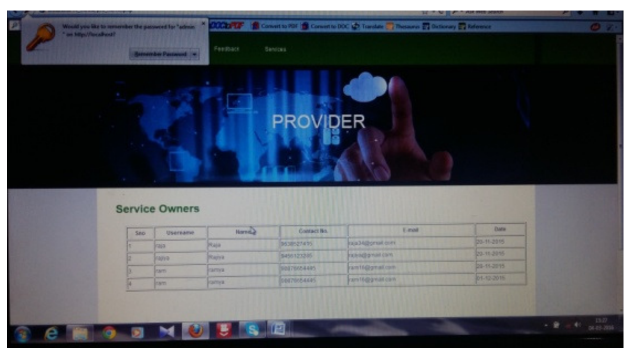

Fig 4 Service provider checks the user search

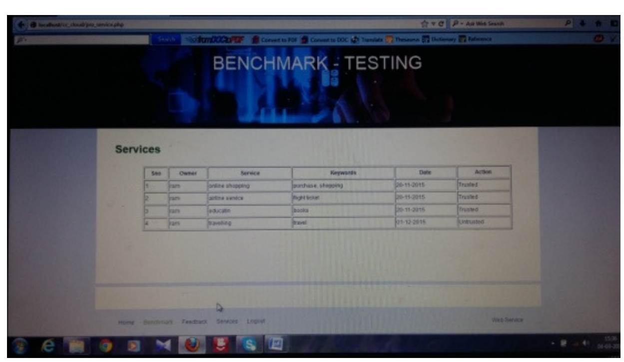

Fig 5 Benchmarking the service

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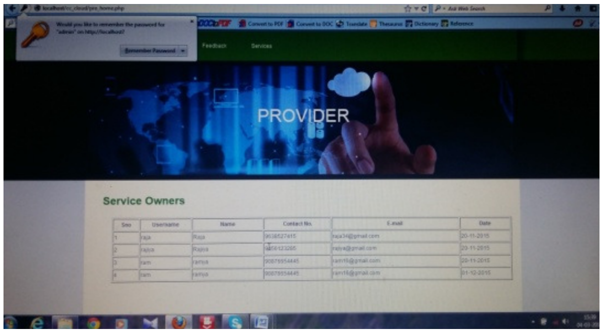

Fig 6 Providing trusted and semantic to users

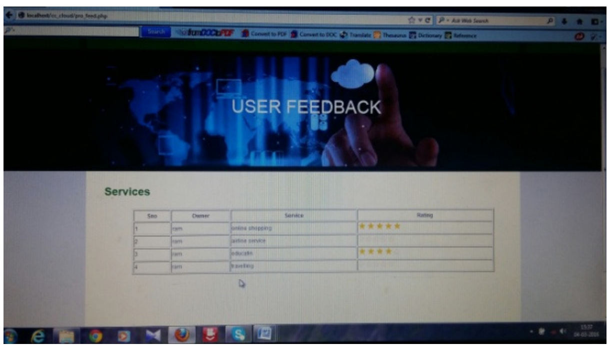

Fig 7 User feedback after using the trusted services

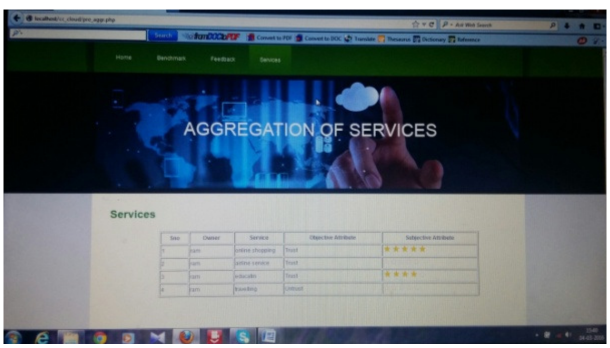

Fig 8 Aggregation of services

V. CONCLUSIONS

A model of context and credit aware cloud service selection based on comparison and aggregation of subjective assessment from cloud users and objective assessment from quantitative QOS monitoring and benchmark testing. This model provide a Semantic service for frequent searching of user and takes the contexts of both subjective assessment and objective assessment into account, and uses objective assessment as a benchmark to filter out unreasonable subjective assessment. The process of such filtering is based on a group of dynamic thresholds which are determined by the similarity between the contexts of subjective assessment and objective assessment. The experimental results show that our context and credit aware model performs better than our prior cloud selection model which has no consideration of assessment contexts. Hence, the final aggregated results of cloud services based on our context and aware model can more accurately reflect the overall performance of cloud services.

REFERENCES

[1] Wang .J, Lyu .M.R, Zheng. Z, "QoS ranking prediction for cloud services," (2013) IEEE Trans. Parallel Distrib. Syst.

[2] Srivastava.A and SorensonP.G, "Service selection based on customer rating of quality of service attributes,"(20101)in IEEE International Conference on Web Services (ICWS).

[3] Lenk .A, Menzel. M, Lipsky .J, Tai .S, and Offermann .P, "What are you paying for? performance benchmarking for Infrastructure-as-a-Service offerings," (2012)in IEEE CLOUD

[4] Kandula. S, Li. A, Yang X,, and Zhang.M, "CloudCmp: comparing public cloud providers,"(2010) in Internet Measurement Conference.

[5] Loesing. S, "How is the weather tomorrow?: towards a benchmark for the cloud,"(2009) in ACM SIGMOD Conference - DBTest Workshop.

[6] Huang.X, Li.M, and Zhou.L, "Evaluating services on the cloud using ontology QoS model,"(2011) in IEEE International Symposium on Service-Oriented System.

[7] Srivastava.A and SorensonP.G, "Service selection based on customer rating of quality of service attributes," (20101) in IEEE International Conference on Web Services (ICWS).

[8] Malik.Z and Bouguettaya.A, "RATEWeb: Reputation assessment for trust establishment among web services," (2009) *VLDB J.*

